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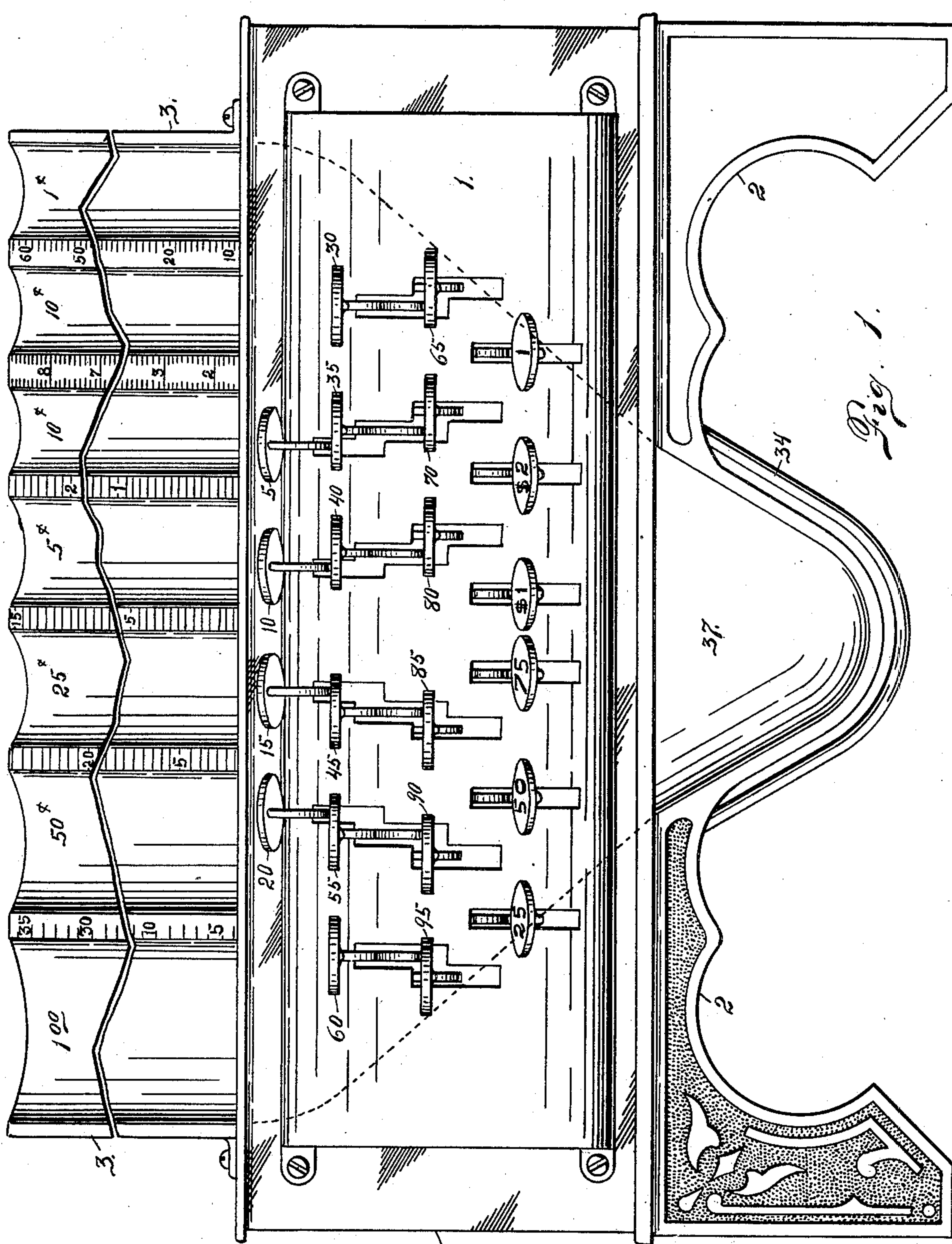
Patented Aug. 12, 1902.

J. M. BUTCHER & W. G. HARTWIG.
COIN DELIVERY DEVICE.

(Application filed Feb. 15, 1902.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

Otto C. Hoddick.
Dena Nelson.

INVENTORS

James M. Butcher.
William G. Hartwig.

BY *Ag. B. B. B.*

ATTORNEY.

No. 707,065.

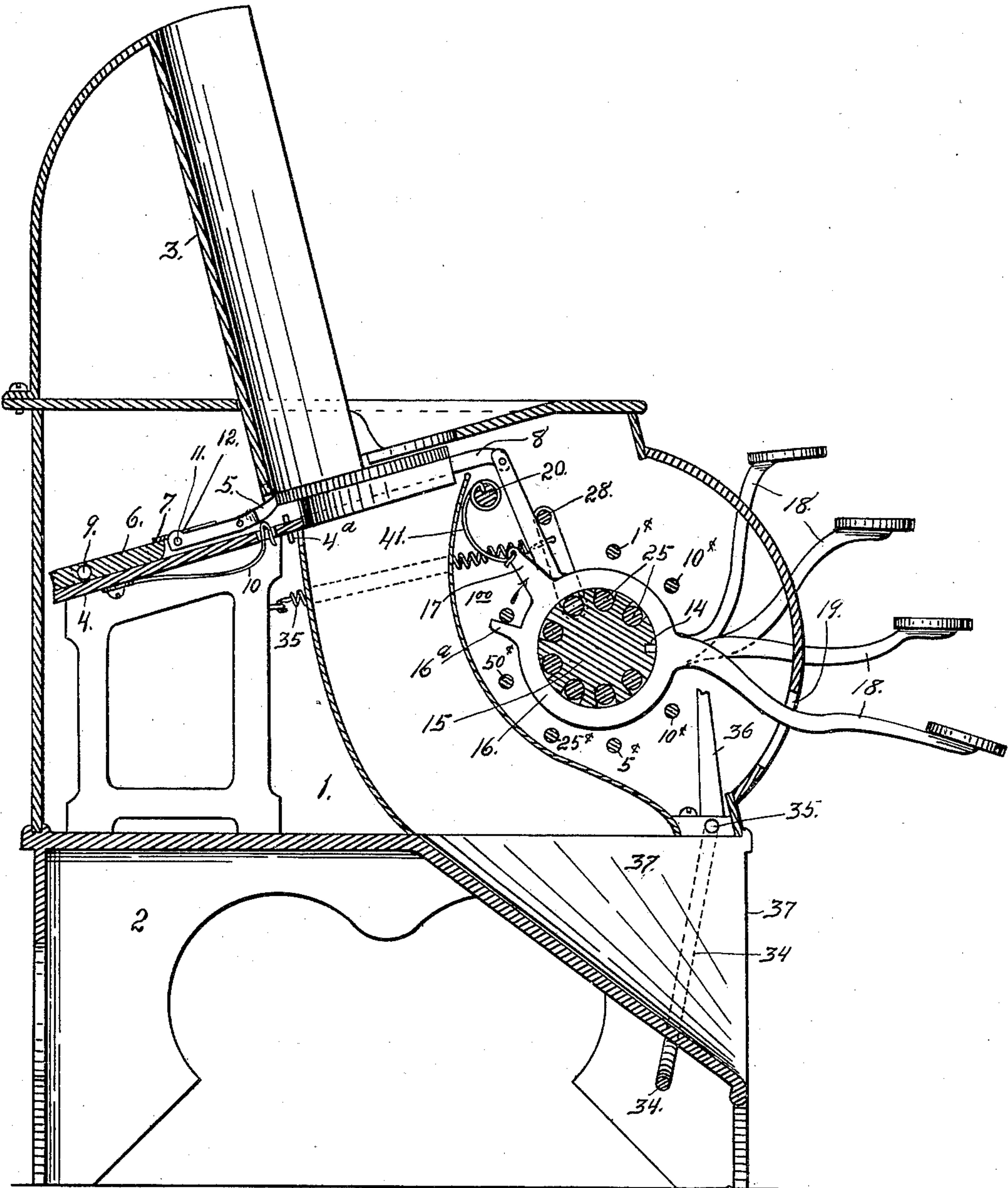
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4 Sheets—Sheet 2.



