

2 Sheets—Sheet 1.

No. 397,295.

Patented Feb. 5, 1889.

Fig. 1.

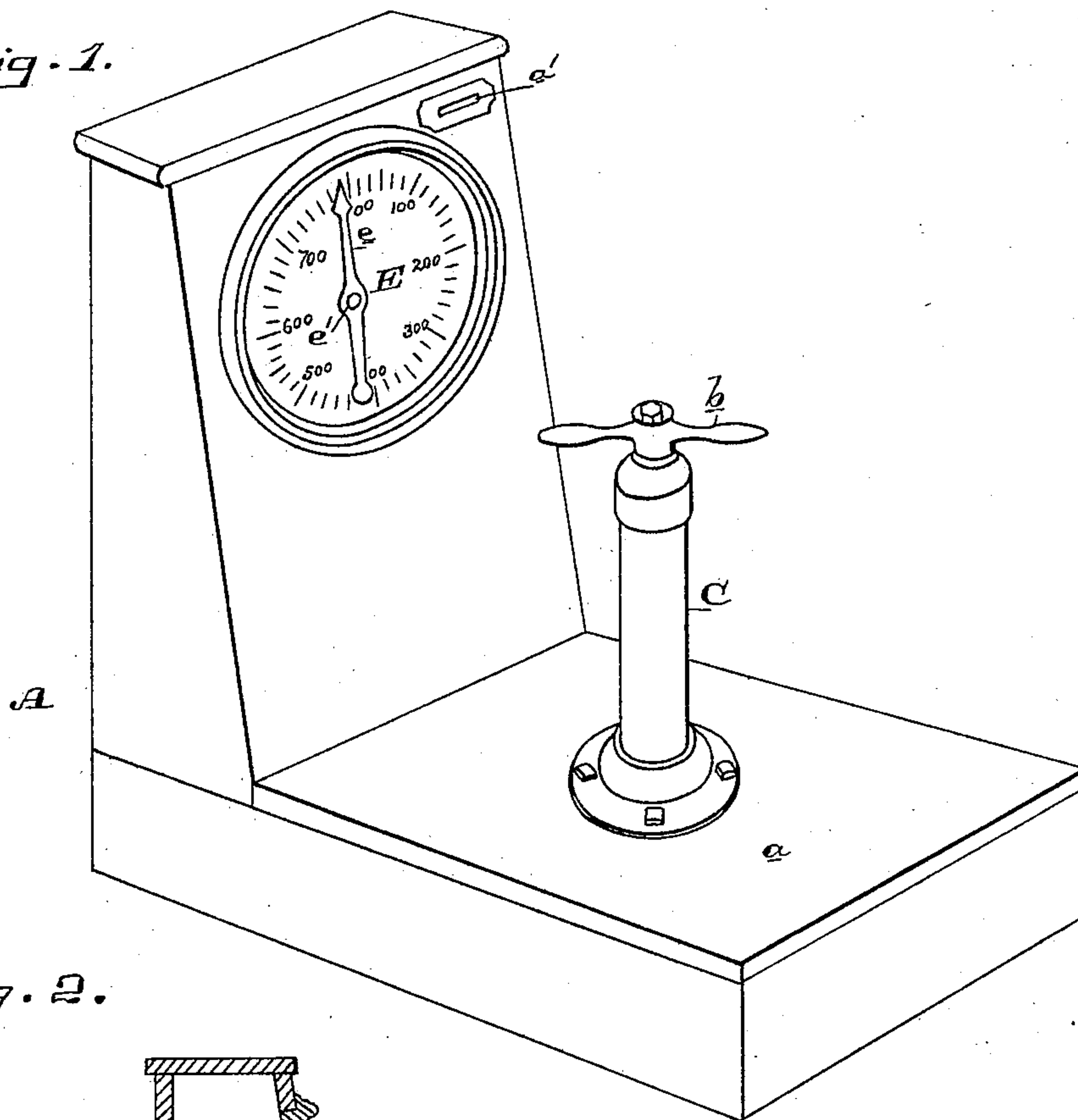
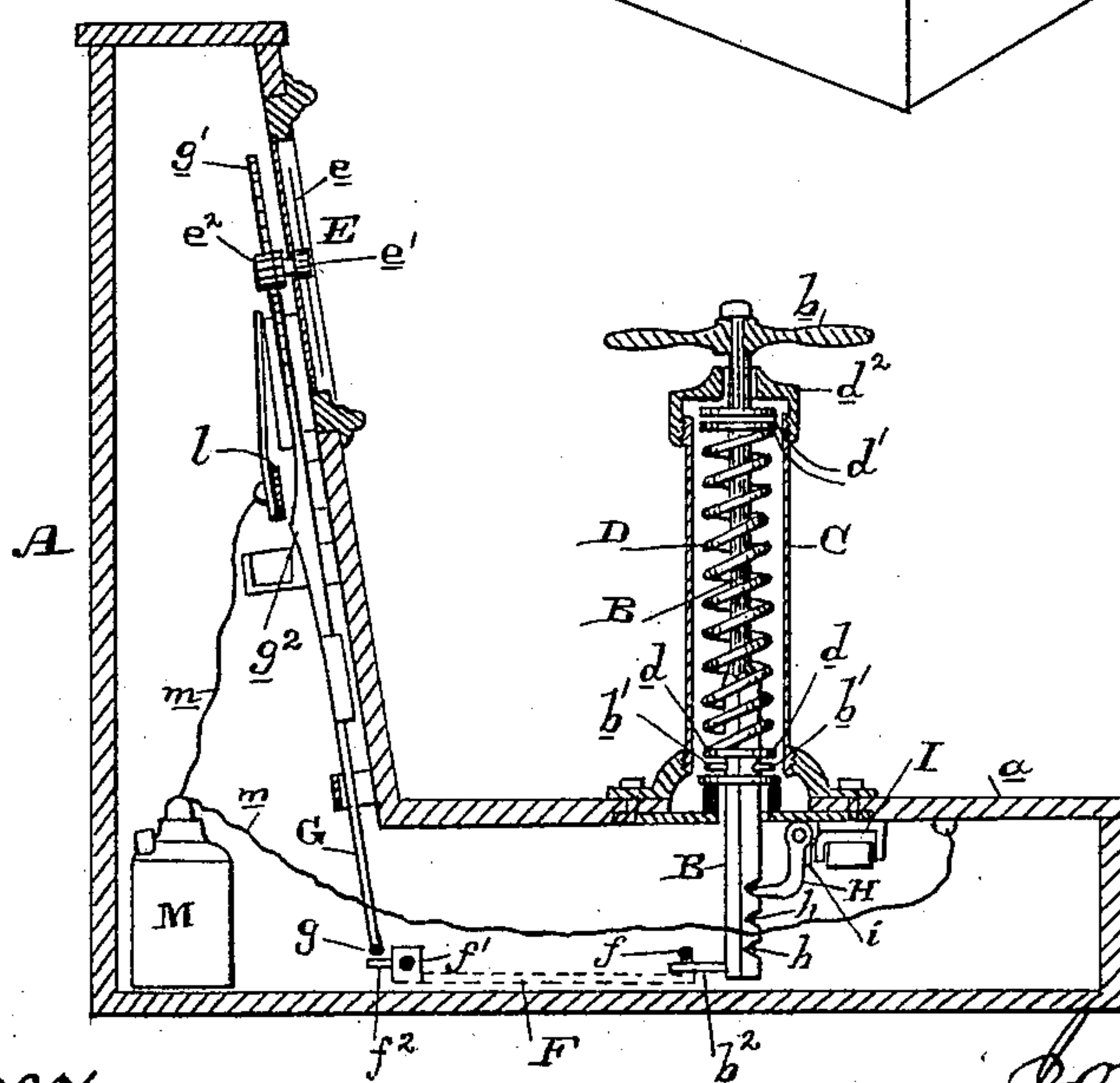


