

No. 655,108.

Patented July 31, 1900.

T. PALMER.

COIN OPERATED DEVICE FOR BICYCLE PUMPS.

(No Model.)

(Application filed Dec. 7, 1899.)

2 Sheets—Sheet 1.

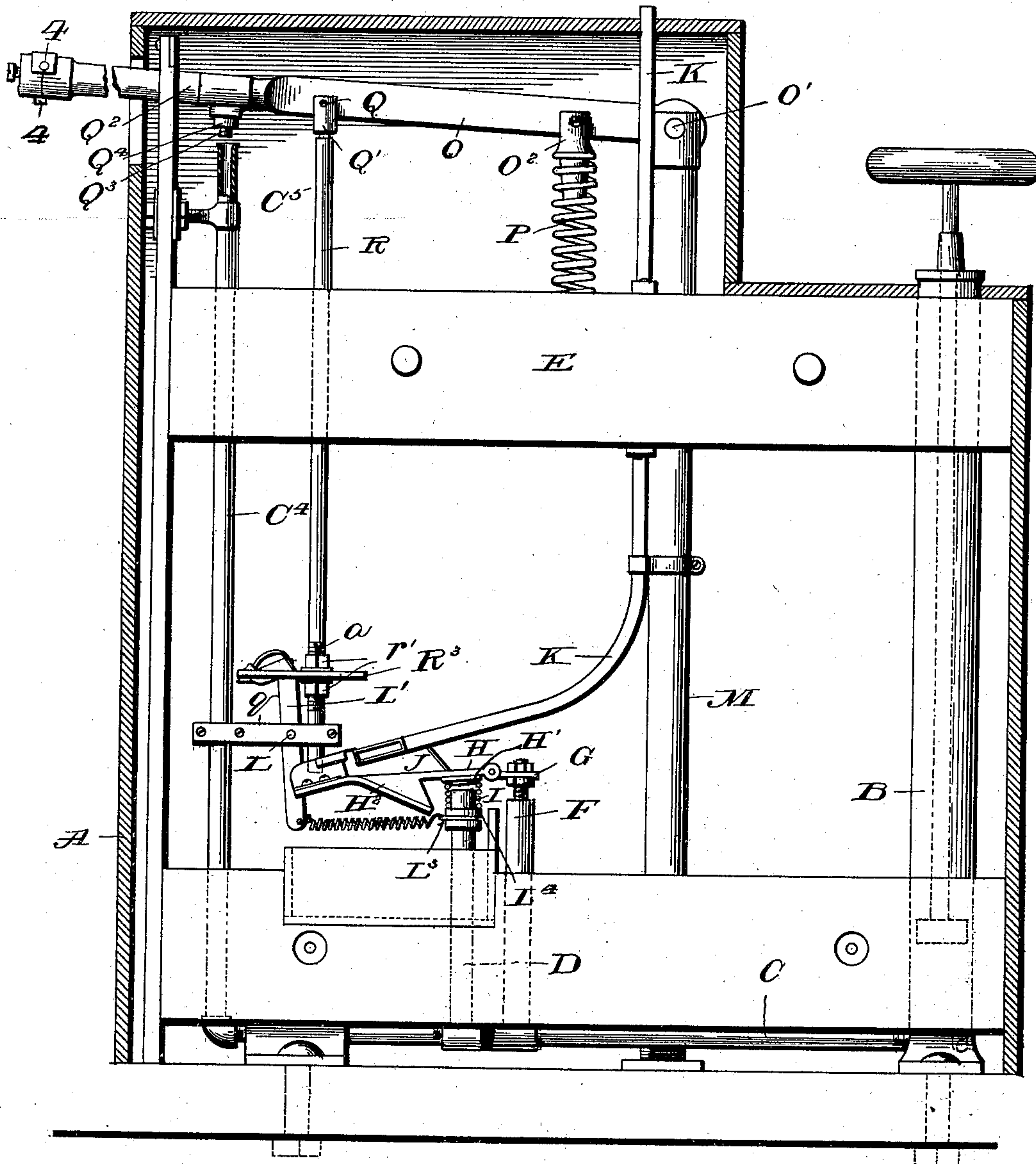


Fig. 1.

Witnesses
L. C. Hills
A. L. Hough.

