

S. M. RICHARDSON.
Vehicle-Spring.

No. 204,915.

Patented June 18, 1878.

Fig:1.

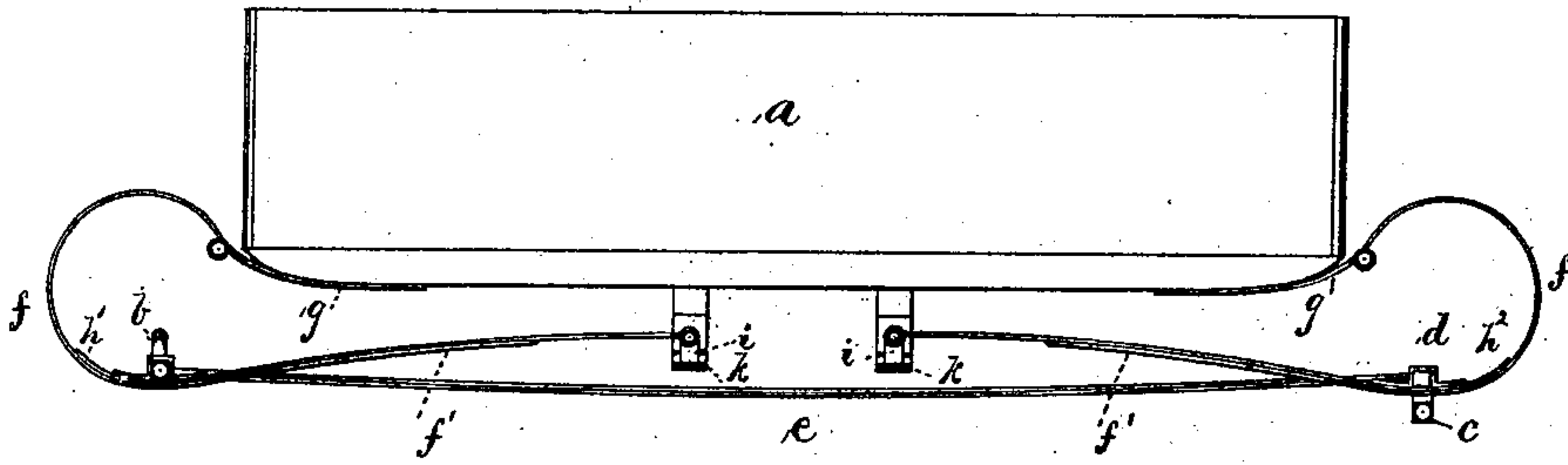


Fig:2.

