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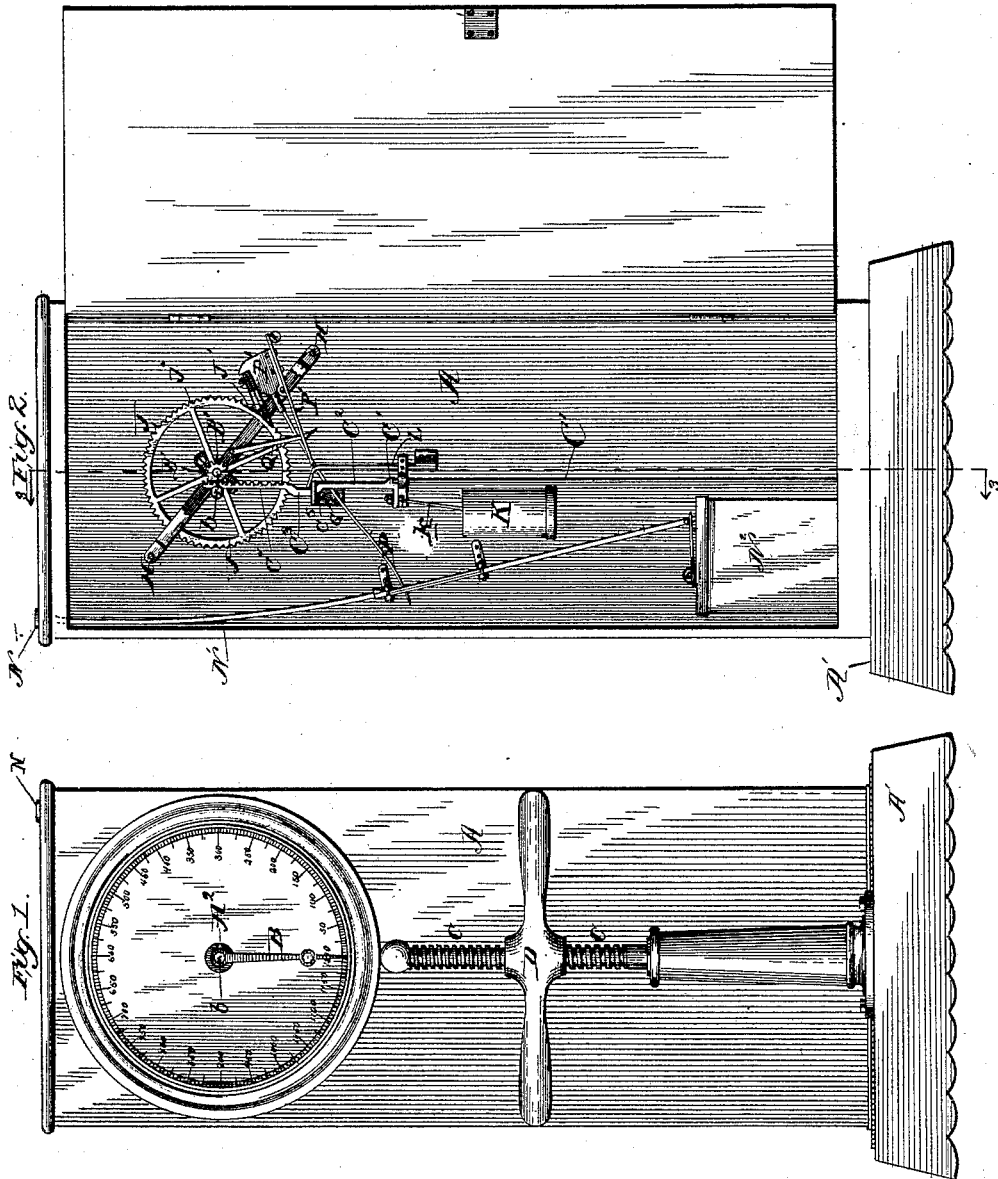
3 Sheets—Sheet 1.

L. DONNE.

COIN CONTROLLED SELF REGISTERING LIFTING MACHINE.

No. 423,035.

Patented Mar. 11, 1890.



Witnesses
Wm. R. Rhen
Wm. H. Rhen

Inventor
Leon Donne

(No Model.)

