

the shock when striking the ground, and ordinary springs or rubbers are not capable of doing this, as the momentum is not destroyed in overcoming resistance, but is stored in the spring, and is given out again by the machine rebounding. It is necessary to absorb work, and one of the most efficient methods of doing this is by means of an oil dash-pot as provided on the Breguet machine. A shock absorber of this type is shown in Fig. 8. It is composed of two telescopic tubes, the lower one, which may be called the cylinder, being attached to the axle of the rolling wheels, and the upper tube or piston to the main frame of the machine. When fully extended, the cylinder is full of oil, a cup leather being provided to prevent leakages between the surfaces; when the wheels meet the ground, the oil is displaced into the upper tube through a spring-loaded valve, which is set open at a pre-determined pressure.

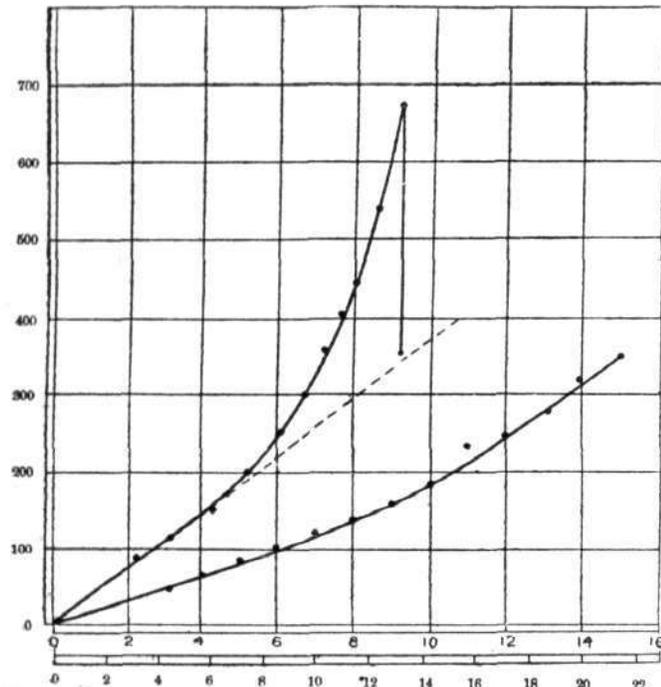


Fig. 7.

While resting on the ground, the weight is taken by the helical spring, which does duty while rolling, at the same time the valve is held open by a third spring, and therefore there is practically no damping effect from the oil, which can pass freely through the ports. The oil passes from the upper tube to the lower one through the

LONDON-PARIS RECORD FLIGHT.

SALMET'S magnificent flight on Thursday of last week from the Hendon aerodrome to Paris, in a wind averaging the whole way a velocity of 30 miles an hour, brands him as one of the foremost airmen of the day—a second Vedrines. His aim was to effect the return journey between the two capitals in one day, and to shorten his course he elected to cross the channel at its widest part, from Eastbourne to Dieppe—a feat which has hitherto never been accomplished. For nearly two hours he was obliged to steer by his compass alone, being above the clouds. That he succeeded in maintaining his true course under such difficult conditions is indeed eloquent testimony of his ability as a pilot. From the time he left Hendon to the time he landed at the parade ground of Issy-les-Moulineaux near Paris, 3 hours 16 mins. elapsed. Of this time 13 minutes was occupied at Eastbourne in gaining altitude, and for 17 minutes he had to circle near Gisors in order to determine his whereabouts. Subtracting these 30 minutes from his total time, his true time for the direct flight was 2 hours 46 mins. His real average speed between the two capitals, a distance of 220 miles, in direct flight was therefore 79 miles an hour—a truly wonderful speed when one takes into consideration the fact that it was Salmet's first cross-country journey.

Starting on his return journey from Issy-les-Moulineaux at 2.15, he

The Ladies A.C. and Aviation.