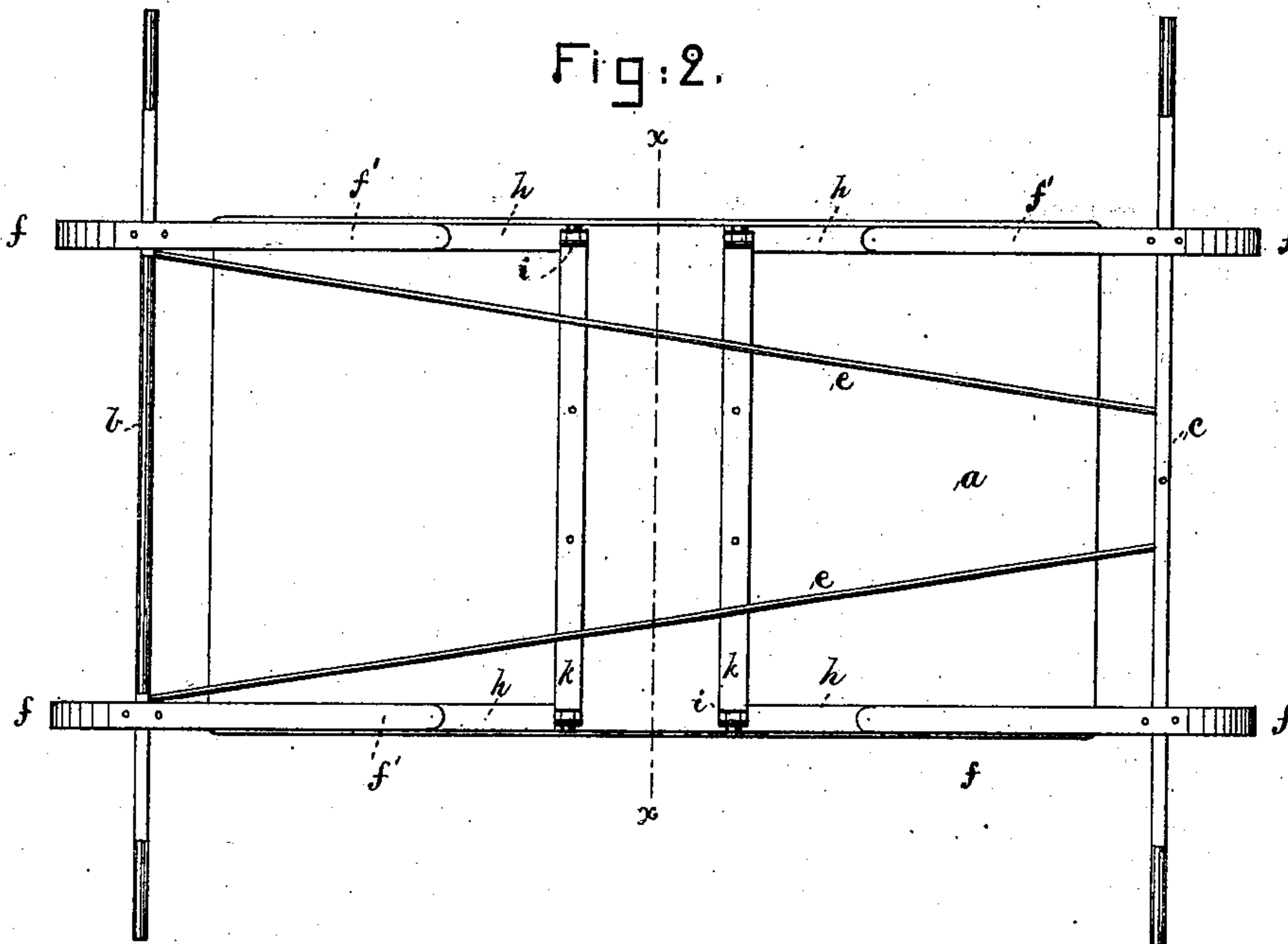


Fig:3.