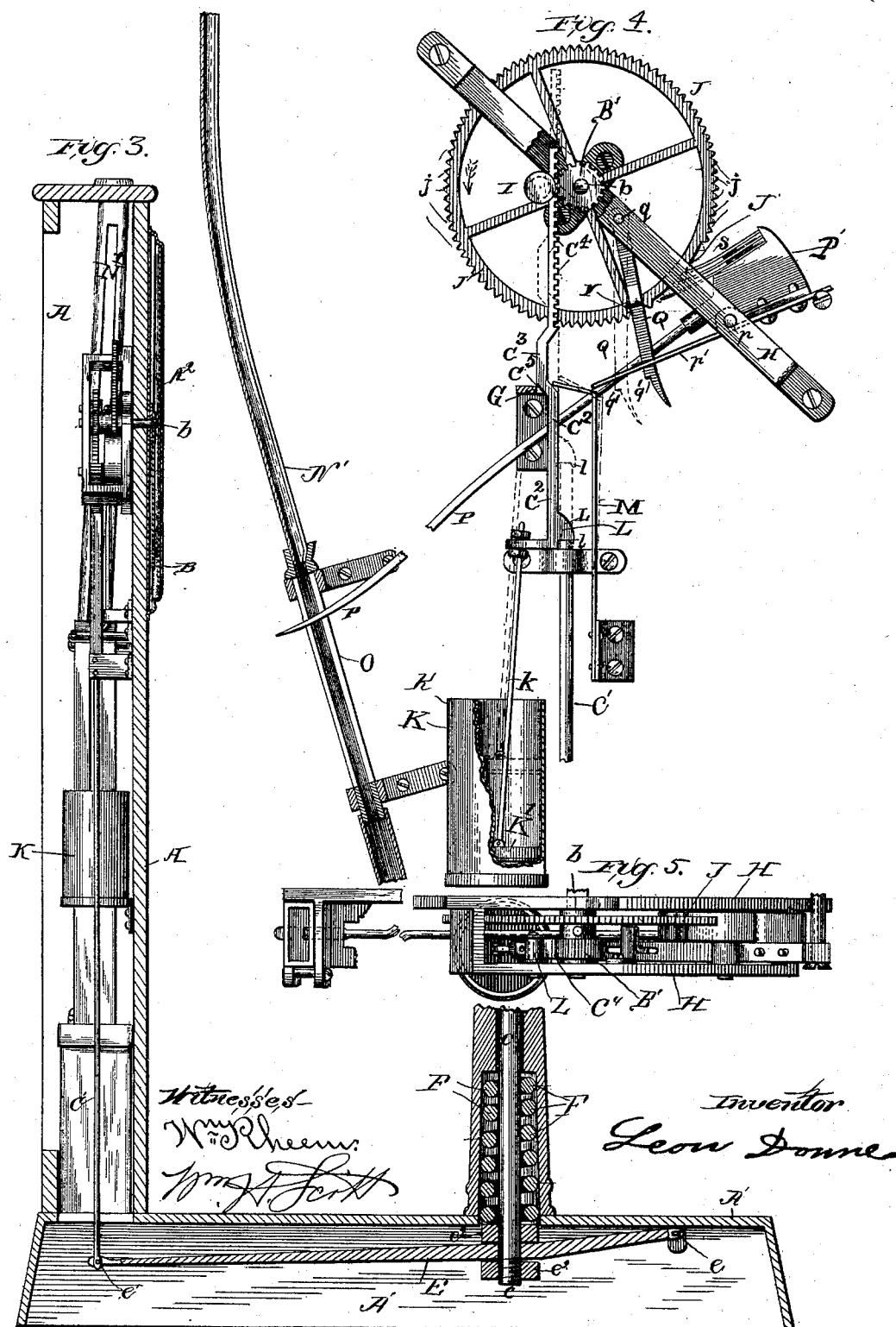
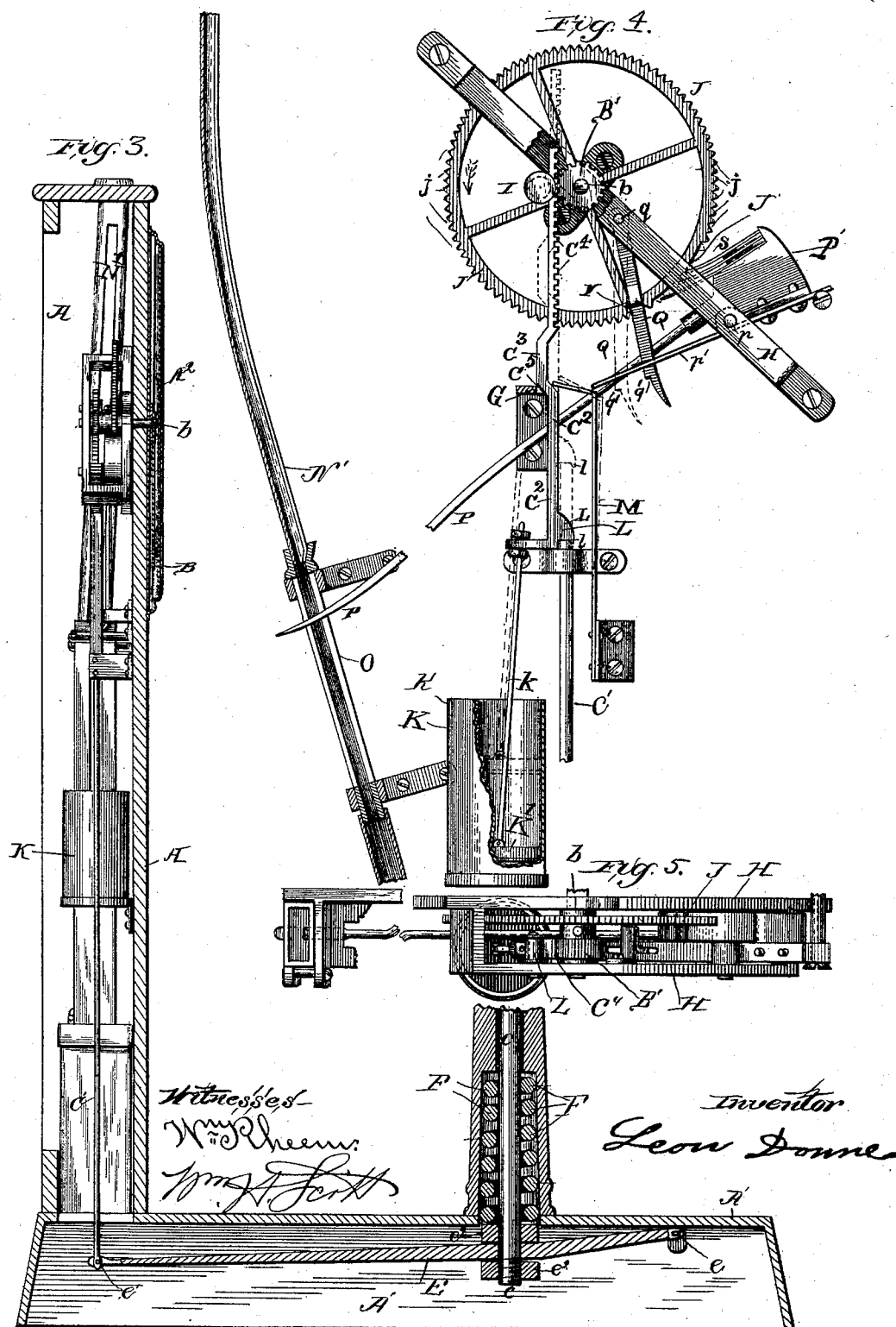
