

1,022,225.

Patented Apr. 2, 1912.

Fig. 1.

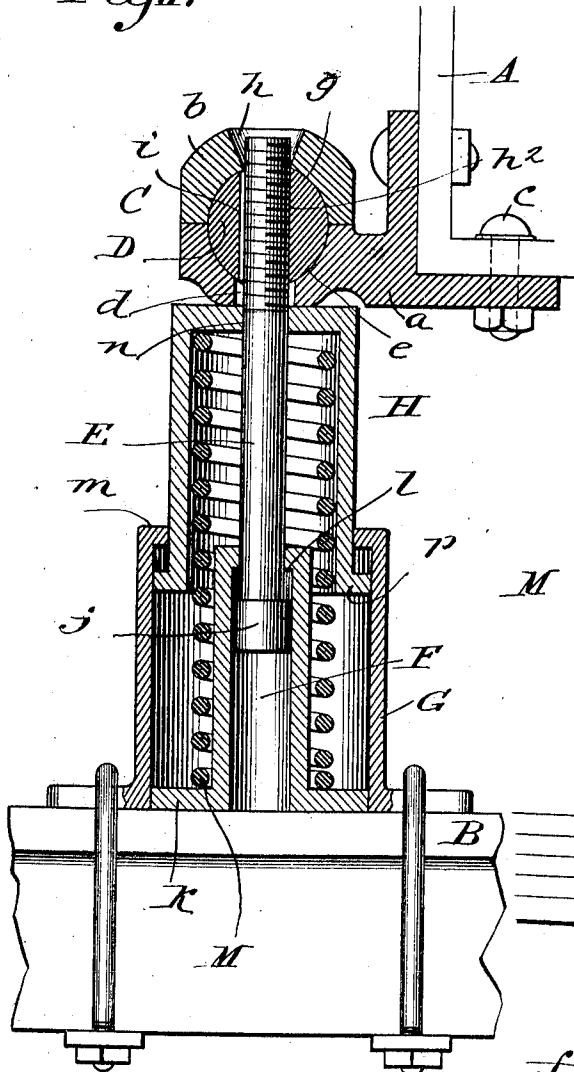


Fig. 3.

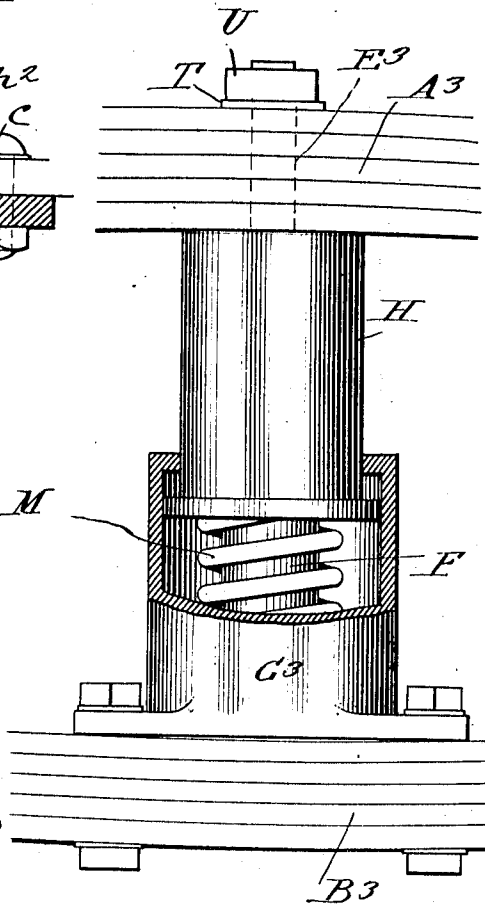
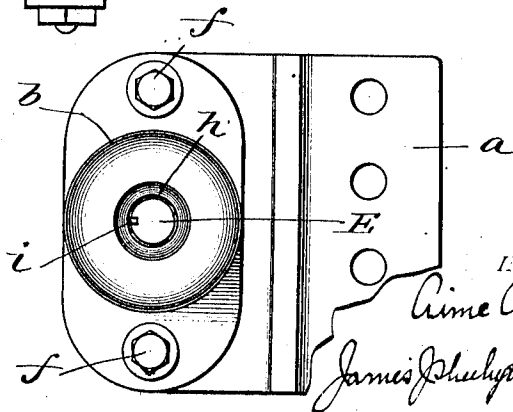


Fig. 2.