WITNESSES:

Otto C. Hoodrick.
Denna Nelson.

Fig. 2.

INVENTORS

James M. Butcher.
BY William G. Hartwig.

Attorney.

No. 707,065.

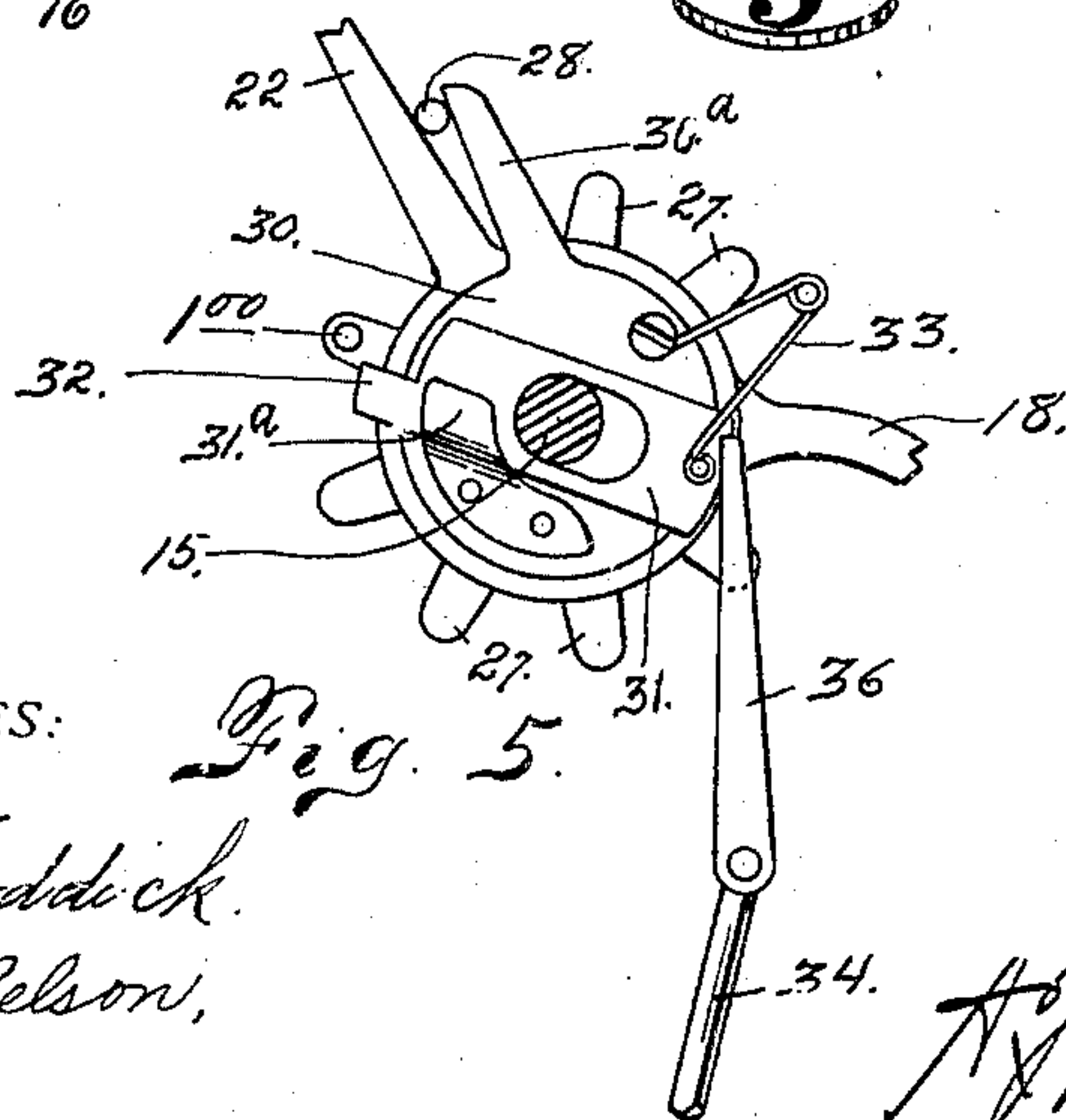