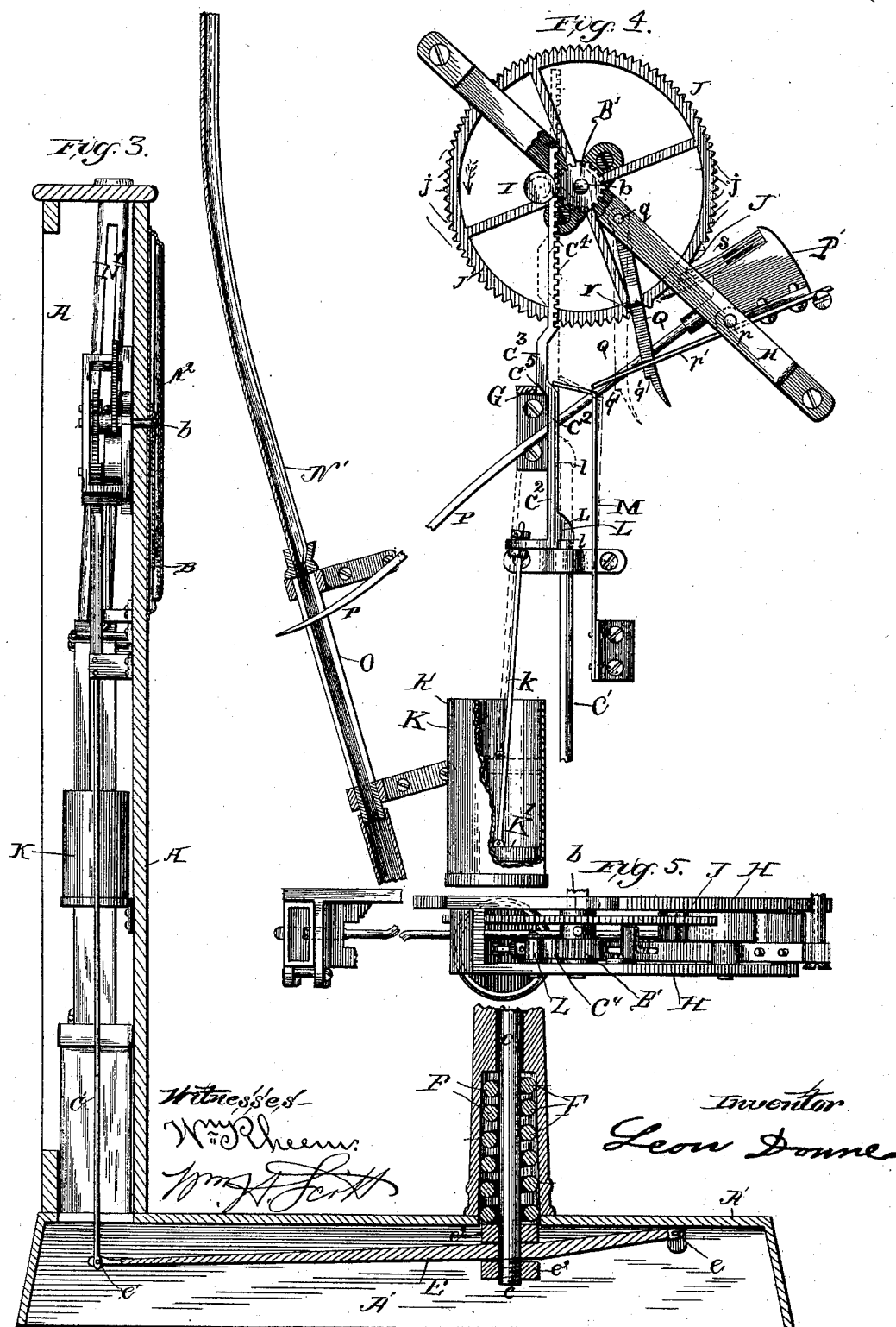
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L. DONNE.

