May 26, 1925.

1,539,196

I. E. LITTEN

SNUBBER

Filed July 5, 1924

Fig. 1

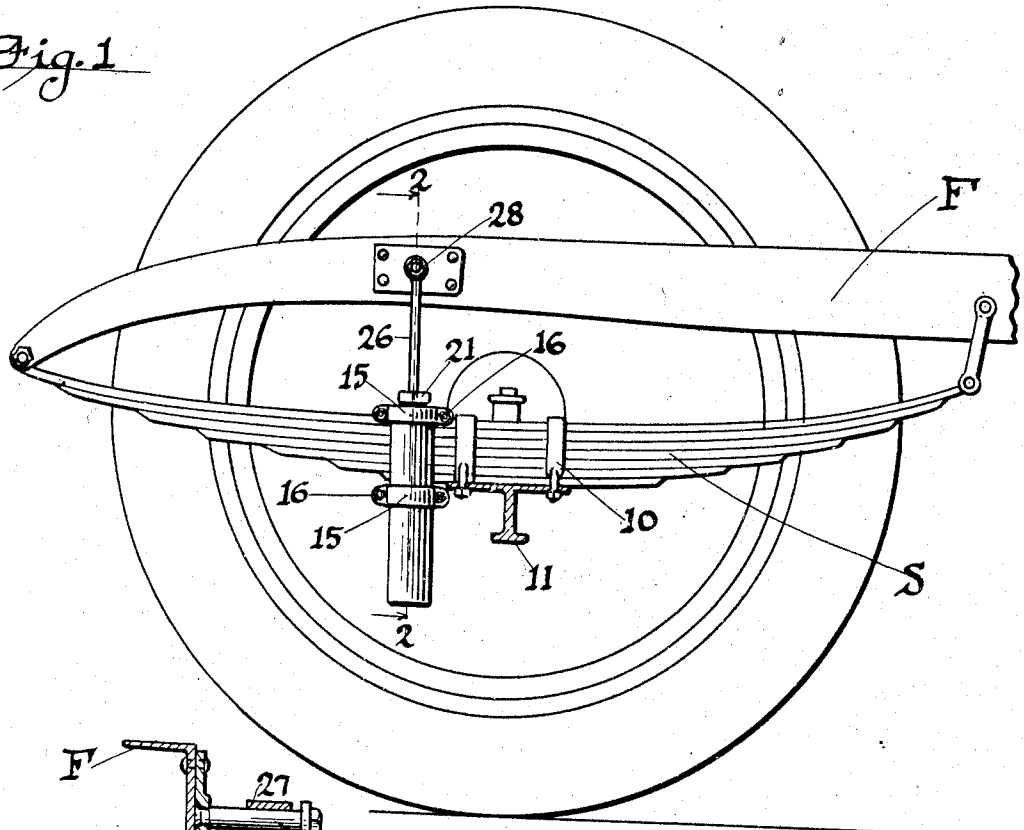


Fig. 2.

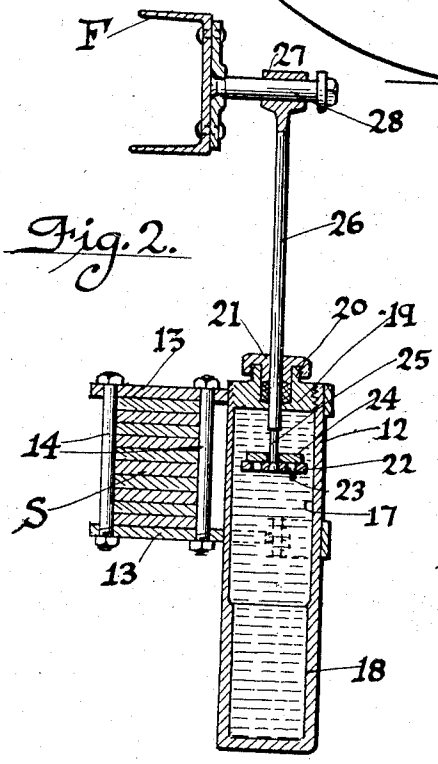


Fig. 3.

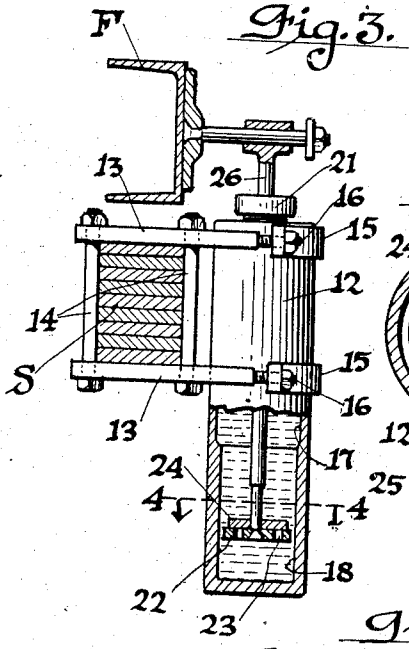
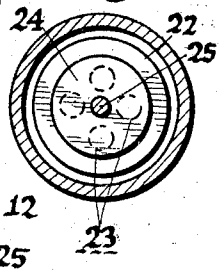


Fig. 4.



