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# The BROOKLANDS GAZETTE

No 3

SEPTEMBER, 1924

VOL. 1

The only Organ devoted entirely to the Sport of Motor  
Car and Motor Cycle Racing and Competitions.

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## NOTICE TO CONTRIBUTORS.

All contributions, whether literary, artistic or photographic, will be carefully considered by the Editor. A stamped, addressed envelope should be sent with every contribution, and the Editor will endeavour to return all matter he is unable to accept. Neither the Editor nor the proprietors are responsible for the loss of any contributions.

## NOTICE TO CLUB SECRETARIES.

Club Secretaries are specially invited to send the Editor paragraphs about the activities of their Clubs, and, in particular, notice of forthcoming events. All reports of competitions, meetings and other events should be sent to the Editor as early as possible, and must be received by the 20th of the month, to ensure attention for the next issue. Address contributions to: The Editor, BROOKLANDS GAZETTE, 65, Victoria Street, London, S.W. 1.

## Editorial Notes.

There has recently been a sharp revival of the old controversy as to whether motoring competitions should be held on Sundays. This arose out of a police prosecution at Pwllheli, where a member of the Liverpool Motor Club was summoned under a three hundred year old Act for " congregating outside his own parish in concourse with other people on Sunday for the purpose of sport and pastime." What the motorist was actually doing was taking part in a hill-climb at Screw, the notorious hill near Nevin, Carnarvonshire, which, incidentally, has so far defeated most motor vehicles that have attempted to ascend it. In course of the hearing by the Pwllheli magistrates it was stated that the Act of Charles I made it illegal for two parishes to congregate in a cricket match on Sunday, but that it was within the law for teams within the same parish to play. Mr. Dean, who appeared for the R.A.C., and the Liverpool Motor Club, who organised the hill climb, submitted that the Act was passed to stop admittedly disorderly customs on the Sabbath, such as bear baiting and bull baiting. He emphasised that on this occasion there was no disorder, quarrel, or bloodshed, and that neither the defendant nor the Liverpool Motor Club had the least desire to annoy anybody. He also submitted that the charge must fail, because it was impossible for an individual to " assemble " himself, as it was admittedly impossible in law for one person to be guilty of a conspiracy. For the prosecution it was stated that the hill climb caused people to assemble from many parts of the country, and that the noise consequent upon the competition, interrupted the services in several chapels. After a short retirement the magistrates dismissed the summons.

## EDITORIAL NOTES—continued.

We think the dismissal of this summons was the only possible just decision, and it was no doubt largely influenced by the fact that it is physically impossible for one person to "assemble" himself. At the same time, we hope that those who are interested in Sunday competitions will not be inclined to take refuge in what may be only a technical victory. The question of Sunday sporting events held on the roads or in other public places is certainly one in which the public in general should be considered. In view of the present state of public opinion, as well as by personal inclination, we are against the promotion of motor-ing competitions on Sundays. We are glad to recall that neither the Royal Automobile Club nor the Auto-Cycle Union has ever granted a permit authorising the holding of an open event on the Sabbath, and we hope they never will do so. Although we can see nothing intrinsically wrong in a motoring competition held on Sunday, we are deeply conscious of the general attitude of English people in regard-ing Sunday as a day of rest and of sacred associa-tion. This attitude, we would submit, should be rigorously respected, both in a spirit of common citizenship and for the ultimate good of motoring sport. That motoring sport does benefit by none of the classic events being held on Sundays we are quite satisfied. In this connection it should be remembered that many of the keenest motoring sportsmen are adverse to Sunday competitions.

\* \* \*

In saying this, we would emphasise that we are not casting the slightest reflection upon the Liver-pool Motor Club. We are quite sure that this Club is conducted by excellent sportsmen who are anxious not to inconvenience or annoy anyone on Sundays or on any other day; and that in the usual way they always consult the local police before they hold such an event as a hill climb.

\* \* \*

Whilst we personally disfavour the holding of competitions on Sundays, we should be amongst the first to resist the exercise of any outworn legis-lation which would infringe upon the liberties of the individual in regard to motoring in general on Sundays. We think, as a case in point, that the Act of Charles I may well be allowed to lie dormant, for it was certainly not devised under the conditions which now govern the preservation of corporate liberties.

In this issue a contributor deals exhaustively with the uses of the crash helmet, and shows how this device, according to the efficiency of its design, preserves motor cyclists from head injuries when they part company with their machines at speed. It is extraordinary that there are still some racing motor cyclists who raise objections to wearing these wonderful protectors. We term crash helmets wonderful protectors advisedly, for no one who has seen some of the falls we have, resulting in no injuries to the victims thereof, can doubt that many a life has been saved by them. The A.C.U. now wisely insists upon crash helmets being worn by all competitors in the speed trials run under its auspices. Having given patient attention to the evolution of the crash helmet, the Union, in conjunction with the manufacturers, has now brought the approved types almost to a state of perfection. The helmets are no longer uncomfortable, unduly heavy, or even tremendously hideous. They are sold at a price that no keen rider should object to paying, considering their potential practical value; and they can even be obtained on loan from the A.C.U. by competitors who only occasionally enter for speed events. We trust that the article in this number may assist any still doubting riders to conclude that the crash helmet is a veritable boon and in no sense a burden.

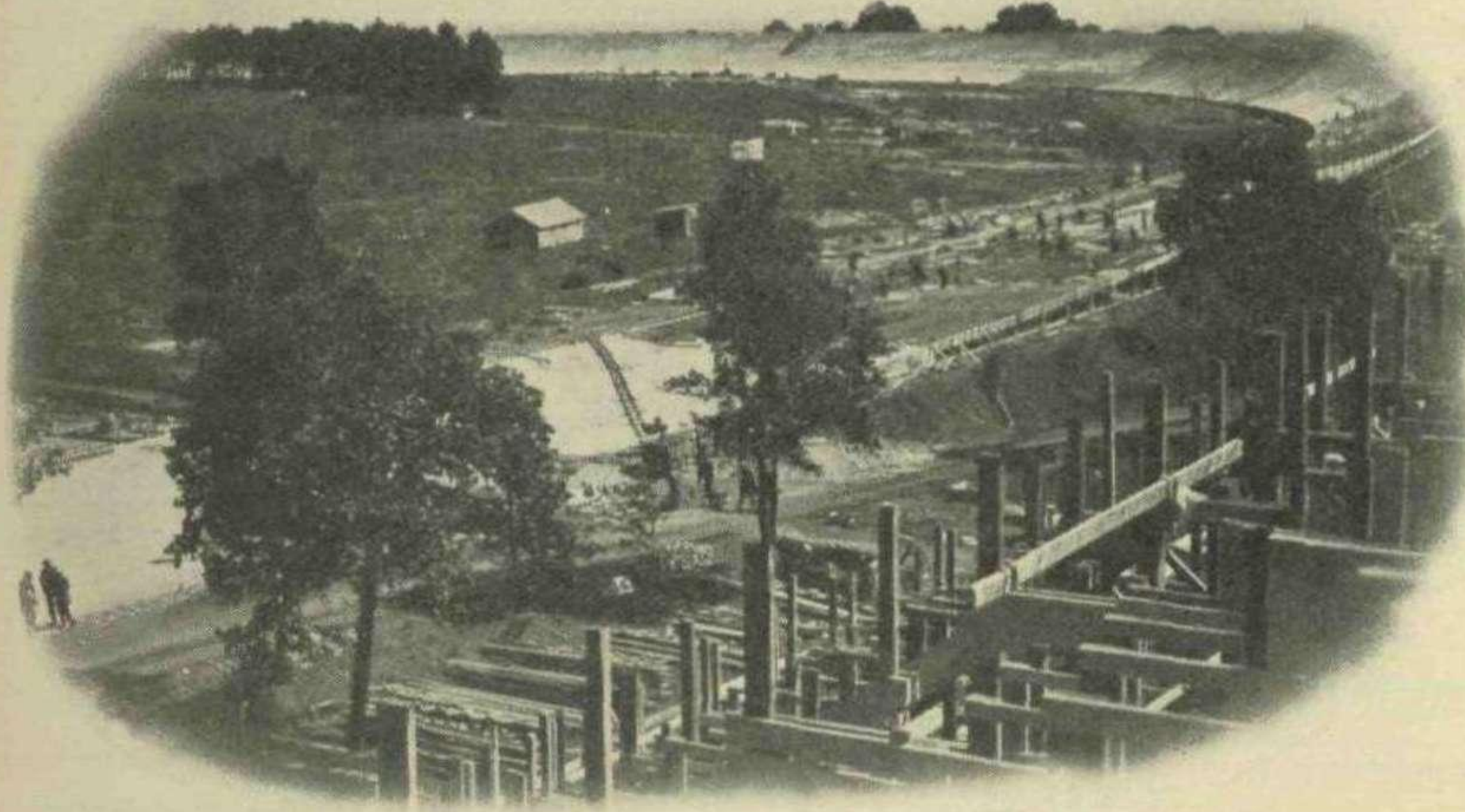
\* \* \*

Safety in speed is a factor of which it is not easy to convince the non-motoring mind. Recent obser-vation in town and country has convinced us that in these days many accidents are saved by cars being able to go fast. Rapid acceleration when in a difficult position often avoids a smash, and it is often as important to be able to jump ahead, as to pull up suddenly. In this respect the driver of a modern sporting car usually has advantage over the driver of more sedate touring vehicles. We are afraid, however, that the non-motoring public often concludes that the "sporty" looking car is less safe than a touring type. This is probably especi-ally so when the sports car is on the noisy side and therefore gives a false impression of speed. It remains, therefore, for owners of sporting cars to drive discreetly under all circumstances. If they do so we think that whatever prejudice still remains, may soon be banished. People in general will see that the typical sporting car is usually under better control than any other type, and that although it is capable of very high speed this is in itself a factor of safety.

## THE WONDERFUL FRENCH "BROOKLANDS."

Big Improvements  
and Possibilities.

Reviewed by CYRIL PULLIN.



A PANORAMA OF THE RACING TRACK, SHOWING WORK IN PROGRESS.

THE new motor course now under construction at Montlhéry, is situated approximately seventeen miles south of Paris, and is approached by the main highway No. 20, leaving Paris at the Port d'Orleans, and thence through Montrauge, Bourg la Reine, la Croix de Berny, and Longjumeau. Unfortunately the condition of the approach road, which is of pavé, is rather bad for at least twenty miles. The roads in the actual vicinity of the track are not yet completed, but when finished will provide three one-way roads to the track, and three similar roads from the track.

The track itself is situated approximately 160 ft. above sea level, amidst beautiful and densely wooded, hilly surroundings, the estate covering over 400 hectares (1,100 acres), and containing a large and artistic chateau which is to be the club house. A dense wood isolates the club house from the track, and the wood it is hoped will form a screen to the noise from the track. Outside the club house is a model of the track exactly one-tenth scale, and raised on a grass bank of about 3 ft. high. The track itself is of reinforced concrete pillars, and surfaced with fine cement, the inner ten feet having been specially smoothed for motor cycles, and the top twenty feet considerably roughened to prevent skidding when cars are entering and leaving the bank at high speeds. The track is 2.5 kilometres round, and has two straights, approximately 400 metres in length, the straights actually having a banking of 5 per cent.

A "Bumper" or keep, is being erected on top and around the outer edge of the track composed of boarded oak posts, and will be approximately 5 ft. high. A similar arrangement has been very successful in America. On the inner edge of the track, a soft loose earth band about 10 ft. wide is arranged, so that cars or machines leaving the track out of control will find a comparatively soft place to come to rest, which no doubt may save a badly broken or bent chassis, and also give the driver and mechanic an improved chance of "getting away with it." Two "run offs" are arranged for leaving the track, which lead into a cement safety area.

As will be seen from the accompanying photographs, the banking is exceptionally high, much higher, in fact, than that at Brooklands. In its present stage of evolution, it has made some hardened drivers feel quite giddy to look up to the top! The centre of the track is quite clear of all obstructions, and will comprise the main public enclosure, communications thereto being by seven tunnels arranged around the track. The Grand Stand, which should hold 10,000 people, is built on the outside of one of the straights, and provides a clear uninterrupted view of the track. It is situated immediately at the points of excitement, *i.e.*, starting line, replenishment pits, and where the cars leave and enter the beautifully constructed banked turns. The replenishment pits are permanent and so arranged that fresh supplies can be taken into them from the roads outside the track.

Three large lapsoring and timekeeping boards are so fixed that they can be seen from anywhere on the track. Electrical timing by strips and chronomètre will be exclusively used and always available. No silence restrictions are in force, and the track authorities

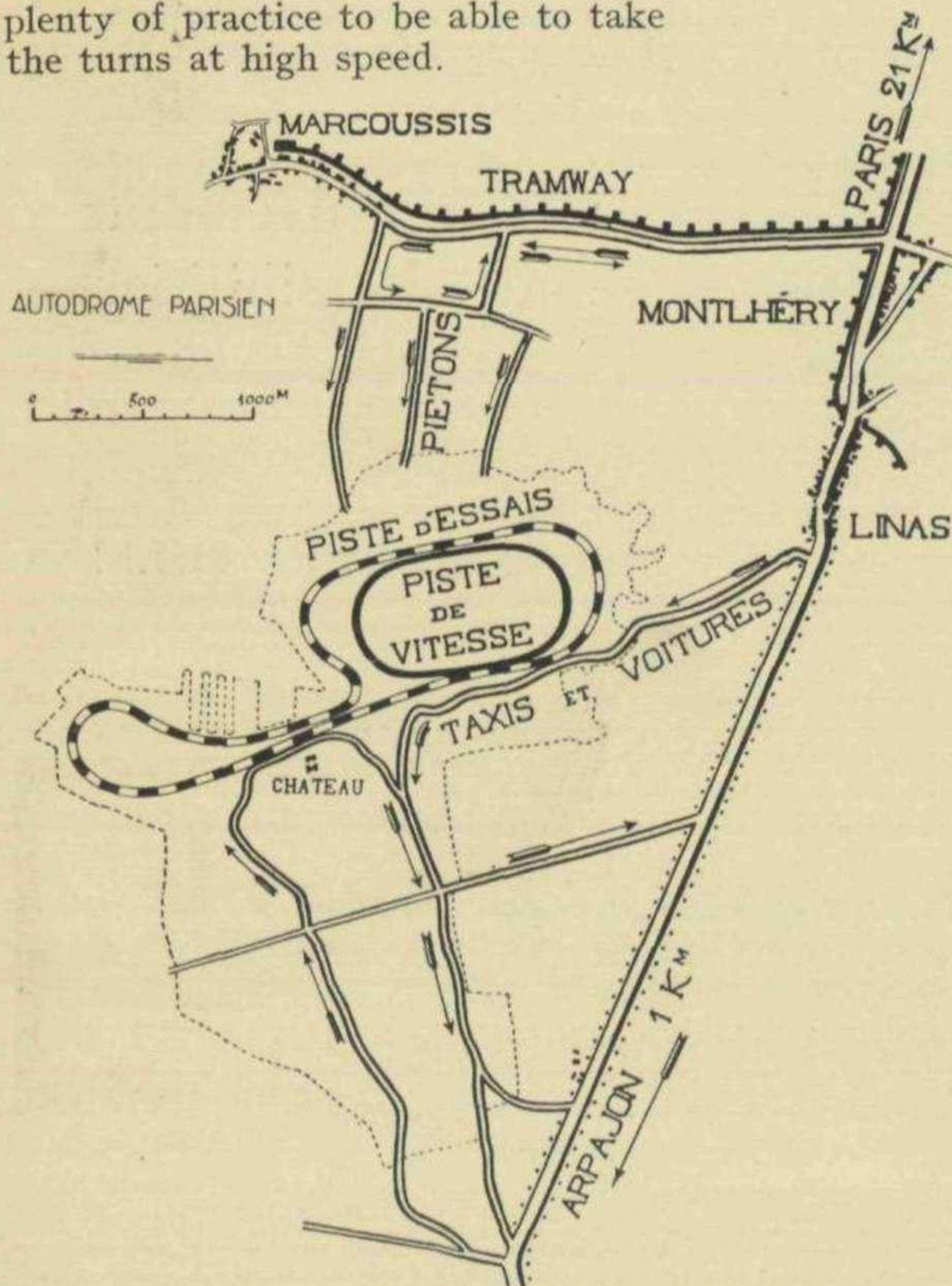


ANOTHER SECTION OF THE COURSE.

## THE WONDERFUL FRENCH "BROOKLANDS"—continued.

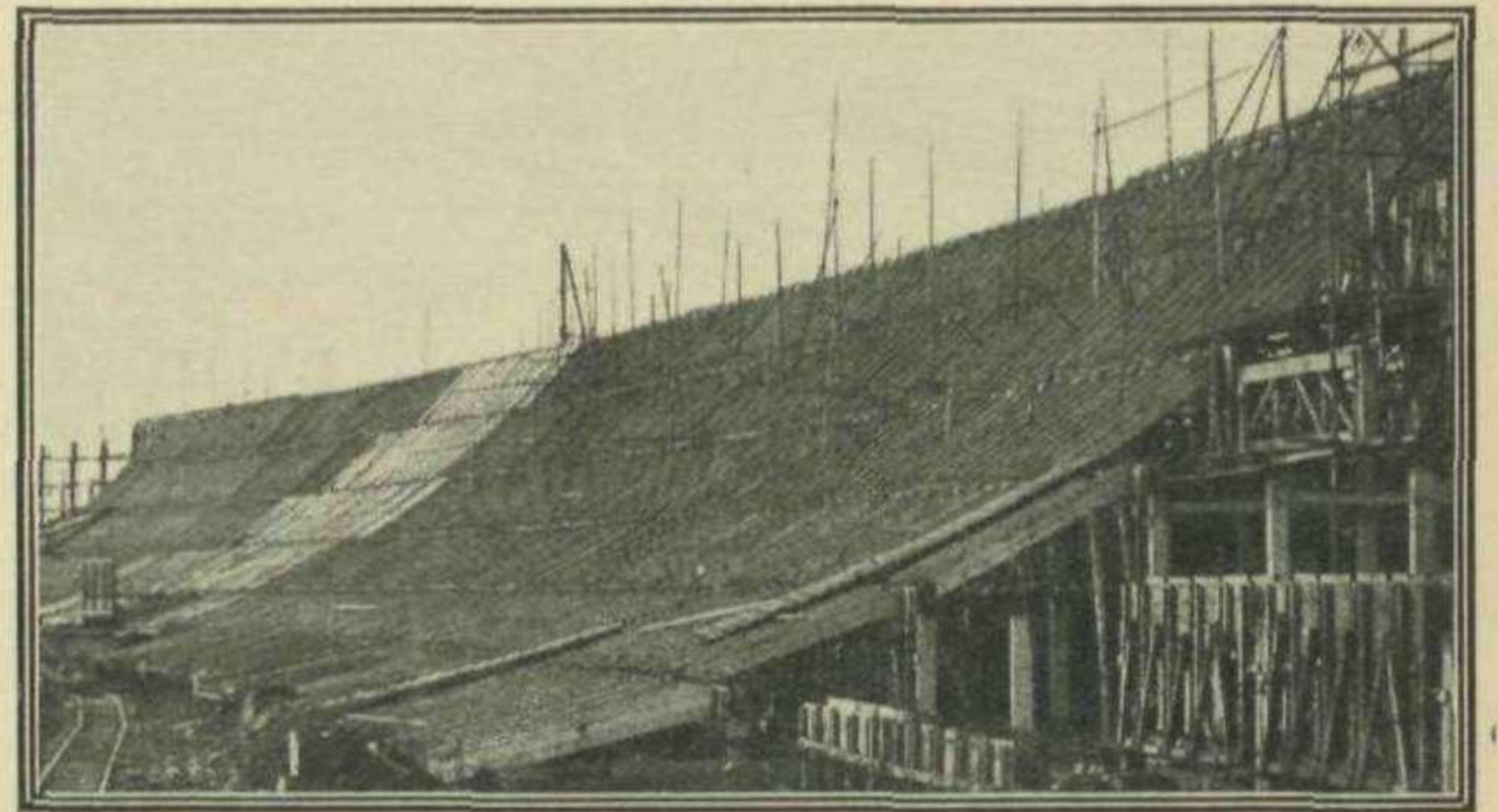
will gladly welcome 24, 36 and 48 hour record attempts, lighting at night being provided by large arc lamps

The track is to be lapped in a clockwise direction, which is the opposite to what we are used to in this country, and doubtless British competitors will need plenty of practice to be able to take the turns at high speed.



SCALE PLAN OF TRACK AND SURROUNDING COUNTRY.

I should estimate that a motor cycle will be able to lap at 100 m.p.h. almost on the 10 ft. line, and for cars the only limit to speeds up to 150 m.p.h. will be the skill and practice of the driver in bringing his car

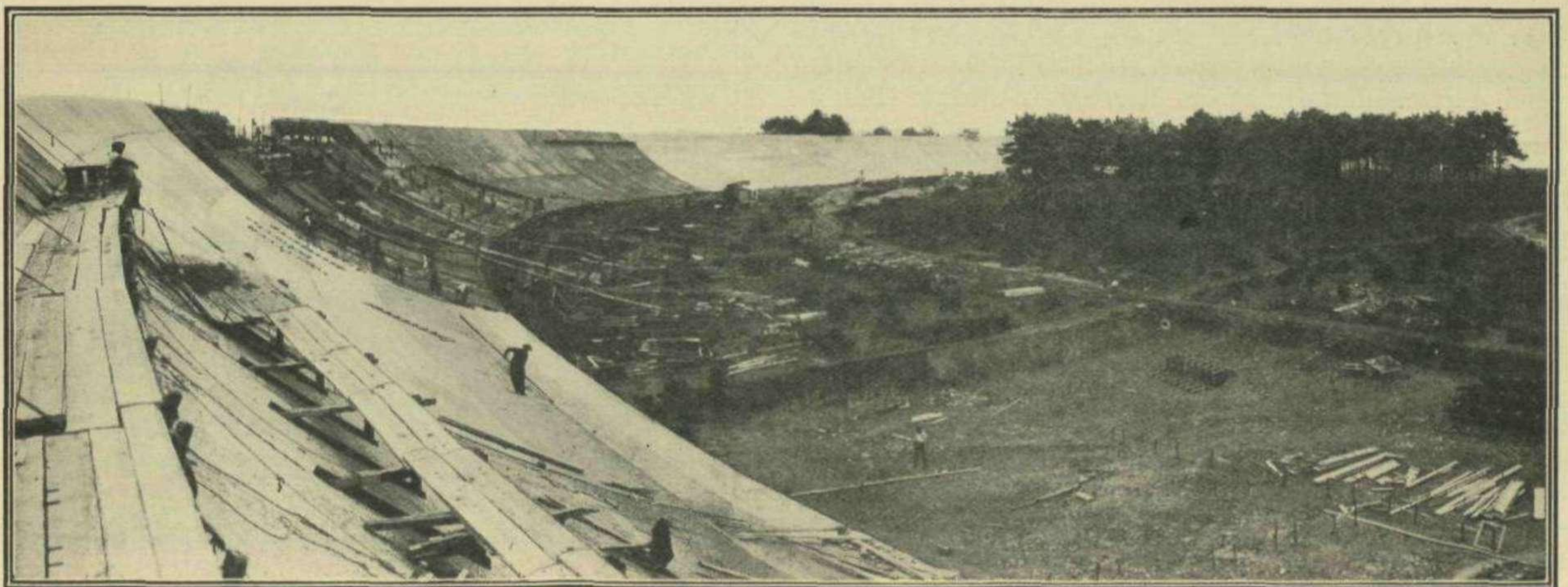


HOW THE BANKING IS BEING CONSTRUCTED.

off the bank, down the short straight, and on to the bank again. Anyhow, there is plenty of room to practice, and the banking is broad enough and high enough to allow a good margin of error! Workshops will be available in plenty, and are to be situated between the tall concrete pillars of the bankings, the track surface forming the roofs.

An additional interest is the special test course for touring cars and chassis. This is to be 10 kilometres long, and comprise hills of 1 in 3 and hair-pin corners, as well as runs right round the racing track. A large hotel is also to be built on the estate, capable of accommodating all those actually taking part in the races and who have to travel over 50 kilos to the track. The organisation will be departmental, and consists of such departments as technical, maintenance, racing, publicity, etc., and no effort is being spared to make the undertaking the finest of its kind in the world.

The designer and constructor, M. Jamin, is to be heartily congratulated on the excellence of his work and his daring design, and also the keen foresight and wholehearted support of the proprietors. Every effort is being made to finish off the track during the present month, the Italians employed on the concrete and cement work, working an average of 14 hours a day, including Sundays! The first meeting is arranged to take place on October 4th and 5th, many valuable money prizes being offered.



AT WORK ON THE BANKING—THE TREES IN THE CENTRE ARE TO BE REMOVED TO AVOID "BLIND SPOTS."



THE ANSALDO ROARING UP DIA BAIG.

# Sporting Cars on Road & Track

*By 'Open Throttle'*

## No. 3. The Two-Litre Ansaldo.

ONE of the most interesting types of cars coming within the purview of the BROOKLANDS GAZETTE is that very considerable range which mark the borderline between the sporting car proper and fast touring vehicles. There is something particularly fascinating about these cars, because from their essential qualities they offer advantages which must appeal to an increasing section of motorists.

Most people commence motoring with a sedate touring car, often, in these days of the successful light car, with quite a small one. Later they naturally take to a larger and more powerful vehicle. Having tasted the delights of speed and reserve power, they almost inevitably turn, sooner or later, a longing eye upon the sporting models. Many of them wisely admit that the ultra-sports car, stripped, all too often of everything but speed, is not for them. Family or other considerations keep them within the ranks of those motorists who must have comfort, weather protection, and perhaps more seating accommodation than the average sports car offers.

With very few exceptions these people find all that they desire in one or other of the sports-touring models now so prominently before the public.

In the realm of fast cars our friends of overseas countries can often show British designers a point or

two. It is only to be expected that they should sometimes produce a car belonging to that interesting middle category, which, for want of a better name, I will continue to call the sports-touring type. An example of this class has recently been brought to my particular attention.

I was asked a short while ago by Messrs. Watkins and Doncaster, Ltd., of 16, Albemarle Street, London, W.1, to take over for a road trial a standard sample of the two-litre Ansaldo, for which they are the sole concessionaires for Great Britain. This car appealed to me as a particularly interesting proposition, both as a sports-touring model and as a product of an Italian firm that has won renown in other realms of engineering. The Ansaldo is manufactured by Messrs. Giovanni Ansaldo, of Genoa, a company already eminent as shipbuilding and general engineers. The car is, I understand, by no means only a side line of this company, but is produced as a specialised job in a specially equipped factory in Turin.

On inspection one immediately appreciates the Ansaldo as a well designed and competently built vehicle. The four-cylinder engine is a sturdy unit, integrally cast, and having a detachable head. Overhead valve gear and camshaft is adopted. The Solex carburettor is standardised, and ignition is by Marelli

## SPORTING CARS ON ROAD AND TRACK—continued.

magneto. Lubrication is by forced feed and water circulation by pump. Engine, clutch and gear box are built in one unit, and the gear box provides three speeds and reverse with central control. A tubular propeller shaft conveys the power to the spiral-bevel axle drive. Suspension is by semi-elliptic springing, both front and rear, the springs being of exceptionally generous length.

The Ansaldo is thoroughly up-to-date in being supplied with four-wheel brakes. The operating gear for the front wheel brakes is carried on the axle itself, and the whole assembly strikes one as being particularly neat and efficient.

The appearance of the Ansaldo is distinctly pleasing. One hardly likes to use the term "foreign" in respect of cars emanating from Italy, for whilst these have a distinct nationality of their own, they are generally so close to British ideals as not to contain any of that rather objectionable element which is often implied by the word. The Ansaldo four-seater open touring body supplied as standard by the Turin factory is really quite handsome and comfortable, but I understand that the choice of British coachwork is offered.

On the road the Ansaldo is a car of many pleasing qualities. Amongst the most attractive of these is the general impression of stability which it conveys. Although not unduly heavy, the Ansaldo holds the road in a very satisfactory manner. Whilst its steering is not over light, it is at all times positive.

The suspension is decidedly good, and pot-holey roads traversed at speed do not worry the driver or passengers so much as is often the case on cars of this type.

