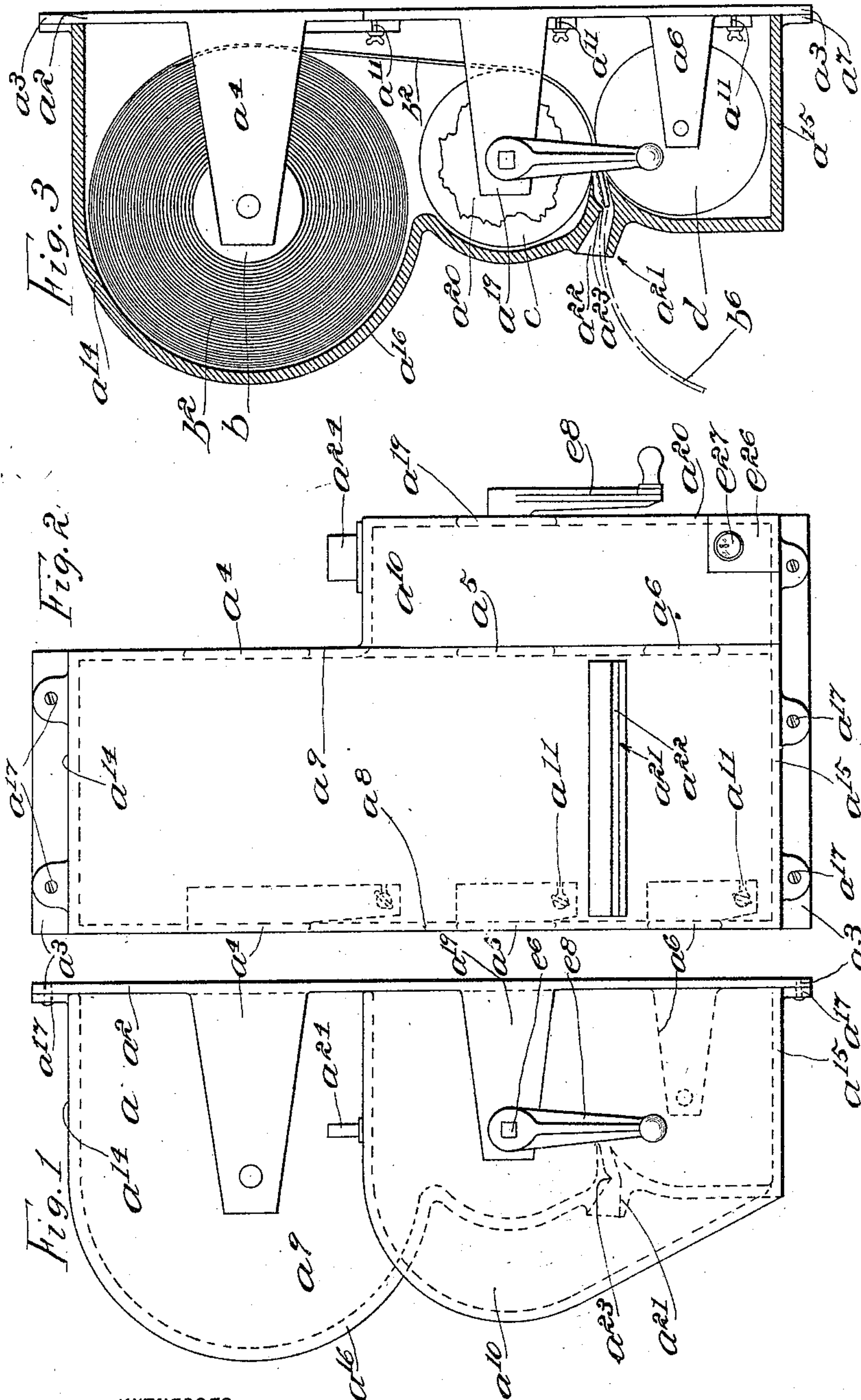


H. R. CANFIELD.  
 COIN OPERATED VENDING MACHINE.  
 APPLICATION FILED MAY 13, 1909.

966,734.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

*C. E. Mulreany*  
*M. C. Dordy*

BY

INVENTOR  
*Harry R. Canfield*  
*Edgar T. Co.*  
 ATTORNEYS.