Inventor
Thomas Palmer,
By Franklin H. Hough
Attorney

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Fig. 2.

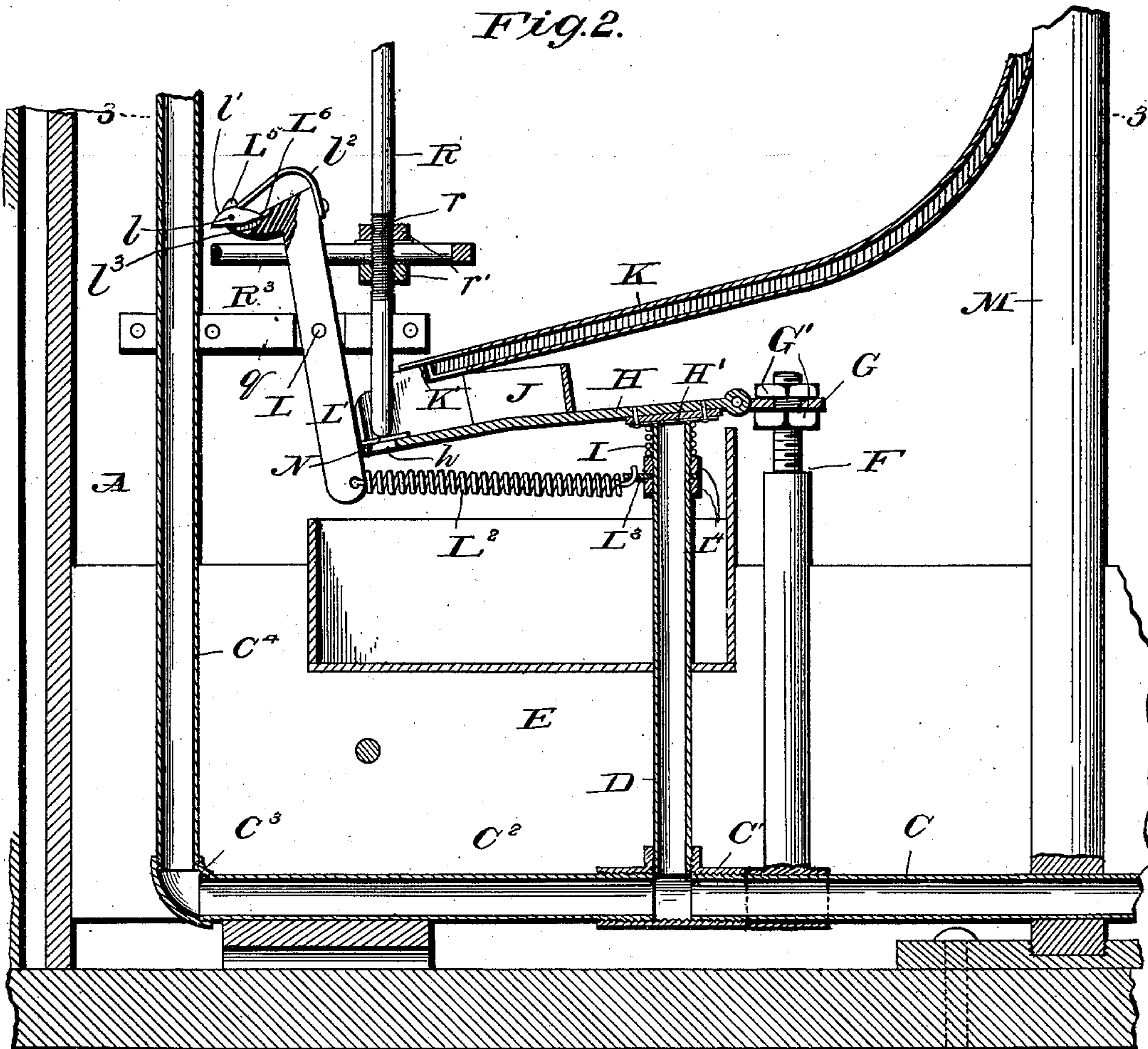


Fig. 3.

