THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage.

EDITED BY HENRY STURMEY.

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THE AUTOCAR.

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Notes.

The first day of the Automobile Club tour, which commences next Friday, was originally intended to terminate at Oxford, but as next week will be the University "Eights" week, and as consequently Oxford will be full to overflowing, it has been decided to continue the tour to Abingdon, where the headquarters will be the Crown and Thistle. The rest of the tour will be continued on the lines already indicated in these columns.

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The long-looked-for twelve horse-power Panhard racing carriages have at length made their appearance, and the burning question among the sporting set of French autocarists is whether the sixteen horse-power Peugeot which, driven by Lemaitre, won all the races in the Riviera, will prove itself equal or superior to the lower-powered Panhard. Of course, power means much, but it does not mean everything, and with its perfect finish and workmanship, easy steering and control, and comparatively light weight, it is quite likely that the lower-powered carriage may prove itself not only the equal, but the superior, of the bigger machine.

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Shortly after the incorporation of the Washington Automobile Co. at Washington, U.S.A., the manager of the local branch of the Pope Mfg. Co. invited the officers of the company to test the Pope carriage. The invitation was accepted, and the results were so satisfactory that the company immediately placed an order for sixty Columbia electric vehicles, and they will soon be running on the streets of their city. Besides this carriage service the company will also work a line of omnibuses to carry sixteen passengers each, which will traverse sections not having tramway facilities. All the rolling stock of the company will be driven from electric storage batteries.

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Mr. George Dresden, of 42, South John Street, Liverpool, the English agent for the Porteous-Butler machines, writes us that if any of our motor cycling readers are desirous of entering a competition, or undertaking a test against any other make of machine, either in hill-climbing or speed, he will be willing to lend them his machine, which he has at present in Liverpool. It is fitted with a two and a quarter horse-power motor, and he guarantees it equal to doing thirty-seven miles an hour with a second rider carried. Mr. Butler informs us that in Paris twenty-one miles have been covered in thirty-four minutes with a second rider up upon one of these motor quadricycles. Perhaps some of our speed-seekers may be interested to have this information.

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Amongst the fortunate purchasers who have recently received delivery of the latest type Panhard carriages, after many weary months of waiting, we notice the following: Baron von Zuylen de Nyevelt, the Hon. Dugdale (Warwick), M. De Camondo, M. Ephrussi, M. Bishop, the Marquis De Jalhouet-Roy, Count D'Ancourt, Count De St. Phalle, Count De Contades, Duc D'Uzès, and Baron Jean De Bellet. H.R.H. the Princess of Hohenlohe has also become an enthusiastic autocarist. She took lessons every day in driving in the Bois de Boulogne, and has now bought from Charron a beautiful little six horse-power racing carriage, on which she intends driving to Baden. The Grand Duchess of Mecklembourg Strelitz has also ordered one of the newest motor carriages.

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A writer in *The People* says: "A day or two ago I was privately and secretly told of an entirely new form of motor for bicycles. Wild horses shall not wring the secret from me, but unless I am incapable of realising the mechanical advantages of the invention, I may say that the mechanism is sure to be fitted to nearly every machine, so soon as it is placed upon the market. A certain amount of pedalling power is necessary, but so slight is this that a machine for a lady can be fitted with a 500 gear, and will rattle up hills at any pace the rider pleases. The motor is not larger that a small brief bag, and is not ungainly to look at. It has no smell, and does not vibrate." We fancy we have heard of this motor before. As they say in Yorkshire, we believe it "coms fra Shefful'."

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Our contemporary *The Daily Mail* asks the question, "Where does a motor cycle end, and where does a motor car begin?" and puts forward the following definition of a motor cycle, viz., "A vehicle propelled by a mechanical motor with or without means for using muscular power as well, and which weighs without passengers or fuel less than 500 lbs." We cannot say, however, that this definition at all appeals to us. As our readers know, the definition which *The Autocar* laid down some three years ago was that a motor cycle should be defined as being a motor vehicle which *could* be propelled partly or entirely by the feet of the rider. It would be, we think, absurd to class a little vehicle like the Decauville, for instance, as a

motor cycle, which would be the case were we to accept *The Daily Mail's* definition.

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Our Epsom correspondent writes: "Members of the local golf club were much interested the other day to notice Lord Rosebery and a party of friends proceeding along the road by the racecourse in a large and handsome automobile carriage. The ex-Premier seemed to find no difficulty in managing his vehicle, and it might be even suggested that he was proceeding at a rate of speed not entirely in accordance with the regulations of the Urban District Council, of which he has recently become a member. It will be remembered that in one of his speeches Lord Rosebery prophesied that the winner of the Derby of the far future would lead in his victorious motor car. Perhaps the distinguished statesman is taking time by the forelock, and putting his prognostications in a fair way to become accomplished facts."

* * *

Motors and milk. The phrase is alliterative, and embodies a substantial and encouraging fact, for at Eccles, in Lancashire, a motor milkcart has been tried with the best results. The expenditure in doing eighty miles per day, and saving the work of three horses, is, exclusive of the wages of the driver, only a shilling per day—just over a penny for every ten miles. And there has been nothing for repairs. The motor milk distributor has been employed for about two months, and so far there has not been a single mishap. Moreover, trade has been increased. This is not surprising, considering the excellent advertisement obtained by the use of the new vehicle in a new line. It is no wonder that other motors are to be introduced into the "milk-walks" of the district. The experiment, indeed, shows the profit and advantage of keeping up with the times. And yet there are people who still doubt, or profess to doubt, the future of the "horseless carriage."

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Last week we referred to the successful motor car chase and the capture of an alleged swindler at Northampton, and Mr. F. Frentzel, the works manager of the Automobile Association, Ltd., tells us that the other day one of his firm's mechanics performed a similar office on a Barrière tricycle. It appears that a loafer was impressed favourably by a coat temptingly displayed in front of a house in Holland Park Avenue, where it had been laid by a workman in the Water Co.'s employ, and the idler promptly seized it and bolted with it. The lawful owner ran after the transgressor, as also did a couple of constables, but the thief was fleet of foot, and began to clear his pursuers, when up came the Automobile man on his tricycle. He at once grasped the situation, and by exceeding the legal speed limit, atoned for his offence by overtaking the thief, who was so pumped by his exertions that the motor tricyclist simply held him tightly, sitting on his machine till the puffing policeman arrived.

* * *

It will naturally be some time before a practical knowledge of motors, cars, and their construction is spread throughout the country, and until that knowledge is pretty generally diffused it will always be more or less a matter of some uncertainty and risk for owners of cars to place repairs and adjustments in the hands of ordinary cycle and other repairing depôts, so that it will be of considerable value to the automobile world when the Automobile Club issues (as we believe it proposes to issue) a list of qualified repairing firms. We are led to these remarks by the unfortunate experience of one of our readers in the South of England, who stored his car at one of these places, and found it so badly kept after a couple of days' storage that all its plated parts were rusted, whilst the overhauling which had been undertaken was, according to our correspondent, not only badly done, but overcharged for, and, to cap all, some of the owner's belongings which had been left in the car were missing.

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From Mr. Chas. E. Duryea we learn that his new vehicle, to which we referred recently in these columns, weighs only 850 lbs. when loaded with water and gasoline, or 700 lbs. empty. It can, Mr. Duryea says, make a mile in 1m. 50s., and will climb the steepest hills, or run on the muddiest roads in Peoria. Mr. Duryea pins his faith to the single steering wheel on the ground that it is cleaner, lighter, and costs less than two steering wheels. He also claims that it steers better, and is more suitable for use in the country in which it is made, where ruts exist to a very large extent. In Mr. Duryea's new motor, with which this car is fitted, three cylinders, instead of two (as in the vehicle already known on this side), are used, and there is no countershaft. At ordinary speeds there are no gears running, and all the machinery is in the body of the vehicle, and accessible from the top when the seat is removed. The price at which the machine is being sold, and which Mr. Duryea informs us he is readily obtaining for it, is $1,200.

* * *

Chains have, as many of our readers know, been one cause of trouble in motor-car construction, and therefore any improvement in the construction of this very necessary part of the present-day vehicle will be of interest. In this connection the Albert Eadie Chain Co., of Redditch, a firm very well known in the cycle chain industry, have entered the lists, and have sent us a sample of a motor car driving chain which they are placing on the market. This chain is of what is known as the twin-roller order, constructed to 1¾in. pitch, and in producing it the Eadie Co. claim that chain makers who have hitherto attempted to produce a motor chain have not given the matter the consideration it deserves, but that in designing their chain the strain which a motor chain has to stand has been carefully calculated. In the construction of the chain hardened rivets and hardened bushes are used, so that not only are the two points in contact of that temper which is so necessary for the life of the chain, but the rollers themselves are hardened as well. Upon an inspection of the chain it appears to us to be excellently constructed, and is finished in a way characteristic of the Eadie Co.'s productions.

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Last week Mr. A. Valintine, of Leamington Spa, was summoned for the heinous offence of driving a motor car through the parish of Kenilworth, Warwickshire, on April 27th, which did not show a red light in the reverse direction to that in which the car was proceeding. This, of course, was a literal infraction of the law, and the Kenilworth police officer, not being overburdened with work, noted the fact. Although Mr. Valintine was burning three

lamps which showed a powerful white light forward, and as soon as the policeman mentioned the matter to him, he rigged up then and there a red back light, it saved him not, and the Warwickshire County Bench, in their bucolic wisdom, fined him £1, including costs, though, of course, he had endangered no one; his one sin was that he had infringed the letter of the law. It is significant to note in the local paper which reports this case that immediately underneath the report of Mr. Valintine's prosecution is a case in which a waggoner was summoned for making a brutal assault on a woman, which included hauling her around by her hair. For this playful conduct he was fined precisely the same sum as the autocarist. Well may Englishmen satirically refer to "justices' justice."

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The Leicester Motor Car Co., who are now running three cars, have established regular services between Leicester and Mountsorrel and Leicester and Anstey, the distances from the centre of the town to these two places being about five miles each. Three services per day are arranged to each place, the cars commencing running at 9.30 a.m., and finishing about the same time in the evening. The fares are sixpence each way on each route, and the cars are so timed as to allow about ten minutes' stoppage at either end of the journey, the arrangement being that the cars leave Leicester in the morning on the first trip to Anstey, returning thence to Leicester, and then making the trip to Mountsorrel, taking the next trip to Anstey, and so alternating throughout the day. The service is being excellently patronised, and giving great satisfaction. Some of the cars are in great demand for private parties, and the company are already contemplating doubling their car equipment. On another page will be found an illustration of the members of the Watch Committee of the Leicester Corporation, who were taken for a drive before licensing the cars to ply as hackney carriages, so that they might know what manner of machines they were. All were pleased with their experience, and at once authorised the issuing of the necessary permits.

* * *

With the opening of the weather and the advancement of the year the demand for autocars and motor cycles is increasing by leaps and bounds, and, as we have so frequently prognosticated, by the time the summer comes intending purchasers will be simply unable to obtain deliveries. A few days since, in speaking to an importer, he informed us that in one district alone in the North of England he had sold over seventy motor tricycles this year. A call at Mr. Friswell's depôt on the Viaduct last week, and an enquiry as to the condition of trade, elicited the information that it was "too good," as deliveries could not be obtained in sufficient numbers. "Why," said the attendant, "last Tuesday we had five De Dion trikes delivered, and by five o'clock they were all gone." A chat which we had this week with Mr. Iden, of the Motor Manufacturing Co., further bore out the healthy condition of affairs, for that gentleman assured us that his one difficulty now was delivery, and the demand both for Daimler type *char-à-bancs* and waggonettes, and for De Dion type tricycles, was so great that all other types of autocars manufactured by the company had necessarily to be shelved, and he informed us that they were already a couple of months behind their orders—"Indeed," said Mr. Iden, "the trade has made more strides with us, at any rate, during the past two months than during the whole time of my connection with the company." All this is very encouraging, and goes to emphasise and corroborate the correctness of the views so frequently expressed in *The Autocar*.

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Some little correspondence has of late appeared in our columns and elsewhere on the subject of the National Cyclists' Union and its claim to control motor cycling. Now, with the object and intentions of the National Cyclists' Union we have every sympathy, but in claiming to bring motor cyclists in every respect under the same laws and conditions as riders of ordinary cycles it is claiming too much, and, as our American friends put it, has "bitten off more than it can chew." The chief trouble, however, with the N.C.U. appears to be that it does not know its own mind in the matter. In its official publication, *The N.C.U. Review*, which is just issued this month, a very clear and sensible position is taken up, and it is there laid down that all the Union desires to do is to control such riders of motor cycles who desire to take part in cycle meetings held under its rules, and this is a perfectly reasonable and, indeed, essential contention. The position, however, arrived at by that body on Friday night last, to practically proclaim the meeting of the Motor Car Club at the Crystal Palace on Saturday was, in our estimation, stepping entirely beyond its province. There were no cycle races at that meeting, except motor cycle races, and, although by a species of Machiavelian argument under the present unsatisfactory reading of the Union rules upon the subject, some people may persuade themselves that the meeting legitimately comes within the scope of Union work, we do not think any independent observer, or any autocarist, will agree therewith, and the sooner the Union withdraws from its untenable position the better. If the Union is to be logical it must equally proclaim the motor cycle road trials which will be held by the Automobile Club next month, as if motor cyclists are to be considered within the scope of Union regulations generally, all road contests are prohibited to them.

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The London *Evening News* asks, "How is it we do not see in the London streets the very neat and excellent motors and motor cycles and tricycles which are to be seen in large numbers in Paris? The English motor strikes one as a decidedly ugly, clumsy vehicle compared to the French one." Perhaps the best reply to this question will be to call attention to the prices which are being paid by autocarists in Paris for their carriages. For instance, the eight horse-power car driven by M. Girardot in the Paris-Amsterdam race last July was sold to Prince Orloof for £1,600 a few days after the race; M. René de Knyff sold his car to M. Albert Menier for £1,200; M. Charron, another demon driver, disposed of his to M. Dechamps for £1,440. Another of the Paris-Amsterdam cars changed hands the other day for £1,200, and quite recently the Hon. C. S. Rolls paid £1,200 for the carriage of Count Bozon de Perigord, which was driven to victory by M. Girardot in the St. Germain-Rouen race, and illustrated in our columns at the time. Of course, these prices are fancy ones, and

above the makers' charges, but, for all that, it should be borne in mind that English manufacturers cannot be expected to produce cars at a third or a quarter of the price which will compare with these magnificent and costly racing machines, the appearance and finish of which strike every one, and fill the soul of the man who can appreciate real class in an autocar with envy and longing. We do not say that our contemporary has erred in this respect, yet very many papers have referred in tones of despair to the high cost of the autocar. If any would-be purchaser is anxious to possess a car as good as, or better than, the smartest French vehicle, he has only to pay as high a price as the French autocarists cheerfully do for their machines, but until this is done the streets of London will not compare favourably with those of Paris from an autocar point of view. This deals with the big cars. So far as motor cycles are concerned we can only attribute the fact to our contemporary's imagination, as there are practically no differences in appearance between the French and English tricycles, though there are probably one hundred in Paris for every one in London, and "trailers" are even more rare.

Tours and Runs.

Under this head we shall always be pleased to insert notes descriptive of practical work by users of autocars.

MOTOR CARRIAGE REMINISCENCES.

By JOHN HOPE.

I have now had my motor carriage exactly a year. A year can scarcely pass, even with a horse carriage, without something happening, as I know too well, much more so then with a motor carriage, and the year, too, your first year.

It may, or it may not, be worth while recording the incidents that have marked that interesting interval of time, the first year; but those of this period are likely to be varied and instructive. After years may pass more smoothly, because of the lessons learned in the first—in fact, the first year is the apprenticeship of motor-car proficiency. But there are other incidents of a nature not growing out of our knowledge or want of knowledge of the carriage itself, but the unexpected happenings on the road, such as the prompt demand that may be made at any moment upon your tact and resource, to preserve your dignity, or to avoid a danger, etc. The sensation that will be caused by your carriage moving of itself on the mind of the public in country places where it has scarcely been heard of, and the effect it will have on your friends. The interest, the tone, the direction it will give to conversation are all incidents that crowd more the chapter of your first year, and distinguish it from after years. The eight or ten instances I herein give will serve to illustrate what I mean. The incidents are not, I think, recorded in chronological order. The names of some of the places mentioned will not be found on the map, nor are the names of the persons mentioned those they rejoice in, but the facts are there, and, as some of them are extraordinary, the reader will be pardoned if he accepts them *cum grano salis*.

In one of my drives last summer I passed through a small town and called upon some friends, one of whom said he would like to have a run in the carriage "just to be able to say that he had been in one," and to know what the sensation of its movements was like. Thinking it might result in a convert, I invited him to take the seat beside me. He did so, and, as we went along, he remarked that the motion was very agreeable. When I had gone as far as I thought was sufficient for the purpose, about a mile, I turned round to get back. In turning, my friend was on the outer side of the curve. The momentum of his weight (which might be about thirteen stones) caused him to think he was going overboard. To save himself, as he thought, he seized the ring under the steering bar, and in doing so obstructed the movement of the steering handle, causing the carriage to butt sq-arely into a wall on the side of the road. The foot brake was instantly and instinctively applied, so that there was no damage done to the carriage, only to the tool boot at the front, which served as a buffer, and to that very little. However, the sudden stop facilitated my friend leaving his seat and securing a footing on *terra firma*. He was not hurt, excepting his nerves, which he thought would not be uncrumpled again for a year to come. I could not convince him that he himself was the innocent cause of the mishap. "Would not ride another yard." "Would not give me an order for one, no, not if I would give eternal life along with it." "Would get home as best he could and make his will." "Felt to have about as little blood in him as the carriage itself had." "Would prefer to leave this world in the orthodox way."

I had, on another occasion, a companion with me on the seat who did a similar thing. We were running at the rate of about fifteen miles an hour on a nice straight road. There was a lumbering cart before us, and, in order to avoid this, I turned across the road and then to our own side again. The movement being very quickly done, my friend thought I was going to leave him behind. To frustrate this intention, he, like the other man, seized the ring with his left hand. In doing this, one of his fingers got jammed between the ring and the steering bar. The pinch caused him to snatch his hand back violently, when he nearly tore the nail from one of his fingers. He halloaed so vociferously that he could have been heard for half a mile around, and he startled the carthorse terribly. The moral is, have something suitable for a companion to lay hold of when your carriage makes a curve. This is one of the reasons for my putting rails round the back and sides of mine.

