

No. 610,857.

Patented Sept. 13, 1898.

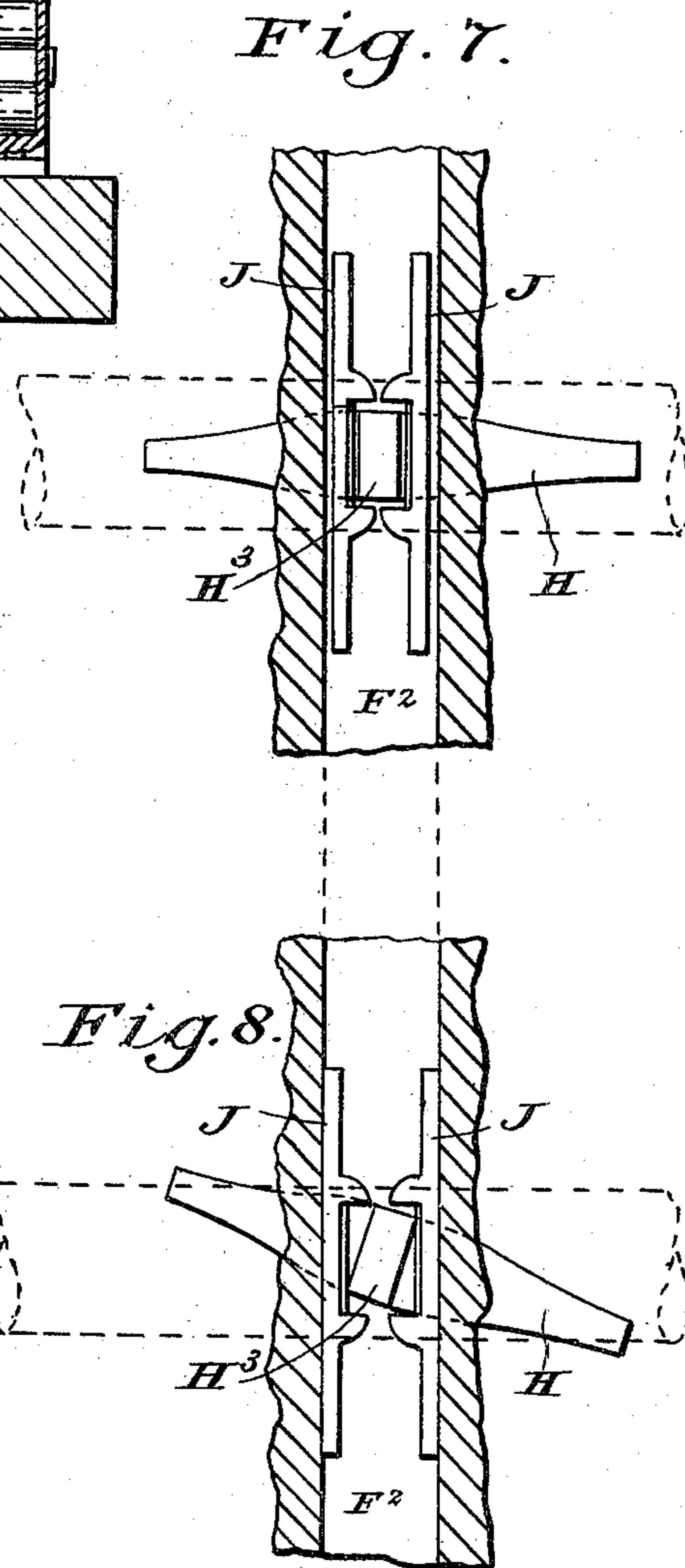
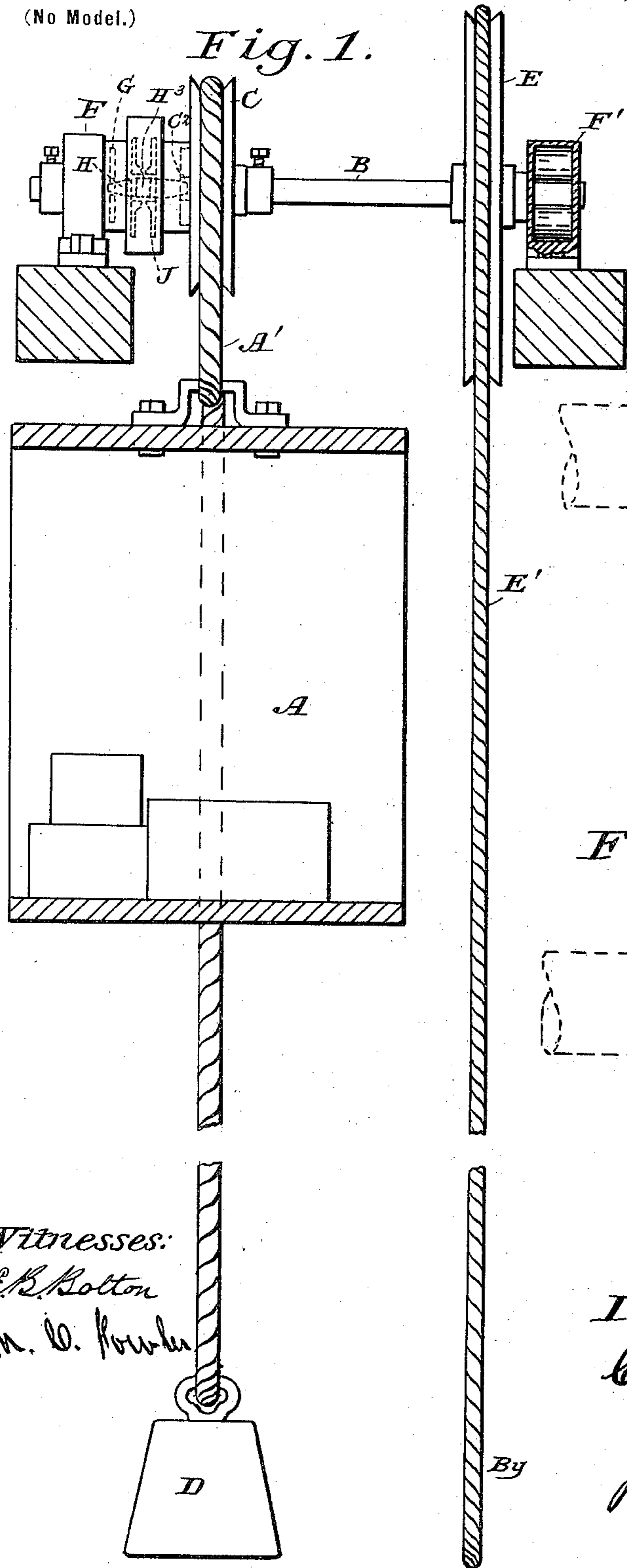
C. B. COX.