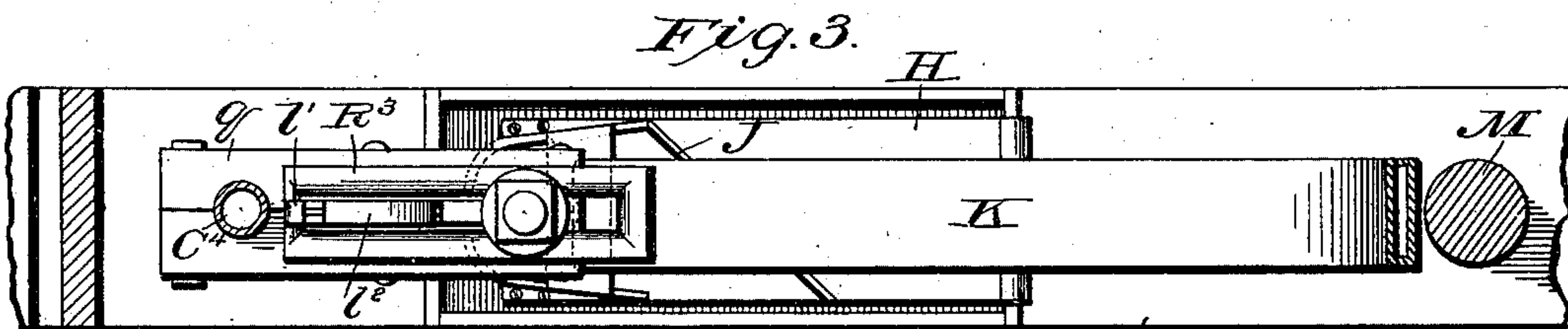
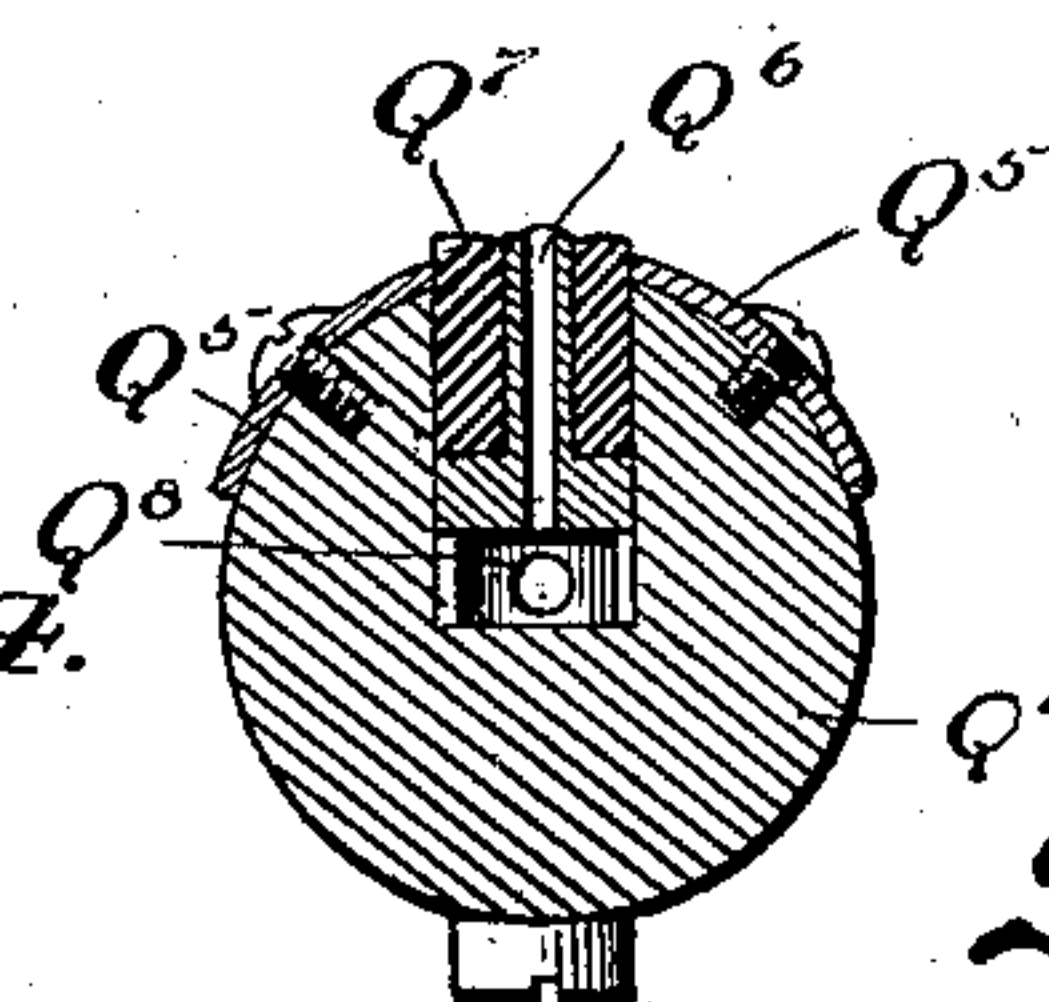


Fig. 4.



