

(No Model.)

J. McKINSTRY.
CARRIAGE SPRING.

No. 550,800.

Patented Dec. 3, 1895.

Fig. 1.

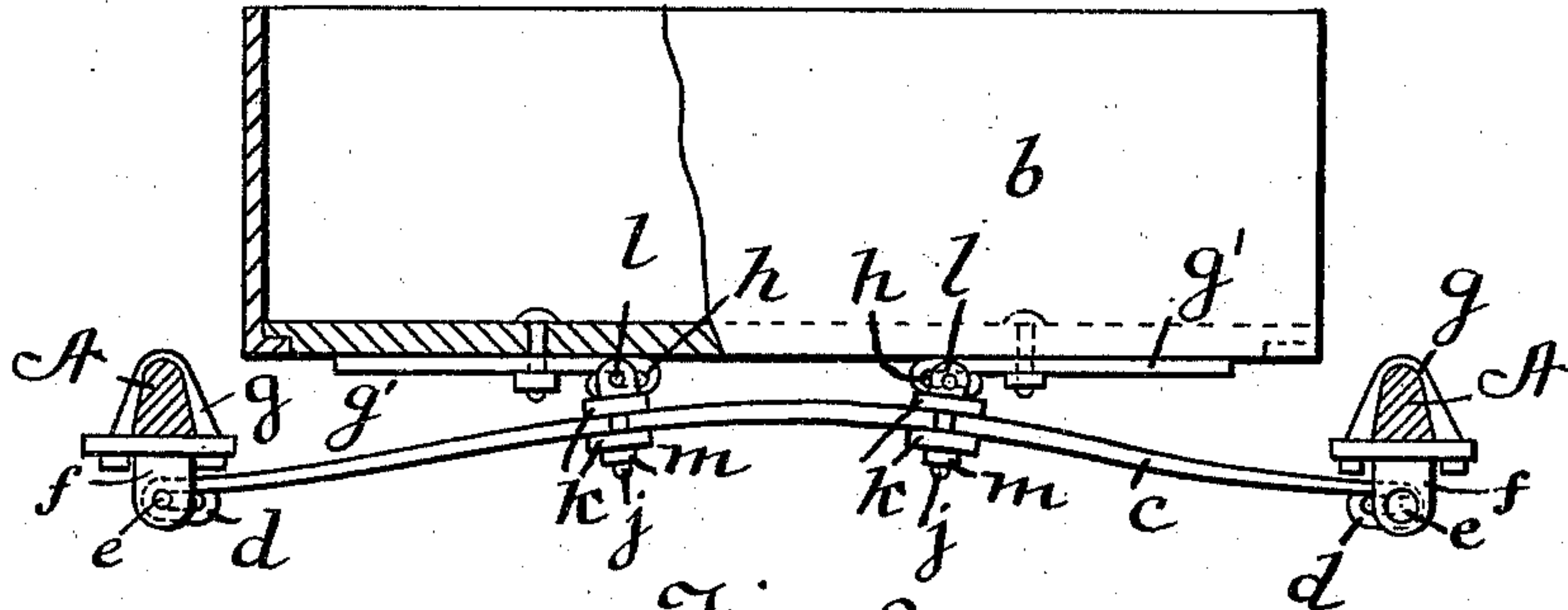


Fig. 2.