SELF LOCKING CLUTCH FOR ELEVATORS, &c.

(Application filed Dec. 31, 1896.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
E. B. Bolton
M. O. Fowler

Inventor:
C. B. Cox

J. O. Fowler, Jr.

his Attorney.

No. 610,857.

Patented Sept. 13, 1898.

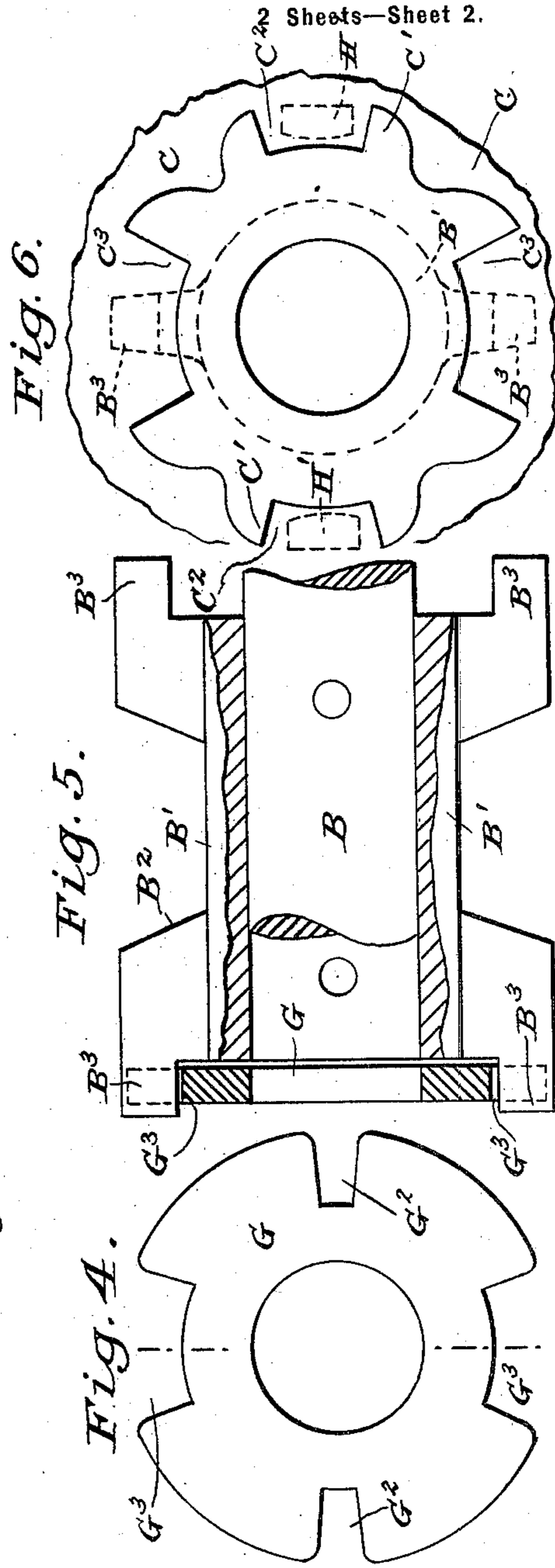
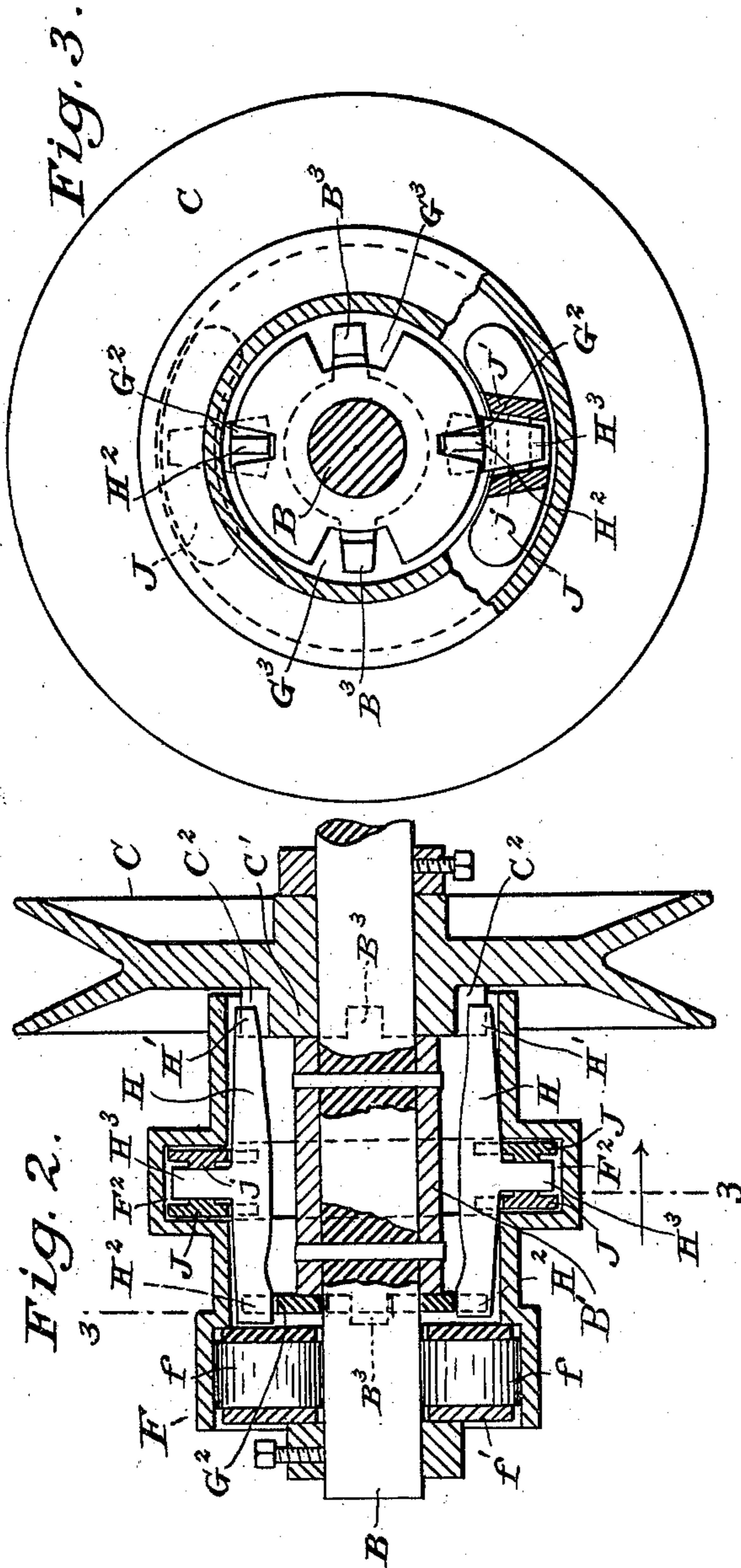
C. B. COX.

