

898,798.

I. STANLEY.  
SHOCK ABSORBER FOR AUTOMOBILES.  
APPLICATION FILED AUG. 8, 1907.

Patented Sept. 15, 1908.

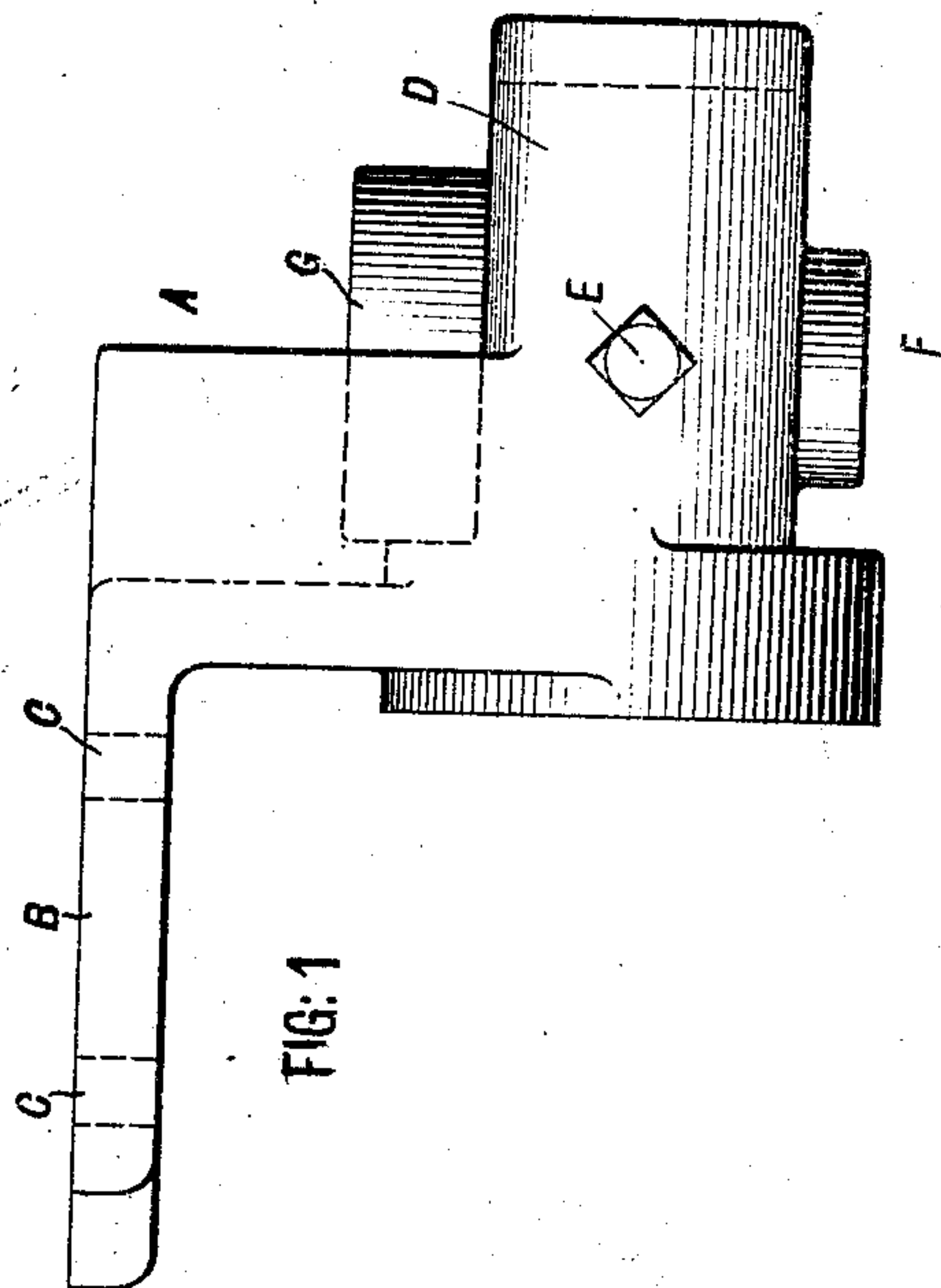


FIG: 1

FIG: 3

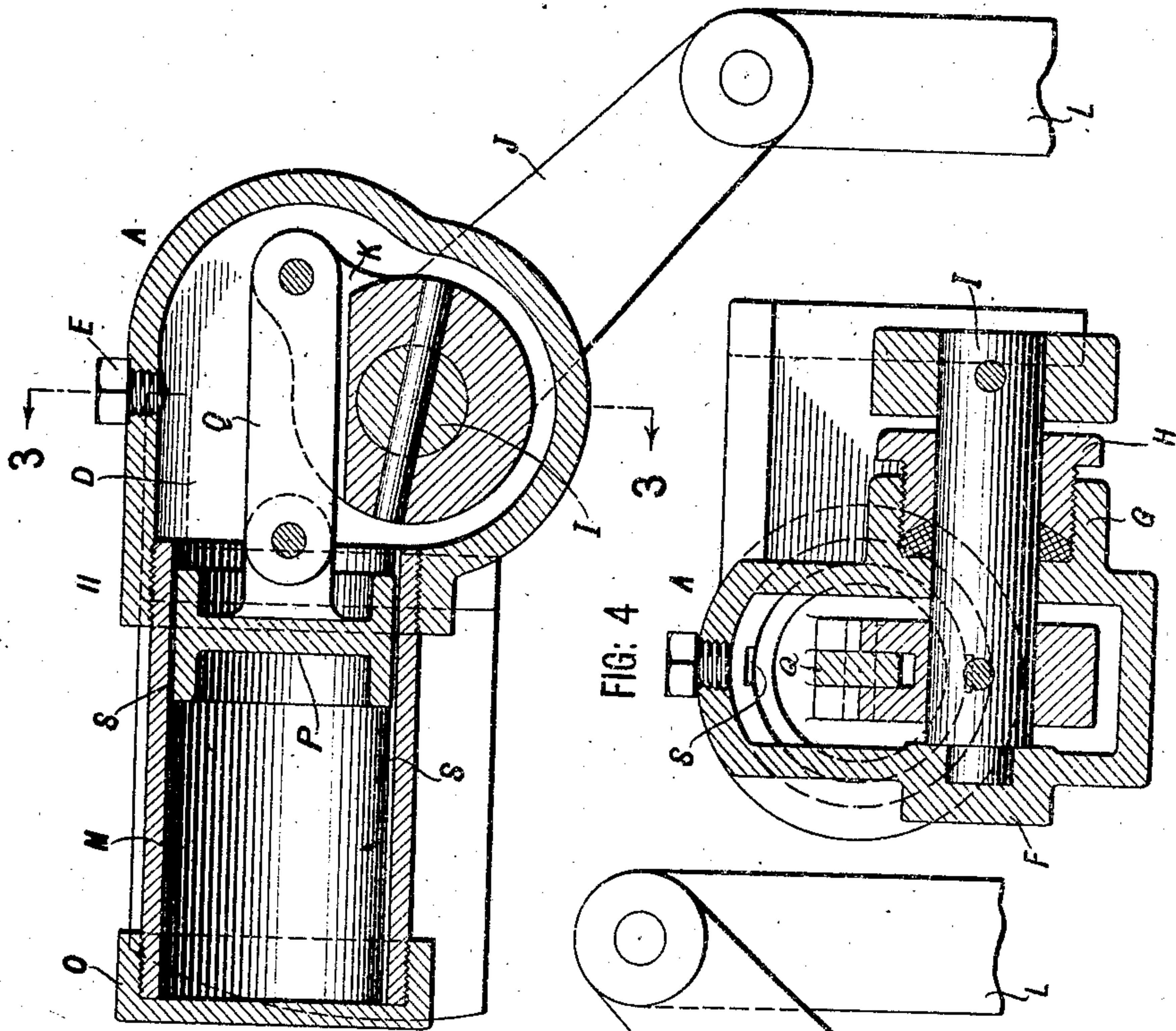


FIG: 4

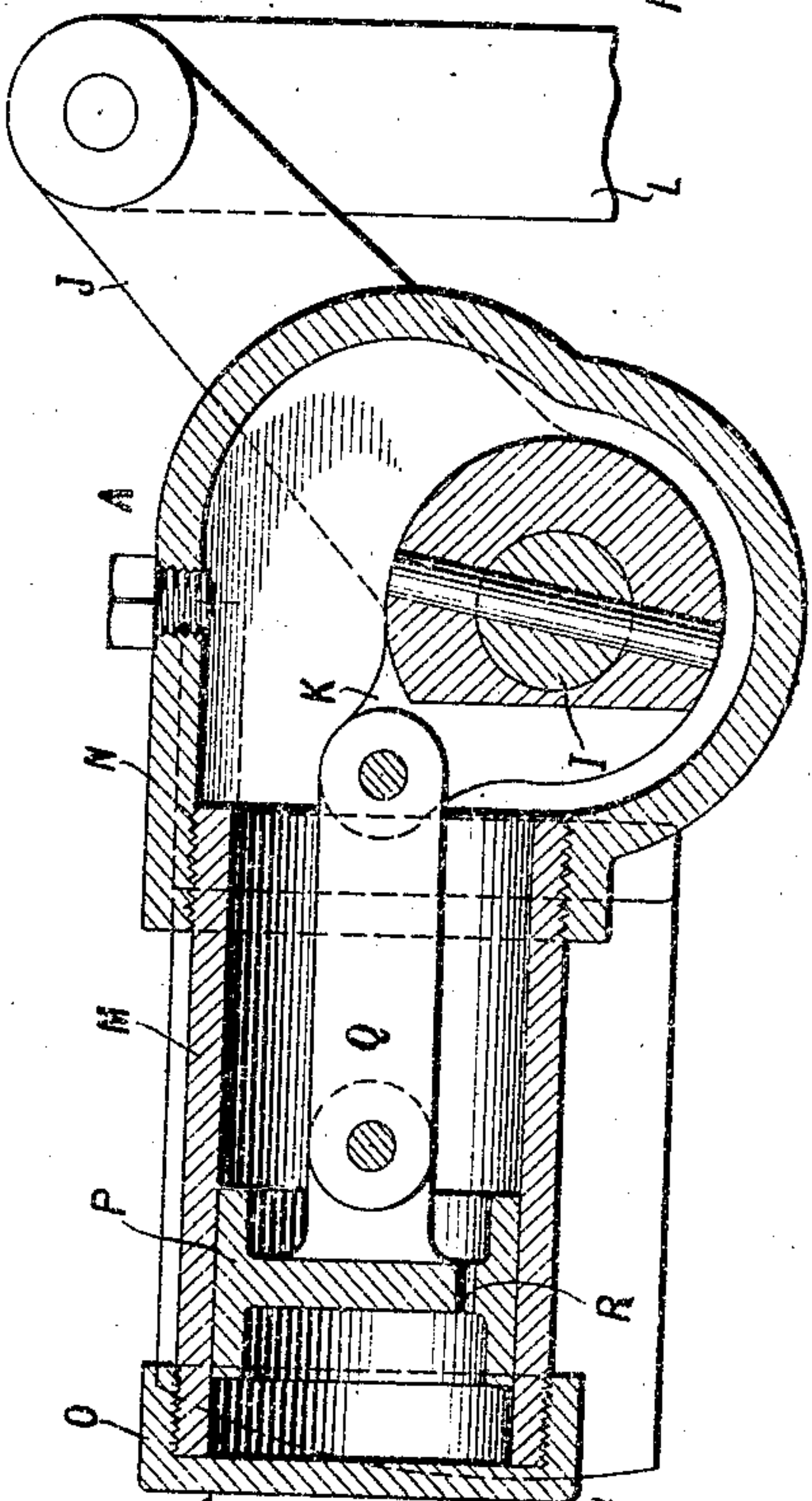


FIG: 2

Witnesses:  
F. M. Dousbach  
Vincent Scully

Inventor  
Irving Stanley  
By his Attorney  
Phillips Abbott

# UNITED STATES PATENT OFFICE.

IRVING STANLEY, OF NEW YORK, N. Y., ASSIGNOR TO MERRITT S. MIDDLETON, OF  
BROOKLYN, NEW YORK.

SHOCK-ABSORBER FOR AUTOMOBILES.

No. 898,798.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed August 9, 1907. Serial No. 337,534.

*To all whom it may concern:*

Be it known that I, IRVING STANLEY, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented a new and useful Shock-Absorber for Automobiles, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 illustrates a plan view of the casing; Fig. 2 illustrates a horizontal sectional view of the casing, the cylinder, the piston, the levers and co-acting parts in substantially the position they occupy when the car is under the influence of a heavy jolt or shock; Fig. 3 illustrates a view similar to that shown in Fig. 2, showing the parts in the position they occupy when conditions are normal; Fig. 4 illustrates a vertical sectional view on the line 3—3 of Fig. 3.