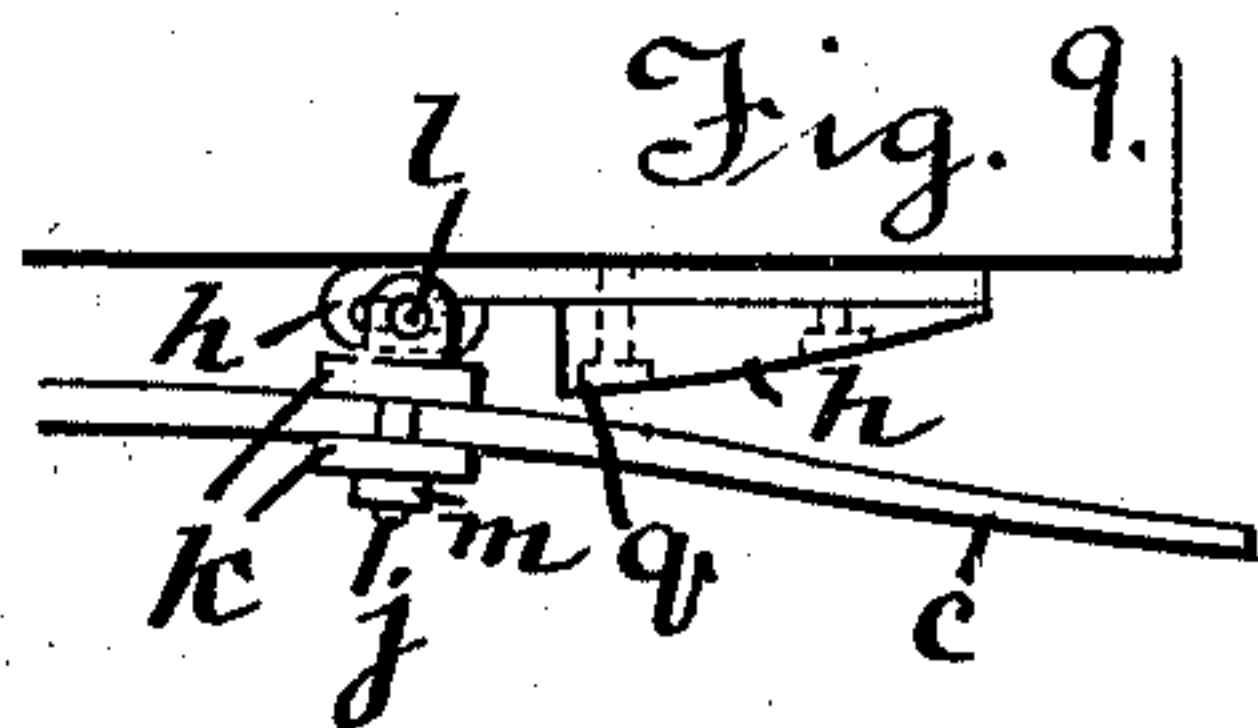
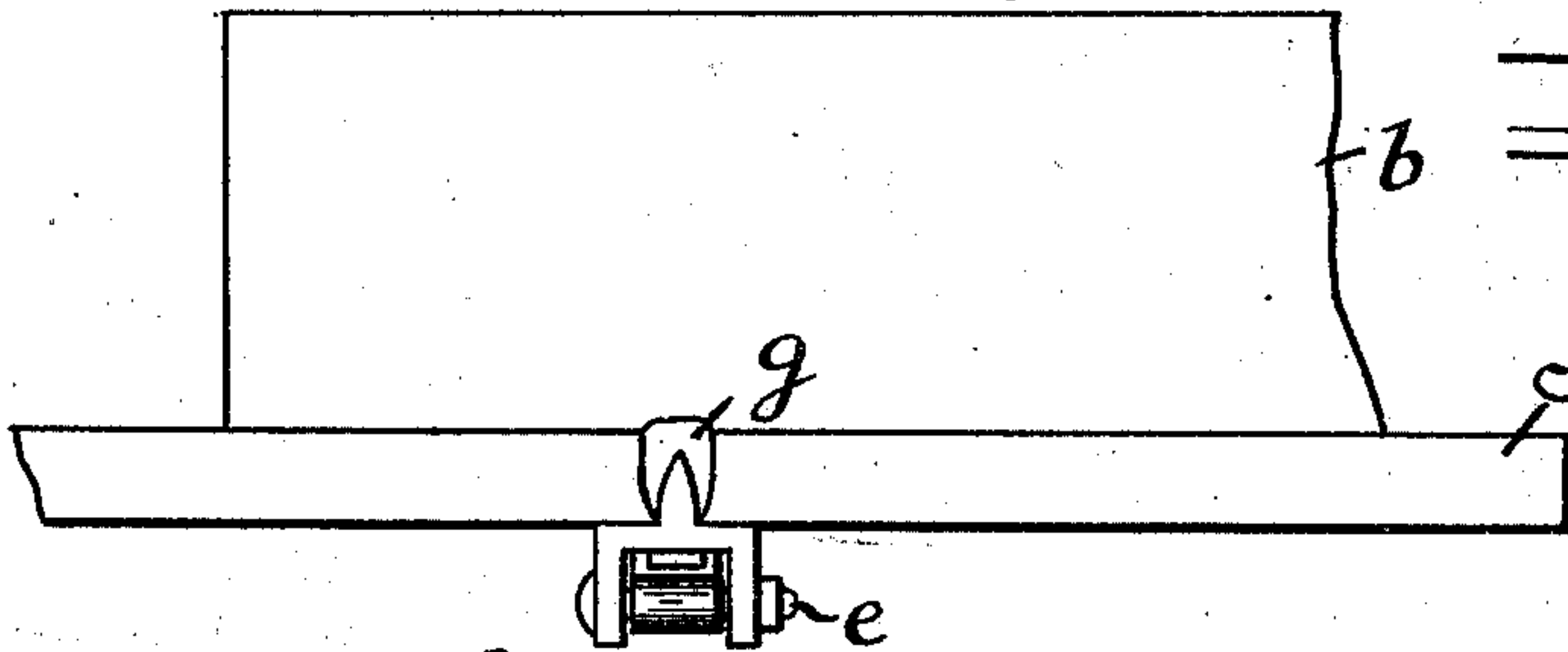