SELF LOCKING CLUTCH FOR ELEVATORS, &c.

(Application filed Dec. 31, 1896.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

E. B. Kolton

M. B. Fowler

By

Inventor:

C. B. Cox

J. O. Fowler, Jr.

his Attorney.

UNITED STATES PATENT OFFICE.

CHARLES B. COX, OF NEW YORK, N. Y.

SELF-LOCKING CLUTCH FOR ELEVATORS, &c.

SPECIFICATION forming part of Letters Patent No. 610,857, dated September 13, 1898.

Application filed December 31, 1896. Serial No. 617,678. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. COX, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented a certain new and useful Self-Locking Clutch for Elevators, &c., of which the following is a specification.

My invention relates to elevator or dumb-waiter controlling devices, and has for its object the provision of automatic grip, clutch, or holdfast mechanism simple in construction, automatic in action, inexpensive to manufacture, and efficient in practical use.

To attain the desired end, my invention consists in the construction, arrangement, and operation of parts herein set forth.

In the drawings which accompany and form a part of this specification, Figure 1 represents a side elevation, partly in section, of an elevator to which my invention is applied. Fig. 2 is a longitudinal section of my grip mechanism. Fig. 3 is a vertical section on the line 3 3, Fig. 2. Figs. 4, 5, and 6 are side views in detail of parts of my grip proper; and Figs. 7 and 8 are plan views in detail of other portions of the same, Figs. 5, 7, and 8 being partly in section.

Like letters of reference indicate like parts in all the views.

I have found it desirable to construct an automatic or self-working clutch or holdfast mechanism by means of which an elevator, dumb-waiter, &c., will be held, by means of its weight or counterweight acting upon the grip, in the position it may happen to be when the operator lets go the controlling-rope, and I have therefore constructed according to my invention an organization of the class described embodying the preferred construction of parts and their mutual relationship, combination, arrangement, and organization in a composite body or structure, as hereinafter described.

Referring particularly to the drawings, A denotes my elevator-car or dumb-waiter, and A' a hoisting-rope passing over a loose pulley C, working on the shaft B and attached to a counterweight D. The shaft B is ordinarily supported by roller-bearings inclosed in boxes F F', located at opposite ends of the shaft B and constructed as follows: *f* are a series of rollers of suitable length which work in a

groove formed in said boxes. These rollers have axles or pins, the ends of which are supported in flanges or rings *f'* at such distances from each other that the rollers will be maintained equidistant from each other and will inclose a space of the shaft B, to which they are applied. These rollers are fitted into exterior boxes F F', as stated, within which they roll in the manner usual in this class of journals.

To the shaft B are rigidly secured a pulley E, in which the controlling-rope E' works, and also a sleeve B', provided with a peripheral groove B² and with two pairs of oppositely-located lugs B³, projecting from the ends thereof parallel to the longitudinal axis of the shaft B.

The pulley C is provided with a shoulder C', in which are formed two narrow (*c*²) and two wider and deeper (*c*³) peripheral concentric recesses, into the latter of which enter the projecting lugs B³ on one end of the sleeve B'. The other pair of lugs B³ enter similar recessed portions G³ of an oscillating plate G, which also has rectangular smaller recesses G² and is loose on the shaft B.

