

J. DAHLSTROM.
SHOCK ABSORBER.
APPLICATION FILED DEC. 23, 1919.

1,380,781.

Patented June 7, 1921.

FIG. 1

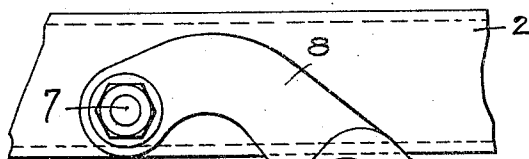


FIG. 2

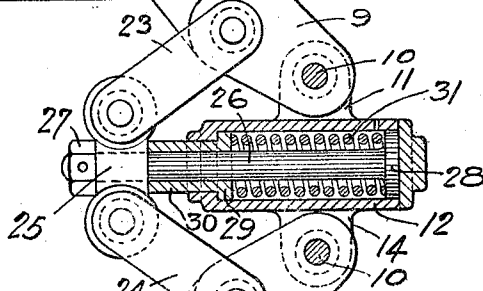


FIG. 3

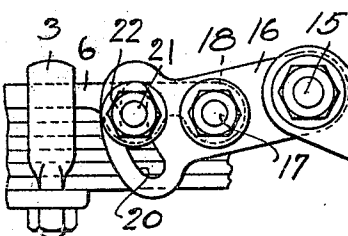
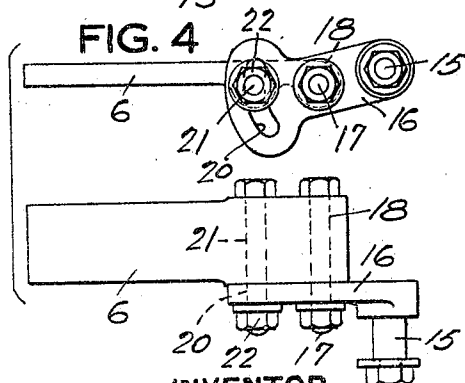


FIG. 4



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SHOCK-ABSORBER.

1,380,781.

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To all whom it may concern:

Be it known that I, JOHN DAHLSTROM, a citizen of the United States, and resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Shock-Absorbers; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to shock-absorbers. In an application filed by me July 16, 1919, Ser. No. 311,122, I have set forth and claimed a shock-absorber comprising, generally stated, a single casing with followers therein and a spring interposed between said followers with connections between said followers and the axle and vehicle frame, whereby, on deflection of said frame, one of said followers moves in said casing to compress the spring and on rebound the other follower moves in said casing to compress the spring from the opposite direction. The present invention has to do with this same type of shock-absorber, and its construction is embraced within the broad generic claims of the above application, but it differs specifically from the construction set forth in said previous application and it is to these specific features that the present application relates.

In the accompanying drawing, Figure 1 is a view partly in section showing my improved shock absorber and its connections to a portion of a vehicle frame and to the axle in neutral position; Fig. 2 is a like view showing the shock-absorber under compression; Fig. 3 is a like view showing the parts on rebound and Fig. 4 shows detail views of the manner of connecting the shock absorber to the axle to provide for adjustment.

In the drawing the numeral 2 designates a portion of the vehicle frame and the numeral 3 designates the clip which connects the leaves of the spring and also the plate 6. Pivotaly connected to the frame 2 at 7 is the arm 8 with the clevis end 9 pivotally connected at 10 to a lug 11 on the casing 12. A like arm 13 is pivotally connected to a lug 14 on the casing 12, and the opposite end of said arm is pivotally connected at 15 to the short arm 16 pivotally mounted on the bolt 17 passing through an eye 18 in the plate 6. An arcuate slot 20 is formed in the short arm 16, and said slot is engaged by the bolt 21 also carried by the plate 6. It will be apparent that adjustment of the arm 16 may

be had by loosening the nut 22 on the bolt 21, and moving the arm and then securing it in position.

Short links 23 and 24 are pivotally connected to the arms 8 and 13, respectively, at points near the pivotal points 10. The opposite ends of the links 23 and 24 are pivotally connected to the cross-head 25 which engages the movable rod 26 provided with the nut 27 forming a head or stop for the cross-head 25.

