

UNITED STATES PATENT OFFICE.

CHARLES J. A. DICK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND THOMAS L. LUDERS, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR RETARDING THE RECOIL OF SPRINGS.

Specification forming part of Letters Patent No. 207,021, dated August 13, 1878; application filed July 24, 1878.

To all whom it may concern:

Be it known that I, CHARLES J. A. DICK, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Devices for Retarding the Recoil of Springs, of which the following is a specification:

My invention relates to an addition to or modification of the device for retarding the recoil of springs for which an application for Letters Patent was allowed to myself and T. L. Luders on the 25th day of June, 1878, my present invention consisting of levers or jaws caused to bear against parallel surfaces, instead of inclined surfaces, as described in the said allowed application.

In the accompanying drawing, Figure 1 is a front view of the retarding device; Fig. 2, a side view of Fig. 1, partly in section; and Figs. 3, 4, 5, 6, and 7, views illustrating modifications.

In Figs. 1 and 2, P represents part of the bolster, and P' part of the bolster-beam of a railroad-car, the usual springs (which it has not been deemed necessary to show in the drawing) being interposed between the two beams.

To the under side of the beam P is secured a bracket, A, to which the two levers or jaws D D' are connected by a pin, *x*, the latter passing through vertically-enlarged holes in the levers, the sole object of the pin being to maintain the levers in their proper lateral position and to connect them to the bracket, the levers being confined vertically by the horizontal flange *a* of the said bracket and by a thin plate, *e*, on the under side of the beam, the said plate being caused to bear continuously on the levers by an elastic pad, *f*, or any other suitable spring.

To each of the levers D and D' is pivoted a shoe, *h*, a block, E, secured to the bolster-beam P', being embraced by and between the two shoes, which can slide freely against the opposite sides *i i* of the said block.

It will be noted that the rounded portion of the short arm of the lever D bears against the flange *a* of the bracket A at the point *d*, the short arm of the lever D' bearing on the flange at the point *d'*, while the plate *e* bears with a constant pressure upon the short arms of the two levers at a point, *m*, directly above the

pin *x* and midway between the two points *d* and *d'*. Hence, when the springs which support the bolster P recoil and the latter rises, there must be a tendency of the long arms of the levers to move toward each other, and consequently of the shoes to bear against the block E with such frictional effect as to retard the recoil of the bolster-springs, and thus prevent the disagreeable shocks due to the usual abrupt recoil.

When the bolster-beam is depressed, the short arms of the levers D D' are so far relieved from pressure at the points *d* and *d'* that there will be but little friction of the shoes against the block as they slide down the opposite parallel sides *i i* of the same.

It is important that the retarding influence of the shoes should be instantaneous, or, in other words, that they should take effect the moment the recoil of the springs commences; hence the use of the springs *n n*, which maintain the shoes in contact with the block at all times, and insure instantaneous action.

A spiral spring, *p*, connected to the opposite levers, and shown by dotted lines in Fig. 1, may be used in place of the springs *n n*, or the long arms of the levers may be made so elastic as to dispense with supplementary springs; or the opposite sides of the block may be made thin and elastic, as shown in Fig. 3, the levers in this case having rigid arms.

The object of the elastic pad or spring *f* above the short arms of the levers is to effectually confine the same under all circumstances and to compensate for wear at this point, for any vertical play of the short arms of the levers would detract from the desired instantaneous action of the shoes.

The long arms of the levers may bear directly against the block, as shown in Fig. 4; but I prefer the use of pivoted shoes.

The faces *i i* of the block E may be corrugated, as shown in Fig. 6, or V-shaped, as seen in Fig. 7, the shoes being formed to correspond with the faces of the block, and the latter may be contracted at the top, substantially as shown in Fig. 5, in cases where it is desirable to remove or diminish frictional retardation at the point where the spring approaches the limit of its recoil.

It will be understood that when my invention has to be applied to a bolster and bolster-beam, as shown, there must be at least two retarding devices, situated at such points as the bolster-springs will permit.

The device may be combined directly either with elliptical or box springs, as described in the aforesaid application of Dick and Luders.

I claim as my invention—

The combination of a bearing-spring with a device for retarding the recoil, the said device

consisting of two main elements—namely, parallel surfaces and levers or jaws caused to bear against the said surfaces, substantially in the manner described.

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

C. J. A. DICK.

Witnesses:

HARRY A. CRAWFORD,
HARRY SMITH.