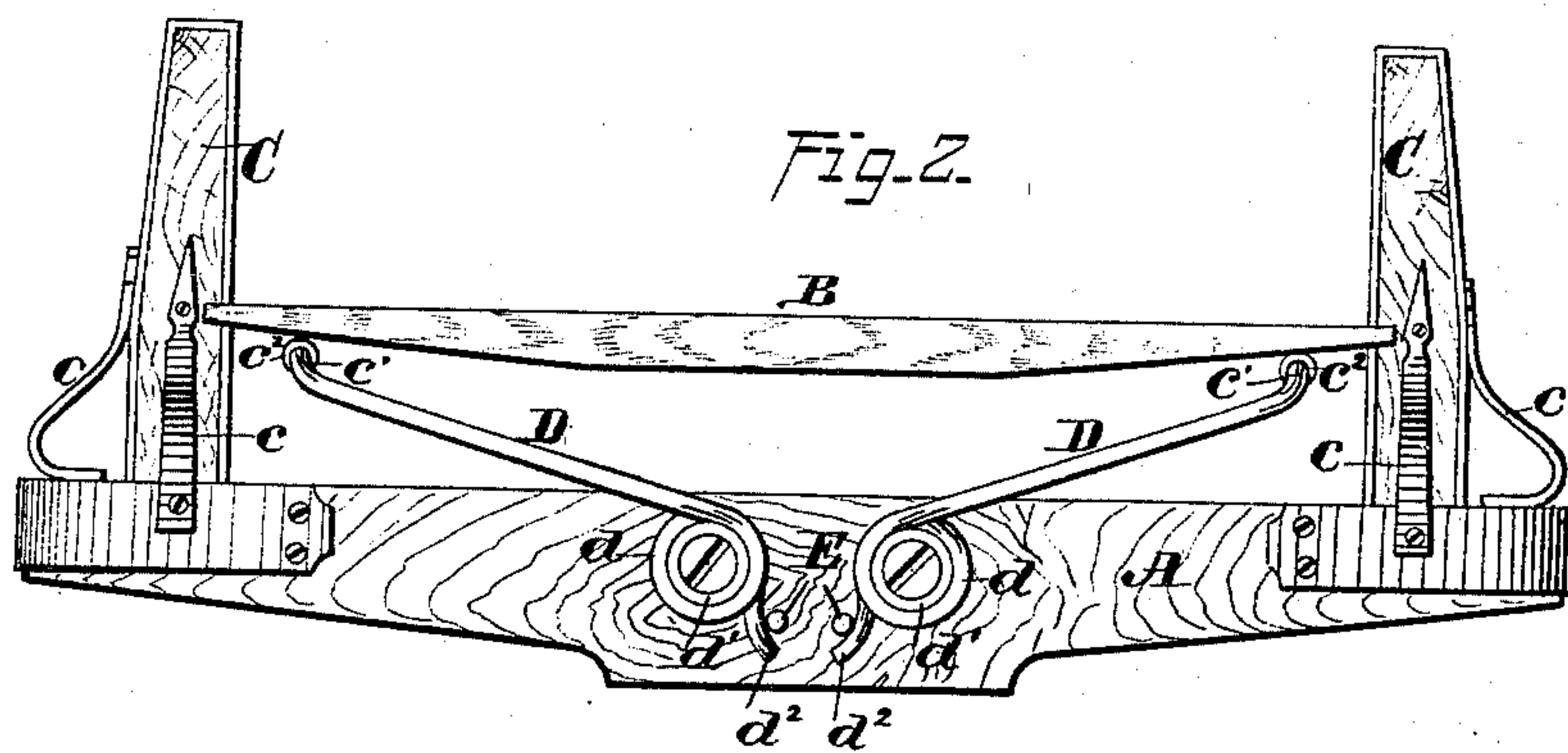