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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COIN CONTROLLED LIFTING MACHINE.

No. 397,295.

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Fig. 3.

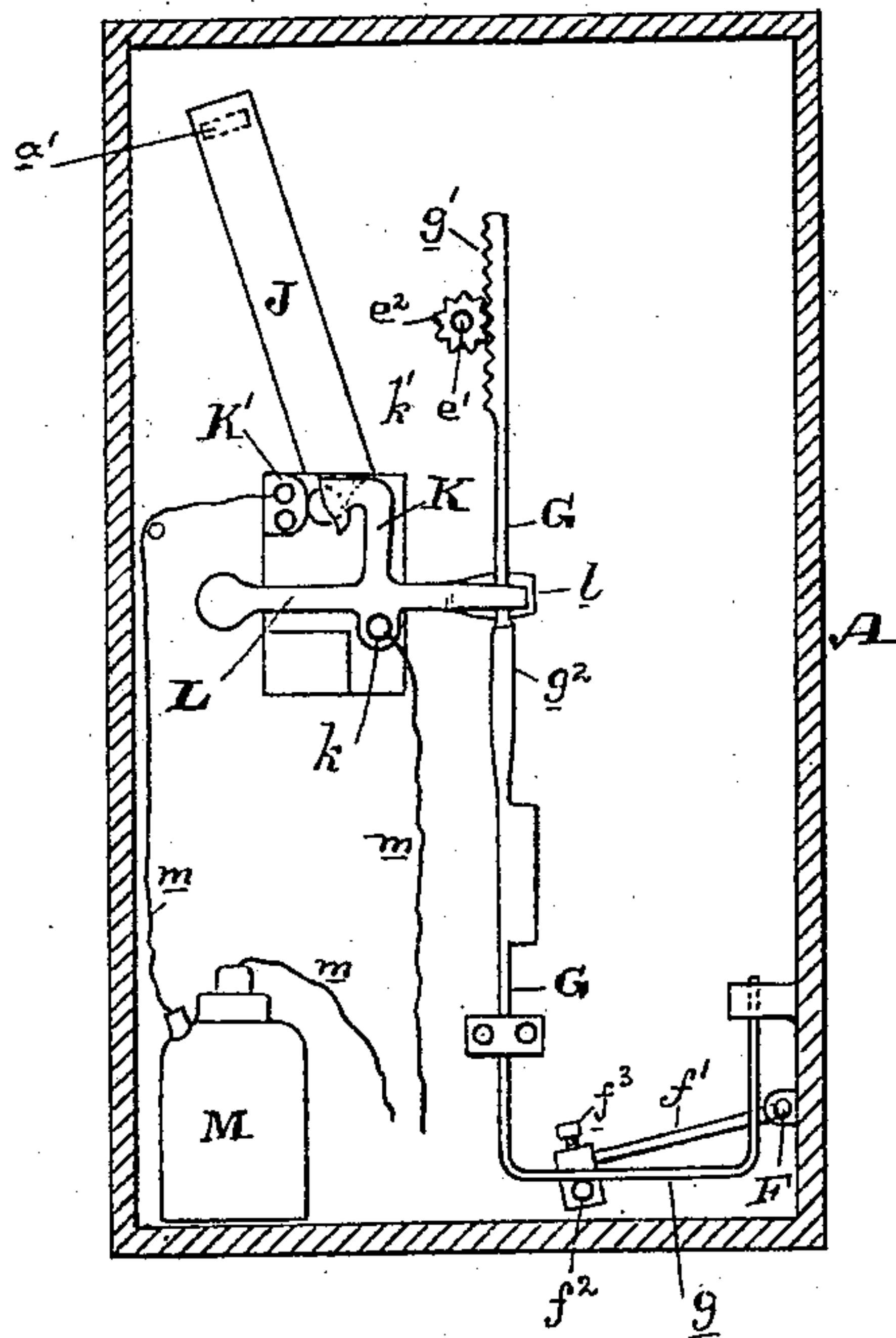


Fig. 6.

