W. L. WILLIAMS.
Wagon-Spring.

No. 203,863. Patented May 21, 1878.

Fig. 1.

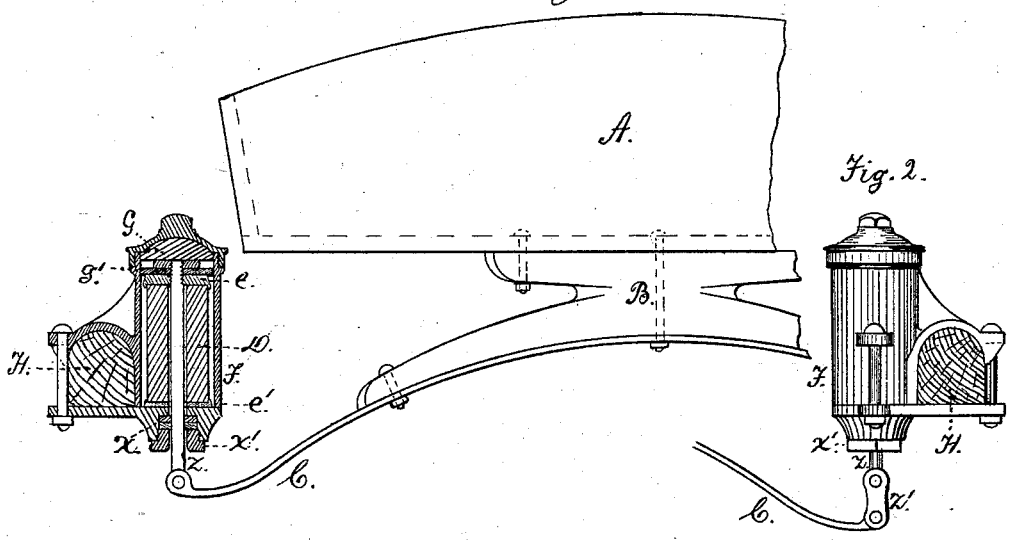

Fig. 2.

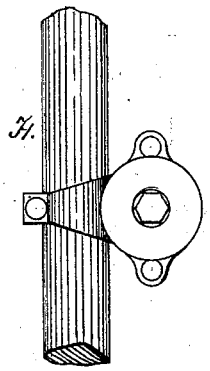

Fig. 3.

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WILLIAM L. WILLIAMS, OF NEW YORK, N. Y.

IMPROVEMENT IN WAGON-SPRINGS.

Specification forming part of Letters Patent No. **203,863**, dated May 21, 1878; application filed October 17, 1877.

To all whom it may concern:

Be it known that I, WILLIAM L. WILLIAMS, of the city, county, and State of New York, have invented certain Improvements in Wagon-Springs, of which the following is a specification:

A, Figure 1, on the accompanying drawing, represents, in part or broken off, a rear view of a wagon-box, supported on the cross-piece B, which is in turn supported on and fastened to the steel cross spring or bar C, the ends of which are each swiveled directly to the end of a rod, Z, or indirectly to such rod by a link, Z′, as shown in Fig 2.

The rod Z extends upward through and a little above a cylinder of vulcanized india-rubber, D. (See Fig. 1, where is represented a central vertical section of my spring in position, as Fig. 2 represents an exterior view of the same, or, rather, its counterpart, complete.)

The top of D is covered and capped by a metal disk, *e*, held firmly down upon it and to Z by a screw-thread and jam-nut, or equivalent device, as will be readily understood. D is similarly supported, and confined at its bottom or lower end by a disk or curb, *e′*, and these parts and the entire body of the rubber spring D are inclosed in a metal case, F, as a protection against injury from weather or otherwise.

Rod Z extends up into the body of the spring through hard cottrels or washers X, closely fitting around it, and into a circular recess, as shown, where they are firmly held by the annular screw-plug X′, loose around Z, or out of contact with it, the whole being something like a common stuffing-box, affording a smooth and firm center guide up and down to Z, and excluding dust and wet, all as will be clear.

The inner diameter of F is somewhat larger than that of D, so that the latter shall not bear against it when compressed.

Now, when weight is placed in the wagon-box, supported by the springs in the manner explained, or when there may occur a sudden jar downward of the wagon-box, it will be relieved, so to express it, first by spring or bar C, and still much further, through C, by the elastic india-rubber cylinder D, their combination in the manner set forth providing at once a suitable springing support to light weights in the wagon, while affording an equable spring resistance to comparatively very heavy weights in it.

It will be evident that a metal spring—as a spiral one of steel, for example—could be substituted in the place of the one described of rubber; but, after testing both, I consider the latter best.

To arrest softly an unusual upward bounce of the wagon-box on a very rough road, for instance, or on its being suddenly relieved of considerable weight, there is provided and held in the top of case F a stationary disk or "buffer," of rubber, G. (See Fig. 1.) Interposed between G and the metal disk *e*, that caps and confines D, there is a disk, *g′*—say, of hard stiff leather, for example—which, while free to move up and down with *e*, is so nearly equal in diameter to the inside of F as to prevent the top of D and its adjuncts from chattering in F or abrading against it.

The body, bottom, and top of the case F are so made that they may be separated, and the body and bottom are so formed that together they can be clamped over and secured to ordinary side bars H, extending about the length of the wagon-box, and which are, in turn, secured to and supported by the wheel-axles.

Fig. 3 is a top view of the spring-case attached to the side bar H. Four counterpart springs, such as described, are supposed to support the wagon-box, one at or near each of its corners, for example, as understood.

I claim as my invention—

1. The combination of the vertically-acting wagon-spring, as described, the outer case F of which is composed of two parts, as explained, each part having solid with it an arm or projection, as shown, and which arms or projections conjointly clamp firmly over the longitudinal side bars H, and of the steel cross spring or bar C, all substantially as and for the purpose hereinbefore set forth.

2. The combination, with the case F, the inclosed spring D, and the rod Z, of the buffer G, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the case F, the inclosed spring D, and the rod Z, of the disk *g′*, substantially as and for the purpose hereinbefore set forth.

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