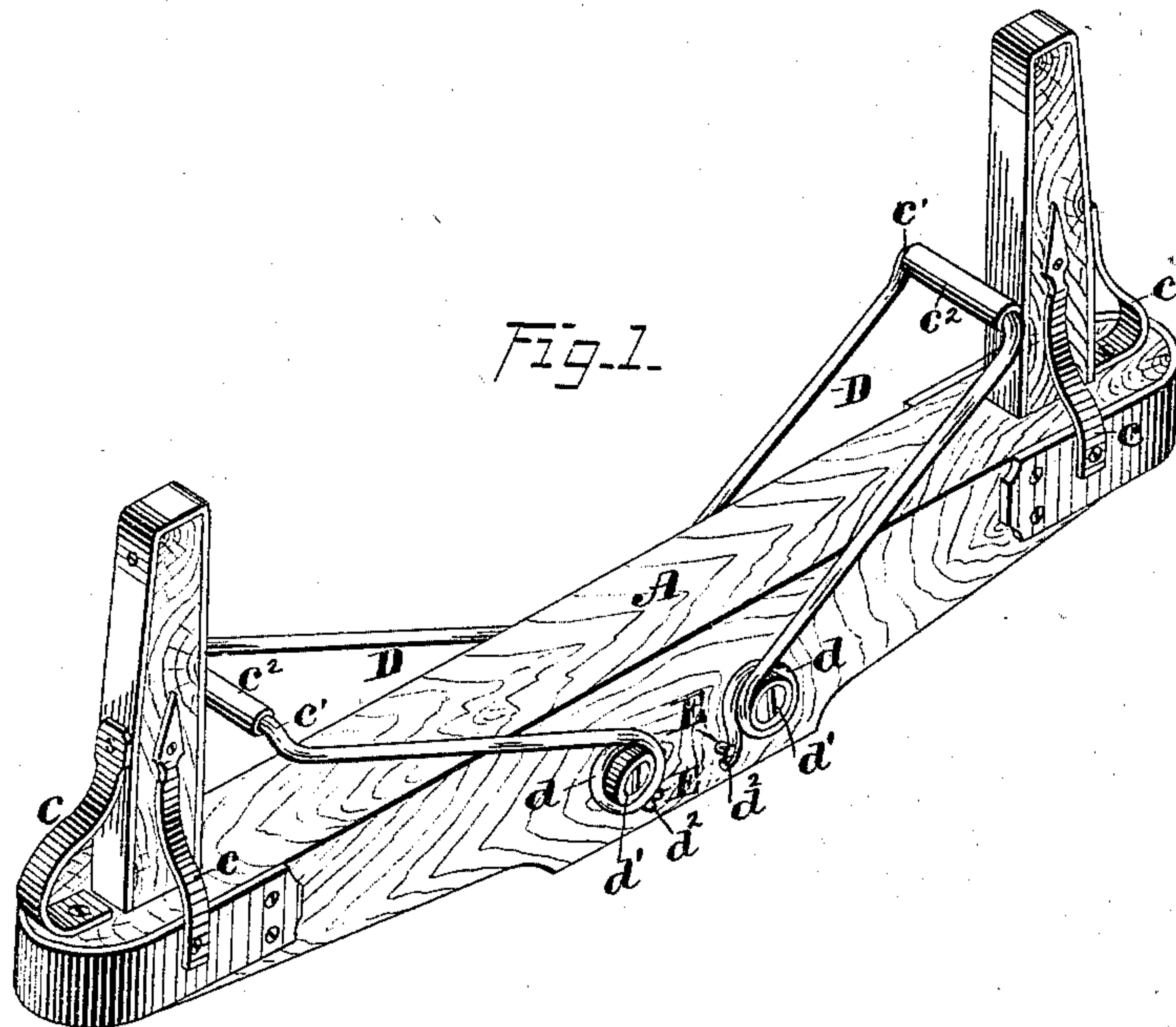


