

(No Model.)

3 Sheets—Sheet 1.

M. BENEDICT.  
VENDING MACHINE.

No. 602,185.

Patented Apr. 12, 1898.

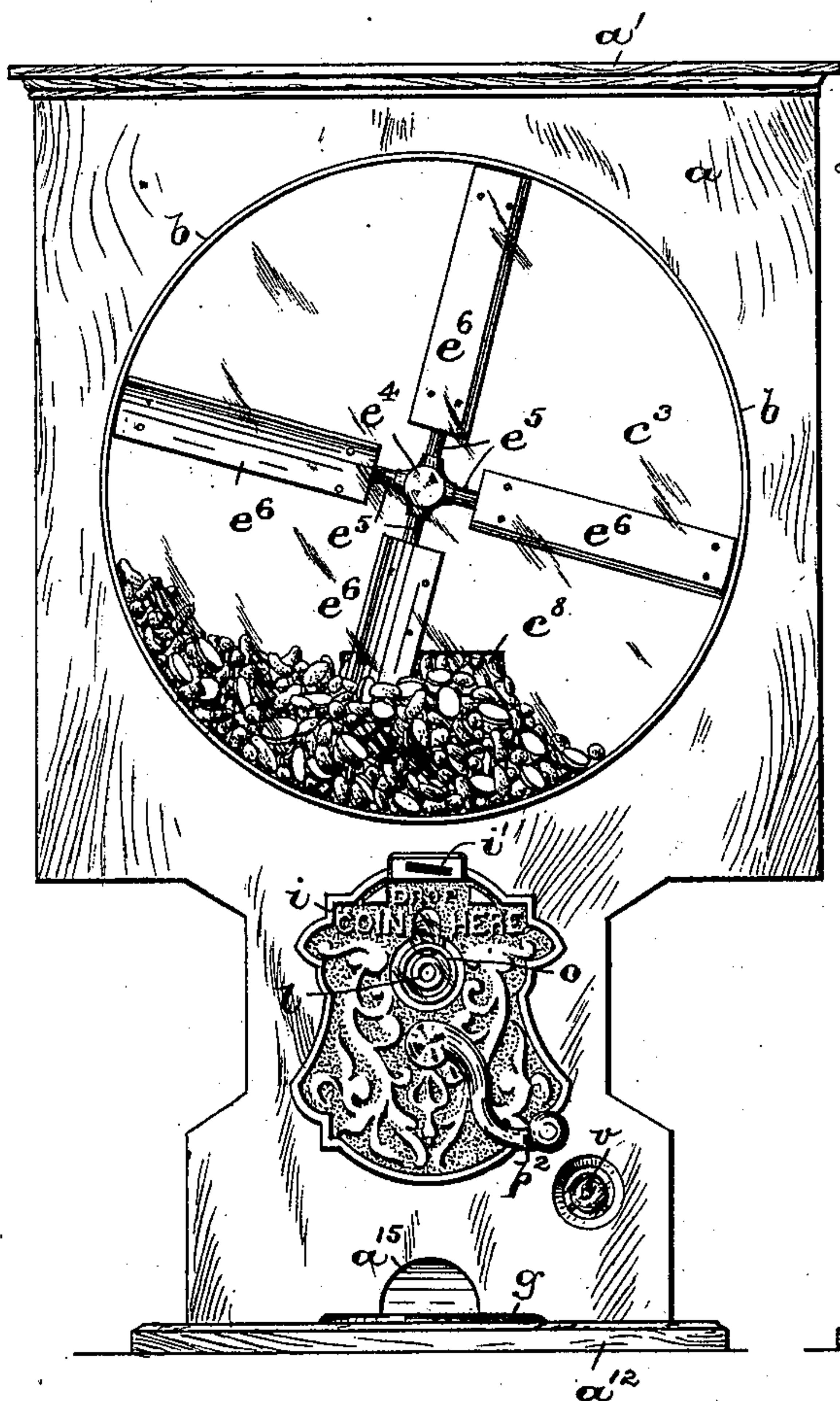


FIG. 1

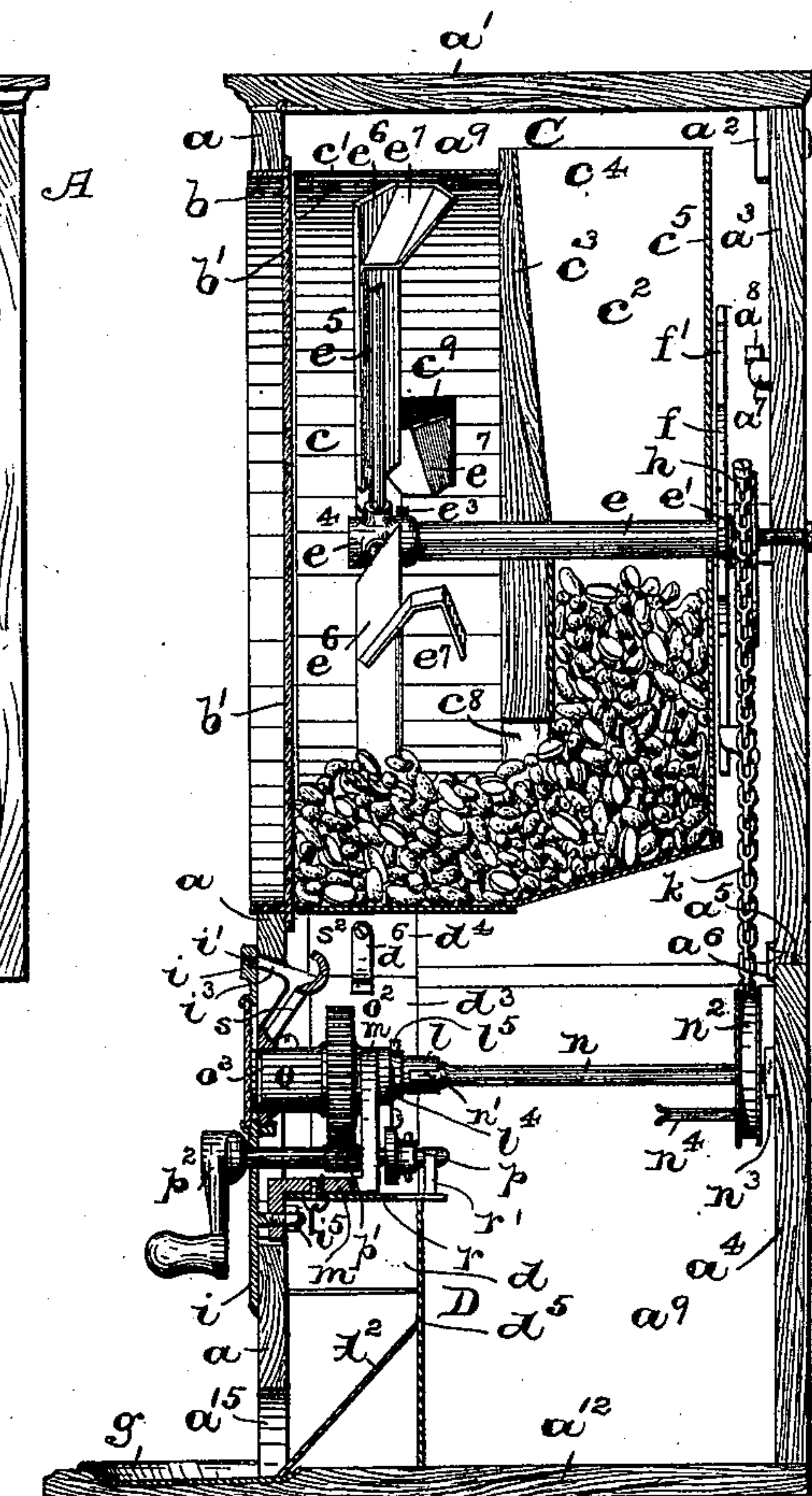


FIG. 2

WITNESSES:

*Wm. H. Campfield, Jr.*  