Witness:
W. Hall.

Inventor:
Ira E. Litten
by Hazard & Miller
Attorneys

Patented May 26, 1925. 1,539,196

UNITED STATES PATENT OFFICE.

IRA E. LITTEN, OF ORANGE, CALIFORNIA.

SNUBBER.

Application filed July 5, 1924. Serial No. 724,504.

To all whom it may concern:

Be it known that I, IRA E. LITTEN, a citizen of the United States, residing at Orange, in the county of Orange and State of California, have invented new and useful Improvements in Snubbers, of which the following is a specification.

This invention relates to snubbers.

The primary object of this invention is to provide a device attachable to an automobile frame of ordinary construction, which will permit the free up and down movements of the spring while the vehicle is traveling over fairly smooth roads and which will retard the action of the spring from returning to normal position on traveling over rough roads

A further object of this invention is to provide a cheap, simple and durable device attachable to the spring and frame of an automobile, which will permit the spring to actuate normally and with ease upon traveling over fairly smooth roads.

Other objects will be made manifest in the following detailed description and pointed out specifically in the appended claim, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of the front portion of an automobile frame showing my improved snubber attached thereto,

Fig. 2 is a vertical section taken substantially on the line 2—2 of Fig. 1,

Fig. 3 is a vertical section taken through the frame and spring of the automobile, showing the snubber in elevation, parts being broken away, and showing the rear position of the elements forming the improved device when the vehicle is assumed to have hit a large bump in the road, and

Fig. 4 is a horizontal section taken substantially on the line 4—4 of Fig. 3.

Referring to the accompanying drawings in which similar reference characters designate similar parts, a frame F is supported by means of the usual cantilever spring S which is held by means of U bolts 10 upon the axle of a vehicle 11. Mounted adjacent the U bolts 10 is a cylinder 12 provided with a pair of brackets 13 which are held respectively on the top and bottom of the spring S by means of bolts 14.

As clearly shown in Fig. 2, the bolts 14 snugly rest upon each side of the spring S. A pair of yokes 15 are secured by means of bolts 16 to the outer ends of the brackets 13 and serve to hold the cylinder 12 rigidly on the spring S. The cylinder 12 is provided with two differing internal diameters, the uppermost being the larger as shown at 17, and the lowermost being the narrower as at 18. The lower end of the cylinder 12 is provided with a closure integral with the sides thereof. The upper end of the cylinder 12 has a removable closure 19 internally threaded therein and having a boss 20 projecting from the center thereof, which is externally threaded to receive a packing gland member 21.

A piston 22 is adapted to reciprocate within the cylinder 12 and is provided with a plurality of perforations or apertures 23 extending therethrough. Resting on the upper surface of the piston 22 is a circular plate 24 which covers the apertures 23 and which is slidable upon the reduced end 25 of the piston rod 26 which extends through the closure 19 and is pivotally secured, as at 27, to a horizontal shank 28 rigidly mounted upon the frame F. The horizontal shank 28 is provided with a nut and washer or equivalent means for limiting the outward movement of the piston rod 26 thereon.

The cylinder 12 is filled with oil or equivalent fluid and the piston 22 is loosely fitted within both the enlarged and reduced portions of the cylinder 12, so that the oil within the cylinder may freely pass between the periphery of the piston and the cylinder walls. When the piston is in the upper end of the cylinder 12, the oil may more freely pass around the piston than when the piston is located in the lower section of the cylinder, or that section of reduced diameter.

The operation of the device is as follows: The vehicle upon traveling over comparatively smooth roads will cause the piston 22 to reciprocate back and forth slightly in the enlarged portion of the cylinder. As the oil may freely pass around the piston 22 when in this portion of the cylinder, there is no retarding action performed by the snubber which prevents the spring immediately springing back into normal position. However, upon the vehicle striking a comparatively rough road, a bad bump will cause the piston 22 to be pushed down into the lower end of the cylinder 12. The oil in this part of the cylinder cannot escape or pass around the piston 22, when in the position shown in Fig. 3, as easily as in the upper portion of the cylinder. Upon the down-

ward movement of the piston, a plate 24 is caused to rise upon the reduced end 25 of the piston rod 26 by the oil rushing through the apertures 23. Upon the spring S tending to return to normal position and withdrawing the piston 22 out of the lower end of the cylinder 12, the plate 24 will drop down upon the piston, closing the apertures 23. The oil in the cylinder must then pass between the periphery of the piston and the cylinder, but as this action is not free, as previously stated, the tendency of the spring to return to normal immediately is greatly retarded.

This invention has been described but modifications thereof may be devised without departing from the spirit thereof, and it is to be understood that such modifications come within the scope of this invention.

I claim:

A snubber comprising a cylinder, one end of which is provided with a reduced bore, a fluid in said cylinder, a piston adapted to reciprocate in said cylinder, means permitting said piston to be easily forced from one end to the other of said cylinder during its downward stroke, and means tending to prevent the movement of said piston in the opposite direction for substantially the first half of its return stroke.

In testimony whereof I have signed my name to this specification.

IRA E. LITTEN.