

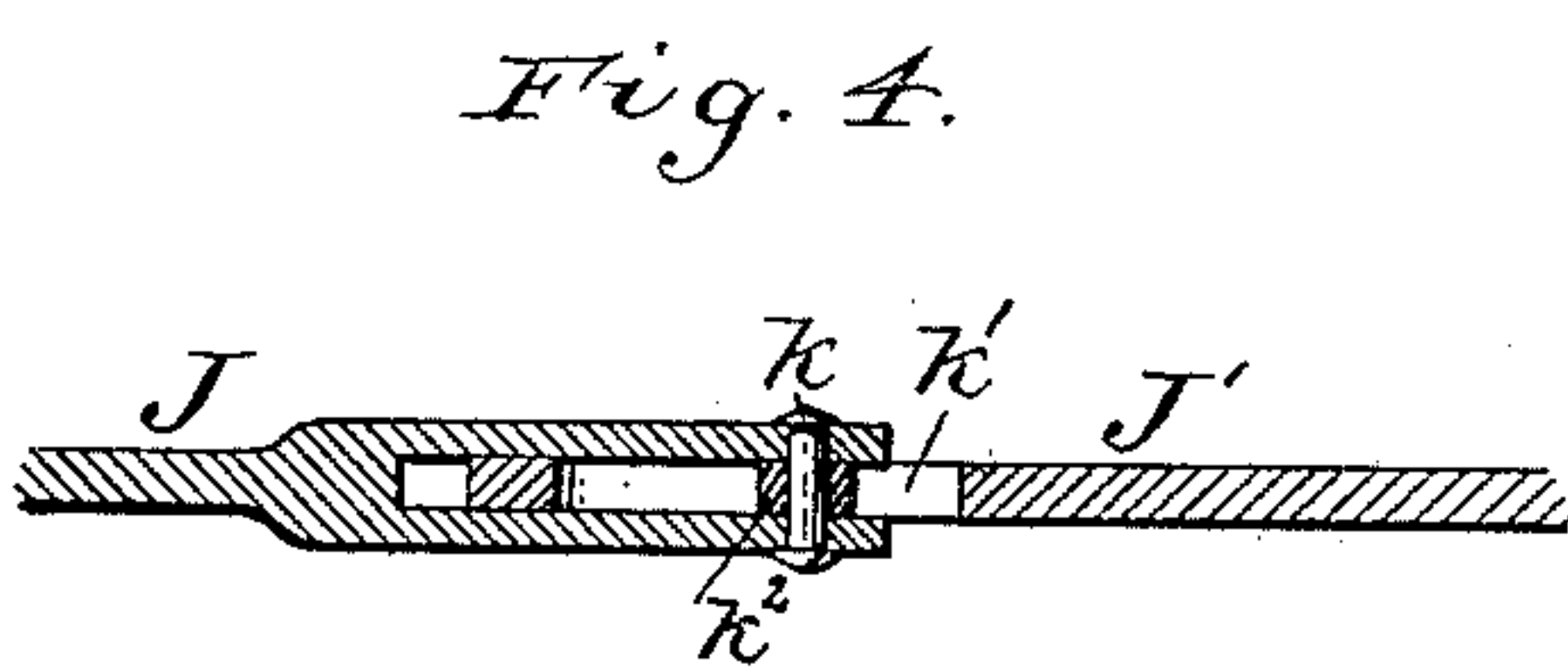