*Walter G. E. Ward*

INVENTOR:

MICHAEL BENEDICT,

BY

*Fred C. Fraentzel,*  
ATTORNEY.





(No Model.)

3 Sheets—Sheet 3.

M. BENEDICT.  
VENDING MACHINE.

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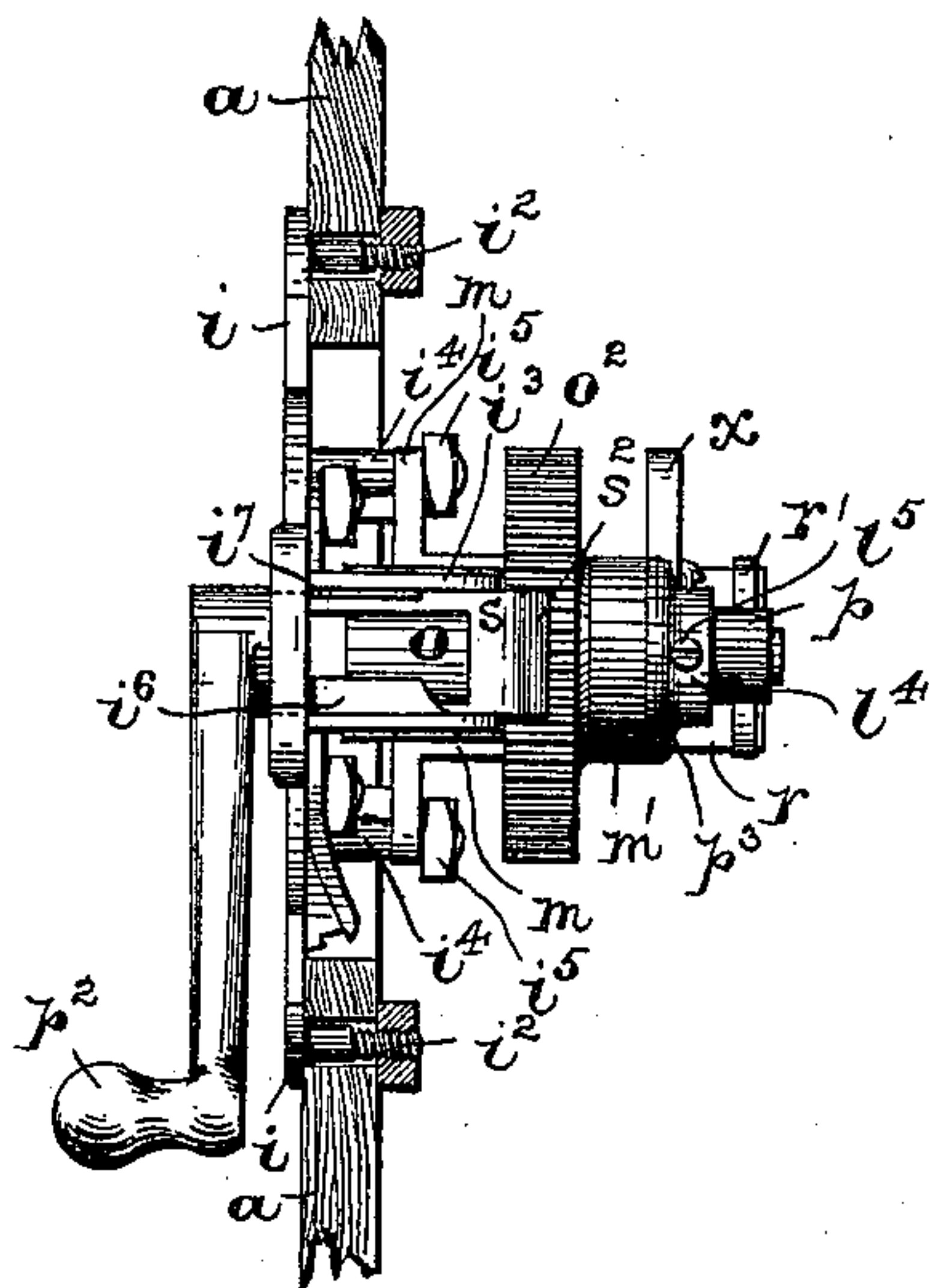