Witnesses

L. C. Hills
a. d. Hough.

Inventor
Thomas Palmer,
Q^d by Franklin H. Hong
Attorney

UNITED STATES PATENT OFFICE.

THOMAS PALMER, OF WASHINGTON, DISTRICT OF COLUMBIA.

COIN-OPERATED DEVICE FOR BICYCLE-PUMPS.

SPECIFICATION forming part of Letters Patent No. 655,108, dated July 31, 1900.

Application filed December 7, 1899. Serial No. 739,542. (No model.)

To all whom it may concern:

Be it known that I, THOMAS PALMER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Coin-Operated Devices for Bicycle-Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in slot-machines, and especially to an apparatus designed especially for use in connection with a bicycle-inflating pump, whereby it is necessary to drop a coin into the slot of the apparatus before a certain valve is allowed to close over the open end of a tube having communication with the cylinder of the pump, which causes the air to be forced through a passage-way, at the end of which connection may be made with the inflating-valve of the tire of the bicycle.

More specifically, the present invention consists in the provision of a slot-machine for use in connection with bicycle-inflating pumps in which it is necessary before the apparatus can operate to drop a coin into a slot, which coin falls by gravity to a position covering an aperture in the free end of a spring-actuated plate, which plate is designed to close over the open end of a pipe having communication with the interior of the pump-cylinder, a vertically-operating rod pivoted to the lever-pipe on which the rim of the bicycle-wheel rests while being inflated being adapted to strike against said coin and depress with it said plate.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of the parts, as will be hereinafter more fully described and then specifically defined in the appended claims.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which—

Figure 1 is a side elevation of my slot-ma-

chine for operating bicycle-pumps, the casing being shown in section. Fig. 2 is a central vertical section through the apparatus. Fig. 3 is a sectional view on line 3 3 of Fig. 2. Fig. 4 is a cross-sectional view on line 4 4 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates the casing of the apparatus, which is shown only in section in the drawings. Located in the casing is a hand-operated air-pump B, with a piston and plunger of ordinary construction. Leading from the lower end of the cylinder of the pump is a pipe C, having connected thereto a union C', to which union is connected at right angles to the pipe C a vertical pipe D, with its upper end normally open. This pipe D, as shown in Fig. 2, passes through the bottom of the box E, provided to receive the coins which have been dropped in the slot for the purpose of making it possible to use the pump. Connected to the opposite end of the union C' is a pipe C², which in turn is connected to an elbow C³, from which rises a vertical pipe C⁴, with an open upper end. For supporting the upper end of said pipe C⁴, I have shown a screw-eye C⁵, Fig. 1, which is fastened to the frame of the apparatus.

Mounted on the upper end of the post F is an apertured plate G, held by means of nuts G' to said post. Pivoted to the plate G is a second plate H, which has secured to its under surface a rubber valve H', designed when said plate H is depressed to close over the upper end of the pipe D and prevent the escape of any air through said pipe D. A spring I, bearing between the adjusting-nut L⁴ and the under surface of the valve H', serves to throw the plate H up, so that the valve H' will normally clear the upper end of the vertical pipe D, in which position the apparatus would be inoperative. On the upper surface of the plate H is a hopper J, the upper face of the plate forming the bottom of the hopper, and directly over said hopper is the outlet end of the chute K, having an opening K', through which the coin, which is dropped into the upper end of the chute, falls by gravity onto the upper surface of the plate H and into the position shown in Fig. 2, covering the aperture h, the coin being designated in said figure by letter N. One side of the hopper, which

receives the coins, is cut away and has a downwardly-disposed slide H^2 , Fig. 1 of the drawings, down which the coins slide into the receiving-box beneath.

