The Wright Aeroplane and Its Fabled Performances.

A Parisian automobile paper recently published a letter from the Wright brothers to Capt. Ferber of the French army, in which statements are made that certainly need some public substantiation from the Wright brothers. In the letter in question it is alleged that on September 26 the Wright motor-driven aeroplane covered a distance of 17.961 kilometers in 18 minutes and 9 seconds, and that its further progress was stopped by lack of gasoline. On September 29 a distance of 19.57 kilometers was covered in 19 minutes and 55 seconds, the gasoline supply again having been exhausted. On September 30 the machine traveled 16 kilometers in 17 minutes and 15 seconds; this time a hot bearing prevented further remarkable progress. Then came some eye-opening records. Here they are:

October 3: 24.535 kilometers in 25 minutes and 5 seconds. (Cause of stoppage, hot bearing.)

October 4: 33.456 kilometers in 33 minutes and 17 seconds. (Cause of stoppage, hot bearing.)

October 5: 38.956 kilometers in 33 minutes and 3 seconds. (Cause of stoppage, exhaustion of gasoline supply.)

It seems that these alleged experiments were made at Dayton, Ohio, a fairly large town, and that the newspapers of the United States, alert as they are, allowed these sensational performances to escape their notice. When it is considered that Langley never even successfully launched his man-carrying machine, that Langley's experimental model never flew more than a mile, and that Wright's mysterious aeroplane covered a reputed distance of 38 kilometers at the rate of one kilometer a minute, we have the right to exact further information before we place reliance on these French reports. Unfortunately, the Wright brothers are hardly disposed to publish any substantiation or to make public experiments, for reasons best known to themselves. If such sensational and tremendously important experiments are being conducted in a not very remote part of the country, on a subject in which almost everybody feels the most profound interest, is it possible to believe that the enterprising American reporter, who, it is well known, comes down the chimney when the door is locked in his face—even if he has to scale a fifteen-story sky-scraper to do so—would not have ascertained all about them and published them broadcast long ago? Why particularly, as is further alleged, should the Wrights desire to sell their invention to the French government for a "million" francs? Surely their own is the first to which they would be likely to apply.

We certainly want more light on the subject.

AUTOMOBILE SHOCK-ABSORBERS.

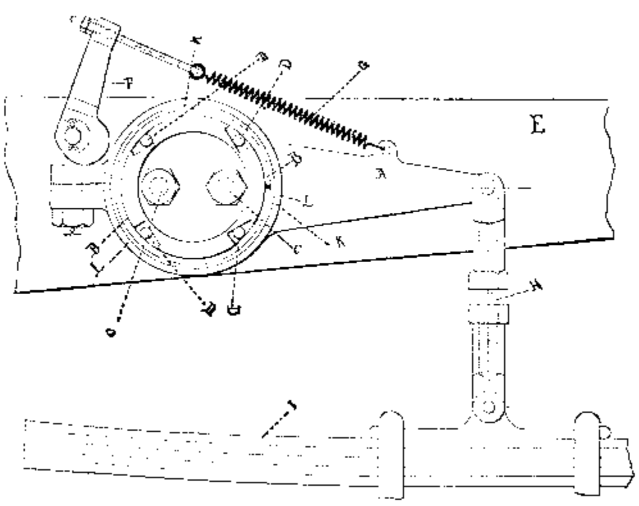
Devices for easing the shock to the springs and checking the rebound of the same are daily becoming more numerous. The original device of this sort was first used on the Richard-Brazier racer, which won the Gordon-Bennett race in 1904. This was the Hartford-Truffault suspension, which has since been widely used on all makes of cars. It consists, in its latest form, of two flat lever arms pivotally attached to the lower part of the spring, where it is clamped to the axle, and to the body respectively. These lever arms terminate in flat disks, which are fastened together by a central bolt, and which clamp a leather washer between them. A five-pronged starwheel on the outside of one disk is used for adjusting the pressure, and is locked in place by a lock nut. The turning motion of the disks on the friction washer, which takes place when the spring is compressed (bringing the two arms together) or when it recoils (throwing the arms apart), produces a braking effect upon the spring, which adds greatly to the easy-riding qualities of the car.

Another form of shock-absorber which has been patented lately consists of a pneumatic pad placed on the axle and having the spring resting upon it. This pad absorbs all the vibrations, and makes it possible to use solid tires on the wheels.