Fig. 3.

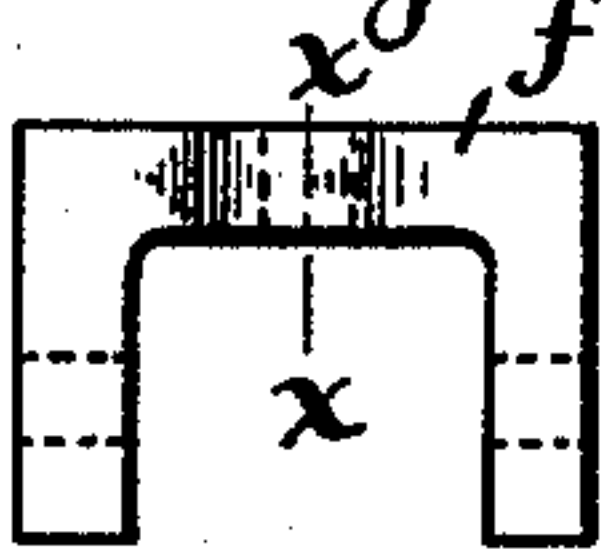


Fig. 4.

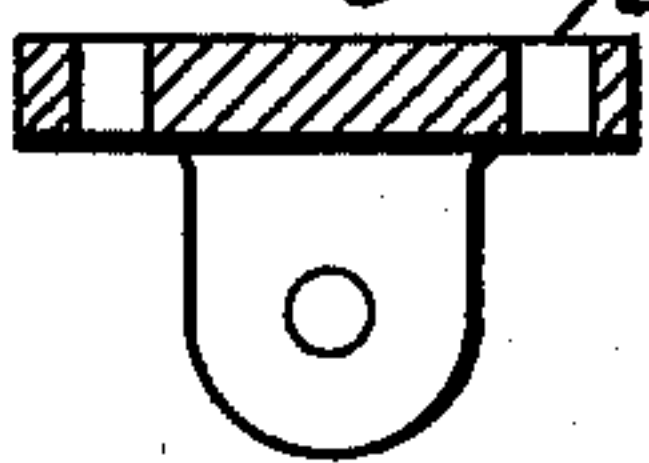


Fig. 5.