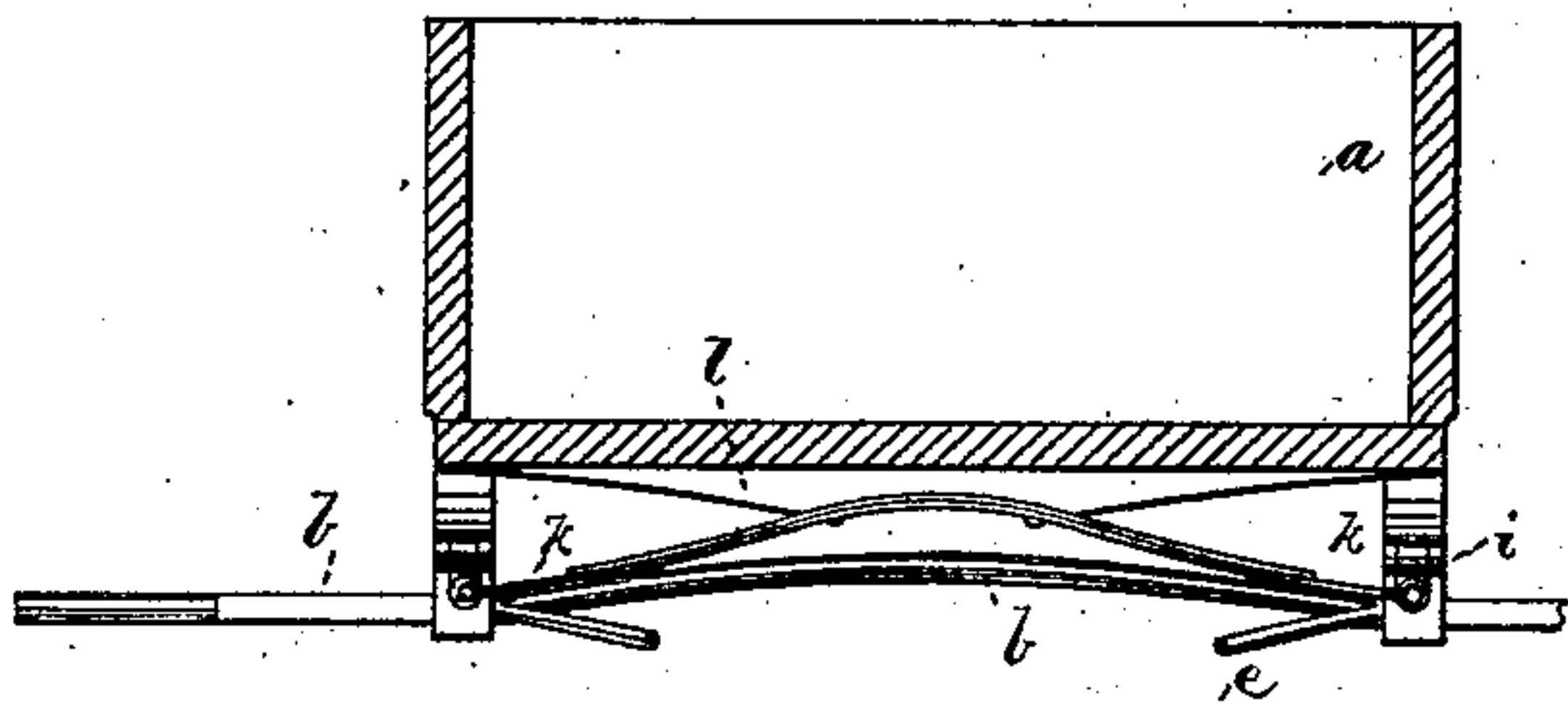
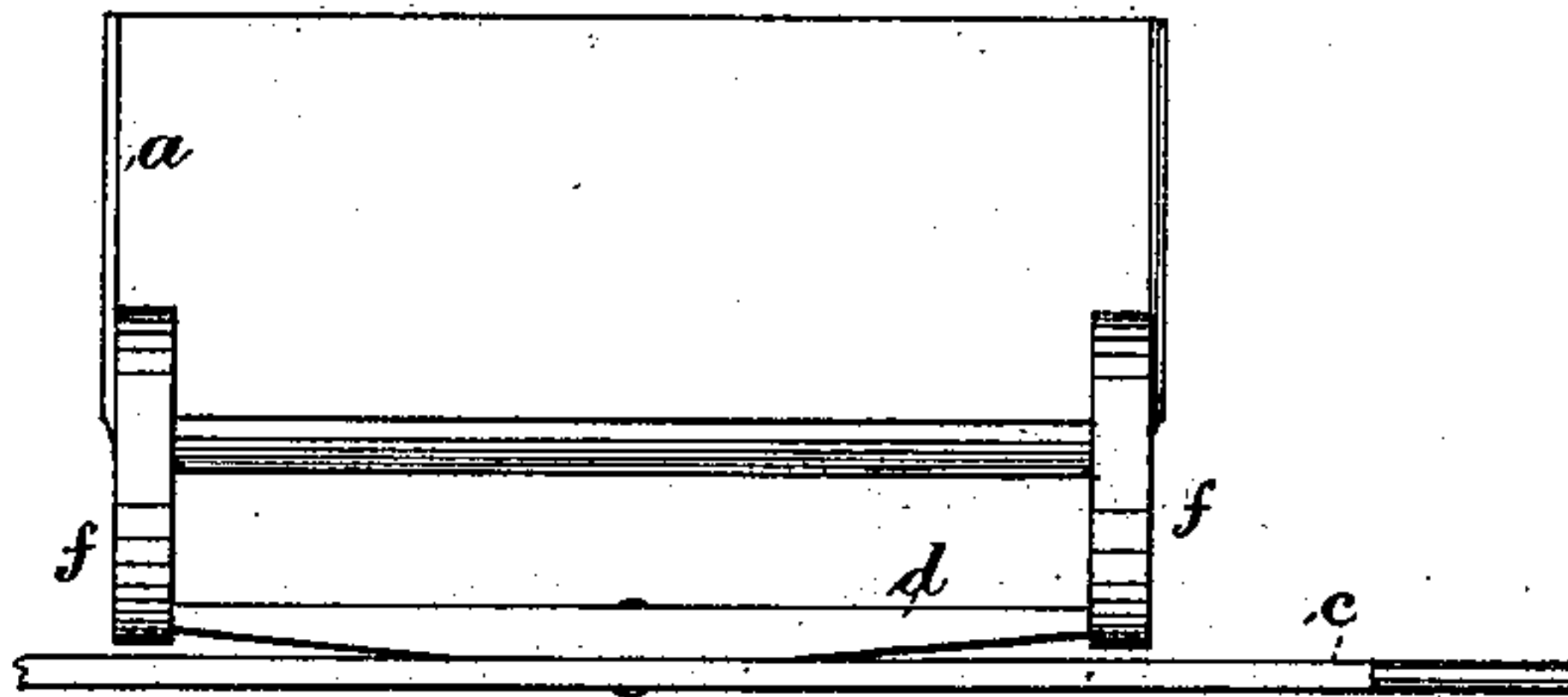