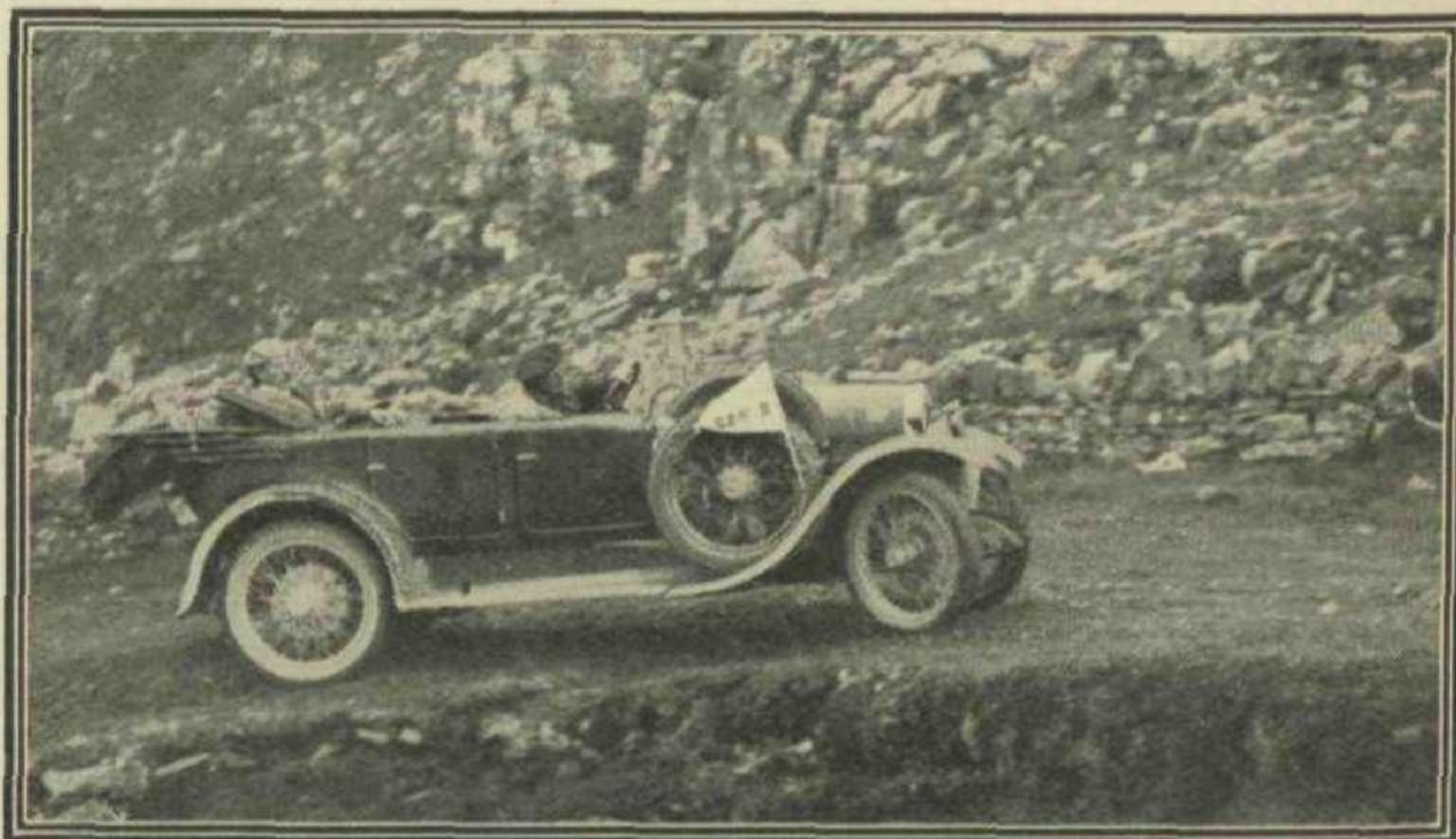
In the very topical subject of four-wheel brakes one naturally finds a special interest, and much could justifiably be written in praise of the set on the Ansaldo. I found them quick in action, very powerful, and quite correctly compensated. It was, indeed, remarkable the short distance one could pull up in when travelling at high speed, and even a recklessly sudden application had no other effect than to gently retard the car without shock or sign of skidding. In descending steep hills, the Ansaldo's brakes are all that can be desired, for with them one very soon gains confidence of an ample safety margin and is assured of complete ease of control. The hand brake, working on the back wheels only, I did not find in a very happy condition, and only used it to hold the car when at a standstill. I have no hesitation in saying, however, that the four-wheel set places the Ansaldo well ahead of certain similar cars that are not so equipped.

Of the engine's operation one could, also, speak in terms of much appreciation. The Ansaldo is, of course, largely a sporting car, and its sporting characteristics predominating to a considerable extent it is necessary to drive the engine sympathetically. No keen motorist will complain of that. Until we all drive about in steam cars we are not likely to find the engine with which one simply opens or closes the throttle for the desired result under all conditions. With such a car as the Ansaldo, one naturally expects to manipulate the spark lever intelligently and to make a careful use of the

gears. In respect of the spark lever, it was, in fact, quite fascinating to feel the Ansaldo pick up vigorously when the ignition was advanced at the correct moments. One could get quite a big variation of speed on the spark lever alone, thus showing that the Ansaldo engine was of such fine design that an intelligent driver could get the very best results from it.

The car I tried had covered many thousands of miles without garage attention and I did not, therefore, expect anything very extra in the way of speed from it. I found, however, that there was all one could desire for reasonable fast touring; sufficient, indeed, to give one the assurance that a "hotted up" Ansaldo would be something quite special in the way of speedy four-seaters. The acceleration was positive, with a good pick-up from slow speed under all conditions. The car showed an excellent top gear performance, and on second speed was equal to practically anything except freak gradients. Indeed, I think a higher top gear could be adapted with advantage.

The engine ran smoothly and without undue vibration at any speed. Quick to respond to throttle or



THE ANSALDO AT THE TOP OF TORNAPRESS.

spark, it conveyed that assurance of always being well within its capacity which was an outstanding feature of the Ansaldo in general.

Another creditable feature was the springing, driver and passenger being excellently insulated from road shocks, although I took the Ansaldo over some roads decidedly not of the billiard table variety.

In general equipment and finish the Ansaldo left little to be desired. Lighting, starting, and other details were completely satisfactory. The general lines of the car are distinctly pleasing, artistic and utilitarian considerations being blended in the bodywork in an admirable manner.

The Ansaldo sells in this country at the following prices: 14 h.p. chassis, with four-wheel brakes, £425; 14 h.p. 4-5 seater car, with English coachwork, £550; 12 h.p. 4-5 seater car, with English coachwork, £485. There is also a 16 h.p. six-cylinder Ansaldo, chassis price, £555; complete 4-5 seater with English built torpedo body, £710.



## WIRELESS EQUIPMENT FOR CARS.

### A Compact Loud Speaker on an 11.9 h.p. Bean.

One result of the growing interest in wireless telephony is that motorists are beginning to equip their vehicles with various forms of receiving instruments, and we have lately observed quite a number of sporting cars so equipped. Taken in general, the ordinary form of receiving set has many disadvantages when applied to cars. For one thing, the space occupied is apt to impede the passengers, and the usual arrangement of the component parts is not altogether desirable.

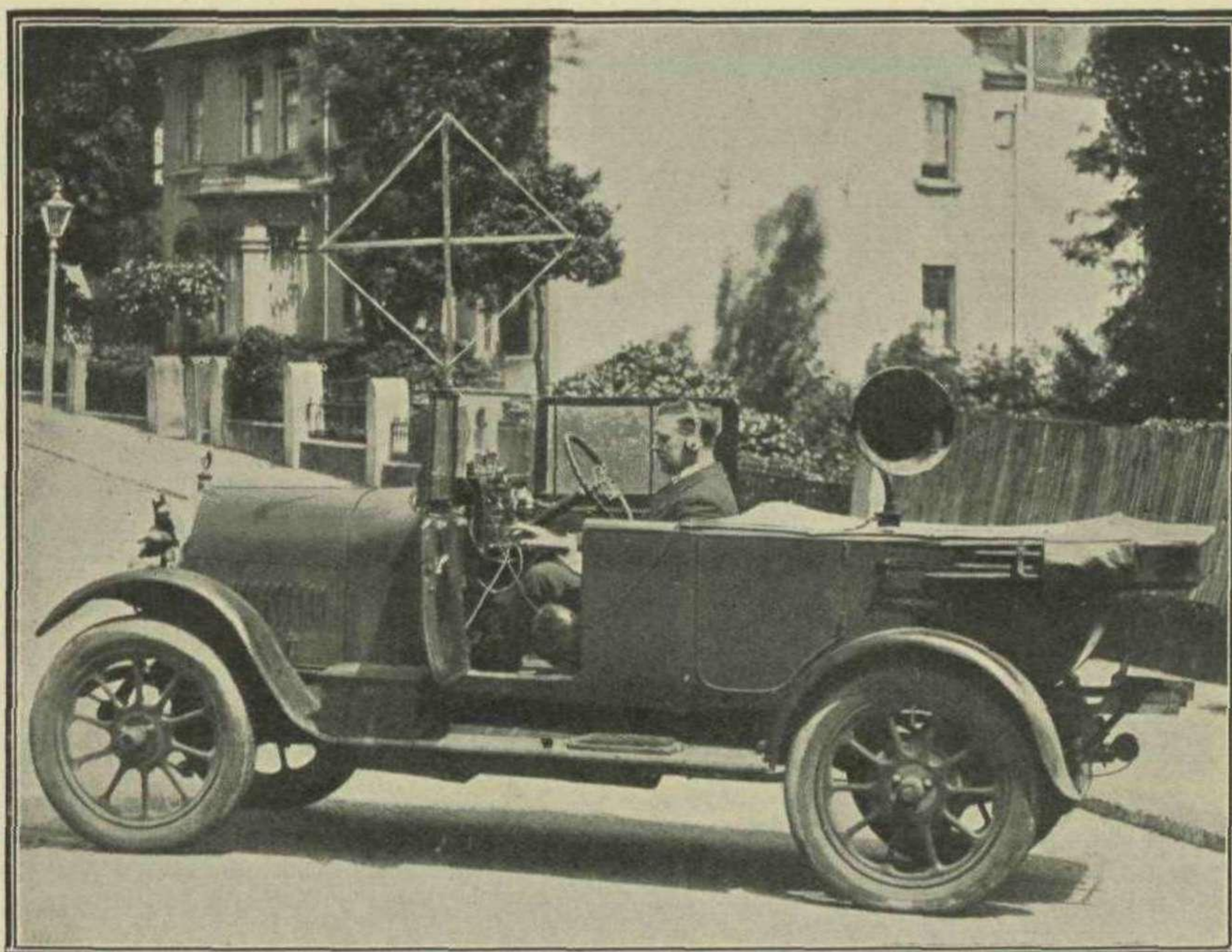
A very good solution to the problem of fitting cars up with wireless has been reached by one of the competitors in the recent M.C.C. London-to-Edinburgh run, and was demonstrated to good effect in Wrotham Park, Barnet, whilst he was waiting his turn to start. The car in question is a standard 11.9 Bean four-seater, and the whole of this equipment is absolutely self-contained, though it can be used with equal success apart from the car by having a spare accumulator.

The set is known as the R. T. 13, and has been specially designed for the purpose by Captain Richard Twelvetrees. It embodies three valves and a crystal detector. A small frame aerial is mounted, when required, on one corner of the wind screen, and the high tension battery is fixed beneath the set, which occupies a space on the dashboard. Special leads from the car lighting set provide the current for the valve filaments, all the leads having plug-in terminals, which fix into clips when not in use.

The circuit consists of one high frequency valve, one dual valve amplifying both high and low frequency impulses, and one low frequency valve or note magnifier. The high frequency impulses of the broadcast wave are rectified by means of a special combination of crystals, after being amplified by the first and second valves. The circuit includes two tuned anodes on the high frequency side, ordinary transformers being employed for the low frequency. Two Polar condensers and one air-dielectric condenser are used for tuning to the

required wave lengths, which operate in conjunction with a three-way variable coil holder with vernier adjustment. The overall dimensions of the set mounted on the dashboard are 12 in. by 10 in. by 4 in., one reason making so small a space possible being the adoption of the Fuller type of rheostats for regulating the current to the valve filaments. A four pole rotary double throw switch permits of the current from batteries being turned on and off at will, so that no waste of current is possible when the set is not in use.

The illustration reproduced herewith shows the

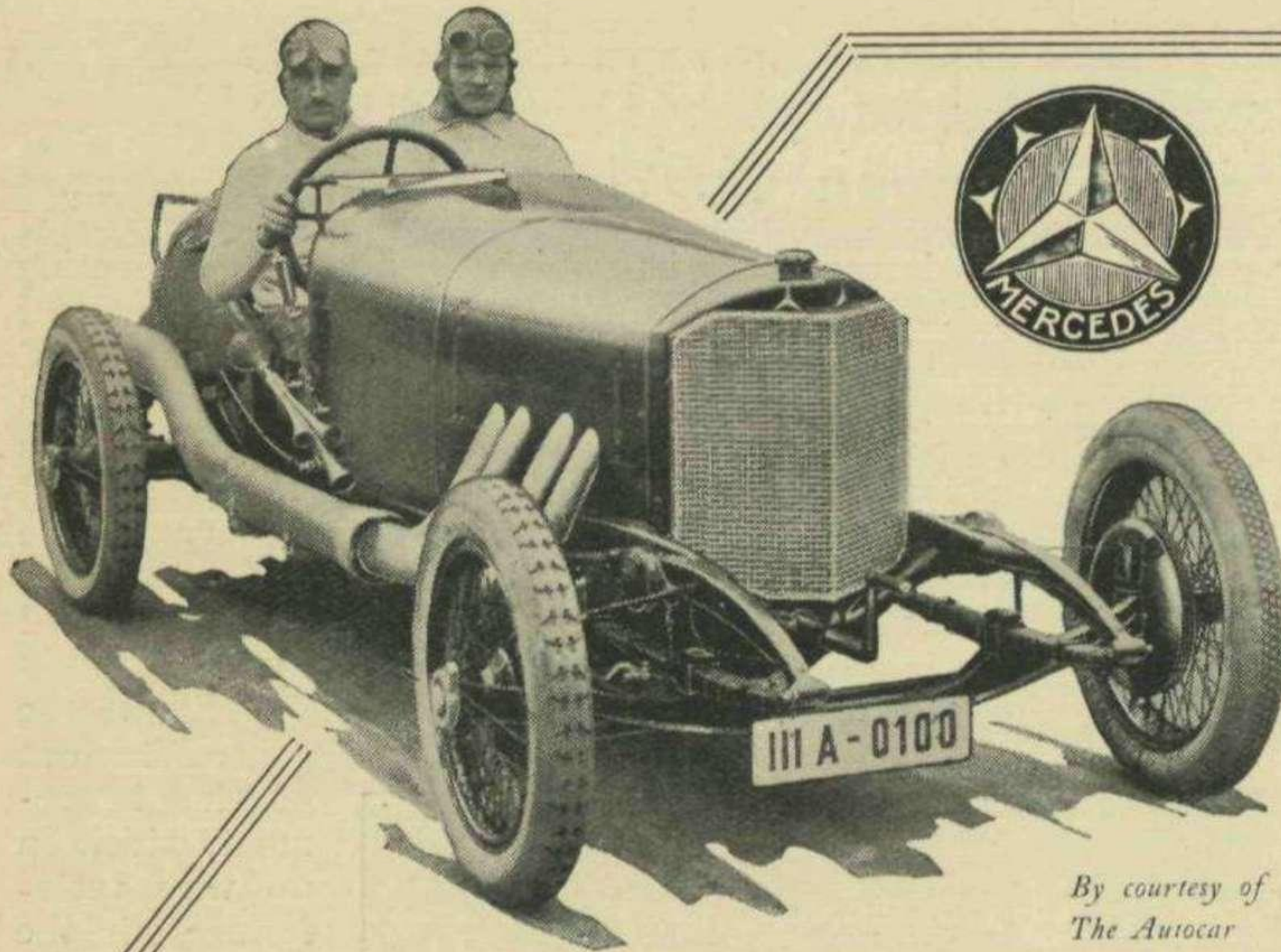


A WIRELESS RECEIVING SET, WITH LOUD SPEAKER, INSTALLED ON CAPTAIN R. TWELVETREES' 11.9 H.P. BEAN CAR.

general lay-out of the instrument, which in no way interferes with the leg room of the passenger in the front seat. Though reception whilst the car is in motion is quite possible with the form of aerial illustrated, further experiments are in progress with a type of aerial which will be absolutely non-directional, so that no fading will take place as the car is deflected out of its course during a run. Somewhat interference has been experienced from the

electrical disturbance created by the magneto when the engine is running, but this is not enough to spoil the quality of tone from the loud speaker. It is an easy matter, however, to arrange for the screening of the plugs, high tension leads and magneto after the manner adopted in aeroplane engines.

On the return from the Edinburgh run, a series of tests were carried out, the most notable being that of receiving the Newcastle programme on Sunday afternoon, with a frame aerial at a distance of fifty miles from the station in the pouring rain. It was found quite easy to tune in the set to give a clear loud speaker strength. When the car is stationary and a piece of covered wire is thrown over any convenient tree to give an aerial length of about forty feet, and a suitable earth, one can travel all over England without losing touch with a broadcasting station, with the possible exception of localities notorious amongst wireless experts as being "blind spots."



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# Motoring Sportsmen

*by the Editor*

## No. 3. Kaye Don.

THE debonair Don is a figure so well-known amongst motoring sportsmen on road and track, that in writing of him it is hard to find a characteristic which one may reasonably hope will be unknown to one's readers.

There is, however, one outstanding feature of this popular sportsman which marks him out as a man of peculiar interest to the BROOKLANDS GAZETTE, namely, the fact that he is equally brilliant as a driver of racing cars and as a rider of racing motor cycles. Probably in this respect no other Englishman has had quite the experience of Kaye Don. In the few conspicuous cases where famous drivers have raced both cars and motor cycles, it has usually been recognised that one is definitely their true love, and the other quite a second string. But with Kaye Don this has not been so. Of him it may be said that he is both a racing motor cyclist and a racing car driver without reservation.

In pre-war days he was principally known as "Don of Avons," a name which has stuck to him amongst many of his old friends, for he started with the Avon Rubber Company as far back as 1908. From 1912 to the outbreak of the war he was gradually carving out a name for himself as a reliability trials rider. During the war he served in the R.A.F. Having wielded the joystick over a long period with characteristic proficiency, he was, six months before the Armistice, posted to General Headquarters, where he served until he was demobilised. He is now a member of the R.A.F. Reserve.

After the war Kaye Don returned to the activities of the Avon Rubber Company, and for the last three years has served them in the capacity of contracts manager.

Since the war, too, he has built up an enviable reputation both in speed events on the track and as a trials driver on the road. He has won in the last six years upwards of 150 awards, including those for the best performance in the Paris-Nice Trial in 1920 and the best performance in the Anglo-Dutch Trial in 1921. He has broken records at Brooklands on A.J.S., Diamond and Massey Arran motor cycles, and also in A.C. and Wolseley cars. Indeed, there are still standing no fewer



than 43 records in various classes which he has either broken as driver or helped to break as a mechanic.

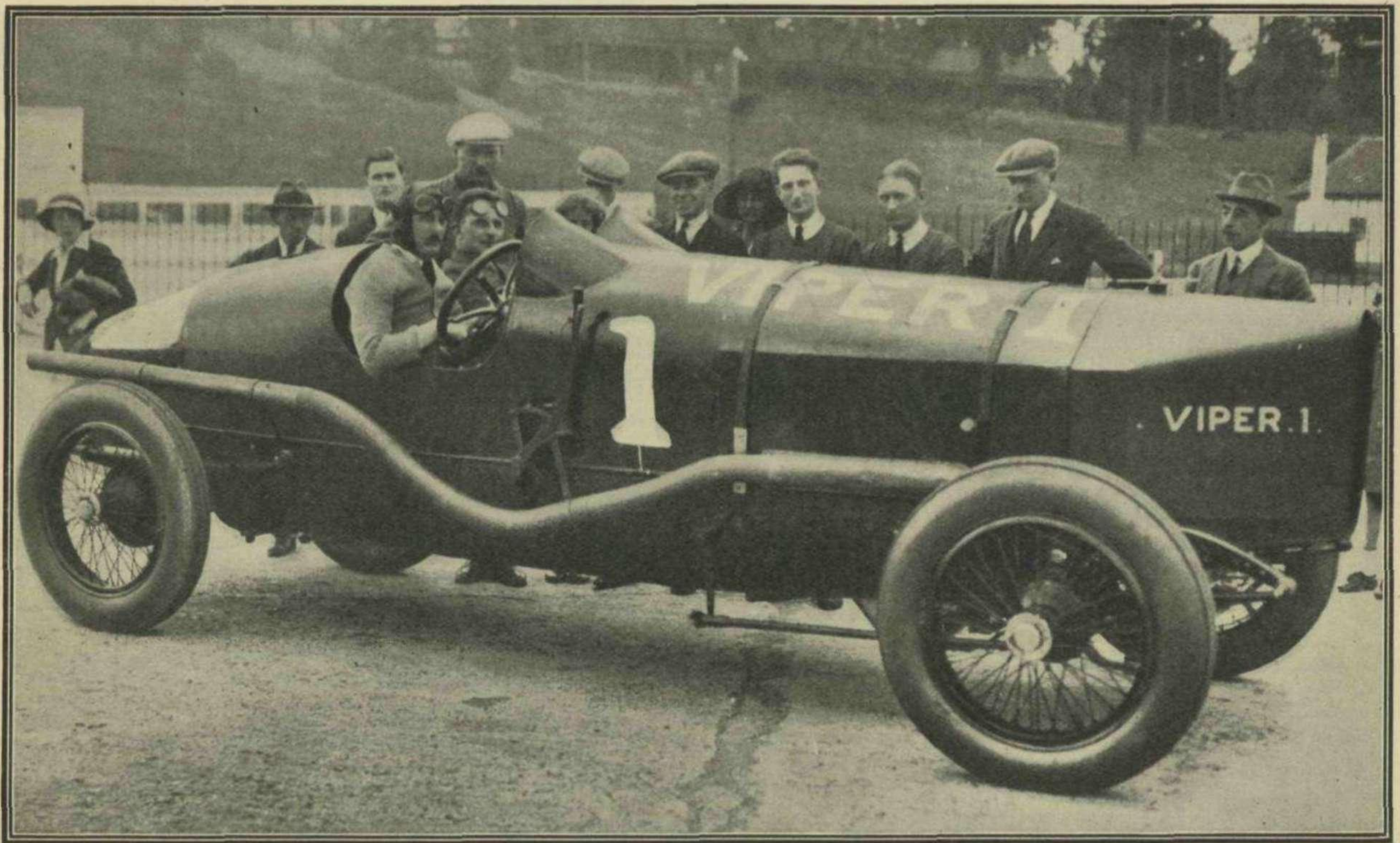
At one time Kaye Don held the record for Kop Hill, made on an Indian motor cycle, and he still holds the records for the speed trials on Bournemouth front and for the Chipstead Hill Climb which he set up in a Deemster Car.

It will be remembered by most motoring sportsmen, that last year Kaye Don won the President's Gold Cup at Brooklands in a Deemster, and he tells me that he is all out to win this year's 200 miles J.C.C. race in something of a super A.C.

In addition to the A.C., Kaye Don is at present running the Wolseley Viper, in which, incidentally, he nearly came to grief last year when he had as passenger in one of the races, its then owner, Mr. Pop Corry, the popular actor. Coming up the finishing straight at something over 100 m.p.h., he found, as he neared the paddock, that his brakes would not act. Knowing that he could not take the turn on the track, and faced with the distasteful prospect of shooting over the top of the banking, he deliberately ran up the steep grass ascent at the side of the Test Hill, and skidded back on to the Track, thus, by an inspired piece of driving, avoiding what appeared to all to be a certain bad smash.

For every-day use, Kaye Don favours a 30/98 Vauxhall, which, he tells me, it occasions him much delight to navigate through the streets of London. Speaking of town driving, I cannot refrain from recording that one of the most interesting rides as a passenger I ever

## MOTORING SPORTSMEN—continued.



KAYE DON AT THE WHEEL OF VIPER I.

had was, when Kaye Don drove me back to my hotel in Douglas after a T.T. prize distribution. The way he circled round a moving tram on the 'prom, in reverse, was *very* sedate!

It will no doubt appear from the foregoing that Kaye Don is a somewhat versatile individual. It may

appear so even more when it is added that he is an enthusiast about wireless; is a great person amongst the Freemasons of his neighbourhood, and is Hon. Trials Secretary to that go-ahead organisation—the Surbiton Club.

O. E. S.

### MORE MOTOR CYCLE RECORDS.

On one of those very wet days in which the month of August this year excelled, some excellent solo motor cycle records were put up on Brooklands track.

Riding an 175 c.c. Cotton, C. W. Johnston covered five miles from a flying start in 5 mins. 1.94 secs., equalling a speed of 59.61 m.p.h. From a standing start he covered ten miles in 10 mins. 18.85 secs., at a speed of 58.17 m.p.h. Fifty miles from a standing start were covered in 52 mins. 13.99 secs., this showing the very creditable speed of 57.43 m.p.h. In one hour Johnston drove the Cotton 56 miles 1,256 yards, this being equivalent to a speed of 56.71 miles an hour.

Johnston thus improved upon the previous best times and distances held by W. D. Marchant, by about six minutes and five miles respectively.

Riding a 743 c.c. Douglas, entered by Cyril Pullin, H. Glover covered ten miles on the same day as the Cotton records were put up in 6 mins. 39.63 secs. This, from a standing start, showed the very fine speed of

90.08 m.p.h., and beat Horsman's existing record by a narrow margin.

It is by no means always at race meetings that the best Brooklands speeds are put up, and visitors to the track on "off days" may frequently see some such fine performances as those now chronicled.

### SUCCESS.

A great record of success attended the labours in the Isle of Man this year of the representatives of Jackson's Impervo. Amongst the 87 per cent. of finishers using their preparation were counted the first, second and third in every race except the sidecar, in which it was used by the second man home.

### AN EXPLANATION.

On account of the many recent misnomers appearing in the Press, we have been asked by Mr. Norman Downes, to make it quite clear that the correct name of the motor cycle which he manufactures is the New Imperial.

# THE RACING MOTOR CYCLIST'S LIFE-SAVING CLOTHES.

## How the Crash Helmet was Evolved.



FIG. 4. THE ROBINSON "SAFETY FIRST" HELMET.

By J. HARRISON, A.M.I.A.E.

FIG. 7. THE ROBINSON TOURING "SAFETY FIRST" HELMET.

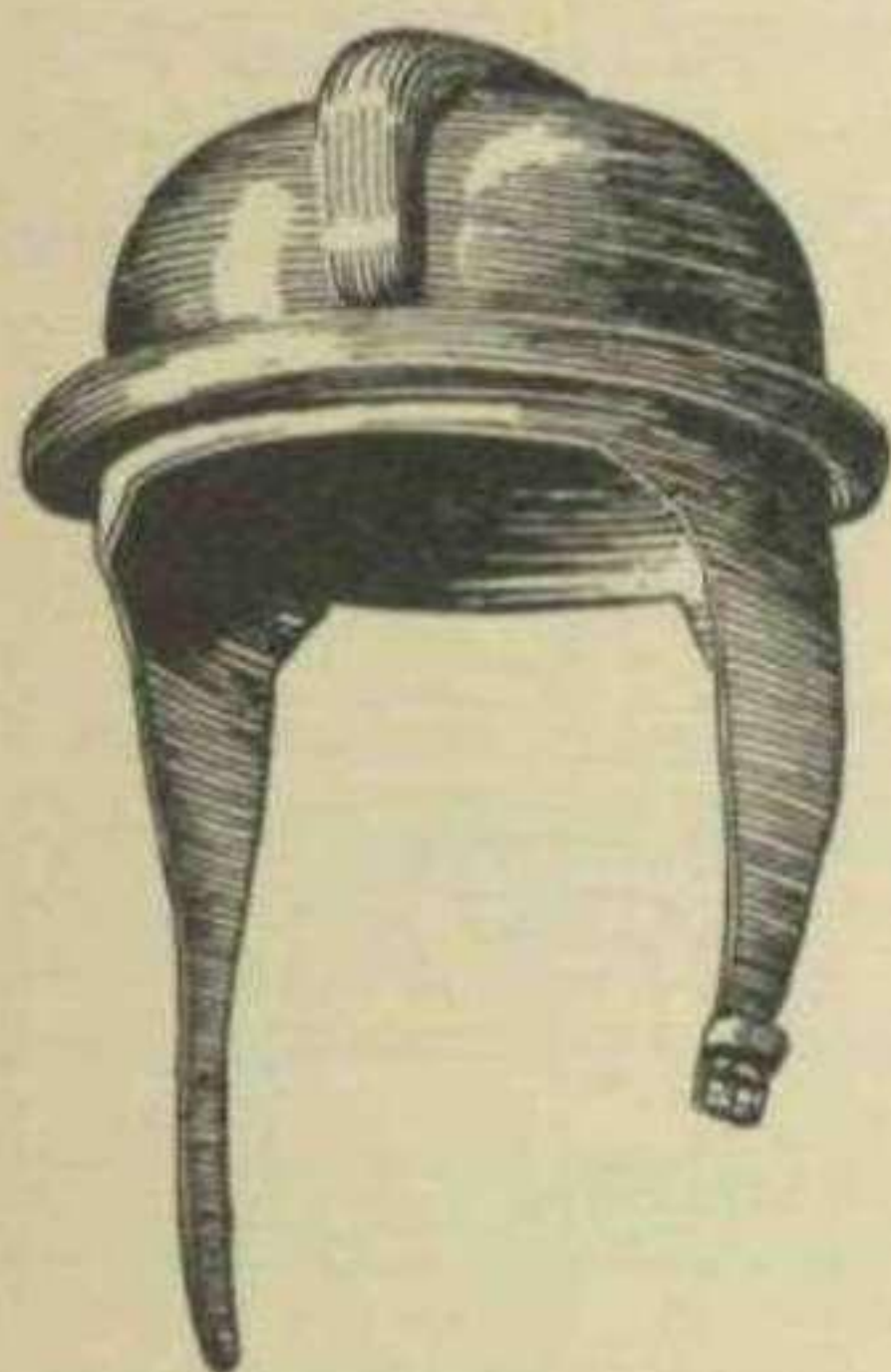


FIG. 1.

THE safety-helmet really owes its existence to two things: firstly, the rapid development of the flying-machine, and secondly, to the fact that the motor cycle engine developed faster than the frame, brakes, or tyres. This rapid development of the power-unit naturally overstressed the immature frames, with the result that accidents due to structural failure of the machines were far too common in the early days of the track.

The first safety-helmets evolved were designed solely with the idea of protecting the aviator, and they were on the lines of the helmet shown in fig. 1. They were found to be ineffectual for track work, for reasons which will become apparent later.

Three or four years before the war a number of officials of the Auto-Cycle Union, headed by Dr. Gardner, the well-known medical officer of Brooklands, began to investigate the problem of safeguarding the rider. In the Tourist Trophy races of 1914 the A.C.U. helmet was first made a compulsory part of the racing-rider's kit, and it proved so satisfactory that it is now obligatory in all speed events held in this country. Furthermore, it is illuminating to recall that the Royal Hunt Club are standardising the Robinson "Safety-First" helmet for the steeplechaser next season. Thus has the older sport followed a younger in such an important detail as safeguarding the lives of its participants.