FIG. 7

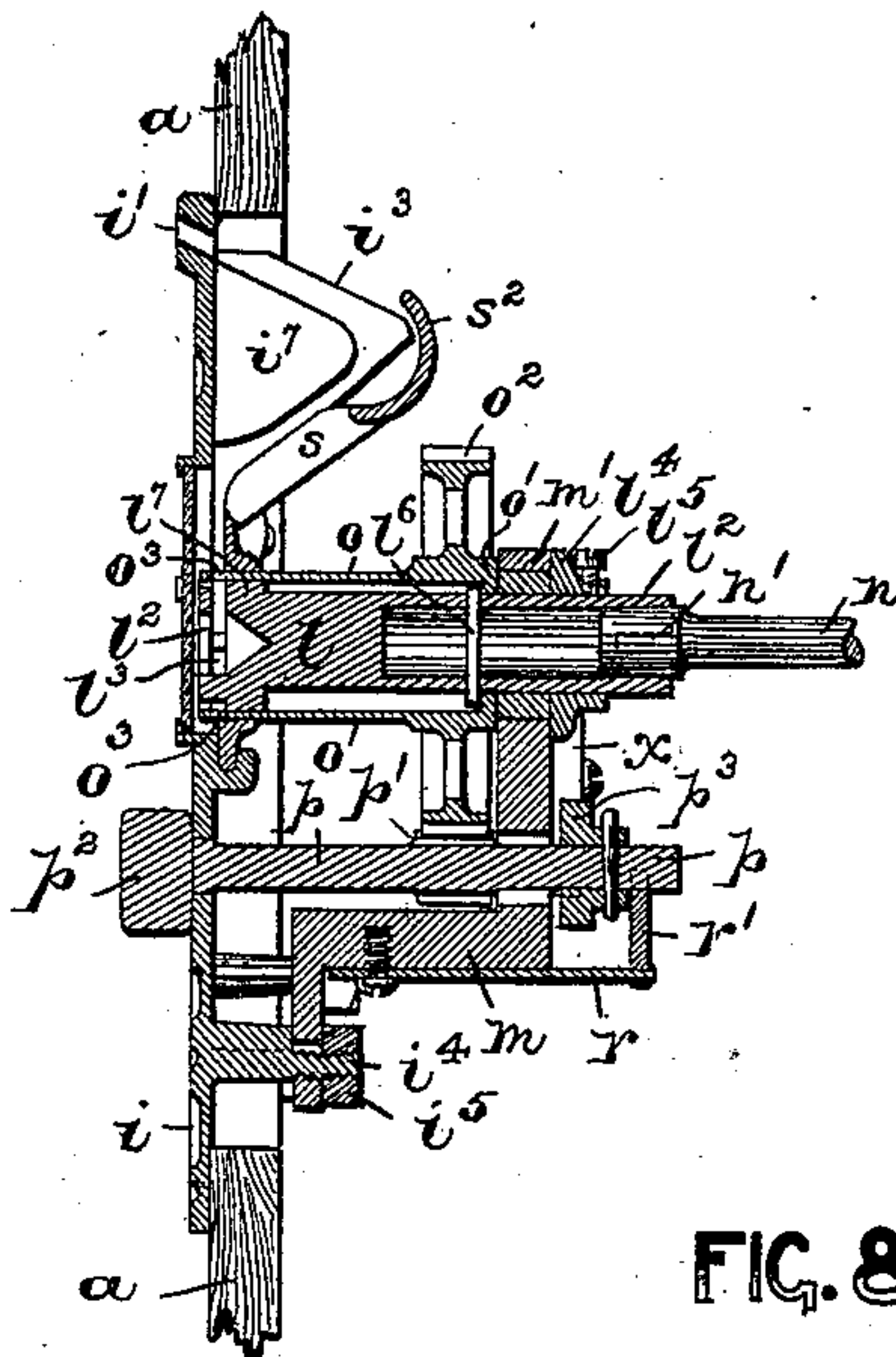


FIG. 8

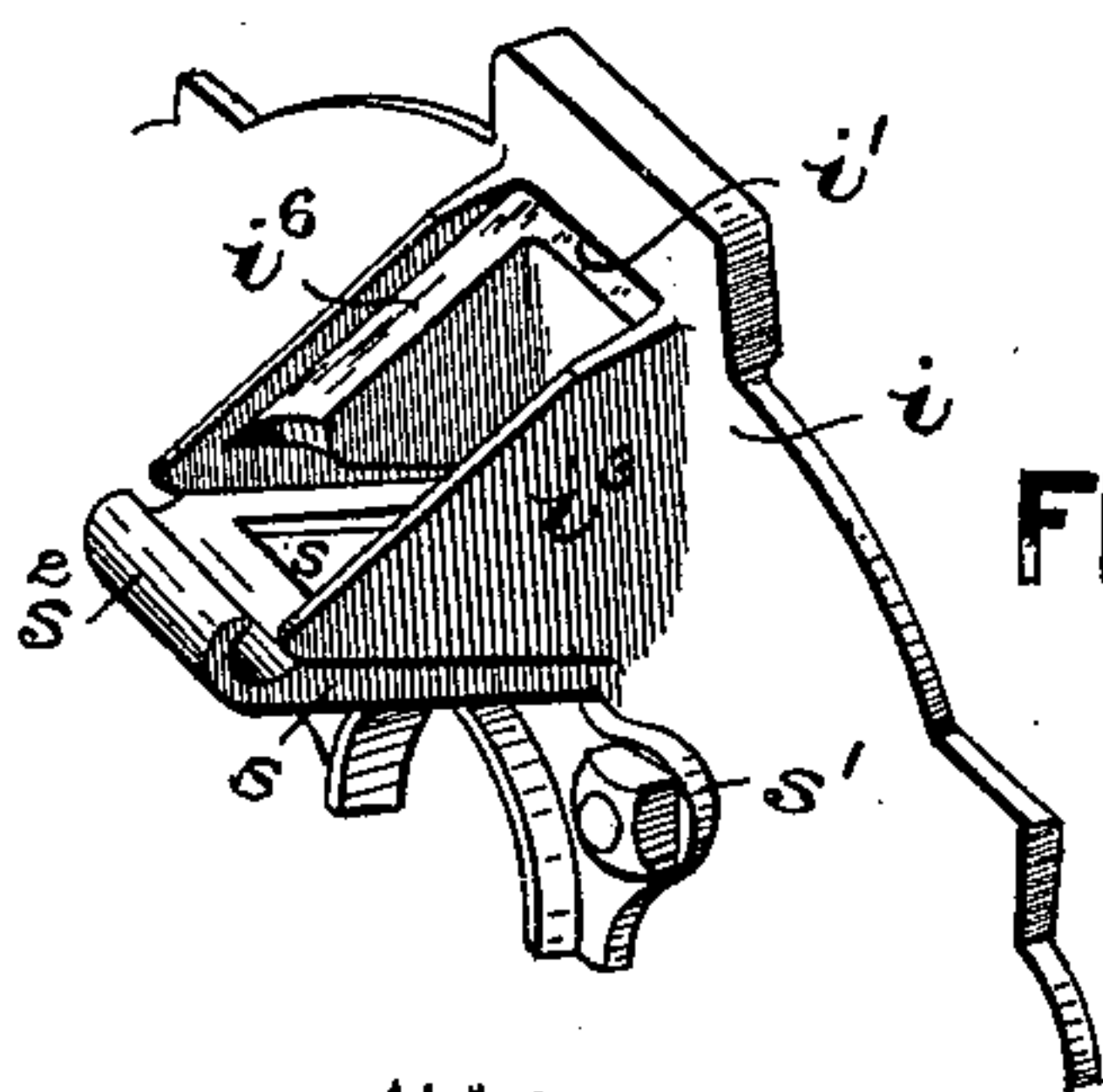


FIG. 9

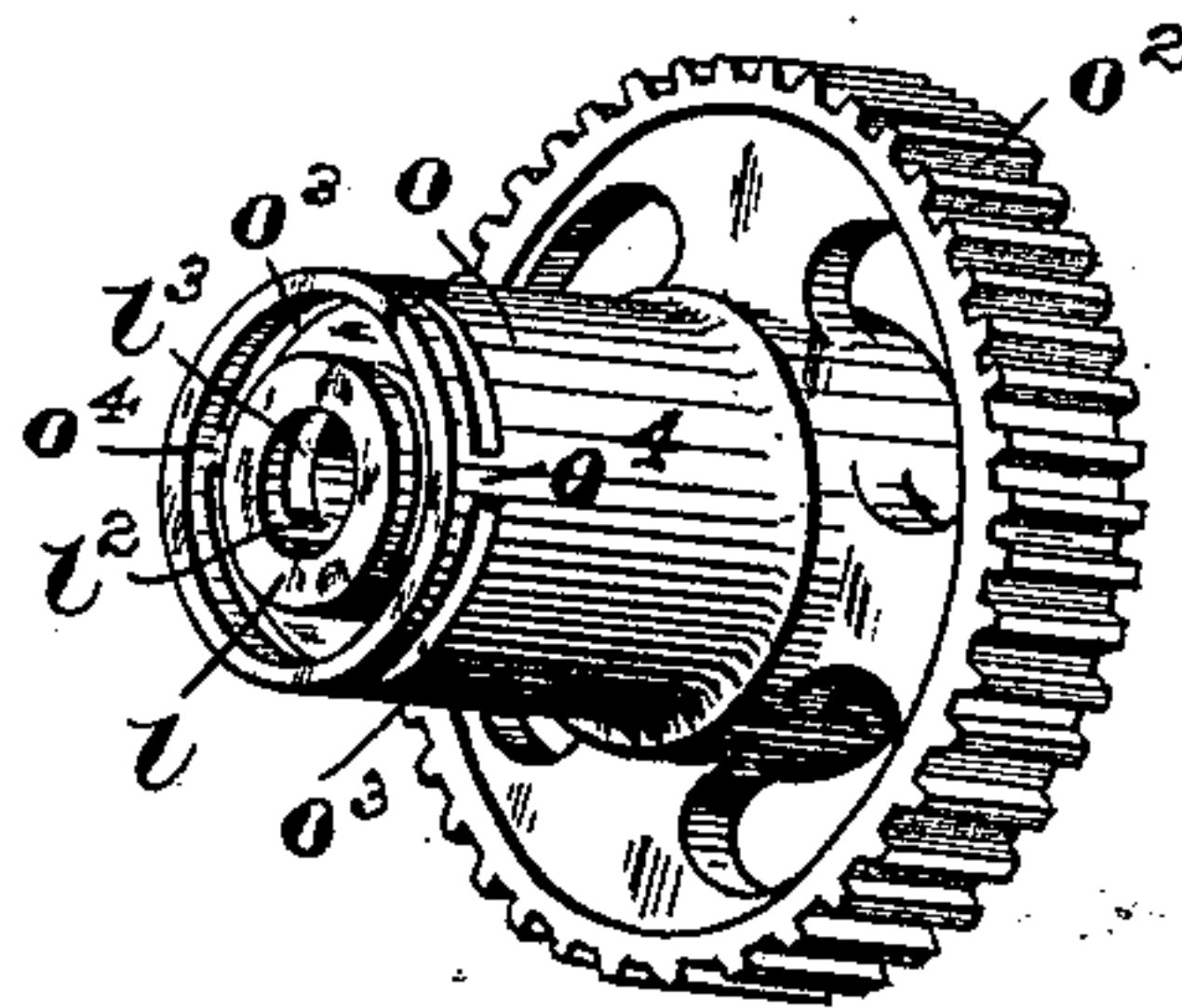


FIG. 10

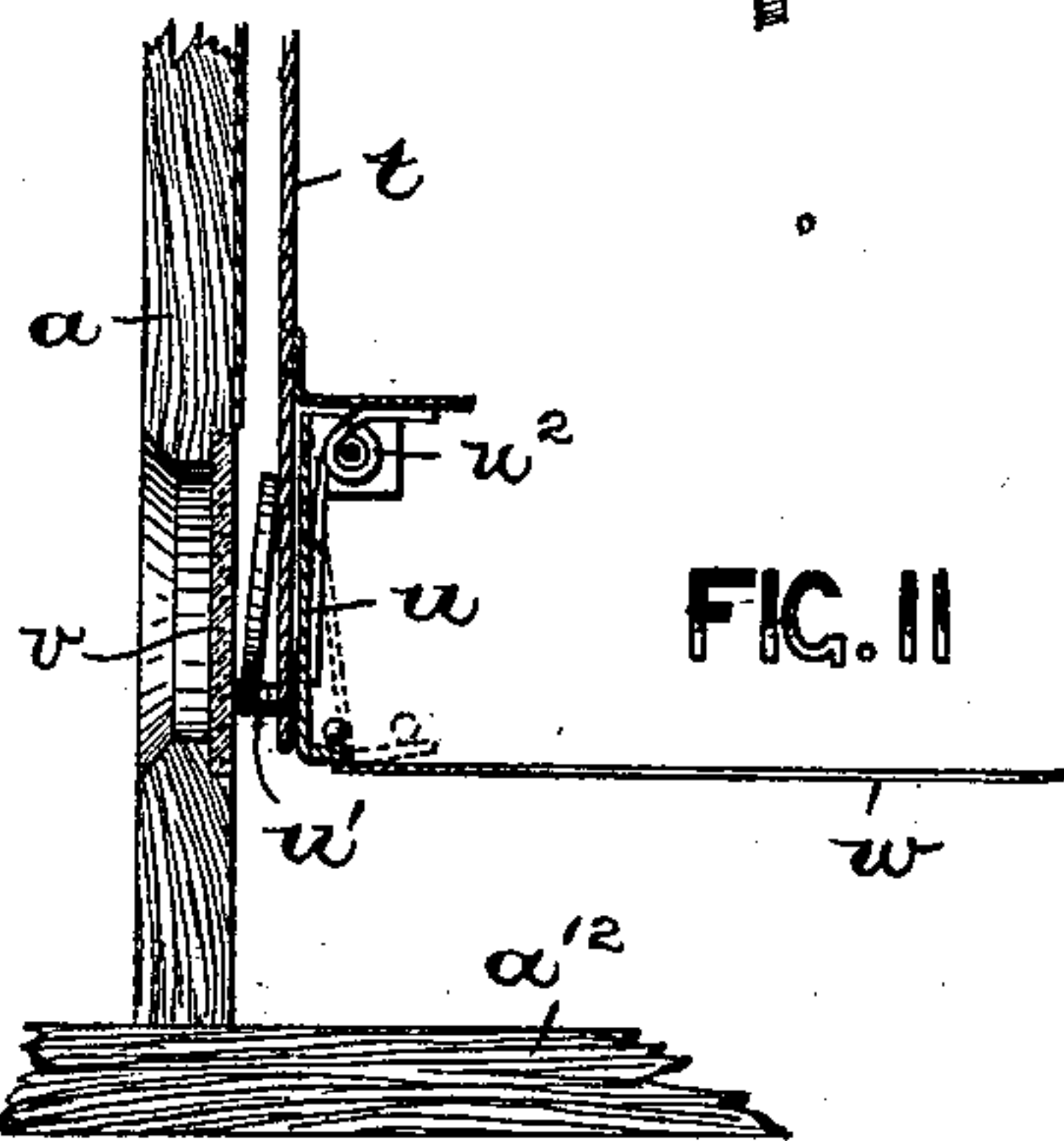


FIG. 11

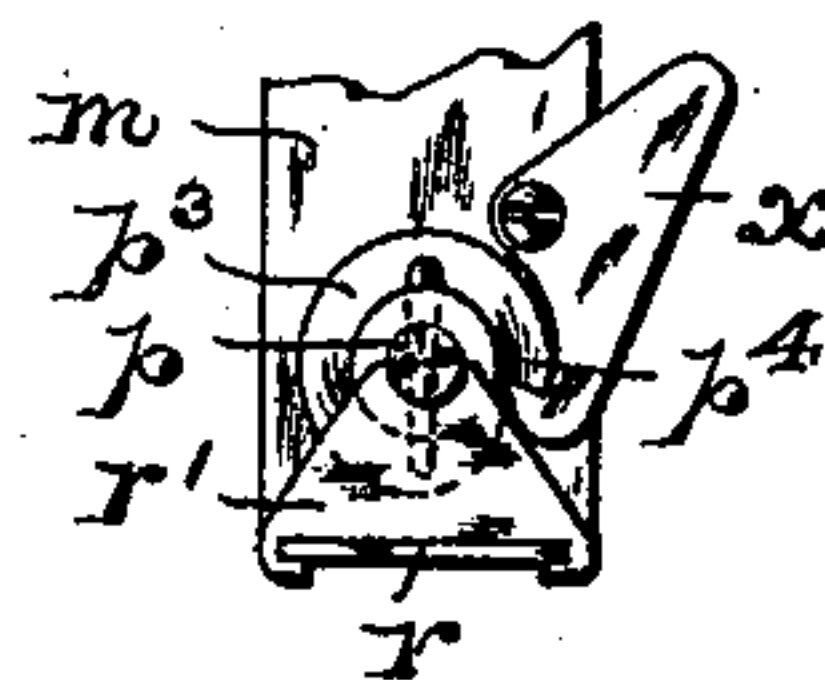


FIG. 12

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# UNITED STATES PATENT OFFICE.

MICHAEL BENEDICT, OF NEWARK, NEW JERSEY.

## VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 602,185, dated April 12, 1898.

Application filed June 14, 1897. Serial No. 640,629. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL BENEDICT, a subject of the Emperor of Germany, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Vending-Machines; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention has reference to improvements in coin-operated vending machines or apparatus in which the goods are exposed to view and are delivered by the turning of a crank-operated mechanism when a proper coin is delivered into the machine.

