S. W. BALDWIN.

Coupling for Vehicles.

No. 210,743. Patented Dec. 10, 1878.

Fig. 1.

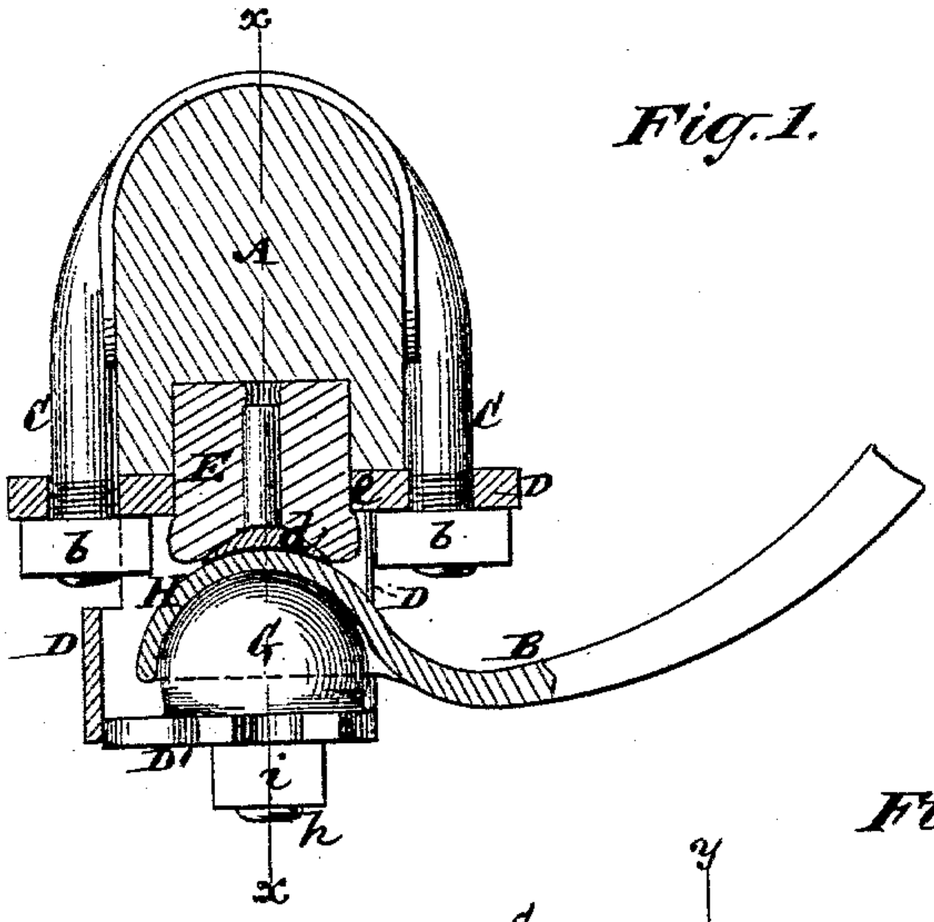



Fig. 2.