I have had some little experience in hill climbing. On one occasion I had a very stiff but short mount before me, not more than one hundred yards, but the road was soft and in bad condition. Three persons in the carriage. I ventured to attack it. Two or three yards short of the summit the engine slowed rapidly. I tried to compromise by turning the belt half off, that the engine might pick up speed, but the movement was too late, and the belt went off altogether. The carriage began to back down the hill; one of the three persons jumped off, leaving me with a young lady, who kept her seat during the incident. The band brake did not act with the backward movement of the carriage, and the other brake I dared not apply, as the "spoons" were set to the tyres like a chisel to a grindstone, and would, I was afraid, have torn them off. The speed accelerated with frightful rapidity. I shall never forget the sensation of that moment. I

turned in my seat as much as I could to enable me to see the road, and I steered my best as we ran backward down the hill. There was a ditch on one side. I kept the vehicle on the road fairly well, but such was the momentum acquired that, after reaching the foot, we went two hundred yards along the level before the vehicle came to rest. On the level I lost nerve a little, owing to the shouts of men and screams of women who were watching, which led me to think I was about to run over someone, hence it was that I ended with one wheel in the ditch. However, there was no harm done. An admiring crowd got around, some of whom evidenced their disappointment at not seeing more smash and slaughter; some complimentary and some very uncomplimentary remarks were made. As the speediest way of getting out of the dilemma, I jumped aboard and attacked the hill again, and mounted it splendidly, with only myself on the seat. When I got well on the top I waited for my two friends to join me, when away we went. Moral: Never attempt such a foolhardy exploit again without a "sprag" or a "devil," or its equivalent, to prevent the possible danger of such a situation.

I spent a week in Wales. I had a *compagnon de voyage*, Mr. Griff, a good-hearted fellow, kind and true. We had arrived at Bangor. It was Sunday afternoon. I wanted to get to a small town in Sir Fon that day, if possible, but was out of petrol, except what remained in the vaporiser, so we made our way to Messrs. Chas. Connah and Co.'s stores in High Street. It was Sunday; the person at the stores objected to supply us without first getting the manager's approval, and he lived in Upper Bangor. This was annoying, but I was not to be done. I sent a man with a horse and trap to find the manager, and get his approval or bring him to the place. In about an hour and a half he was found and brought to the stores. Then another impediment presented itself. The storekeeper had gone out on his bicycle and taken the key with him. What was to be done? "Burst the door open," said Mr. Griff, "and charge us with the damage." This was done; we got four gallons of petrol at 1s. 6d. per gallon only, Sunday, too (I have paid 2s. 6d. in some places). We then went on our way with more enjoyment, we thought, than if we had had no trouble. I mention this incident to show that I appreciate the kindness of Messrs. Chas. Connah and Co., who, I believe, are always most obliging to autocarists.

We paid 2s. 6d. toll for crossing the Menai Bridge, after which we made for Holland Arms. Unfortunately, we took a wrong turning and lost our way. We came to a hill which had to be mounted, or we must turn back and look for the lost road. I was not willing to turn back, so we attacked the hill. I shall never forget that hill. It was very steep, and we discovered as we got higher up that there was something worse than its steepness. It seemed as though a torrent of water had washed the earth away, leaving the red sandstone rock jutting up all over its surface. Mr. Griff dropped off, then I did, and both of us pushed with all our strength, but it was of no use, we came to a stand, perfectly helpless. After a while, Mr. Griff succeeded in getting the help of two strong labourers, so that there was now four of us. Even then it required all our strength, for we had to fairly lift the wheels over the jutting, jagging rocks. At the top the hill branched into a fairly good road. When rewarding the helpers I enquired if that hill had not got a name? One of them said it was called "Y Saith Aelwyd" (the seven hearths). The other said it was often called "Gallt y Bwgan" (the Devil's Hill). Ah! that is much more appropriate. I hope I shall never find it in my way again. These men actually replied that they hoped I should, "Os byddwn ni yma ich helpu."

"How is this?" asked Mr. Griff. "I thought that you, who take the ups and downs of life so very philosophically, would have regarded this incident merely as a relief to the monotony of plain sailing."

"You have not anticipated me correctly, friend. This journey is not unlike the journey of life. The 'Saith Aelwyds' are not common to either. They are the rocks ahead upon which the ship may wreck, unless the unexpected happens. How should we have fared now had we not have got the help we did? In life's journey that help is not always to be had in the nick of time, when, perhaps, the struggler succumbs and is submerged in the sea of the unsuccessful. No, we cannot regard such extremes as the 'Saith Aelwyds' as reliefs to monotony."

After another hour's run, Mr. Griff, who was *chaperon*, said, that being Sunday, we must not take the carriage into Llan-y-Foel, as the people were very religious, and would never forgive such a desecration of the Sabbath. Now, here was another hitch that was not previously counted upon. It was rather an irritating one too. "I would have you to know," I said, "that religion is a matter for the other days equal with Sunday, and that what is sinful on Sunday is equally so on Monday. Our religion, when genuine, will unobtrusively pervade the life of every day. It is a rema—"

"Esgusodwch fi, please," interrupted Mr. Griff. "Not so fast. It will require some generations to bring the Welsh people to your way of thinking. We shall get along better if we avoid treading upon the people's 'corns,' so let us leave the car behind tonight."

"Well, what are we to do, Mr. Griff, there is neither hotel, nor inn, nor house, nor penthouse on the road to shelter the car?"

We saw a windmill on a hill two or three miles off, so we made tracks for that as it was getting dark. We got permission to shelter the car in the windmill, which done, we walked on to the end of our journey, about a mile. Our friends were glad to see us, and were glad too that we had *left our vehicle behind.*

The next morning we were up early, and got the carriage down before the people were about. It was a very foggy morning, we could not see many yards ahead, and Mr. Griff asked me if I could explain the cause of fogs like this? I replied that it was a cloud surcharged with vapour, which came down to the earth by its own weight, in other words, attracted by gravitation. This explanation interested him greatly. "Then, according to that theory," he said, "we are really passing through a cloud?"

"Yes, that is how I understand it."

When the people got about and saw the mysterious carriage running to and fro without a horse, there was not only curiosity, but wonder, amazement, and a degree of alarm in some. "When did it come," they asked, "nobody saw you?" "Not likely,"

answered Mr. Griff, "we came in a cloud early this morning." Cloud! Cloud! Miraculous! This was literally believed to an extent that few people will credit. It was in a few hours spread over the town that we had come in a cloud. Some superstitious folk came to ask us if we had really come in a cloud? "Yes," said Mr. Griff. "Shall you go away again in a cloud?" "Can't say yet," replied Mr. Griff.

Now, they would not be Welsh people if they did not associate the new wonder with religion in some way, so they began speculating whether this little miraculous carriage, running about so lively, was not a fulfilment of some biblical prophecy.

On the evening of the second day we had been there, a deputation, headed by the proprietor of the Bull Hotel, presented itself at the residence of our friends to ask a favour. They said that themselves and their neighbours would regard it as an honour if "Elijah and his Chariot" would favour their street with a visit before the cloud came to take him away again. They said that the chariot had been running in the other streets but not in theirs, that they had many old people in their street who were infirm, and not able to get beyond their doorsteps, who had been sitting there all the day long in the hope of seeing the carriage pass by, but were disappointed. Of course, we acceded to their wish the next day. One old lady said to Mr. Griff that she "was ninety-four years of age, and felt that she had been on this earth long enough; she would like to go back with him. When would the cloud come?"

(To be continued.)

A MOTOR DEAL IN BELGIUM.

We had some interesting details the other day from Mr. Moffat Ford concerning his recent trip with the £100 prize Daimler van to Belgium. This van was purchased from the Moor Car Co., Long Acre, by a firm of steam carpet beaters in Belgium, and half the purchase money was paid upon the agreement to purchase, it being understood that the other half was to be paid on the van's arrival in Brussels. The car was landed in Antwerp, and started upon its thirty miles journey to Brussels. The road, however, being cobbles, and very bad cobbles at that, all the way, was rough enough to shake the whole machine to pieces, but it managed to arrive in Brussels after encountering a good many difficulties. Upon arrival at Brussels, its appearance and shape failed to appeal to the financial partner of the firm to whom it was sold. This gentleman refused to pay the balance, or to be convinced that the machine fulfilled the guarantees given at its purchase, and further objected to accepting the car on the ground that the date of delivery was a week or two behind time. Upon Mr. Moffat Ford taking the car back to the station, *en route* to England, and upon his return after an interval for lunch, he was confronted by the stationmaster with a document, and realised that the law had intervened, and seized the car, until any dispute that might have arisen was settled. This reveals a phase of Continental law which English suppliers may do well to note. Upon Mr. Ford attempting to remove the car, he was forcibly prevented by a *gendarme* from doing so. He thereupon invoked the aid of Her Majesty's Consul in the matter, and at once issued a writ against the contracting firm for the balance of the purchase money. Through the influence of the Consul, the case was heard in the Palais de Justice, upon the second day after. An expert was named by the court to carry out further trials and report. Under Mr. Ford's control, the car passed through the tests with flying colours, and the upshot of the matter was that the carpet beaters were ordered to pay the balance and all costs. We cannot say that we envy Mr. Moffat Ford his experiences. At the same time he deserves congratulation, for, during the two weeks he spent in Belgium, in spite of difficulties of weather and road, having to stop sometimes in the middle of the night to rouse peasants who could not speak a word, either of French or English, he managed to convince men against their will, and brought and won a lawsuit in the Belgium High Court of Justice.

A new firm has just been registered at Marseilles (7, Rue du Village) under the style of M. A. Dantin, to deal in cycles and motor cycles.

* * *

The meet of the Motor Car Club on Saturday does not appear to have made much impression on the daily press, the remarks of the writers in which are just as pessimistic and sarcastic as ever. However, those laugh longest who laugh last.

* * *

We have received a price list from the Star Motor Co., of Wolverhampton, which is worked in conjunction with the Star Cycle Co., of Stewart Street, Wolverhampton. The cars are of the Benz type, though certain deviations from the ordinary lines are made, whilst the motor tricycles are built on the De Dion principle.

* * *

The Electrical Review, of New York, offers three prizes for the best list of suggestions for a name by which autocars generally, and electrically-propelled autocars in particular, shall be known. Our contemporary does not like "autocar," "motor car," "automobile," or any of the other names which have been applied to it in work.

* * *

The West German Automobile Club is the name of a new club which has just been formed at Aix-la-Chapelle. It has been decided to inaugurate the new club by a race for motor cars and cycles between Aix-la-Chapelle and Coblenz, a distance of 144 kilometres, to be run off on Sunday next, the 14th inst. A gold medal is to be awarded to the winner, and a silver medal to each of the competitors who makes the journey under eight hours.

* * *

At a meeting of the council of the Liverpool Self-propelled Traffic Association, being the local centre of the Automobile Club of Great Britain and Ireland, held on the 1st inst., the following were appointed a sub-committee to conclude the arrangements for the forthcoming trials of motor vehicles for heavy traffic, viz., Messrs. John A. Brodie, M. Inst C.E., S. B. Cottrell, M. Inst. C. E., Doctor H. S. Hele-Shaw, M.Inst.C.E., Messrs. Henry H. West, M.Inst C.E., I. Walwyn White, hon. treas., and E. Shrapnell Smith, hon. sec.

THE LATEST DE DION CARRIAGE.

Nearly two years have elapsed since MM. De Dion, Bouton, et Cie. commenced to make experiments on a small motor carriage to carry from two to four persons, and after practically throwing the better part of half a dozen cars upon the scrap-heap, they have within the last four months produced as the result of their experiments one of the most practical small motor carriages that has yet been put upon the market. The success of this little carriage is now assured, for almost all who have been given a practical trial have ordered, and orders for no less than one hundred carriages have been booked, with one-third in cash paid down with order, as is the custom in the French engineering and automobile industry. It is well to remark that it is the strict rule with Messrs. De Dion and Bouton not to place any motor or vehicle upon the market until they have perfectly satisfied themselves as to its giving general satisfaction, hence the interest and belief which autocarists at large evince in the success of the little carriage under notice. This firm realised that a very extensive demand was rapidly growing in favour of a small carriage to seat two persons side by side, and scores of private people, as well as manufacturers of every description, have been making, or have made, a small carriage fitted with a one and threequarter horse-power De Dion motor. We personally know of at least twenty various carriages of this description in Paris alone, but from one cause or another none of them have been deemed worthy of being manufactured in quantities. It is obvious that the one and threequarter horse-power De Dion motor, although so successful for driving tricycles and tandem quadricycles on cycle lines, is not of sufficient power for a small comfortable carriage to carry two persons side by side.

In order to satisfy the enormous and growing demand for a more powerful motor on De Dion principles for use upon small carriages, this celebrated firm have been working for many months with experiments until they have now overcome the difficulties, so that they are able to put upon the market the type of motor so long sought after.

The motor for the small carriage under notice is three horse-power, fitted with radiating flanges for cooling purposes, but a small water jacket is fitted around the combustion chamber, and the circulation of water is assisted by a rotary pump, which drives the liquid through a set of radiating pipes fitted with gills. These ensure the circulation being constantly cooled to such a degree that it is never necessary to change or replenish water *en route*. This set of radiating pipes is fitted between the front wheels in the best position to ensure the utmost refrigeration from the air. Only about a glassful of water is evaporated every one hundred kilometres (sixty-two and a quarter miles). The small carriage represented in our illustration is only in its experimental stage as regards the seating part, as in the "voiturettes" supplied to customers the carriage body will be slung upon springs back and front.

All the mechanical portions, as well as the motor, are quite out of the experimental shop, and are already passing through the works in quantities. The framework is also decided upon, and only the carriage body will be improved before these vehicles are delivered to the public.

The whole mechanism is exceedingly simple. The motor is thrown in and out of gear by a friction clutch, which is manipulated from the wheel on the steering bar.

There are two definite speeds, giving twelve and thirty kilometres per hour, whilst the intermediate speeds can be regulated by the "advance sparking" device. Toothed gear is used, neither belts nor chains being fitted. On the steering column is a cross-bar governing the steering by a rack and pinion, whilst just beneath a steel wheel serves for throwing the motor in and out of gear, and also for changing the speeds. By turning to the right, the highest gear is thrown in; in the centre the motor is out altogether,

and turned to the left the slow speed is thrown in. There are no shocks or noise in changing, as the friction clutch and toothed gearing runs in an oil bath, and is easily worked without any possibility of jamming.

Lastly, two levers are fitted to the steering post, just above the wheel, for regulating the mixture of air and gas, also the advance sparking on similar lines to the De Dion tricycle.

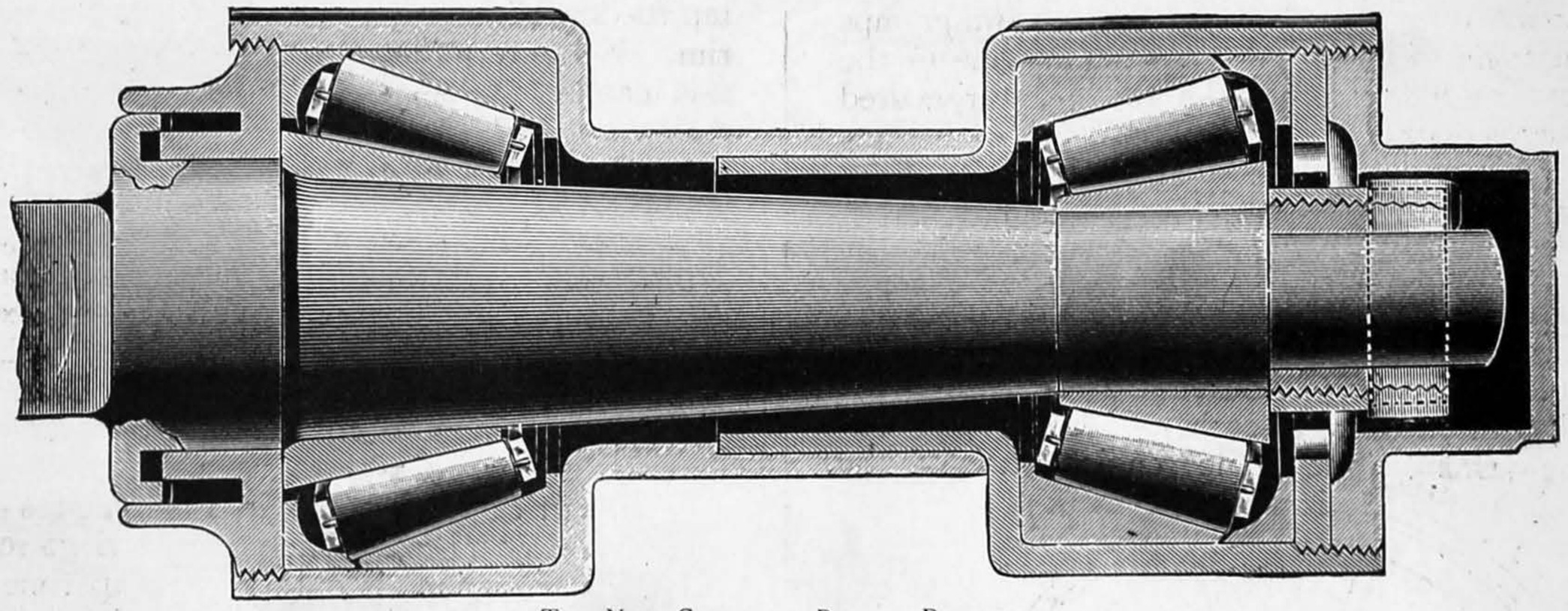
A new carburetter is fitted to regulate the flow of spirit automatically.

On the new model the wheels will be fitted on an axle with universal ball joints each side, as on the De Dion omnibus, so that all the road shocks will be modified. Large C springs will be employed, as well as transverse springs, in order to absorb vibration, and to ensure comfort to the persons seated in the car. The four wheels are of equal diameter, and are fitted with large-sized pneumatic tyres. Two powerful brakes are fitted, one to act upon the differential gear, and the other on the motor, so that the carriage can be instantly pulled up. One of the brakes is regulated by a pedal, as in the large motor cars, and which also throws the friction clutch out of gear, and the other pedal puts the brake on the differential gear, so that the carriage is under splendid control. The motor is placed at the rear, and the starting handle can be reached from the seat on the right side. Nothing is wanted to make this one of the most successful little carriages yet designed, and its popularity will be great when once it is upon the market, whilst its price will bring it within the means of many desirous of having a comfortable, elegant little car in which a lady and gentleman can drive anywhere, accompanied by, say, a couple of small children on the front seat, or on which they can take a moderate amount of luggage if on touring intent. The price (including British motor license plate) will be £175 without springs at back. With C springs at the rear of body it will be £190. Several of these carriages have already been ordered from England, simply upon the reputation of the De Dion Co.

AT HOME WITH THE TRADE.

No. 2.

WITH MESSRS. J. W. AND T. CONNOLLY, AT KING'S CROSS, LONDON, N.



THE NEW CONNOLLY ROLLER BEARING.