The invention has for its object to provide a machine of this character which is especially adapted to the sale of loose candies and which shall be of a compact, reliable, and efficient construction.

The invention therefore consists in the novel construction of coin-operated vending-machine hereinafter set forth, and also in the novel features of construction and the several arrangements and combinations of the parts thereof, all of which will be fully described in the accompanying specification and finally embodied in the clauses of the claim.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a face or front view of the apparatus; and Fig. 2 is a vertical cross-section of the same, taken centrally through the several parts of the operating mechanism of the apparatus. Fig. 3 is a longitudinal vertical section of the box or casing of the vending-machine, illustrating in elevation the several parts of the operating mechanism and the coin and goods or candy delivery chutes when looking at the back of all of the said parts; and Fig. 4 is a similar view of the upper portion of the machine, illustrating that portion of the mechanism in its operated position while in the act of delivering the goods into the delivery-chute. Fig. 5 is a vertical cross-section taken on line 5 5 in said Fig. 4; and

Fig. 6 is a perspective view of the operating-lever used in connection with the mechanism illustrated in said Figs. 3, 4, and 5. Fig. 7 is a top view, and Fig. 8 a longitudinal vertical section, of that portion of the mechanism for operating the goods-delivery mechanism and which is controlled by the passing of the proper coin into the coin-receiver. Fig. 9 is a perspective view of the coin-receiver employed, and Fig. 10 is a similar view of certain portions of the coin-controlled mechanism illustrated in Figs. 7 and 8. Fig. 11 is a vertical section in detail of a certain coin-retaining device used at or near the bottom of the coin-chute, and Fig. 12 is a detail view of one of the shaft-bearings and a holding catch or pawl used in connection with the parts illustrated more particularly in Fig. 8.

Similar letters of reference are employed in all of the above-described views to indicate corresponding parts.

