

(No Model.)

J. P. MORROW & H. F. BUSH.
Vehicle Spring.

No. 229,630.

Patented July 6, 1880.

FIG. 1.

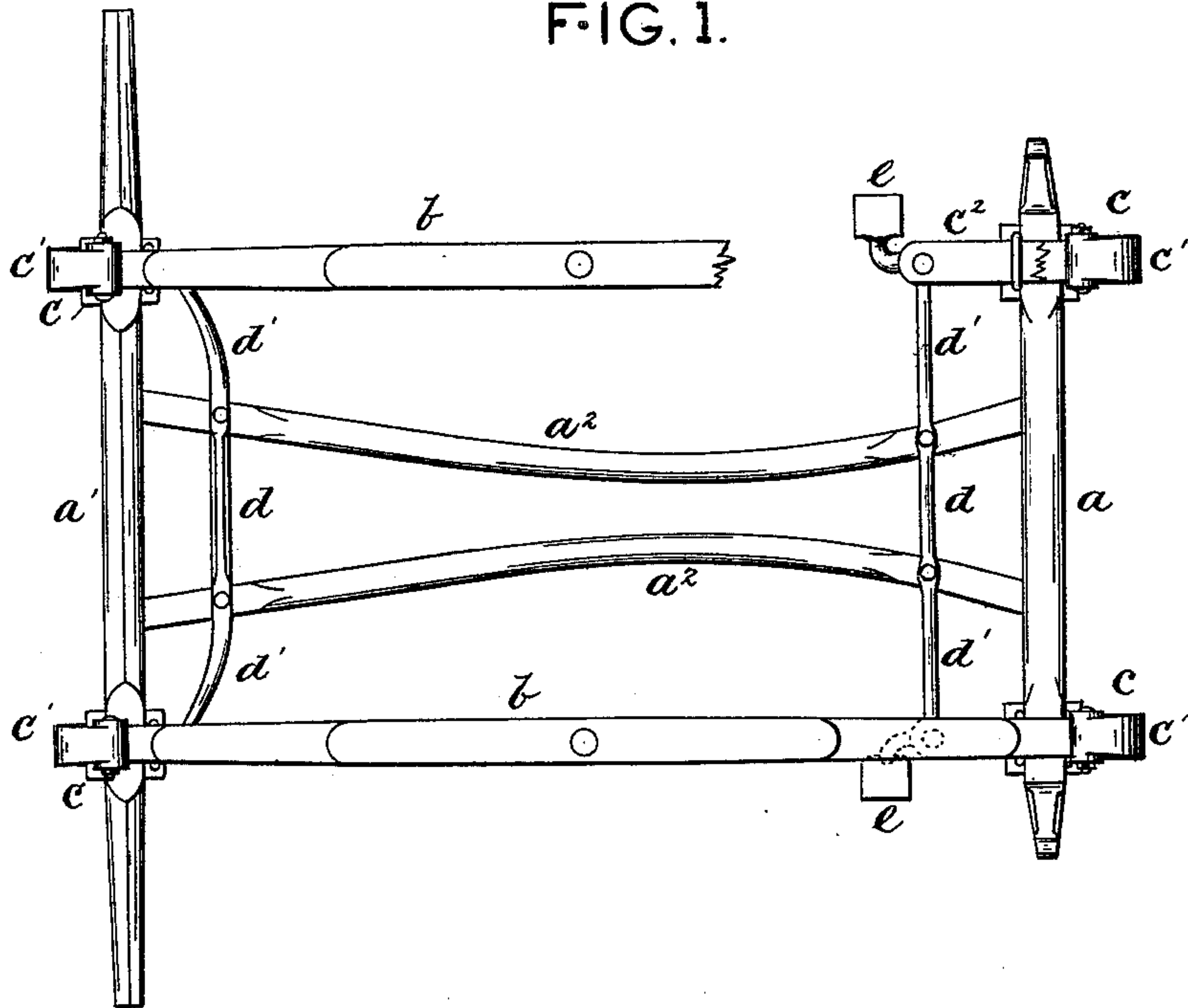
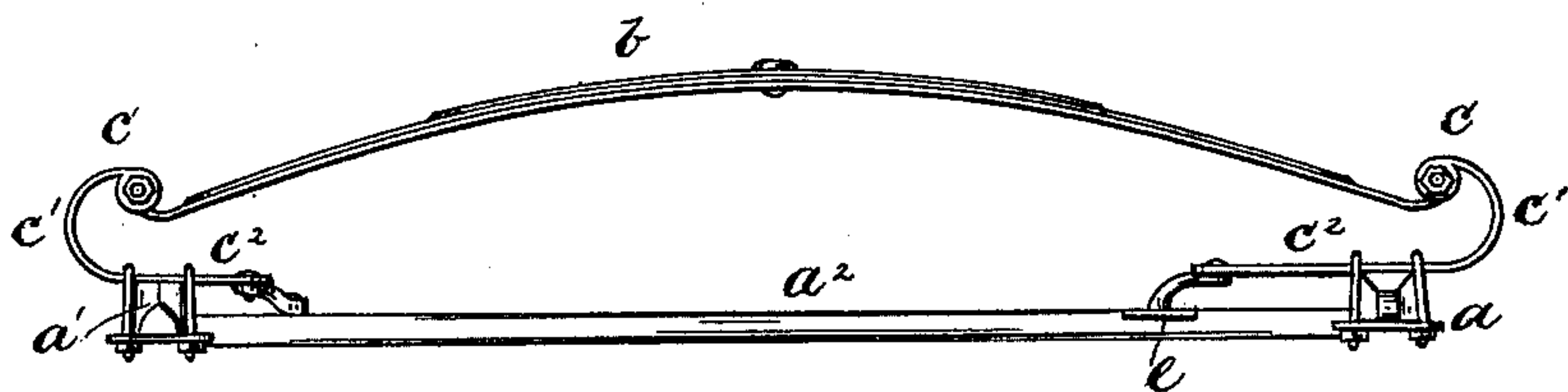