C. J. HOLMAN.
Vehicle-Spring.

No. 222,703.

Patented Dec. 16, 1879.



WITNESSES=

Jas. E. Hutchinson.
 James M. Wright.

INVENTOR=

Calvin J. Holman,

by James L. Norris.
Att'y.

UNITED STATES PATENT OFFICE.

CALVIN J. HOLMAN, OF TOLEDO, OHIO.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **222,703**, dated December 16, 1879; application filed October 22, 1879.

To all whom it may concern:

Be it known that I, CALVIN J. HOLMAN, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Spring-Vehicles, of which the following is a specification.

My invention relates to that class of devices in which springs are introduced to lessen and distribute the weight of loads carried in light or heavy draft vehicles. Its object is to lessen the multiplicity of springs and provide one which is readily adjustable and removable, and which will bear with an equal and elastic pressure against the weight of a load imposed at any angle.

To this end my device consists in the combination, with the fixed bolster of a vehicle, having laterally-projecting studs on its opposite sides, of two springs, each of which is formed of a single piece of metal bent to form an upper cross-bar, which is provided with a friction-roller, and two arms, which embrace the bolster and have their ends coiled around the studs on the bolster, the upper portions of said springs, which are provided with the friction-rollers, serving to support a movable bolster on which the body of the vehicle rests, or as a support for a seat, as will be more fully hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of a bolster having springs applied thereto according to my invention. Fig. 2 is a side view with the upper or movable bolster in position.

The letter A indicates the bolster of the wagon or other vehicle, and B an upper movable bolster to receive the floor of the vehicle or a wagon-seat, and said movable bolster embraces the standards C at each end, which have their edges shod with metal to allow the upper bolster, B, to move freely up and down. Metal braces *c* strengthen the standards.

The springs D are each composed of one single piece of metal, which is bent so that the two arms are approximately parallel and at right angles to the end *c'*, the bars at their connected ends being curved slightly upward and furnished with the friction-roller *c*², to allow free play and motion beneath and against

the upper movable bolster, B, a little closer together than the width of the bolster A, so that they will bear slightly across its sides when set across it and in place.

The free ends of the springs are carried over on both sides of bolster A and bent into the coils *d*, which are twisted loosely round and fit over the screw-heads, bolts, or studs *d'*, while tail or stop ends of the coils *d*² are bent outward from the coils *d*, and bear under and against the studs E, set on both sides of the bolster A, thus forming the resistance of the springs. The springs D can be unshipped at pleasure, while the upper bolster, B, can be used either to receive the floor of the vehicle or as a wagon-seat, at pleasure.

The coiled ends of springs D are sprung slightly open, so as to allow them to pass over on each side of the lower bolster, A. The coils *d* are entered over studs or screw-heads *d'*, with the tail or stop ends *d*² of the coils bearing against the studs E. The springs D are then thrown back with their distal ends toward the standards C, when the upper bolster, B, is entered over the standards C, which hold it in place, and is slid down until its ends rest upon the friction-rollers *c*², bearing against the free ends of springs D, when the various parts of the device will be in place, and upper bolsters, B, may either be used as a seat, or as a bed upon which to place the floor of the wagon, or as spring-bars at both ends of a truck to lessen and distribute the weight.

The springs are simple in their construction and attachment, not liable to get disarranged, and are quite readily adjusted, attached, and detached from the bolster.

What I claim is—

1. The combination, with the fixed bolster A of a vehicle, having lateral studs *d'*, of the springs D, each formed of a single piece of metal bent to form a cross-bar, *c'*, which is provided with a friction-roller, and two arms, which embrace the bolster and have their ends coiled around the studs *d'*, substantially as and for the purpose described.

2. The bifurcated springs D, having their arms or legs furnished with coils *d* to embrace

studs or screw-heads d' , and with tail or stop ends d^2 to bear against the studs E, and having the bars connecting their ends furnished with friction-rollers c^2 , in combination with the bolster A, having the studs d' to receive the coils d , and the studs E to receive the tail or stop ends d^2 , projecting from it, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

CALVIN J. HOLMAN.

Witnesses:

O. H. HARRIS,
J. B. McLERAN.