COIN CONTROLLED SELF REGISTERING LIFTING MACHINE.

No. 423,035.

Patented Mar. 11, 1890.



Witnesses-
Wm. J. Keen.
Jm. A. Fort.

Inventor
Leon Donne

(No Model.)

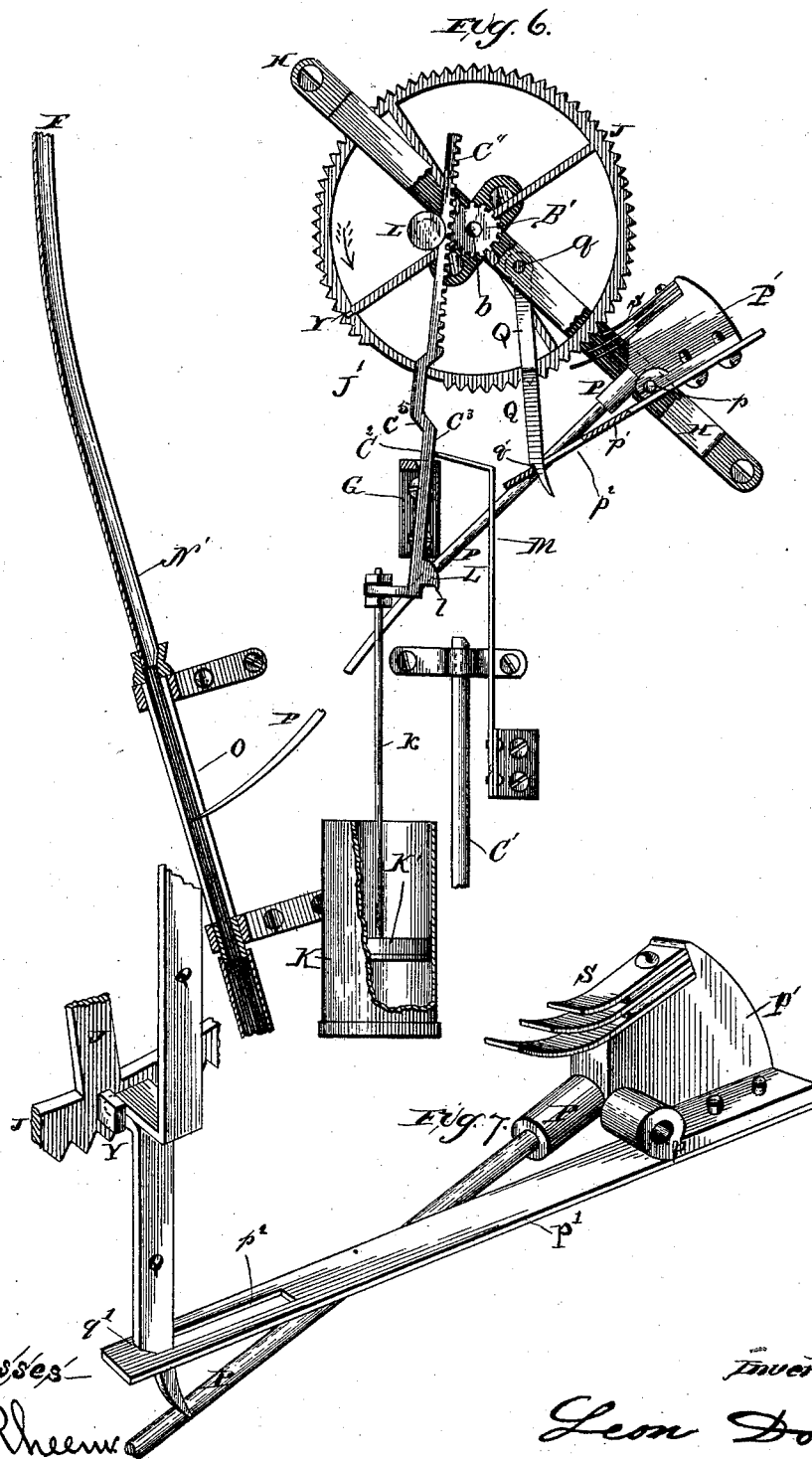
3 Sheets—Sheet 3.

L. DONNE.

COIN CONTROLLED SELF REGISTERING LIFTING MACHINE.

No. 423,035.

Patented Mar. 11, 1890.



Witnesses
Wm. R. Heine
J. H. Felt.

Inventor
Leon Donne

UNITED STATES PATENT OFFICE.

LEON DONNE, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED SELF-REGISTERING LIFTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 423,035, dated March 11, 1890.

Application filed December 11, 1889. Serial No. 333,304. (No model.)

To all whom it may concern:

Be it known that I, LEON DONNE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented certain new and useful Improvements in Coin-Controlled Self-Registering Lifting-Machines, of which the following is a specification.

My invention relates to that class of machines which are provided with a lock or releasing mechanism holding the machine in an inoperative or non-registering condition, and such locking or releasing mechanism being constructed so as to be actuated or released when a coin of a determined denomination is applied thereto by being dropped into a slot provided therefor in the case of the machine and guided from such slot through a suitable way or track extending
20 therefrom to such locking or releasing mechanism.

The object of my invention is to obtain a lifting-machine provided with adjustable handles in the manner in which lifting-machines are ordinarily provided with adjustable handles, the handles being arranged so that by applying a lifting force thereto they may be released against the elasticity of a spring; to obtain a lifting-machine provided
30 with a dial having graduated marks thereon and an indicating-hand concentric with such dial and adapted to be rotated by the upward movement of the handles of the machine, such hand thereby forming a register of the force exerted in the lifting of the handles against the pressure of the spring; to obtain a lifting-machine