Finding such constant references in our correspondence columns to the excellence in practice of the "Ideal" tyres made by Messrs. J. W. and T. Connolly, as used upon Benz and other autocars, we dropped in a short time since upon the firm at Wharfdale Road, King's Cross, and spent a very pleasant hour in investigating their process.

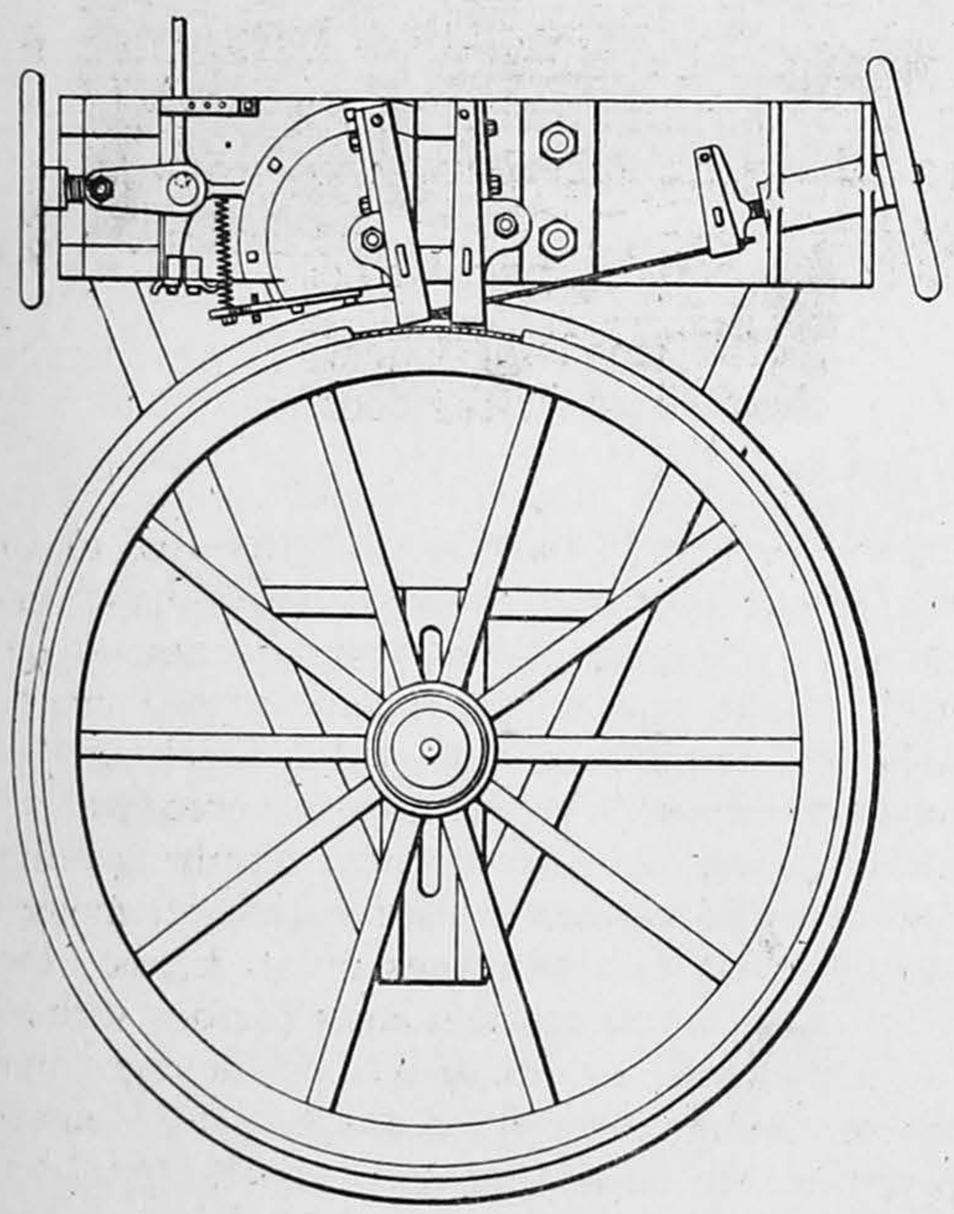
Their premises are not striking at first sight, and bear all the impress of having been built up from small beginnings, but when we penetrated to the rear, and got into the works themselves, we found them occupying a very extensive range of workshops and store houses, and a vast deal more business is being done than might be expected from a casual glance at the exterior.

Messrs. Connolly's business is an old-established one in the setting or fitting of iron tyres, and the "Ideal" rubber department is comparatively a new introduction. A peep at the older part of the works showed the operation of welding up and shrinking of the iron tyres to the wooden wheels going on apace. With these the firm have reached some 1,200 sets per week, and the spring is their busiest time.

But we were more particularly interested to witness the manufacture of the "Ideal" tyre, and, accompanying Mr. T. Connolly round into the next street, we entered a large and spacious yard with a number of workshops surrounding it, in which this branch of the business is carried on. Although commenced only a couple of years, the firm are now supplying some 160 sets per week of various sizes, not only for motor cars, but for horse-drawn carriages of all kinds. On the right lay a series of store houses packed with stocks of wooden wheels, a stock of some six to eight hundred of these being held in readiness for immediate supply, the firm supplying not only the tyres, but the wheels complete where required, and it may here be said that they obtain a very large proportion of their materials from the United States, this being, we were informed, not from any preference, but chiefly because home manufacturers were unable to supply the right article at the right price, this being especially the case with the wires used for inserting in the rubber, the whole of which lengths of mild steel comes from the States, as the firm find it not only cheaper, but finished

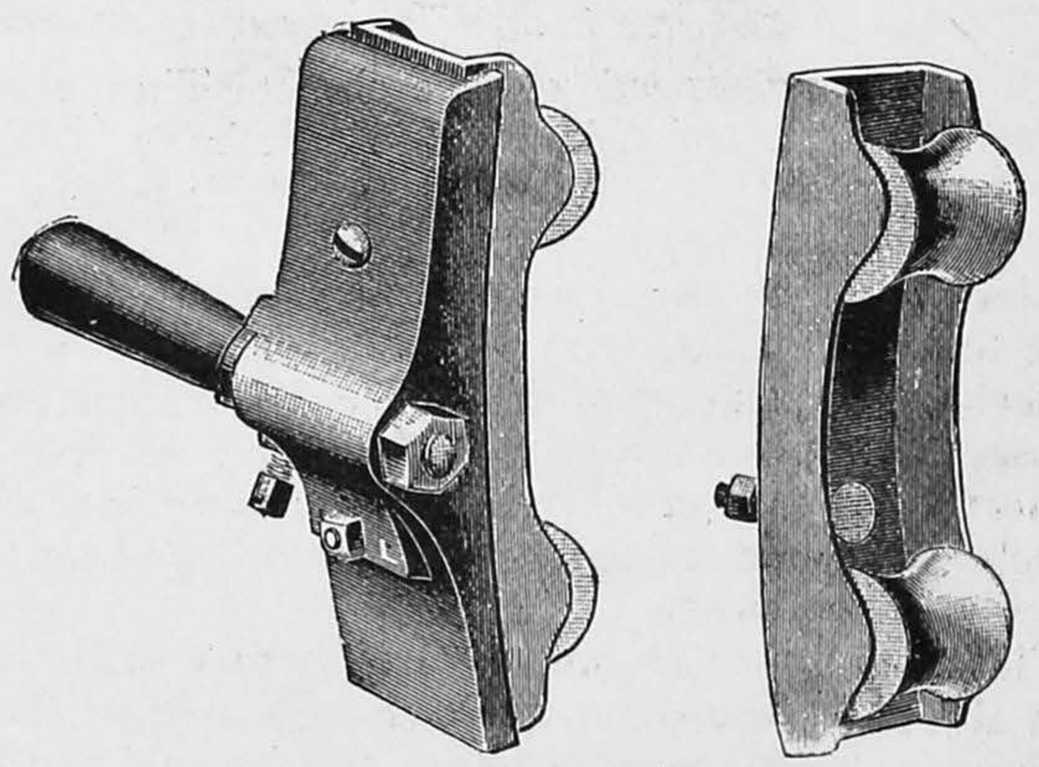
in a way which they have not been able to obtain from English manufacturers. They are, however, getting much of their rubber from the home markets, though some of it still comes from abroad. Considerable quantities of rubber in long straight lengths are stored in warehouses on the right, and the centre of the yard is occupied by piles of tyre steel, wood, and packing cases, whilst at the end of the yard the workshops devoted to the welding up of the tyre steel into complete tyres are situated, and here we were interested in the use by the firm of welding hearths, shaped somewhat like a capital J, and attached as brackets to the wall, so that, instead of the tyres being, as usual, rested upon the hearth, the tyres are hung over them, a system which entirely frees the hands of the operator, and enables the work to be done by them better and quicker.

From the steel tyre room we passed into the rubber fitting shop beneath the rubber stores before mentioned, and here we found the most interesting part of the work going on. The place was packed with wooden wheels waiting for the attachment of the tyres, and there was little more than walking room between them. In the centre, upon a long bench, lay straight lengths of rubber with the long continuous mild steel wires threaded through them. At one end of this bench the tyre fitting mechanism is arranged, and this, which is covered by patents, is both simple and effective. Attached to a bench at one end are two cramps set at an angle to each other. Drawing one of the lengths of threaded rubber to him, the operator secured the projecting ends of the wires in one of these cramps, allowing them to project evenly about an inch. Four or five feet in front of the bench is a stout pin or rod,



The Tyre Mounting Bench.

upon which the axle of the wheel is dropped. The rubber is then passed round the rim, and the opposite ends of the wires, which are considerably longer than needed in the actual tyre, are passed through holes in the other cramp, and by means of a lever action drawn through, and the band of wired rubber tightened round the rim of the wheel. A workman rapidly eases the edges into the rim, and then further strain is put upon the wires, the support to which the wheel is attached being simultaneously moved forward towards the bench, with the result that finally it is brought close to it, with the rubber forced back upon the wires against the outside edges of the cramps two or three inches on each side. By means of a pair of powerful nippers the superfluous extremities of the wires are cut off, leaving about as much of the wires projecting as are found at the other end. The position of the cramps, which has up till now been at an angle, is now altered so as to bring them parallel with each other a couple of inches apart, this action having the effect of bringing the four ends of the wires in direct line and contact with each other. A connection is now made with a couple of electric wires, and a powerful dynamo (taking some thirty horse-power to drive it) put into operation, sending an intense current directly through the wires, in which first one and then the other are quickly brought to a red and then a white heat, and, pressure being applied upon the cramps, holding them so as to force them firmly together, the ends are quickly welded with a slightly raised burr in the centre. The current having been cut off, a few seconds suffices to cool the wires, which are then freed from the cramps, and the wheel removed, the rubber ends springing forward at once to cover the centre, and all that remains now to be done is to gently tap the wheels round so as to fit the tyre evenly in the rim. We were informed that welding of the wires in this manner, which, as explained, is very expeditiously done, makes the most perfect junction, and the firm assert that they have never had a failure yet from broken wires, whilst there is no possibility of creeping, or of the tyre leaving the rim. In addition to the patent rights covering the mechanism by which the tyres are put on and united, the firm also hold the sole rights of the electric welding process—under the British Thomson-Houston patents.



The Connolly Roller Brake.

At the moment of our visit Messrs. Connolly were particularly pleased at having just received intimation of the award of the gold medal at Marseilles. Of course, tyres to be applied by this process can only be done at the works of the company, and Mr. Connolly admitted that this was to a certain extent a drawback, but in order largely to meet this difficulty, a depôt with tyre fixing plant has been established at Glasgow, and as soon as this is in full working operation other depôts will be opened in the principal provincial centres of British industry, whilst on the Continent depôts

are already at work in Milan, Paris, and Berlin. Messrs. Connolly perceive the great possibilities of trade in connection with the construction of autocars, and have early recognised the position, and they are good enough to say that their announcement in *The Autocar* has already been of considerable benefit to them.

In addition to this tyre they are giving their attention to other things of a kindred nature, and, finding that rubber tyres are frequently damaged by the application of badly-designed brakes, they are now supplying a roller friction brake which they think will have no deleterious effect upon the rubber. The construction of this is shown in the illustrations.

On the morning of our visit they had received from their American house, under whose patents their tyre plant is worked, a sample of a new roller bearing axle for both carriages and autocars, and this, too, we illustrate at the commencement of the present article. As will be seen, the rollers are not parallel, but slightly conical, and this arrangement allows for adjustment to be made in the event of wear, the adjustment being effected by simply pressing up a coned centre. The construction of the bearing is very simple, each set of rollers being held between rings into which their extremities are journalled, thus separating the rollers, and obviating any cross-rubbing friction.

THE LATEST THORNYCROFT WAGGON.

The working speed of the latest Thornycroft waggon is six miles an hour, though it has sufficient power to take the full load at eight, if necessary. The maximum load for the waggon is three tons, but, carrying that, it has sufficient power to haul a trailer carrying another two tons. Enough water is carried for ten miles, and the coal bunkers hold an ample supply for fifty miles running on average roads. An extra and extremely low gear is fitted, so that the waggon can be driven out of holes or soft places, even when fully loaded, without much difficulty. An additional interest attaches to our photograph, inasmuch as it shows the machine in the act of transporting the parts of the hull of the "Shamrock," Sir Thomas Lipton's racing yacht, now under construction for the America cup contest. As is known, the "Shamrock" has been built by Messrs. Thornycroft at Chiswick, and now the parts have been taken to Milwall, where she is being re-erected, but it is not generally known that this transport has been done by a motor waggon. When the photograph was taken the full load was not being carried, but about two tons of rivets, bolts, etc., were on the locomotive platform, and another two and a half tons of keel plates, etc., in the van behind. The builders of the van, The Steam Carriage and Waggon Co., Ltd., of Homefield, Chiswick, are pardonably proud of their share in the construction of what all Britons hope will prove a victorious boat.

The speed that the Swansea motor cars are to travel will be settled by the Watch Committee next month.

* * *

A service of motor omnibuses has just been started between Stenay and Montmedy, France, a distance of nineteen kilometres. The vehicles are propelled by steam power, and have been constructed by Messrs. De Dion and Bouton, of Puteaux (Seine).

* * *

One of the most effective means of impressing the public with the utility of the autocar and with the pleasure derivable in riding in one is to offer them a gratuitous ride of some duration. At the Liègean Exhibition particular attention was attracted, it appears, by the very tastefully-arranged show of the Construction Liègeoise d'Automobiles. Besides their two-seat touring cars, they had one of the famous Duryea cars at the disposal of the public, and the many visitors who had a ride were much surprised at the absence of smell and noise.

THE LEICESTER MOTOR SERVICES.

The Watch Committee of the Leicester Corporation starting from the Town Hall on their Trial Trip in the First Three Cars before issuing Hackney Carriage Licenses to the Leicester Motor Car Co.

FRENCH JOTTINGS.

During the past fortnight a Paris journal has been carrying out a series of trials of light vehicles of the voiturette class with seats for two persons or more, when the cars had to run from Paris to Mantes and back, a distance of 104 kilometres. Speed was only a minor consideration, and the commissaire accompanying each vehicle had to report upon its convenience, comfort, ease of management, economy, and so forth. It must be confessed that very scant interest was taken in the trials, for the reason that they could teach us little more than is already known about the voiturettes, and they could only have some importance in the event of the competition attracting new types of light cars. This, however, is what they did not do. As the rules admitted any class of vehicle carrying two persons, the majority of the competing machines were petroleum tricycles with front or rear seat attachments, arranged in a variety of ways. Out of the twenty-five competitors there were only six voiturettes, and not one of these succeeded in covering the distance. Seven tricycles finished the course under fairly satisfactory conditions. With these results before them the promoters conclude that there is no satisfactory type of light and cheap voiturette yet on the market, but that the one and threequarter horse-power motor is quite sufficient for carrying two persons, subject to the machine being built up on the lines of the cycle, and fitted with pedals. This verdict appears to be a little too stringent. It may be quite true that we have no satisfactory voiturette of a cheaper and lighter type than the Bollée for instance, but I do not think that we must necessarily pin ourselves in the future to the petroleum tricycle or quadricycle. If the voiturette has not been perfected, it is merely because the leading makers find it more remunerative to take up the manufacture of the heavier cars, and the light vehicles are thus left to the cycle makers and others, who simply attach motors without having the necessary experience to get the most out of them. It is probable that in course of time the quadricycle will have to give way to a more comfortable class of vehicle, in which the pedals and other essential cycle features will be dispensed with. It is manifestly absurd to argue that the light voiturette is necessarily impracticable because the few vehicles entered for the competition were a failure.

The great Tour de France race, which will be started on July 16th, will be run over the following course: First day—Paris, Fère-Champenoise, Saint-Dizier, Toul and Nancy, a distance of about 300 kilometres; second day—Nancy, Langres, Gray, Dôle, Lons-le-Saunier, Bourg, Ambérieu, Culoz, and Aix-les-Bains, a distance of about 450 kilometres; third day—no race; fourth day—Alex-les-Bains, Chambéry, Grenoble, Romans, Tournon, Saint-Etienne, Roanne, La Palisse, and Vichy, a distance of about 400 kilometres; fifth day—no race; sixth day—Vichy, Clermont-Ferrand, Ussel, Tulle, Brive, and Périgueux, a distance of 300 kilometres; seventh day—Périgueux, Bressuire, and Nantes, a distance of 350 kilometres; eighth day—Nantes, Angers, Le Mans, Alençon, Argentan, Falaise, Caen, and Cabourg, a distance of 350 kilometres; ninth day—Cabourg, Lisieux, Evreux, and Saint-Germain, a distance of 200 kilometres. The total distance to be covered will be about 2,350 kilometres. It will be noticed that some of the courses are very long, and on these occasions the competitors will have to start at five o'clock in the morning, but, as they are confined to the eastern departments, where the roads are magnificent, and high speeds are possible without danger, the competitors may be able to do the journeys, the more so as after each of the two longest stages there is a day's rest, when the late arrivals will

be able to catch up with the leaders. All the same, the race will be a very severe one, and it will be interesting to see how many of the vehicles will get through to the end. Not long ago no one would have thought of engaging in such a contest, but with the new cars now building there is no telling what the racing chauffeurs will be capable of doing. The car which successfully accomplishes the Tour de France will have given abundant proof of its qualities.

The automobile has had a narrow escape. A chauffeur was driving his car last week near Toulon when a man suddenly threw himself down in front. The wheels passed over him, and the autocar was upset, the owner sustaining rather serious injuries. As for the would-be suicide, he got up absolutely unhurt, and expressed his regret that he did not succeed in killing himself. This at least is the story as it comes from the Midi. Supposing it to be true, it would be interesting to speculate on what would have happened had the man been killed, for it is fairly certain that there would have been another howl against the danger of the autocar in slaughtering unsuspected pedestrians. If this sort of thing is repeated, the chauffeurs will have to seriously consider the advisability of fixing a fool-catcher to the front of their cars in the shape of a net.