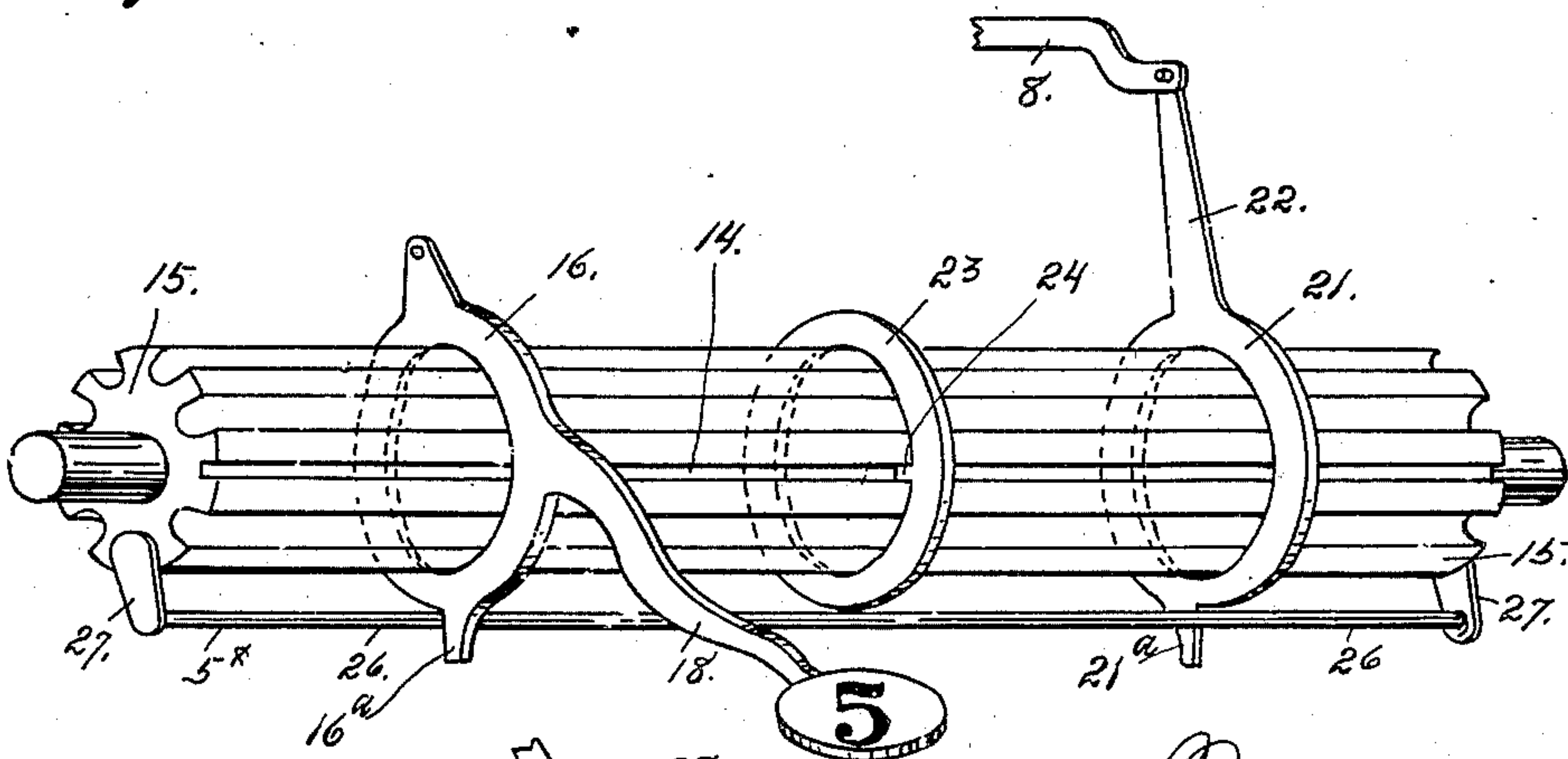
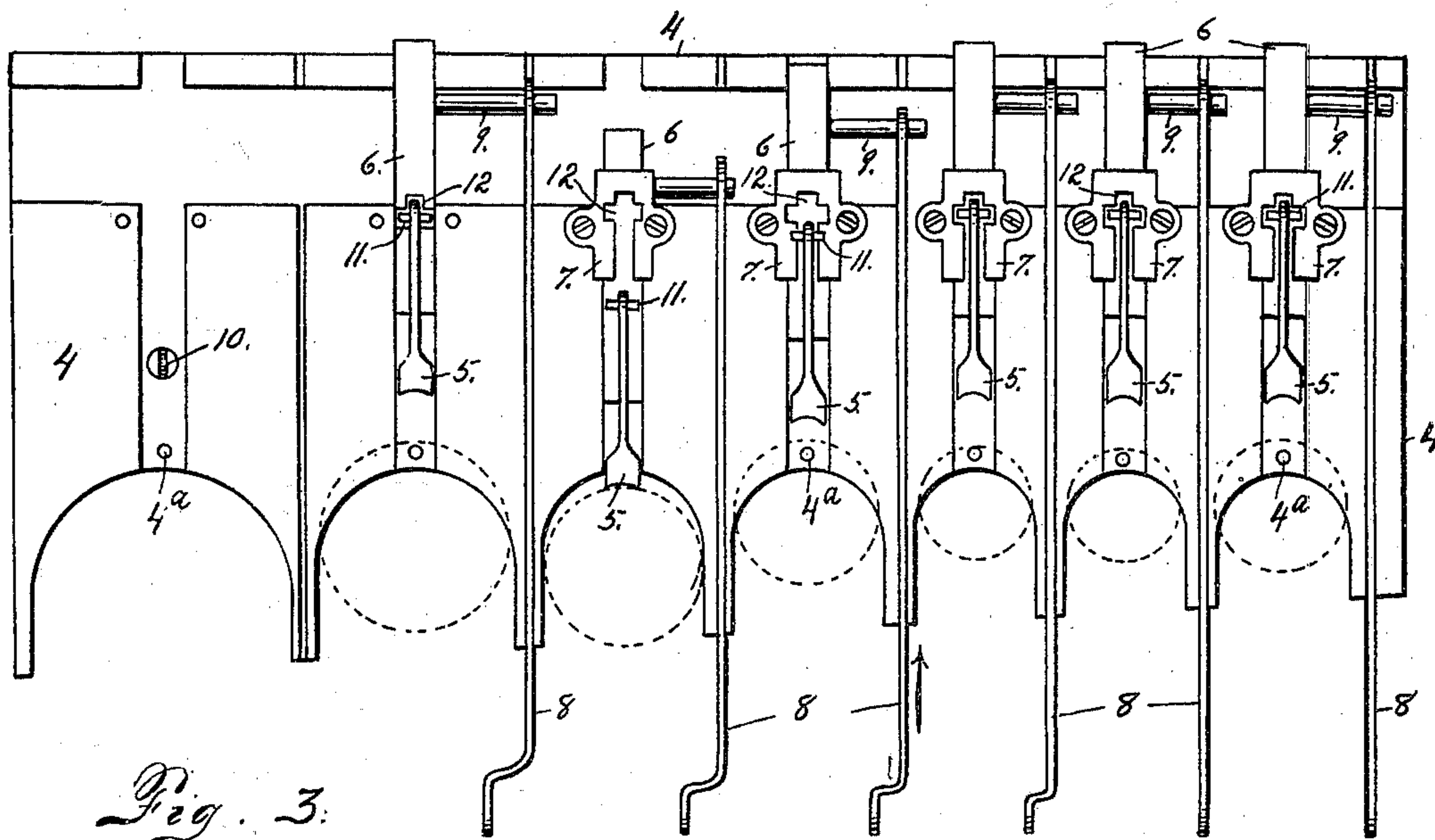
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4 Sheets—Sheet 3.