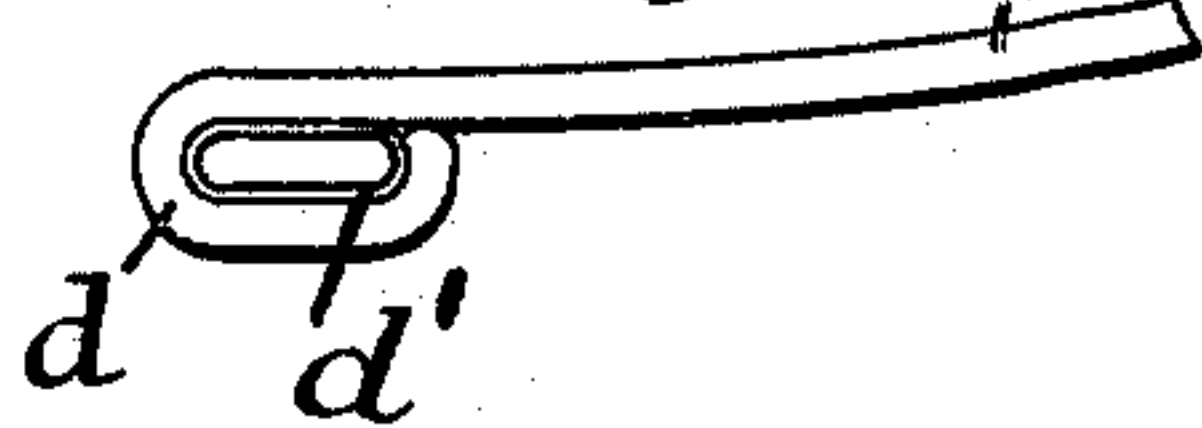


Fig. 6.

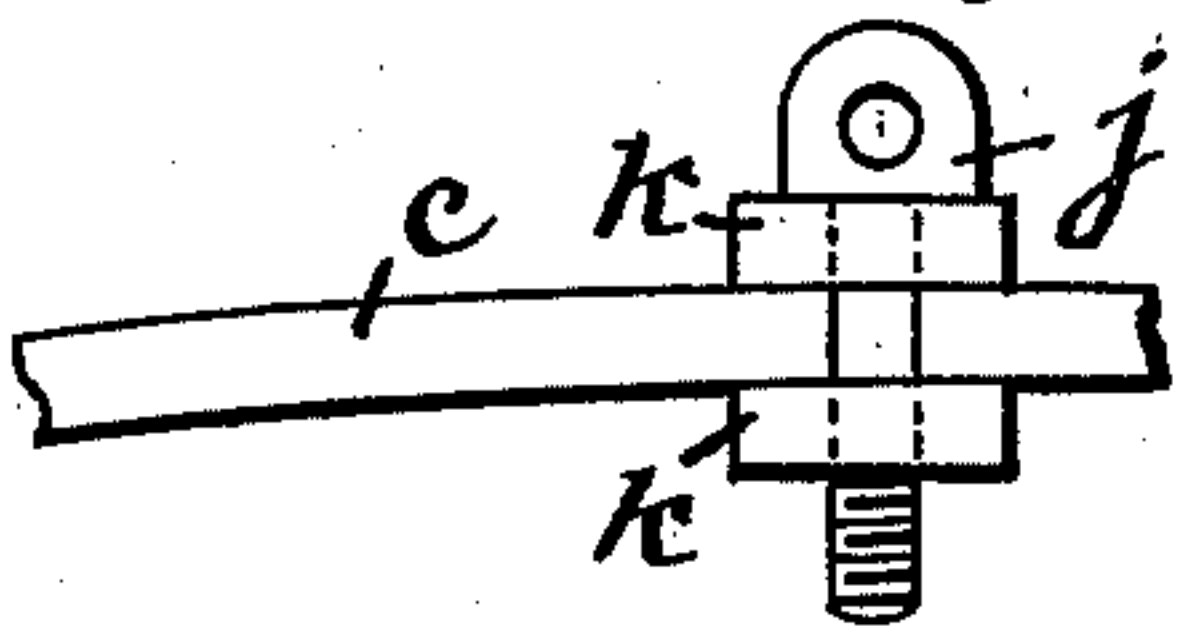


Fig. 7.