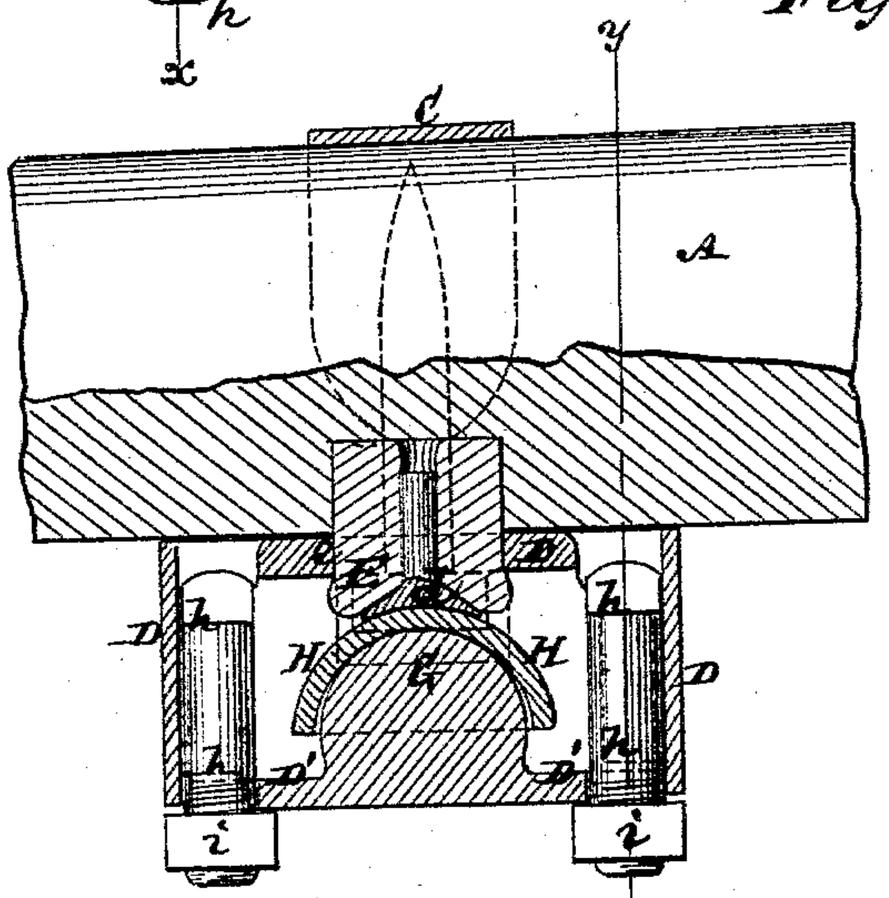



Fig. 3.

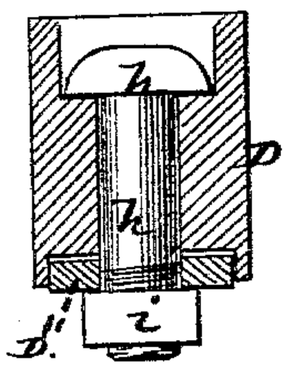



Fig. 4.

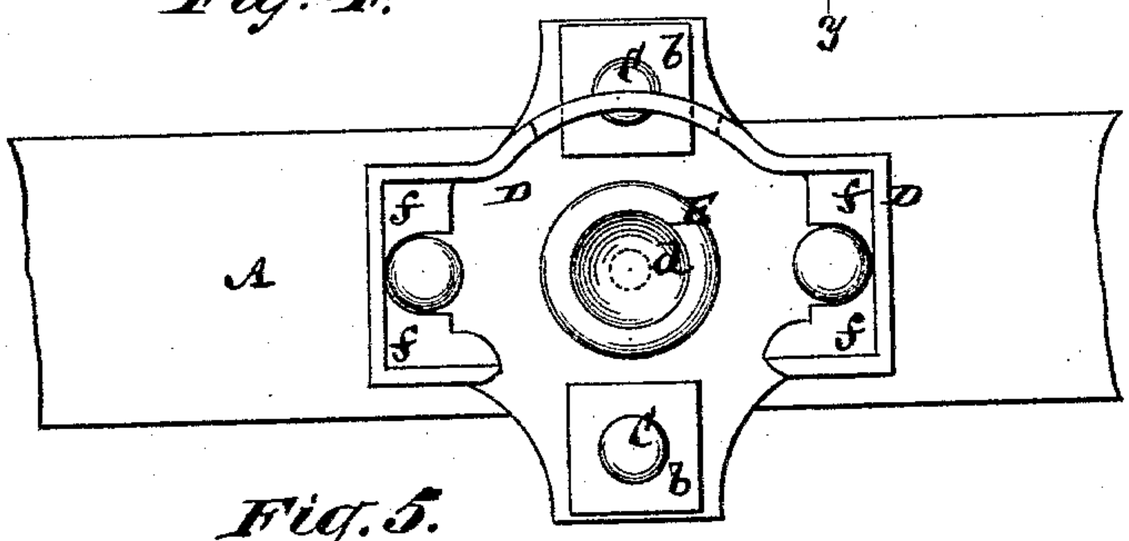
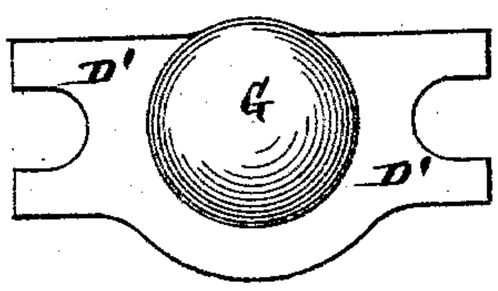



Fig. 5.

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# UNITED STATES PATENT OFFICE.

STEPHEN W. BALDWIN, OF YONKERS, NEW YORK.

## IMPROVEMENT IN COUPLINGS FOR VEHICLES.

Specification forming part of Letters Patent No. **210,743,** dated December 10, 1878; application filed October 21, 1878.

*To all whom it may concern:*

Be it known that I, STEPHEN W. BALDWIN, of Yonkers, in the county of Westchester and State of New York, have invented certain Improvements in Carriage-Couplings, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention is applicable both to the spring-couplings of wagons or other carriages, and to the thill or shaft couplings thereof, and relates to that description of such couplings in which the working joint is of a ball-and-socket construction.