There seems to be some trouble between the Compagnie Générale des Voitures and the concern which undertook to supply them with accumulators for the new cabs. The putting of these vehicles into public service had to be postponed for several months, because the company could not get their batteries, and at the beginning of last month they sent out twenty cabs with the promise that the number would be increased every day. We have, however, still only got the original twenty, and the explanation of this is that the company, being unable to get delivery of the accumulators, has been obliged to bring an action against the people who contracted to furnish them. Meanwhile, they have ordered the batteries from another source, so that it is hoped we shall have some more cabs ready before long. All this has created a rather unfavourable impression upon the public, who do not know the reason why the number of cabs is not increasing, and they naturally think that the company is so little satisfied with the experiment that they do not propose to augment the cabs. The sooner we get plenty of vehicles on the streets, the better it will be for the new service, as the public have taken very kindly to the electric cabs, and if only there were more of them they would undoubtedly be a big success.

This is what a wheel-steering Daimler has to put up with at Swansea, *vide* a local journal: "He was a philosopher and orator of the Wind Street Bridge School, and a respectful crowd had gathered whilst he explained the system of propelling the motor 'bus. 'This 'ere fakement in front,' he said thoughtfully, ejecting a stream of tobacco juice on to a lady's umbrella, 'this 'ere fakement have got the works and all the thingummies inside. Well, when the bloke ketches holt o' that 'ere wheel and twists it round, the works ketches the wheels and off it goes.' And then he went to refresh himself."

Correspondence.

AUTOCARS ON SNOW-BOUND ROADS.

[744.]—Mr. Sydney Atkins's letter in this week's issue on the running of a Mors car on snow to Versailles from Paris confirms what I maintain, that, given dry snow or frost, a car will travel well, but has he had experience on six inches of snow in a soft wet state, and, if he has, then I should like to hear his experience then. I believe that, however well powered his car might be, trouble would be caused by the snow packing, and the wheels revolving freely without gripping.

Bradford, 8th May. JAS. EDW. TUKE.

TO END BELT TROUBLES.

[745.]—In your present number of *The Autocar* a correspondent mentions Dicks's belting. I have one of these running in probably the most trying position imaginable. It is in a glass-covered frame over the top of a well, to drive pumps from an electric motor. The variations of moisture and heat in such a case are extreme. The Dicks belt is a success; a leather one was not.

May 5th. HUGH CONYBEARE.

WANTED INFORMATION ABOUT IGNITION.

[746.]—Will some one or more of your readers who have had any considerable experience of electrical ignition for motor cars and stationary engines be kind enough to reply somewhat fully to the following questions:

(1.) Why is a storage battery of *two* cells only almost invariably fitted to drive the igniter?

(2.) What are the effects of using three or four cells, and is there any danger of breaking down the coil insulation by so doing?

Of course, there is the question of carrying so much extra weight if the number of cells is increased, but this is a mere nothing if anything like certainty of igniting every charge can be assured. With the present arrangement of coil and two cells accumulator there is very much to be desired in this respect, judging from my own experience and also that of many of your contributors. I think this question will prove of considerable interest to those of your readers who are the possessors of electrically-ignited motors. What are the merits or defects of Simms patent plan? "Self-sparking, no lamps to light, and no batteries to charge." If this is effective, and storage batteries can be abolished with advantage, it will be a blessing.

May 6th. S. OKELL.

DIFFICULTY IN STARTING 1¾ H.P. DE DION TRICYCLE.

[747.]—In reply to a letter signed "Pheddie," in last week's *Autocar*, mentioning the difficulty he has in starting a motor tricycle, taking it for granted that all the points he mentions are in order, there are three other points which he might look to.

First, does the inlet valve work sufficiently easy, as sometimes I have known the stem to become corroded, and then stick, until the engine is working at a high speed.

Second, is the exhaust valve perfectly tight, and a close fit on its seating, with the surfaces perfectly smooth?

Third, is the exhaust valve spring itself weakened, so that it does not pull the exhaust valve down to its seating? This is a very insidious trouble, and one not easily noticed, unless you have had your attention drawn to it.

I am, personally, very interested in any difficulties of this sort, as I rather fancy I have conquered nearly all mine, and if "Pheddie" is anywhere near London would run down one evening on my tricycle, and have a look at his, as I would like to meet a tricycle that has troubles not easily diagnosed.

May 2nd. S. F. EDGE.

PENNINGTON *V.* MORS.

[748.]—As we are, and have been, most anxious that this contest should come off, we wired the Automobile Association early last week, asking them what day would suit their convenience to meet us at Shapfell and run off the race. Two days afterwards we received a letter stating that our telegram was "entirely incomprehensible." On the 6th of May we wrote them a letter of which the enclosed is a copy (which please publish), and we have not since received any reply.

We leave the public to draw their own conclusions, but, clearly, if the contest does not come off, it is from no lack of willingness on our part to bring the matter to a conclusion.

PENNINGTON AND BAINES.

May 9th.

[COPY.]

Messrs. The Automobile Association, Ltd.

May 6th, 1899.

Gentlemen,—In last week's issue of *The Autocar* we accepted your proposition, namely, to run a race against your "Mors" car (which can have either two, four, or any number of cylinders, and any number of horse-power) up Shapfell twenty-five times. In all these matters of challenges, as acknowledged by your Mr. Atkins when here, your challenge was not meant for *us*, but for the Daimler Company, and, as Mr. Atkins stated, you were surprised that *we* accepted; but, nevertheless, we did accept each and every challenge issued by your company, the Automobile Association, and when your cars were in Manchester we tried in every way known to us to get up an *impromptu* race here quietly, and, as stated before, there was always something the matter; either the tyre had burst, the electric current was defective, or some part had not arrived from France to replace a broken one, and so on. Anyhow, from one excuse or another we were never able to get you out on the road to run off a friendly contest. We expected with each mail to receive a letter stating that you would meet us on a certain day at Shapfell. We noticed that you had made your challenge for thirty days, and we did not wish to give you an opportunity to crawl out. Having no such letter, we telegraphed you as follows:

"Since we have accepted your proposition have heard nothing from you. We are ready at any time. What day will suit you to meet us at Shapfell for the race?—PENNINGTON."

We regret that in these days of intelligence such a telegram is *entirely incomprehensible*. We wish to say further that this is the second letter we have had from you, and in both letters the only prominent character was the word "incomprehensible." It seems strange that you cannot comprehend so clear and straightforward a telegram as the one given above; and we wish to call your attention to the fact that we hold ourselves in readiness to meet you at Shapfell with any type of car, from your four-cylinder up to your sixteen horse-power racing car, you may wish to enter against us for the race up this hill twenty-five times, against our double-cylinder car, each car to carry two people. . . .

Yours faithfully,

PENNINGTON AND BAINES.

P.S.—We await your telegram saying when you can meet us at Shapfell.

[We insert the above, but it will be the last we shall insert upon this subject. There has been altogether too much "chopping and changing" and beating about the bush to be satisfactory. If the several parties concerned can arrange privately to bring this trial off—or any other contest which is not a pure speed contest upon the high road—we shall be very pleased to arrange to have a representative on the spot, and to fully report the affair for the information of our readers, but we can allow in our columns no more of what is, in the professional athletic world, termed "newspaper talk."—ED.]

PRACTICAL EXPERIENCES.

[749.]—In reply to Mr. Seyd's letter, I quite admit that the first pair of chains I had did some rough work, but, at the same time, as admitted, they ought not to have worn out so soon. The chains are an essential part of the motor, and if they cannot stand wet and grit they ought to have been put in a gear case. I am sorry to hear that the chains I now have are the best that can be got, as one of these has gone even more quickly than the others. I have had it on about three weeks, equal to about four hundred miles, and the rivets of some links are almost worn through. I took one rivet out to-night, and find it has cut almost entirely through; some of the side-plates have the holes much enlarged, and the chain is already beginning to lose its pitch. The weather has not been bad, and the lubrication has been well attended to. As I said before, the car would be *perfect* if it had Connolly's tyres and good chains and chain-wheels. I am afraid I shall have to get a pair of English chains before I can feel quite safe with the car.

May 6th. A. CHARPENTIER.

P.S.—I have kept the rivet as a curiosity of "the *absolutely best* French chain."

[750.]—I have bought a motor car, an "International." Now, if I mention the name, I do not want to cast any reflection on the make, or recommend it, as I know nothing of others. My remarks are only to give the experiences of a novice in driving and handling. I fancied I should like a car, and, reading *The Autocar*, I thought this make sounded well, so I went and saw and found a nice second-hand one to play with. After half an hour's conversation I bought it. A week later I took an hour's lesson, after having studied the directions, and three days after that I fetched the car, it having been put in order and thoroughly overhauled. The manager kindly drove me out of the traffic of London, as I was nervous at first. About Hounslow he left us, and I went on swimmingly, but, of course, quietly, to

Windsor, where, it being dinnertime, I put in for the night, determining to start early, and go right though to Wiltshire next day. All went well till Newbury was reached (the traffic in Reading hardly delayed us). After lunch I tried to start again, but to no purpose. Then I heard of a man who had a car, and of the same make; he kindly came, got blue in the face, covered with oil, hands and clothes, and only seemed happy to have at last started it. There was a little too much oil in the carburetter, that was all, and the only thing I had not tried. After that all went well (except that one horse was so frightened he fell down and broke his shaft) till just before Savernake Forest. Then things got worse and worse, and it kept on stopping, and at last in the middle of the Forest it gave out completely, and nothing I could do or think of would make it go, so no one being in sight for more than an hour, I pushed it behind a tree and trudged into Marlborough, arriving about eight o'clock, dined, and spent a sleepless night, aching all over. Whether this was from the strain of pulling the wheel round to start, or general shaking, I do not know, but that machine would have gone very cheap in the early hours of the morning. About six o'clock I got up and hired a pair of horses to bring the thing home, and while driving up I remembered that I had not turned off the cylinder lubricator, so, on arriving, I looked at it—the machine was still there unhurt—and was surprised to find it was still as full as I left it. Here was the difficulty. Having been all right all the way, I never noticed or thought of looking, and it had got quite dry, and stuck. This was soon put right, and I sailed gaily into Marlborough, and thence home, at least sixteen miles an hour. I have had it out twice, and each day some little thing has gone wrong which experience would put right quickly, but which almost breaks the heart of a novice. Of course, it was ridiculous to have attempted such a journey (one hundred miles) with such little knowledge and experience. Still, I have been used to machinery from youth, and I did not think there were many points I could not tackle. One thing is patent to me, these cars are delightful toys, and even more to a workman, or anyone that keeps an engineer at home; but for a gentleman who travels without a man, and gets accidents in out-of-the-way places, it is a little disagreeable, to say the least of it, to get covered with oil and lie on your back in a dirty road to mend the thing. For instance, during a drive a day or two ago, something got into the tap that supplies the carburetter, and the machine stopped in the middle of a gentleman's park, and I had to spend half an hour taking off the tap, and even the cistern, emptying the oil into the carrier and back again, and then I met my friends, and they wanted to shake hands! Nevertheless, I like my car. The more there are, the better, because then more will understand them, and until one can buy an accumulator of electricity at a public-house like a pint of beer, and one can have an electric car, one must put up with the discomfort of a petrol car. INEXPERIENCE.

[751.]—During the last two months I have had some experience with a '98 Benz. There can be no doubt that at times the car will do a journey splendidly, but to say it can be relied upon to do so would not be the truth. The chief cause of so much dissatisfaction is the want of knowledge, and when this extends over a period of nine months with all the attendant worries, and is the fault of the manufacturers, they deserve all the hard words that have been said, and much more. If the Benz Co. were to issue a proper book of instructions, it would then be possible very soon to master every point, and would give the owner every confidence in the machine he is driving. The cost of the book should be looked upon as the cost of a trade circular; in fact, it should be given away to those likely to purchase, for, until I understand and have confidence in a machine, I am not likely to be a purchaser, but I shall want the book the most when I get into any difficulty, and should be able to rely upon it to put me right like a good friend. It should have outline drawings of every part with full explanations. This week, when twenty miles from home, I had the joint at the back of the cylinder go wrong, letting the water from the jacket into the cylinder. How I laid on my back and put a new asbestos joint on I will not take up your valuable space to tell. Now I want to know what is the best way of making this joint—should the asbestos be covered on both sides with a thick paint of red lead, or would sheet lead covered as above be better, or what is the best that can be done?

E. BOYES.

[Brown paper soaked in boiled linseed oil is as good as anything, but if our correspondent refers to recent back numbers he will find that there are many ways, and that each owner is inclined to believe in the particular method he finds satisfactory. The letter of "Medicus" in *The Autocar*, page 352, contains what might be a useful hint to our correspondent.—ED.]

[752.]—With reference to the remarks of your correspondent, Mr. A. Valintine, regarding the Simms patent magneto-electric ignition gear, I would point out that this apparatus will produce a spark sufficient for igniting the charge at a speed of one hundred revolutions per minute, at which there should be no difficulty in turning the engine by hand in the usual way. When it is considered that the magneto machine is in substitution of the accumulators and sparking coil, the extra weight of the apparatus required for an engine of the Benz type is practically nil. The timing gear has also been recently considerably simplified. R. E. LEFEBURE.

Donington House, Norfolk Street, W.C. May 3rd.

[753.]—In accordance with my promise last week, I hasten to give your readers an account of another long run with a new Benz car.

I went to London on Saturday evening last, and arranged to leave on Sunday morning with a new No. 2 '99 "Ideal." I was so confident that the car would be all right that I never even started the motor or looked it over. I scarcely saw the car until it was taken out into the street ready for the start on Sunday morning.

I may say I had a friend with me as a passenger anxious to taste the joys of motoring, and we were

accompanied some distance by a gentleman in a last year's Ideal.

We left Messrs. Hewetson's at 10.30, and arrived at Barnet about twelve. After "oiling, etc.," we started for St. Alban's, arriving 12.55. After more "oiling, etc.," we left at 1.20, and got to Dunstable at 2.20. Here we made a long stop, and at four o'clock started again, the other car returning to London. I have received word that my friend reached Oxford by 6.30, without a single stop (thirty-eight miles). At Stony Stratford (five o'clock) we had tea, leaving again at 5.25. Our next stop was Coventry (thirty-nine miles), which was reached at 8.50. This thirty-nine miles was done without either car or motor being stopped the whole way. At Coventry we took water, and, leaving again at 9.10, we got home at 10.15, after a most enjoyable run.

Now, as regards "little adjustments," I can only repeat what I said last week—not a tool (barring oilcan) was touched the whole way, nor was anything whatever done to either car or motor, beyond frequent oiling and inspection. I never had the slightest trouble, simply sat and drove her along, and to-day I find she is not a bit the worse, and not a thing loose.

I need scarcely say that "X.," who had never had a long ride before, was delighted, and has decided to buy an "Ideal." We had a fine day, far different from my last run, and, though we had a stiff headwind, the average works out at from fourteen to fifteen miles per hour. A. J. ALDRED.

Acock's Green, May 3rd.

"POPPING" IN THE DE DION CARBURETTER.

[754.]—In answer to your correspondent, "A Lover of the Game," *re* the "popping" in the carburetter, and bulging of the sides of the same, I will take upon myself the liberty of suggesting two possible causes of the trouble:

(1.) The spring on the inlet valve is too weak, and consequently the valve remains open too long, allowing a small quantity of the exploded gases to pass back through the inlet pipe into the carburetter.

The remedy is to replace the spring by a stronger one, taking care, however, not to have it on the other extreme, viz., too strong. A few experiments should soon show the right spring to use.

(2.) This is a less likely cause, although I have met with it in one instance. Should "A Lover of the Game's" machine be fitted with a small pipe from the exhaust passing through the bottom of the carburetter, there may possibly be a small leak in this pipe, which allows the exhaust gas to force its way into the carburetter.

This is not, as I before mentioned, a likely thing, but I know of one instance in which it occurred. "A Lover of the Game" does well to give the matter his attention, as the "popping" may be the *avant-coureur* of something more serious. A friend of mine, riding from Coventry on a tricycle, was rather puzzled at the "funny little pops" in the carburetter, when suddenly the sides of that piece of mechanism swelled out and burst, whereupon my friend dismounted with considerable agility.

May 8th, 1899. DUDLEY GRIERSON.

[755.]—In reply to "A Lover of the Game's" letter in the current issue of *The Autocar*, I have had exactly the same experience, the carburetter being bulged quite an inch on each side. No doubt the "popping" is caused by the explosion getting beyond the inlet valve. In my own case I found it only occurred when the ignition was advanced beyond a certain point, and it is possible just at the precise moment when the inlet valve was open.

May 8th. MOTOR.

Flashes.

The dissolution is announced of the firm of Heddebaut and Co., cycle and motor-car dealers, 72, Rue de Rome, Paris.

* * *

The Crowdus Accumulator Syndicate appear to be meeting with considerable success with their accumulators for motor-car and launch use.

* * *

A company has just been formed in America to establish a service of motor vehicles between Rochester, N.Y., and Lake Ontario, a distance of six miles.

* * *

A company has just been formed at Cologne with a capital of £30,000, to be known as the Allgemeine Betriebs-Gesellschaft für Motorfahrzenge. The object of the new concern is to start motor car services in different parts of Germany.

* * *

A certain Mr. Gunning on the Bournemouth Town Council endeavoured to bring bicycles and perambulators under the new "Locomotives on Highways Act." Was Mr. Gunning attempting to be funny or in sober earnest?