The investigations of the A.C.U. led to the discovery of the fact that the path taken through the air by a thrown rider is a parabolic one, and that the ground is seldom struck by the top of the rider's head, but at an acute angle. The problem resolved itself into providing a means of taking the initial shock of impact and making the rider's body act as a not-too-effective brake—it will easily be understood that the longer the time taken to bring his body to rest, the less will be the shock of impact. The required helmet had to be both a buffer and a skid.

The helmet shown in fig. 1 was already in use; but while it formed an effective buffer, and protected the skull, the rim and the top rib were liable to catch in stones as the rider slid along the ground, and in catching, would pull him up with a jerk, involving the risk of a broken neck.

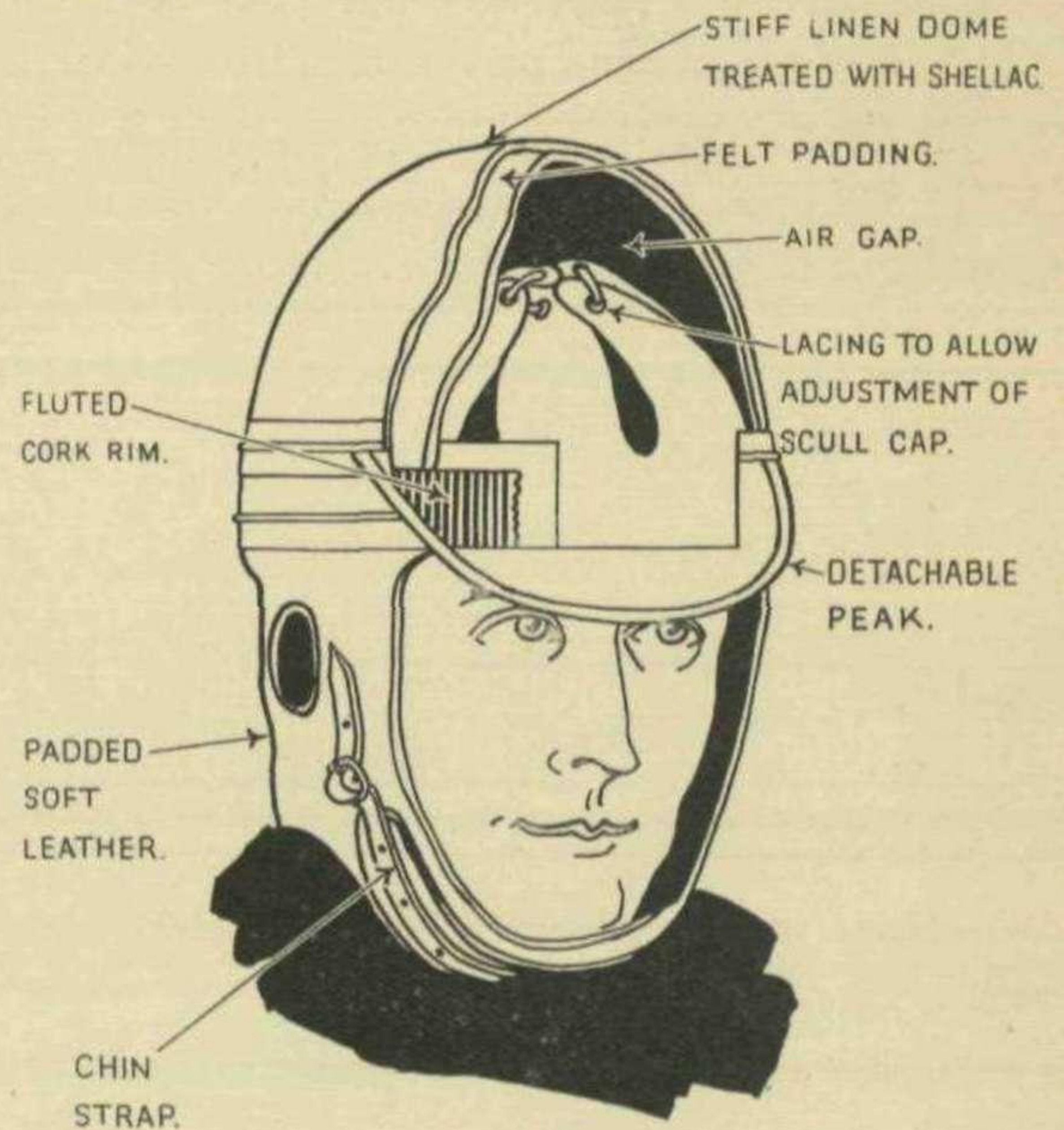


FIG. 2.

### Principles of Head Saving.

Fig. 2 shows, in part-section, the Robinson "Safety-First" helmet. A somewhat similar construction applies to all A.C.U. approved crash-helmets. It will be seen that the helmet consists of two main parts—an outer shell and a skull-cap. The skull-cap, which can be laced up by the user so as to fit his head, in conjunction with the fluted cork rim at its base, has as its object the distribution of any impact sustained over the largest possible area, thereby effectively preventing fracture of the skull due to a localised blow. The shell, which is fixed to the rim of the skull-cap, is a perfectly smooth,

## RACING MOTOR CYCLIST'S LIFE-SAVING CLOTHES—contd.

polished dome built up of layers of shellac-treated linen. It is lined with thick felt on the inside so as to act as a cushion in the event of an extra-severe shock causing the shell to collapse. It should be noticed that the dome is of a shape calculated to deflect the blow; and provided that the rider is suitably protected against flaying, a toss, even at very high speed, need have no harmful results.

In the interests of the rider, the A.C.U. have taken up the task of proofing and testing the helmets; and the reader would be well advised, when he buys his next crash helmet, to have one that has been actually tested

### Three Approved Types.

Three types of helmet are used—the Day, the Robinson "Safety-First" and the Grose "Savus." The standard helmet that the A.C.U. use themselves and loan out to clubs for hill-climbs, is the Day, which is shown in fig. 3. This can only be bought through the Union, and is already proofed and tested.

Fig. 4 shows the Robinson helmet, which varies from the prototype only in detail. The two thin ridges which keep the peak-strap in place are of interest. While in no way interfering with the skid action of the helmet, they form an effective means of keeping the detachable peak in place.

FIG. 3. A.C.U. APPROVED T.T. CRASH HELMET.

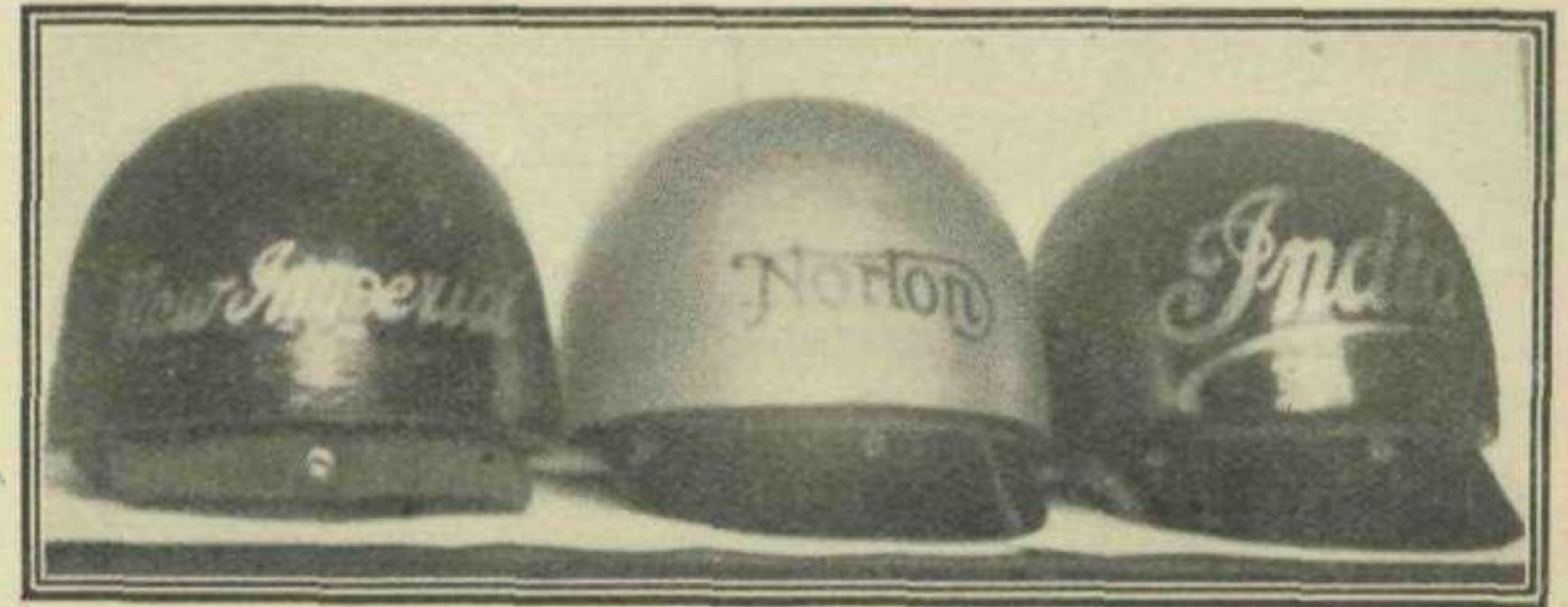
Lastly, the Grose differs from the aforementioned two by the addition of a webbing crucifix fitted between the felt padding and the skull-cap in such a manner as to afford extra protection. Fig. 5 shows this feature. Across the front of the helmet is fixed a strip of leather-covered padding, which, the makers claim, adds materially to the comfort of the wearer. This strip is plainly visible in the "New Imperial" model shown in fig. 6. It is of interest to note that the winner of every T.T. race this year wore a Grose "Savus" helmet.

### A Touring Crash Helmet.

While still on the subject of head protection, I should like to draw attention to a new patent Robinson helmet which is suitable for either sex. This helmet, which can be supplied either leather or furlined, has been designed for those fast-riding on the road. It is an excellent device for those who feel they require some head safeguard, but do not wish to wear the conspicuous-looking racing helmet. It is illustrated in fig. 7.

FIG. 5. INSIDE A GROSE HELMET.

In an article of this sort it is well to mention the protection against flaying that is afforded by a stout leather waistcoat, breeches, gloves and knee-boots. The perfect glove and boot have yet to be invented. A



[FIG. 6. A RANGE OF GROSE HELMETS.

glove that is satisfactory from the point of handwear is nearly always too stiff to be of practical use.

### Unbreakable Glass Essential.

Triplex goggles I consider essential to safety. The glasses shown in fig. 8 were worn by Mr. Cathrick. When he crashed at Brooklands, spectators say that he skated 30 yards on his face; and there is no doubt that his sight was saved by his glasses.

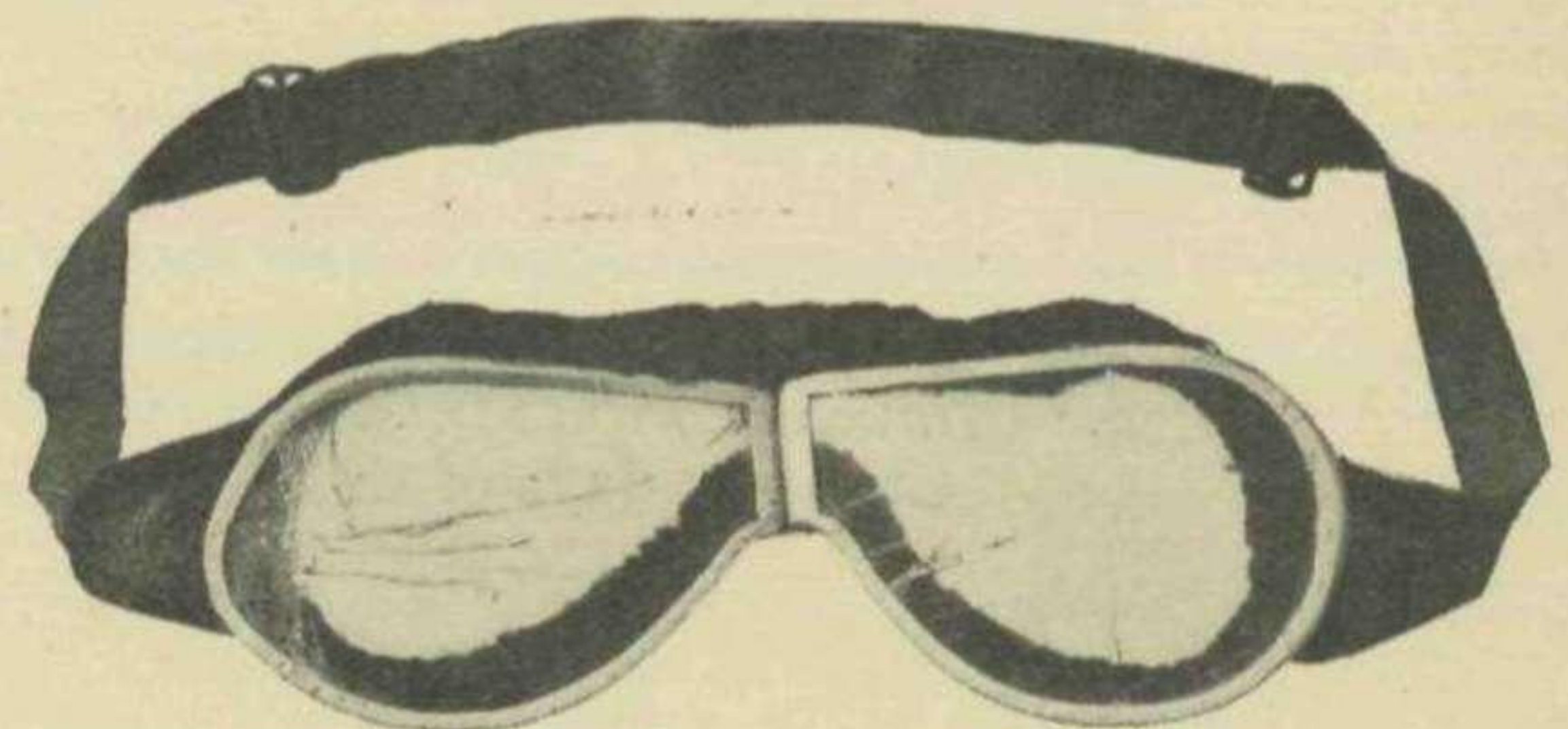


FIG. 8. TRIPLEX GLASS GOGGLES AFTER A BROOKLANDS CRASH.

The ideal goggle, however, in my opinion, is the new Meyrowitz type, and in spite of their very high cost, they are well worth having. The glass fitted is Triplex, and the metal frame is bound with a soft, semi-pneumatic rubber binding in such a manner as to render them extremely comfortable and dust-excluding.

### A Standard First Aid Outfit.

After considerable experiment, the A.C.U. have at last standardised the very complete first-aid outfit shown in fig. 9. This outfit can easily be carried in pannier bag or pocket, and as the Union are distributing them at 2/- each, plus postage, no motor cyclist should be without one.

In conclusion, I may say that I consider that the point of safety to which racing has now been brought has been the principal triumph of the Auto-Cycle Union.

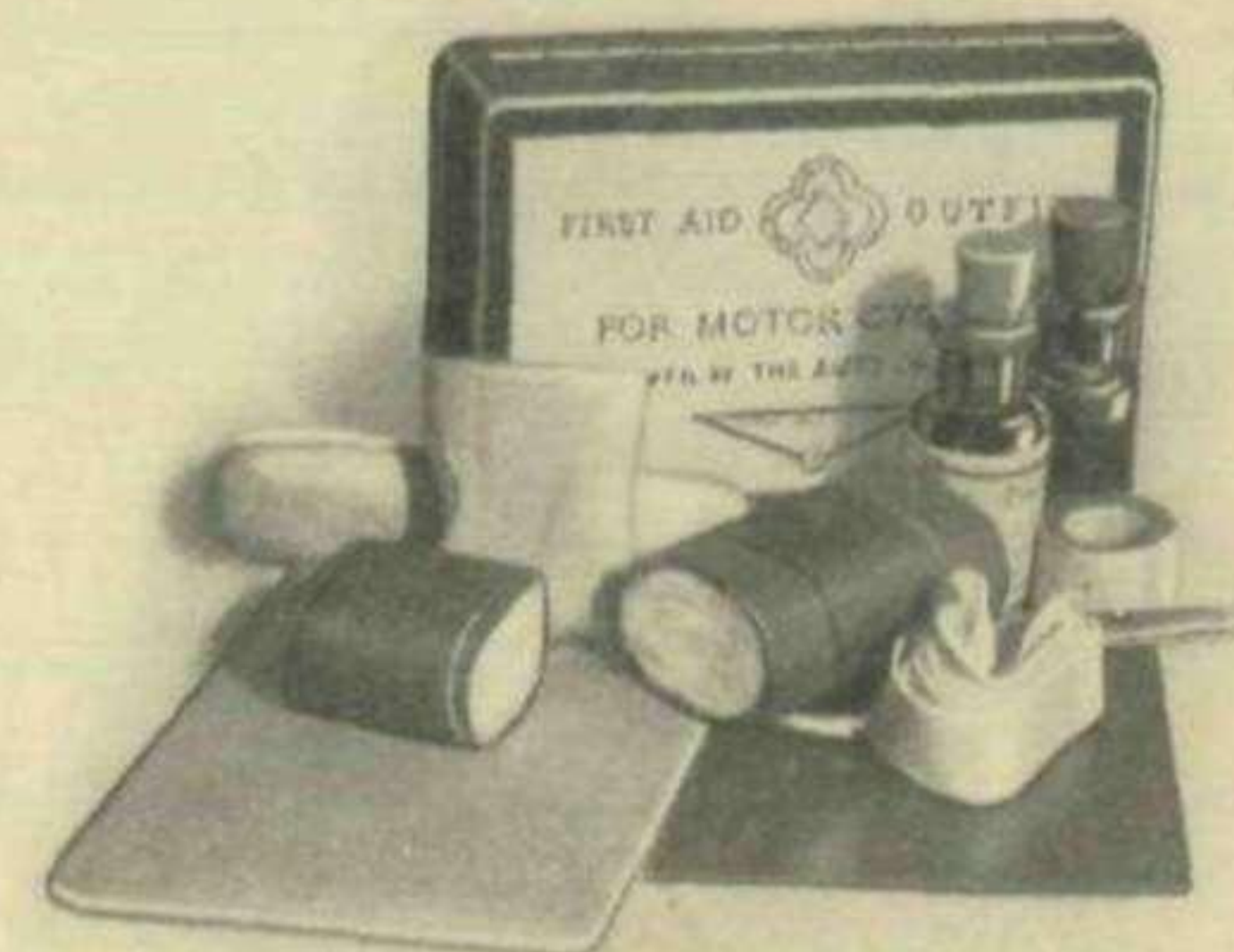


FIG. 9. A.C.U. APPROVED FIRST-AID OUTFIT.

## THE TWO OLYMPIADS.

### A Critical Forecast of the Forthcoming Shows. By INVESTIGATOR.

THE evolution of the motor movement is a restless tide, and the manufacturers are longshoremen who, snatching up the flotsam take it away to their factories and examine it. Some of the flotsam is valuable and finds a place on the products of the manufacturers. Once every year the harvest of the tide is shown to the buying public at Olympia.

To forecast the features of the exhibitions is to anticipate what will be swept up on the tide of evolution and to do so, one must be in touch with the activities of the longshoremen. Some of them treasure up some of their discoveries in order that they may spring surprises on their patrons and thereby secure that attention which is so valuable at a time when motorists are considering their prospective acquisitions. The best bait of all which can be offered is that of low price. British manufacturers have, by dint of their absolute policy of building up to a standard, earned the faith of buyers, and it may be said that there will not be a dud car of home production at Olympia. Therefore the price consideration is an all important one, because the buyer does not have to consider whether he is buying dross—he knows that he is not!

Generally speaking, however, there is not a considerable difference in the prices asked for cars. If you pay £400 for a vehicle, you are probably getting just as much value for your money as the man who buys a cheaper model, gets value for, say, £200. The bigger the sale the better the bargain, as a rule, because establishment charges and consequently production costs work out at less per car in the case of a manufacturer with a responsive market. Prices will be a little easier, but not very much. At the same time, cars will be much cheaper because of the improvements which will have been effected and the fact that the manufacturers cannot stay still; they must develop their productions.

#### Probable Developments.

I think that we shall see the fitment of balloon or semi-compression tyres on many cars, for these fat and comfortable tyres have, during the present year, proved themselves in the melting pot of general usage. Undoubtedly they increase car comfort and increase the life of bearings, because the lesser road shocks are entirely absorbed in them and the springs do not come into play to any extent on average roads. Balloon tyres are boon tyres, and their general adoption very shortly on all save the smallest of cars is to be expected. It is probable that we shall find a few vehicles installed with super-chargers as a standard fitment, though I cannot look kindly on a rather expensive method of improving carburation which, in my opinion, is fundamentally weak. It is surprising to me that carburation should not have received more attention from scientists, for it is the fact that fuel wastage is more considerable than fuel consumption, and that the petrol trusts, like the mustard manufacturer, make more dividends out of what is bought and unconsumed than what is actually employed in propulsion. Forty miles to the gallon is about the limit for the least consumptive of light cars, but it ought to be at least twice that m.p.g.

There is a demand for the light saloon, therefore we shall see them in profusion. There is a weakening demand for air cooled units, therefore we shall not see many.

#### The Motor Cycle Show.

As to the Motor Cycle Exhibition, which this year follows the car display, we may expect a very attractive Show. This is much more in the nature of an engineering exhibition, because the average motor cyclist is a better engineer than the average car owner, and is keener on the power unit. A man buying a car is not always concerned with what is beneath the bonnet, being more interested in the *tout ensemble* of the complete vehicle. But the average man who buys a motor cycle, buys the engine, and regards the rest as an adjunct thereto!

Probably the main feature of the Motor Cycle Show will be the revival of the ultra-lightweight movement. This phase has, at the moment, practically disappeared. We have now no real ultra-lightweights, because the mustard-pot engines have developed such power that they have been asked to and have propelled machines which are about as heavy as the normal touring mount of ten years ago. Yet there is a big and untapped market for a machine with the tractability of the pedal cycle and the simplicity of a perambulator. What is wanted is a machine of hundred pounds avoirdupois and sold at about twenty pounds cash. Such a motorcyclette is possible, and it may be that we shall get very near to it at Olympia this November.

As in the case of cars, we shall probably see a development of the balloon tyre on motor cycles, but only, I think, as equipment for sidecar machines. The disadvantages of the balloon tyre for solo machines are obvious. We may expect also to see the final overthrow of the unscientific and wasteful hand oil pump and the adoption of the sump system. Unlike the motor car movement, there is no such thing as "fashion" in motor cycles, for the humbler conveyance is regarded as either a utilitarian machine or an "implement of sport," whereas the car is "property."

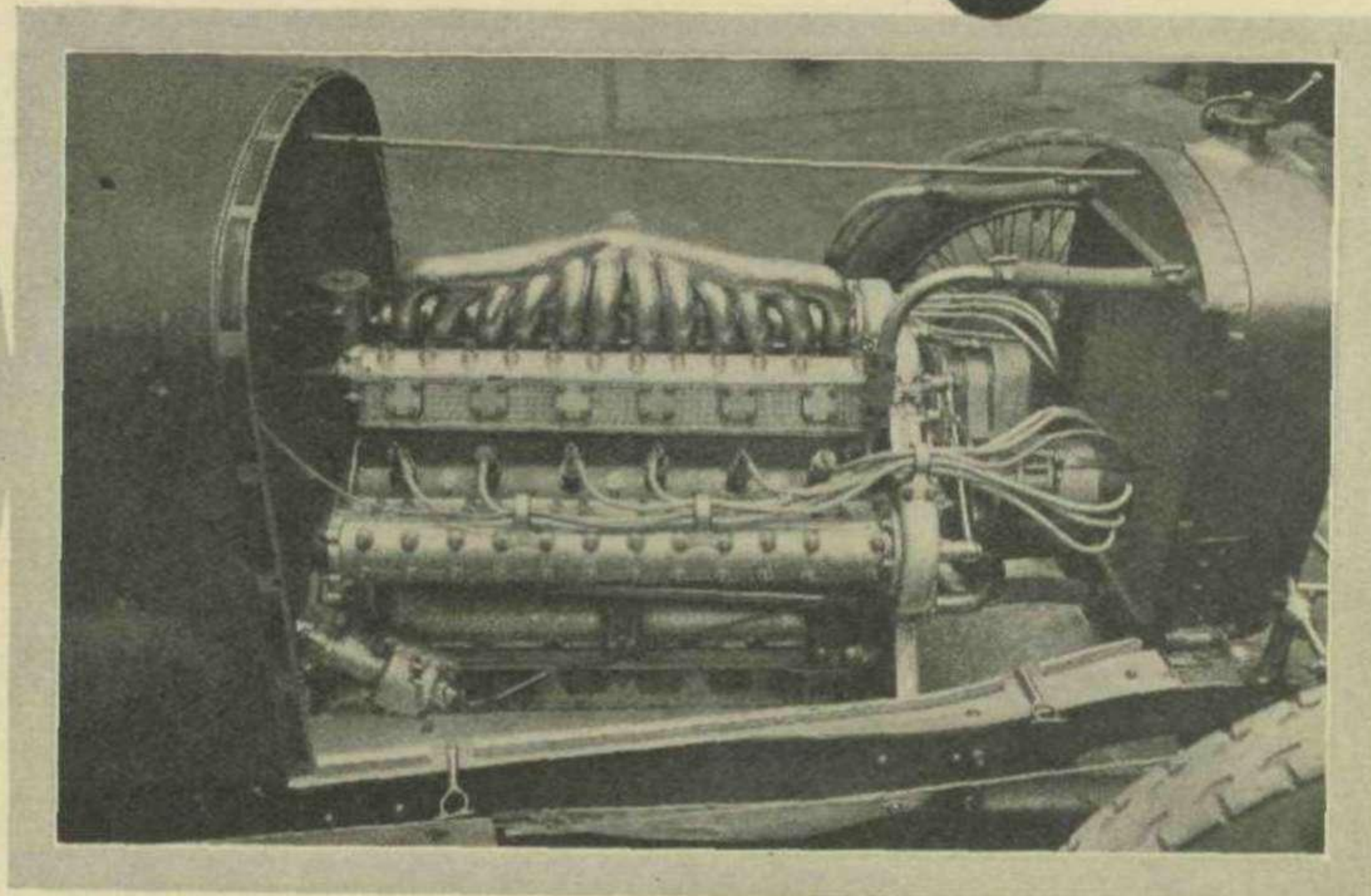
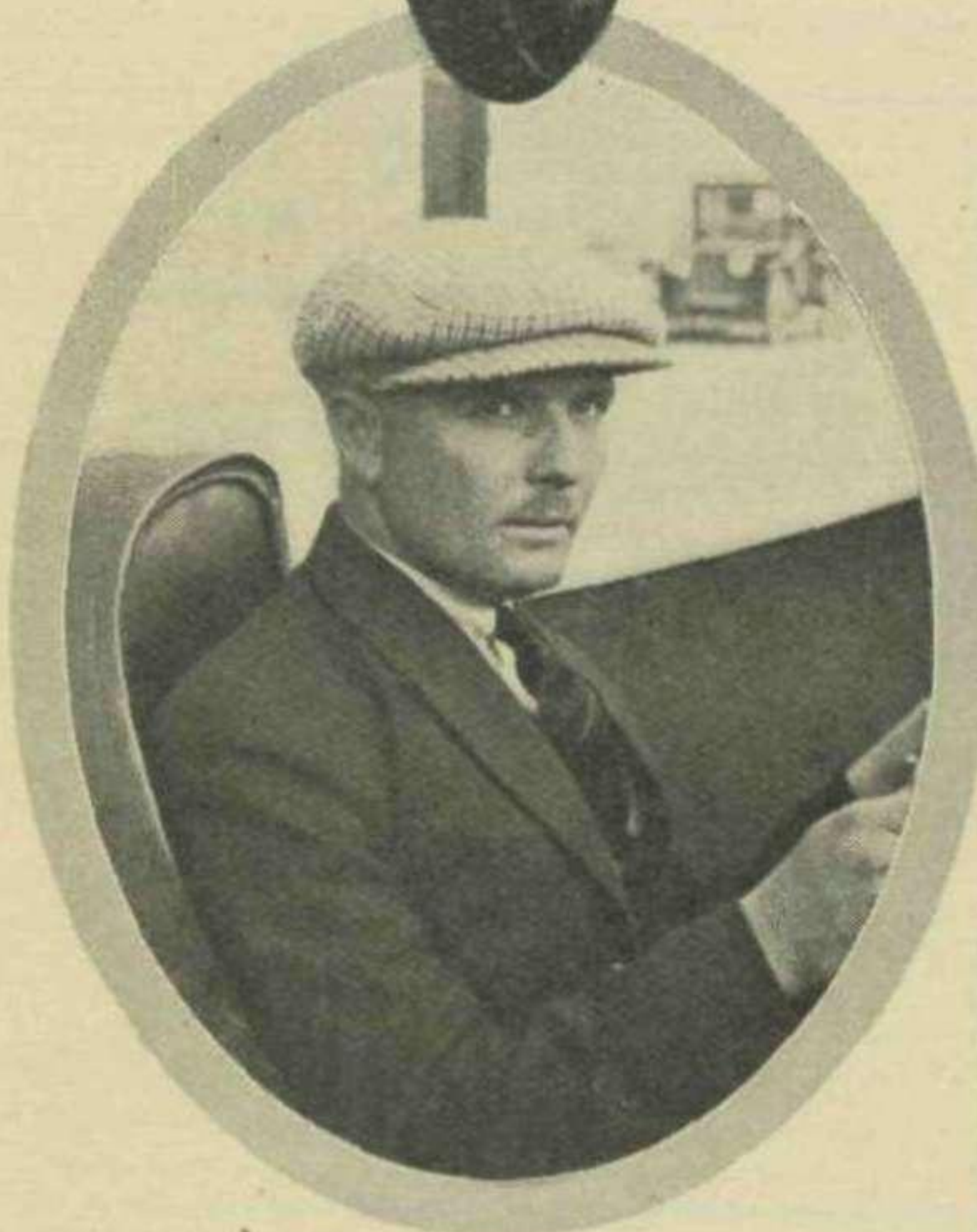
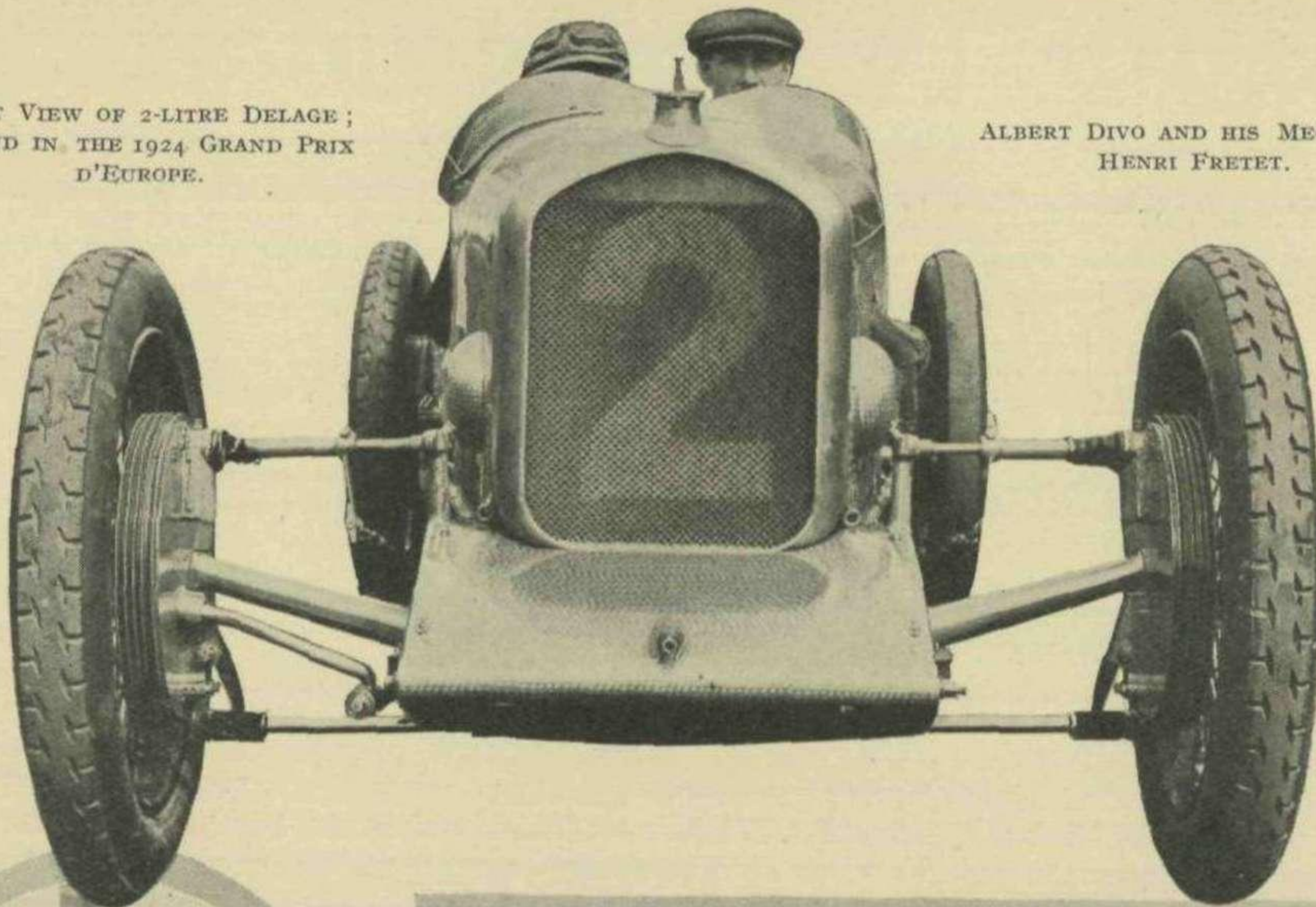
Motor cycles exhibited at the coming Show will be more refined. There will probably be some interesting new frame structures, and a few more nails will be hammered into the coffin of the diamond frame. Spring frames are not likely to be popular because the expense and weight thereof outweigh the advantages, which are not considerable.