5 Mounted pivotally at the upper end of the post M, to which the chute K is fastened, is a lever O, pivoted at O' , said lever being held normally at its highest limit by means of the spring P, Fig. 1, which bears between the
10 cross-piece of the apparatus and the lug O^2 , carried by the lever O. Pivoted to the lever O at Q is a short socket member Q' , the lower end of which is internally threaded to receive the upper end of the rod R, the lower end of
15 which passes between the plates q and normally, when depressed by the lowering of the lever O, adapted to pass through the aperture h in the plate H. Mounted on a pin L, carried between the plates q , is a lever L' ,
20 the lower end of which is connected to a spring L^2 , which spring is in turn fastened to an apertured plate L^3 , carried over the pipe D and held between the two nuts L^4 , the office of this spring L^2 being to normally hold the
25 lower end of the lever L' against the free end of the pivoted plate H or against the edge of the coin N, which may project a slight distance beyond the edge of the plate H when the rod R is forced down on the upper face
30 of said coin.

A portion of the rod R is threaded, as at r , and mounted on said threads are two adjusting-nuts r' , between which is held a plate of rectangular shape R^3 , which is longitudinally
35 slotted to receive the upper free end of the lever L' . The upper end of the lever L' is laterally bent, as at L^5 , and slotted, as at L^6 , and to the walls of said slotted portion is held a pin l , on which is mounted a dog l' ,
40 which is normally held in the position shown in Fig. 2 by means of the spring l^2 . This spring has one end secured to the upper end of the lever L' and is bent forward, with its free end bearing against the upper edge of
45 said dog at a position slightly behind its pivotal point. As the plate R^3 is depressed the under side of the latter near its outer end strikes against the upper edge of the dog near its outer end and the latter tilts idly,
50 and after the plate R^3 has passed below the dog the latter is returned to its normal or horizontal position under the action of the spring l^2 . When the plate R^3 returns to its normal or highest position, the upper edge of
55 said plate strikes against the under side of said dog near the outer end of the latter. As the dog begins to tilt its rear end on the under side will strike against the bevel surface l^3 , which will prevent the dog from further
60 tilting and cause the lever L' to tilt on its pivot sufficiently to allow the plate R^3 to pass by the outer end of the dog. The lower end of the lever carrying the dog will spring back forcibly against the edge of the coin which has
65 been previously dropped down the chute and rests over the aperture h in the end of the hopper J and kick against said coin with suffi-

cient force to knock it out of the hopper, causing said coin to slide down the inclined way and into the receiving-box beneath. 70

The outer end of the lever O is preferably rounded and has a central bore Q^8 , which terminates at a point opposite the upper end of the pipe C^4 . Leading into and communicating with the bore Q^8 at its inner end is a
75 nipple Q^3 , about which is a rubber cushion Q^4 , which abuts against the upper end of the pipe C^4 as the nipple enters the bore of said pipe. The weight of the wheel resting on the outer end of the lever O will exert a suffi-
80 cient pressure on the cushion Q^4 , so as to make an air-tight joint.

Near the outer end of the rod O and seated in a recess at right angles to the bore Q^8 , Fig. 4, is a nipple Q^6 , which is surrounded by a
85 rubber cushion Q^7 . On opposite sides of the cushion Q^7 are the curved plates Q^5 , held to the bar O by means of suitable screws, as shown, these plates being provided for the purpose of holding the upper end of said nip-
90 ple and cushion securely.

In operation a coin is first placed in the chute K. The said coin, falling by gravity, will stop in the position shown in Fig. 2, in
95 which position the coin rests over the aperture h . The rim of the wheel, the tire of which is placed over the end of the lever O, causes said lever to be depressed, and with it the rod R, which strikes against the upper surface of the coin and depresses the pivoted
100 plate H downward a sufficient distance so that the valve H' will close over the upper end of the pipe D. When the valve H' is in its seated position, the nipple Q^3 is positioned in the bore at the upper end of the pipe C^4 ,
105 and the cushion Q^4 bears air-tight against the upper end of said pipe, and the air-passage from the pump to the tire is uninterrupted. The inflating-valve of the tire is held over the nipple Q^6 before the pump is operated by
110 hand. When the tire has been inflated and the wheel removed from the end of the lever O, the spring P will cause the lever O to resume its normal position, which is at its highest throw. On the return upward move-
115 ment of the plate R^3 its outer upper edge strikes against the under side of the outer portion of the dog, and the lever L' will be caused to tilt, its lower end being thrown out a sufficient distance to allow the plate R^3 to
120 pass the dog l' , after which the spring L^2 will throw the lever L' back to its normal position, and the lower end of said lever kicking against the edge of the coin will throw the latter back in the hopper against the inclined
125 rear vertical wall of same and the coin will slide down the incline surface H^2 into the receiving-box. The plate H will, under the influence of the spring I, return to its normal position and the valve H' will be unseated. 130