This invention consists of a peculiar construction and combination of parts, whereby the principles of a dash pot are employed to absorb or control the vertical and lateral movements of an automobile body, when subjected to the jolting action of rough roadbeds or obstructions thereon.

A illustrates what I term the casing. It is preferably a casting of suitable metal and embodies a back plate B, which is provided with suitable bolt holes C, whereby it may be securely attached to a suitable part of the car body. It has also a hollow casing D provided with an opening closed preferably by a screw plug E, through which glycerin, oil, or other suitable material, may be introduced into the casing. It also has bearings F, G, provided with a suitable stuffing box H, for the support of a rock shaft I, upon which is fixed a crank J, and a shorter crank or knuckle K; at the end of the crank J is pivoted a connecting rod L, which extending downwardly, takes a bearing in any suitable manner upon one of the axles.

M is a cylinder screwed into the open threaded end of the casing, as seen at N. The end of the cylinder which is connected with the casing is, or may be entirely open; its other end, however, is closed, as by a threaded cap O, or in any other suitable manner. Within the cylinder is a piston P, which is pivotally connected with the knuckle K by a link Q. Provision is made whereby the glycerin, oil, or other material within the casing and cylinder, may pass in small amounts

from one side to the other of the piston when it is caused to move longitudinally through the cylinder under the thrust resulting from inequalities or obstructions in, or on the roadbed. Such provision may be made in a variety of ways. In Fig. 2 I show a small hole R, made through the web of the piston. In Fig. 3 I show small grooves S, S, one in the upper surface and one in the lower surface of the inner face of the cylinder. Many equivalent, but different ways of accomplishing the same result will at once occur to those who are familiar with such matters. A good way; and one which is attended with certain structural advantages and also reduces the cost, is to make the piston quite free in the cylinder, so that the material may pass around its edge from one side to the other, as the piston is forced through the cylinder. If this construction be employed, then it will not be necessary to machine either the inside of the cylinder, or the edge of the piston, with any considerable nicety. Thus cost is reduced.

The operation is as follows: The parts being properly assembled and attached to the car, the filling plug is unscrewed and the entire interior of the casing and of the cylinder is filled with glycerin, oil, or other suitable material. I prefer some viscous material, such as those named, so that the movements of the piston may be more sluggish, or retarded, and thus greater control exerted; but more fluid material may be used if desired, and in cold weather, some non-freezing, or cold resisting compound, many of which are now well known, may beneficially be used. The casing and the cylinder being supplied with the desired material, as stated, the filling plug is again screwed in place and the apparatus is ready for operation. It will be at once seen that any shock, vibration, or jar, which causes the axle and the car body to approach each other (and this is the primary effect of all inequalities on the roadbed) will so act upon the parts described as to cause the piston to move longitudinally through the cylinder, but this movement will be retarded and controlled because the material which fills the cylinder being non-compressible, will not permit the piston to move, except as the material passes from in front of it to in rear of it, and this passage is retarded by the relatively small area of the opening or passage provided through the

piston, or in the cylinder, or between the two, as stated. In this way the violent primary impulse or thrust is controlled or modified and the return or rebound impulse is likewise controlled in the same manner, but by a reverse operation of the parts, until normal conditions are again established.

It will be obvious to those who are familiar with such matters that many departures may be made from the specific construction and arrangement of the parts shown above (which discloses one form only in which the invention may be embodied) and yet the essentials of the invention be employed. I therefore do not limit myself to such details.

I claim:

In a shock absorber, an integral casting comprising a hollow casing and an attaching plate having bolt holes, whereby the structure may be rigidly attached to the car, a

cylinder closed at one end and threaded into the casing, a piston in the cylinder provided with an unobstructed passageway of permanent and uniform capacity, whereby the material in the cylinder may pass from one side to the other of the piston, a rock shaft journaled in the casing, two cranks on the rock shaft, one within and the other without the casing, means connecting the crank within the casing with the piston and other means connecting the other crank with an appropriate part of the car.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

IRVING STANLEY

Witnesses:

F. M. DOUSBACH,  
VINCENT SCULLY.