Still another new device for checking the rebound of the spring is shown herewith. The action of this apparatus is as follows:

To the frame of the car is fastened a central disk, by bolts, *C C*. This disk has four cam slots in its periphery, in which are the rollers, *D D D D*. Bearing on these is a steel friction band, *B*, split crosswise to give a certain elasticity as the rollers come and go. Surrounding this band is a fiber band, *K*, which takes the thrust between *B* and the split hub, *L*, of the arm, *A*. The back end of the hub is split and has two extending lugs. Secured in the lower lug is a bolt, which passes freely through the upper lug. Bearing on this lug and pivoted on the bolt is a cam with the upwardly extending arm, *F*, which in turn is connected to the arm, *A*, by the helical spring, *G*. This spring is adjustable in its tension by virtue of the rod passing through *F*. The arm, *A*, is connected by the adjustable rod, *H*, to the spring, *I*, of the car.

When the car goes over a bump, the frame, *E*, moves toward the spring, *I*, and consequently throws up the arm, *A*. This action is without resistance on the part of the device. When the frame and spring tend to separate, however, the four rollers engage with the friction band, *B*, and cause a braking action to take place between the friction band and the fiber band. The tension on the brake is at all times self-adjusting both as to tension and wear, by means of the cam bearing on the upper lug of the split hub and the spring, *G*, the degree of tension being governed by the eyebolt passing through *F*. Thus is obtained a self-

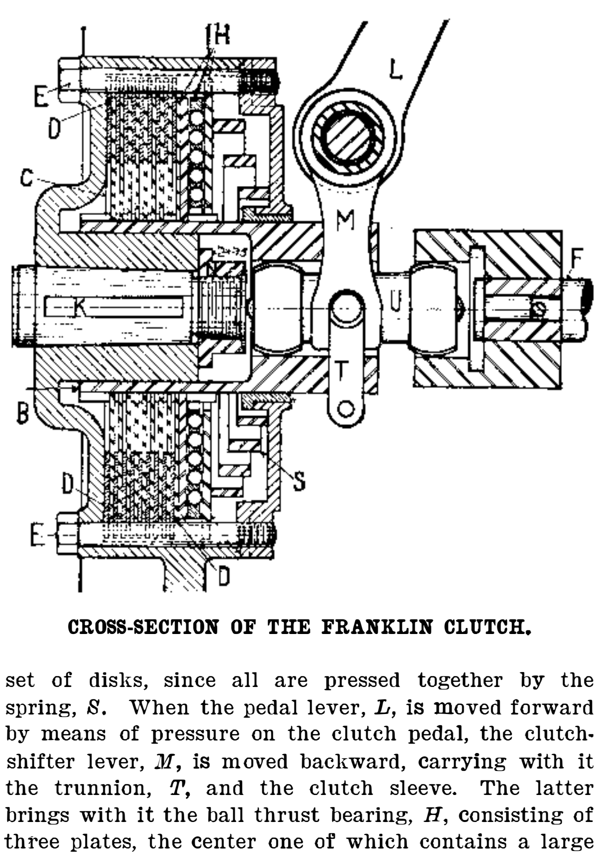


AUTOMOBILE SHOCK-ABSORBER.

adjusting suspension, which only checks the rebound of the spring, allowing it to act without hindrance when deflecting.

THE FRANKLIN AIR-COOLED CARS.

The latest type of Franklin machine is a 6-cylinder, 30-horse-power car, fitted with a 3-speed sliding gear transmission and capable of traveling 50 miles an hour. The engine of this car has mechanically-operated inlet and exhaust valves, as well as auxiliary exhaust valves of the same type. The cylinders are of uniform thickness, and the head has been decreased in thickness over that used last year. The inlet and exhaust valve chambers in the top of the cylinders are flanged with radiating ribs. The auxiliary exhaust valve is said to be beneficial in three ways, viz.: It gives a much freer exhaust, which reduces the back pressure and lowers the temperature of the remaining gases; the main exhaust valve is not subjected to such a severe flame, because the pressure in the cylinder has been lowered; and lastly, no carbon deposits form in the combustion chamber, and the cylinders never become fouled through surplus oil. Graphite may be used in the crankcase, if desired. The diagram showing the cross section of the Franklin clutch gives a good idea of a multiple-disk clutch, such as is now being used on many of the leading cars. The disks are of phosphor-bronze and steel, the former, *C*, being prevented from rotating in the flywheel by the bolts, *E*, on which they are mounted so that they have lateral movement. The other disks, *D*, are located between the first set and are fastened to the clutch sleeve, *B*, on which they can move laterally. This sleeve is connected to the transmission shaft by means of the universal joint, *U*. A flat spiral spring, *S*, holds the plates firmly in contact when the clutch is engaged. As the flywheel revolves, it carries with it the first set of disks, *C*, and these also carry along the second