FIG. 2.



Witnesses:

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By *R. B. & A. P. Lacey, Attys.*

UNITED STATES PATENT OFFICE.

JAMES P. MORROW AND HENRY F. BUSH, OF GREENFIELD, OHIO.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 229,630, dated July 6, 1880.

Application filed May 31, 1880. (No model.)

To all whom it may concern:

Be it known that we, JAMES P. MORROW and HENRY F. BUSH, citizens of the United State, residents at Greenfield, in the county of Highland and State of Ohio, have invented certain new and useful Improvements in Vehicle-Springs; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has for its object to furnish a cheap and substantial spring for vehicles; and it consists in the combination and arrangement of side springs, end scroll-springs, and the reaches of the carriage, as will be hereinafter described, and pointed out in the claim.

In the drawings, Figure 1 is a plan of our invention having one of the side springs partially broken away, and Fig. 2 is a side elevation.

a is the front bolster, and a' is the rear axle, of a vehicle. a^2 a^2 are reaches uniting the bolster a and the axle a' , and they are arranged on opposite sides of a longitudinal line drawn from the middle point of the said bolster and the middle point of the said axle.

b b are the side springs, the ends of which are connected with the scroll-spring c , fixed on the bolster a and axle a' . Each of the scroll-springs c is formed with the scroll c' and the stem c^2 . The stem c^2 rests on and projects inward from the axle or bolster. The scroll-springs c have their stems fixed to the axles or bolster, so that they are parallel with and immediately under the side springs. The stems c^2 project several inches inward from their fastenings. They are arranged in pairs, one pair on the bolster, the other on the rear axle. The inward projecting ends c^2 of either pair are connected together by a cross-bar, d , which passes over the top of the reaches a^2 . This cross-bar is

secured by bolts to both reaches, so that it is rigidly held in its place. Its ends d' d' , which extend laterally from the reaches and are bolted to the inner ends of the stems c^2 , make a rigid support, which prevents the spring c from exerting a leverage on the axle or bolster so as to twist or turn the latter on their fastenings or supports.

Heretofore the use of scroll-springs for supporting the bodies of vehicles has been objectionable because of the leverage they exerted on the axles or bolsters, twisting and loosening the latter in their fastenings, and thereby working serious injury to the framework of the running-gear. In the device hereinbefore described all these objections are entirely obviated.

In addition to the above advantages, there is provided a substantial support for the step e , which is fastened to the end of the front bar, d , and stem c^2 at the point where they are bolted together. The weight of a person on the step in no way affects the position of the body of the vehicle, and all turning or tilting to the side is prevented.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination, with the reaches a^2 a^2 , secured to the bolster a and rear axle a' and arranged as described, of the scroll-spring c , provided with the stems c^2 , projected inward from their fastenings, and the cross-bar d , bolted to the reaches a^2 a^2 , and having its ends bolted to the inner ends of the stems c^2 of the scroll-spring c , substantially as and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 26th day of May, 1880.

JAMES P. MORROW. [L. S.]
HENRY F. BUSH. [L. S.]

Witnesses:

THOS. F. MERCER,
THOS. J. BLACKBURN.