The invention consists in a carriage-coupling, in which an inverted cup attached to the spring or shaft iron of the vehicle, and forming the working half or portion of the joint, is combined with and arranged to rest upon a spherical, or partly-spherical, knuckle attached to or carried by the coupling-head, and in which the latter, constructed with an opening through it extending below the working level of the joint, has also combined with it and with the inverted cup and partly spherical knuckle a spring or elastic cushion, arranged to bear down on said cup. By said invention not only is provision made for the movement of the joint of the coupling in all directions, and a tight joint having an elastic support or resistance obtained, but by the arrangement of the working inverted-cup portion of the joint relatively to the spherical or partly-spherical knuckle, all superincumbent weight is applied through the concave surface to the convex surface of the joint, and dirt is excluded from working upward by the cup acting as a cover on and over the knuckle; or if any dirt should collect about the joint it will be readily discharged therefrom and through the opening in the coupling-head, which extends below the level of the joint.

Although in the drawing the invention is shown as applied in connection with the side bar and spring of a side-bar wagon, it is equally applicable to thill or shaft couplings, and to various kinds of carriages, and to different descriptions of springs applied thereto, subject only to such changes in details of construction as will readily suggest themselves to those skilled in the art of carriage-building.

Figure 1 represents a transverse section through the side bar of a side-bar wagon, with my invention applied as a coupling, uniting said bar with the connecting-arm of a spring used to support the body of the wagon. Fig. 2 is a partial longitudinal section of the same on the line *x x* in Fig. 1. Fig. 3 is a transverse section on the line *y y*, in illustration of the means used to connect the base of the head of the coupling with the upper portion of said head. Fig. 4 is an under view of the upper portion of the head of the coupling with its base or base-piece detached, and Fig. 5 an upper view of said base removed.

A is the side bar of a side-bar wagon; B, the connecting-arm of a spring for supporting the body of the vehicle, secured to said side bar by my improved coupling; and C, a clip for fastening said coupling to the side bar by means of nuts *b b* on the screw-threaded ends of the clip.

D D′ represent the head of the coupling, composed of an upper portion, D, and a base or base-piece, D′. The part D of said head is the portion which is directly secured by the clip C to the side bar A, and is of a skeleton or hollow construction, to receive within it a spring or elastic cushion, E, a spherical knuckle or joint-piece, G, mounted on or attached to the base D′ of the head, and an inverted cup, H, on the end of the spring-arm, constructed to fit, as an upper and female joint-piece, said knuckle.

The arm B of the spring, which passes out through the side of the head of the coupling, is clamped by its cup H between the knuckle G and the elastic cushion E, the latter bearing down on the cup to insure a tight joint for the coupling in whatever direction it may be moved; also to soften or deaden jar, and so keep the nuts of the coupling from working loose. The spherical construction of the coupling at its joint provides for the movement of the coupled parts in every direction. The knuckle G, although here referred to as spherical, of course need only be partly spherical, or at most hemispherical.

The elastic cushion E, I prefer to construct of india-rubber; but it may be of any other suitable elastic material, and need not necessarily be solid, and may, if desired, be formed

of a spiral or other metallic spring. It is here, however, represented as consisting of a round india-rubber plug, having a metallic facing, *d*, which serves to protect it against wear at its contact with the back of the cup, and which facing may be in the form of the head of a pin projecting up into the rubber, or be otherwise suitably constructed. Such cushion, which, instead of being round, may be of oblong or any other suitable shape, is fitted within a cavity or hole, *e*, in the upper portion of the head of the coupling, and may or may not pass through the head into the wood or side bar A, to which the coupling is attached.

The base or base-piece D′ of the head, which has attached to it the spherical knuckle G, is constructed and fitted to enter at its ends angular or other suitably-shaped guiding recesses or cavities, *f*, in the bottoms of the end portions of the head part D, to provide for adjustment in line with the cushion E of the knuckle G, and to keep said base and knuckle from turning. Said base D′, with its attached knuckle, is secured in position, and the working parts of the joint adjusted closer to or farther from each other, to provide for wear, or as other circumstances may require, by means of bolts *h h*, fitted within cavities in the ends of the head part D, and passing through the base D′, and secured on the under side of the latter by nuts *i i*, the turning of which serves to effect the adjustment.

By the construction and combination of parts as herein shown and described, a very perfect and tight universal joint is obtained for the coupling, the whole superincumbent weight being transferred through the inverted cup to the knuckle, and said cup being kept up to its bearing by the spring on its back; also, by its arrangement relatively to the knuckle, protecting the joint from dirt grinding into it and the opening formed in the coupling-head for the iron B to pass through, which opening is extended below the working-level of the joint, readily providing for the escape of any dirt that might collect about the joint.

I claim—

1. In a carriage-coupling, the combination of the inverted cup, attached to the spring or shaft-iron of the vehicle, and the spherical or partly spherical knuckle, attached to or carried by the head of the coupling, and arranged to receive on and over it the inverted cup, which forms the working half or portion of the joint, substantially as specified.

2. The combination, with the coupling-head, having an opening in it extending below the working-level of the joint, of the inverted cup H, attached to the spring or shaft-iron of the vehicle, the spherical or partly spherical knuckle G, attached to or carried by said head, and arranged to receive on or over it said cup, and a spring or elastic cushion arranged to bear down on the inverted cup, substantially as shown and described.

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