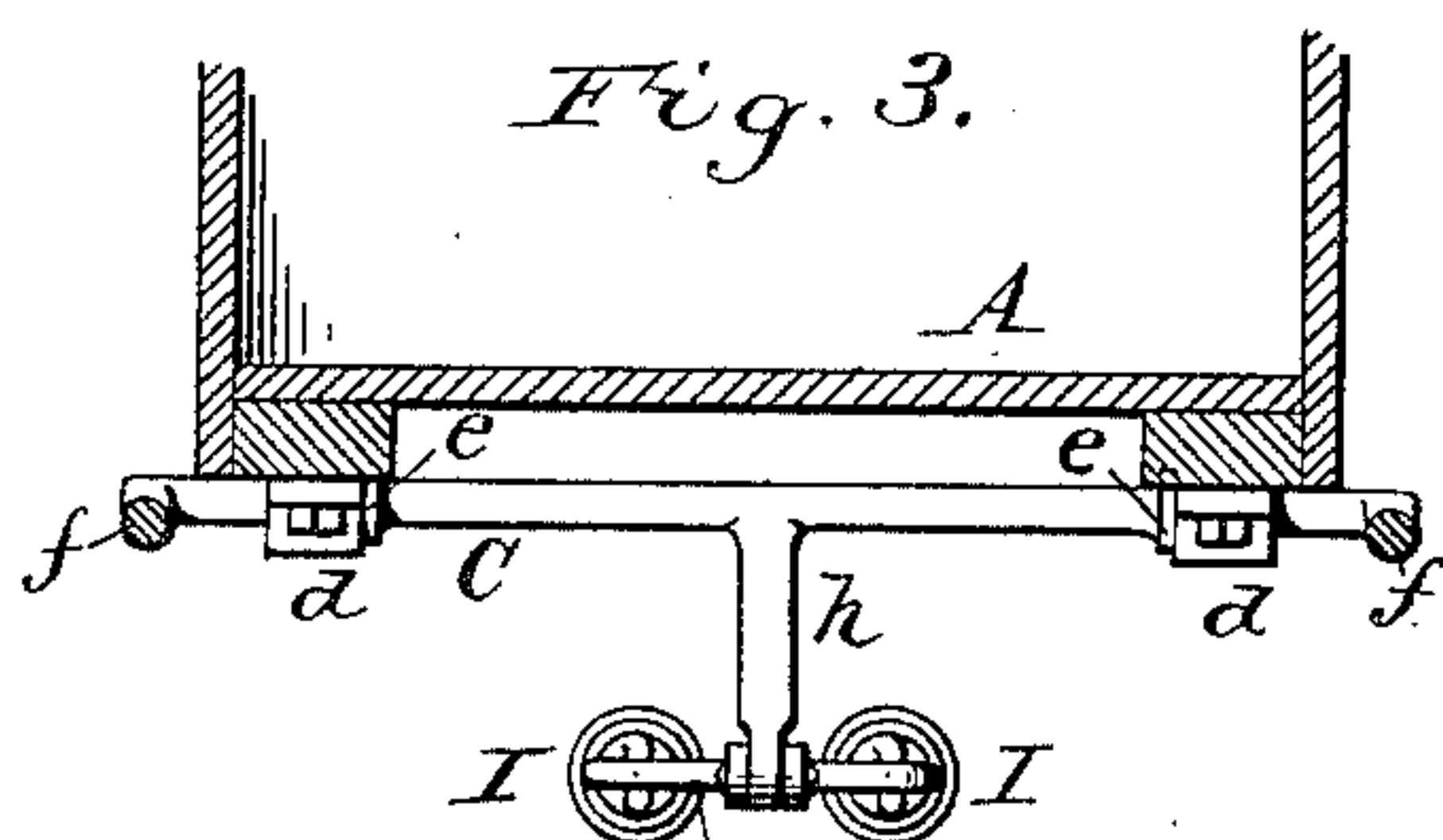
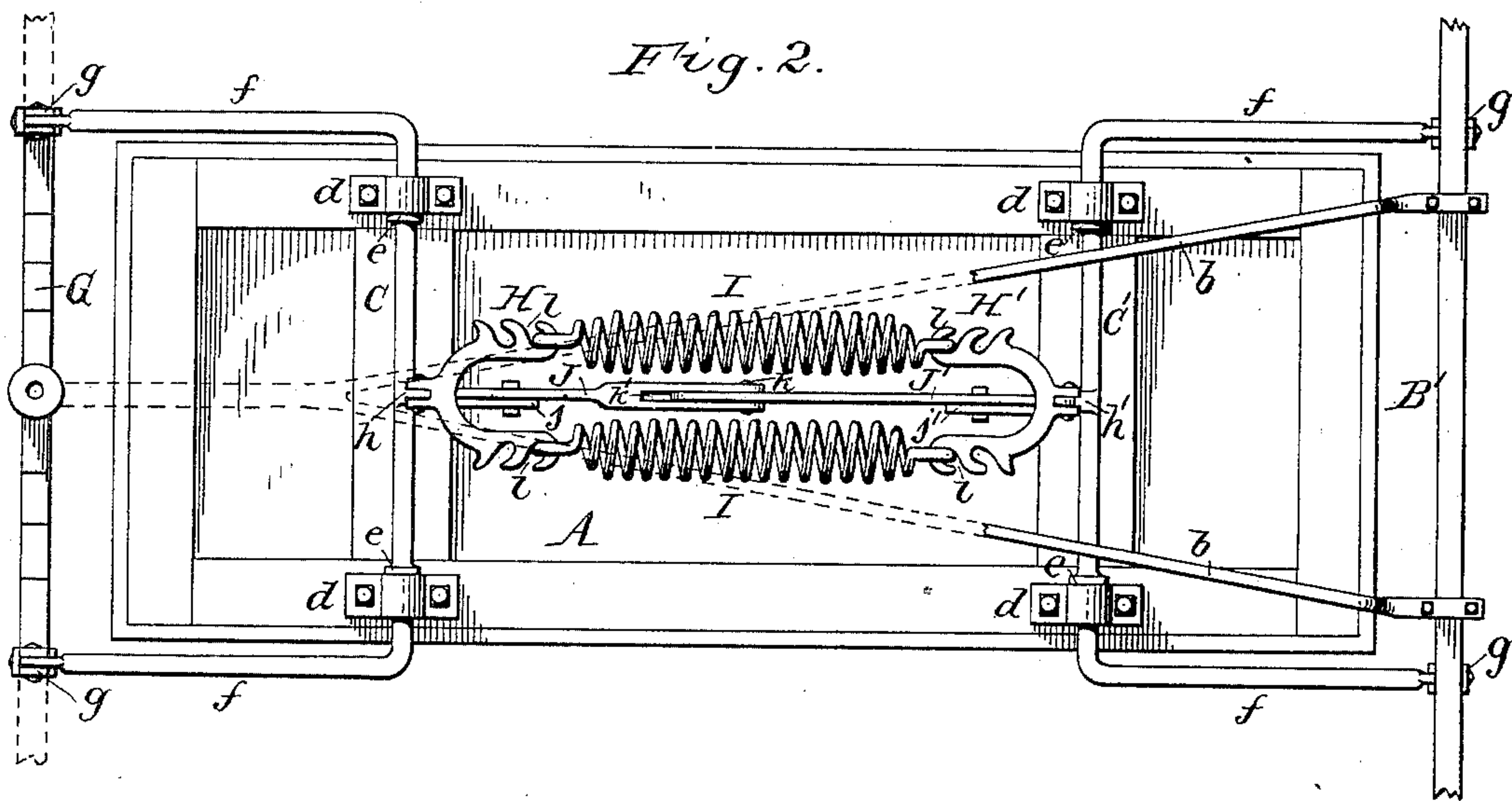