WITNESSES:
Otto E. Hordick.
Dena Nelson,

INVENTORS
James M. Butcher.
BY William G. Hartwig.
ATTORNEY.

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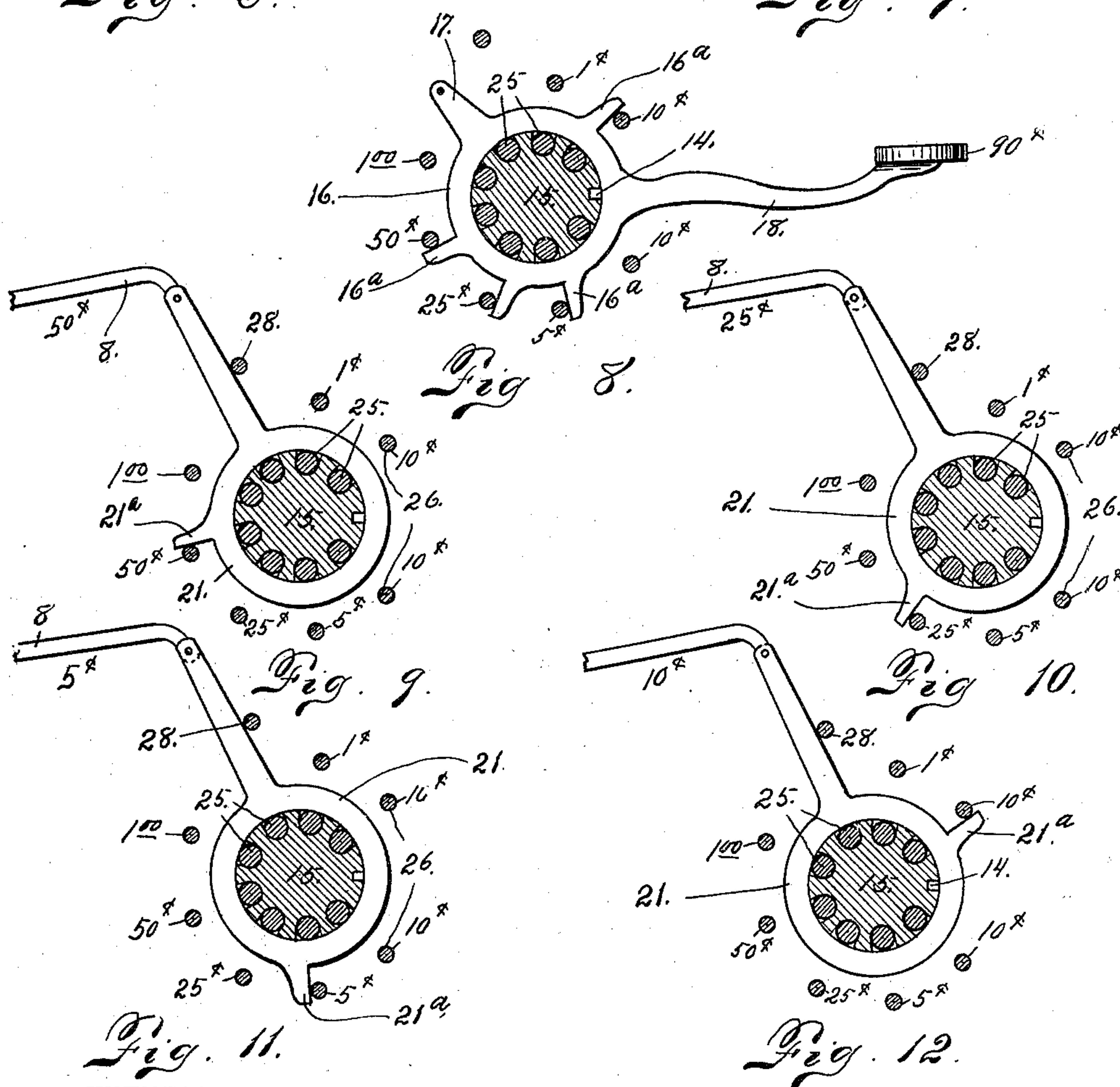
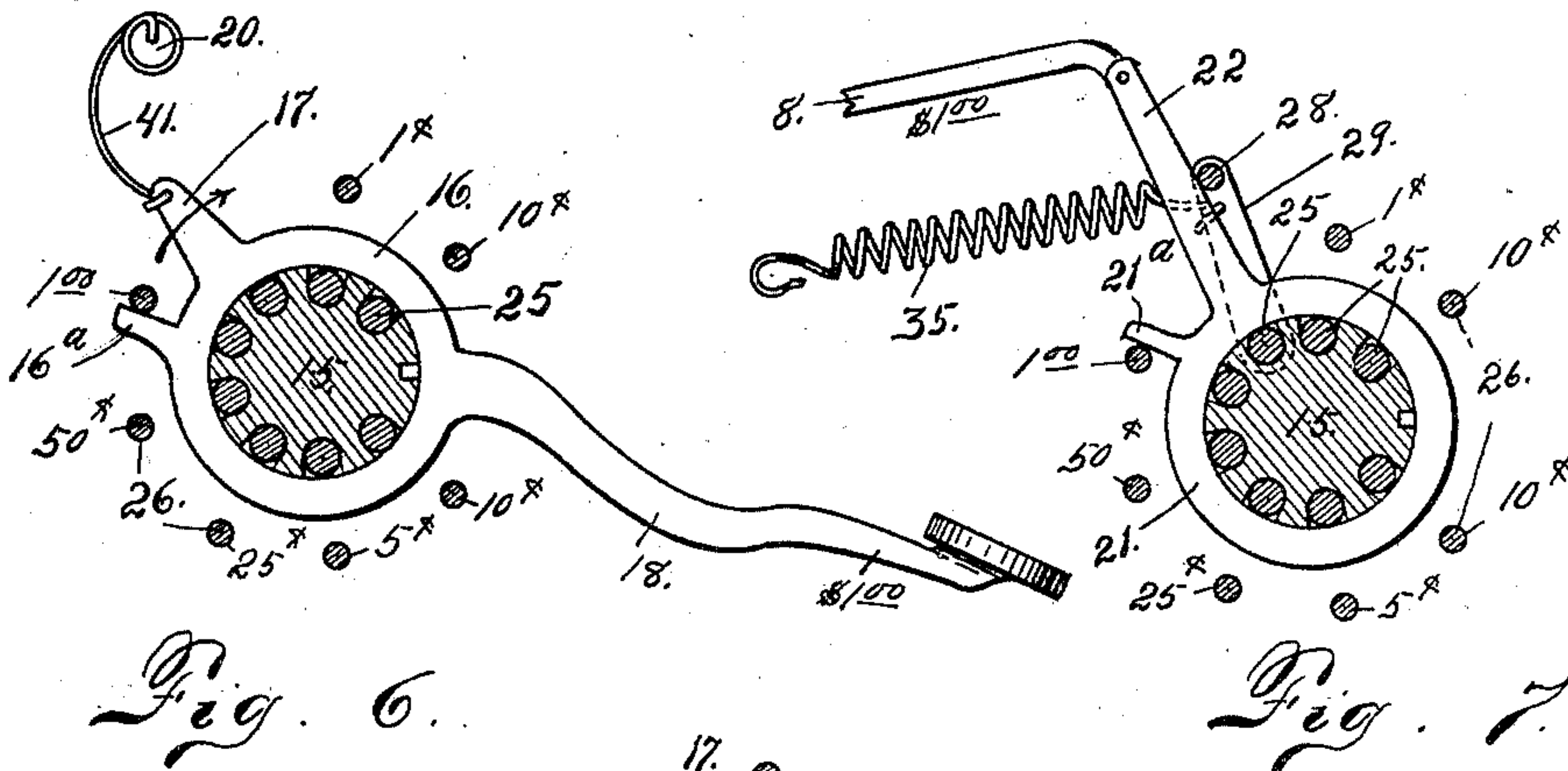
J. M. BUTCHER & W. G. HARTWIG.