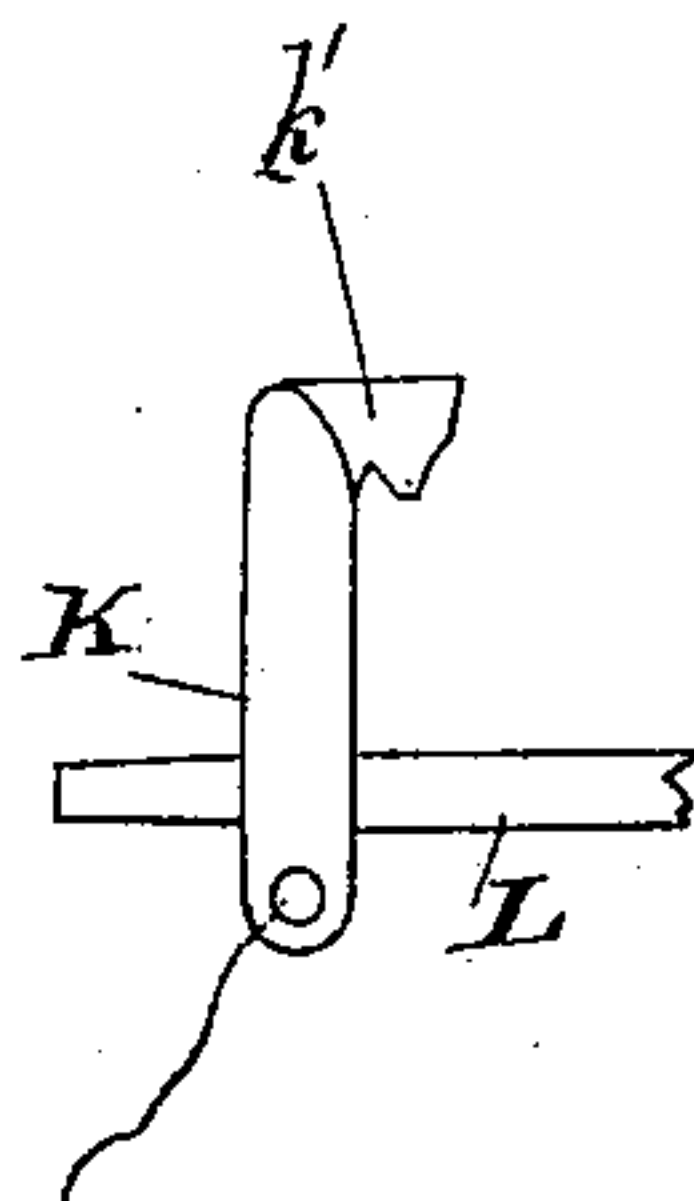


Fig. 5.