having handles, as stated, and a dial with an indicating-hand actuated in front of such dial by the movement of the handles, as described, in which, after such hand has been so actuated by the movement of the handles, the hand will not return to its initial position, as at zero, on the dial, but will remain stationary and continue to indicate or
45 register the lift last made upon the handles; to obtain a lifting-machine in which the registering-hand shall remain stationary, as set forth, and in which the mechanism forming the connecting parts between the moving
50 handles and the moved register-hand shall be

carried away from contact with the moving handles or the parts constantly connected thereto, so that after any given register is made by such registering-hand and while such register remains indicated upon the dial of the machine any and all movements of the lifting-handles will not affect to increase or to release the register already made upon the dial, and until such registering-hand has been returned to the zero-mark upon the dial no further or other register can be made thereby; and, further, to obtain a lifting-machine having a locking and releasing device connected therewith and forming a part thereof, such locking and releasing device adapted to be operated by a coin being brought in contact with the moving parts thereof when such coin is dropped through a slot in the case of the lifting-machine into a guide or way extending from such slot to the locking and releasing device, whereby the registering-hand, hereinbefore referred to, is released from a registering position on the dial and by the automatic working of the mechanism connected therewith returned to a non-registering position in front of the zero-mark on the dial, and at the same time the parts connecting the registering-hand and the lifting-handles are automatically brought in contact and caused to intermesh, so that movement in the lifting-handles will produce the desired movement in the registering-hand, and thus register the lift or force exerted on the lifting-handles.