Fig:4.



Witnesses.
L. F. Connor.
N. E. Whitney.

Inventor.
Samuel M. Richardson
by Horsey & Gregory Attys

UNITED STATES PATENT OFFICE.

SAMUEL M. RICHARDSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. **204,915**, dated June 18, 1878; application filed May 3, 1878.

To all whom it may concern:

Be it known that I, SAMUEL M. RICHARDSON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Wagons, of which the following is a specification:

This invention relates to wagons, and has special reference to devices for supporting the box, such devices being intended as substitutes for the ordinary wooden side rods of the so-called "road-wagons," to avoid the jar common to such wagons, and make them ride more easily.

Figure 1 represents, in side elevation, a wagon constructed in accordance with my invention, the wheels being omitted; Fig. 2, a bottom view thereof; Fig. 3, a section on the line $x x$, Fig. 2; and Fig. 4, an end view.

The box a is shown as a square box. b represents the rear axle; c , the front axle; d , the cross-bar thereon; and e , the reaches or rods connecting the two axles, all as usual. The box is supported at each corner by means of curved springs f , (shown connected with straps g , secured to the box, and with the axle b or cross-bar d ,) the ends f' of f projecting toward the center of the wagon to stiffen the springs h , which are also attached to the axle b and cross-bar. These springs h project back of the rear axle, as at h^1 , and in front of the cross-bar, as at h^2 , to stiffen the springs f , and at their other ends they are connected with ears i at the ends of the elliptic half-springs k , attached to cross-pieces l at the bottom of the box, such springs k having one or more leaves, as may be desired.

It is obvious that the stiffness of springs f

h may be regulated by extending their ends one over the other, more or less.

If desired, a third spring may be attached and extended under springs f and h , to produce a very stiff spring, and the reaches e may be entirely omitted.

This construction of road-wagons obviates the jar common to the use of wooden springs, and makes a very strong, light, and easy riding wagon.

By employing the springs k , to which to connect springs h , rather than connecting such springs h directly to the sides of the box, I am enabled to balance the box, so that it will remain more nearly in a horizontal position under the action of weight in the box.

I claim—

1. The springs f , attached at one end to the box, and having their other ends projecting inwardly beyond the point of attachment to the axle or cross-bar, in combination with springs h , extending inwardly, and attached to cross-springs k , and projecting outwardly, so as to overlap and stiffen the springs f , substantially as described.

2. The combination of springs $f f'$ and $h h^1 h^2$ with the cross-springs k and the box, axle, and cross-bar of a wagon, when constructed and arranged substantially as and for the purpose described.

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

SAML. M. RICHARDSON.

Witnesses:

G. W. GREGORY,
N. E. WHITNEY.