COIN DELIVERY DEVICE.

(Application filed Feb. 15, 1902.)

(No Model.)

4 Sheets—Sheet 4.



WITNESSES:
Otto E. Haddick.
Dena Nelson.

INVENTORS
James M. Butcher.
William G. Hartwig.
ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES M. BUTCHER AND WILLIAM G. HARTWIG, OF CHICAGO, ILLINOIS,
ASSIGNORS TO THE AMERICAN AUTOMATIC CHANGE MAKER COMPANY,
OF LITTLE ROCK, ARKANSAS.

COIN-DELIVERY DEVICE.

SPECIFICATION forming part of Letters Patent No. 707,065, dated August 12, 1902.

Application filed February 15, 1902. Serial No. 94,224. (No model.)

To all whom it may concern:

Be it known that we, JAMES M. BUTCHER and WILLIAM G. HARTWIG, citizens of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Delivery Devices; and we do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in coin-delivery devices, and more particularly to change-makers for use in banks, counting-houses, and other commercial establishments.

Our object is to provide a device for the purpose above outlined which is comparatively simple in construction, economical in manufacture, reliable and durable in use, and positive in operation.

To this end the invention includes two series of toothed actuating rings or plates movably mounted on a suitable support, one series of actuating-rings being provided with manipulating-keys, while the other series of rings is connected with the coin displacing or ejecting mechanism, the said mechanism being operated in such a manner as to deliver one or more coins, as may be desired, in making a given amount of change.

The invention further consists in the details of construction and combinations of operative parts, all of which we will now proceed to describe in detail, after which the novel features will be pointed out in the claims.

In the drawings, Figure 1 is a front elevation of our improved machine, the coin-holders being broken for lack of space on the sheet. Fig. 2 is a cross-section of the same. Fig. 3 is a detail top or plan view of the coin-displacing mechanism, parts being omitted to more clearly show all the features of construction. Fig. 4 is a detail perspective view showing the manner of mounting a manipu-

lating-key and its toothed ring, a coin-displacing ring, an intervening washer, and the long link engaged by the teeth or projections of the rings. Fig. 5 is a detail end view of the stationary shaft or drum upon which the actuating-rings and their cooperating links are mounted, showing a special arrangement for operating the dollar-displacing mechanism when it is desired to obtain a dollar in addition to the regular amount of change normally delivered by pressing any key. Figs. 6 and 7 are detail views showing the actuating-ring of the dollar-key and the actuating-ring of the dollar-displacing mechanism, respectively. Fig. 8 is a detail view of the actuating-ring of the ninety-cent key. Figs. 9, 10, 11, and 12 are detail views of the actuating-rings connected with the coin-displacing mechanism of the fifty-cent, twenty-five-cent, five-cent, and ten-cent stacks of coins, respectively, their combined delivery being the change desired. All of these rings would be actuated by pressing the ninety-cent key.

The same reference characters indicate the same parts in all the views.

Let the numeral 1 designate the casing mounted on a suitable base 2. Secured to the top of the casing 1 is the coin holder or rack 3, which consists of a series of semi-cylindrical retaining-walls placed at a slight backward incline and adapted to receive stacks of coins of the various denominations desired. The stacks of coins while being held in alinement by the cylindrical retaining-walls rest on a plate 4, mounted on the casing 1 and shown in detail in Fig. 3. This plate 4, as seen in Fig. 3, is provided with a series of recesses at its forward end, the inner edges of which when the plate is in position form semicircular ledges upon which the coin-stacks rest.

Mounted on the plate 4 and arranged to travel in ways cut in said plate are coin-displacing dogs 5, which are pivoted in sliding blocks 6, held in place by the retaining-plate 7 and connected to the actuating mechanism by the connecting rod or link 8, movably attached to a pin 9, fast on the sliding block 6.