I have illustrated my invention by the drawings accompanying and forming a part hereof, in which Figure 1 is a front elevation of my device. Fig. 2 is a rear elevation of the machine with the door of the case open and with the several parts constituting the working mechanism of the machine connected, so that the movement of the lifting-handles will produce movement in the registering-hand in front of the dial of the machine. It may be here stated that this position of the several parts of the device is only obtained after a coin has been dropped through the slot of the machine into the way therefor, and the locking and releasing mechanism has been actuated by such coin and the machine

thereby unlocked and released from a registering position, and by the automatic movement of the several parts of the machine a position thereof has been assumed wherein the registering-hand will be properly actuated by the movement of the lifting-handle and the amount of the lift, if any, on such lifting-handle thereby registered. Fig. 3 is a sectional view of the case and a portion of the working parts of the machine on line 3 3 of Fig. 2, and viewed in the direction of the arrows. In this figure a side elevation of the greater portion of the mechanism of the machine is obtained. Fig. 4 is a front elevation, upon an enlarged scale, of the principal working parts embodying my invention, the mechanism being illustrated by the full lines in the same position as in Fig. 2, and by the dotted lines in the position in which they are placed immediately after the handles of the machine have been lifted and before such handles are released by the person lifting them and allowed to fall into the position illustrated in Figs. 1 and 2. Fig. 5 is a plan view of the mechanism shown in elevation in Fig. 4 and in the position in which such mechanism is illustrated by the full lines in such figure. Fig. 6 is an elevation of the several parts illustrated in Fig. 4. The vertically-moving lifting device consists of two separable parts in the form of rods C^1 C^2 , the former of which is permanently connected by a horizontal lever with the rod to which the lifting-handles of the machine are secured, and is shown in Fig. 6 as having dropped from the position thereof indicated by the dotted lines in Fig. 4 to its initial position, (indicated by the full lines in said Fig. 4.) The rod C^2 has gear-teeth on the upper end, forming a geared rack, which is lifted by the vertical lifting-rod C^1 when a register of the movement of the vertical lifting-handles is to be obtained, and is shown in Fig. 4 in the position it assumes immediately upon the dropping and consequent disengagement thereof with of the lower part of the vertical lifting device. All the several parts shown in this view, Fig. 6, with the exception of the vertical lifting-rods, are illustrated as arrested midway in their return from a registering position of the registering-hand to the initial position in which a new register can be obtained of any movement of the vertical lifting-rod. Fig. 7 is a perspective view, on a still larger scale, of a portion of the locking and releasing device of the machine, designed to illustrate the manner in which the locking and releasing device is held away from contact with the wheel locked thereby after such locking and releasing device has been unlocked, and while the registering-hand is returning to position in front of the zero-mark on the dial of the machine.

Like letters refer to like parts throughout the several views.

A is the case of the machine.

A' is the platform of the case, upon which

one desiring to lift the handles of the machine stands.

A² is the dial of the machine, which is marked with suitable graduations.

B is the registering-hand of the machine, and is adapted to move in front of the graduated marks upon the dial A².

C is a perpendicular rod, to which is secured the lifting-handle D. This lifting-handle D is adjusted on the rod C by turning it upon the screw-thread on such rod when it is desired to arrange the handle at a convenient height for the person about to use the machine.

E is a horizontal lever underneath the platform of the machine, which is actuated by the vertical movement of the rod C.

e is the fulcrum on the under side of the platform A', on which the horizontal lever E turns. Lever E is pivoted at the other end thereof by pivot e' to vertically-moving rod C' in the case of the machine.

e² e² are shoulders or collars secured rigidly to perpendicular rod C, one above and one below the horizontal rod E.

F is a coiled spring placed around perpendicular rod C. The upper end of this coiled spring F abuts against the standard in which the rod C slides, and the lower end abuts against the upper of the collars e², rigidly attached to rod C.