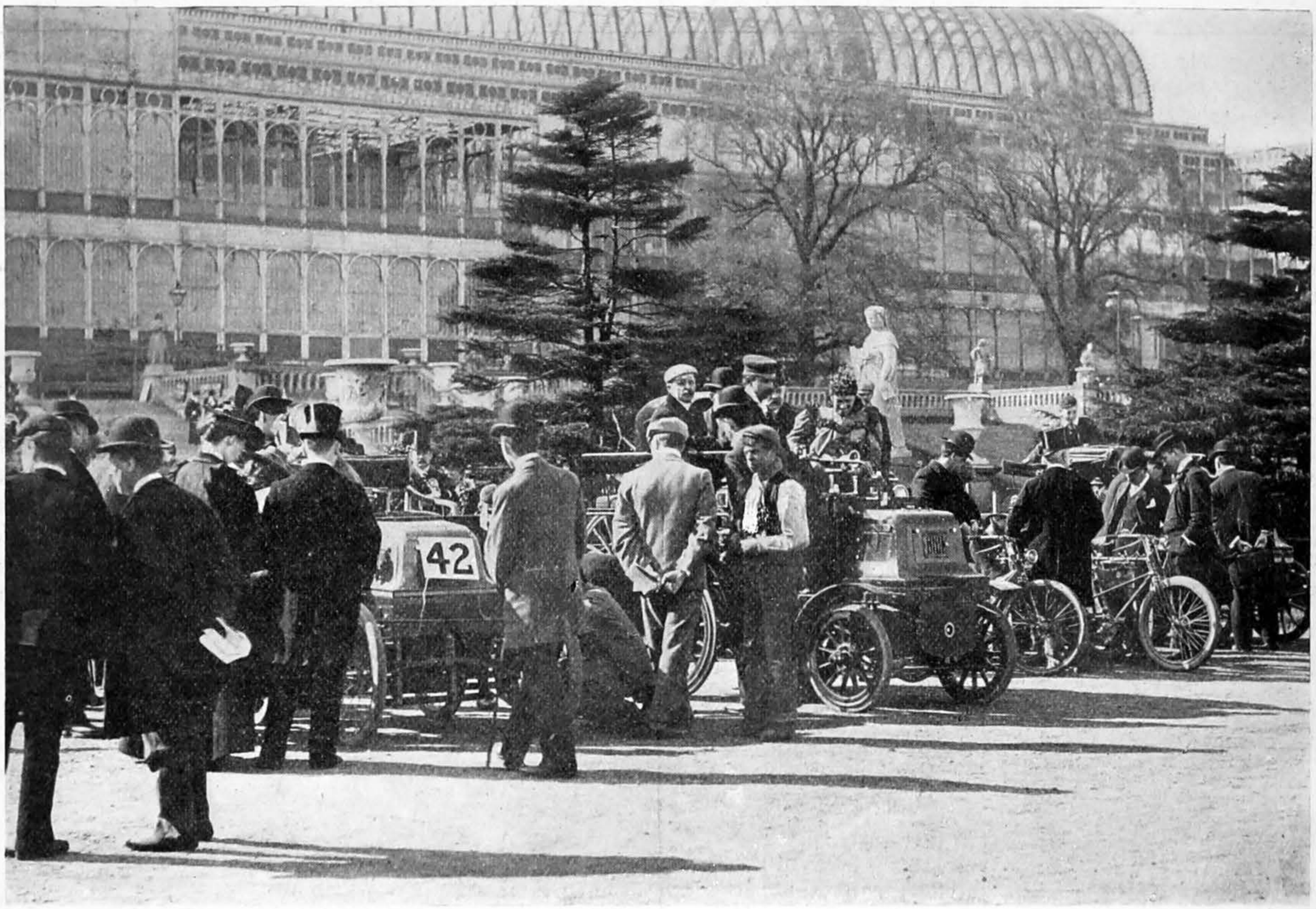
* * *

A motor car wedding was celebrated at Enfield on Wednesday week. The wedding party, who live at Enfield Lock, rode to Enfield parish church, a distance of three miles, in an elaborate motor waggonette. Their friends followed on bicycles. The bridegroom, Mr. James Moseley, is well known in the locality.

* * *

The cost of motor cycling has been stated as a third of a penny per mile. Of course, it depends on the nature of the road. The figure given may apply to an ordinary stretch of highway, but if the scenery of the mile in question happens to be interspersed with policemen, the cost is greatly enhanced forthwith. The authorities are becoming as watchful of motor cars as of bicycles, and to them automobilists are like Artemus Ward's Injuns, "pison, wherever found." A number of motorists have been fined recently for furious riding in Surrey and Sussex, and a curious feature of the cases was that some of the defendants were unable to appear because they had been summoned to attend that day at other courts for a like offence committed in adjoining districts during the same trip! Some day we shall find a motorist summoned in half a dozen counties as a result of a day's run.—*The Daily Telegraph.*

THE MEET OF THE MOTOR CAR CLUB.



HEAVY CARS AT THE STARTING POINT.

As previously announced, the Motor Car Club held a meet of motor cars on Saturday last, coupled with a series of control tests for cars and motor cycles, and some speed races on motor cycles on the track. The meet was on the Thames Embankment at Westminster Bridge at noon, and when we arrived, within five minutes of this hour, there were some thirty vehicles formed in line behind the secretarial car, which we found to be Mr. Lawson's "New Times" coach of Lord Mayor's Show fame. The cars ranged to the rear comprised one or two private vehicles, and a considerable number of others sent by the trade, some bearing advertising announcements of their company of origin. Daimler and Benz cars were in the majority, and there were several De Dion type tricycles.

No sort of order appeared to have been arranged, and no one appeared to be in charge of the gathering, so that it was not surprising that at about 12.15 it was suddenly discovered that the front portion of the assemblage had disappeared, apparently without instructions to those behind, who were complacently awaiting permission to go. Then one after the other, as the fancy moved him, drew out, and the thousand or so spectators who had assembled to see the meet dispersed as the last car wound its way over the Bridge. Thence they travelled *viâ* Brixton and Streatham, entering the Palace grounds at Rockhills, Crystal Palace Parade, several other vehicles joining in *en route*, and bringing the number arriving at the Palace up to about forty, these including one neat electric carriage—the Clift—and a fair selection of petroleum vehicles. Mr. W. M. Morriss, from King's Lynn, was on hand with a Daimler waggonette; Mr. Critchley made a first public display of the new light two-seated Daimler car, and the thirty hundredweight eleven horse-power post office van of the same company was also *en evidence*. Mr. Friswell and two other owners of Mors cars were there, and Mr. Hewetson attracted notice by the sweetness and quietude with which his '99 Benz car ran. The Hon. C. S. Rolls was there with his new two-seated Panhard racing car painted in brilliant red, and looking a veritable speed machine, whilst Dr. Lehwess, of the Automobile Association, turned up with the Koch heavy oil car, and there were numerous motor cycles, some with trailers attached, and others with tandem fronts.

Arrived at the parade ground, the vehicles ranged up on each side, for the most part remaining stationary, though a few riders freely and rapidly patrolled the pathways to show off the capabilities of their cars.

A series of control tests had been arranged as the chief feature of the afternoon, these being divided into five classes—(1) for cycles assisted by pedalling, (2) unassisted cycles, (3) light cars between four and ten hundredweight, (4) heavy cars weighing over ten hundredweight, and (5) delivery vans, and, so far as we could gather, the tests were to be decided upon the times made by each vehicle after covering a course of about two miles around the tortuous paths of the Palace grounds, in the course of which some half-dozen stoppages had to be made at different

points of the route, the cars requiring to be brought to a dead standstill between two flags placed about ten yards apart, any car failing to stop within the prescribed distance being at once disqualified, and removed from the course, whilst as the cars both going and returning had to traverse the same steep and exceedingly tortuous pathway, a block system was arranged, with a special timekeeper to make allowance for any time a car was necessarily stopped at this point. At the commencement matters appeared considerably chaotic. There appeared to be no head to the affair, and it was only as it were by instinct that we discovered the finishing point, the

MR. LAWSON'S BROUGHAM IN THE FINISHING STRAIGHT.

cars being started at one place, and finishing at another. The duties of the judges were set forth as follow: To see

(a) That the timekeeper correctly records the times of arrival of each competing vehicle.
(b) That the vehicles are carrying the loads or passengers laid down in programme.
(c) That immediately the vehicle passes the winning-post it at once proceeds off the course to the enclosure provided.
(d) They will receive, and verify by initialling, reports:
    (a) From the starter, specifying times each contestant passed from his control, specifying all vehicles disqualified, and reasons for same.
    (b) Report from timekeeper at "special stopping-place," specifying net time (if any) of detention of vehicle at this station.
    (c) Reports from marshals at each of the six stopping-places, specifying any vehicles disqualified, and giving reasons for same.
    (d) Reports from head marshals, specifying any vehicles disqualified, and giving reasons for same.
    (e) Report from Handicapping Committee for Class D.

After duly initialling all such reports, they will hear and adjudicate upon any "objections" of contestants who may enter (in writing) any objection to disqualification, or who may lodge a formal complaint in any matter.

They will then proceed to give their decisions as to the makers of best, second, and third best times in each class, or at their discretion hand over the initialled reports duly sealed to the member of committee in attendance for subsequent investigation by them in conjunction with the Handicapping Committee of the club.

The time to start was supposed to be two p.m., but it was quite forty minutes after this when the first motor cycle was sent off, and then we were informed that seven competitors had started in this contest, but two only, Messrs. Richardson and Jarrott, turned up at the finishing point at considerable intervals, from which it was premised that the others had been disqualified *en route*. From then it was exceedingly difficult to gain any information at the judging line as to what test was really going on, and we therefore found our way to stopping points 2 and 3, the first at the bottom of a long gentle sloping down grade, and the second at the end of an abrupt descent of one in eight, or thereabouts, with an acute-angled turn immediately following. Here we found that both the controlling officials in charge had a small pile of trophies in the shape of numbers detached from competing cars which had failed to pull up in the required distance, and we understand that when these disqualifications were made, matters were for a time lively, especially with the motor cyclists. Some of the competing cars crept very slowly and carefully down the grades, whilst others dashed down almost at full speed, and pulled up with a jerk, Mr. Rolls being, perhaps, the most dashing driver of the lot. No accidents of any kind appear to have occurred, but the tests were fairly good ones, and upon the steep up-grade to the finishing straight one car (a "Lynx") failed to make sufficient headway, and the drivers had to "get out and push." Class D, for heavy cars weighing over ten hundredweight, had the fullest support, and three vehicles turned out for the delivery van competition, the final awards in the different classes being made as follow:

CLASS A (Motor cycles assisted by pedalling).—1, C. Jarrott, 5m. 15⅘s.; 2, Motor Manufacturing Co., 6m. 47s.

CLASS B (Cycles with three or more wheels that cannot be assisted by pedalling).—1, Southern Motor Car, Ltd. (Bollée), 11m. 58⅗s.; second prize not awarded.

CLASS C (Light motor cars over 4 cwt., but under 10 cwt. unloaded).—1, G. D. Barnes, 8m. 22⅗s.; 2, H. Hewetson, 8m. 34s.

CLASS D (Heavy cars weighing over 10 cwt. unloaded). *Scratch Race.*—1, C. Friswell, gold medal, 6m. 32s.; 2, Hewetsons', Ltd., silver medal, 7m.; 3, F. M. Bates, 8m. 8s. *Handicap* (This does not appear at all on the programme).—1, E. C. Muir, silver medal, 5m. 41⅖s.; 2, C. Friswell, 5m. 47s.; 3, F. M. Butler, 6m. 8s.

CLASS E (Motor delivery vans weighing under two tons tare).—1, Ormiston and Glass, 10m. 5s.; 2, F. F. Wellington, 11m. 58⅗s.

Following these contests, a five miles invitation motor cycle race and a five miles match between Messrs. C. G. Wridgway and S. F. Edge had been

SCENE ON THE PARADE GROUND.

arranged to take place at 5.30. It was, however, six o'clock before the first event was started, there being four competitors, viz., Messrs. C. Jarrott and C. G. Wridgway on Aster motors, J. W. Stocks on

a De Dion, and H. E. Zacharias on a Barrière tricycle. Stocks and Zacharias were soon out of it, the two Aster riders drawing right away from the commencement, and a very interesting and exciting contest followed between these two, Jarrott eventually winning by three yards in 8m. 22 3-5s., the time taken for the full distance (flying start) being 8m. 14 2-5s. Stocks, who had been last throughout the race, but ran into third place a couple of laps from home, was fully a mile behind.

Great delay occurred in getting ready for the five miles match. Edge, who had not started in the previous race, was ready, but Wridgway's machine went wrong, and, after a long wait to try the effect of fresh petrol, shortly before seven o'clock an attempt was made to start, but Wridgway's machine had no go in it, and a second attempt resulted in an equal fiasco. After half an hour's waiting, however, Wridgway got his machine into fair working order, and another start was made, but it was plain that, although working better than before, the motor was running most unevenly, and Edge had a lead of twenty yards on the first lap, and, steadily increasing his distance, was half a lap in front at two miles, at which point Wridgway retired, and Edge finished the distance alone, accomplishing a few seconds slower time than in the previous contest.

During the interval between the contests some interest was excited by two of Mr. Lawson's new motor bicycles running round the track. They are driven by small motors on the De Dion principle with tube ignition, the motor on one side the driving wheel, the flywheel on the other driving the wheel through a Crypto-geared hub. They seemed a bit awkward to get going, especially the lady's machine, but when once started, ran well, and at a very good pace.

An informal dinner of members of the club and their friends took place in the evening.

La Société des Voitures Automobiles de Franche-Comte is the title of a new company which has just been formed at Quingez, France, with a capital of £4,000.

* * *

Messrs. Baud, Joatton, and Co. is the style of a new firm which has just been registered at Lyons (51, Boulevard du Nord) with a capital of £4,700 to deal in parts and accessories for cycles and automobiles.

* * *

Mr. H. G. Wells, the eminent novelist, who gives us such startling glimpses into futurity, is apparently somewhat of a believer himself in what he writes. In an interview he is made to say that even labourers will reside in London. "They will go out to their several occupations by means of swift motors. I can imagine motors rattling along at two hundred miles an hour, a speed sufficient to allow of men leaving London in the morning to perform a day's work in any part of the country, and returning home to sleep in the evening. With the advent of machines capable of travelling hundreds of miles an hour all our roads will have to be altered. Towns that are now important will disappear, and bits of villages that are not easy of access in these days will become the most convenient places in the world." How much will a two-hundred mile an hour labourers' car cost, and what *will* become of the genus magistrate?

THE IDEAL POWER.

Looking Forward.

Mr. J. W. Roebuck, Wh. Ex., Roy. Ex., R. Mn. Sc., etc., Beeston Cycle and Motor Companies, opened an interesting discussion upon "The Ideal Power for Autocars," on Friday evening, the 5th inst., at the meeting of the Coventry Engineering Society.

Mr. Roebuck described the qualities required in ideal power, though he admitted they constituted a "rather tall order," and were not obtained in any motive power at present known.

He was of opinion that electricity in the form of an electric current had the most brilliant and promising future, he regarding its possibilities as really enormous. The advantages of electricity were its ready adaptability, the only thing required to bring the motive force to the motor being a conductor such as a copper wire; there was no friction of shafts, belts, or gear wheels, no lubricants required for the wires, the only parts requiring lubrication, and where friction was set up, being the journals, and these were only two in number on an electric motor. If the source of energy was capable of supplying energy in sufficient quantity the motor would do work practically from *nil* to the maximum, which was only reached when the field magnets or armature were burnt out, or the shaft twisted off. The electric motor could be run fast or slow, or reversed at will by a suitable arrangement of switches and resistance coils acting on the field magnets and armature, hence no speed gear would be necessary. Although at present this gearing down was done usually owing to the high speed at which the motor ran, yet it was only a matter of a short time and this complication would no longer be necessary. The mechanical efficiency of an electric motor was high, ninety per cent. being a common figure. Electric current was very cheap; there were no products of combustion, and the motor could be easily started with full load on. The secondary battery as now used was simple, but mechanical difficulties in the elements caused plenty of trouble when the battery was used for car work; the batteries also were heavy. It was confidently believed, however, that these defects would be satisfactorily dealt with, as would also the time taken in charging cells from the dynamo. The production of a really satisfactory secondary battery had been, and was, the dream of every electrician and chemist. A large number believed that the ideal battery would be a primary one, but he thought otherwise, and looked confidently to the secondary cell in a very simple form, and having a great capacity, with quick charging, as that which would ultimately triumph. The commercial electrical motor was a rotary one, and its action was not of a spasmodic nature; hence it was an ideal machine for the transmission of power. Next in order of merit he placed steam, which had its own peculiar advantages for autocars required for heavy loads. The points against steam were that the generators and appliances could not be stowed away neatly, the extra first cost, and wear and tear, delay in starting off, the reciprocating nature of the power transmission, and general weight of appurtenances. These bore a smaller proportion to weight moved in large than in small vehicles, hence steam motors were more economical for heavy work than for pleasure cars. The products of combustion, the necessity for more than one person being required in manipulation, and the difficulty of keeping joints absolutely steam tight, were other disadvantages, but as the result of work being done at present upon steam generators with liquid fuel and other improvements steam would still hold a high place amongst ideal motive powers.

With regard to the use of petrol, Mr. Roebuck said that ease of storage, safety when properly used, cheapness and small time required to prepare for use, were essential proper-

ties to recommend it as a good motive agent. Heavy oils were more troublesome, difficulties in vaporising and the tendency to deposit carbon being drawbacks. The great objection to oil and spirits lay in the fact that unless the motor ran a practically constant speed, it did not work very satisfactorily. There was no reserve power to fall back upon, as in the case of electricity or steam, for when the cylinder was filled with the most explosive mixture of oil vapour and air, the maximum result was obtained when explosion takes place after compression and the engine running at its maximum rate. If then excessive work was put on the motor the result was to slow it down; thus a decreasing power was brought about just at the time more was required to overcome extra resistance. Uniform speed of oil motors being necessary, it therefore followed that to move a car at varying rates some gearing device must be used. Also as the generally adopted cycle in oil or gas engines is the "De Rochas," or "Otto," *i.e.*, one impulse or explosion every two revolutions of the crank, it followed that the speed must be to some extent irregular, and the straining action on working parts most severe. The heat from explosion was great, and provision for cooling cylinders must be provided; thus weight was added, energy dissipated, first cost and maintenance increased. Notwithstanding these drawbacks, oil as a motive power was not to be despised—in fact, but for oil, the autocar trade would be a small one indeed. Gas and compressed air he did not think would play a very important part in autocar work.

Digressing slightly, Mr. Roebuck pointed to the recent work done with the application of Röntgen rays and wireless telegraphy to everyday use as clearly demonstrating the possibility of transmitting energy across space without the introduction of solid media. True the energy transmitted was small, but might possibly be increased, and the time come when receivers in connection with motors might be used to receive energy and apply it to the work of propelling vehicles; thus mechanical traction would be simplified. There was a large field open for original work in that direction.

THE AUTOMOBILE CLUB SHOW.

The committee have decided to extend the time for applications for space in the exhibition buildings proper until Saturday, May 27th, in order to afford to manufacturers of component parts of motor vehicles an opportunity to exhibit and enter for a series of special awards which are now offered, viz., silver medals with "highest award" diplomas for the most meritorious improvements in any of the following or other component parts of a motor vehicle: Accumulators, bearings, brakes, burners for generators, generators (steam), ignition (tube and electric), spirit and oil engines, steering gear, suspension springs and axles, variable speed gear, and wheels (road) and tyres. The component parts need not be exhibited separately, but may be shown as parts of a complete vehicle. If it is desired that they should be in competition for the awards, notice in writing must be sent to the secretary not later than Saturday, 3rd of June. The judges will make awards only in respect of component parts which, in their opinion, show sufficient advance and merit.