In said drawings, A indicates the case or box of the machine, said case being made of wood or metal, as may be desired. In the upper portion of the front *a* is a comparatively large opening provided with a suitable frame *b* and a heavy glass cover *b'*, which permits the exposing to view of the goods behind the same. The top wall *a'*, which is preferably hinged to said front *a*, forms a suitable cover, which can be brought into locked engagement by means of a suitable lock *a<sup>2</sup>*, with a removable plate *a<sup>3</sup>* arranged directly upon the back wall *a<sup>4</sup>* of the casing. When said plate *a<sup>3</sup>* rests directly upon the edge *a<sup>5</sup>* of said wall *a<sup>4</sup>*, a pair of lugs *a<sup>6</sup>* on said plate *a<sup>3</sup>* fit over and directly behind said edge *a<sup>5</sup>*, while a pair of other lugs *a<sup>7</sup>* on said plate *a<sup>3</sup>* are brought in position directly beneath suitably-placed posts *a<sup>8</sup>* on the sides *a<sup>9</sup>* of the casing or box A, and when the cover *a'* is locked with said lock *a<sup>2</sup>* on the plate *a<sup>3</sup>* then said plate cannot be removed and the inner part of the box cannot be tampered with. One of said sides *a<sup>9</sup>* is preferably provided with a hinged door *a<sup>10</sup>* and a lock *a<sup>11</sup>*, engaging with the base *a<sup>12</sup>* of the case, to permit of the removal of the money from within the casing or box by the owner of the machine. The plate *a<sup>3</sup>* is removably connected with the casing or box to permit of making



the necessary repairs to any parts of the working mechanism should such parts get out of order.

As will be seen from Figs. 3 and 4, I have provided the inner surfaces of the opposite sides  $a^9$  of the box or casing A with suitable cleats  $a^{13}$  and  $a^{14}$ , upon which is removably placed the goods or candy reservoir C. The said reservoir, which is preferably made from sheet metal, when in position on said cleats fits closely against the back or inner surface of the glass  $b'$ . The reservoir consists, essentially, of a cylindrical portion  $c$ , open at the front, as at  $c'$ , which is divided from the goods-receiving portion  $c^2$  at the back by a partition  $c^3$ , preferably made of wood, but any other suitable material may be used, as will be evident. Said portion  $c^2$  is open at the top, as at  $c^4$ , and at the back is a wall  $c^5$ , which is provided with suitably-formed supports  $c^6$  and  $c^7$ , as clearly shown, by means of which said reservoir can be made to rest upon and is supported in its proper position upon the said hereinabove-mentioned cleats within the casing or box A of the machine. In the lower part of the partition  $c^3$  is an opening  $c^8$  to establish communication between the two chambers formed by the portions  $c$  and  $c^2$ , through which the candies or other goods to be dispensed with and which are placed into said portion  $c^2$  through the opening in the top thereof when the top or cover  $a'$  of the box or casing A has been opened pass into the chamber  $c$  in the manner clearly indicated in Figs. 1 and 2. Said chamber  $c$  is provided in one side, in a suitable position near its top, with an opening  $c^9$ , and in communication with said opening is a peculiarly-formed chute or raceway D, the construction of which will be more fully described hereinafter and which terminates at an opening  $a^{15}$  in the wall or front  $a$  of the casing A directly above the goods-receiver  $g$  in the base  $a^{12}$  of the machine. As indicated in dotted outline in Fig. 3, the side walls  $c^{10}$  of the portion  $c^2$  of the reservoir C are ><-shaped, whereby the upper and inner part of the said reservoir is made like a funnel; but its lower and inner part is suitably enlarged near said opening  $c^8$  in the partition  $c^3$  to prevent the choking of the candies in the bottom of said part  $c^2$ , and whereby said candies are permitted to freely pass, by their own gravity, through said opening  $c^8$  into the front chamber  $c$ , as will be clearly evident.

Rotatively arranged in suitable holes in the partition  $c^3$  and in the back wall  $c^5$  of the reservoir C is a shaft or arbor  $e$ , having its flanged end  $e'$ , on the outside of the said wall  $c^5$ , firmly secured to a disk or plate  $f$ , which is provided with any desirable number of radial arms  $f'$ , having the angularly-arranged edges  $f^2$ , substantially as shown in Figs. 3 and 4. In the present construction I employ four of these arms  $f'$ ; but it will be evident that I may use more or less, if desired. As has been stated, said plate  $f$  is permanently fixed to the end

of the shaft or arbor  $e$  by said flange  $e'$ ; but it will be understood that it may be otherwise fastened upon the said end of the shaft  $e$ . The other end  $e^2$  of said shaft extends into the part  $c$  of the reservoir C, and has secured on its said end, by means of a set-screw  $e^3$  or in any other well-known manner, a hub  $e^4$ , provided with radially-extending arms  $e^5$ , to each of which is suitably secured a vane or wing  $e^6$ , provided at the free end thereof with a bucket  $e^7$ , which is of the peculiar shape illustrated in Figs. 2 and 5. The shaft or arbor  $e$  is tubular, and has arranged therein, at its flanged end  $e'$ , the post or spindle  $h'$  of a suitably-constructed arm  $h$ , and can be forced into operative engagement with the disk or plate  $f$  by the pointed end of a set-screw  $j$ , which is adjustably arranged in the plate  $a^3$  of the casing or box A. Said arm  $h$  is provided with a sector-like portion  $h^2$ , having a grooved edge  $h^3$ . Directly above the lower and weighted end  $h^4$  of the said arm is a pivoted dog or pawl  $h^5$ , and a spring  $h^6$  is connected therewith, as shown in Figs. 3 and 4, which causes the normal and operative engagement of a portion  $h^7$ , projecting from the side of the pawl or dog  $h^5$ , with the edge  $f^3$  of one of the said arms  $f'$  of the disk or plate  $f$ . Thus it will be evident that when a downward pull is exerted on a chain  $k$  or other suitable connection suitably secured to said sector-like portion  $h^2$  the arm  $h$  will be caused to make a quarter-revolution, being brought from the position indicated in Fig. 3 to that in Fig. 4. This movement of the arm  $h$  and the disk or plate  $f$  causes the shaft  $e$  to turn, and the radial arms  $e^5$  on said shaft will be moved through the loose candy in the portion  $c$  of the reservoir C. In this manner the bucket on the end of the arm  $e^5$ , moving through the candy, will carry the candy with it until the bucket moves directly in front of the opening  $c^9$  in the part  $c$  of the reservoir C, when the candy drops from the open side of the bucket  $e^7$  through said opening  $c^9$  and down into and through the chute or raceway D, which delivers the candy on the receiver  $g$ . By this time the mechanism, to be hereinafter described, which is connected with the chain  $k$  and has in this manner actuated the arm  $h$ , now automatically releases the said chain, and the weighted arm  $h$  is returned to its initial position. (Indicated in said Fig. 3.) In thus returning to its former position the projection  $h^7$  on the dog or pawl  $h^5$  readily slips along the angular edge  $f^2$  of the next lower arm  $f'$  on the plate  $f$ , and when it has passed said edge then the spring  $h^6$  causes the operative engagement of the projection  $h^7$  with the edge  $f^3$  of the next lower arm  $f'$  on the disk or plate  $f$ . When the chain  $k$  is again operated upon by the coin-operated mechanism, the shaft  $e$  and parts connected therewith make another quarter-turn, and another certain quantity of candy is delivered into chute D and thence upon the receiver  $g$ .