By an inspection of such of the several parts last lettered and described as are illustrated in Fig. 3 it will be readily seen that any upward movement of rod C will cause a synchronous upward movement in rod C', and that the upward movement of the rod C will compress the coiled spring F. These several parts or equivalents thereof are ordinarily employed in a lifting-machine having a registering-dial forming a part thereof, and with suitable connecting parts arranged so that movement of the hereinbefore-described mechanism will communicate movement to the registering-hand of the device.

In my lifting-machine, in order to obtain the purposes hereinbefore set out, such connecting parts are novel in their construction, arrangement, and manner of operation, and consist of the following parts and pieces:

C² is a vertically-moving rod, having bent portion C³ thereon, and having the geared tooth-rack C⁴ at the upper end thereof. This geared rack C⁴ intermeshes with a pinion B', and any upward or downward motion of the rod C² will produce rotary movement to the right or left in the pinion B'. Pinion B' is rigidly secured to the shaft or pivot b, and the registering-hand B is also secured thereto, and hence rotation of the pinion B' produces synchronous rotation of the registering-hand B.

G is a standard or guide against which vertically-moving rod C² abuts.

H is a frame which is rigidly secured to the case A of the machine. The shaft or pivot b loosely turns in the frame H.

I is a pivoted roller against which the ver-

tically-moving rod C^2 abuts, and by which the toothed rack C^4 is constantly held in engagement with the pinion B' .

J is a brake-wheel rigidly secured on shaft b j, j are the teeth on wheel J .

K is a cylinder, and K' is a piston connected by rod k to the lower end of vertically-moving rod C^2 .

It will be observed that vertical movement of the rod C^2 produces like vertical movement in piston or plunger K' , and also produces a rotary movement in the pinion B' , the shaft b , the registering-hand B , and the brake-wheel J , which is rigidly secured to the shaft b .

L is a lug or ear on the rod C^2 , having the overhanging lip l . This lip l overhangs the top of the vertically-moving rod C' and engages with such rod, so that when the rod C^2 rests upon the rod C' such rod C^2 is held in substantially a vertical position.

When the rod C' drops from engagement with the rod C^2 , if such rod C^2 be suspended so that the projecting portion C^3 thereof is above the standard G , the spring M , pressing against the rod C^2 , will swing the rod C^2 on the point in contact with the pinion B' and the roller I , so that the lower end thereof and the lug L thereon are moved out of the path which rod C' traverses, as illustrated in Fig. 6, and any vertical movement of rod C' while rod C^2 is in the position last described will produce no effect upon rod C^2 . Before rod C^2 can be again actuated by movement of rod C' it is necessary that this rod C^2 drop into position, whereby the ear L on the rod C^2 will rest upon the top of rod C' in the manner illustrated in Figs. 2 and 4, and the dropping of the rod C^2 is effected by the following-described mechanism:

N is a slot in the case of the machine, and N' is a chute or way extending from slot N to box N^2 .

O is a slot in the chute N' .

P is a lever pivoted at p in frame H . Lever P extends into the slot O in the way N' in such a manner that any coin passing down the way from the slot N to the box N^2 will turn lever P upon pivot p from the position in which such lever is illustrated in Figs. 2 and 4 to about the position of such lever as illustrated in Fig. 6.

p' is a bar rigidly secured to the pivoted lever P , having therein a slot p^2 .

Q is a detent in the form of a swinging arm or lever turning loosely on a pivot q in the frame H . The lower end of this swinging arm Q extends through the slot p^2 in the bar p' , and when the lever P is turned on the pivot p to a little beyond the position illustrated in Fig. 6 of the drawings the notch or catch q' at the lower and swinging end of the lever Q is a little above the upper surface of the bar p' ; and when the lower end of this swinging bar or lever Q is allowed to swing forward the catch q' serves as a stop holding the bar p' and the lever P in a retracted position. When, however, the wheel J is in the

position illustrated in Figs. 2 and 4, a stop Y on the wheel J is pressed against the swinging arm or lever Q , and such arm or lever is forced thereby to one side of the perpendicular position, (illustrated by the dotted lines in Fig. 4,) which it would naturally assume, and catch q' does not and cannot engage with bar p' . When this wheel J is in a position, as in Fig. 6, so that the stop Y is to one side of the swinging lever Q and away from contact therewith, the swinging lever will, upon the pressing down of the lever p by the coin in the way or guide N' in the manner described, fall or swing into such position that the catch q' on the lower end of the swinging lever Q will catch upon bar p' , as illustrated in Fig. 6, and will hold such lever P in substantially the position illustrated in Fig. 6 until the wheel J has revolved to the left, as illustrated by the arrow within such wheel, so that the stop Y comes in contact with the swinging arm or lever Q , forcing it to one side and into about the position illustrated in Fig. 4, thereby releasing the bar p' and lever P and allowing them to again assume the position illustrated in Figs. 2 and 4.