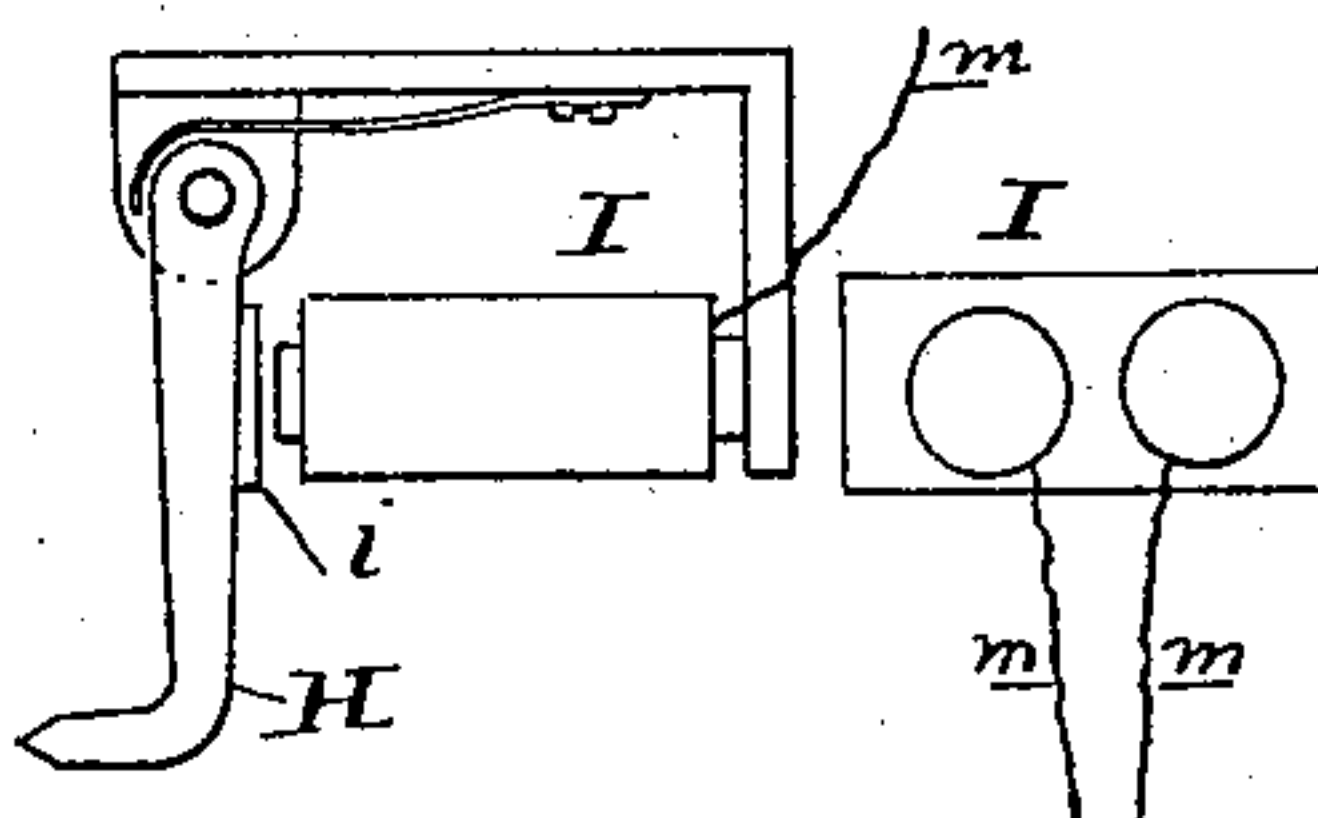
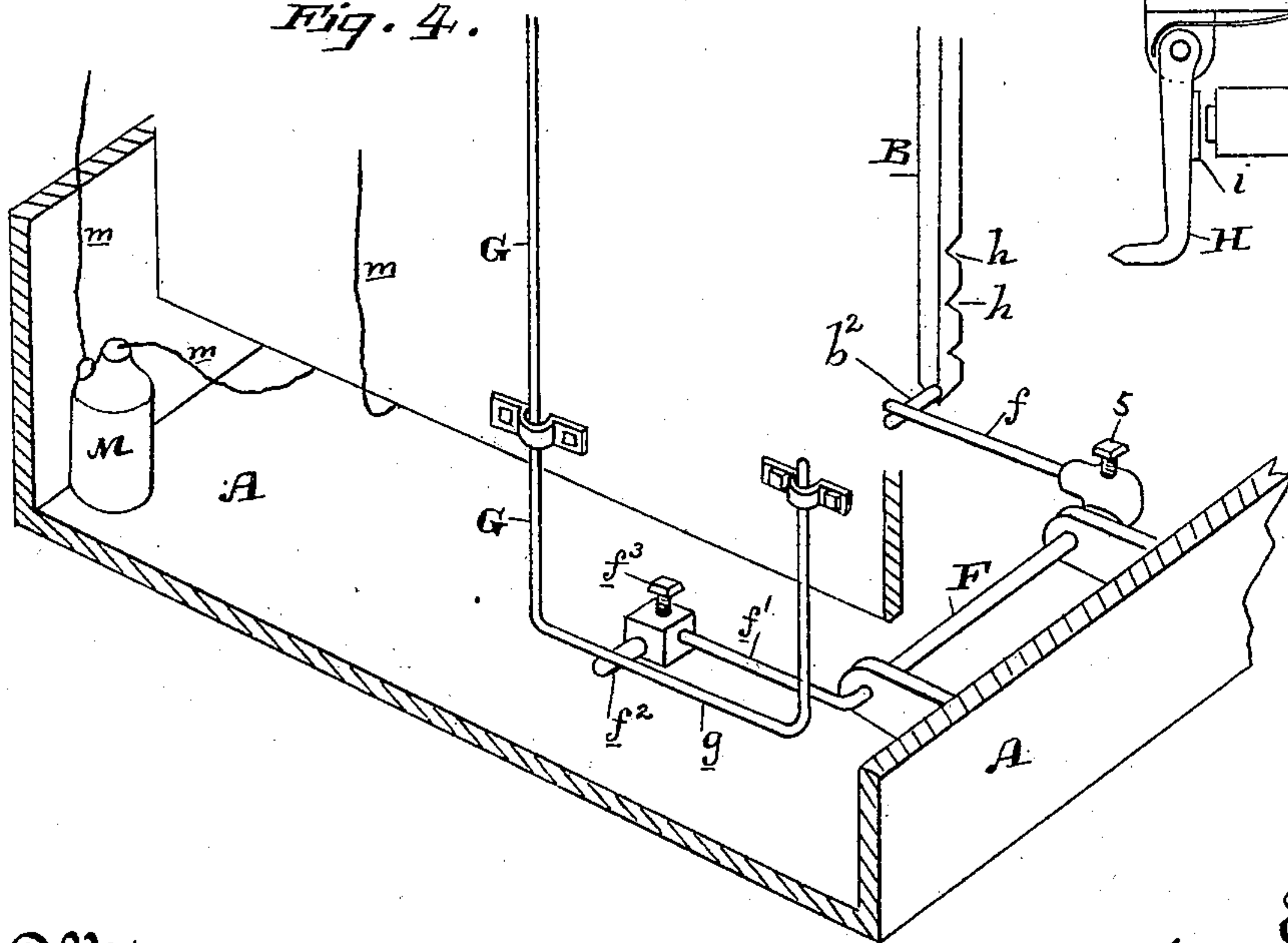