AN INTERESTING CASE.

At the Westminster County Court on the 5th inst., before his Honour Judge Lumley Smith, Q.C., the case was heard of Ford *v.* Leman, in which the plaintiff, the manager of the Motor Car Co., sued Emil Leman, a company promoter, for £25 upon an agreement which the defendant had signed on January 28th.

The plaintiff stated that the facts of the case were as follow: In January last the Paris agent of the Motor Car Co. had sent over a specimen motor tricycle of a new make for the purpose of disposing of the English patents of it. Amongst others the defendant called at Long Acre to see the working of the new machine. On January 27th, the patents not having been disposed of, the plaintiff returned the machine to Paris. On the 28th defendant called, and said he had an appointment with several gentlemen to see the machine on the following Tuesday, February 1st, and signed an agreement with the plaintiff to hand him the sum of £25 if he succeeded in getting the machine back from Paris and in working order by that date, the money to be paid in any event on the Tuesday. The plaintiff, therefore, sent off telegrams to Boulogne and Paris, and succeeded in getting the machine back in time. On calling at the defendant's office upon the Tuesday, and informing him that the machine was back and in working order, Mr. Leman refused to come to Long Acre and see it upon that day. He stated that he would bring several friends to see it next morning. Plaintiff then told him that the agreement was for the money to be paid on the Tuesday. If the defendant cared to come along and see the machine he could try it first and pay the money afterwards, but if he left it till the following day he would have to pay the £25 before he saw the machine. Defendant still refused to come to Long Acre and see the machine. On the following day, Wednesday, he called with his friends, but Mr. Moffat Ford refused to allow his friends to see the machine before the money was paid, although the defendant was at liberty to step upstairs and see that everything was in working order.

Mr. Robert Todd, president of the Stanley Club, and chairman of the National Cyclists' Union, was called, and stated that he had seen the machine at the Motor Car Co.'s depôt, at Long Acre, on Tuesday, January 31st, in working order.

For the defence it was explained that it would have been of no use whatever for the defendant himself to see the machine, but it was necessary for those whom he wished to interest in the invention to see and try the motor tricycle. The defendant would like to know why the plaintiff refused to show the machine on the Wednesday unless the money were paid first.

His Honour: A child can see it; of course, if the plaintiff had shown you and your friends the car, and put it through its paces, you would have had all you wanted, and might have told him to whistle for his money. On the other hand, if the plaintiff were a sharper, and you had paid him the money before seeing and trying the car, he might have asked you for another £10 before putting it through its paces.

In the course of the case for the defence, Judge Lumley Smith remarked that he had heard of sharp practice in connection with horse dealings, but did not know until then that it had extended to motor cars. On the whole, he thought the plaintiff was right, and there would be judgment for plaintiff for the £25 and costs.

La Société Générale Française de Cycles et Automobiles, of Paris, is reducing its capital from £53,000 to £18,000.

A MOTOR CARRIAGE EXHIBITION AT BERLIN.

There will be held at Berlin, from September 3rd to 28th, 1899, an international competitive exhibition of motor carriages, open to all exhibitors. Exhibits will be classified as follows:

a. Motor carriages and devices of all kinds for the transport of persons.

b. Motor waggons for transport of freight.

c. Motor cycles and trailers.

d. Motors and accumulators for motor carriages.

e. Parts and wheels for motor carriages.

f. All articles relating to motor carriages, and not otherwise classified.

The exhibition will be held in a covered building known as the Exercier-Haus, 34 and 35, Carl Strasse, which has a superficial area of 3,200 square yards. It will be open daily from ten a.m. to six p.m. It is hoped that before the opening of the exhibition the place will be provided with electric light, in which case the exhibition will be continued until 9.30 p.m. daily.

A progressive series of tests, races, etc., is in contemplation, the programme for which will be announced by the committee of management at the opening of the exhibition.

NEW COMPANIES.

LA BOULE DE NEIGE UNIVERSELLE, LTD. (61,537.)—This company was registered on April 17th, with a capital of £1,200 in £1 shares, to manufacture, sell, and deal in cycles, bicycles, tricycles, velocipedes, motors, and vehicles of all kinds. The first subscribers (each with one share) are: Sholto Douglas, 18, Cadogan Place, S.W., gentleman; Mrs. Loretta Douglas, 18, Cadogan Place, S.W.; S. L. Duncan, 57, Drayton Gardens, S.W., secretary; Mrs. R. G. Duncan, 57, Drayton Gardens, S.W.; H. Fordham, 26, Clarkson Road, Walthamstow; Fred Plumbley, 23, Philpot Lane, E.C., stationer; and Charles J. Otway, 89, Glenwood Road, West Green, N., clerk. The number of directors is not to be less than two nor more than five. Remuneration two per cent. of the net profits divided between them.

LEICESTER MOTOR CAR, CO., LTD. (61,630.)—This company was registered on April 20th, with a capital of £5,000 in £1 shares, to purchase, sell, let on hire, and otherwise deal with automotor cars, and to carry on the business of cycle and cycle part manufacturers and dealers, motor car and carriage builders, mechanical engineers, machinists, millwrights, coopers, founders, wire drawers, tube makers, metallurgists, saddlers, enamellers, etc. The first subscribers are: Frederick W. S. Clarke, 48, Highfield Street, Leicester, printer (150 shares); Harry C. Browning, 34, St. Peter's Road, Leicester, confectioner (150 shares); Harry A. Clarke, 5, Severn Street, Leicester, cycle manufacturer (25 shares); Harry Ward, 51, Diseworth Street, Leicester, clerk (1 share); Geo. Fox, 74, Humberstone Gate, Leicester, merchant (100 shares); John G. Boulton, 25, Castle Street, Leicester, brewer (five shares); and Miss Gertrude Fox, 74, Humberstone Gate, Leicester (1 share).

CAMBRIDGE AND EASTERN COUNTIES AUTOMOBILE CO., LTD. (61,540.)—This company was registered on April 17th, with a capital of £5,000 in £1 shares, to manufacture, sell, and deal in motors, cycles, carts, waggons, vehicles, boats, launches, etc., and to carry on the business of coachbuilders, wheelwrights, engineers, machinists, fitters, founders, wire drawers, tube makers, etc. The first subscribers (each with one share) are: W. L. Duck, 68, Regent Street, Cambridge, cycle factor; Arthur F. Evans, 11, Brunswick Walk, Cambridge, engineer; F. W. H. Hutchinson, M.A., Brooklands Avenue, Cambridge; Alexander Macintosh, jun., 14, Market Place, Cambridge, ironmonger and cycle agent; C. R. Mortimer, 11 and 12, Corn Exchange Street, Cambridge, cycle agent; Walter C. Pamplin, Cherry Hinton, Cambs, engineer; and G. A. Whitmore, Downing Street, Cambridge, wine merchant. The number of directors is not to be less than three nor more than nine. The first are: William L. Duck, Frederick W. H. Hutchinson, Alexander Macintosh, jun., Walter C. Pamplin, and Geo. F. Whitmore.

SUNDERLAND MOTOR CAR CO., LTD. (61,578.)—This company was registered on April 18th, with a capital of £10,000 in £10 shares (400 founders'), to acquire the business now carried on by Leonard Hodgson at 71, Suffolk Street, Sunderland, and to carry on the business of motor car proprietors, carriage, cab, omnibus, and waggon proprietors, cycle makers and dealers, engineers, iron and brassfounders, wire drawers, tube manufacturers, fitters, rubber merchants, tyre manufacturers, etc. The first subscribers (each with one share) are: Matthew Bell, J.P., 26, Hylton Road West, Sunderland; L. Hodgson, 71, Suffolk Street, Sunderland, ironmonger; T. E. Bryers, 42, West Sunnyside, Sunderland, solicitor; Tom C. Wilson, 16, Thornhill Terrace, Sunderland, timber merchant; George R. Booth, J.P., 10, St. Bede's Terrace, Sunderland; Thomas Steed, J.P., 18, Thornhill Terrace, Sunderland; John R. Johnston, 52, Harrogate Street, Sunderland, shipping agent. The first directors are: Matthew Bell, J.P., George R. Booth, J.P., and John R. Johnston. Registered office, 42, West Sunnyside, Sunderland.

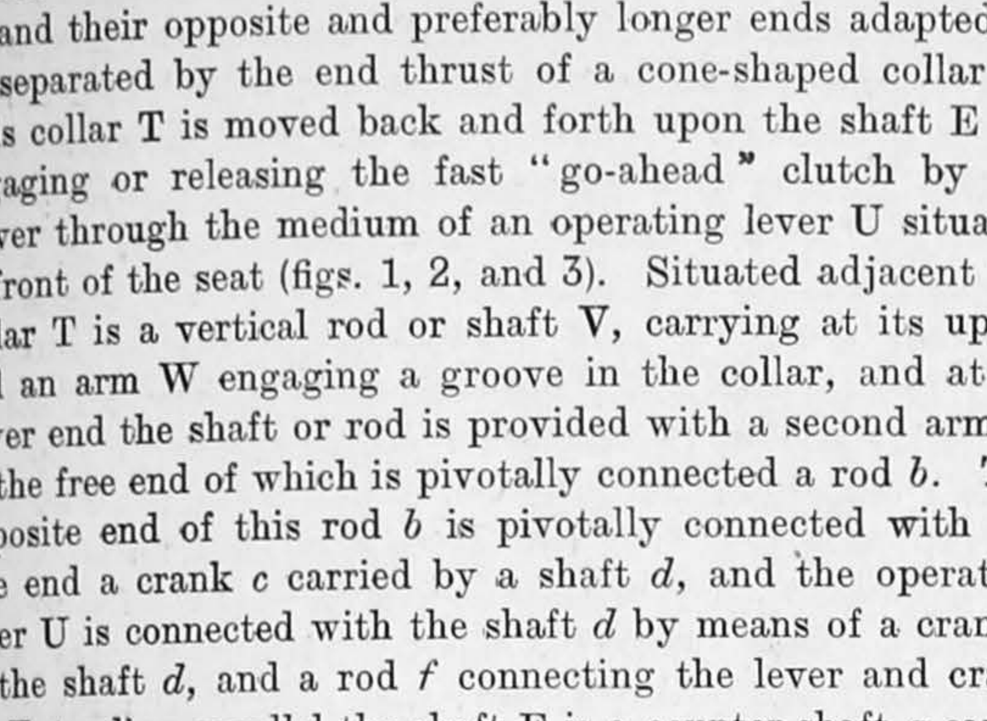
New Patents.

This department is conducted by Mr. G. Douglas Leechman, consulting engineer and registered patent agent, 18, Hertford Street, Coventry; 75, Chancery Lane, London, W.C.; 32, York Street, Dublin; and 9, Exchange Chambers, New Street, Birmingham; from whom any further information respecting patents, designs, and trade marks may be obtained. Any person interested in opposing the grant of patents on any of the undermentioned applications may give notice of opposition in the prescribed form not later than the day appended to each abridgment.

ABRIDGMENTS.

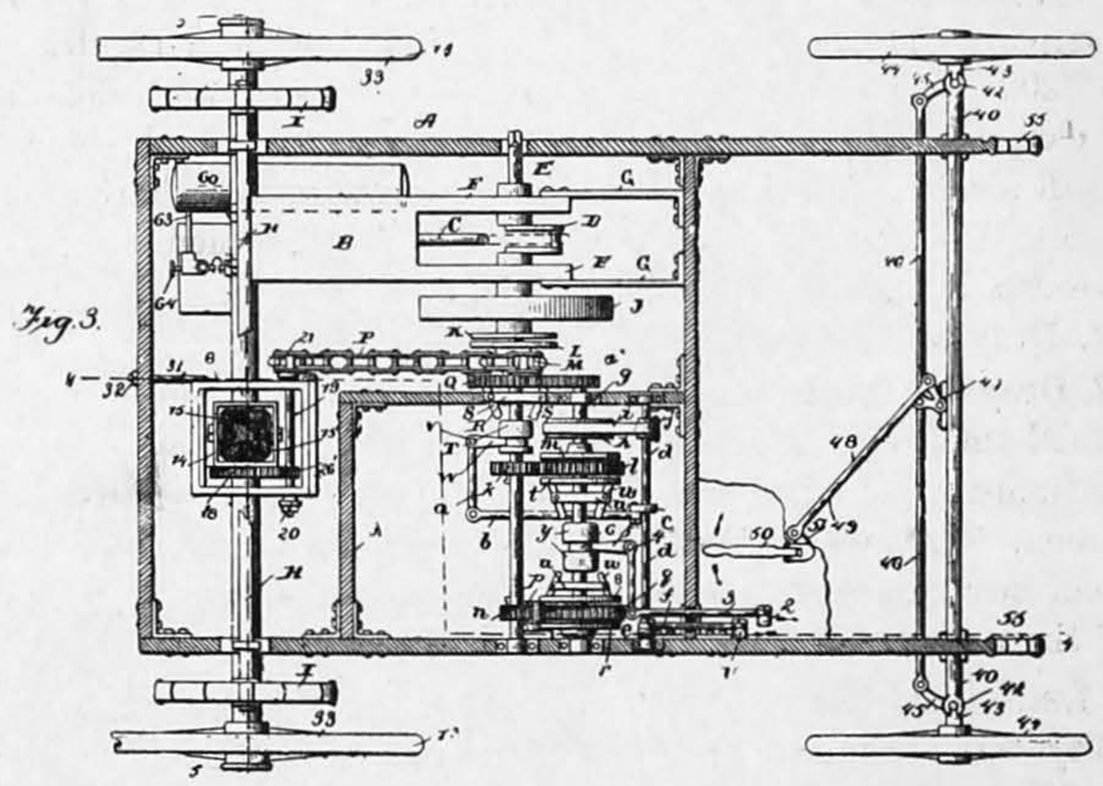
No. 18,805, A.D. 1898, SEPTEMBER 2ND.—MOTOR CARRIAGES, A. WINTON. The frame or body A of the vehicle carries the engine B, the piston rod C of which is connected to the crank D of the engine driving shaft E. This shaft E extends across the vehicle, and supports a portion of the driving and controlling mechanism. The front end of the engine is in the main supported by its driving shaft E, through the medium of the arms F, the auxiliary stays G also serving to support it. The rear end of the engine is bolted to a rear body-shaft H, which in turn has its ends secured to the springs I supported by the rear axle. A balance wheel J and a friction plate K are carried by the shaft E, both being made fast thereto. Situated adjacent the friction plate K is a co-acting friction plate L and a sprocket wheel M, which are fast to each other and loose upon the shaft. Motion is transmitted from the sprocket wheel M to the vehicle driving axle N, through the medium of a sprocket chain P, and an intermediate gearing. The plates K and L and wheel M constitute a "fast go-ahead" clutch. Also attached to the sprocket wheel M and loose upon the shaft E is a gear wheel Q, all of which are adapted to be moved upon the shaft to bring the friction plates K and L together. For moving these parts a collar R is provided upon the shaft E, and preferably composed of two halves, and may be threaded to screw on the shaft, to take up the wear of the friction faces. Intermediately pivoted upon this collar are the two dogs or levers S, having one

of their ends abutting against the adjacent face of the wheel Q, and their opposite and preferably longer ends adapted to be separated by the end thrust of a cone-shaped collar T. This collar T is moved back and forth upon the shaft E for engaging or releasing the fast "go-ahead" clutch by the driver through the medium of an operating lever U situated in front of the seat (figs. 1, 2, and 3). Situated adjacent the collar T is a vertical rod or shaft V, carrying at its upper end an arm W engaging a groove in the collar, and at its lower end the shaft or rod is provided with a second arm *a*, to the free end of which is pivotally connected a rod *b*. The opposite end of this rod *b* is pivotally connected with the free end a crank *c* carried by a shaft *d*, and the operating lever U is connected with the shaft *d* by means of a crank *e* of the shaft *d*, and a rod *f* connecting the lever and crank *e*. Extending parallel the shaft E is a counter-shaft *g* carrying a friction disc *h*, which, together with the band *i* passing around it, produces a brake. One end of the band *i* is attached to the shaft *d*, and the other end is attached to



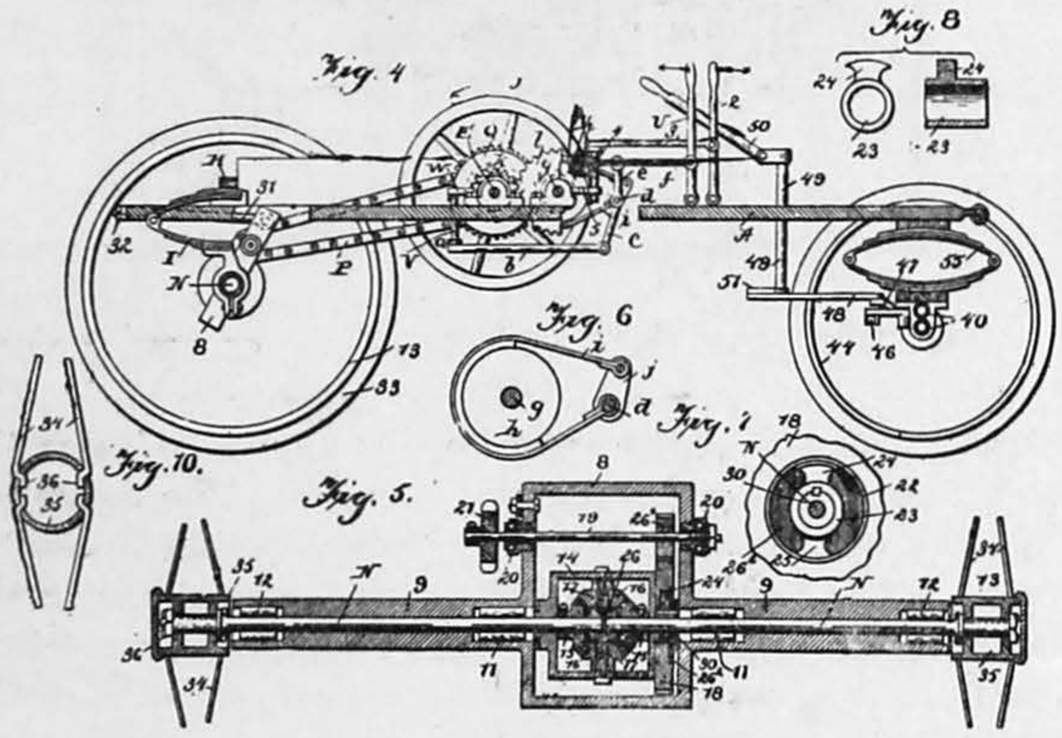
the free end of a crank *j*, which is attached to the shaft *d*. Thus the "fast go-ahead" clutch and the brake are operated by the shaft *d*, and the shaft is oscillated by the lever U. In figs. 2 and 4 this lever U is in its normal position when in a vertical position, and both the brake and the "fast go-ahead" clutch are out of operation. A movement of this lever in the direction indicated by arrow in fig. 4, and the clutch is applied, and the brake band *i* still further slackened. A movement of the lever in the opposite direction past a vertical line applied the brake by tightening the band *i*, and moves the collar T still further away from the clutch operating arms S. It is therefore impossible to apply the brake when the clutch is applied, and by a single movement of the one lever the engine is thrown out of gear with the driving shaft, and the brake applied. This is exceedingly advantageous, in that when the occasion arises for a sudden stop of the vehicle a single movement of one lever accomplishes it, and makes it impossible for the operator to become confused between a clutch lever and a brake lever, thus perchance

applying both. In order to provide a "slow go-ahead" mechanism and clutch, for increasing the power applied to the driving wheels of the vehicle by the engine, or for running the vehicle slow when an engine capable of but one speed is used, the driving shaft E is provided with a pinion *k* keyed thereto, which meshes with a gear wheel *l* loose upon the counter-shaft *g*. Situated at one side of the gear *l* is a friction plate *m* keyed to the counter-shaft, and at the opposite end of the gear wheel is a second friction plate *t*, also keyed to the shaft, but longitudinally movable thereon for clamping the gear *l* between said plates, thus making it fast to the counter-shaft. A backing mechanism is provided through the medium of a pinion *n* fast upon the driving shaft E, which meshes with an idler pinion *p*, that in turn meshes with a gear *q* loose upon the counter-shaft *d*. The inner end of the counter-shaft is provided with a gear a^2, which meshes with the gear Q. A friction plate *r* is fast to the counter-shaft at one side of the gear *q*, and a second friction plate *s* is at the opposite side of such gear and keyed to the counter-shaft, but longitudinally movable in respect thereto for clamping the loose gear between the friction plates, thus making the gear fast to the counter-shaft. The movable friction plates are between and at adjacent sides of the loose gears *l* and *q*. Attached to the counter-shaft *g* are the two collars *u*, each carrying two dogs or levers *w*, having one of their ends engaging the adjacent face of their respective friction plate, and their opposite ends adapted to be separated by the collar *y*, which has its ends tapered or rounded. When the collar is moved in one direction it operates the "slow go-ahead" clutch,