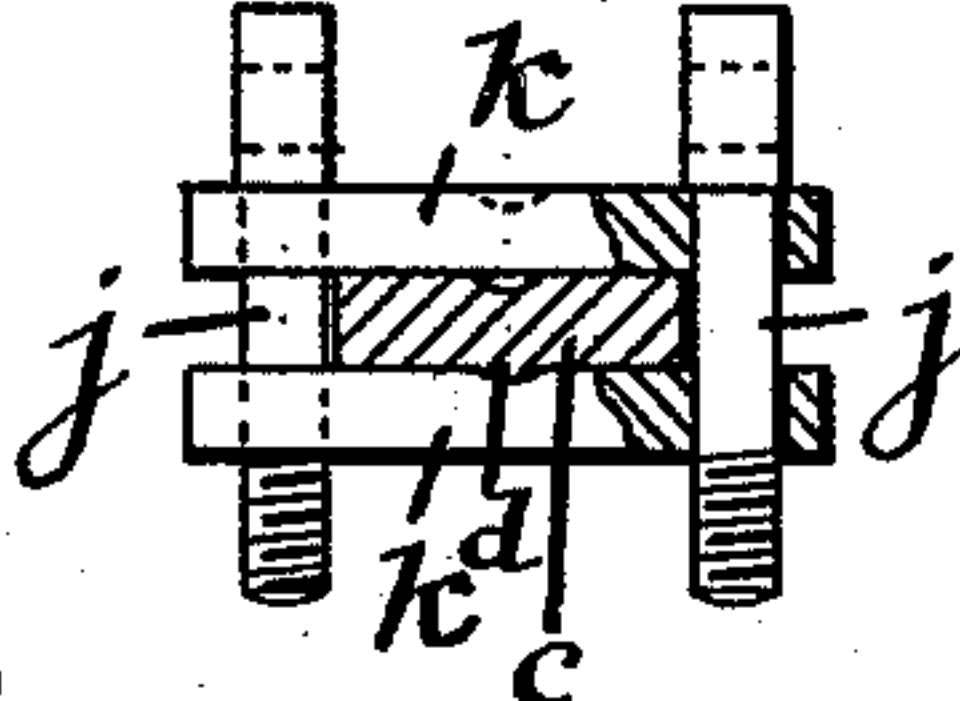


Fig. 8.

