June 12, 1923. 1,458,814

N. S. FOCHT

SHOCK ABSORBER

Filed Nov. 15, 1922

Fig. 1.

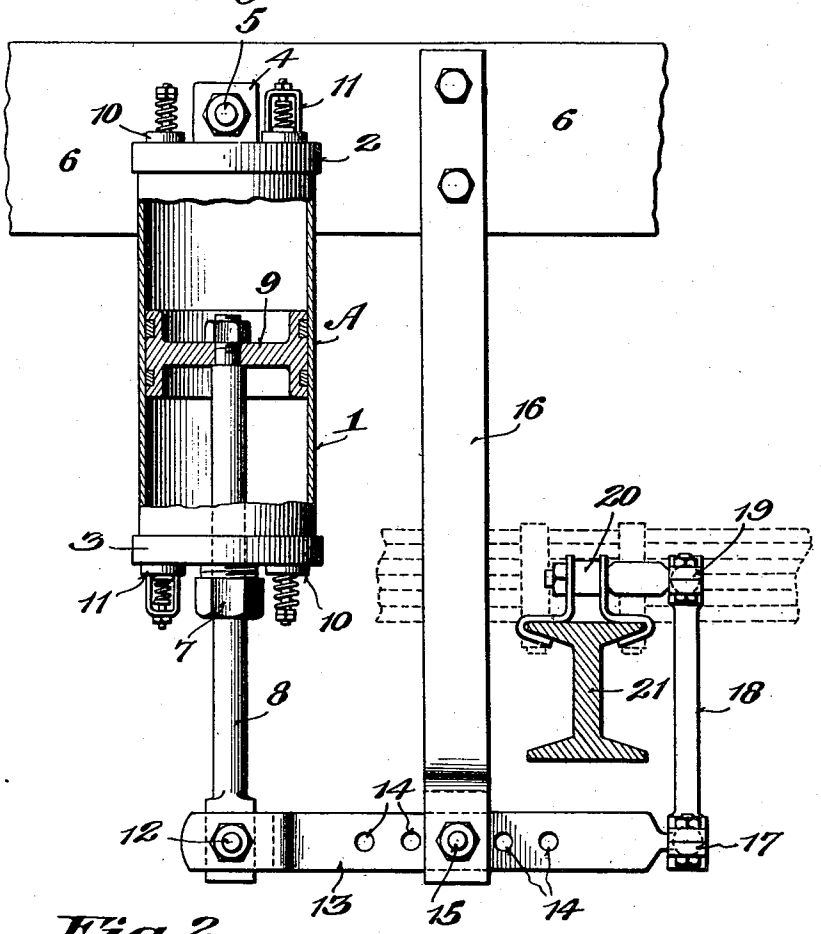
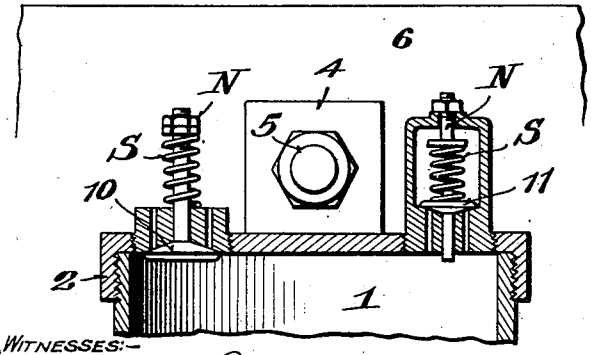


Fig. 2.



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WITNESSES:-

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UNITED STATES PATENT OFFICE.

NEVIN S. FOCHT, OF POTTSTOWN, PENNSYLVANIA.

SHOCK ABSORBER.

Application filed November 15, 1922. Serial No. 601,110.

To all whom it may concern:

Be it known that I, NEVIN S. FOCHT, citizen of the United States, residing at Pottstown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvement in Shock Absorbers, of which the following is a specification.

This invention relates to an improvement in shock absorbers of the type used on road vehicles and the like for counteracting the otherwise unrestrained movement of the springs, thereby making the vehicle ride easier and hold to the road with greater safety.

To that end the invention contemplates a novel, practical and substantial construction that is simple and reliable in operation; easy to install and maintain; and which may be readily adjusted as desired or required to check the relative movement between the axles and the vehicle body.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a view illustrating the invention and its application.