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH G. KEARNEY, OF SAN FRANCISCO, CALIFORNIA.

COIN-CONTROLLED LIFTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,295, dated February 5, 1889.

Application filed May 26, 1888. Serial No. 275,203. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH G. KEARNEY, of the city and county of San Francisco, State of California, have invented an Improvement in Coin-Controlled Lifting-Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of machines for testing the lifting powers of the operator in which the lifting force is directed against or upon a spring, the compression of which is indicated through suitable mechanism on a dial or register; and my invention consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings, Figure 1 is a perspective view of my lifting-machine. Fig. 2 is a vertical section of the same. Fig. 3 is an elevation of the parts within the back of the box. Fig. 4 is a perspective view showing the power-transmitting connections between the pull-rod and vertical rod G. Fig. 5 is a side elevation of the locking-lever H and electro-magnet and an end view of said magnet. Fig. 6 is a back view of the swinging contact K.

A is the box or case of the machine, having a platform, *a*. Passing freely through this platform is a vertical pull-rod, B, having on its top a handle, *b*. Screwed solidly into a casting on the platform is a cylinder, C, encircling the pull-rod. Within the cylinder and around the pull-rod is a spring, D, the lower end of which bears, through the intervention of washers *d*, upon a cross-pin, *b'*, in the pull-rod, and its upper end bears with suitable washers, *d'*, against the cap or head-piece *d''* of the cylinder.

From the construction as far as described it will be seen that when the operator mounts the platform and, grasping the handle *b*, pulls up on it, the lifting force is resisted by the spring, and the amount of its compression determines the movement of the pull-rod and the consequent degree of power. To indicate this power I have upon the face of the box A a dial or register, E, over which plays a pointer, *e*, the shaft *e'* of which projects through into the box and carries a pinion, *e''*. In the platform or foot portion of the box is mounted a rock-shaft, F, having connected with it by

means of a screw, 5, at one end an adjustable arm, *f*, which projects over a pin, *b''*, extending from the base of the pull-rod B. Connected or formed with the other end of the rock-shaft F is an arm, *f'*, which carries an adjustable pin, *f''*, set in place by a screw, *f'''*. This pin is under the horizontal portion or base *g* of a vertical rod, G, the upper end of which is provided or formed with a rack, *g'*, which engages the pinion *e''* of the pointer *e*. When the pull-rod is lifted, it rocks the shaft F, and thus, through the rod G, moves the pointer over the register.

Now, in order to render the machine normally inoperative, I lock the pull-rod, as follows: The lower end of the pull-rod is formed with notches *h*, into which the locking-lever H, which carries the armature *i* of the electro-magnet I, falls, thereby holding the pull-rod and preventing it from being lifted. To temporarily relieve it, I have the following mechanism and devices: In the face or front of the box A is made an opening, *a'*, for the passage of a coin—say a nickel. From the back of this opening leads downwardly a guide-chute, J, which opens out and directs the nickel between the two contacts K and K' of an electric circuit. The contact K' is a fixed metal plate; but the contact K is a swinging one pivoted at *k*. The upper end or head of this contact is cut out or grooved at *k'* on its inner surface, so as to form with the opposing contact, K', a guide or passage for the nickel, this passage being of a width enough less than the diameter of the coin to hold it temporarily, and said coin thus forms an electrical connection or conductor between the two contacts. The pivoted contact is held normally in this position by a weighted lever, L, which is attached to it. One end of this lever extends over to one side of the vertical rod G, and has a spring, *l*, which presses upon the other side of the rod. The rod itself is provided with an enlargement at *g''* to insure the frictional contact of spring *l*. When the rod is down, this enlargement is below the spring, so that the lever L is free and holds the pivoted contact K in place, and this holding is only increased as the rod moves up; but as the rod moves down the contact of the spring *l* on the enlarged portion *g''* is sufficient to pull the end of the lever L down also,

which movement swings back the contact K and releases the nickel.