The 350 c.c. or Junior machine, has undoubtedly arrived at pre-eminence among solo motor cycles and it is likely to stay there. I anticipate a reduction in 250 c.c. or lightweight mounts, because somehow this type appears to be neither the one thing nor the other. It is rather too much for the man who only wants a runabout, and not quite enough for the touring motor cyclist. The big sidecar will be as strong as ever, despite the alleged deprivations of the light car in the cheap passenger market, but there may be fewer models of the "sports" type in favour of light touring models.

To sum up, there will, I anticipate, be few novelties but quite a lot of real development.

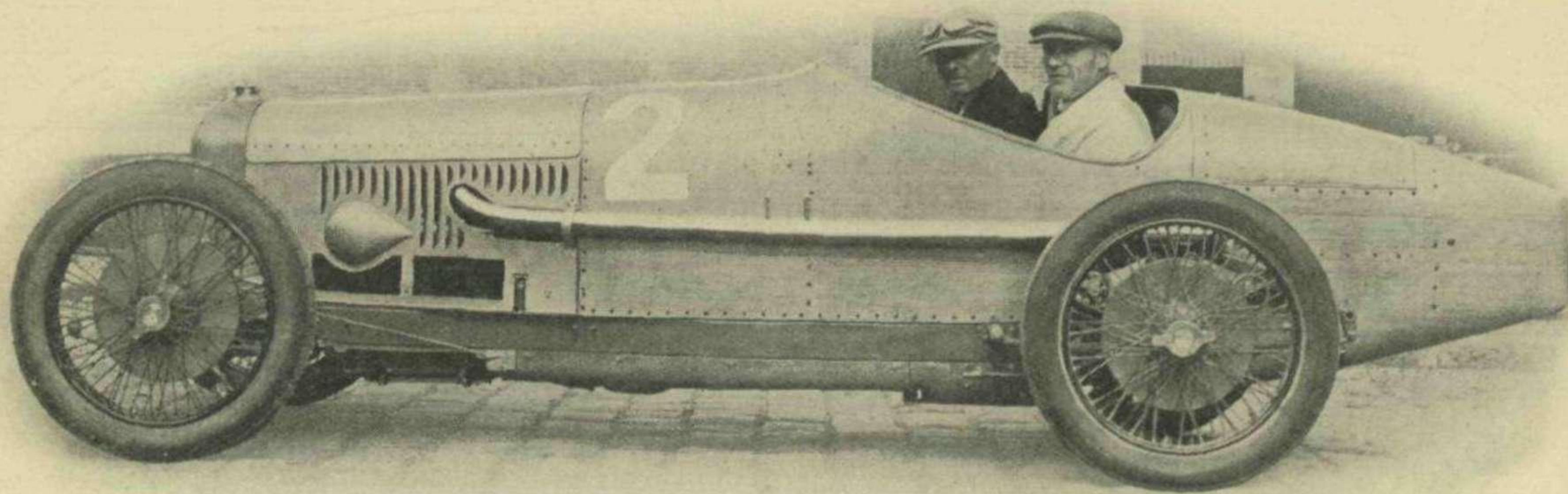
FRONT VIEW OF 2-LITRE DELAGE;  
SECOND IN THE 1924 GRAND PRIX  
D'EUROPE.

ALBERT DIVO AND HIS MECHANIC,  
HENRI FRETET.



A "CLOSE-UP" OF ALBERT DIVO.

THE DELAGE 12-CYLINDER ENGINE.  
Note the Twin Magnetos, Overhead Valves and Camshafts.



A SIDE VIEW OF THE GRAND PRIX DELAGE.

SOME INTIMATE VIEWS OF A REMARKABLE CAR.  
THE 2-LITRE DELAGE, WHICH FINISHED SECOND IN THIS YEAR'S GRAND PRIX D'EUROPE.





## SPRINGING FOR SPEED.

By H. SCOTT-HALL, M.I.A.E.

*The second article dealing with this important subject.*

IN the previous article an attempt was made to show the direct relationship between springing and speed, and to indicate how it is that a rough road is more difficult to travel upon than a smooth one, considering the matter from the point of view of the power which is absorbed in propelling a vehicle along that road. In the course of the argument, attention was drawn to the importance of reducing the proportion of unsprung weight, and a new method of reckoning its effect was demonstrated.

Now, when a springless vehicle, with hard tyred wheels, hits an obstacle, it loses energy, the amount lost depending upon a number of factors, prominent amongst which are the speed and weight of the vehicle itself. These are the factors which, taken together, determine the actual energy possessed by a moving vehicle, hence their importance in any calculation to ascertain the loss of a portion of that energy. A vehicle weighing, for example, about two thousand pounds, and travelling at thirty miles an hour, hitting an obstacle two and a half inches high, first with the front wheels and then with the rear, would lose as much as a couple of miles an hour of its speed, which has to be made up by the expenditure of power which might very well be employed to increasing that speed beyond the thirty miles per hour. The object of the springing with which a racing car and, in a lesser degree, an ordinary sporting car is equipped, should therefore be to absorb these shocks in such a manner as to reduce to a minimum their effects on the car speed.

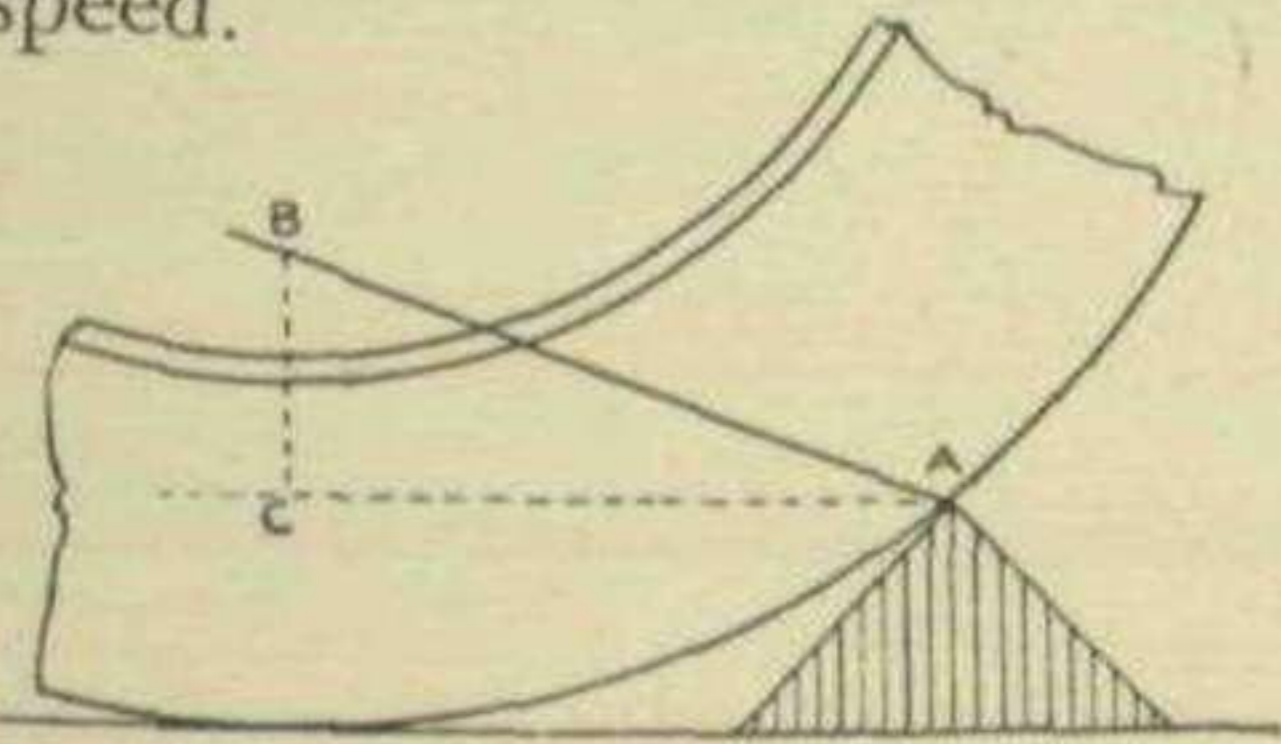


FIG. 1. DIAGRAM TO SHOW MEANING OF TERMS "VERTICAL AND HORIZONTAL COMPONENTS OF SHOCK." For explanation see text.

comes to the ground again, without any excessive loss of time, the diminution in speed consequent upon the first effect is not very great. That which results from the second effect is much more important. The first effect is due to the vertical component of the shock of the bump: the second results from the horizontal com-

The immediate effect of a bump is two-fold. The vehicle is lifted into the air, and receives energy - dissipating shocks. As, in the ordinary way at any rate, the vehicle

ponent. The latter is therefore much the more important from our present point of view. Before going any further into the matter it may be as well to explain precisely what is meant by the vertical and horizontal components of a shock. When a wheel meets an obstacle as shown in Figure 1, the blow which it receives is not purely vertical, nor is it altogether horizontal. It is almost invariably a slanting blow, as indicated in the diagram by the sloping line AB. Now all these blows are not, unfortunately, directed at the same angle of slope; if they were the problem of springing would be considerably simplified, and all that would be necessary would be a spring, or series of springs, disposed in direct opposition to the line of action of the shocks. Instead of that happy state of affairs, however, it is actually the case that almost every different blow takes a different direction, as may

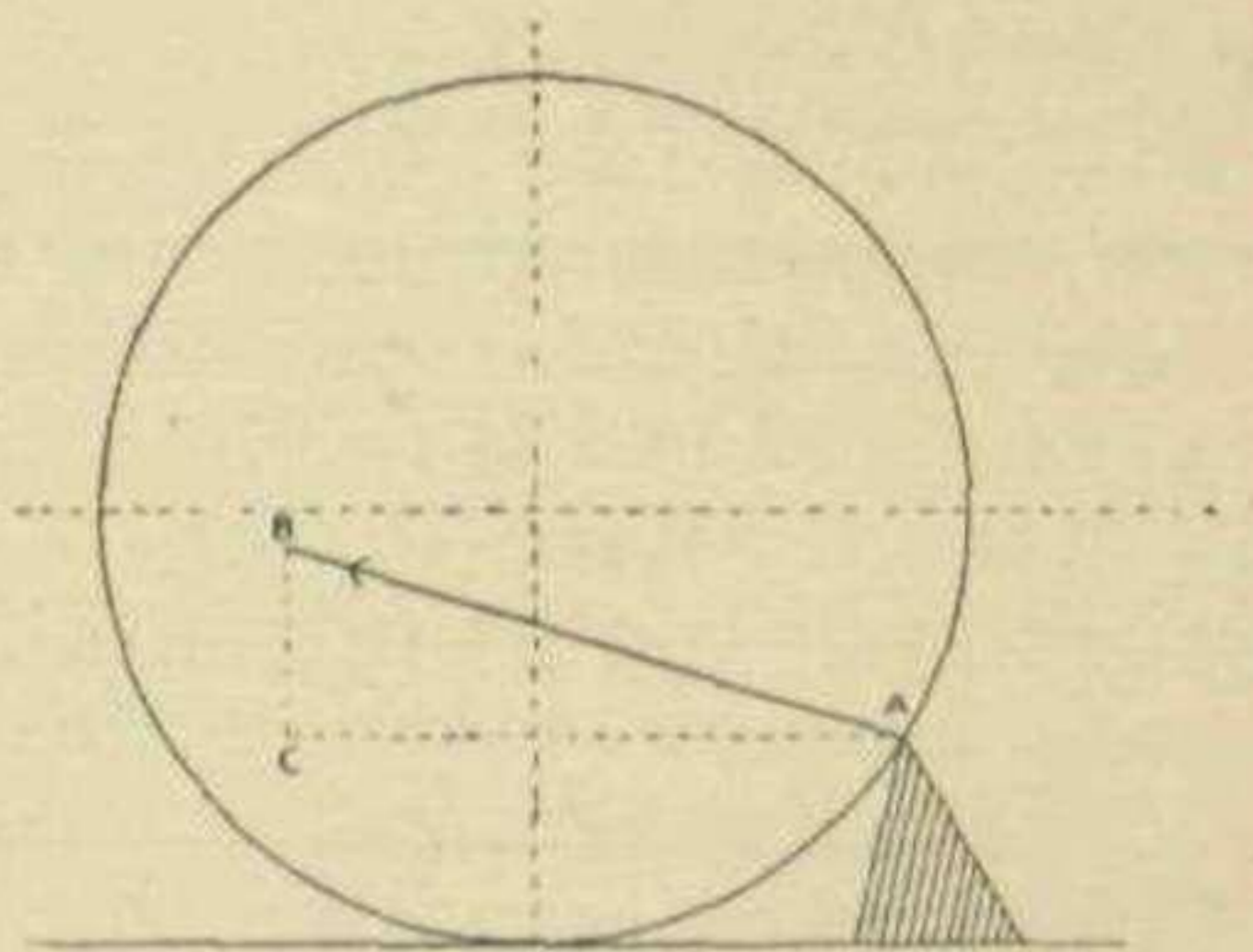


FIG. 1A. SHOWING DIRECTION OF BLOW RECEIVED WHEN A LARGE OBJECT IS ENCOUNTERED.

well be understood by reference to diagrams I, Ia, and Ib. In the first, an obstacle of medium size has been presumed to have been encountered, and the blow received by the tyre is seen to be at an angle of about thirty degrees with the ground. In the second one, a large object has been struck, and the shock is more horizontal in its direction, being inclined at no more than fifteen degrees to the ground. In the third diagram, Fig. 1b, a small object has been encountered and the shock more nearly approaches the vertical, being directed along a line making an angle of about seventy degrees to the ground.

Now, in view of the wide difference in the effects of the blows from these objects of different sizes, some simplified method of calculating their effects is necessary, so that they can be resisted by springs which will act in such a manner as to meet them. One single spring can hardly be arranged to perform that function, since it could not, within itself, contain the means for regulating its angularity according to the size of the obstacle. For

## SPRINGING FOR SPEED—continued.

that reason it is customary to resolve the blow, mathematically, into two equivalents, of which one is purely horizontal, and the other purely vertical. On the diagrams, the lines AC represent the horizontal effects, or the horizontal components, of the blows which the wheels are supposed to have received, while the lines BC indicate, graphically, to the same scale, the vertical components. It is to be understood, of course, that the line AB, in the first instance, has been drawn to represent to some scale, the total effect, both as to direction and amount, of the blow itself. It may be appreciated, by reference to these diagrams, that the horizontal effect, which is the speed reducing one, is greater in proportion when the obstacle is large, than when it is small.

Most car springing systems are designed to take care of vertical shocks only, or at least, they can absorb but a very small proportion of the horizontal components. They are not, therefore, so effective for helping to maintain speed as they might be were that not the

case. The chief value of this vertical reaction, which is afforded by the ordinary type of spring, is that the wheel is kept into closer contact with the ground. When an obstacle is encountered the spring delays the action, slowing it down and therefore reducing the intensity of the bump, thus decreasing the height to which the vehicle jumps, as well as delaying the start of the jump; it also has the effect of restoring the wheel to the ground more speedily than would be the case without springs.

In a touring car, the horizontal component of a blow is taken by the tyres, if they are not inflated to too high a pressure. In a racing car, this cannot be, to any appreciable extent, as highly inflated tyres are essential to the best speed results.

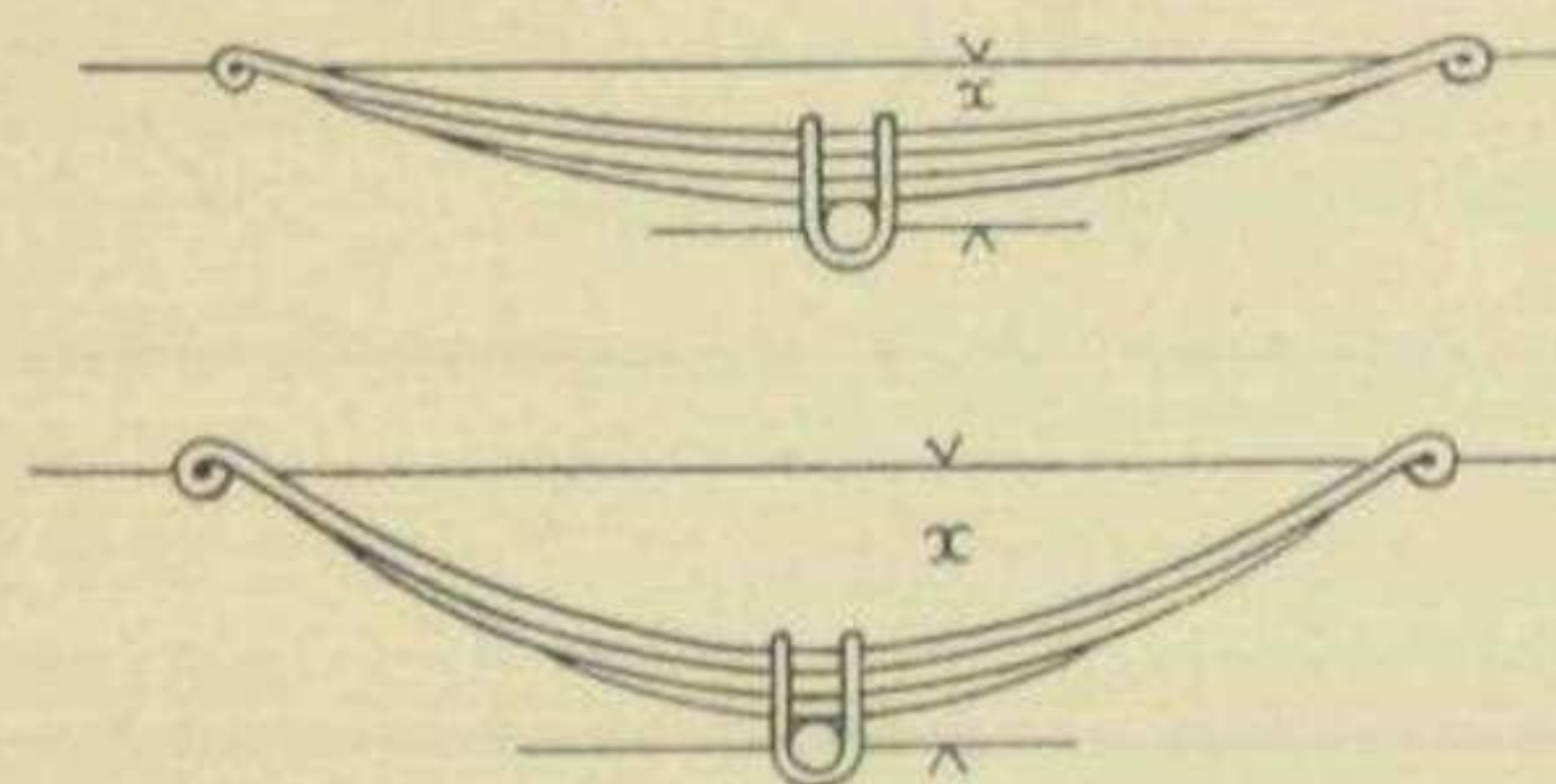


FIG. 2. TWO DIAGRAMS SHOWING COMPARATIVE LIABILITY TO ROLLING OF FLAT AND DEEPLY CAMBERED SPRINGS.

also useful to provide for the absorption of those small rapidly-recurring shocks which come too frequently for the laminated springs, and which, in an ordinary touring car which is not customarily driven at high speeds, are absorbed by the pneumatic tyres. In a racing car, for reasons which have already been discussed, the tyres cannot perform this function to the same extent, and that is one of the reasons why shock absorbers, which are only used on a minority of touring cars, are almost

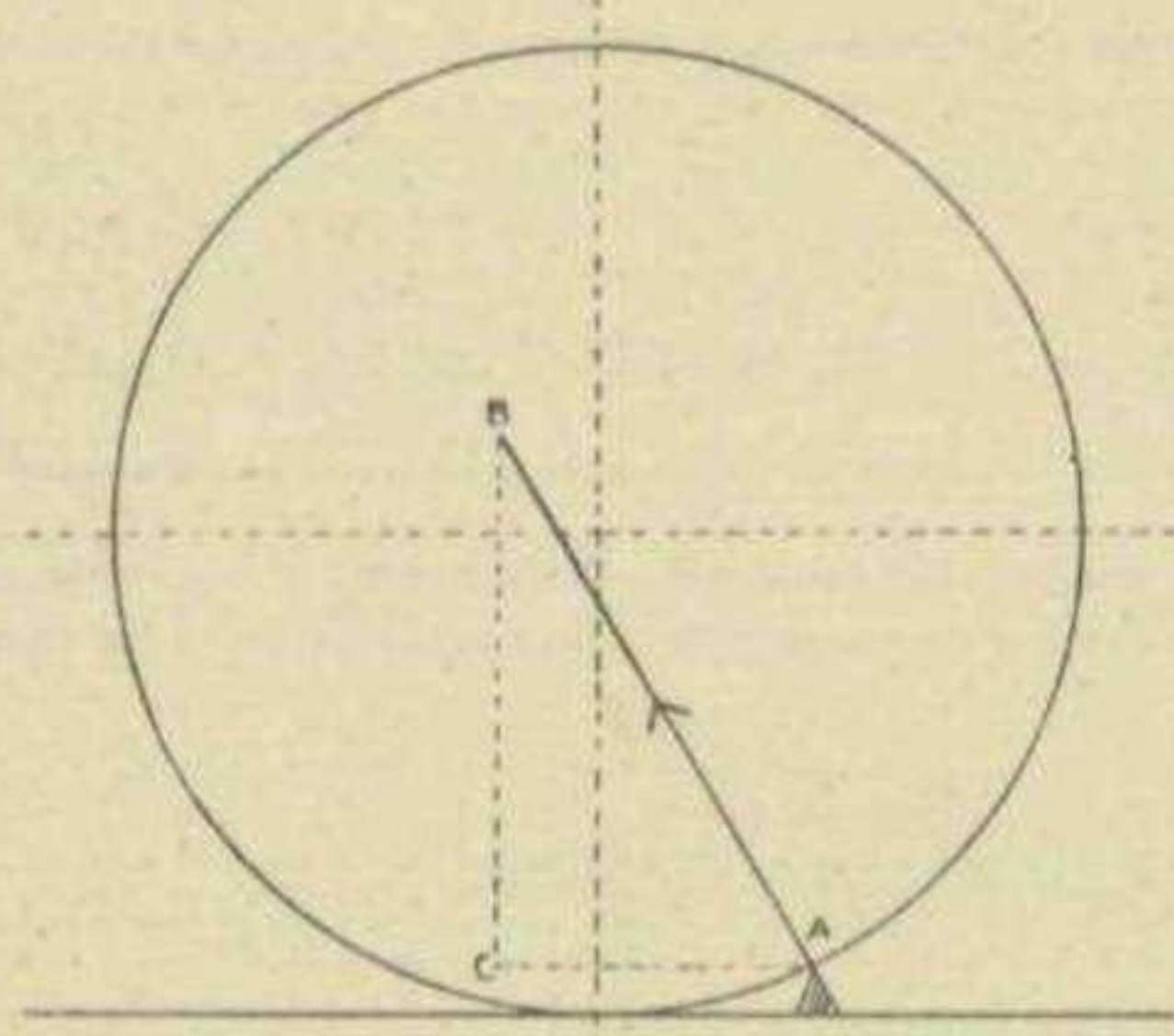


FIG. 1b, CORRESPONDING TO FIG. 1a, BUT ILLUSTRATING EFFECT OF ENCOUNTER WITH A SMALL OBSTACLE.

universally favoured for racing purposes. Another purpose which all types of shock absorbers serve, is that of checking the rebound of the spring, and, incidentally, countering the effects of the periodicity which is the unfortunate property of all springs. Shock absorbers which really take proper care of the horizontal shocks are, however, sufficiently rare to be considered as non-existent, and I am of opinion that the next step in the development of springing for racing cars will be in the direction of making adequate provision for these shocks.

One simple method of overcoming them would be to use deeply cambered springs, which, when secured to brackets on the frame at the front ends, and shackled at the rear, give in a horizontal direction when subjected to a blow. The objection to the employment of such springs, as is fairly widely known, is, however, that they increase the tendency of cars to roll. In fact, that tendency has been one of the deciding causes in makers using flat springs for all types of car. The reason for this is partly indicated by the diagrammatic illustration which is designated Figure 2. Whenever the car has a tendency to sway, it must swing about the springs, at the points where they are secured to the axles. The dimension "x" on the diagrams is a measure of the freedom to sway, for it expresses the leverage which the body has over the springs, and the greater that leverage the more readily can the body roll. Consequently, other things being equal, the vehicle to which those springs are fitted which have least camber is least likely to develop objectionable swaying motion. Deeply cambered springs too, are very frequently more flexible than the flatter ones, although this is not, of course, always the case, or necessarily so. When they are more flexible, then rolling is accentuated by the spring on the side to which the body is, for the moment, tending to roll, deflecting to an excessive extent, while the spring on the other side is not deflecting at all.

Deprived of this means of reducing the speed-destroying horizontal elements of his road shocks, the racing expert has been compelled, as has been stated, to turn to supplementary springing devices to give him aid, and the consideration of this equipment, generally referred to as shock absorbers, becomes correspondingly important. A more scientific and comprehensive examination of all the various devices which, as regards many of them, "masquerade" under that title is long overdue. Until such time as it comes to be undertaken, we may only take the opinions of those who have used such devices, deducing, to some extent, causes from results, and thus arrive at conclusions which may be of assistance in determining what direction improvements should take.