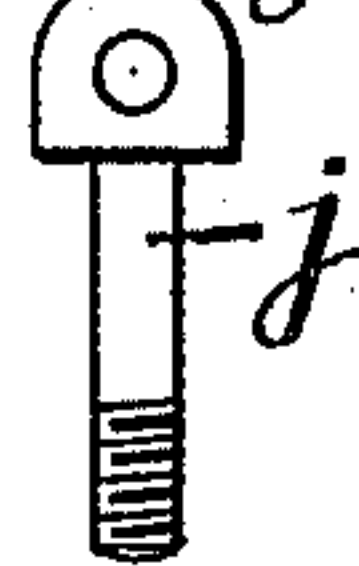
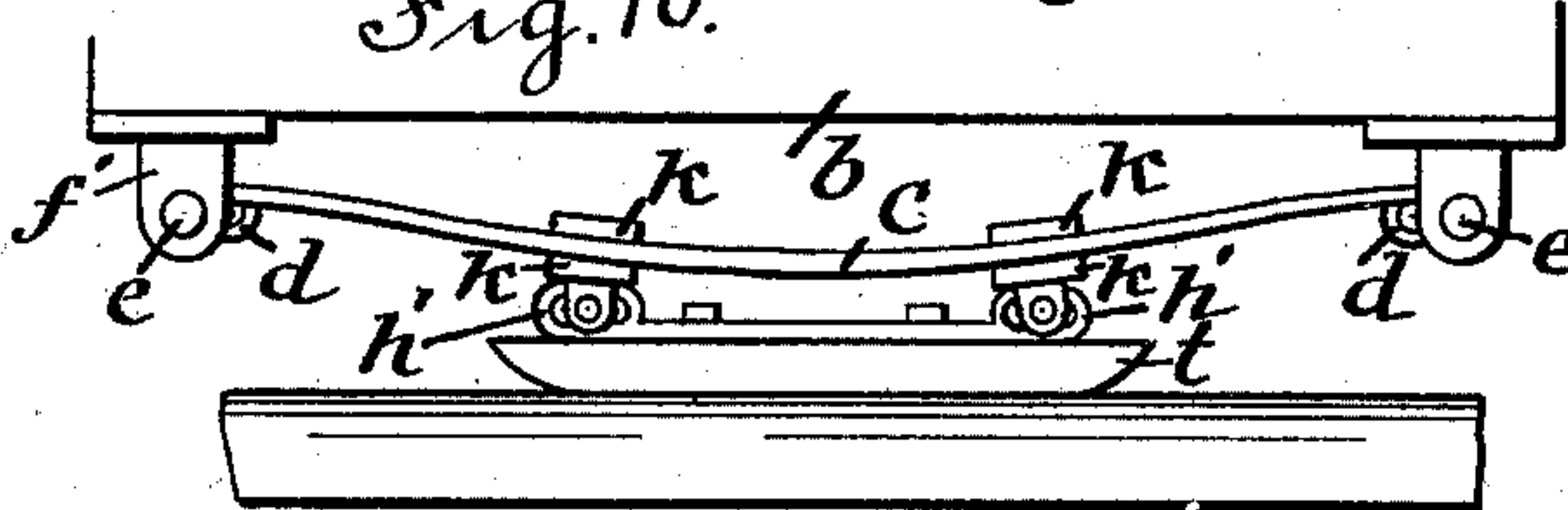


Fig. 10.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH MCKINSTRY, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO WILLIAM HARVEY MERRITT, OF SAME PLACE.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 550,800, dated December 3, 1895.

Application filed May 10, 1895. Serial No. 548,804. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MCKINSTRY, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Carriage-Springs, of which the following is a specification.

My invention relates to semielliptic springs for light road-wagons in which the body is to be mounted on the spring at two intermediate points between the ends and the center of the spring or the spring is so mounted on the axle or bolster to cause the portion of the spring between the intermediate bearings to vibrate in unison with the vibrations of the outer portions; and it consists of the hereinafter-described improved means of so mounting the spring, reference being made to the accompanying drawings, in which—

Figure 1 is a transverse section of the side bars, side elevation of a spring, and end view of the body, part of which is in transverse section, showing my improvements applied to a side-bar wagon. Fig. 2 is a side elevation of part of the body and part of a side bar, also an end view of the spring and side view of the hanger, by which the end of the spring is suspended from the side bar. Fig. 3 is a side view of the hanger of Fig. 2 detached from the clip embracing the side bar and enlarged. Fig. 4 is a transverse section of said hanger on line *xx* of Fig. 3. Fig. 5 is a detail of the spring enlarged. Fig. 6 is a detail of the spring and the clamp for connecting the spring and the body, enlarged. Fig. 7 is another detail of said clamp in a different view, with a cross-section of the spring. Fig. 8 is a side view of one of the bolts of said clamp. Fig. 9 is a detail showing auxiliary bearings for the body to take effect on the springs for relief in case of excessive thrusts. Fig. 10 is an elevation showing the spring reversed and supported on a head-block or bolster, with the body supported on the ends of the spring.

A represents the side bars, *b* the body, and *c* a spring for supporting one end of the body on the side bars, said spring being of semielliptic form and may consist of one or more plates.