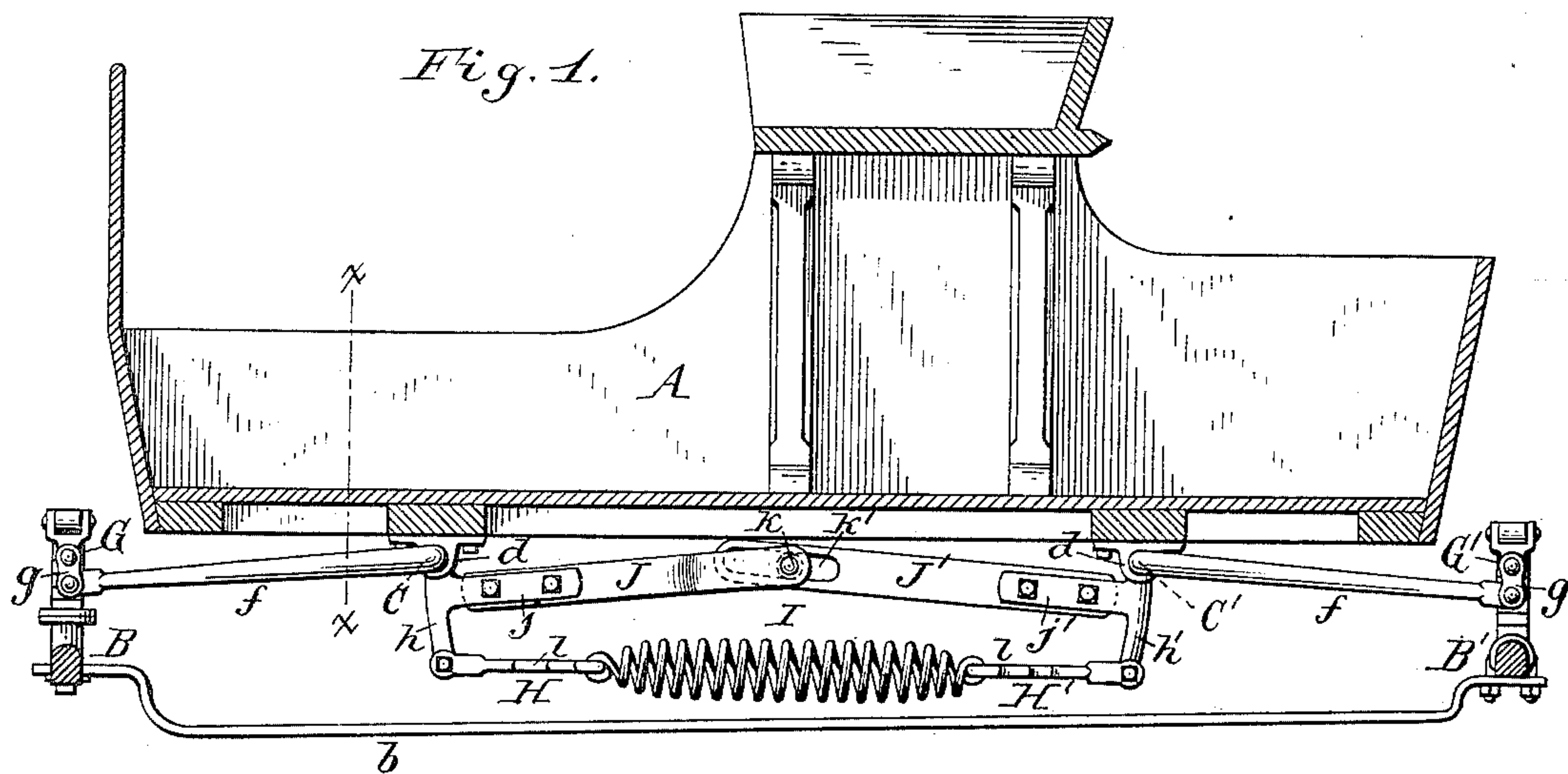
(No Model.)