M is an electric battery, and *m* are the circuit-wires running to the contacts K and K' and to the electro-magnet I.

The operation of my machine is as follows: The normal position of the locking-lever H is in engagement with the notches *h* of the pull-rod B, so that said rod cannot be lifted, and the whole machine is therefore inoperative. This position of the locking-lever is unaffected by the electro-magnet, for the circuit is broken at the separated contacts K K'. The operator now mounts the platform and drops a nickel into the opening *a'*. The coin passes into the box and down through the chute J into the passage between the contacts K K', where it rests for the time being. In this position the coin completes the electric circuit, and the magnet, being energized, attracts its armature and withdraws the locking-lever H from the notches *h* of the pull-rod. The pull-rod, being now free, may be lifted, and through the mechanism described it lifts the vertical rod G, which through the rack and pinion operates the pointer, and thus the amount of the pull is registered on the dial. As soon as he lets go of the pull-rod, the vertical rod G descends of its own weight, and its enlarged portion, by frictional contact with the spring *l*, pulls down the lever L, thereby swinging back the pivoted contact K and freeing the coin, which drops down into a suitable receptacle below. The dropping of the coin from between the contacts breaks the circuit and allows the locking-lever H to return to its engagement with the pull-rod, thereby rendering the machine inoperative again. As soon as the small portion of rod G comes opposite the spring *l*, the lever L is freed and swings the contact K over again to its normal position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lifting-machine, the pull-rod and the locking-lever holding it normally inoperative, in combination with a normally-open electric circuit, separated contacts in said circuit for receiving a temporary conductor to close the circuit, one of said contacts being pivoted, an electro-magnet in the circuit for disengaging the locking-lever from the pull-rod, and the mechanism for relieving the temporary conductor to open the circuit again, consisting of a weighted lever on the pivoted contact, said lever having a spring, and the vertically-movable rod G, operated by the pull-rod and hav-

ing an enlarged portion for binding on the spring of the weighted lever, thereby swinging the pivoted contact, substantially as herein described.

2. In a lifting-machine, the box or casing having a platform, the dial or register on the face of the box and the pointer moving over it, and the spring-resisted pull-rod B, in combination with the mechanism for transmitting the movement of the pull-rod to the pointer, consisting of the pin on the base of the pull-rod, the rock-shaft F, having the end arms, the vertically-movable rod G, having a rack on its upper end, and the pinion, substantially as herein described.

3. In a lifting-machine, the box or casing having a platform, the dial or register on the face of the box and the pointer moving over it, and the spring-resisted pull-rod B, in combination with the mechanism for transmitting the movement of the pull-rod to the pointer, consisting of the pin on the base of the pull-rod, the rock-shaft having the adjustable arm over the pin and the arm on its other end provided with an adjustable pin, the vertically-movable rod G over the adjustable pin and having a rack on its upper end, and the pinion on the pointer-shaft, substantially as herein described.

4. In a lifting-machine, the spring-resisted pull-rod having a pin in its lower end, the dial or register having a pointer moving over it, and the mechanism for operating the pointer, consisting of the rock-shaft having end arms and operated by the pin of the pull-rod, the vertically-movable rod G, operated by the rock-shaft and having a rack on its upper end, and the pinion on the pointer-shaft, in combination with the locking-lever engaging the pull-rod and holding it normally inoperative, a normally-open electric circuit having a fixed contact and a pivoted contact normally separated and adapted to receive a temporary conductor to close the circuit, an electro-magnet in the circuit for releasing the locking-lever, the weighted lever on the pivoted contact, the movable rod G, having a spring, and the enlargement for swinging the pivoted contact and releasing the temporary conductor, whereby the circuit is opened again, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOSEPH G. KEARNEY.

Witnesses:

S. H. NOURSE,
H. C. LEE.