For suspending the springs at the ends from the side bars or other supports said springs

are formed with an elongated eye *d* at each end, by which they are suspended on a pin or bolt *e*, carried in a forked hanger *f*, suspended by a clip *g* from the side bar *A*, the purpose of the elongated eye being to allow the longitudinal play of the ends of the spring, due to its flexure. In practice the bolt or pin *e* will have a sleeve of brass or other alloy for wearing-surface and for renewal by new ones when worn slack, or the eye may be bushed at *d'*; but this is not new and is not claimed by me.

For mounting the body on the spring by connections located intermediately of the middle and the ends of the spring, respectively, so that the intermediate portion may vibrate to soften the action and relieve the portions of the spring between said intermediate connections and its ends, I provide two metal cleats, as *g'*, each having an elongated eye *h*, similar to the elongated eyes of the spring, and attach said cleats to the bottom of the body at suitable intervals apart in the line of the spring, and in each eye I connect a clamp, consisting of eyebolts *j* and two clamp-plates *k* with a bolt or pin *l* inserted through the eye of a cleat and the eyes of the bolts, said clamps being secured on the spring and in the proper positions by the nuts *m*, screwed on bolts *j* and firmly securing the spring in the clamps. If desired, the spring and the plates of the clamp may be further secured against movement of one relatively to the other by indentations or protuberances, as indicated at *n*; but this device may be employed or not, at will. The elongated eyes *h* of the cleats *g'* allow the clamps free play in the lengthwise direction of the spring, due to the flexure of the spring between the said intermediate connections. The pins or bolts *l* may also be covered with sleeves of composition or alloy for wear and for renewal, if desired.

In Fig. 9 I represent auxiliary bearing-pieces *p* attached to the body above the spring suitably to have contact with the spring only when with heavy loads and excessive thrusts the body is unduly depressed, and thus to deliver the stresses or portions thereof nearer to the supports of the springs at the ends, whereby the liability of breaking is diminished. These bearings are to be used or not, at will. These bearings are elongated and

suitably curved to graduate the contact from points q , where it first occurs outward, in a manner to lessen the shocks of contact.

My invention is also applicable in a wagon 5 having a like spring placed the other side up and supported on the bolster t or axle, with the body supported on its extremities, the clamps being inverted and supported in similar eyes h' of the axle or bolster and the 10 hangers f' being attached directly to the body, and it is obvious that side springs having end supports on the hind axle and the head-block or bolster of the front axle, respectively, may have the body mounted on them by the same 15 means, and cart-bodies also, the invention being applicable to any form of carriage in which semielliptic springs are used.

It is not intended by me to claim, broadly, springs free to move at the ends and at sup- 20 ports intermediate of the ends, but only the attaching-clamps connected to the spring intermediately of its ends and the eye-cleats connecting said clamps to the body or other part, as I have constructed them, together with 25 connections of the ends of the springs, allowing lengthwise movements of the springs, for I am aware that springs have been variously contrived to move at the ends and at supports intermediate of the ends; but I am not aware 30 that clamps attached to the springs and eye-cleats on the body or other part, as the bolster or axle, for them to move in have ever been used before in such construction, and it is on

this that I base my claim, having found it in practical use a superior construction for mov- 35 able connection of the intermediate bearing-points of the spring.

I claim—

1. The combination with the semi-elliptic spring, of two attaching clamps connected to 40 it intermediately of its ends, and its middle portion respectively, and eye cleats connecting said clamps with the body or other part for movement of the clamps lengthwise of the spring, and whereby the part of the spring 45 between said clamps is free to vibrate, said spring having connections of their ends allowing lengthwise movements of the spring, substantially as described.

2. The combination with the side bars and 50 the semi-elliptic spring having lengthwise movable support of its ends thereon, of the body supporting clamps rigidly secured to the spring intermediately of its ends and middle portion, and movable in the connections of 55 the body to the clamps whereby the portion of the spring between the clamps is free to vibrate, substantially as described.

Signed at New York city, in the county and State of New York, this 15th day of April, A. 60 D. 1895.

JOSEPH McKINSTRY.

Witnesses:

W. J. MORGAN,
S. H. MORGAN.