E. C. DAVIS.

WAGON.

No. 399,502.

Patented Mar. 12, 1889.



Theo. L. Poppe
Geo. Buchheit Jr. } Witnesses.

E. C. Davis Inventor:
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UNITED STATES PATENT OFFICE.

ELMER C. DAVIS, OF FRIENDSHIP, NEW YORK.

WAGON.

SPECIFICATION forming part of Letters Patent No. 399,502, dated March 12, 1889.

Application filed January 28, 1888. Serial No. 262,222. (No model.)

To all whom it may concern:

Be it known that I, ELMER C. DAVIS, of Friendship, in the county of Allegany and State of New York, have invented new and useful Improvements in Wagons, of which the following is a specification.

This invention relates more particularly to improvements in road-wagons, and has for its object to provide the vehicle with simple and compact mechanism, whereby the body or box is maintained in a horizontal or level position irrespective of whether the greater part of the load be located on one side of the body or otherwise unequally distributed, thereby insuring the easy and comfortable riding of the vehicle at all times.

The invention consists of the improvements which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of my improved wagon, the wheels being removed. Fig. 2 is a bottom plan view thereof with the front axle removed. Fig. 3 is a transverse section of the wagon in line *x x*, Fig. 1, looking rearwardly. Fig. 4 is a horizontal section of the joint at the inner ends of the links connecting the horizontal supporting rods or shafts of the body.

Like letters of reference refer to like parts in the several figures.

A represents the body or box of the wagon. B is the front axle, and B' the rear axle, which are connected by a suitable reach, *b*.

C C' represent two transverse rock-shafts arranged near opposite ends of the body and upon which the latter is supported. The rock-shafts C C' are journaled in suitable bearings, *d*, secured to the under side of the body A, and are held against lateral displacement by collars *e*, formed on or secured to the rock-shafts on the inner sides of the bearings *d*. The ends of the rock-shafts C C' extend beyond the sides of the body A, and are provided with arms *f*, which are connected at their free ends to the outer ends of transverse elliptical springs G G' by pivotal connections or shackles *g*, the arms of the rock-shaft C extending forwardly toward the spring G, while the arms of the rock-shaft C' extend rearwardly toward the spring G'. The ellip-

tical springs G G' are secured to the axles B B' in any suitable manner.

H H' represent horizontal U-shaped frames or yokes pivoted, respectively, to depending arms or levers *h h'*, formed on or secured to the central portion of the rock-shafts C C', and I I are spiral springs arranged horizontally underneath the body A and attached at one end to the branches of the yoke H and at their opposite ends to the branches of the yoke H'. These spiral springs resist the outward movement of the levers *h h'*, and tend to draw the same inwardly toward each other, whereby the rock-shafts C C' are turned in a direction which causes the inner ends of their arms *f* to be raised, while the latter in turn raise the rock-shafts and hold the body in an elevated position. When the body is depressed, the arms or levers *h h'* are moved outwardly and the spiral springs I are strained.

