

NEW TYPE OF MOTOR.

A new type of gasoline motor claiming 300 h.p. for a weight of 220 lbs. was exhibited at the Paris Salon. This is the Demont rotary motor with six cylinders; its chief peculiarity is that it is double acting, having a large diameter cylinder and a large tubular piston rod extending from both sides of the piston and sliding in tubes in both ends of the cylinder, the packing being metallic rings. The piston also is hollow, thus permitting a current of air to pass through the

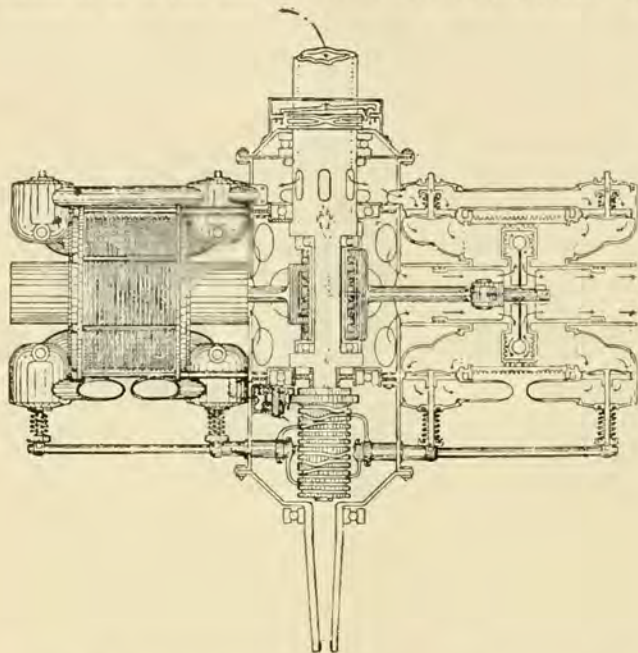
machine from gusts of wind and changing regime. We do not possess any very exact information on the importance of the dynamical efforts imposed on the apparatus in full flight, and what is usually called the co-efficient of security is a co-efficient of a purely static order.

On dirigibles, the knowledge of tensions during flight is not less interesting. It is interesting not only for the materials which compose the suspension and the car, but also the resistance of the material (covering) of the balloon to which the cables are directly suspended. Ac-

are provoked by sudden variations due to shocks.

It is composed of a bar provided with three wheels that are placed on the cable, like that indicated in the figure seen from the side. The central wheel presses through the medium of a stirrup, Dd, on a hydraulic capsule. This sliding stirrup slides on another fixed stirrup, Fd', mounted on the bar. The capsule is connected by a metallic tube to a registering manometer. When the tension of the cable varies, the pressure on the capsule varies equally, and these variations are recorded on the drum of the instrument. The initial position of the central wheel depends on the diameter of the cable, and is regulated at the outset by means of the screw, G, which displaces the vernier, V.

This apparatus, constructed by the Richard firm, is 50 cm. long, and it is a powerful model, capable of measuring a tension of 150 kg. to 800 kg. It gives good results. The needle of the register instantly obeys the variations of the tension, and shows a variation of about 10 kg. It is necessary to fill the capsule well and it must be entirely free from bubbles of air. This is an essential condition.



tube and piston for cooling. The tube is sufficiently large to allow the connecting rod, which extends up into it, to oscillate. The connecting rods are all located in the same plane of rotation, and to permit this, all except one of them is forked at the end; each fork is of different width, so that each wider fork embraces the narrower ones on the crank of the single throw crank shaft.

The inlet and exhaust valves, mechanically operated, are parallel with the motor's axis, the exhaust valves projecting forward, and inlet valves backward from the cylinders. Thus the effect of centrifugal force is avoided.

It is claimed that this construction permits the use of larger cylinders on account of the greater cooling surface, and the closeness of the heated walls to all parts of the charge.

ording to the distribution of the efforts between these last, the covering can be subjected to local efforts very variable; capable not only of compromising the resistance of the covering, but perhaps even its permeability.

It is in view especially of this last study that the apparatus has been reconstructed, which will be