Apart from the fact that the best of all places for the absorption of road shocks of all kinds is the rims of the wheels—coupling with that the circumstance that no one has yet devised a practicable means of achieving that end without involving excessive loss of speed; the most effective springing is obtained by a combination of springing elements which afford a progressively descending flexibility, that is to say, the resistance of

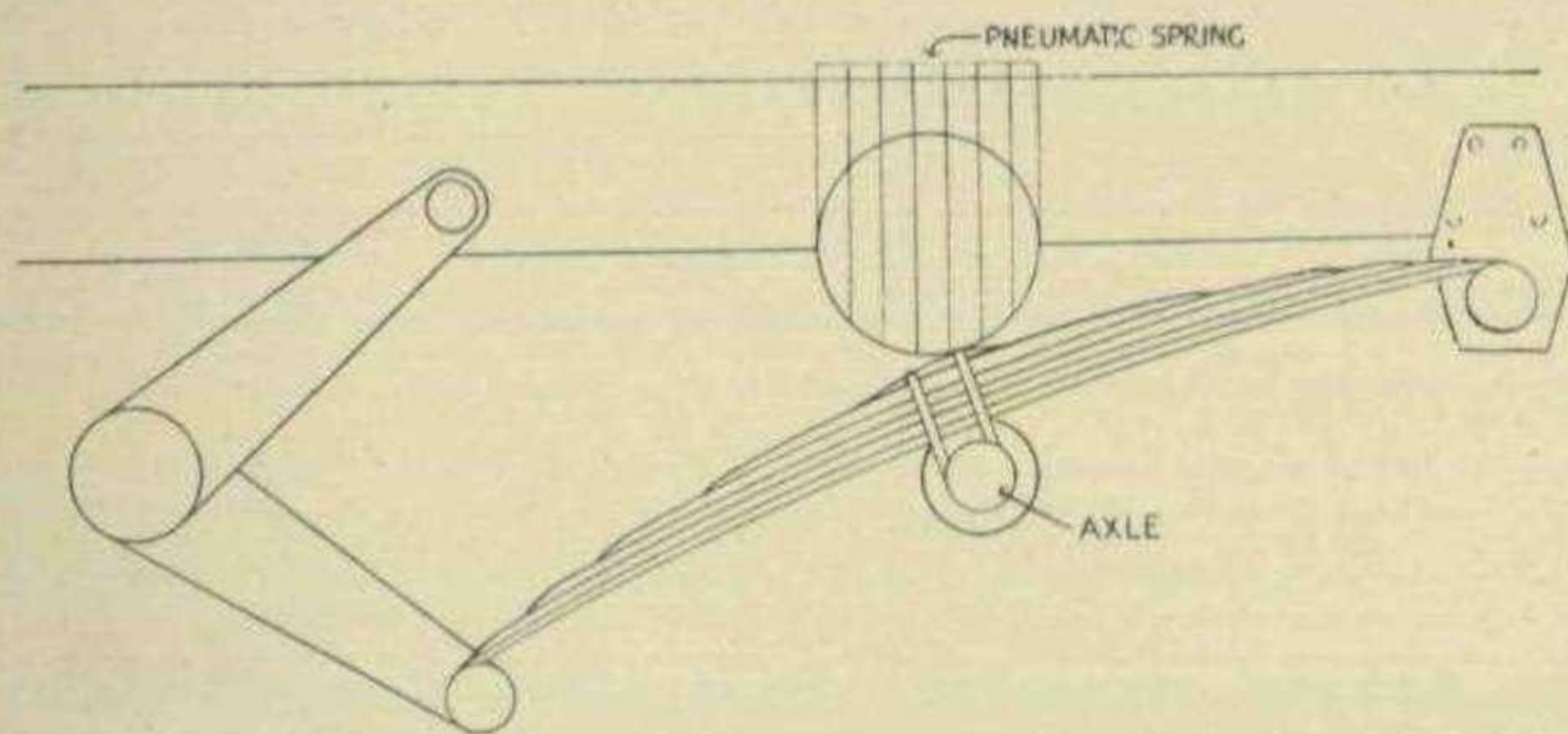
SPRINGING FOR SPEED—*continued.*

FIG. 3. COMBINATION SPRINGING SET AS APPLIED TO SEMI-ELLIPTIC SPRING

the springs to deflection increases as the load or the shock increases, and that is the underlying principle of the best systems now in use.

For a satisfactory springing equipment three things, really, are essential. First, semi-elliptic springs as a foundation. They must be as long as practicable, flat and must flex as easily as the circumstances and conditions of the design will permit. Second, rebound checks or snubbers, capable of stopping the vibration of the above springs almost instantaneously when they first return to the position of equilibrium from which they are disturbed by the shock. Thirdly, some device which will absorb, as nearly as is practicable, the horizontal shocks.

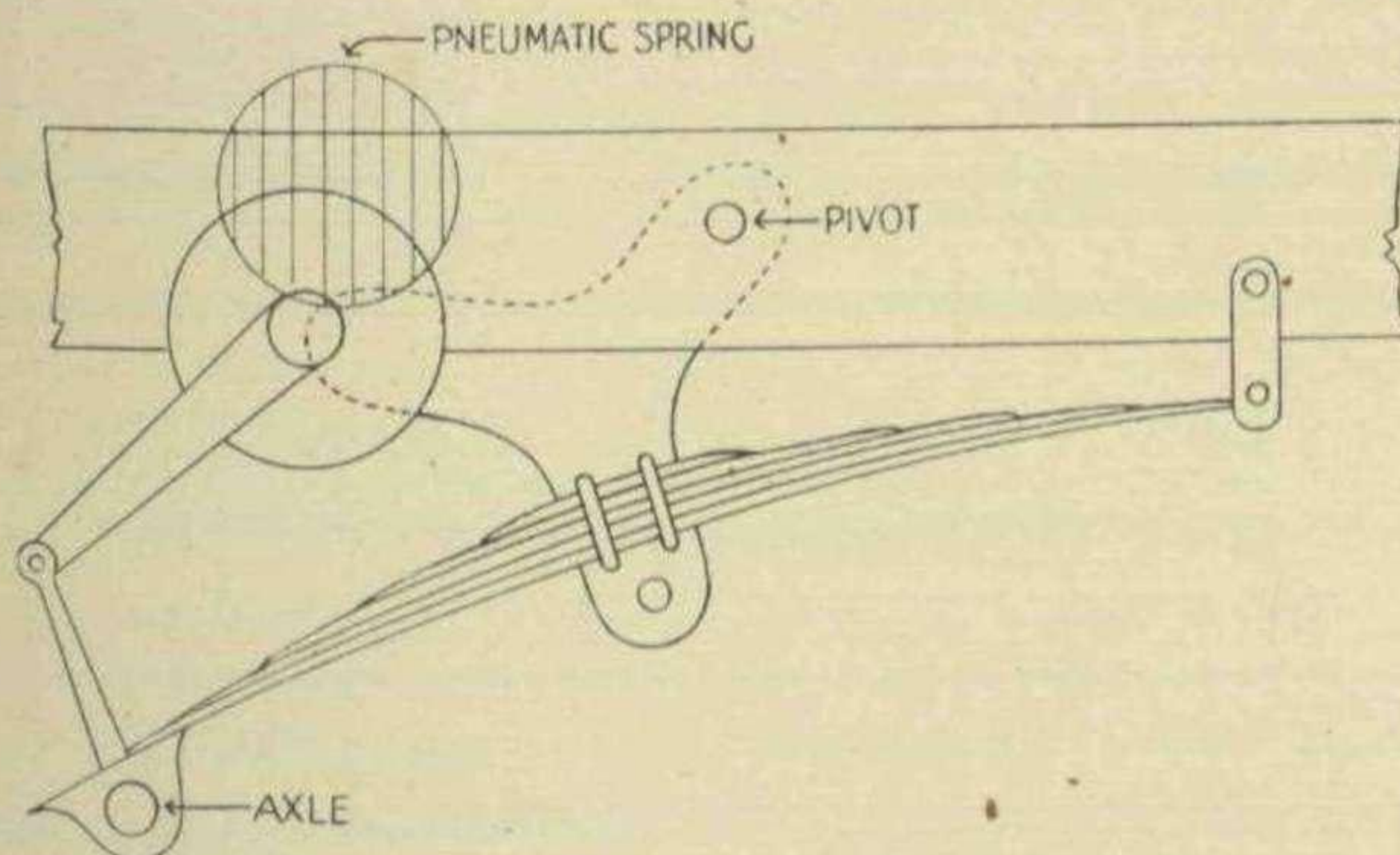


FIG. 4. COMBINATION SPRINGING SET AS APPLIED TO CANTILEVER SPRING.

A combination of this kind, suggested some time ago by an American springing expert, is illustrated in Figure 3. The spring is supported at the rear end by a shock absorber of the rebound damping type, while in the middle, above its point of connection with the axle, the spring bears against the underside of a pneumatic device. The latter, in conjunction with the arrangement of the spring, which is not horizontal, but is sloped upwards, from rear to front, will have the effect of absorbing a good proportion of the horizontal shock. Figure 4 shows a similar arrangement applied to a cantilever spring.

It is pleasing to notice that this season is attracting several newcomers to the racing wheel, mostly private owners. When the fascination of motor racing is more generally known, and the fallacious idea that the sport is very expensive is removed, we shall see a large increase in the amateur ranks at Brooklands.

## A NEW PORTABLE WIRELESS SET.

To anyone who has followed the progress of wireless and the ordinary broadcasting restrictions, it must be evident that simplicity and compactness will be the distinguishing features of future wireless sets. The outside aerial will certainly not last very long in view of the high power stations which are being erected. The general public are interested in obtaining music, and not in experimenting. Unfortunately, most small sets capable of giving satisfactory results require a great deal of skill for their use. They are extremely sensitive and very liable to be put out of order.

A new type known as the "Ideal Portable" has been recently introduced by the Low Engineering Company,



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Ltd., of which Professor A. M. Low is the technical adviser. This set employs crystal rectification with two valves for amplifying purposes. The valves are of the dull emitter type, only requiring a small dry battery for their working. The whole set is absolutely self-contained within a box of the size of an ordinary small suit case. In spite of this, however, the working parts are very accessible and easily understood, while the aerial of the closed loop type is mounted in the lid. The set proper is mounted on an ebonite panel, and both low tension and high tension batteries are contained within the case, the whole weighing less than 18 lbs. The set is extremely selective, is almost entirely unaffected by ordinary atmospherics, and can be carried about anywhere, used in any room, on a motor car or on a country walk without difficulty. Although selectivity is secured, there is practically no tuning difficulty, and the disadvantages of super-sensitive sets have been avoided. The apparatus is not expensive, and if necessary, can be altered for use with an ordinary aerial. In its portable self-contained form, broadcasting has been received up to 100 miles, and at 25 miles the purity of tone obtainable is exceptional.

## SIX NEW WORLD'S RECORDS.

The fact that six world's records were broken during the five 200 miles races at the British Motor Cycle Club's meeting at Brooklands on Saturday last, is ample indication of the remarkable speed attained by the competitors in spite of the absence of several well-known riders. Fine weather favoured the meeting and excellent sport was witnessed.

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## IN THE PADDOCK

*Sporting Chat by 'The Lounger'*

We hear that Mr. B. S. Marshall has sold his famous short Brescia Bugatti racer to an Australian sportsman. This neat black car has long been a familiar competitor at Brooklands, and is this season most conspicuous by its absence. Mr. Marshall is, however, replacing the car in his stud by an exactly similar standard model. When one remembers that these cars are absolutely standard as sold to the public, in every detail, such as camshaft, lubrication, compression, pistons, gear ratios and suspensions, and that ordinary petrol is used as fuel, it will be appreciated that the results obtained are extremely creditable. A similar Bugatti recently owned by Mr. Mones Morey, that ran in the Isle of Man, has also now gone to Australia.

\* \* \* \* \*

The various designs of car silencers that have appeared at Brooklands this season, have aroused much interest. Perhaps the most ornate is that on Tommy Hann's fascinating car, "Handy Andy." Owing to the high position of the exhaust outlet facings, some ingenuity was necessary to conform with the regulations, and at the same time not give too bulky an outline to the car. The result closely resembles a boa constrictor digesting a complete roly-poly pudding.

\* \* \* \* \*

Mr. Le Champion's Isotta appeared with a box closely resembling an oil drum "keeping its tail up." The finest of all the silencers was perhaps the very neat tapered receiver on Eldridge's gargantuan F.I.A.T. Cleverly shaped to snuggle into the bonnet and fitted with two sliding expansion joints, it is a masterpiece of artistic design.

\* \* \* \* \*

Special Hartford racing shock absorbers have appeared at the track this season, made in Duralumin, thereby saving a considerable portion of the weight of similar fittings in steel. Messrs. T. B. Andre are responsible for this improvement in design, and their duplex absorbers of this type are rapidly becoming universal.

By the untimely death of Dario Resta, Brooklands lost one of its finest and most popular personalities. I was speaking to Resta only a moment or two before he set off on that last burst of speed. Always an attractive character, it struck me that "Dolly" looked particularly fit and vigorous on that crisp September morning. He had no "gate" to watch his gallant attempt on the records he hoped to beat; only a few track officials, Sunbeam personalities, and Pressmen were present. That last drive seemed, indeed, symbolic of the devotion with which he did all his work. All out to win, in perfect form, apparently driving a car which was all he could wish, and then—the end! The only mercy seemed to be that the catastrophe was swift.

\* \* \* \* \*

In contemplating the passing of Resta, one feels a particular degree of sympathy with the Sunbeam Company. Makers of some of the finest cars that ever took the road (or the track), the Sunbeam people have of late been extraordinarily unfortunate. They lost distinction in the French Grand Prix through no fault of their own, they were dogged in other displays by petty misfortunes, and now they have lost one of the finest sportsmen who ever drove to fame in a motoring event. One knows that they will retain their position in the esteem of British motorists, but one feels, all the same, that it is time for their racing luck to turn.

\* \* \* \* \*

During a recent two days' motor cycle trial held near Marseilles, the time schedule was arranged to include a one hour's halt at each of the principal towns *en route*, in order to afford interested spectators an opportunity to inspect the competing machines.

This idea would seem to be an excellent one, except that perhaps our trade protection societies might be a little anxious on the subject of "unauthorised exhibitions" if it were proposed in this country.

# HORSE POWER—WHAT IT IS AND HOW IT IS MEASURED.

By DUMB IRON.

ALTHOUGH "Horse Power" is perhaps the most used of technical terms, it is curious how few laymen have any conception of what this unit of power really is. In cold technical language, "power" is the rate at which a machine is capable of doing work, and "work" is the effect of force moving through a distance. "Force," we are told, is that which moves or tends to move a body.

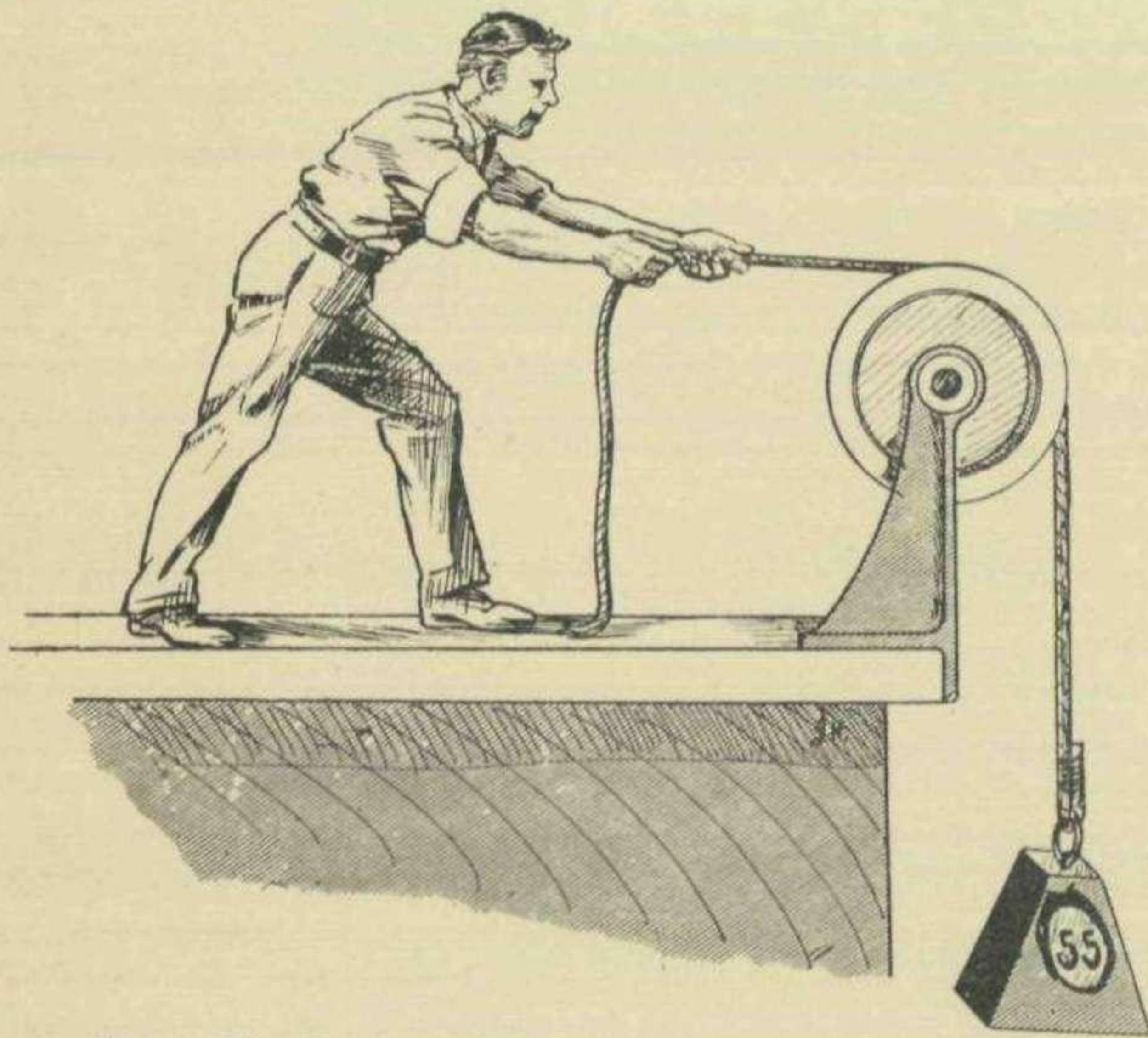


FIG. 1. MAN LIFTING 55 LBS. AGAINST THE FORCE OF GRAVITY.

Let us consider force. Suppose that we attempt to lift a weight against the action of gravity, by means of a rope and pulley as illustrated in Fig. 1. We shall be applying a force to the rope, but we shall be doing no work until we have succeeded in lifting the weight off the ground. If the object to be lifted weighs 55 lbs., and we succeed in lifting it 10 feet, we have done  $55 \times 10 = 550$  foot lbs. of work. A "foot pound" is the British standard of work and it is the product of the force in pounds, and the distance through which the force operates in feet. It should be understood that if we were to lift 550 lbs. through 1 foot, or 5 lbs. through 110 feet, the resultant amount of work would be the same.

It is now seen that work, force and power are very different things, although the terms are often thought to be synonymous. Power, being the *rate* of performing work, involves a time factor which cannot be ignored. It is not enough to determine the amount of work done and leave it at that; for it is quite as possible for a 2 h.p. motor to haul a ton as for a 10 h.p. engine to do so—the problem is simply one of gearing. The difference between the two engines lies in the fact that the larger one would be able to pull the weight five times as great a distance as the small, *in the same time*.

## The Origin of H.P.

When James Watt was building his first steam engines about a century and a half ago, he found diffi-

culty in stating to his clients the amount of work his engines were capable of doing in a given time. So, after observing the performances of dray horses, he invented "the horse power," and took as his unit 33,000 foot lbs. per minute (or 550 per second).

On glancing through a motor cycle catalogue we may be confronted with a statement such as follows:—"3½ h.p.,— Engine 4.98 A.C.U. H.P. Gives 8 brake-horse-power at 3,000 revs. per minute."

The nominal rating at 3½ h.p. is an arbitrary one, and is a relic of the days when it represented the full power of an engine of 85 mm. bore, and 88 mm. stroke. Nowadays engines of this size are capable of twice this horse-power on full throttle, and some makers have departed from the time honoured convention in rating. The Auto-Cycle Union have, with a laudable desire for standardisation, brought out a rating of their own. In this case the engine is rated on the volume swept by its piston, and 100 c.c. are taken as being equivalent to 1 horse-power. In reality the A.C.U. horse-power is a measure of the engine's size and not its power.

In the car world the H.P. rating is even more confusing, for the Treasury horse-power has but little relation to the actual brake h.p. of the engine. The Treasury rating formula is

$$\text{Rating H.P.} = \frac{B_2 \times N}{2.5}$$

B=Bore in inches. N=No. of Cylinders.

$$\text{Or when millimetres are used } \frac{B_2 \times N}{1613}$$

B=Bore in millimetres. N=No. of Cylinders.

This formula was evolved about 1906 by the Royal Automobile Club, and as a result of many tests it was found that in those days a good engine developed a mean effective pressure of 90 lbs. per square inch, a mechanical efficiency of 75% and a piston speed of 1,000 feet per minute. Owing to heavy reciprocating parts and poor induction systems it was found that an increase in stroke length merely brought down the speed in revolutions, so that in those days a long stroke engine showed no advance over a short stroke engine.

Those sceptics who contend that the last decades have brought only detail improvement in autocar engines will be interested to note that it is claimed that one of the 200 mile race Supercharged Darracq engines has reached over 100 B.H.P. This engine is rated at 11.9 H.P. R.A.C. rating and 14.97 A.C.U. rating.

## Power Measuring Appliances.

The actual power given at the shaft is, of course, the Brake-Horse-Power, so called because it is measured on a "brake" or "dynamometer." In principle all dynamometers measure power by absorbing it, and the

**HORSE POWER—WHAT IT IS AND HOW IT IS MEASURED—continued.**

three means of absorption in common use are friction, water and electricity.

The most elementary type of dynamometer in common use is the PRONY, shown in Fig. 2. It consists of an externally contracting brake which envelops a water-cooled flywheel. To the brake shoes is attached a yard arm, which supports the weight W. When the flywheel rotates, it tends to lift the weight, and, as we know the distance the weight is lifted per minute, we therefore

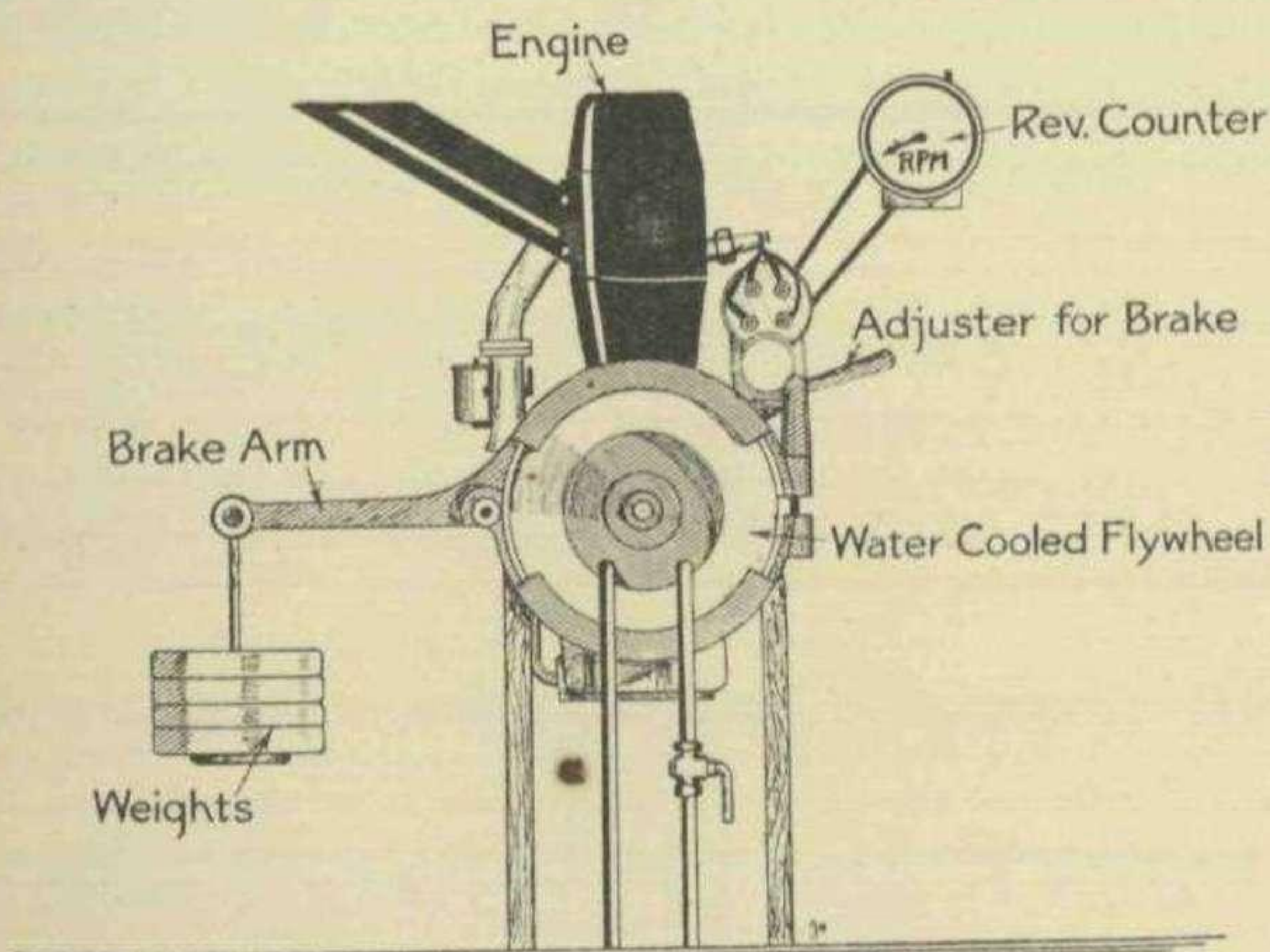


FIG. 2. ENGINE WITH PRONY DYNAMOMETER.

know the number of foot pounds of energy absorbed per minute. By dividing this number by 33,000 we have the brake-horse-power of the engine. In spite of the simplicity of the PRONY brake, its use is limited, because it is apt to overload the crankshaft bearings, its readings are rendered unsteady by variations in temperature and it steams and clatters. These shortcomings have induced manufacturers to use other methods of measuring power.

The most popular dynamometer to-day is the FROUDE hydraulic absorption brake. As in the Prony brake, the engine tends to lift a weight at the end of an arm, and, basically, the calculations for both types of machines are the same. The Froude, however, absorbs the engine power by means of water which is circulated in a number of pockets in the casing and in the rotor. This circulating water sets up a vortex action which provides the hydraulic resistance and simultaneously the means of carrying away the heat developed by the destruction of power. All Froude dynamometers have lever arms of such a length that the power may be calculated by a simple formula. This is as follows:—

$$\text{B.H.P.} = \frac{W \times N}{K}$$

where W=Load on arm.

N=Revs. per minute.

K=A constant.

**NOVICES ON THE TRACK.**

The Public Schools M.C.C. and the Guildford and Woking M.C.C. took possession of the track on August 30th, and put up an interesting race meeting. A feature was the catering for novices, and though their riding did not compare with the brilliant work of the "stars," yet it was sound enough, and they got most of the speed that their machines could offer.

One noticed that, at times, competitors looked round to see how they fared with the rest of the field, a thing which the racing crack seldom does, and some of them struck curious attitudes in the saddle, seeming to ignore the handicap of wind resistance.

In the handicap for big machines, H. J. Knight rode a plucky race. Coming off the Byfleet banking with his head tucked well down, he banged his chin on the handlebars and gashed it badly. Blood streamed down his sweater, but he took no notice and went on to win. Afterwards, his injury had to be medically attended to.

A. Williams was unlucky in the last race of the day, which he lost by a technical default. Just as he came by the stands on the first lap his silencer broke adrift, and he did a spectacular swerve toward the rails. He covered the next two laps with the silencer trailing on the track, and long before he finished—well ahead of the field—it was announced that he was disqualified.

This was much to the liking of the bookmakers, who, by the way, had adopted a most unfair "combine," for the second man, Taylor, was practically unbacked. The "combine" to which I have referred was, in effect, an agreement not to offer odds of more than four to one, so that in a race of about a dozen starters, punters had the mortification of seeing the favourite at odds-on, and the rest of the field at "fours." Such tactics call for practical objection, and one naturally considers the possibilities of running a totalisator at the track.

**THE LATE MR. G. W. RALSTON.**

Many motorists are regretting the passing, with tragic suddenness, of Mr. Gavin William Ralston, who died whilst walking in a Dorset village, where he had gone with his wife, to whom he had been married only a week or two. Mr. Ralston was a member of the R.A.C. Committee, and an inveterate heckler at its meetings. Readers may remember the report of the Club's "Annual 'Genial' Meeting" in our July number, made genial indeed, by the amusing manner in which Mr. Ralston, who was a barrister, "cross-examined" Captain D'Eath, a Club official, on the strict interpretation of rules in respect of the serving of refreshments late at night. Being dissatisfied with the ruling on the subject, Mr. Ralston retorted: "Oh, Death where is thy sting?" He was really a great stickler for exact interpretations, and probably the more staid rulers of the marble halls were at times somewhat annoyed by him. But his criticism was well meant, he was a keen motorist, and all must regret his tragically sudden death.

# THE EVOLUTION OF A CHAMPION.

Some Interesting Sidelights on a Famous Motor Cyclist's Career.

By SID MORAM.

*Mr. Moram was for several years associated with Mr. Herbert le Vack, in whose racing engines he took a considerable practical interest.*

AS a lad I worked at a local bicycle shop at Tottenham. While there I got to know Herbert le Vack, who may now be regarded as the world's champion motor cyclist. At that time le Vack was working at the Motorsacoche factory, where, subsequently, I got a job.