WITNESSES

Philip E. Barnes
W. C. Healy

INVENTOR

Alime Chabot Jr.

James J. Phylipsco, Attorneys.

UNITED STATES PATENT OFFICE.

AIME CHABOT, JR., OF SPRATT, MICHIGAN.

CUSHIONING DEVICE.

1,022,225.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed July 6, 1911. Serial No. 636,840.

To all whom it may concern:

Be it known that I, AIME CHABOT, JR., citizen of the United States, residing at Spratt, in the county of Alpena and State of Michigan, have invented new and useful Improvements in Cushioning Devices, of which the following is a specification.

My present invention has to do with cushioning devices for the bodies of railway cars, automobiles and other vehicles; and it consists in the simple, durable, compact and efficient device, hereinafter described and claimed, for cushioning a vehicle body and precluding violent or undue rebound thereof.

In the accompanying drawings, which are hereby made a part hereof: Figure 1 is a view, partly in elevation and partly in vertical section, illustrative of the manner of applying one practical embodiment of my invention. Fig. 2 is a detail plan of the boxing comprised in said embodiment. Fig. 3 is a view, partly in elevation and partly in section, illustrative of the application of another embodiment of my invention between the lower and upper members of an elliptic or other leaf spring to reinforce and prevent overloading of the spring as well as violent or undue rebounding of the upper member of same.

Referring by letter to said drawings and more particularly to Figs. 1 and 2 thereof: A is a body which may be that of a railway car, an automobile, a wagon or any other vehicle. B is an axle of the vehicle, and C is a boxing through which my novel cushioning device is connected with the body A. The said boxing C comprises a body or major section *a* and a cap section *b*. The body or major section is provided with a horizontal extension and a vertical extension designed to rest against the bottom and side, respectively, of the body A and be connected thereto by bolts *e*. Said body or major section *a* is also provided with a vertically-disposed aperture *d* and a seat *e*; the latter being formed in the upper side of the section with its center above and in communication with the aperture *d*. The cap section *b* is superposed on and connected by bolts *f* to the section *a*, and is provided in its underside with a concave seat *g*, and

is also provided with an upwardly flared aperture *h* which communicates with and extends upward from the center of said seat. The seat *g* and the seat *e* when opposed as shown in Fig. 1, form a globular socket for an important purpose hereinafter set forth. Disposed in the said globular socket of the boxing C is a ball D carried by the plunger E. The said ball D in combination with the boxing C effects connection of the body A to the cushioning device in such manner that free horizontal oscillation or movement of the body is permitted without injuring or interfering with the functions of the spring or other elements of the cushioning device or otherwise affecting the same. The ball is preferably connected to the plunger E in the manner shown—i. e., the ball is provided with a threaded bore *h*² to receive the threaded portion of the plunger, and the ball and plunger are provided with key ways, designed when registered to receive a key *i*, the office of which is to prevent casual or accidental movement of the ball relative to the plunger. At its lower end the plunger E is enlarged, as indicated by *j*, and the said enlargement is snugly arranged and guided in a vertically-movable member F which is preferably in the form of a cylinder having a base flange *k* that is supported on the axle B, and also having an aperture *l* in its upper end, the latter to guide the upper portion of the plunger. Surrounding and inclosing the plunger E and the flanged cylinder F is a casing G, designed to be shackled or otherwise connected to the axle B, and having an inwardly-directed flange *m* at its upper end; and also surrounding and inclosing the plunger E and the cylinder F is a vertically-movable casing H. This latter has an aperture *n* in its top for the free passage of the plunger E, and is open at its lower end and provided thereon with an outwardly directed flange *p* that is guided in the fixed casing G. Surrounding the cylinder F and plunger E, inclosed in the fixed and movable casings G and H, and interposed between the base flange *k* of cylinder F and the upper end of the casing H, is a coil spring M. This spring is protected from dust, moisture, etc., by the fixed and mov-

able casings G and H, and is designed to efficiently cushion the body A and prevent violent or undue rebound thereof as well as the transmission of shock and jar from the axle to the body, as when the railway or the roadway that is being traversed is rough or uneven. In this connection it will be noticed that when weight is imposed on the body A, the spring M will be compressed downward, and that upward thrust of the axle B will be attended by upward compression of the spring; also that at all times the spring will adequately cushion the body. It will also be noticed that in the event of the body tending to rebound it will exert upward pull on the plunger E, and the said plunger, in turn, will pull upward the movable member or cylinder F against the action of the spring M, with the result that the spring will check the rebound and cushion the same so that it will be robbed of all violence.