ARRANGEMENTS have been made by the Ladies Automobile Club for a lecture to be given at the Club Rooms, at Claridge's

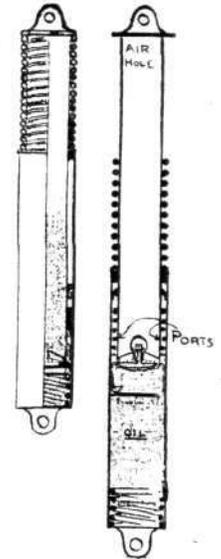
central back pressure valve, while a small air-hole in the top of the piston tube allows for the displacement of the oil.

The chart, Fig. 9, shows the sort of diagram given by a shock absorber of this type, while the other curves show the results obtained by using ordinary undamped springs.

Conclusions.

Having considered the various conditions to be fulfilled, we may now review the various undercarriages at present in use, with the object of seeing how far they meet the case. It must be remembered that we are dealing with conditions that apply to the unsuitable kind of ground before mentioned, and not to the comparatively level surface that is usually chosen for alighting.

In the first place, the majority of aeroplanes are wanting in some form of front support, sufficiently far forward of the centre of gravity to make it impossible for the machine to turn over when the wheels are suddenly retarded. The next most important point is the want of a real shock-absorbing device in place of the usual springs or rubber bands, while the provision of efficient brakes and steering gear is equally essential. There are, of course, individual cases where some of these conditions are fulfilled, as,



Closed. Fully extended.

Fig. 8.—Breguet-Type Shock Absorber.

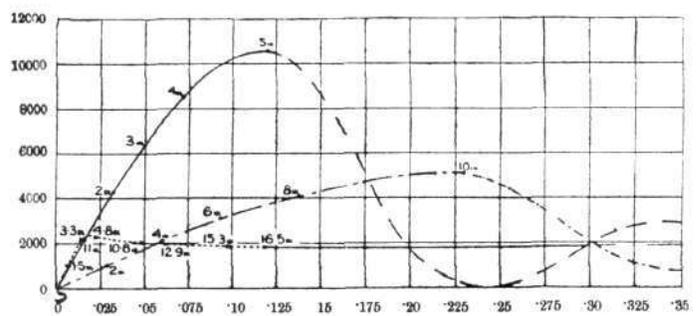


Fig. 9.

for instance, on the Breguet, which is provided with a mechanical steering device and efficient shock absorbers, but, in the majority of cases, these features are wanting. However, these, with other improvements, must eventually be provided to give the aeroplane its greatest possible range of utility.

fought his way against wind and rain to the coast, but, through lack of petrol, had to descend at Berck Plage at 5.55. Here he thought it advisable to remain the night, in spite of his determination to reach English soil if possible that day. The following morning he set off once more, and following the French coast line to Cap Grisnez, which he reached at eleven o'clock, he steered towards the English coast, effecting the crossing of the Channel in 15 mins. Continuing on, he was obliged to descend at Chatham, owing to the violent wind and rain. Early on the following morning he started again, but at Maidstone was forced to descend through encountering a bank of fog. In landing, the tip of his propeller, a Levasseur, was damaged, and another one had to be obtained from Hendon. Once more he started, but before he had got far his motor suddenly stopped, and he was obliged to plane down into a football field not more than a few hundred yards from the Royal Albert Docks. To land in such a small ground necessitated a steep *vol piqué*. To avoid a goal post he had to elevate sharply, and in consequence lose speed to such an extent that the wind got the better of him, and his monoplane came heavily to earth. It was considerably damaged, but happily, barring the shock, Salmet was little the worse.

Elsewhere in this issue will be found an account of this trip to Paris from the pen of the aviator, M. Henri Salmet, himself.

Hotel by Mr. B. H. Barrington-Kennett on Tuesday, April 2nd, at 3.30 p.m., the subject being "Aviation at Home and Abroad." The lecture will be illustrated by lantern slides and cinematograph views.