Secured to the under side of the plate 4 (see Fig. 2) are wire springs 10, only one of which is shown. These springs project through an opening in the plate 4 and exert their tension on the bottom of the dogs 5, producing a positive engagement of the dog when displacing a coin. To maintain this upward position of the displacing-dog for a given length of its travel, a small cross-piece 11 is secured to its rear end. This cross-piece normally rests under the enlarged opening 12 of the retaining-plate 7. As the dog is caused to travel forward in displacing a coin the end of the cross-piece 11 travels under the retaining-plate 7, and as the dog travels past the retaining-plate and completes its coin-displacing act its rear end is permitted to be carried upwardly by the spring 10, which now rests back of the pivoted point of the dog, throwing its forward extremity downwardly below the lowermost coins of the stack. When in this position, the forward extremity of the dog rests upon a pin 4^a, fast in the plate 4. As the dog is returned to its normal position the cross-piece travels over the retaining-plate and the engaging end of the dog is held in the downward position, below the ledge upon which the coin-stack rests, until it reaches its normal position, when it is again carried upwardly by the action of the spring 10, the cross-piece 11 reaching the enlarged opening 12 of the retaining-plate, through which it drops to its position under the plate ready for the next operation. This construction prevents the gravity of the coins from retarding the rearward movement of the coin-displacing dogs.

Secured in the forward end of the casing (see Fig. 2) is a stationary shaft or drum 15, upon which are mounted two series of actuating-rings 16 and 21. The actuating-rings 16 communicate with the manipulating-buttons through the arms 18, forming keys which project from their respective rings through elongated slots 19, formed in the front wall of the casing, while the actuating-rings 21 are provided with upwardly-projecting arms 22, which are pivotally attached at their upper extremities to the connecting-arms 8 of the coin-displacing mechanism, the rear extremities of the arms being connected with the pins 9 on the block 6, as aforesaid.

Mounted in longitudinal recesses or grooves cut in the stationary drum 15 is arranged a series of rock-shafts 25. Connected with these rock-shafts is a series of oscillating rods 26, arranged parallel with the rock-shafts and connected at their ends to the rock-shafts by short arms or cranks 27. The device formed by the rock-shafts, the rods, and their connecting arms or cranks may be termed "long horizontal links," having a short radius to permit the rods a limited degree of oscillation. Each of these oscillating rods forms an operative connection between the manipulating-key and its actuating-ring and an actuating-ring of a given set of coin-displacing mechanism. In

the present drawings we have indicated the various oscillating rods by the denominations of the coins they are adapted to displace—that is to say, the oscillating rod marked "\$1.00" is connected with and operated by the dollar-actuating ring and key and forms the connection between said key and the dollar-displacing mechanism. The oscillating rod marked "50¢" connects the fifty-cent-actuating ring and key with the fifty-cent-displacing mechanism. Hence it will be seen that there is an oscillating rod for each set of coin-displacing mechanism. In the present drawings provision is made for seven stacks of coins, one stack each for dollars, half-dollars, quarter-dollars, nickels, and one-cent pieces and two stacks for dimes or ten-cent pieces. Under each of these stacks is a coin-displacing device, as above described, connected by an arm 8 with its respective actuating-ring 21, there being seven of these rings.

As shown in Figs. 4, 6, and 7, the actuating-ring 16, having the manipulating-key 18, is provided with a projecting tooth 16^a, which engages an oscillating rod 26, and the actuating-ring 21, connected with the coin-displacing mechanism, is provided with a similar tooth or projection 21^a, engaging the opposite side of the same oscillating rod, thus causing the coin-displacing ring to operate by the initial action given to the key-actuating ring. Where two or more coins are required to make up a given amount of change, two or more projecting teeth are arranged on the key-ring. In Figs. 8, 9, 10, 11, and 12 we have shown the actuating-rings employed in delivering ninety cents change. In this instance the key-ring 16 is provided with four engaging teeth 16^a, which actuate the fifty-cent, twenty-five-cent, five-cent, and one of the ten-cent oscillating rods, respectively. As seen in the drawings, all the oscillating rods just mentioned are actuated by the manipulation of the one key-ring, and they in turn operate their respective coin-displacing rings. In this manner any combination of coin-displacing devices may be operated from a single-coin-actuating ring and key.

Mounted on one of the rock-shafts 25 is an oscillating rod 28, connected with the shaft at its ends by arms 29 and resting normally against the projecting arms 22 of the coin-displacing rings. (See Fig. 7.) A projecting arm 22 is carried to the right (referring to said figure) in operating the coin-displacing mechanism, and the oscillating rod 28 is caused to travel with it against the action of a spring 35, and as the key is released on the completion of the stroke the spring-tensioned rod 28 will cause it to be returned to its normal position. One extremity of this spring is connected with an arm 29 and the other extremity with a stationary support of the casing.

To return an actuating-ring 16 to its normal position after each coin ejecting or displacing thrust of its key, we have connected

an individual spring 41 to each ring. This spring is secured at one end to a lug 17, projecting from said ring, and its opposite end is secured in a grooved stationary shaft 20, as shown in Figs. 2 and 6, whereby as the key-ring is moved in the direction indicated by the arrow in Fig. 2 the spring is placed under tension. Hence as the key-ring is released the recoil of the spring will return it to its normal position.

On the drum 15 intermediate each two of the actuating-rings is placed a washer 23, provided on its inner edge with a tongue 24, which projects into a groove 14, cut in the drum 15, (see Fig. 4,) thus locking the washer against rotary movement on the drum. The function of these washers is to insure the actuating-rings against accidental movement by reason of frictional contact with each other.

Should it be desired to add one dollar to the amount of change indicated on one of the manipulating-keys, we have constructed a special mechanism, as shown in Fig. 5, which is arranged as follows: At one end of the drum 15 is revolubly mounted a disk 30, and projecting from this disk is an arm 30^a, which engages the oscillating rod 28 on the side opposite from the arms 22. Mounted on the disk 30 and fitted over the spindle of the drum 15 is a spring-tensioned reciprocating plate 31, having an elongated opening through which the spindle of the drum passes. This plate is provided at one end with a toothed projection 32, adapted to be thrown into engagement with the dollar oscillating rod. Secured to the opposite end of this plate is a spring 33, adapted to hold said plate normally out of engagement with said dollar-rod. (See Fig. 5.)