Figure 2 is an enlarged detail sectional view showing the inlet and exhaust valves of the cushioning unit.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying the present invention into effect it is proposed to provide a shock absorbing or cushioning unit A which preferably comprises a cylinder 1 having the end caps 2 and 3, the former being provided with a pivot ear 4 adapted to be secured by a suitable bolt 5 or its equivalent to the side rail 6 of the vehicle chassis so as to permit the entire unit to swing or oscillate about the bolt when the device is in use. The lower cap member 3 is preferably provided with a combined gland nut and guide member 7 for receiving the stem 8 of a piston or plunger 9 which operates within the cylinder. Also, the said cap members 2 and 3 are each provided with the intake and exhaust valves 10 and 11, the same operating to permit air to be drawn into and expelled from the cylinder as the piston operates, due to the relative movement between the axle and the chassis frame, as will presently appear.

For the purpose of holding the valves 10 and 11 to their seats, the springs S may be employed and in each instance the springs are adapted to be placed under compression by lock nuts or equivalent devices N for regulating the force required to unseat the valves, thereby making it possible to control the resistance offered to the travel of the piston 9 within the cylinder.

The lower end of the plunger stem 8 is pivotally connected as at 12 with one end of an operating lever 13 which is preferably provided at its intermediate portion with a series of openings 14, whereby it may be connected by means of the bolt 15 or the like to a fulcrum post 16 secured to and depending from the side rail 6 of the chassis frame. The purpose of providing the series of openings 14 is to afford a wider range of adjustment in the installation of the device and to also vary the length of the working stroke of the plunger 9. That is to say, by placing the bolt in a certain selected opening farther from or nearer to the pivot 12 the stroke, or the distance traveled by the plunger 9 within the cylinder 1 may be easily regulated.

The forward end of the operating lever 13 is preferably connected by a ball joint 17 with an arm or link 18 which in turn is also connected by means of a ball joint 19 with an axle bracket designated generally as 20 and adapted to be clamped to the axle part 21 in any suitable and convenient manner. When the device is installed, as shown in Figure 1 of the drawings, it will be apparent that the relative movement between the axle 21 and the chassis frame 6 will be transmitted through the arm or link 18 to the operating lever 13, which in turn will transmit its movement to the stem 8 of the plunger 9. As the plunger 9 descends within the piston, air will be drawn into the upper portion of the cylinder through the upper intake valve 10 and will be discharged through the lower exhaust valve 11 on the cap 3, and, when the piston moves in the opposite direction within the cylinder, air will be drawn in through the lower intake valve 10 on the cap 3 and be discharged through the upper exhaust valve 11 on the cap 2, thus cushioning the movement of the

piston due to the fact that the air driven out of the chamber by the piston 9 is throttled by the exhaust valve 11.

Since the cylinder 1 is pivotally attached to the chassis frame it will oscillate under the movement of the lever 13 as required and it will of course be understood that the pivot 12 connecting the stem 8 and lever 13 is afforded sufficient play between to avoid binding or malfunctioning of this part of the device.

Without further description it is thought that the many features and advantages of the invention will be readily apparent and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:—

1. A shock absorber including a cylinder having air intake and exhaust valves at opposite ends thereof, a plunger operating within the cylinder, a post carried by the frame of the vehicle, a lever fulcrumed to said post and operatively connected with the plunger, and a bracket carried by the axle of the vehicle and operatively connected with said lever.

2. A shock absorber including a cylinder unit adapted to be pivotally suspended from the chassis of the vehicle, intake and exhaust valves at opposite ends of the cylinder, a plunger operating within the cylinder and having an exteriorly projecting stem, a post rigidly carried by the frame of the vehicle, a lever fulcrumed to said post and having an operative engagement with the stem of the plunger, and a bracket carried by the axle of the vehicle and operatively connected with said lever.

3. A shock absorber including a cylinder having cap members fitted to opposite ends thereof, intake and exhaust valves on each cap member, a pivot lug on one of said cap members for pivotally suspending the cylinder from the frame of the vehicle, a plunger operating within the cylinder and having an exteriorly projecting stem, a post depending from the frame of the vehicle, a lever fulcrumed in said post and pivotally engaging with the stem of the plunger, and a bracket carried by the axle of the vehicle and having a link connection with said lever.

4. A shock absorber including a cylinder, means for pivotally supporting the cylinder from the frame of the vehicle, intake and exhaust valves at opposite ends of the cylinder, a plunger operating within the cylinder and having a stem projecting outside of the cylinder, a post depending from the frame of the vehicle parallel to the normal position of the axis of the plunger, a lever having a plurality of fulcruming openings at its intermediate portion, means for engaging one of the openings of the lever and the post, a pivot connecting the lever with the stem of the plunger, a bracket carried by the axle, and a link connecting the bracket with the lever.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

NEVIN S. FOCHT.

Witnesses:

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W. M. FOCHT.