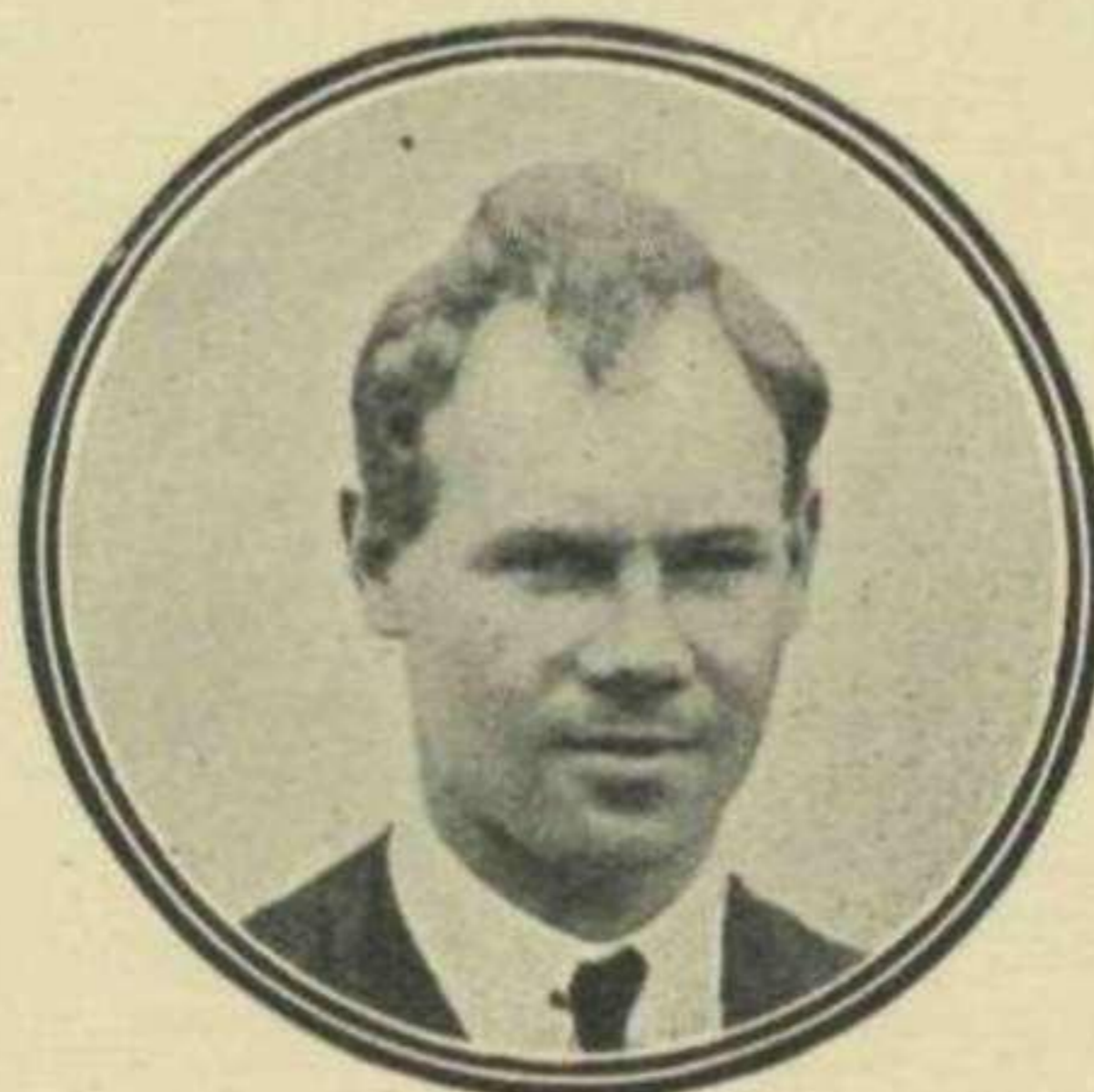
Incidentally, I remember that on the occasion of my going to see Mr. de Lissa to get this job, I considered it essential to know how to spell "Motorsacoche" correctly, and for this purpose I purchased a copy of *The Motor Cycle* on the way there, only to find that the word I sought did not occur once throughout that particular issue! (*Did you look in the "small adverts.?"*—Editor).

While at the Motorsacoche works le Vack and I prepared one or two trials machines, and spent a considerable time on a special 'bus which he was to have ridden in the Grand Prix of 1914—which was cancelled owing to the outbreak of war.

During the war I was in charge of Royal Air Force workshops in France until 1918, but I kept constantly in touch with le Vack who was on A.I.D. work at Wolseleys and elsewhere. (*Does everybody remember that A.I.D. stands for Aeronautical Inspection Department? If not, we think it just as well to say so, because A.I.D. really had no association with help. At least, so some firms told us when we were on A. I. D.*—Editor).

When I came out of the army, I opened a garage at Tottenham, with the assistance of my father on the financial side. Le Vack came in on a sort of partnership basis.

One day there came to the garage an Edmund



SID MORAM.

spring frame. Into this we fitted a M.A.G. engine, and it was on this machine that le Vack scored his first post-bellum successes—chiefly at the Southend Speed Trials, run by the Essex Club, and at Luton. Up to this time the garage had only been run as a makeshift until something better should come along. Then the Duzmo came along, and le Vack and I both went there full of hopes. We worked almost day and night for many months, and then our arduous efforts were rewarded by his winning a veritable

crop of Firsts at the Liverpool Speed Trials of 1920. This was the real beginning of the Duzmo so far as we were concerned. As a matter of passing interest, this machine had very exceptional powers of acceleration, so much so in fact, that I remember going head over heels when pushing off le Vack at this meeting.

Then there came another period of feverish activity in preparing for the T.T., to which we eventually took the one and only speed Duzmo in existence, and the firm had to close down until our return, as it had been necessary for us to borrow all the tools and spares to take to the Island! The old Edmund was taken over as a hack bike, and for several successive practice-mornings it came in handy for towing back le Vack on the Duzmo, which was exceedingly fast, but had little endurance.

Eventually, after more nocturnal attentions, the Duzmo qualified, and on the day of the race it was well up and in the running for a win when a piston went. This was the end of the Duzmo so far as we were concerned.

Next I went back to Godfrey's, where I had been for about six months before going to the Duzmo,



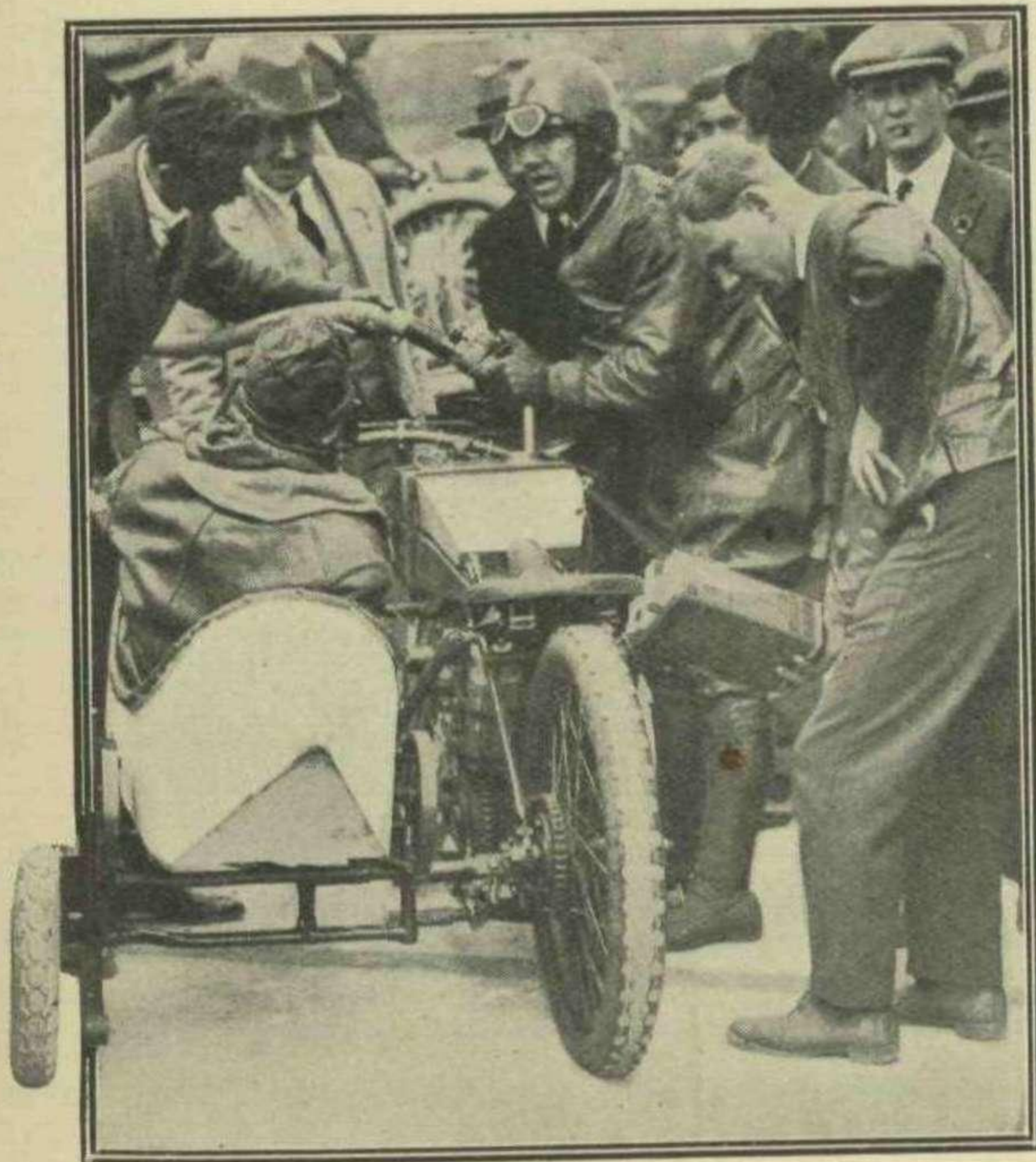
LE VACK ON HIS 350 C.C. NEW IMPERIAL ON WHICH HE WON THE 200 MILES RACE IN 1923.



## THE EVOLUTION OF A CHAMPION—continued.

and le Vack went to Indians. Whilst at Godfrey's I used frequently to go round to Indians to assist le Vack, and I also helped Tudor Thompson to tune up the Douglas on which he took sidecar records, which stood right up to last August.

Then le Vack and I found ourselves back at Tottenham, this time at the J.A.P. factory, where we spent the



REPLENISHMENTS OF ZENITH DURING 1922 200 MILES RACE.

whole of our time on experimental work and racing. During the first month we were busy preparing for the T.T., when the first J.A.P. camshaft engine was designed and made. This engine, without any preliminary brake-tests or running-in, lapped Brooklands at 68 m.p.h., which actually beat the then established record for one hour.

In that year's T.T. le Vack made the fastest lap of the course and led the field right up to about a lap and a quarter before the finish, when he was obliged to stop with gear trouble. The same year he looked like winning the Senior race, but just before Crosby on, I think, his last lap, he again suffered ill-luck, this time owing to the breakage of his magneto platform.

After that we got busy preparing for the 500-mile race at Brooklands, which le Vack had won the previous year on an Indian. This race, however, was eventually cancelled on account of the local residents objecting to the noise inevitably caused. Then followed a string of successes at Brooklands, including numerous records, which culminated at the Championship Meeting, when le Vack won the majority of the races run.

The following year he rode into second place in the T.T., and won, in one day, the two 200 miles races at Brooklands in addition to many other successes and records.

The big machine which won the 1,000 c.c. in the second of these 200 miles races was built entirely in three days and nights by another mechanic and myself, while le Vack was practising with the other machine on the track. It had only done three trial laps prior to starting in and winning this race, without a single stop other than for tank replenishment. Our next "stunt" was in France, where le Vack took the 350 c.c. kilo records for both solo and sidecar.

Shortly after this I left J.A.P.'s and so my racing connection with le Vack was severed; but I often look back on these days (and nights) as the most strenuous, but at the same time infinitely the most interesting ones of my life.

There is just one point I should like to stress, and that is that the racing we were concerned in was never entered into with a view to a win, but almost in every case for the purpose of testing out some modification of design or construction, and generally with the definite object of attempting to "improve the breed."

### NORTH WALES ROADS—A PROTEST.

Major E. A. P. Brooke, Hon. Secretary and Treasurer of the Automobile Club of North Wales, addressed the following letter to the Ministry of Transport, the Board of Trade, all County Councils in North Wales, and the Press on 11th of last month:

"The Committee of the Automobile Club of North Wales wish to urgently point out that the roads in North Wales are absolutely unfit for the amount and character of motor traffic passing over them, being unfit in width, unfit in surface and unfit in boundaries, and that so far there is no information of any appreciative action being taken to put the roads of North Wales into proper and suitable condition for present day traffic, and further that the constant stream of enormous char-a-bancs on roads with continual bends and with a width of under 16 ft. is a great danger to pedestrians as well as motor car and other traffic, one example of this being the Glan-Conway to Bettws-y-coed road."

So far, the Automobile Club of North Wales tells us, it sees no reason to change its opinion with regard to any appreciative attempt being made to improve the condition of the roads in North Wales. Meantime the traffic has enormously increased, and the conditions are therefore generally much worse. Cannot something be done, the Club asks, to rouse the varied bodies concerned from their lethargic condition?

### RACING CARS' IGNITION.

In our last issue, reference was made to the well known racing car "Larubia I." which, it was stated, was fitted with magneto ignition. The car is, in fact, equipped with the Delco-Remy ignition, which, as most sporting motorists know, is an efficient alternative to a magneto. The racing car, "Handy Andy," it may be added, is fitted with double Delco ignition.

# ATTRACTIONS of the 12-32 H.P. DARRACQ.

## Some Notes on Performance.

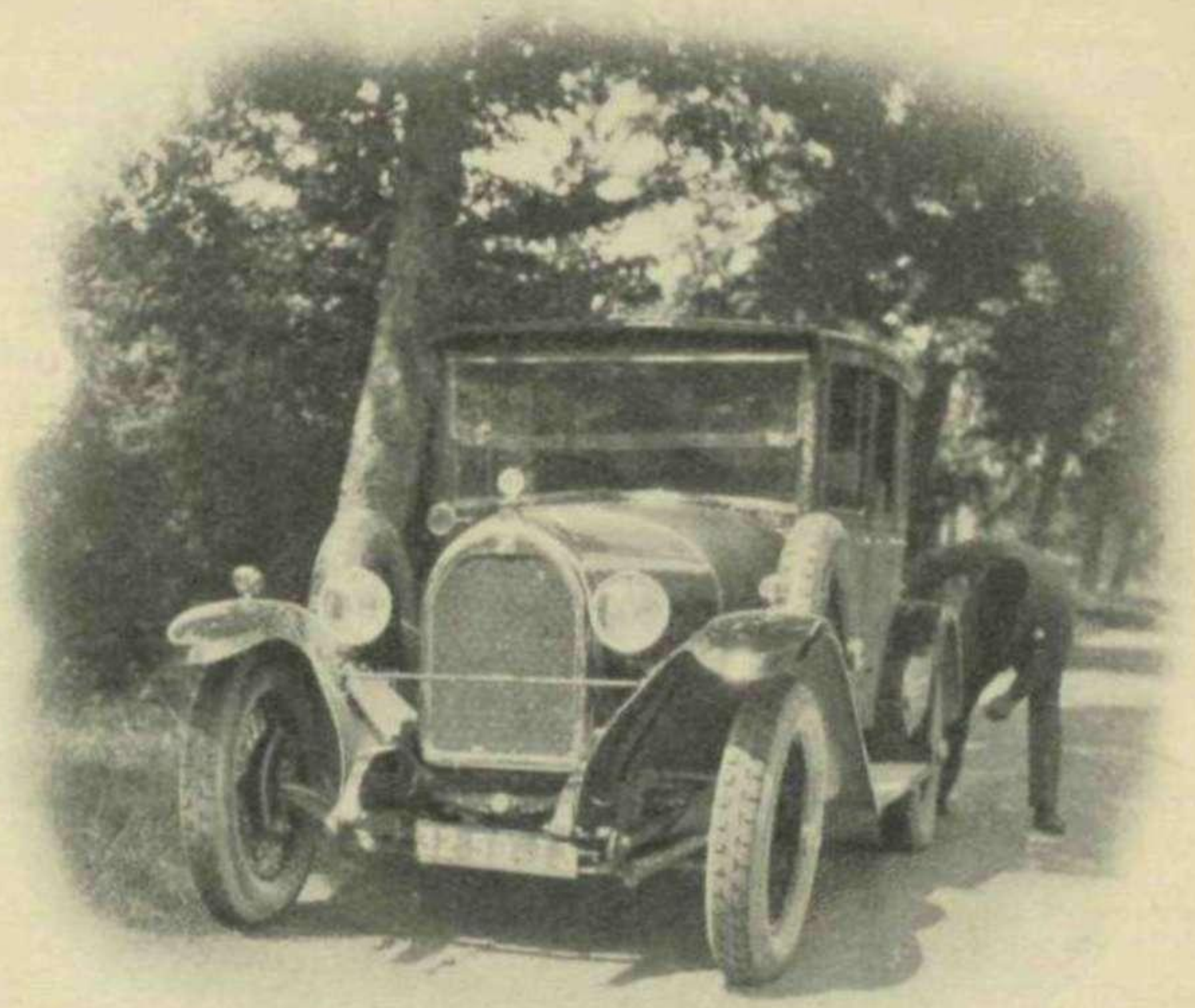
**M**OST sporting motorists are familiar with the extraordinary capabilities of the modern light car having an engine varying in capacity between 1,000 and 1,500 c.c. Those who have had experience of the 12/32 h.p. Coatalen-designed Darracq, can particularly realise what enormous potentialities lie before this type, not only as a family touring car, but as an exceedingly lusty sporting model.

Although the Darracq engine is so small as to demand but a modest contribution to the Treasury; there has been no employment of the skimping principle in order to lighten its load, to enable it to be quick off the mark, to be fast up hills, or to show a good economy in respect of fuel consumption. On the contrary, the smaller Darracq is very definitely a full-sized car, with a magnificently robust frame, a well developed and commodious body, a complete electrical equipment, and last, but by no means least, those now almost indispensable accessories to combine speed and safety—front wheel brakes.

In view of the fact that all these things are included, the acceleration of the car, the average speed which one can attain with it under touring conditions, and its behaviour generally, constitute a most remarkable testimony to the unusual character of its engine. On lifting the bonnet one finds an extremely neat power plant, with push-rod operated overhead valves, pump cooling, force-feed lubrication, and all the most advanced methods of obtaining efficiency and durability. The engine is incorporated into a single unit with the three speed gear box; and one of the points that are most to be admired about this construction is that whilst it is extremely neat and, from a technical point of view, pronouncedly correct, these objects have not been attained at any expense of the accessibility which should always mark the design of a car deliberately intended for owner-driver use.

### Stability with Liveliness.

With respect to the ordinary touring model 12/32 h.p. Darracq, one might say that robustness was its outstanding characteristic. The car embraces many principles that are essentially British in design, but it is produced in France, and it therefore has to pass through the ordeal imposed upon it by abominable French roads. The Darracq can, in fact, be safely driven at high speeds over surfaces which would very soon prove too much for the ordinary light car. On a recent occasion an ordinary 12/32 four-seater touring model was driven in one stretch from Lyons to Paris. The car was well loaded with a second passenger and plenty of luggage, yet in spite of this, and more particularly, in spite of the villainous chains of potholes that had to be negotiated, there was no difficulty whatever in comfortably averaging a very high speed. It was noticed in passing over inequalities that might



THE 12/32 H.P. HAS GRACE AS WELL AS SPEED.

well have seriously damaged a car of less strength, that the Darracq was, as the phrase goes, "all one piece." No road shock, it seemed, could cause the frame to distort in such a way that strain was communicated to the body. On a previous occasion there had been sampled the qualities of an exactly similar chassis equipped with a saloon limousine body from which it was abundantly evident that the robustness to which reference has been made was a very valuable element in securing quietness and freedom from rattle. It may be added that the engine, which, in spite of its high efficiency, is extremely smooth and controllable, develops in its ordinary touring form ample power for pulling a closed carriage with its full complement of passengers and luggage.

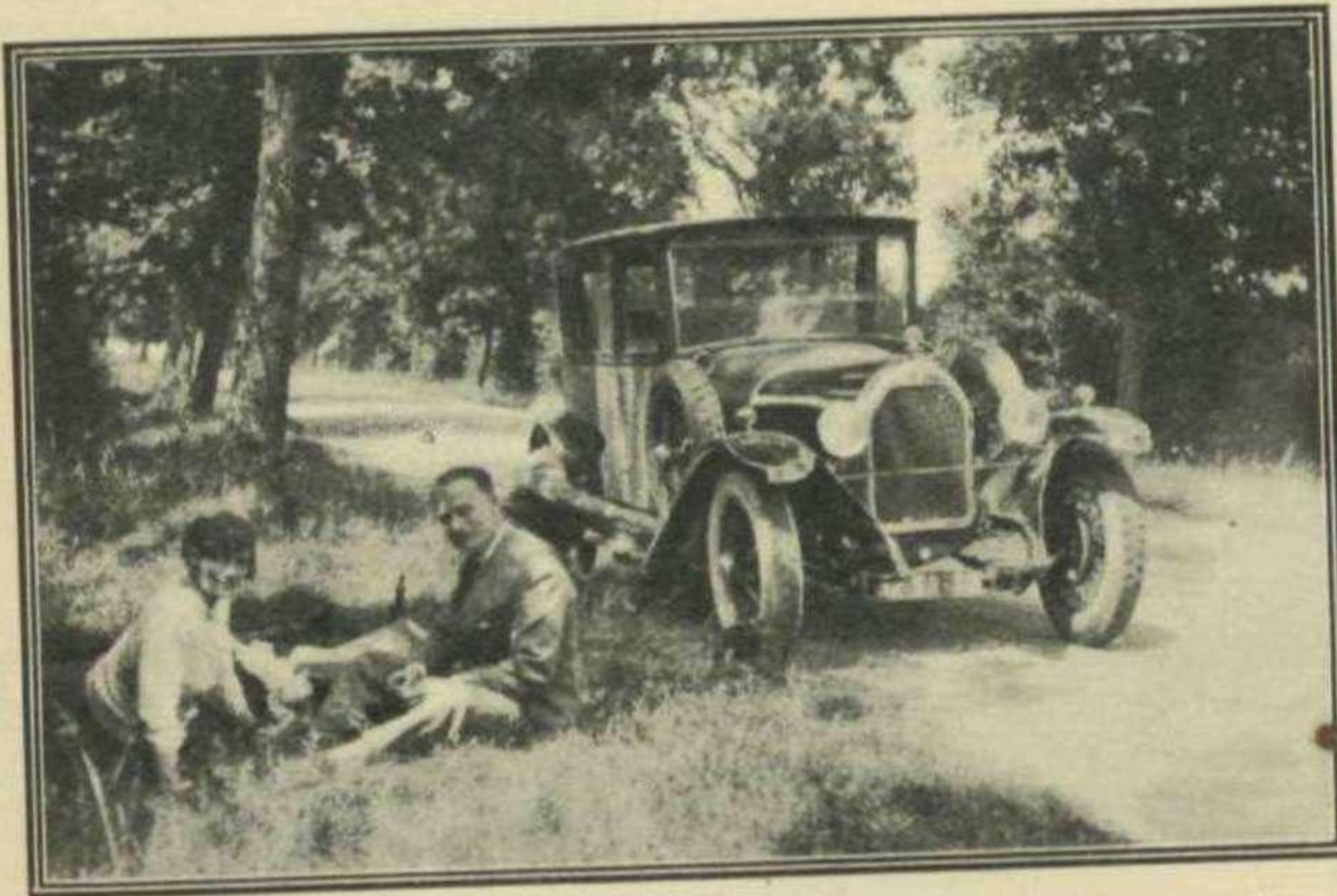
As a rule the fact that a chassis is equal to any amount of hard work under difficult conditions is held forth as an excuse for its roughness, its noise, or some other undesirable attribute. In the case of the Darracq, no such apologies have to be made. Its power and its strength have been obtained by scientific means, and have involved no sacrifice in running qualities whatsoever. It is almost unnecessary to add that as a town vehicle it gains enormously by the lightly operated, yet tremendously powerful, front wheel brakes, which not only give an otherwise unobtainable measure of control over the vehicle under all ordinary conditions, but represent probably the best security against any tendency to skid or side slip that has ever been devised. These front wheel brakes, by the way, operate upon a system which embodies the principle of the Servo-shoe, whereby the effort demanded from the driver for the full application of the brakes is so small as to cause him no inconvenience at all.

### An Attractive Sporting Model.

Whilst one may be immensely impressed with the standard 12/32 h.p. Darracq touring car, and not least, it may be added, by reason of its extremely low price, one's enthusiasm for the make will certainly be aroused by the behaviour of the sporting type chassis. Trials have recently been made with this chassis equipped with

## ATTRactions OF THE 12-32 H.P. DARRACQ—continued.

a light open four-seater body, and also with a Weymann flexible saloon limousine. The Darracq designers appear to have answered a riddle in this production which hitherto has been regarded as almost insoluble, that is to say, they have obtained from an engine which is quite ordinary in respect of detail design, a combination of intense power and smoothness of operation, this being done to such an extent that the best attributes of both a sporting and a touring car are found in remarkable combination.



THE 12/32 H.P. DARRACQ WITH WEYMANNS LIMOUSINE-SALOON BODY ON TOUR IN FRANCE.

In most sporting light vehicles the driver, in obtaining his performance, has to tolerate an aggressive coarseness and harshness of running, to say nothing of noise, which all too often reminds him of the compromise that has had to be made in his car's design. In the 12/32 h.p. Sports Darracq, it is impossible to find any trace of this compromise, for, in spite of its power (and the car will do well over 70 m.p.h. under favourable conditions), the engine retains all the desirable qualities which it exhibits so well in its ordinary touring form.

### A Strenuous Tour.

To give a concrete instance of what this sports chassis can do, it may be recorded that on a recent trip it took four full-sized people, with all the luggage that could be got into it, from Paris to Lyons at an average speed of 40 miles per hour. This journey was made with an engine that had never been run except through the bench and road tests imposed upon it by the routine of the Darracq works; consequently for the first hundred miles it had to be "nursed." In respect of quick getaway, good road-holding qualities, admirable braking, and the capability for sustained high speed, the Darracq proved itself a real thoroughbred amongst sporting cars.

These satisfactory results from the Darracq are no doubt largely due to the persistent maintenance of strenuous racing policy on the part of the Darracq Company; which, during the last two years, has brought many new laurels to the Darracq name. Of one thing it is easy to be certain, and that is, that although the Darracq in its sporting guise reflects the influence

of its racing ancestry, it only does so with regard to desirable qualities.

As a runabout, as an open family car, as a sporting three or four-seater, as a town car, as a coupé, or as a light weight sports type saloon it is equally able to exhibit its manifold merits.

### "AUSTIN SEVEN" ACCOMPLISHMENTS.

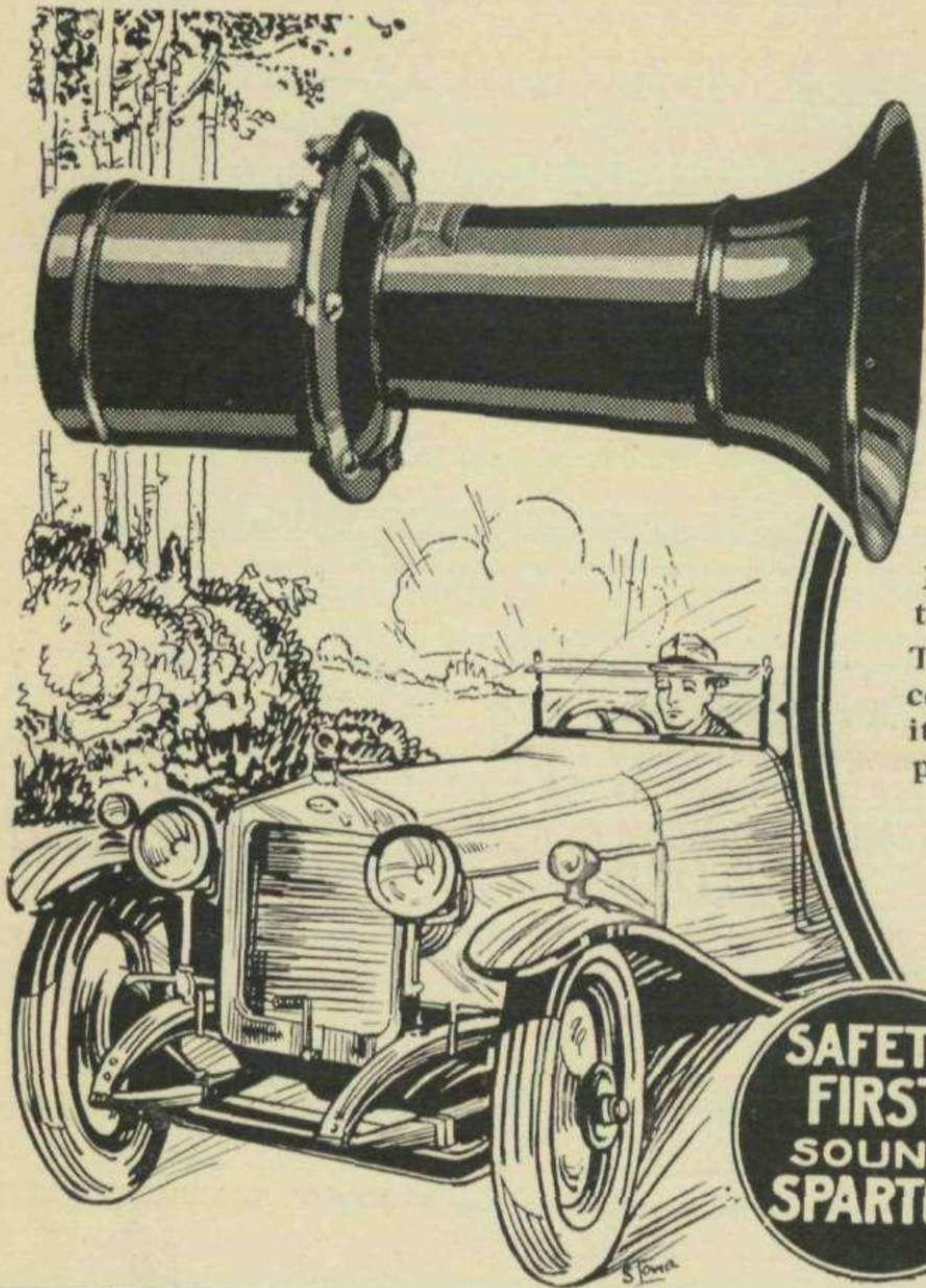
In the J.C.C. 200 miles race last year, the "Austin Seven" ran second only to a car of nearly fifty per cent. greater capacity, and made the run of 200 miles at an average speed of 77 m.p.h. At one time it attained a speed of 86 m.p.h. It holds its class records up to 50 miles, which it covered from a standing start at 77.7 m.p.h., while for the flying half-mile it has attained a speed of 83.64 m.p.h. The car is delivered with a "Brooklands" certificate for 75 m.p.h. attained before delivery. It has been as successful in hill climbing as on the track. This season the "Austin Seven" has 143 awards to its credit. The body is panelled in aluminium and the two bucket seats, staggered 9 in., have pneumatic upholstery. Shock absorbers are fitted to both axles. Equipment includes electric lighting and horn, revolution counter calibrated to show m.p.h. on top gear, and a radiator thermometer. The engine has two Zenith carburettors and "Celerity" valves with double springs. The price at London is £265.