The construction and operation of the coin-operated mechanism for actuating the arm *h*, and in consequence the candy-delivery mechanism hereinabove described, are as follows:

As will be seen from Figs. 1, 2, 7, and 8, I have secured over an opening in the lower part of the front *a* of the casing or box *A* an ornamental plate *i*, having in the top a slot *i'* to receive the coin and by means of which the mechanism can be set in operation. Said plate *i* is secured over said opening in the front *a* by means of bolts or screws *i<sup>2</sup>*, substantially as shown in Fig. 7. Directly back of the slot *i'* and cast integral with the plate *i* is a coin-guide *i<sup>3</sup>*. Secured on a screw-threaded stud *i<sup>4</sup>* by means of a nut *i<sup>5</sup>*, as shown more particularly in Fig. 8, is a bar or bracket *m*, having a suitable bearing portion *m'*, in which is a tubular or socketed spindle *l*, having the perforated end *l<sup>2</sup>* and provided with a slot *l<sup>3</sup>*, cut into part of the cylindrical surface of said spindle, as clearly shown in Figs. 8 and 10. The opposite end of said spindle *l* has longitudinally-arranged slots, into which is fitted the forked end *n'* of a shaft *n*, provided with a cam-shaped wheel *n<sup>2</sup>*, which is in alinement with the sector portion *h<sup>2</sup>* of the arm *h* and is connected by means of said chain *k* or other flexible connection with said sector portion to operate said arm *h* and its mechanism connected therewith when the shaft *n* is turned. A bearing *n<sup>3</sup>* and a collar *l<sup>4</sup>*, held in position on the spindle *l* by a set-screw *l<sup>5</sup>*, retain said spindle *l* and shaft *n* in their rotative and operative positions. Rotatively arranged on said spindle *l* is a second tubular spindle *o*, which is held in its operative position on the spindle *l* by the bearing *m'* in the bracket *m*, a pin *l<sup>6</sup>*, working against a shoulder *o'* of said spindle *o*, and an annular enlargement *l<sup>7</sup>* on the forward end of the spindle *l*, all of which is clearly evident from an inspection of Fig. 8. Said spindle *o* is provided with a gear *o<sup>2</sup>*, operated from a pinion *p'* on a shaft *p*, adapted to be turned by the crank *p<sup>2</sup>*. The rear end of said shaft *p* rests in a perforated post *r'*, forming a bearing, which is connected with a spring-plate *r*, securely fastened to the bracket *m*. The purpose of the spring-plate *r* is to allow the inoperative engagement of the pinion *p'* and gear *o<sup>2</sup>*, when turning the crank *p<sup>2</sup>*, at such time when the other parts of the mechanism have been rendered inoperative through carelessness or any other unforeseen cause. By this arrangement the danger of breaking any parts of the mechanism during the turning of the crank is entirely overcome.

When the pinion *p'* and gear *o<sup>2</sup>* are in operative mesh and the crank *p<sup>2</sup>* is turned, the result will be that the spindle *o* will turn on the spindle *l* without operating the shaft *n*. To cause the operation of said shaft *n*, a coin is necessary. When a coin is passed through the slot *i'*, it passes down the inclined guides or bars *i<sup>6</sup>* and *i<sup>7</sup>* of the guide *i<sup>3</sup>*, (see Figs. 7 and 9,) reaching a second guide *s*, provided

with perforated lugs *s'*, by means of which it is secured on the back of plate *i*. Said guide *s* has a channeled part *s<sup>2</sup>*, which causes the coin coming from the guide *i<sup>3</sup>* to reverse its direction and to be deposited into either one of the slots *o<sup>3</sup>* near the free end of the spindle *o*. From Fig. 2 it will be seen that when a coin passes from said guide *s* down between the longitudinal edges of one of said slots *o<sup>3</sup>* it will be held therein with the circumferential edge of the coin resting against the edge of a connecting portion *o<sup>4</sup>* between two of said slots *o<sup>3</sup>* in said spindle *o*. As soon as the spindle is turned by the crank *p<sup>2</sup>* said edge *o<sup>4</sup>* is forcibly brought against the edge of the coin and pushes the coin along the cylindrical surface of the spindle *l* until it drops into the slot *l<sup>3</sup>* in said spindle. The coin now extends partly into the slot *l<sup>3</sup>* in the spindle *l* and the slot *o<sup>3</sup>* in the spindle *o*, whereby said coin operatively connects both said spindles, and the spindle *l* now turns in connection with the spindle *o*. Thus the coin establishes an operative connection between said spindles *o* and *l*, and by causing the spindle *l* to turn, the shaft *n* and hence the arm *h* and its connecting mechanism are all actuated in the manner hereinabove described. As soon as the two coin-holding slots in the spindles *l* and *o* are in a position opposite the mouth of a chute *t* (see Fig. 3) the coin is forced into said chute and passes down upon a pair of pins *u'* on a spring-actuated plate *u*, said pins passing through suitable holes in the end of the chute *t* to expose the coin to view behind a glass window *v* in the front of the casing *A*, as clearly indicated in the several figures of the drawings. Just previous to the passing of the coin into the chute *t* the candy has been delivered into the chute or raceway *D*, and the coin now passing into the chute *t* the weight-arm *h* causes the return of the several parts of the mechanism to their initial positions ready for operation when a second coin is dropped into the slot *i'*.

As has been stated and as will be more especially seen from Fig. 11, the coin is retained on a pair of pins *u'*, directly behind the glass window *v*, until a second coin is deposited and the mechanism in this manner again set in operation. As will be noticed from Figs. 2, 3, and 11, the wheel *n<sup>2</sup>* on the shaft *n* is provided with a pair of spring-like clamping-arms *n<sup>4</sup>*, between which is adjustably secured a flexible connection *w*, which passes over a suitable pulley-wheel *y* on one of the sides of the casing *A* (see Fig. 3) and is then connected with the hereinabove-mentioned spring-actuated plate *u*. Thus when the wheel *n* is operated said flexible connection *w* causes the withdrawal of the pins *u'* from the chute *t*, which causes the coin to be deposited in the bottom of the casing; but as soon as the shaft *u* and said wheel *n<sup>2</sup>* return to their initial starting positions then the spring *u<sup>2</sup>*, connected with the plate *u*, will force said plate back and its pins *u'* back into their



former positions in the chute to receive the second coin after it has been forced from its operative engagement with the respective slots in said spindles *l* and *o* into the chute *t*.