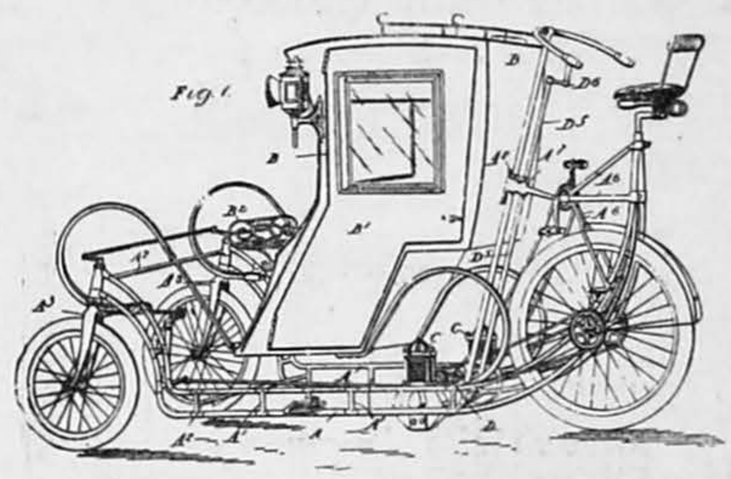
and when moved in the opposite direction it releases that clutch and applies the "backing" clutch. The collar *y* is operated through the medium of a lever 2 situated near the lever U. This lever has one end of a rod pivotally connected therewith, the opposite end of such rod being connected to an arm or crank extending from the upper end of a vertical shaft 4, this shaft having at its lower end a crank arm 5 engaging a groove 6 in the collar. When the lever 2 is in a vertical position the collar is out of operation with either the "slow go-ahead" or the "backing" clutch. When moved forward it applies the "backing" clutch, which transmits power through the gears *n p q* a^2 and Q to the sprocket wheel M; when, however, the lever is moved in the opposite direction beyond a vertical position, the "slow go-ahead" clutch is applied and power transmitted through the gears *k l* a^2 and Q to the sprocket wheel M, and the "backing" clutch is released. A casing 8 has firmly connected therewith oppositely extending shaft housings 9, through which the shafts N extend. This housing is provided at its outer ends with bearings 12, and at their inner ends with bearings 11 for the shafts. The rear wheels 13 of the vehicle, which are the driving wheels, are keyed fast to the outer ends of their shafts. Situated within the casing 8 is a differential gear

casing 14, in which are placed the differential bevel gears 15 and 16. The gears 15 are firmly connected to the inner ends of the shafts, and the gears 16 are journalled at right-angles to the gears 15 on the trunnions 17, upon which they freely revolve. Uniting the inner ends of these trunnions 17 is a box 26, which serves to strengthen the trunnions. To this casing 14 is attached a driving gear 18 meshing with pinion or gear 26' upon a counter-shaft 19 having ball bearings 20, and carrying on its projecting end a sprocket wheel 21, around which the driving sprocket chain P passes. When the carriage is running in a straight line the gears 15 and 16 stand still, but when the carriage is turned from a straight line, one of the shafts, and consequently one of the wheels 13, will revolve faster than the other, and this is permitted by the revolving of the gears 16 upon their trunnions. To prevent the impulses of the motor being conveyed to the driving wheels a yielding connection is provided for the gear 18 to the casing 14. The gear 18 is furnished with a cavity 22 in its outer face, a sleeve 23 is firmly connected to a sleeve 30 of the differential casing, the sleeve having an arm 24; the gear 18 has an arm or shoulder 25 extending into the cavity, and in the cavity is placed soft rubber 26^2 abutting against the arms 24 and 25. To provide for the tightening or loosening of the driving chain P one end of an adjustable rod 31 is attached to the casing 8, and its opposite end is furnished with a nut 32 abutting against the frame of the vehicle. The front axle is composed of two tubes 40 placed one on top the other, and secured together by welding and the straps 41 near each end thereof. The ends of these tubes are turned respectively upward and downward, and then outward to form elongated vertical bearings or sockets 42, between which the short wheel bearings 43 of the front wheels 44 are vertically journalled. Projecting rearward, and preferably inclined inwards from each wheel bearing 43, is an arm 45, and these arms are connected by a rod 46 extending parallel with the axle 40. A bell crank lever 47 is intermediately pivoted to the axle, one of its ends being pivotally

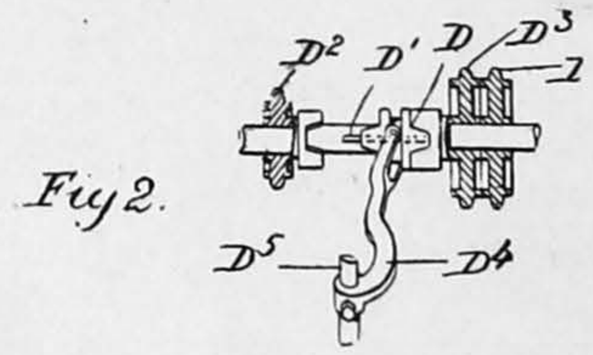


connected with the rod 46. Pivotally connected with the other end of the bell crank lever is a link 48, which has its opposite end pivotally connected to a crank arm 51 at the lower end of a vertical shaft 49. Pivotally attached to the upper end of this shaft is an operating lever 50. The forward end of the vehicle is attached to the front axle 40 through the medium of springs 55, which are firmly connected with both. The bottom of the body is open, and the top of the body in rear of the seat is provided with wire netting windows or doors, whereby there is at all times a free circulation of air, and a free escape of the heated air from the motor. The engine B is provided with a water jacket, and a water tank 57 is provided. Water circulates from this tank to the water jacket through a top pipe 59, and a bottom pipe. This tank 57 is situated at the right side of the vehicle, and is provided with a plurality of radiating ribs 58 around its surface, which carry off the heat so rapidly that the water seldom reaches a temperature of 212 degrees. Situated at the left side of the vehicle is gasoline tank 60, having an indicator 61, and a filling orifice 62. A pipe 63 conveys gasoline to the engine.

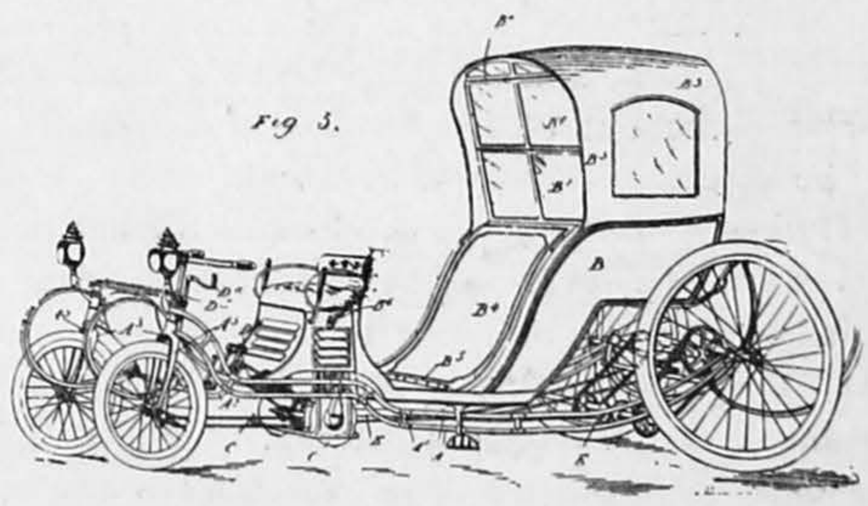
No. 24,494, A.D. 1897, OCTOBER 22ND.—MOTOR ROAD VEHICLES, H. J. LAWSON. The vehicle shown in fig. 1 comprises a tubular framework mounted on three wheels, and carrying a body shaped like the body of a hansom cab. The tubular frame has four longitudinal members A, two on either side of the vehicle, those on the same side being placed one above the other and connected together by short vertical struts A^1, the two pairs of members thus formed being connected by two or more stays A^2. The front of the frame is curved upwards, and provided with forks A^3 A^3, carrying the steering wheels; the rear of the rame also curves upwards, the four longitudinal members being brought to a common focus at A^4, where a seat A^5 is mounted for the driver. A single rear driving wheel is mounted in bearings between the two pairs of longitudinal members, a long wheelbase being given for the sake of stability and easy



running. The body B of the vehicle is suspended upon the frame by C springs. The driving mechanism consists of one or more motors, preferably of the De Dion type, with tube ignition, and sprayed petrol, so secured to the vehicle



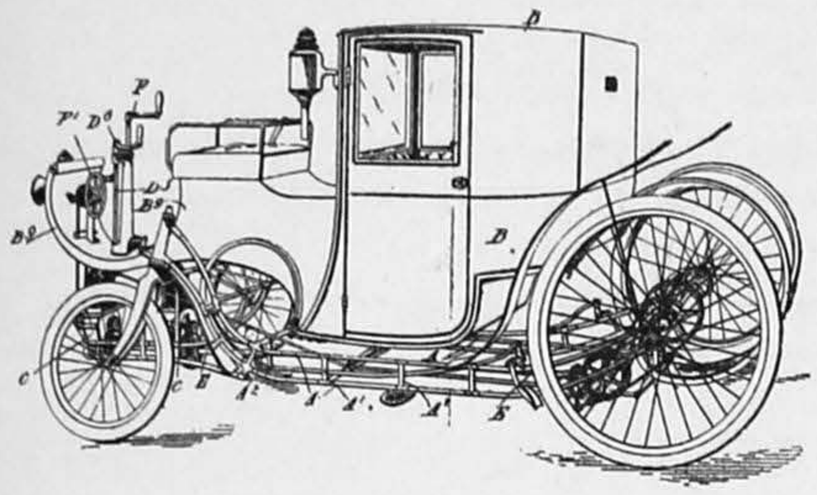
as to project below it sufficiently far to be cooled by the air current beneath the cab body. The motor shaft, which preferably has one motor C, at each end, is provided with two or more sets of chain or other speed-gear, operatively connected with the driven road wheel so as to be capable of giving it different speeds. A clutch D is mounted on the motor shaft (fig. 2), being free to move in a longitudinal direction, but caused to rotate with the shaft by means of the feather D'; the speed-gear wheels D^2 D^3 are mounted loose upon the motor shaft, and thrown into action by sliding



the clutch D into engagement with one or the other. The clutch is operated by means of the lever D^4, the connecting rod D^5, and the handle D^6, the latter being within easy reach of the driver. In proximity to the driver's seat is a pedal shaft D^7, mounted in a bracket supported from the

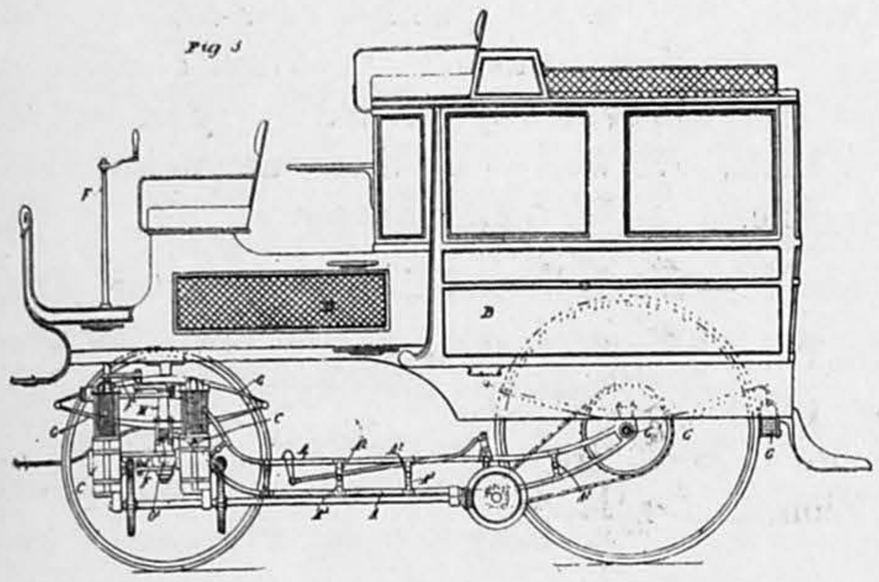
frame by stays A^6, and gearing with the chain wheel D^8 fixed on the motor shaft, so that the driver can start the motor with or without moving the vehicle. This starting gear may be used to move the vehicle for reversing, etc., whilst the motor is thrown out of gear. Also the starting

Fig. 4



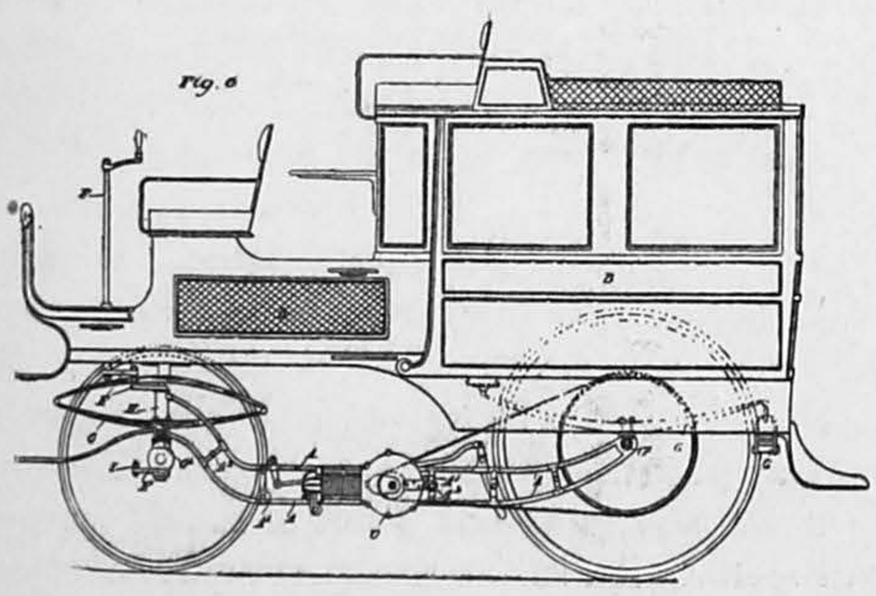
gear may be provided with a ratchet and pawl device, which will permit the parts operated to over-run the gear as soon as they have acquired a greater speed. Fig. 3 shows a four-wheeled vehicle of the "Victoria" type, with a hood B^3 preferably of a permanent character, and with an apron B^4, turning about a hinge B^5 at its lower edge. The frame comprising the members A A^1 A^2 is slightly modified, the part

Fig 3



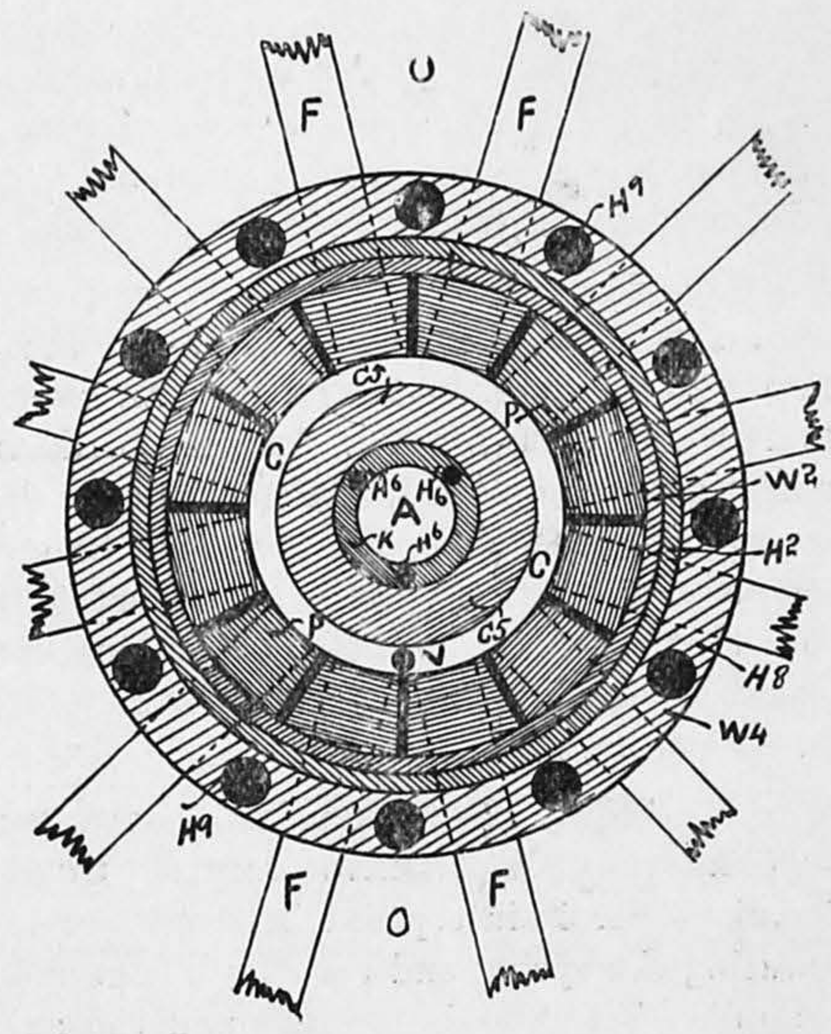
A^4 being done away with, the driver's seat being in this case on a box B^6 in the fore part of the vehicle. The motors C are arranged beneath the driver's seat, and operate through clutch-gear a longitudinal shaft E, extending to the rear of the vehicle, where it is geared down and connected with the rear road wheels. Fig. 4 shows a further modification, the motor vehicle having the appearance of a single brougham, the front of the body of the vehicle being carried forward and upwardly curved, as at B^9, to form a dashboard The steering spindle F is arranged vertically in front of the driver's seat, and the controlling handle F^1 for starting the engine turns in a vertical plane just in front of the seat, and

Fig. 6



preferably below the level of the cushions. The motors and the driving shaft are disposed in the fore and aft line of the vehicle, the motors C being preferably at the leading end under the driver's seat, and the speed-gear at the trailing end of the vehicle. Fig. 5 shows an omnibus type of body B. The C springs are dispensed with, and ordinary springs G used in their place, being carried upon the axles G^1. The front forks A^3 are removed and the frame A is carried at each end of the fixed axle G^1 by a hollow vertical pillar H. The wheels of the steering mechanism F are carried on separate axles capable of turning on vertical pivots at the ends of a fixed axle. In this case the vertical pivots are arranged to turn within the hollow pillars H on the fixed axle G^1. The separate axles are made to operate together by means of the connecting rod I. Fig. 6 shows a similar gear slightly modified. Two horizontal motors C are mounted on the frame A, and drive by belt and pulley on to the rear road wheels. Several speed pulleys are mounted on the motor shaft C^1, and a corresponding number upon the axle of the rear road wheels of the vehicle.