A pair of flat horizontal double-acting levers H, normally lying in the direction of the shaft B, above and below the same, engage both the plate G and the recessed shoulder C' of the pulley C by means of the narrow and vertically-enlarged rectangular ends H² entering the recesses G², and the narrowed ends H', provided with a rounding bottom edge, entering the recesses C². The levers H are also provided with central vertical portions H³, which are somewhat tapered and which said extremities extend into an interior groove F² of the box F. Each vertical portion H³ of the levers H is inclosed within a pair of curved shoes or friction-plates J, forming a brake, each lying at right angles to the levers H, said plates J forming a brake and being provided with beveled recesses J' to fit and partly cover the said tapered parts, within which a raised narrowed working portion *j* is preferably formed to lessen the friction of the parts.

It is manifest that various omissions of some particulars could be made without materially affecting the essential features of my invention or the operation of the remaining

parts, and I do not therefore wish to be limited to the specific structural details of the organization herein set forth. Obviously the elements of the structure described may be
 5 located at an angle to the plane in which they are shown.

Upon the rope E' being raised or lowered the lugs B³ of the sleeve B', rigidly attached to the shaft B, will bear against either one
 10 side or the other of the recesses C³ and G³, and the recesses of the shoulder C' of the pulley C and plate G are so relatively disposed that when either of such movements occurs the ends H' and H² of the levers H and
 15 the engaged portions of the recesses G² C², into which they enter, will all proximately register in one plane through the longitudinal axis of the shaft B. Consequently upon the pulley C being rotated by the sleeve B'
 20 the vertical portion H³ of lever H and the shoes or friction-plates J will revolve around the shaft B within the groove F². Upon, however, letting go of the rope E' the pulley C, which is loose upon the shaft B, will be
 25 actuated either by the elevator-car A or the counterweight D, and the recesses C² will move the end H' of the lever H, thus throwing the same out of the plane of the longitudinal axis of the shaft B, and the rectangular
 30 edges or sides of the vertical portion H³ will force the shoes or friction-plates J farther apart, thus engaging the sides of the groove F² and cramping the parts, so that further movement of the pulley C is checked.
 35 Obviously this result may be accomplished by the action of the edges of the vertical portion H³ alone; but I prefer, in order to secure greater durability of the parts, to use in connection therewith the shoes J. When the
 40 elevator, &c., is started again, the hoisting-sleeve B' engages the oscillating plate G, that now, as it were, wants to go or is going in the same direction. In case there is a load on the elevator, &c., the lug B³ of the sleeve
 45 B may not engage the side of the recess in the shoulder C', but will engage the oscillating plate G, and thus straighten or bring in line with the shaft B the levers H, thereby unlocking the gripping mechanism.

50 Great durability and efficiency of action is secured by the fact that I use no springs, and my gripping mechanism *per se* is inactive, although it is automatically actuated by the main shaft of the operating-pulley and also

by the counterweight-pulley. I use the term 55 "inactive" in contradistinction to the spring-actuated gripping mechanism frequently used.

As it is evident that many changes in the construction and relative arrangement of 60 parts might be resorted to without departing from the spirit and scope of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and de- 65 scribed, but that I reserve the right to make such changes, and that

What I claim as my invention is—

1. The combination, with a shaft, of an operating-pulley, fixed on said shaft, a hoisting- 70 pulley, loose on said shaft and provided with two narrow and two wider and deeper concentric recesses, a part connected with so as to be held against rotation on said shaft, and provided with lugs, to engage one set of said 75 recesses, levers, provided with vertical portions, operatively engaging said part, and provided with narrowed rounding ends to work in the other set of recesses of said hoisting-pulley, and a brake consisting of plates, 80 provided with beveled recesses, and controlled by said levers.

2. The combination, with a shaft B, of an operating-pulley E, fixed on said shaft, a hoisting-pulley C, loose on said shaft and pro- 85 vided with a shoulder having two narrow and two wider and deeper concentric recesses C², C³, a plate G, on said shaft, and parallel with said hoisting-pulley and provided with recesses G³, and smaller recesses G², a part B', 90 connected with so as to be held against rotation on said shaft, and provided with lugs B³, adapted to engage said recesses C³, G³, levers H engaging notches C², and G², in said shoulder and plate and having vertical portions H³, 95 a stationary box F, provided with a groove F², and a brake J, adapted to engage the groove of said box and adapted to be engaged by the vertical portions H³, of said levers.

In testimony of the foregoing specification 100 I do hereby sign the same, in the city of Brooklyn, county of Kings, and State of New York, this 10th day of December, A. D. 1896.

CHARLES B. COX.

Witnesses:

J. ODELL FOWLER, Jr.,
 G. H. OLDRING.