### SILENCING MOTOR CYCLES.

The increasing demand for more silent motor cycles has had its effect on inventors, and the Auto-Cycle Union is now engaged in carrying out tests on no less than four different types of silencer for attachment to existing exhaust systems. Further, in order to encourage manufacturers to aim at producing machines which will satisfy all the police requirements in regard to silence, and to convince the general public that a motor cycle need not of necessity be noisy, the Union is considering organising a Silencer Trial. We hope that the A.C.U. will not find this task impracticable, as it did when a Silencer Trial was proposed some time ago; although we are quite aware that the proposition bristles with difficulties. The Union states that the regulations for the Trial have not yet been drafted, but it is hoped that the event will be carried out well before the Motor Cycle Show in November, to provide the buying public with reliable data on this important question.

### JUNIOR CAR CLUB ANNUAL DINNER.

The Junior Car Club have made arrangements to hold their Annual Dinner at the Connaught Rooms on Tuesday, December 16th, 1924.



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For the large touring and fast sporting car the loud compelling note of the Sparton Motor Horn is absolutely essential.

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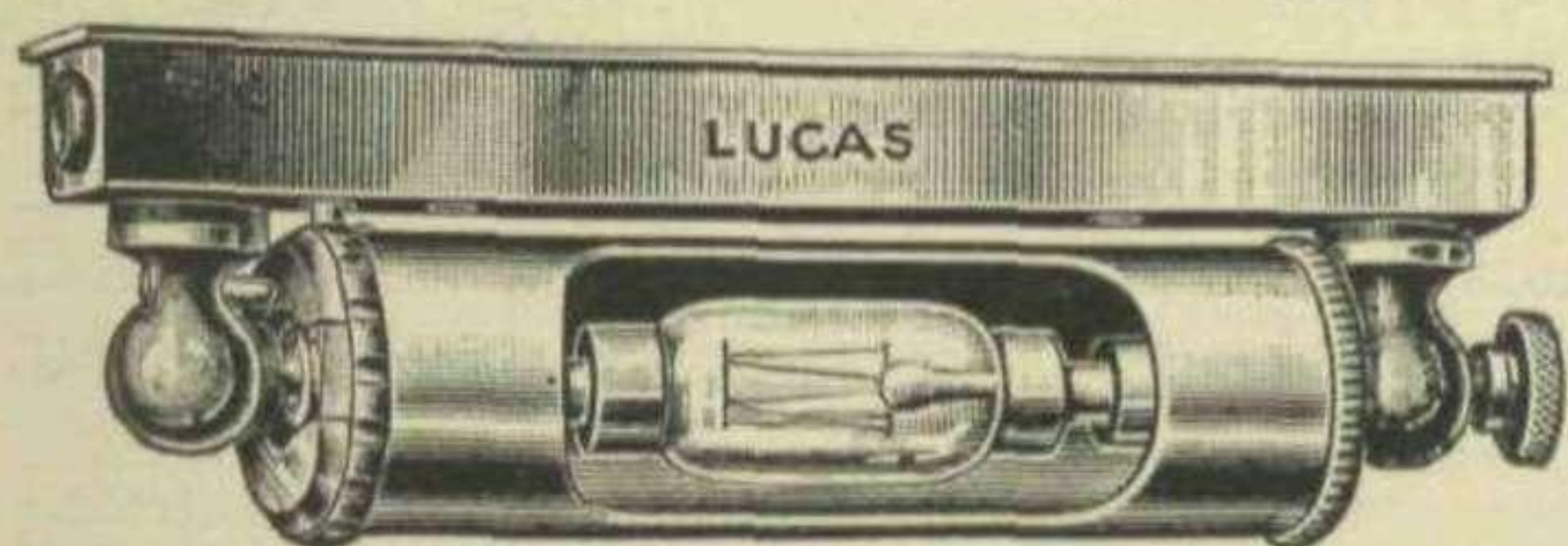




# New Equipment for Sporting Cars & Motor Cycles

## Motoralities.

Lucas Motoralities seem, to those of us who have been long "on the road," to be part of motoring, without which the sport would not be altogether complete. The Lucas Festoon dash lamp is a pleasing item in this attractive series of accessories. Its name is almost a description in itself, as the lamp is festoon like, being a metallic cylinder, with glass window, containing a neat double ended incandescent globe. Its small bulk makes it particularly admirable for use inside the hood, where the need for folding reduces the available lamp space, while its light is ample for either that purpose or for reading the various instruments when it is fitted as a dashboard lamp. The cylindrical body can be rotated to throw the light where it is required, while turning the body right round, until the glass faces the base of the lamp, automatically switches off the light, so that a separate switch is not required with this model. The body is held in position by a spring plunger, and can be



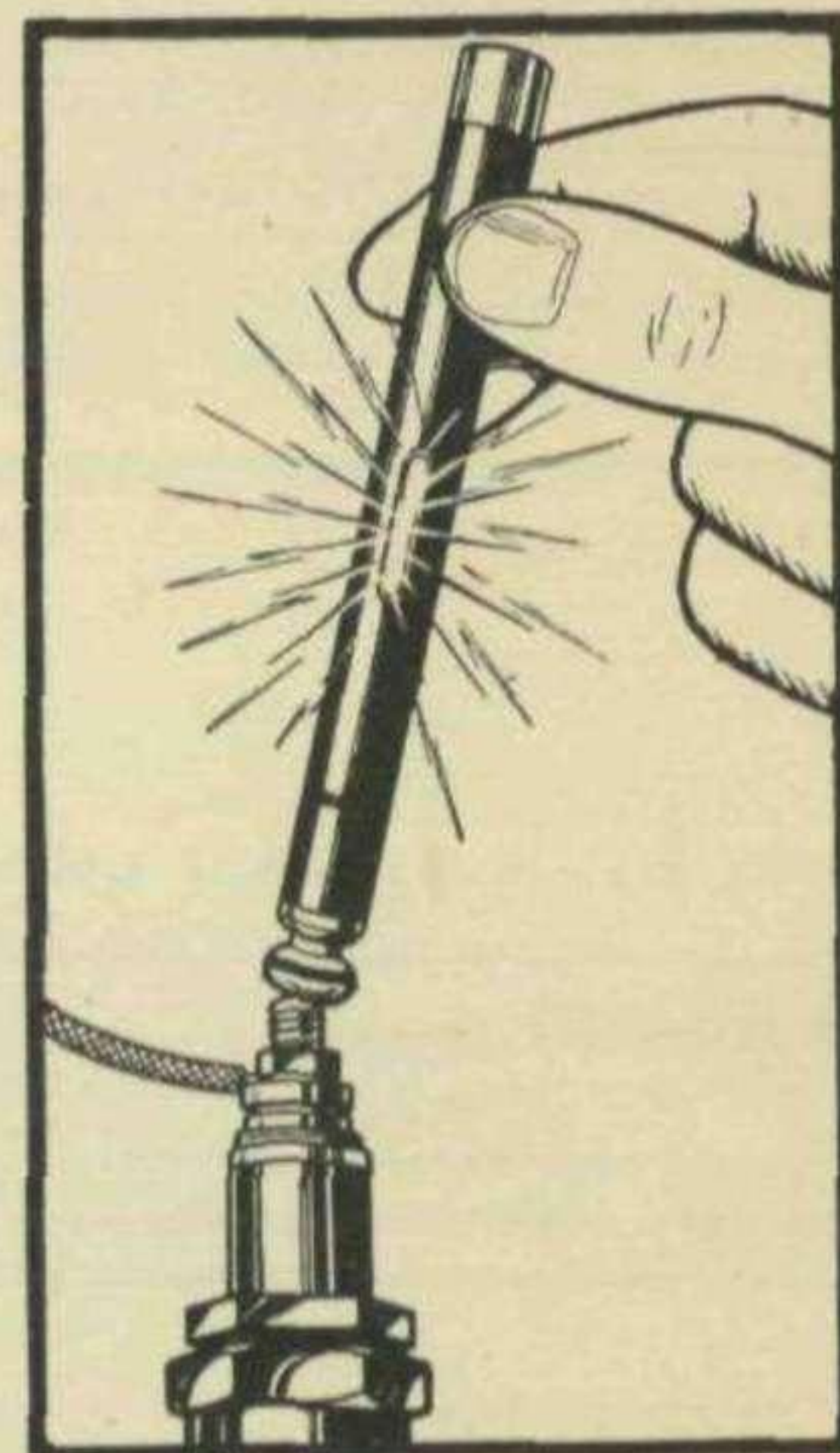
THE LUCAS FESTOON DASH LAMP.

instantly removed for bulb replacement, as is apparent from our illustration. Mention of bulb replacement reminds us of another Lucas accessory which is of value in that connection, namely, the Lucas spare bulb cases. These cases, which are made to a patented design, are in two patterns, according to capacity. The larger one, known as model 17C, carries two headlamp bulbs, four small bulbs, for side or tail lamps, and one of the above-described festoon lamp bulbs. The smaller pattern carries one headlamp bulb, and four small ones. The bulbs are retained in the end covers, and by means of skeleton inner cases, which can be easily removed when required, but which will not fall out when the end covers are removed. Spring clips are provided to hold the bulb cases, and on the majority of cars it will be found convenient to secure these to the woodwork of the dash underneath the bonnet, in a vertical position. Alternatively, the clip may be screwed to the inside of the toolbox.

These accessories are obtainable from Messrs. Lucas, Ltd., Birmingham.

## An Efficient Plug Tester.

To the keen sporting driver there frequently comes the desire and, less frequently, the actual need, to inspect the working of his sparking plugs. There is thus real need for a proper instrument to carry out that important operation, for there can be no denying that the familiar screwdriver, regarded as a tool for this purpose, has many disadvantages. Quite apart from the fact that there is risk of shock when using a screwdriver, and that intermittency of spark when it is being used as a tester, may just as well be due to inaccuracy of hold by the user, there is also the circumstance that its application fails to impart to the operator the knowledge he requires as to whether a plug is shorting internally, or broken, or whether the spark is actually too feeble to fire the charge regularly at all speeds.



THE MITCHELL PLUG TESTER IN ACTION.

The Mitchell Plug Tester is a scientific instrument which eliminates all these faults, both of commission and of omission. So far as appearance goes, it is a neat polished vulcanite tube, resembling in size, as in finish, a fountain pen. At one end there is a round metallic knob, or conductor, and at the other, a red cap, pierced with a hole which is needed for a special purpose. There is a window in the middle. When the conductor is applied to the top of a plug, with the engine running, a series of orange flashes appear in the window, each flash coinciding with the timing of the spark at the plug points. The intensity and regularity of the flashes indicate the character of the spark. The nature of the flash indicates the condition of the plug, and a sheet of instructions, issued with the indicator, tells the user how to read their meaning aright.

An integral part of the complete tool is the detector, which embodies a length of insulated wire, and a metal

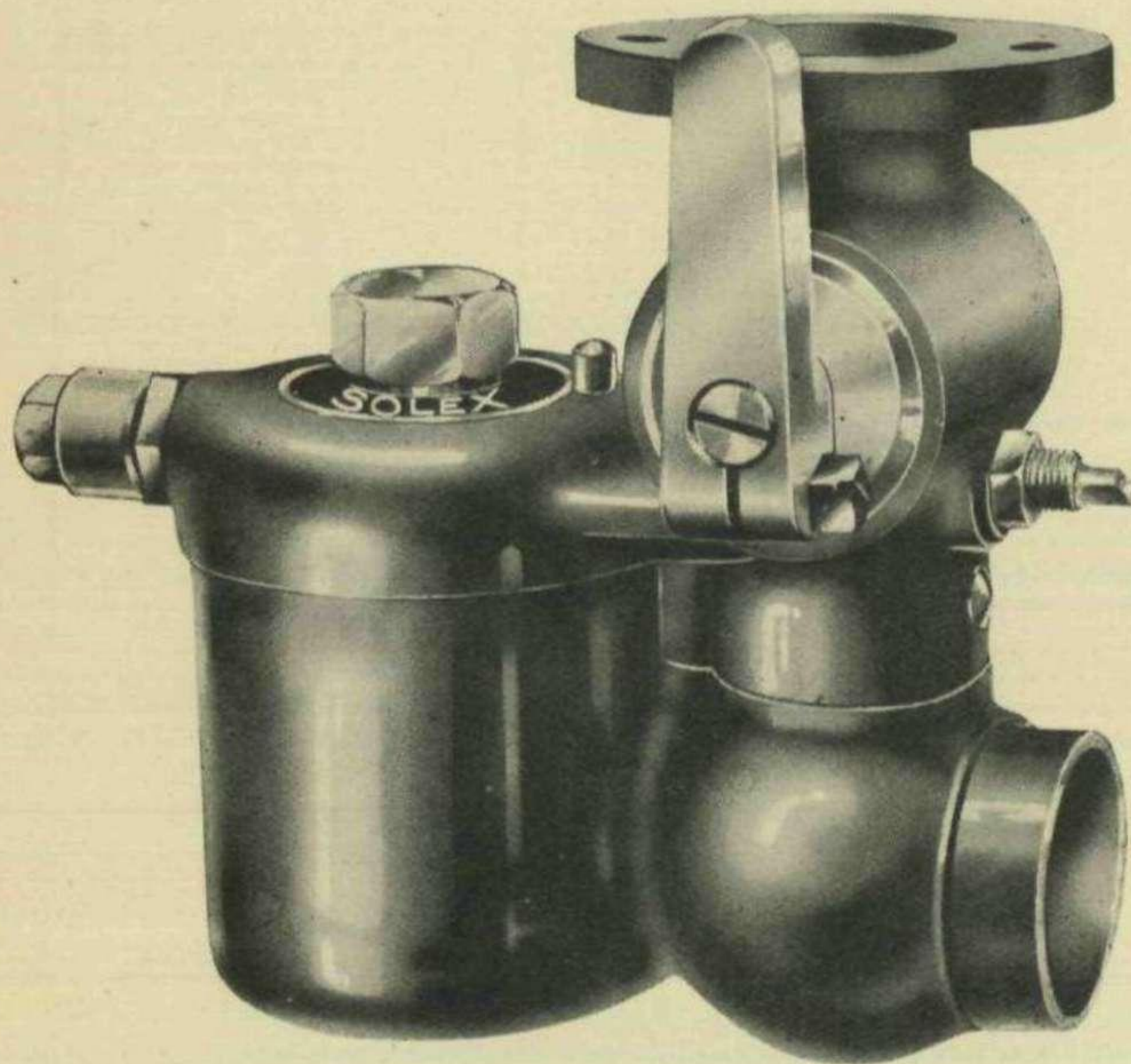
## NEW EQUIPMENT—continued.

casing. The wire is designed to connect up with the tester, by means of a plug which enters the hole in the cap of the tester to which reference has already been made. The effect, when the case is laid on the engine, is to cut out the plug which is being tested, and to intensify the flash in the tester itself. It enables the character of any flaw in a plug to be accurately determined.

The complete outfit costs only 8/6, and the manufacturers are The London Motor Supplies Co., 1, London Road, Twickenham, Middlesex.

### The Solex Carburettor.

In certain respects the Solex carburettor enjoys an almost unique reputation. The carburettor which enabled the two Sunbeams, for example, to win first and second places last year in the French Grand Prix—for speed—and which also made it possible for the Mathis to come in first and second in the French Grand Prix—for economy—is not one which is likely to escape the notice of any one who takes the slightest interest in car performance, whether on track or road, whether in competition or in ordinary touring use. Yet those are only two typical successes with which the name of this carburettor is associated, and if we must mention one or two more out of the many, we should pick the 200 miles race at Brooklands which has been won by a car



THE SOLEX CARBURETTOR IS AS HANDSOME AS IT IS EFFICIENT.

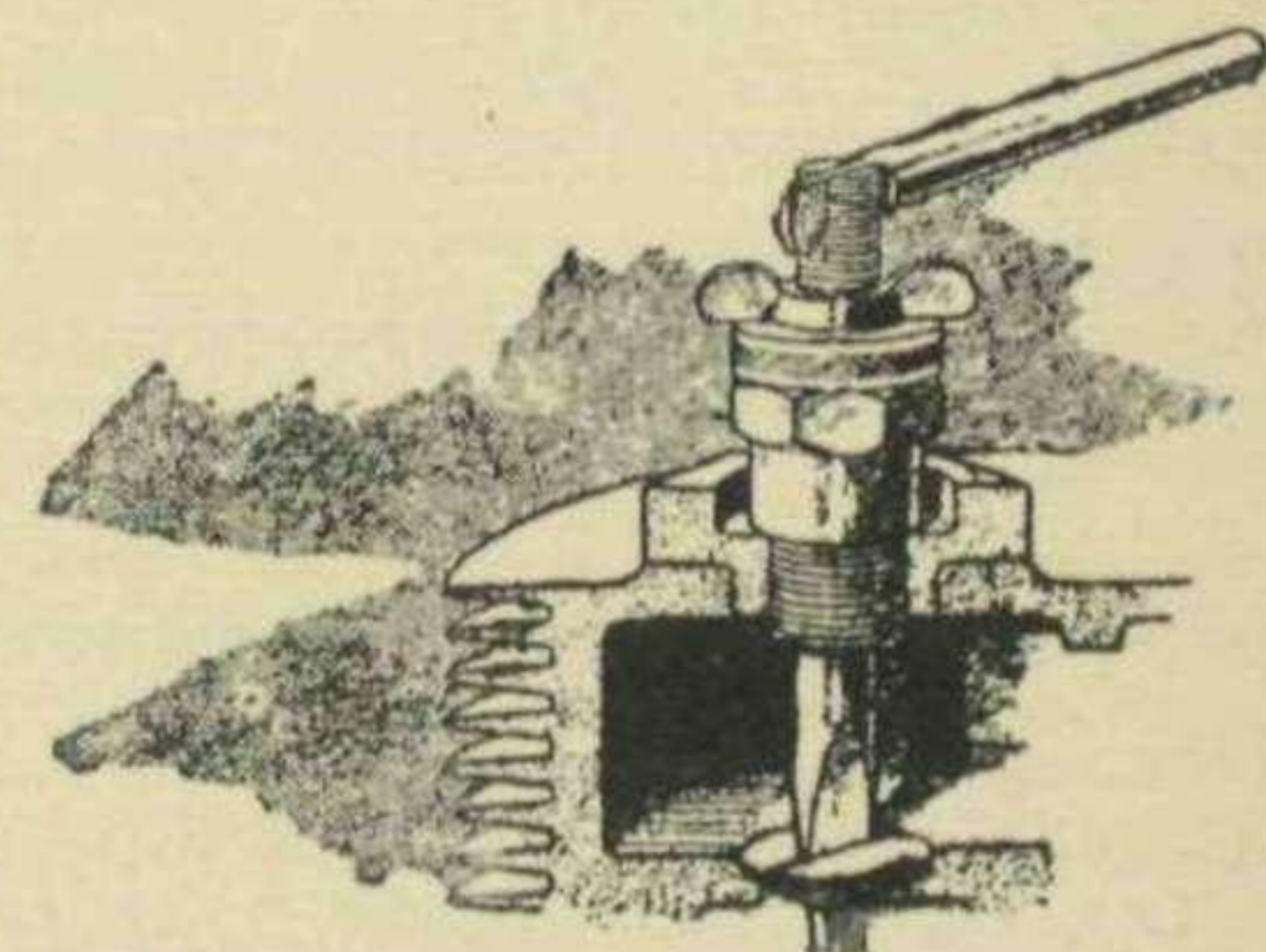
fitted with a Solex carburettor three years in succession. With a record such as this, the principle of its working hardly matters. Deeds, not words, are the motorists requirements, and the Solex has plenty of those to which it can point.

This carburettor is made in two standard types, the vertical and horizontal models, in order to meet the requirements of various engine designs. The horizontal

model, in particular, is well adapted for fitting to those engines in which the induction passages are cast inside the cylinder block. In addition to the standard types, special Ford and Morris models are also made. The price of the last named is but £4 12s. 6d., complete with petrol pipe in position, control rod attached to throttle lever, and adjustment for slow running. The manufacturers are S. Wolf and Company, Ltd., 115, Southwark Street, London, S.E. 1.

### Winton Valve Grinder.

One of the most ingenious little tools which we have seen for some time is known as the Winton valve grinder. It has been specially designed for use when grinding the valves of all side-valve motor cycle engines whose



THE INGENIOUS WINTON VALVE GRINDER.

sparkling plugs are screwed into the valve caps, such as the Triumph, A.J.S., Norton, Enfield, Sunbeam, to name but a few. Its construction is apparent from the accompanying illustration. The body of the tool is a plain cylinder, screwed at its lower end with the same sized thread as a standard sparking plug, presumably so as to be "finger tight" in the hole for the plug in the valve cap. This body portion has a plain screwed cap with knurled edge. Inside it is a spring, which bears at its upper end against the inside. At its lower end there is a ball-thrust bearing which serves to separate the spring from the collar of the central spindle, which is really a screw driver, and is shaped in the familiar form of that tool at its lower end. This spindle is free to rotate in the body of the tool, and is located, in a vertical direction, by a butterfly nut, engaging with a screwed part of the spindle, and affording adjustment for the height. A couple of slots, at right angles one with the other, are cut in the top of this spindle, and a tommy bar, shaped so that it will conveniently engage the slots, is provided as part of the equipment. An important part of the tommy bar is the overhanging lip at its end, which prevents it from slipping out of place when in operation.

The tool is as simple in use as it is in construction. One proceeds as follows:—Apply grinding paste in the usual manner to the valve face, and set the tool up, the butterfly nut having first been screwed well down. Hold the tommy bar in the slot, and with the free hand screw the butterfly nut back until it is quite free of the body of the tool. This ensures that the end of the screw driver is resting, under pressure of the internal spring on the top of the valve with its edge ready to drop into position in the slot, which it will if the tommy bar be turned slightly. Subsequently, adjust the butterfly nut until satisfied that the pressure between valve and face—which is automatically applied by this tool—is approximately

## NEW EQUIPMENT—continued.

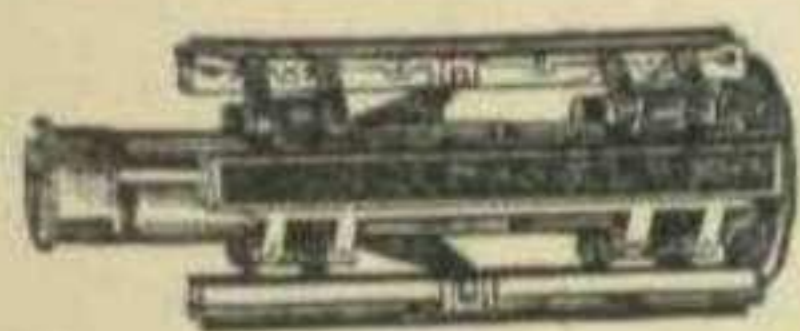
that which is thought to be desirable. Then proceed with the grinding of the valve along orthodox lines.

The retail price of this tool is 4/11, or 5/3 post free from the makers, J. Froome & Son, 2 and 3, St. George's Street, Winchester.

### Honing Worn Cylinders.

The actual wear in cylinders, although enough to affect the running of the engine to a considerable extent, rarely measures more than a very few thousandths of an inch. To correct this comparatively slight inaccuracy it has hitherto been considered necessary to have the whole block removed and rebored in special machinery which is made for the purpose. This is a costly job, involving, not only the expense of the use of that expensive machinery, but also the wages of highly skilled men, whose labour is necessary if the job is to be a good one, and, in addition, all the overhead charges, which are inevitable and considerable in connection with a job of this kind.

It is now suggested that all this expense and trouble is quite unnecessary, and that the cylinder can be put in perfect condition by honing. Moreover, in cases where the engine is equipped with a detachable head, the job may even be done without removing the cylinder block from the engine or the engine from the frame. The



THE CYLINDER "HONER."

apparatus employed for this purpose is very like a reamer from which the cutting tools have been removed, their places being taken by long hones, very similar to those used for setting razors. The hones are mounted in long guides which are maintained parallel to the axis of the tool by spring-pressed cantilevers. There are four hones, and the pressure is carefully and equally distributed between them, so that there is the same amount of cutting, or honing, done by each. Cylinders which have become tapered, the bore of which has barrelled, or which are oval, can all be cured by this method, it is claimed, so long as the amount of metal to be removed does not exceed one hundredth part of an inch, which is equivalent to saying that ninety per cent. of all cylinders which need reboring can be tackled by the "honer."

Amongst the several points which are claimed to put this method of cylinder treatment ahead of the orthodox grinding, we may quote: that the operation gives a burnished surface which does not tend to seize; that the work may be done by any ordinary competent garage mechanic in time which, in the case of cylinders with detachable heads, does not exceed twenty minutes per cylinder bored; that no grinding compound is used, so that there is no risk of its getting into the bearings or other vital part of the motor, and that the job, when completed, is every bit as good in itself as that of regrinding.

The equipment for this method of cylinder repair is being marketed by Morris Russell & Co., Ltd., of Great Eastern Street, London, E.C.

### A New Shock Absorber.

A shock absorber of the friction type, but embodying a rather ingenious means for automatic adjustment of the pressure between the discs, according to the degree of movement of the axle, has just been placed upon the market by Industrial Rubber Products, Ltd., Brook House, Tottenham Court Road, London, W.1.

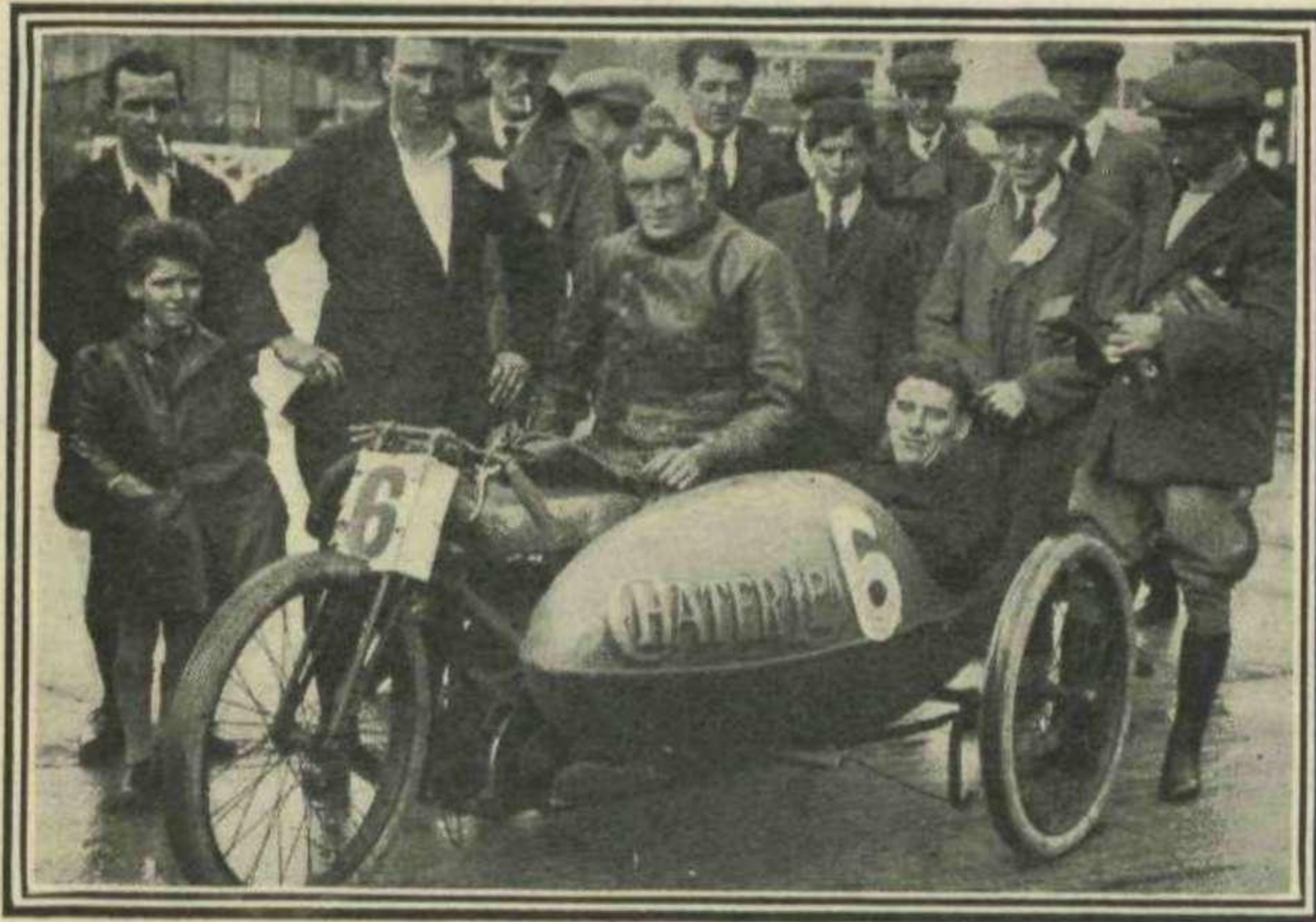
In general outline this fitting does not appear, at first sight, to differ, to any great extent, from others of the same type. A closer examination, however, reveals the fact that it embodies several novel features of utility as well as interest. In principle, it consists of a pair of banjo-shaped arms, mounted, at the centres of the circular portions, upon a common spindle, and having the outer end of the arm of one banjo pivoted to the axle and the other similarly attached to the frame of the chassis, or its equivalent. Each of these arms is, as a matter of fact, the equivalent of two arms, since each consists of a pair of parallel plates of the same shape. There are thus presented, at the fulcrum about which the arms are hinged, four discs of steel, that being the material of which the arms are made. The four arms are alternated, so that there is first a disc of one, and then a disc of the other, and so on. A fifth disc, independent of both arms, and serving a special purpose, to which reference will be made later, is located in the middle of the four. Between each disc and its neighbour is another, a friction-provoking disc, of wood. The central independent disc has two projecting lugs, of which the owner, by making use of a special key, which is provided as part of the equipment, can take hold and, rotating the fifth disc by this means, ascertain the degree of effectiveness of the frictional grip between the discs, adjusting it accordingly.