No. 27,597, A.D. 1897, NOVEMBER 24TH.—PNEUMATIC EXPANSION WHEELS, J. B. SMALL AND J. W. O. WALKER. This relates to patent No. 6,202 of 1896. The wheel is fitted with wooden felloes encircled by an iron tyre. A is the axle or space for the axle surrounded by the nave K. The boss is padded with soft material such as solutioned cloth wound round with string or tape. Bolts H^6 clasp together the inner and outer discs H^3 and H^4. A concentric ring C^5 of solid indiarubber on the outer side serves the same purpose as C^3 on the inner side, which, in the event



of sudden deflation, enables the wheels to be run without sustaining damage to the plunger tips. The pneumatic air-chamber is placed in the circular space. When in expansion this circular space is regular all round the plunger circle composed of the plungers D, into which the spokes F are mortised. The outer hub ring W^2 consists of rubber, and the outer hub ring H^2 of iron, covering W^2, which has a flange W^4, whilst the flange H^8 of the outer hub ring H^2 holds W^4 in position. Bolts H^9 unite H^7 and H^8.

No. 23,625, A.D. 1898, NOVEMBER 9TH.—VALVE ARRANGEMENT FOR MOTORS, W. P. THOMPSON (communicated by the Gesellschaft für Automobilwagenbau). The suction valve and discharge valve of a four-stroke petroleum motor are arranged at right angles to one another in a plane, which is vertical to the axis of the cylinder, with the object of diminishing the deleterious space existing in the compression chamber. They are governed or actuated by a cam disc in the same plane. With the same object the valve spring is arranged outside the working cylinder. This spring connects the ends of the valve levers with one another, and presses both valves simultaneously on their seats.

No. 27,640, A.D. 1897, NOVEMBER 24TH.—STEERING, C. H. ROGERS AND J. TURK. Both the front and rear axles of the vehicle are pivoted midway their length to the pole or reach,

which extend between them. A grooved length of metal or wood extends from the centre of each axle towards the centre of the reach, and each grooved length is fitted with a sliding bar; the two bars being pivoted together. A rod connects one sliding bar to the stationary grooved piece projecting from the opposite axle. When one axle is swung round to either side the other axle is swung in the opposite direction, so that all four wheels are in position for the vehicle to turn.

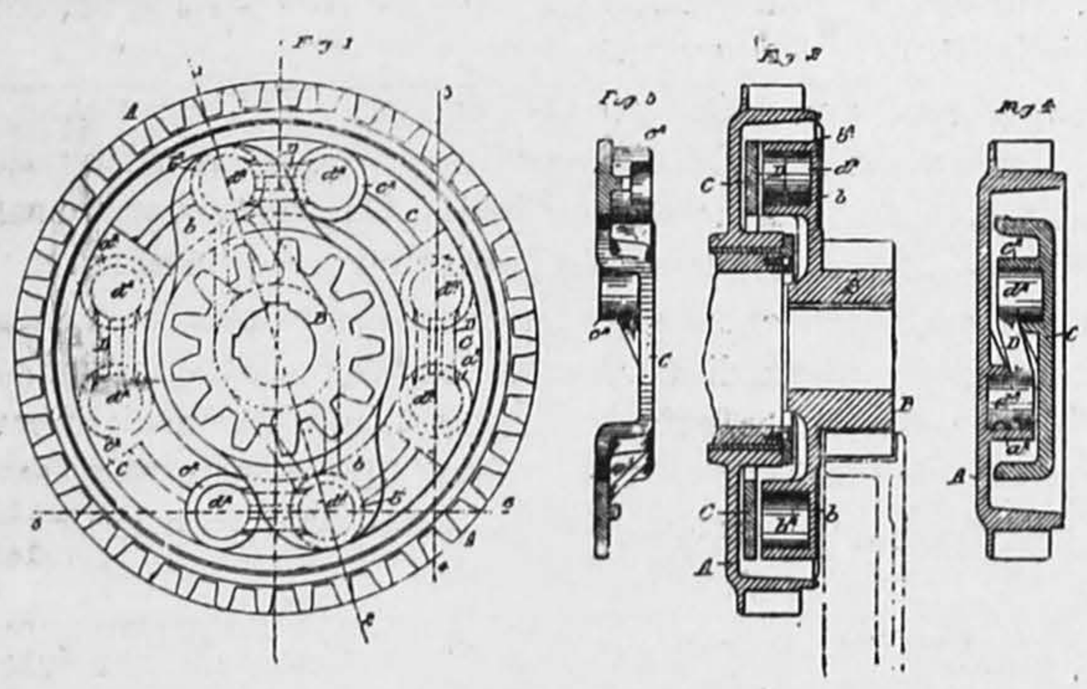
No. 23,628, A.D. 1898, NOVEMBER 9TH.—CRANKSHAFT, W. P. THOMPSON (communicated by the Gesellschaft für Automobilwagenbau). This crankshaft is made in several parts, a hardened crank-pin on an arm being connected by means of this arm with one section of the shaft, and then by its tapering end being let into the flywheel on the other section of the shaft. A steel bush is let into the flywheel in order to obtain a durable connection of the tapered crank-pin end with the flywheel.

No. 9,567, A.D. 1898, APRIL 26TH.—CRANK MECHANISM FOR ENGINES, G. A. PHILIPON. One end of a lever is pivoted to the end of the piston connecting rod on the engine, and the other end to the engine frame or bed. Mounted in bearings fixed on the bed is a crankshaft, on one end of which a pulley or flywheel is provided. The shaft is cranked near its centre or that part which passes through a slot formed in the lever. By means of this lever the reciprocating motion of the piston rod is converted into a circular or revolving motion of the crankshaft, which is imparted to the driving pulley or flywheel.

No. 29,318, A.D. 1897, DECEMBER 11TH.—CONTROL AND REGULATION OF ELECTRICALLY-PROPELLED VEHICLES, E. J. WADE AND THE ELECTRIC MOTIVE POWER CO., LTD. The motor or motors are series wound, and storage cells are joined in shunt across their field coils, the E M F of the cells and the resistance of the coils being so proportioned in relation to each other that when the normal magnetising current is passing through the main circuit, no current is flowing into or being given out by the shunt cells.

No. 29,187, A.D. 1897, DECEMBER 9TH.—ATTACHING THE SPRINGS OF CARRIAGES, A. GIMMIG AND E. CUENOD. A cushion of indiarubber is interposed between two sheets of felt for separating the spring and the axle block, and linings of felt are applied between the springs and the axle clips, which serve to fix them to the axle. A metal plate having raised ends is interposed beneath the felt linings of the axle clips to prevent lateral displacement of these clips.

No. 25,880, A.D. 1898, DECEMBER 7TH.—COUPLING FOR TRANSMITTING MOTION, J. MARSHALL. This coupling is designed to connect driven and driving parts in cases where



relative movement between them has to be allowed for, and is used between an engine-driven spur wheel A and a second motion shaft carrying a pinion B. A floating or intermediate ring C presents recesses alternately on each side, and in or about the same plane, each for the reception of one of the links D, one end of each of which is connected to the ring C, alternately at opposite sides thereof, and in the said recesses; those connected at the one side of the ring being connected, by their other ends, to the wheel A, and those connected at the other side of the ring being connected, by their other ends, to lugs b on the pinion B. The connection of the links D is effected by forming these links with circular bosses d^2 one at each end and on sides opposite to each other, the bosses d^2 fitting into corresponding recesses c^2 a^2 and b^2 formed in the plate C and wheel A, and pinion B, so that the bosses can turn in the recesses.

Answers to Correspondents.

J. SHEPHERD.—To hand, with thanks.

C. F. M.—Many thanks for your calling our attention to the matter. We shall be pleased to deal with it in the way you suggest.

DISGUSTED.—We do not publish your letter, as no good can come of so doing, but the American contemporary to which you refer has evidently gleaned a very fair appreciation of the position, and we, with others, are waiting for something tangible.

S. NEWTON.—We believe this is due to the cars which have not the third speed being geared lower on the second speed. It is understood that the Crypto gear is only to be used on very steep hills, but without this it is necessary to make provision for possibilities, and consequently the second speed has to be lower on the two-speeded cars.

HUGH CONYBEARE.—(1.) So far as we know only a few vehicles have been made, and almost everyone has been of a different type, that is, more or less of an improvement on its predecessor, but the smell of the exhaust is still particularly pungent. We have no evidences of any regular performances by these cars, and could not recommend them at present, unless the makers would let you have one on approval. (2.) Roots and Venables, 100, Westminster Bridge Road, London, S.E.

J. N. A. FRYMAN (Londonderry).—We would suggest that you make a point of coming over and attending the Automobile Club Show. You will then be able to see a great variety of cars of the latest types in actual use. A great deal depends upon how a car is cared for and handled, and that, of course, can only be learnt by experience, and a certain amount of intuitive ability. We have not tried the car about which you enquire, but believe it to be a fairly satisfactory article. The objection you raise is one upon which we also place considerable stress. We decidedly prefer four wheels. We are glad you find *The Autocar* so interesting.

J. M. BLOOM.—There is no automatic arrangement on the market at present suitable for tricycles. The only one made is the Daimler, and that is not of suitable proportions for a small motor. All surface carburetters seem to have the objection of necessitating air adjustment, but there must be some other cause in your case, as difficulty in starting should be quite the exception, not the rule. There is at present no book on the subject, but a great deal of information can be gleaned from Baudry de Saunier's "L'Automobile Théorique et Pratique," which you can obtain from the United Motor Industries, 3, Rue Meyerbeer, Paris. It is only published in French.

Miscellaneous Announcements.

All advertisements inserted in this column must be strictly prepaid.

Under this head we are prepared to insert advertisements of autocars and other goods for sale, situations vacant and wanted, patent rights, partnerships, businesses for disposal or wanted, and other miscellaneous announcements of a like character. The charge for each insertion is 2s. 6d. for thirty words or less, and 6d. for every six words or less in addition, and a discount is offered of one free insertion in a series of thirteen, i.e., a 2s. 6d. advertisement will be inserted thirteen times for £1 10s., etc. All advertisements or series of advertisements inserted in this column must be strictly PREPAID, *and must reach* COVENTRY *not later than* MIDDAY *on* WEDNESDAY *to ensure insertion.*

Numbered Addresses. - *For the convenience of advertisers, letters may be addressed to numbers at* THE AUTOCAR *Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o* THE AUTOCAR, *19, Hertford Street, Coventry," or if "London" is added to the address, then to the number given, c/o* THE AUTOCAR, *3, St. Bride Street, Ludgate Circus, E.C.*

Deposit Department.—*Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with* THE AUTOCAR *both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration, and a deposit fee of 1¼ per cent. on the value of the transaction. All deposit matters are dealt with at Coventry.*

All advertisements inserted in this column must be strictly prepaid.

SITUATIONS WANTED AND VACANT.

MOTOR Car Engineer, first-class, wanted, Daimler; none but good steady men need apply; salary £2 10s. weekly; permanent place.—Address, with copies testimonials, L. HODGSON, 71, Suffolk Street, Sunderland.

THE SHARE MART.

WILL accept £50 for 349 deferred shares in the London Motor Van and Waggon Co. - No. 1,500.

WHAT offers for fourteen ordinary and 344 deferred shares in the London Electric Cab Co.?—No. 1,499.

FOR Sale.—Ten £10 shares in the Daimler Motor Co. Wanting immediate cash, will accept £45. - No. 1,498.

AN opportunity for speculation.—Advertiser is open to consider any reasonable offer for 150 British Motor Co. ordinary shares; 100 preference (five per cent.) and 100 four per cent. debentures.—No. 1,501.

CARS, &c., FOR SALE AND WANTED.

MOTOR Carriages of latest construction wanted by GUSTAV SCHWENZER, Kerefeld, Germany.

WANTED, Benz or similar car, cheap for cash. State when new, and give full particulars.—F. W. HODGES, 92, Wandsworth Road, S.W.

WANTED, open front (ladies' machine) 1899 De Dion 1¾ h.p. tricycle, electric ignition; latest pattern; lowest cash price. - Address, W. T. LINAY, 21, Elgin Avenue, London, W.

WANTED, De Dion motor tricycle, or quadricycle; if possible with twin motors; send all particulars, with photo; new or second-hand.—Address, No. 1,475, *The Autocar* Office, Coventry.

WANTED, 1¾ h.p., 1899 pattern, French make, De Dion convertible quadricycle; also 3½ h.p. Bollée (second-hand).—SHEPHERD'S MOTOR CAR EXCHANGE AND MART, 15, Somerset Place, Boscombe, Bournemouth.

DE Dion Tricycle, 1¾ h.p., electric ignition, Eadie front fork, fast machine, perfect condition; £63.—Address No. 1,492, *The Autocar* Office, Coventry.

BOLLÉE, with or without canopy, to be sold cheap; cost £150, owner buying large car instead. Inspection and trial solicited.—MOTOR AGENCY Co., Ryley Street, Coventry.

IMPERIAL Hurtu dogcart for sale, slightly used, 5½ h.p., pneumatic tyres, hood, aprons, speed twenty miles per hour, cost £250; price £150.—GOODMAN, Bletchley Road, Bletchley, Bucks.

BENZ Ideal for sale, nearly new, Connolly tyres to back wheels, latest improvements and additions, Brampton chains and wheels; price £125.—No. 1,493, *The Autocar* Office, 19, Hertford Street, Coventry

TWO h.p. alternating motor by Langden Davies, to suit 100 volt circuit, with starting switch and resistance; has never been used; £25.—ILIFFE, SONS & STURMEY LTD., *The Cyclist* Printing Works, Coventry.

FOR Sale, two-cylinder Benz dogcart, all latest improvements, 1899 pattern, guaranteed sound, good hill-climber and fast.—For full particulars, price, etc., apply No. 1,503, *The Autocar* Office, Coventry.

FOR Sale, the patent rights of an excellent mechanical joint, specially suitable for motor cars, tricycles, etc., of tubular construction.—For full particulars apply W. L. ADAMS, 319, London Road, South Lowestoft.

1899 De Dion Tricycle, 1¾ h.p., new in February last, all latest improvements, complete with extra tank, side wheel mudguards, lamp, etc; price £65; may be seen and tried in London.—NAPIER, Parkside, Surbiton Hill Park, Surbiton.

FOR Sale, water-jacketted horizontal motor, made from Endurance Co.'s castings; splendidly finished every respect. Sparking plug, lubricators, etc., complete. Any further information per post. Offers. —HAYTON, High Street, Wigton.

SPECIAL Racing De Dion, with petrol and lubricating arrangement, 28in. wheels, special Dunlop tyres; speed over thirty miles an hour; almost new; for sale, price £85. —C. JARROTT, The British Motor Company, Ltd., 40, Holborn Viaduct, London, E.C.

DAIMLER Phaeton for sale, 5½ b.h.p., near to new, will take any hill, has been running in Lake District and Derbyshire; fittings, electro silver-plated; upholstery, best morocco; owner purchasing more powerful car. – Can be seen at our London Showrooms, 219, Shaftesbury Avenue, London, W.C.

THE renowned Delahaye racing car for sale, will take steepest hills loaded with six adults, smoothest and fastest carriage going, will go 120 miles without requiring further supply of spirits or water, fitted with pneumatic wheels, also a set of ordinary wheels; to be seen, tried, and tested.—Apply L'HOLLIER, 6, Bath Passage, Birmingham.

GENERAL TRADE ANNOUNCEMENTS.

TRANSFERS for Autocars.—Write for sketch (free) and prices, enclosing wording, to ILIFFE, SONS & STURMEY LTD., Coventry.

MOTOR Carriages, deliverable directly, system Panhard, Benz, Peugeot, Mors, Decauville, Cambier, Rochet, Silmeider; tricycles.—Apply to GÉO. DE LA NÉZIÈRE, 51, Rue Vivienne, Paris.

BENZ Car Fittings.—Chain lubricators, guards, tanks, extra air valves and cylinder covers, plugs, Deitz lamps, rubber mats, long-spouted oilers that won't leak. Any other fittings quoted for.—Below.

ELECTRICAL Ignition.—Special coils, flaming spark, ignition plugs, portable accumulators a speciality; motors, frames, transmission gears, wheels, etc., manufactured to any specification; enquiries invited; repairs promptly attended to, charges moderate.—F. C. BLAKE, Ravenscourt Works, Dalling Road, Hammersmith, London, W.

EXCEPTIONAL Offer.—New Benz Cars, all our latest improvements, electric light, regulating lever handy, etc. Eclipse cars sold by others for power. £25 worth extra work put in. Sold at usual prices.—HUNTER, Eastdown Works, Lewisham.