Pivotally mounted in the lower forward part of the machine is the mechanism for operating the dollar-displacing device just described. This consists of a U-shaped lever-arm 34, having its ends fitted in the casing 1, as shown in the drawings at 35. This arm 34 projects downwardly and around the coin-delivery chute 37, where it rests just to the rear of the mouth of said chute. Rigidly secured to one of the ends of said U-shaped lever-arm is an upwardly-projecting arm 36, which is in alinement with the edge of the plate 31, and when it is desired to engage the tooth 32 with the dollar oscillating rod a slight manipulation of the lever-arm 34 as the hand is placed under the chute to receive the change is all that is necessary, the remaining mechanism being operated by the manipulated key. The plate 31 is mounted to turn with the disk 30, and to this end a keeper 31^a is employed. This is secured to the disk and overlaps the plate 31.

In operation, assuming that the parts are assembled as above described, it will be seen that the actuating-ring of each key operates as many coin-displacing devices as will aggregate the amount of change indicated on the manipulating-button of said key, and as the

key is operated with the finger of one hand the other hand is placed at the mouth of the chute to receive the coins displaced, which coins when released fall into the upper enlarged portion of the coin-chute, where they are directed downwardly to its mouth and fall into the hand of the operator. When it is desired to add one dollar to the amount of change indicated on any key operated, the operator actuates the sliding plate 31, whereby it is made to engage the dollar-rod by pressing the U-shaped lever-arm 34 with the hand at the mouth of the delivery-chute before operating the key with the other hand. If one dollar and eighty-five cents in change is required, the sliding plate 31 is first connected with the dollar-rod, as heretofore described, through the instrumentality of the lever-arm 34, after which the eighty-five-cent key is operated with the other hand.

While we have herein made provision for a machine having seven stacks of coins and other mechanism to correspond, it is evident that a machine of greater or less capacity may be constructed without departing from the spirit of the invention.

Having thus described our invention, what we claim is—

1. In a coin-delivery device, the combination with a suitable casing, coin-holders and coin-displacing mechanism, of a suitable stationary support mounted in the casing, rings mounted to turn on said support and provided with keys passing through openings in the casing, and a suitable operative connection between the rings and the coin-displacing mechanism, substantially as described.

2. In a coin-delivery device, the combination with a suitable casing, coin-holders and coin-displacing mechanism, of a drum mounted in the casing, toothed rings mounted to turn on the drum and provided with keys passing through openings formed in the casing, and a suitable operative connection between the rings and the coin-displacing mechanism, whereby the pressing of the keys actuates said mechanism, substantially as described.

3. In a device of the class described, the combination with a casing, coin-holders and coin-displacing mechanism, of a drum or shaft mounted in the casing, yieldingly-retained rings mounted to turn on said drum, and provided with keys passing through openings in the casing, and a suitable operative connection between the key-rings and the coin-displacing mechanism, whereby as the keys are pressed the said mechanism is actuated, substantially as described.

4. In a coin-delivery device, the combination with a suitable casing, coin-holders and coin-displacing mechanism, of a stationary shaft or drum mounted in the casing, rings mounted to turn on said drum, and provided with keys passing through openings formed in the casing, other rings also mounted to turn on the drum and connected with the coin-dis-

placing devices, and an operative connection between the two sets of rings, whereby as the keys are operated, the coin-displacing mechanism is actuated, substantially as described.

5 5. In a device of the class described, the combination with a casing, coin-holders and coin-displacing mechanism, of a stationary shaft or drum mounted in the casing, rings mounted to turn on said drum and provided
10 with keys protruding from the casing, other rings also mounted to turn on the drum, and connected with the coin-displacing devices, separating-washers fast on the drum between the rings, to prevent the movement of any
15 ring by the frictional contact of an adjacent ring, and a suitable operative connection between a key-ring and one or more coin-displacing rings, whereby the operation of the key actuates the coin-displacing mechanism,
20 substantially as described.

6. The combination with a casing, coin-holders, and coin-displacing devices, of a shaft or drum fast on the casing, rings mounted thereon, provided with one or more teeth
25 or projections, and having keys protruding from the casing, other rings having teeth or projections, the last-named rings being also mounted to turn on the drum and connected with the coin-displacing devices, and rods
30 mounted to oscillate on the drum and engaged by the projections of the two sets of rings from opposite sides, whereby as any key is operated and one or more rods actuated, the coin-displacing rings engaged by
35 the said rods are also actuated.

7. The combination with a casing, coin-holders and coin-displacing mechanism, of a ring mounted to turn on the casing, provided with one or more projections, and a key projecting from the casing, other rings also
40 mounted to turn in the casing and having projections, the last-named rings being connected with the coin-displacing devices, and rods mounted to oscillate in the casing and engaged by the projections of the key-rings and the coin-displacing rings, the projections of the key-rings, engaging the rods on the side opposite the projections of the other rings, substantially as described.

50 8. The combination with a casing, coin-holders and coin-displacing devices, of a ring movably mounted in the casing, provided with projections, and having a key protruding through an opening formed in the casing, rods mounted to oscillate in the casing and engaging the projections of the key-ring, other rings mounted in the casing and corresponding in number with the number of projections of the key-rings, each of the other
60 rings being connected with coin-displacing mechanism and having a projection engaging a rod on the side opposite the projection of the key-ring, whereby as the latter is operated, all of the said coin-displacing rings
65 will be actuated, substantially as described.

9. The combination with a casing, coin-holders and coin-displacing mechanism, of

rings mounted to turn in the casing and provided with keys protruding from the casing, each ring having one or more projections, rods
70 mounted to oscillate in the casing and engaged by the projections of the key-rings, other rings also mounted in the casing and provided with projections engaging the rods on the sides opposite the projections of the
75 key-rings, the other rings having upwardly-projecting arms and links connecting the coin-displacing devices with said arms.

10. The combination with a casing and coin-holders, of coin-displacing dogs mounted to
80 move forward in the plane of the lowermost coins of the coin-holders, and backward below the plane of said coins, rings mounted to turn in the casing and provided with keys projecting therefrom, other rings mounted to turn
85 in the casing and provided with upwardly-projecting arms, a suitable connection between the said arms and the coin-displacing dogs, and a suitable connection between the key-rings and the other rings, whereby as the
90 key-rings are operated the coin-displacing dogs are actuated.