P' is the weighted end of the lever P , holding such lever with the end thereof in the slot O of the way N' in a raised position.

S are spring-brakes rigidly secured to the lever P , so that when the end of such lever, which end is in the slot O , is raised these spring-brakes are in contact with the teeth or notches on the periphery of the wheel J , and prevent rotation to the left in the direction indicated by the arrow in such wheel J , but permitting rotation of such wheel J in the other direction. The raising of the racked vertically-moving rod C^2 rotates the wheel J to the right, such rotation being permitted, as stated, by spring-brakes S ; but when this wheel J has been rotated any given part of a complete rotation to the right by the upward movement of rod C^2 and rod C' , and such rod C' again falls to its initial position, as when the lifting-handles are released, wheel J is held by brakes S , so that it will not return to its initial position, and rod C^2 is thereby held suspended, with the lower end thereof and the lug L thereon forced to one side of the path which vertical rod C' traverses, and the register of the lift made is thereby maintained undisturbed by any movement of the rod C' .

If it be desired to register the movement of the lifting-handles D and the lifting-rod C and the vertically-moving rod C' , that end of the lever P which is in the slot O must be depressed by a coin placed in the slot N and allowed to pass through way N' to the receptacle N^2 , in its passage forcing such end of lever P downward and releasing the spring-brakes S from contact with the periphery of the wheel J , when the combined weight of the rod C^2 and the piston K' and the connecting-rod k will rotate the wheel J to the left. Too rapid ascent or descent of the rod

C^2 is prevented by the piston K' in the cylinder K , such being the function of this piston and cylinder.

It will be observed that upon the portion J' of the periphery of the wheel J the teeth j are omitted. The purpose of this omission is to permit the wheel J to assume its initial position with certainty as the lever P gradually assumes its initial position, and as the lower end of rod C^2 is forced forward by projection C^5 thereon coming in contact with standard G , and thereby the lug or ear L brought into position in the path in which the vertical lever C' travels.

All the teeth j on brake-wheel J may be omitted, in which case spring-brake S will be replaced by a suitable friction-brake.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a coin-controlled lifting-machine, a graduated dial and indicating-hands moving in front thereof, a handle and connections between the latter and the hand, said connections constructed in parts separable the one from the other, means for separating the two parts after both have been moved to the limit of movement in one direction, and a coin-operated locking device constructed to hold the hand and connected parts in the position to which they have been advanced, while the other parts are free to move with the handle, substantially as described.

2. In an automatic lifting-machine, the combination of a rod moving synchronously with the lifting-handles of the machine, a graduated dial, a registering-hand moving in front thereof, a rod actuating the hand, a projection on this hand-actuating rod arranged so that when the hand-actuating rod is moved from its initial position the projection thereon will be automatically moved out of the path which the first-named rod traverses when moved from its initial position after such

first-named rod has passed from under the projection of the hand-actuating rod in returning to its initial position, a brake-wheel rigidly secured to the pivot of the registering-hand, and a brake in engagement with the brake-wheel, but permitting rotation thereof in an indicating position and adapted to be released from the brake-wheel, thereby permitting it to return to its initial position, substantially as described.

3. In an automatic lifting-machine, the combination of a rod moving synchronously with the lifting-handles of the machine, a graduated dial, a registering-hand moving in front thereof, a rod actuating the hand, a projection on this hand-actuating rod arranged so that when the hand-actuating rod is moved from its initial position the projection thereon will be automatically moved out of the path which the first-named rod traverses when moved from its initial position after such first-named rod has passed from under the projection of the hand-actuating rod in returning to its initial position, a brake-wheel rigidly secured to the pivot of the registering-hand, a brake in engagement with the brake-wheel, but permitting rotation thereof to an indicating position, and adapted to be released from the brake-wheel to permit it to return to its initial position when a coin is brought in engagement with the part actuating the brake, and a detent adapted to engage with the brake-lever and hold the brake off the brake-wheel while the latter is returning to its initial position and until such detent is released from engagement with the brake-lever by a projection on such brake-wheel engaging therewith as the brake-wheel resumes such initial position, substantially as described.

LEON DONNE.

Witnesses:

A. H. MORTON,
WALLACE RICE.