It has been stated that the arms hinge upon a central spindle or bolt. This bolt, with its complementary nut, provides the means whereby the frictional damping effect of the device is graduated in accordance with the movement of the axle. The nut itself is carried by a locking ring with a notched edge, into which a spring pawl, secured on one of the arms of the shock absorber, engages. This pawl, besides preventing the nut from slacking back unintentionally, under the influence of vibration, also serves to ensure that the nut always moves in unison with that particular arm to which the pawl is attached. The bolt itself is also prevented from turning, by means of a key which engages with the other arm and, just as the locking device for the nut ensures the nut oscillating with its arm, so the key which secures the bolt provides that the bolt itself shall oscillate with the other arm. The nut is, therefore, continually being screwed up and down the bolt as the shock absorber moves, so that it only remains to arrange the parts in such a manner that, as the axle approaches the frame, and the need for frictional resistance increases, the nut is tightened, squeezing the plates together. It follows naturally that, as the axle approaches its normal position, the compression of the plates is reduced, and the damping action is at a minimum.

This absorber is named the "Excelsior," and we understand that it is made in various sizes to meet the requirements of all types and weights of cars.

## SIDECAR MARATHON RACES.

**T**WO hundred miles, equal to the distance from London to Liverpool, on a sidecar with a power unit of only 350 c.c., in just over three hours, is an achievement which provides unanswerable data as to the efficiency of the type for passenger work. It was accomplished by W. D. Marchant on a Blackburne engined Chater-Lea at the Ealing Club's triple-race meeting at Brooklands, when three events, each of two hundred miles, were decided. Marchant's ride was undoubtedly the best of the day, for he practically led throughout, and was always marked as a winner so long as he could last the distance.



H. W. MARCHANT ON HIS WINNING CHATER-LEA.

The same is not to be said of the men who won the 600 c.c. or the 1,000 c.c. races, for in the former, Tucker was beaten, on sheer speed, by Cyril Pullin, who retired at about 150 miles, and in the latter, Humphreys was outstripped by Le Vack, Temple, Dixon and Allchin, all of whom, however, failed to win. Humphreys is a newcomer to racing at Brooklands, and deserves very great credit for his successful debut. Whatever happened to his opponents, the fact remains that he averaged practically seventy miles an hour for two hundred miles, and he beat record for three hours. He rode steadily and had no trouble at all, and since reliability is as important a factor as speed in long distance racing, the faults developed by competitive machines do not in the least detract, but rather enhance, the success of the Harley Davidson.

From the spectacular point of view, the racing was disappointing. It could not be otherwise with so many failures amongst the fastest of the riders, and there was not even the thrill of a close finish in any of the races. The nearest approach to excitement was toward the end of the 1,000 c.c. race, after Temple had come in to the replenishment depots and restarted about two laps after Humphreys. There was just about time for Temple to overhaul the leader, but a seized camshaft eliminated him before the chase developed.

A very fine team performance was achieved by the Norton riders, who, in the 600 c.c. race, were the only competitors to finish, five of them passing the timekeeper.

Worters, on the Toronda, had an experience which might have been serious, but actually was only comical. After making an adjustment at the Byfleet end of the track, he pushed his machine off, slipped on the wet track, and had the mortification of seeing his sidecar jazzing along the track with the sidecar occupant frantically seeking to gain control. Eventually the sidecar toppled over the inside of the track and came to rest without anybody getting hurt, but the possibilities attaching to a machine "running amok" during a race are rather terrifying.

Tabulated, the results of the races were as follows:—

### TWO HUNDRED MILES RACE FOR THE "350" CUP.

- |   |                  |
|---|------------------|
| 1. W. D. Marchant (Chater-Lea Blackburne) | 61.71 m.p.h.     |
| 2. F. J. Youngs (O.K. Blackburne)         | ... 57.05 m.p.h. |
| 3. R. J. Piper (Montgomery J.A.P.)        | ... 44.67 m.p.h. |

Marchant, subject to confirmation, beat the following records in the 350 c.c. class: 100 miles at 62.63 m.p.h.; 200 miles at 61.7 m.p.h.; Two hours with 123 miles 1601 yards; three hours with 184 miles 114 yards.

### TWO HUNDRED MILES RACE FOR THE "600" CUP.

- |                          |                  |
|--------------------------|------------------|
| 1. G. H. Tucker (Norton) | ... 65.7 m.p.h.  |
| 2. R. Lawson (Norton)    | ... 62.32 m.p.h. |
| 3. R. Dequin (Norton)    | ... 58.32 m.p.h. |

Tucker beat the following records in the 600 c.c. class: 100 miles at 64.18 m.p.h.; 200 miles at 65.71 m.p.h.; two hours with 131 miles 31 yards; three hours with 197 miles 237 yards.

### TWO HUNDRED MILES RACE FOR "1000" CUP.

- |                                      |                  |
|--------------------------------------|------------------|
| 1. R. E. Humphreys (Harley Davidson) | ... 69.66 m.p.h. |
| 2. T. R. Allchin (Zenith J.A.P.)     | ... 62.87 m.p.h. |
| 3. S. E. Longman (Indian)            | ... 54.46 m.p.h. |

Humphreys beat the three hours record in the 1,000 c.c. class with 204 miles 1318 yards.

## BRITISH MOTOR-CYCLE SUCCESSES IN GERMANY.

British motor cycles made very good showing at the recent contest, in Germany, for the Wanderpreis von Deutschland. The contest was a Grand Prix in miniature, and was run over a triangular course, about 12 miles in length. The course, however, was, comparatively speaking, quite an easy one, being level and including only two corners worthy of the name. The road surfaces, too, were quite good.

There were eight classes, according to engine capacity, for machines ranging from 150 c.c. to 1,000 c.c., with the usual increases from class to class. Speeds were remarkably low. In the largest class, for 1,000 c.c. machines, both first and second places were taken by Zenith J.A.P. machines, the winner, E. Zuendorf, covering the fourteen laps (171½ miles) in 3 hours 14 minutes 4½ seconds, which is equivalent to, approximately, 53 miles per hour. A Sunbeam was successful in bringing off a win in the 500 c.c. event; a J.A.P. was first in the 350 c.c., with an A.J.S. second. An Imperial J.A.P. ran to second place in the 250 c.c. race. The Wanderpreis, for the best performance of the day, was awarded to Zuendorf's Zenith.





*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

I have much pleasure in informing you that I found your journal of great interest, and have ordered a monthly copy from the local bookseller. I have much pleasure in enclosing a copy of our Club Fixtures, and trust this will meet with your approval. In future I will keep you informed of the club's activities.

Yours faithfully,

H. H. BROOKS,

*Hon. Sec., Gipsy Motor Cycle Club.*

*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

I congratulate you on the extremely good way in which the BROOKLANDS GAZETTE is produced, and wish you every success.

Yours faithfully,

ERNEST J. BASS,

*Hon. Sec., Essex Motor Club.*

*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

I have read with great pleasure the first issue of the BROOKLANDS GAZETTE, which is a remarkably fine production, and should appeal to a class of motorist whose interests do not appear to have received sufficient attention. Apart from the technical value of the contributions the articles make easy and pleasant reading, whilst the scope of the subject matter should attract all motorists with sporting instincts. I shall look forward to the next issue, and may remark that the BROOKLANDS GAZETTE has been the subject of most marked appreciation among my motoring friends.

Yours faithfully,

RICHARD TWELVETREES, *A.M.I.Mech.E.*

*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

I have read the July issue of the BROOKLANDS GAZETTE with great interest, and if the standard attained by the first number is kept up I feel sure that its success is assured. I would like to congratulate you on the first number, and wish the journal every future success.

Yours faithfully,

A. FRAZER NASH, *A.M.I.A.E.*

*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

We congratulate you heartily upon the BROOKLANDS GAZETTE, and wish you every possible success.

Yours faithfully,

MOTOR NECESSITIES, LTD.

*The Editor, BROOKLANDS GAZETTE.*

DEAR SIR,

We should like to congratulate you on the first issue of the BROOKLANDS GAZETTE, as it represents to us a very high class publication. It is full of "life," as per the articles, "Some Thrills with Kim II" and "Motor Cycling at 113 m.p.h." Also, one must not forget the illustrations, which enhance the publication immensely. Wishing your publication every success,

Yours faithfully,

ERIC MEADOWS,

*Meadows & Walkden,*

*Park Gate Garage,*

*Preston, Lancs.*

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## HISTORICAL EXHIBIT OF MOTOR CYCLES.

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To commemorate the twenty-first birthday of the Auto-Cycle Union, the British Cycle and Motor Cycle Manufacturers' and Traders' Union, Ltd., has agreed to allow the A.C.U. to stage an exhibit of historical motor cycles and accessories at the Motor Cycle Show at Olympia from the 3rd to 8th November next. Apart from the actual interest such an exhibit will have for motor cyclists, it will provide a unique history of the evolution of the motor cycle. It is not intended that the exhibits shall be confined exclusively to the very earliest types, although a number of these will be displayed. There will be, in addition, a number of machines on which the engines, transmission, methods of lubrication, etc., were, when first introduced, regarded as a revolutionary departure from what was then existing practice. It will be interesting to note to what a large extent the ideas of the pioneers, men who in their day were jeered at as iconoclasts, are now incorporated as standard fittings in the modern motor cycle.

The Manufacturers' Union has already received offers of a number of interesting machines and accessories for the exhibit, but it is felt that there are many others lying in various parts of the country well worthy of inclusion, and the Secretary of the A.C.U. would greatly esteem it if the owners of such relics of motor cycle history would communicate with him at 83, Pall Mall, London, S.W.1, giving particulars and stating whether they would be disposed to lend them for exhibition at the Show.



# MOTORING RECORDS TO DATE—continued.

**CLASS A.—continued.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	89.09	143.03
(f.s.) mile	6/ 7/24	H. Le Vack	New Imperial J.A.P.	248	89.25	143.62
(f.s.) 5 miles	24/ 4/24	W.D.Marchant	Zenith Blackburne	248	85.20	137.12
(s.s.) 10 miles	24/ 4/24	W.D.Marchant	Zenith Blackburne	248	83.03	133.62
50 miles	26/ 8/24	H. Le Vack	Le Vack J.A.P.	248	75.36	121.28
100 miles	26/ 8/24	H. Le Vack	Le Vack J.A.P.	248	73.63	118.49
1 hour	26/ 8/24	H. Le Vack	Le Vack J.A.P.	248	75	756
12 hours	19/ 7/22	Mrs. R. N. Stewart	Trump J.A.P.	249	556	57
Double 12 hours	19/ 7/22	Mrs. R. N. Stewart	Trump J.A.P.	249	1,071	1,180

**CLASS B.—For Motor Bicycles of which the cylinder capacity does not exceed 350 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	1/ 4/24	W.D.Marchant	Chater-Lea Blackburne	348	100.81	162.23
(f.s.) mile	1/ 4/24	W.D.Marchant	Chater-Lea Blackburne	348	98.87	159.11
(f.s.) kilometre	9/ 9/23	H. Le Vack	New Imperial J.A.P.	346	96.50	155.30
(f.s.) mile	27/ 5/24	H. Le Vack	New Imperial J.A.P.	346	89.11	143.40
(f.s.) 5 miles	26/ 5/24	H. Le Vack	New Imperial J.A.P.	346	91.05	146.53
(s.s.) 10 miles	26/ 5/24	H. Le Vack	New Imperial J.A.P.	346	89.13	143.44
50 miles	2/11/23	H. Le Vack	New Imperial J.A.P.	346	85.09	136.93
100 miles	2/11/23	W.D.Marchant	Chater-Lea Blackburne	348	80.03	128.79
1 hour	17/10/23	G. Dance	Sunbeam	348	80	421
12 hours	20/ 9/20	J. S. Holroyd	Blackburne	348	602	658

**CLASS C.—For Motor Bicycles of which the cylinder capacity does not exceed 500 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	1/ 4/24	W.D.Marchant	Chater-Lea Blackburne	348	100.81	162.23
(f.s.) mile	23/ 3/22	C. G. Pullin	Douglas	499	99.58	160.25
(f.s.) kilometre	22/ 5/24	R. N. Judd	Douglas	494	93.91	151.12
(f.s.) mile	22/ 5/24	R. N. Judd	Douglas	494	92.86	149.49
(f.s.) 5 miles	2/ 8/24	V. Horsman	Triumph	498	92.82	149.38
(s.s.) 10 miles	20/10/23	V. Horsman	Triumph	498	89.40	143.87
50 miles	9/ 8/24	A. Denly	Norton	490	87.52	140.85
100 miles	9/ 8/24	A. Denly	Norton	490	86.91	139.86
1 hour	9/ 8/24	A. Denly	Norton	490	87	137
12 hours	13/ 9/23	{ D.R.O'Donovan A. Denly R. M. N. Spring }	Norton	490	769	270
Double 12 hours	4-5/9/22	{ D.R.O'Donovan V. E. Horsman R. N. Judd }	Norton	490	1,447	839

**CLASS D.—For Motor Bicycles of which the cylinder capacity does not exceed 750 cubic centimetres.**

Excepting the undermentioned, the whole records in the above Class C also apply to Class D.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	7/11/23	R. N. Judd	Douglas	736	102.37	164.74
(f.s.) mile	7/11/23	R. N. Judd	Douglas	736	101.32	163.08
(f.s.) kilometre	7/11/23	R. N. Judd	Douglas	736	98.67	158.79
(f.s.) mile	7/11/23	R. N. Judd	Douglas	736	98.06	157.80
(f.s.) 5 miles	2/ 8/24	V. Horsman	Triumph	599	94.11	151.46
(s.s.) 10 miles	19/ 8/24	H. Glover	Douglas	595	90.08	144.96

**CLASS E.—For Motor Bicycles of which the cylinder capacity does not exceed 1000 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	122.24	196.72
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	122.44	197.05

**CLASS E.—continued.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	119.05	191.59
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	119.30	191.39
(f.s.) 5 miles	7/ 6/24	C. F. Temple	Montgomery Anzani	996	109.62	176.42
(s.s.) 10 miles	7/ 6/24	C. F. Temple	Montgomery Anzani	996	104.47	168.13
50 miles	21/11/22	H. Le Vack	Zenith J.A.P.	998	91.71	147.60
100 miles	17/11/22	H. Le Vack	Zenith J.A.P.	998	89.92	144.71
1 hour	17/11/22	H. Le Vack	Zenith J.A.P.	998	89	1,591
12 hours	4/ 9/22	{ D.R.O'Donovan V. Horsman R. N. Judd }	Norton	490	741	431
24 hours	5-6/5/09	H. A. Collier	Matchless	862	775	1,340

**CLASS B/s. For Motor Bicycles with Side-car of which the cylinder capacity does not exceed 350 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	9/ 9/23	H. Le Vack	New Imperial J.A.P.	346	77.94	125.43
(f.s.) mile	24/ 7/23	W.D.Marchant	Chater-Lea Blackburne	348	70.25	113.07
(f.s.) kilometre	9/ 9/23	H. Le Vack	New Imperial J.A.P.	346	77.40	124.56
(f.s.) mile	6/ 7/24	R. N. Judd	Douglas	347	73.07	117.65
(f.s.) 5 miles	24/ 7/23	W.D.Marchant	Chater-Lea Blackburne	348	70.25	113.07
(s.s.) 10 miles	24/ 7/23	W.D.Marchant	Chater-Lea Blackburne	348	68.50	110.24
50 miles	8/ 8/23	W.D.Marchant	Chater-Lea Blackburne	348	66.77	107.40
100 miles	23/ 8/24	W.D.Marchant	Chater-Lea Blackburne	348	62.63	100.79
1 hour	8/ 8/23	W.D.Marchant	Chater-Lea Blackburne	348	67	384
12 hours	31/ 8/22	{ C. G. Pullin J. D. Marvin }	Douglas	346	510	1,623
Double 12 hours	31/ 8/22	{ C. G. Pullin J. D. Marvin }	Douglas	346	1,002	343

**CLASS F.—For Motor-Bicycles with Side-car of which the cylinder capacity does not exceed 600 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	20/11/22	V. Horsman	Norton	490	81.19	130.67
(f.s.) mile	20/11/22	V. Horsman	Norton	490	80.81	130.05
(f.s.) kilometre	20/11/22	V. Horsman	Norton	490	80.24	129.15
(f.s.) mile	20/11/22	V. Horsman	Norton	490	79.91	128.60
(f.s.) 5 miles	18/ 8/23	V. Horsman	Triumph	498	77.30	124.40
(s.s.) 10 miles	18/ 8/23	V. Horsman	Triumph	498	74.91	120.55
50 miles	12/ 7/24	V. Horsman	Triumph	599	76.95	123.84
100 miles	23/ 8/24	C. G. Pullin	Douglas	595	65.56	105.51
1 hour	7/11/23	V. Horsman	Triumph	599	69	31
12 hours	23/ 9/22	H. H. Beach	Norton	588	631	1,396

**CLASS G.—For Motor-Bicycles with Side-car of which the cylinder capacity does not exceed 1000 cubic centimetres.**

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	103.04	165.82
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	103.00	165.76
(f.s.) kilometre	6/ 7/24	H. Le Vack	Brough Superior	998	99.80	160.60
(f.s.) mile	6/ 7/24	H. Le Vack	Brough Superior	998	99.73	160.50
(f.s.) 5 miles	31/10/23	H. Le Vack	Zenith J.A.P.	996	88.27	142.05
(s.s.) 10 miles	31/10/23	H. Le Vack	Zenith J.A.P.	996	86.14	138.62
50 miles	25/ 8/23	H. Le Vack	Brough Superior J.A.P.	996	79.37	127.73
100 miles	25/ 8/23	H. Le Vack	Brough Superior J.A.P.	996	77.82	125.24
1 hour	25/ 8/23	H. Le Vack	Brough Superior J.A.P.	996	77	1,303
12 hours	23/ 9/22	H. H. Beach	Norton	588	631	1,396

# MOTORING RECORDS TO DATE—continued.

## CLASS J2.—For Two-Seater Cyclecars of which the cylinder capacity does not exceed 750 cubic centimetres.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	19/6/24	E. Gordon	Austin	748	83.50	134.37
		England				
(f.s.) mile	19/6/24	E. Gordon	Austin	748	82.79	133.24
		England				
(s.s.) kilometre	19/6/24	E. Gordon	Austin	748	57.65	92.78
		England				
(s.s.) mile	19/6/24	E. Gordon	Austin	748	61.81	99.48
		England				
(f.s.) 5 miles	19/6/24	E. Gordon	Austin	748	80.71	129.89
		England				
(s.s.) 10 miles	13/10/23	E. Gordon	Austin	748	70.74	113.84
		England				
(s.s.) 50 miles	12/7/24	S. J. Bassett	Austin	748	77.70	125.04
(s.s.) 100 miles	13/10/23	E. Gordon	Austin	748	75.65	121.74
		England				
(s.s.) 1 hour	13/10/23	E. Gordon	Austin	748		
		England			Miles. 73	Yds. 1,589

## CLASS H1.—For Cyclecars of which the cylinder capacity does not exceed 1100 cubic centimetres.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	9/9/23	R. Benoist	Salmson	1097	99.82	160.64
(f.s.) mile	11/9/23	W. D. Hawkes	Morgan Anzani	1078	90.38	145.45
(f.s.) kilometre	9/9/23	R. Benoist	Salmson	1097	99.55	160.21
(f.s.) mile	11/9/23	W. D. Hawkes	Morgan Anzani	1078	89.54	144.09

## Class H1.—Continued.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) 5 miles	13/9/23	W. D. Hawkes	Morgan Anzani	1078	88.99	143.21
10 miles	13/9/23	W. D. Hawkes	Morgan Anzani	1078	86.52	139.42
50 miles	28/10/21	Frazer Nash	G. N.	1087	76.85	123.68
100 miles	28/10/21	Frazer Nash	G. N.	1087	77.24	124.35
					Miles. 76	Yds. 1,655
1 hour	28/10/21	Frazer Nash	G. N.	1087		

## CLASS H2.—For Two-Seater Cyclecars of which the cylinder capacity does not exceed 1100 cubic centimetres.

Distance.	Date.	Holder.	Machine.	c.c.	m.p.h.	km.p.h.
(f.s.) kilometre	6/11/23	G. N. Norris	Morgan Blackburne	1096	91.94	147.96
(f.s.) mile	6/11/23	G. N. Norris	Morgan Blackburne	1096	90.86	146.22
(f.s.) kilometre	6/11/23	G. N. Norris	Morgan Blackburne	1096	90.82	146.16
(f.s.) mile	6/11/23	G. N. Norris	Morgan Blackburne	1096	89.82	144.55
(f.s.) 5 miles	20/10/23	G. N. Norris	Morgan Blackburne	1096	89.36	143.81
(s.s.) 10 miles	20/10/23	G. N. Norris	Morgan Blackburne	1096	85.78	138.05
50 miles	13/10/23	R. Beuno	Salmson	1087	87.85	141.38
100 miles	13/10/23	R. Beuno	Salmson	1087	88.30	142.10
					Miles. 88	Yds. 727
1 hour	13/10/23	R. Beuno	Salmson	1087		

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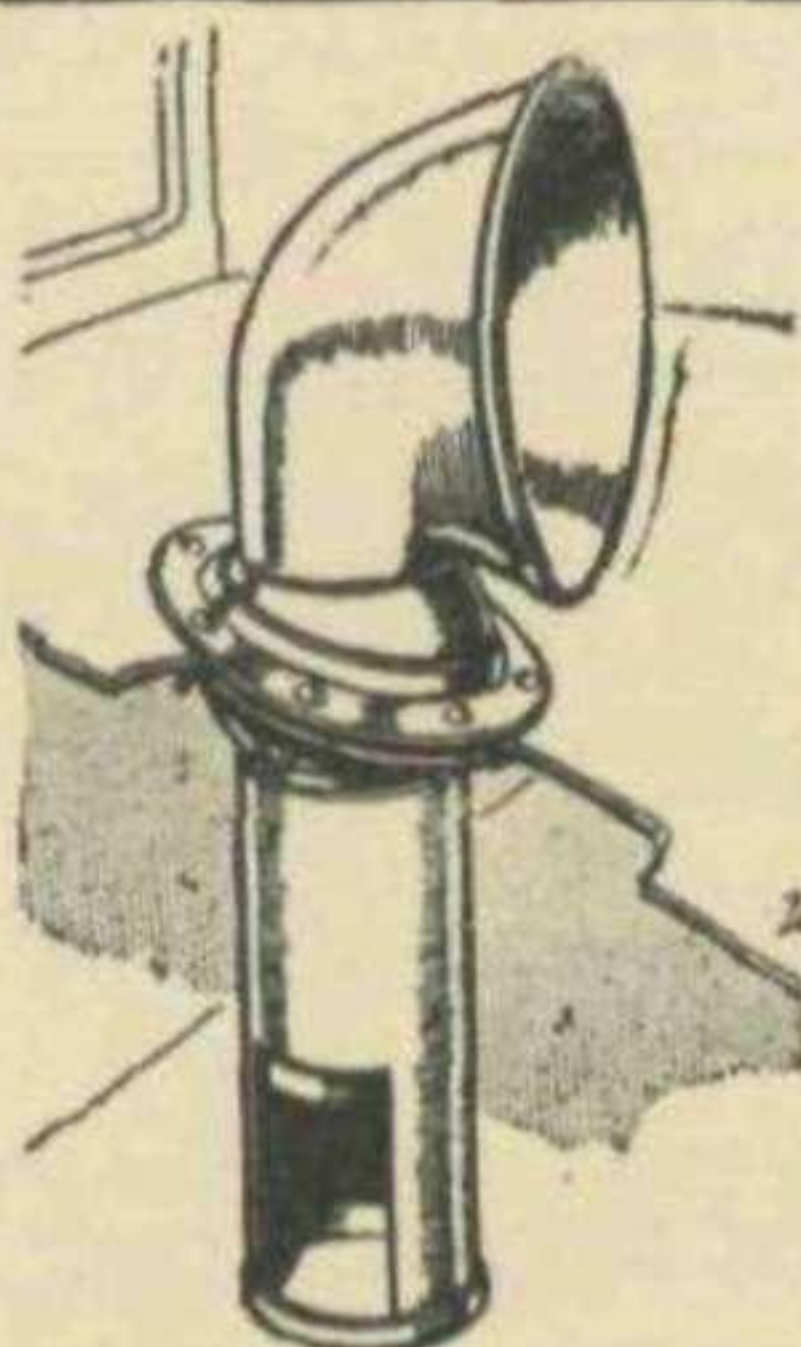
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## The BROOKLANDS GAZETTE

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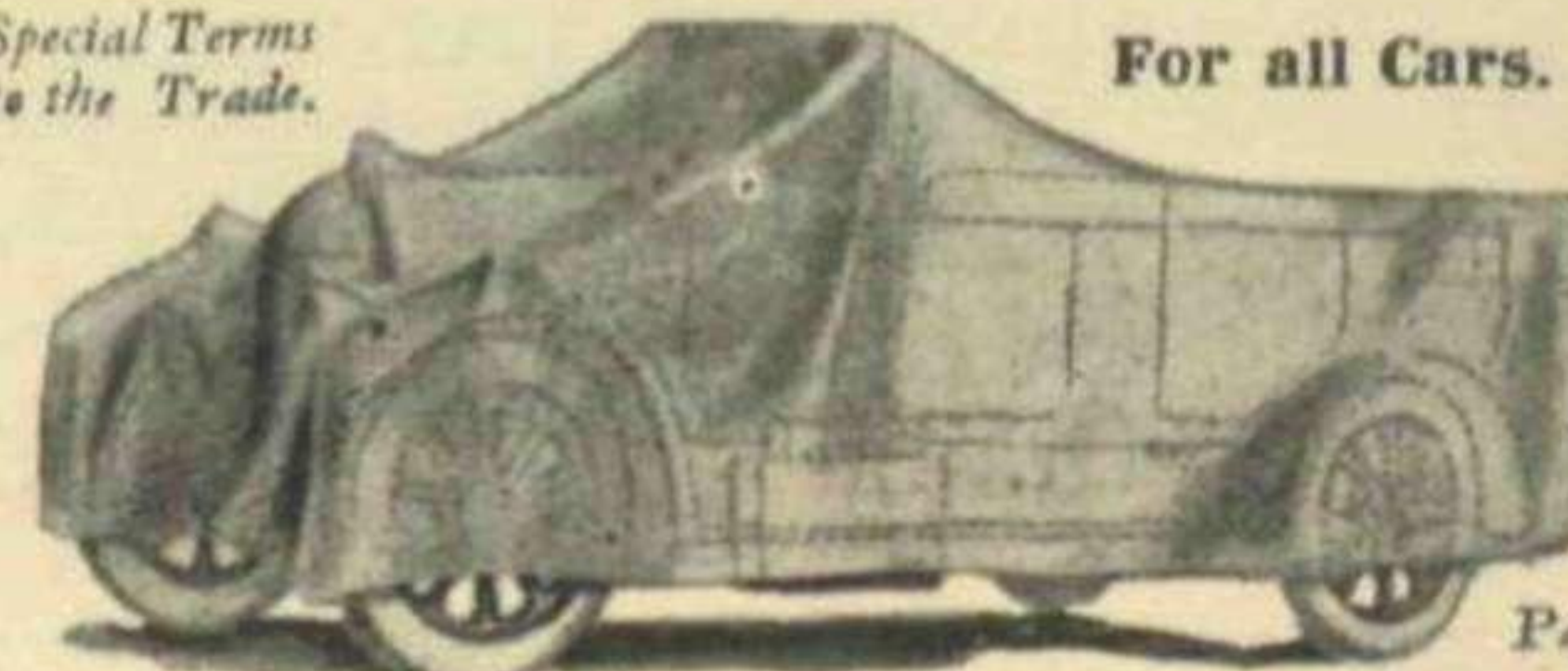
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