11. In a device of the class described, the combination with a suitable casing and coin-holders, of dogs mounted to move forwardly
95 in the plane of the lowermost coins, springs engaging said dogs from below, blocks with which the dogs are pivotally connected, pins projecting laterally from the blocks, rings mounted to turn in the casing and provided
100 with upwardly-projecting arms, links connecting said arms with the pins, other rings mounted to turn in the casing and provided with protruding keys, and a suitable connection between the two sets of rings, whereby
105 as the keys are operated the coin-displacing dogs are actuated, substantially as described.

12. The combination with a casing, coin-holders and coin-ejecting devices, of a drum made fast in the casing and provided with longitudinal grooves, rock-shafts located in said
110 grooves, rods occupying positions parallel with the shafts, arms connecting the shafts and the rods, rings surrounding the drum outside of the shafts, provided with projections engaging the rods, and having keys projecting from the casing, other rings also mounted to turn on the drum, connected with the coin-displacing devices and having projections engaging the rods on the side opposite the
120 projections of the key-rings.

13. The combination with a casing, coin-holders, coin-displacing devices and operating-keys protruding from the casing, of two sets of rings mounted to turn in the casing,
125 one set of rings being connected with the coin-displacing devices, and the other set of rings with the keys, and a suitable connection between the two sets of rings, whereby as the keys are operated, the coin-displacing devices
130 are actuated, substantially as described.

14. The combination with a casing, coin-holders and coin-ejecting devices, of rings mounted to turn in the casing and provided

with protruding keys, other rings mounted to turn in the casing and connected in operative relation with the key-rings and the coin-ejecting devices, whereby as the key-rings are actuated the other rings are operated to actuate the coin-ejecting devices, and suitable means for returning the coin-ejecting rings to their normal position after each coin-ejecting act.

15. The combination with a casing, coin-holders and coin-ejecting devices, of a stationary drum mounted in the casing, spring-retained rings mounted to turn on said drum and provided with protruding keys, other rings mounted to turn on the drum and provided with upwardly-projecting arms connected with the coin-ejecting devices, a spring-held oscillating rod connected with the drum, and lying in the path of the upwardly-projecting arms of the coin-ejecting rings, whereby as soon as said rings are released, they are returned to their normal position by the spring-held rod, and a suitable operative connection between the key-rings and the coin-ejecting rings, substantially as described.

16. The combination with a casing, coin-holders and coin-displacing devices, of a drum fast on the casing, and provided with grooves, rock-shafts located in said grooves, rods parallel with the rock-shafts, arms connecting said rods with the shafts, spring-held rings having projections engaging said rods, and provided with keys protruding through openings formed in the casing, other rings also mounted to turn on the drum and provided with projections engaging the said rods on the side opposite the projections of the key-rings, the other rings having upwardly-projecting arms connected with the coin-displacing devices, and another rod lying in the path of said upwardly-projecting arms, crank-arms connecting a rock-shaft of the drum with the last-named rod, and a spring connected with said rod and with the casing, whereby the upwardly-projecting ring-arms and their connections are returned to their normal position after each coin-displacing act, substantially as described.

17. The combination with a casing, coin-holders and coin-displacing mechanism, of a device fast on the casing and provided with oscillating rods corresponding in number with the denominations of coins to be delivered by the machine, rings mounted on said drum and provided with keys protruding from the machine and provided at their free extremities with buttons upon which is indicated the amount of change to be delivered, other rings also mounted on the drum, connected with the coin-displacing mechanism and having projections engaging the rods on the side opposite from the projections of the key-rings, and means mounted on the drum, actuated by any key-ring, and adjustable at the will of the operator, for causing the operation of an additional rod when a key is operated, substantially as described.

18. The combination with a casing, coin-

holders, and coin-displacing devices, and a coin-chute adapted to receive and discharge the displaced coins, of a drum fast on the casing and provided with grooves, rock-shafts located in said grooves, rods parallel with the rock-shafts, arms connecting said rods with the shafts, spring-held rings having projections engaging said rods, and provided with keys protruding through openings formed in the casing, other rings also mounted to turn on the drum and provided with projections engaging said rods on the side opposite the projections of the key-rings, the other rings having upwardly-projecting arms connected with the coin-displacing devices, another rod lying in the path of said upwardly-projecting arms, crank-arms connecting a rock-shaft of the drum with the last-named rod, a spring connected with said rod and with the casing, whereby the upwardly-projecting ring-arms and their connections are returned to their normal position after each coin-displacing act, a disk mounted to turn on one end of the drum, and provided with a projection lying in the path of the last-named rod and engaging the same on the side opposite the upwardly-projecting arms of the rings, a plate slidably mounted on said disk and arranged to turn therewith, an additional rod, said plate being capable of adjustment to bring it into engagement with the additional rod, a spring normally holding the sliding plate in the inoperative position, and a lever having one arm projecting below the coin-chute, and the other arm arranged to engage the sliding plate for shifting the latter to the operative position, substantially as described.

19. The combination with a casing, and coin-holders, of a plate or platform located at the bottom of the coin-holders and forming a support for the stacks of coins, grooves formed in said platform, blocks slidably mounted in said grooves, dogs pivotally mounted in the blocks, a retaining-plate attached to the platform above the blocks, a spring attached to the lower surface of the platform and passing through an opening formed in the platform to engage the dog from below, the arrangement being such that when the dog is at its rearward limit of movement, the spring engages the dog in front of its pivot and holds its forward extremity in the plane of the lowermost coin of the stack, while when the dog has reached its forward limit of movement, the spring engages it in the rear of its pivot and throws its forward extremity downwardly below the lowermost coin, and suitable means for actuating the coin-displacing dog, substantially as described.

20. The combination with a casing, and coin-holders, of a platform located below the coin-holders and forming a support for the coin-stacks, grooves formed in the platform in line with the coin-holders, blocks slidable in said grooves, coin-displacing dogs pivoted in the blocks which are provided with re-

cesses to receive them, retaining-plates at-
tached to the platform above the blocks for
holding the latter in place, the said plates
being slotted to receive the dogs, the slots
5 being enlarged at their rear extremities, the
dogs being provided with cross-pieces at their
rear extremities, adapted to pass through the
enlarged part of the slot, and springs at-
tached to the lower surface of the platform
10 and engaging the dogs from below, the mech-

anism being constructed and arranged to
operate, substantially as described.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

JAMES M. BUTCHER.
WILLIAM G. HARTWIG.

Witnesses:

F. L. KOHLHADA,
CARD GALEY.