The inner end of the rod 26 has the follower 28 which is contained within the casing 12. A second follower 29 is contained within the casing 12, said follower having the extension 30 projecting beyond said casing and surrounding the rod 26.

The spring 31 is interposed between the followers 28 and 29.

When the parts are at neutral position, they will assume the positions shown in Fig. 1, but when the vehicle frame 2 is depressed the parts will assume the position or approximately the position shown in Fig. 2. As the vehicle frame is lowered the arms 8 and 13 will approach each other, and the links 23 and 24 will take the positions indicated in Fig. 2. This will cause the casing 12 to move to the right of the drawing, and said casing will carry with it the follower 29 while at the same time the cross-head 25 will move to the left carrying with it the rod 26 and the follower 28. In this manner the spring 31 is compressed between the two followers as indicated in Fig. 2.

On the rebound, the parts will assume the position indicated in Fig. 3 in which a separation of the arms 8 and 13 takes place, and the action of the links 23 and 24 will be to move the casing 12 to the left while at the same time the cross-head 25 is moved to the right, thereby compressing the spring between the followers 28 and 29. In the case of both compression and rebound the casing in its movement will carry one of the followers with it, while the other follower will be moved in the opposite direction simultaneously to compress the spring.

By my invention, I provide a more compact form of shock absorber than that shown in my previous application, and the parts are compressed with less movement of the frame, and as the spring is compressed by the movement of the casing in one direction, and one of the followers in the opposite direction, the shock is absorbed more readily.

In order to adjust the shock absorber for cars of different makes, where the space between the frame and the axle differs, I have provided the adjustment previously described which by loosening the nut 22 and adjusting the short arm 16 the device may be set for different spacing between the frame and the axle.

What I claim is:

1. In a shock absorber, the combination with the vehicle frame and axle of a casing, arms pivotally mounted on said frame and axle and pivotally connected to said casing, followers in said casing, a spring interposed between said followers, and connections for operating said followers whereby on the deflection or rebound of said frame the casing moves in one direction together with one of the followers and the other follower moves in the opposite direction in said casing to compress the spring.

2. In a shock absorber, the combination with the vehicle frame and axle of a casing, followers in said casing, a spring interposed between said followers, arms pivotally connected to opposite sides of said casing and to the frame and axle, and links connected to said arms and to one of said followers whereby on deflection and rebound of said frame said casing is moved in one direction carrying with it one of said followers and the other follower is moved simultaneously in opposite direction to compress the spring.

3. In a shock absorber, the combination with the vehicle frame and axle of a casing, followers in said casing, a spring interposed between said followers, one of said followers having an extension extending outside of said casing, a rod connected to the other follower passing through said follower and its extension, an abutment at the outer end of said rod, a cross-head on said rod between said abutment and said extension, connections between said casing and the frame

and axle of the vehicle, and connections between said cross-head and said first-named connections whereby on the deflection or rebound of said frame the casing moves in one direction together with one of the followers and the other follower moves in the opposite direction.

4. In a shock absorber, the combination with the vehicle frame and axle of a casing, followers in said casing, a spring interposed between said followers, arms pivotally connected to said casing and to the frame and axle, one of said followers having an extension extending without said casing, a rod connected to the other follower extending through said first named follower and its extension, an abutment at the outer end of said rod, a cross-head on said rod interposed between said abutment and said extension, and links connecting said cross-head with said arms.

5. In a shock absorber, the combination with the frame of an arm pivotally connected thereto, a vehicle spring, a shackle connecting the leaves of said spring, a plate secured in place by said shackle, an adjusting arm pivotally mounted on said plate, a second arm corresponding to said first-named arm pivotally connected to said adjusting arm, a shock absorbing device carried by said first and second arms, an arcuate slot formed in said adjusting arm, and a bolt and nut carried by said plate engaging said slot whereby said adjusting arm may be adjusted to vary the distance between the pivotal points of said first and second named arms.

In testimony whereof I, the said JOHN DAHLSTROM, have hereunto set my hand.

JOHN DAHLSTROM.

Witnesses:

ROBT. D. LOTHER,
JOHN F. WILL.