CROSS-SECTION OF THE FRANKLIN CLUTCH.

set of disks, since all are pressed together by the spring, *S*. When the pedal lever, *L*, is moved forward by means of pressure on the clutch pedal, the clutch-shifter lever, *M*, is moved backward, carrying with it the trunnion, *T*, and the clutch sleeve. The latter brings with it the ball thrust bearing, *H*, consisting of three plates, the center one of which contains a large number of balls. This thrust bearing compresses the spring, *S*, relieving the pressure upon the disks, which are now free to move, and which separate sufficiently for the oil from the oil bath in which the clutch runs to fill the space between them. A certain amount of time is taken for the oil to be squeezed out when the disks are thrust together again by the spring, and the result is that the clutch takes hold gradually and without jerk.

Automobile Notes.

A comprehensive idea of the proportions of the automobile industry in France may be gathered from the fact that in that country there are twenty large motor car manufactories devoted to the production of automobiles, and their average daily output is two vehicles, representing 14,400 vehicles per annum. To these must be added the output of fifty smaller establishments, which produce on the average 9,000 vehicles per year. France has thus an annual total production of over 23,000 motor car chassis, exclusive of carriage bodies and outfits. A large proportion of this production is exported, some 7,000 annually being sent to England, of which a large percentage is re-exported to the colonies. Other countries are also good customers of this prominent French industry.

The proper degree of inflation of the pneumatic tires for automobiles of large size exercises a far-reaching influence upon the life and durability of the tires. A tire insufficiently inflated is short-lived, owing to the rim of the wheel tending to break the beaded edge of the tire from the tread, while excessive inflation maintains the fabric at such a tension that disintegration of the fabric must inevitably occur very quickly. The correct pressure, according to the most prominent manufacturers, should be in the case of the tires for the front wheels from 70 to 80 pounds per square inch and from 80 to 90 pounds for the rear wheel tires. If this pressure is not adhered to a very severe contracting and expanding action takes place just above the point of contact all the time the tire is rolling over the ground, with the result that enormous friction is set up. This causes considerable heating of the walls of the tire with the results of cracking and bursting. To make sure that the pressure is correct, a good pump with a gage should be used, and it is advisable that the latter should be tested from time to time to insure that it is registering correctly.

Accumulator design has recently experienced a radical change by the appearance on the market of the new "Morrison" storage battery, which is manufactured by the Universal Electric Storage Battery Company, of Chicago. The designers of this battery have departed from accepted practice in an attempt to avoid one of the principal causes of depreciation, viz., the shedding or gradual loss of active material from the positive plates. In so doing, they have not only successfully accomplished the results desired, but in addition have gained a noticeable increase in capacity per unit of weight. These departures from the older and better known designs are embodied in a peculiar construction of positive plate. This is made up of twenty or more horizontal rectangular frames, whose length is equal to the width of the plate and whose width is the same as its thickness, i. e., about ½ inch, while their height is somewhat less. These frames have numerous transverse ribs, the spaces between which are filled with active material, thus making each frame a solid rectangular block. These blocks are assembled one above another with transversely-grooved wood separators of the same size placed between them. Vertical side bars dovetailed and lead burned to them tie them together so as to form a complete plate. The result is a plate of unusual mechanical strength in which the active material is totally inclosed, and consequently the possibility of loss from the plate eliminated. By this construction the manufacturers are able to employ a very high percentage of active material per pound of plate. Complete expansion of active material is assured before the sections are filled, and no mechanical pressure is required to hold the active material in place, as is the case with other forms of pasted plate. The active material is consequently left in a very porous condition, allowing good circulation of the electrolyte. As it is within the plate, and surrounded by the lead grid, the elements of the battery can be assembled with the metallic surfaces of positive and negative plates close together, instead of the active material being on the surface, and the lead in the interior. The internal resistance of the cell is accordingly greatly reduced. The manufacturers of the "Morrison" battery claim for their output absolute retention of the active material, giving durability and continued full capacity; large active surface and great porosity of active material for the action of the electrolyte, giving great ampere capacity per pound; better circulation for the electrolyte; two metallic surfaces opposite each other, giving the lowest internal resistance of any cell; great mechanical strength; entire freedom from buckling. The company have in constant service a great number of their batteries used for train lighting, truck, and automobile work, all of which are said to be giving entire satisfaction.