In case it is attempted to inflate the tire without first dropping a coin in the chute the result will be that the lower end of the rod R will pass through the aperture h and the piv-

oted plate H will remain idle, and consequently the valve carried thereby will remain unseated. The lever L', it is true, is actuated at each depression of the rod R and kicks
5 against the end of the pivoted plate, but accomplishes no result unless a coin has been previously dropped into the chute.

It will be observed upon reference to the drawings that in order to make the piston of
10 the hand-pump operate easily I provide a valve in the lower end of the cylinder of the pump, said valve resting in a suitable cup or socket, and as the piston is raised the air is allowed to enter an aperture, which is closed
15 by the valve as the piston is pushed down.

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

1. A coin-operated apparatus for bicycle-
20 pumps comprising in combination with an air-pump, open-ended pipes communicating with the cylinder of the pump, a pivoted lever having a bore in one end, a nipple leading into said bore, adapted when said lever
25 is depressed, to communicate with one of said open-ended pipes, and means for closing the open end of the second pipe communicating with the air-pump, as said lever is depressed.

2. A coin-operated apparatus for bicycle-
30 pumps, comprising in combination with the pump, open-ended pipes communicating with the pump-cylinder, a lever pivoted to a suitable support, and having a bore in its outer end, a nipple leading into and communicating
35 with said bore, and positioned opposite the upper end of one of said open-ended pipes, a pivoted plate carrying a valve, and means for seating said valve as the lever is depressed, as set forth.

3. A coin-operated apparatus for bicycle-
40 pumps, comprising in combination with the pump, open-ended pipes communicating with the cylinder of the pump, a pivoted lever having a bore in its outer end, a nipple communicating with its inner end, and at right angles
45 thereto, and opposite the upper end of one of said open-ended pipes, a pivoted plate having a valve adapted to be seated over the upper end of the second of the open-ended
50 pipes, a rod, pivoted to said lever, and adapted, when a coin has been dropped onto said

pivoted plate and in the path of said rod, to depress said plate and means for removing the coin from said plate, as set forth.

4. A coin-controlled apparatus for bicycle- 55
pumps, comprising in combination with the pump, the open-ended pipes communicating with the cylinder of the pump, a pivoted lever having a bore in one end a nipple leading into and communicating with the inner 60
end of said bore, said nipple being positioned opposite the end of one of said open-ended pipes, a pivoted plate spring-actuated and having a valve on its under surface adapted to be seated over the upper end of the second 65
of said open-ended pipes, a rod pivoted to said lever, the lower end of said rod designed to strike against a coin, that has been previously deposited near the free end of said pivoted plate, whereby the latter is depressed 70
and the valve carried thereby seated, and a spring-actuated lever designed to kick the coin off from said plate, as the rod is raised, as set forth.

5. In a coin-controlled apparatus for bi- 75
cycle-pumps, the combination with the pump, pipes communicating therewith, the pivoted lever having a bore with a nipple leading thereto, the spring-actuated plate having a valve on its under surface, the pivoted rod, 80
the apertured plate carried thereby, a spring-actuated lever pivoted to a suitable support, the bent end of said lever having pivoted thereto a dog, a spring bearing against the latter, the outer end of the dog being in the 85
path of said apertured plate, and designed to turn idly as the rod is depressed, but to cause the lever carrying the dog to tilt on the return movement of the rod, and after said apertured plate has passed the dog, the 90
lower end of said spring-actuated dog-carrying rod, to kick against the edge of the coin which has been previously dropped into the chute and fallen by gravity into the path of said rod, as shown and described. 95

In testimony whereof I affix my signature in presence of two witnesses.

. THOMAS PALMER.

Witnesses:

A. L. HOUGH,
J. M. PFEIFFER.