It will of course be understood from the foregoing that my invention contemplates the employment of a plurality of the cushioning devices, such as described, in each vehicle.

In the embodiment shown in Fig. 3, A² is the upper member and B² the lower member of an elliptic or other type of leaf spring. The cushioning device comprised in said embodiment comprises a cylinder F, a coil spring M and a movable casing H, all of which are similar to the corresponding elements of the embodiment shown in Fig. 1; the said casing having its upper end disposed immediately under the upper spring member A² so as to yieldingly support and reinforce the same. The fixed casing G² of the modified construction differs from the casing G of Fig. 1 only in the respect that its base lugs are bolted to the spring member B², as shown, while the plunger E² of the modified construction differs from the plunger E in Fig. 1 only in that it extends loosely through the upper spring member A² and is equipped above the same with a washer T and nut U.

In the use of my novel cushioning device as an auxiliary to an elliptic or other leaf spring, the operation of the fixed and movable casings, the inclosed cylinder, the plunger and the coil spring is the same as before described, and it will also be appreciated that the cushioning device prevents overloading of and resulting damage to the leaf spring and in that way prolongs the usefulness thereof.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. A cushioning device, comprising a fixed casing having an inwardly directed flange, a cylinder movable in said casing and having a flange fitting and guided therein and also

having an aperture in its upper end, a plunger extending loosely through said aperture in the movable cylinder and having an enlargement at its lower end movable in the cylinder and also having its upper portion threaded and provided with a key-way, a movable casing guided in the fixed casing and having an outwardly directed flange fitting within the same and also having an aperture in its top loosely receiving the said plunger, a coil spring inclosed in the casings and surrounding the movable cylinder and plunger and interposed between the flange of the cylinder and the top of the movable casing, a ball having a threaded bore receiving the threaded portion of the plunger and also having a key-way, a key disposed in the registered ways of the plunger and ball, a boxing section superposed on the movable casing and loosely receiving the plunger, said boxing section having a seat in its upper side shaped in conformity to and receiving the ball, and a second boxing section shaped in conformity to and connected to the first-named section and having an aperture to receive the plunger and also having a seat in its underside shaped in conformity to and receiving the ball.

2. A cushioning device, comprising a fixed casing having an inwardly directed flange, a cylinder movable in said casing and having a flange fitting and guided therein and also having an aperture in its upper end, a plunger extending loosely through said aperture in the movable cylinder and having an enlargement at its lower end movable in the cylinder and adapted at its upper end for connection with a device that is to be supported, a movable casing guided in the fixed casing and having an outwardly directed flange fitting within the same and also having an aperture in its top loosely receiving the said plunger, and a coil spring inclosed in the casings and surrounding the movable cylinder and plunger and interposed between the flange of the cylinder and the top of the movable casing.

3. A cushioning device comprising a fixed casing, a casing movable relative to the fixed casing and extending upward beyond the same for arrangement under a device that is to be supported, a plunger movable independently of the casings, means in the fixed casing movable independently of the same and the plunger, and a coil spring surrounding the plunger and inclosed in the casings and interposed between the said means and the movable casing.

4. A cushioning device comprising a fixed casing, a casing movable relative to the fixed casing and extending upward beyond the same for arrangement under a device that is to be supported, a plunger movable independently of the casings and having an enlargement on its lower portion, a cylinder

movable in the casings and receiving and adapted to be moved vertically by the enlargement of the plunger and having an abutment, and a coil spring surrounding the
5 plunger and the cylinder and inclosed in the casings and interposed between the abutment of the cylinder and the movable casing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

AIME CHABOT, JR.

Witnesses:

W. A. PRINCE,
BYRON H. OLDS.