J J' represent links or bars secured at their inner ends to inwardly-projecting arms *j j'*, formed on the depending levers *h h'*, and arranged at right angles to the latter, or nearly so. The inner ends of these links are connected together by a movable or sliding connection, consisting, preferably, of a horizontal pin, *k*, secured to the bifurcated end of one of said links and sliding in a longitudinal slot, *k'*, formed in the other link. A roller, K², is preferably mounted on the pin *k* to reduce the friction. The links J J' serve to impart the movement of one rock-shaft, C, to the other rock-shaft, C', so that when either shaft is given a partial turn by the depression or elevation of the body this movement will be transmitted to the other shaft, and the latter be turned in the opposite direction, thereby causing the inner ends of its arms *f* to descend or rise in the same measure as the arms of the first-mentioned rock-shaft. In this manner all parts of the body are compelled to rise and fall uniformly, no matter how unequally the load is distributed, thereby always maintaining the body in a horizontal position and avoiding the discomfort experienced by the sagging of vehicles as ordinarily constructed, especially when persons of different weights occupy the same seat, or when a single person sits at one end of the seat. The outer ends of the arms *f*,

being connected with the elliptical springs G G' by pivotal connections, are given the requisite forward and backward play in the rising and falling movements of the body.

5 The spiral springs I I are arranged at a sufficient distance apart to allow the links J J' to pass between them when the body is depressed.

10 The yokes or frames H H' are each provided with a series of hooks or notches, *l*, with which engage the eyes or loops formed at opposite ends of the spiral springs I I, so that the tension of the springs may be regulated in accordance with the approximate load
15 which the vehicle is required to carry by placing the eyes of the springs in one or the other set of hooks or notches. In the construction shown in the drawings the branches of each yoke are provided with three notches
20 or hooks, thus furnishing six adjustments for the springs. By this construction the springs I are distended when the body is depressed, and the strain is therefore applied to the springs in a manner most desirable for ob-
25 taining an easy and gentle motion of the body.

It is obvious that the links J J' may be mounted directly on the shafts C C'; but I prefer to construct the same as illustrated, the arms *j j'* being welded on the rock-shafts,
30 and the links being constructed of cast-iron and bolted to these arms.

My improved device accomplishes the desired object in a simple and inexpensive manner, it is compact, and none of its parts pro-
35 ject into the body of the vehicle.

I claim as my invention—

1. The combination, with the running-gear and the vehicle-body, of rock-shafts journaled to the under side of the body and having arms
40 attached to the running-gear, depending arms or levers secured to said rock-shafts, a spiral spring connected at opposite ends to said depending arms and tending to draw said arms inwardly toward each other, and connecting-
45 links secured, respectively, at their inner

ends to said rock-shafts and pivotally connected together at their outer free ends, whereby the movement of either rock-shaft is imparted to the other rock-shaft, substantially as set forth.

2. The combination, with the running-gear and the body provided with rock-shafts having arms attached to the running-gear, of depending arms or levers also mounted on said rock-shafts, yokes or frames pivoted to said
55 depending arms, spiral springs connecting said yokes, and connecting-links secured at their inner ends to said rock-shafts and united at their outer ends by a movable connection,
60 substantially as set forth.

3. The combination, with the running-gear and the body provided with rock-shafts having arms attached to the running-gear, of depending arms or levers also mounted on said rock-shafts, yokes or frames pivoted to said
65 depending arms and provided with a series of notches or hooks, spiral springs connecting said yokes, and pivoted links connecting said rock-shafts, substantially as set forth.

4. The combination, with the body and the front and rear axles, B B', having elliptical springs G G', of rock-shafts C C', pivoted to the under side of the body, and having arms
70 *f*, attached with their outer ends to said elliptical springs, depending arms or levers *h h'*,
75 mounted on said rock-shafts, yokes or frames H H', pivoted to the arms *h h'*, spiral springs I, connecting said yokes, and links J J', secured with their inner ends to said rock-shafts and united at their outer ends by a
80 connection consisting of a pin secured to one of said links and engaging in a slot formed in the other link, substantially as set forth.

Witness my hand this 17th day of January, 1888.

ELMER C. DAVIS.

Witnesses:

C. J. RICE,
FRED N. RICE.