5 In order that the candies which are fed into the chute D may be properly deposited upon the receiver *g*, said chute is formed at the bottom with a pocket-like portion *d*, (see Fig. 3,) upon which the candies pass from the plate *d'*, and their motion is considerably retarded. 10 From this pocket-like portion *d* the candies next pass onto an inclined plate *d''*, from which they pass through the opening *a*<sup>15</sup> in the front *a* and upon the receiver *g*. The chute D may 15 have that portion of the chute indicated by the letter *d*<sup>3</sup> removably arranged between the parts *d*<sup>4</sup> and *d*<sup>5</sup> of the chute, said part *d*<sup>3</sup> being secured in position in a slightly-grooved part of the side of the casing A and held by 20 the action of a suitable spring *d*<sup>6</sup>, which is fastened to the part *d*<sup>4</sup> of the chute D.

To prevent any backward movement of the mechanism illustrated in Figs. 7 and 8, the crank-shaft *p* may be provided with a cam-plate *p*<sup>3</sup>, having a holding-tooth *p*<sup>4</sup>, with which 25 a dog *x*, which is pivotally attached to the bracket *m*, can be made to engage in the usual manner and as will be clearly evident from an inspection of Fig. 12.

30 Of course it will be evident that many changes may be made in the several arrangements and combinations of the parts of the machine and in the details of construction thereof without departing from the scope of 35 my present invention. Hence I do not limit myself to the exact arrangements and combinations of the parts and the details of construction thereof as described in the accompanying specification and illustrated in the 40 drawings.

Having thus described my invention, what I claim is—

1. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or 45 arms on said shaft, and a bucket or buckets on said arm or arms, a delivery-chute connected with said reservoir, and a coin-controlled mechanism for intermittently operating said shaft and bringing one of said buck- 50 ets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, substantially as and for 55 the purposes set forth.

2. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with 60 said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate *f* on said shaft, arms *f'* on said plate, a spindle *h'* in said shaft, 65 a weighted arm *h* on said spindle, and a spring-actuated pawl or dog on said arm *h* adapted to engage with an arm on said plate *f* and op-

erate the same, substantially as and for the purposes set forth.

3. In a vending-machine, a casing C, hav- 70 ing a glass front, a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through both chambers, an arm or arms on said shaft, and 75 a bucket or buckets on said arm or arms, exposed to view through said glass front, a delivery-chute connected with said reservoir, and a coin-controlled mechanism for operating said shaft, and bringing one of said buck- 80 ets past the mouth of the chute, consisting, essentially, of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, substantially as and for 85 the purposes set forth.

4. In a vending-machine, a candy or goods holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between 90 said chambers, a tubular shaft extending through said chambers, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft 95 and bringing one of the buckets past the mouth of the chute, consisting, essentially, of a disk or plate *f* on said shaft, arms *f'* on said plate, a spindle *h'* in said shaft, a weighted arm *h* on said spindle, and a spring-actuated 100 dog or pawl on said arm *h* adapted to engage with an arm on said plate *f* and operate the same, substantially as and for the purposes set forth.

5. In a vending-machine, a candy or goods 105 holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through said chambers, an arm or arms on said 110 shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of the buckets past the mouth of the chute, consisting, essentially, 115 of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, and mechanism adapted to be actuated by the action of a coin and coöperat- 120 ing with said means for causing the movement of said disk or plate, substantially as and for the purposes set forth.

6. In a vending-machine, a candy or goods 125 holding reservoir, comprising a pair of chambers divided by a partition having an opening, for establishing communication between said chambers, a tubular shaft extending through said chambers, an arm or arms on said shaft, and a bucket or buckets on said 130 arm or arms, a chute connected with said reservoir, mechanism for operating said shaft and bringing one of the buckets past the mouth of the chute, consisting, essentially,



of a disk or plate on said shaft and means connected with said shaft for causing a step-by-step movement of said disk or plate and said shaft, and mechanism, comprising a pair of spindles  $l$  and  $o$  having coin-receiving slots, a shaft  $n$  and a flexible connection coöperating with said means for the movement of said disk or plate, substantially as and for the purposes set forth.

7. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate  $f$  on said shaft, arms  $f'$  on said plate, a spindle  $h'$  on said shaft, a weighted arm  $h$  on said spindle, a spring-actuated pawl or dog on said arm  $h$  adapted to engage with an arm on said plate  $f$  and operate the same, and mechanism adapted to be actuated by the action of a coin and coöperating with said arm  $h$  to cause the movement of the latter, substantially as and for the purposes set forth.

8. In a vending-machine, a candy or goods holding reservoir, a tubular shaft, an arm or arms on said shaft, and a bucket or buckets on said arm or arms, a chute connected with said reservoir, and mechanism for operating said shaft and bringing one of said buckets past the mouth of the chute, consisting, essentially, of a disk or plate  $f$  on said shaft,

arms  $f'$  on said plate, a spindle  $h'$  on said shaft, a weighted arm  $h$  on said spindle, a spring-actuated pawl or dog on said arm  $h$  adapted to engage with an arm on said plate  $f$  and operate the same, a grooved portion  $h^2$  on said arm  $h$ , and mechanism, comprising, a pair of spindles  $l$  and  $o$  having coin-receiving slots, a shaft  $n$ , a wheel  $n^2$  on said shaft, and a flexible connection between said wheel  $n^2$  and said grooved portion  $h^2$ , substantially as and for the purposes set forth.

9. In a vending-machine, a coin-chute  $t$ , and a spring-actuated plate  $u$  having prongs extending into and through perforations in said chute, all in combination, with a shaft  $n$ , a wheel on said shaft, a pair of spring-like clamping-arms  $n^4$  on said wheel, and a flexible connection between said arms  $n^4$  and said plate  $u$ , substantially as and for the purposes set forth.

10. In a vending-machine, the combination, with the bracket  $m$  having a bearing, and the operating mechanism carried thereby, of a shaft  $p$ , and a spring-plate  $r$  and bearing-post  $r'$  for the one end of said shaft  $p$ , substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 9th day of June, 1897.

MICHAEL BENEDICT.

Witnesses:

FREDK. C. FRAENTZEL,  
WM. H. CAMFIELD, Jr.