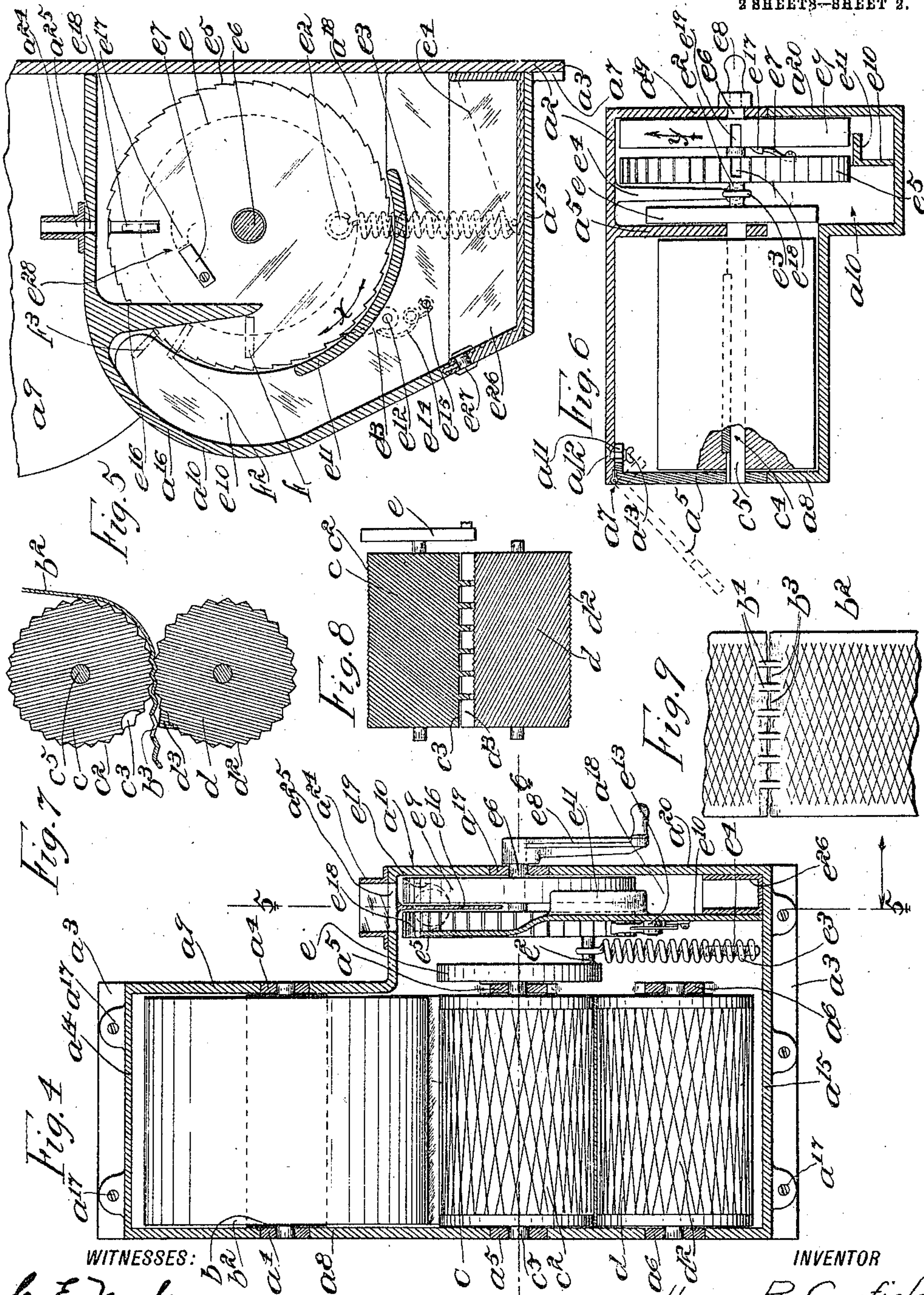


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# UNITED STATES PATENT OFFICE.

HARRY R. CANFIELD, OF NEW YORK, N. Y., ASSIGNOR TO NICHOLAS J. SAVAGE, OF NEWARK, NEW JERSEY.

## COIN-OPERATED VENDING-MACHINE.

966,734.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed May 13, 1909. Serial No. 495,801.

*To all whom it may concern:*

Be it known that I, HARRY R. CANFIELD, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Coin-Operated Vending-Machines, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to what are known as coin operated vending machines; and the object thereof is to provide an improved machine of this class particularly designed for use in hotels, cafés, saloons and other public places for vending paper or fibrous towels; a further object being to provide a machine of the class specified particularly designed for use in vending paper or fibrous towels from a roll of material mounted in a suitable casing and from which at each operation of the machine a predetermined length or strip of the material is fed from the roll and may be detached for use as a towel.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a side view of my improved vending machine, Fig. 2 a front view thereof, Fig. 3 a sectional side view of the machine as shown in Fig. 1, Fig. 4 a sectional front view of the machine as shown in Fig. 2, Fig. 5 a sectional view approximately on the line 5—5 of Fig. 4, Fig. 6 an approximate section on the line 6—6 of Fig. 4, Fig. 7 a transverse section of two feed rollers which form a part of my improved machine, Fig. 8 a longitudinal sectional view of said rollers, and;—Fig. 9 a face view or side view of a strip of towel material after it is passed between the feed rollers.

In the practice of my invention, I provide a main casing  $a$  having a back  $a^2$  which, in the form of construction shown, is provided at the top and bottom thereof with projecting members  $a^3$  by means of which the machine may be secured to a wall or other suitable support, and the back of the casing  $a$  is provided at its opposite sides with forwardly directed pedestals  $a^4$ ,  $a^5$  and  $a^6$ , and these pedestals at one side of the casing, the

left hand side as shown in the drawings, are hinged to the back  $a^2$  as shown at  $a^7$ , and the hinged pedestals  $a^4$ ,  $a^5$  and  $a^6$  fit in corresponding apertures in the left hand side  $a^8$  of the casing  $a$ , and the pedestal  $a^4$  on the right hand side of the casing  $a$  also fits in the corresponding aperture in the right hand side  $a^9$  of the casing  $a$  all as clearly shown in Fig. 4, and the pedestals  $a^5$  and  $a^6$  in the right hand side portion of the casing  $a$  are inclosed by a supplemental casing or laterally directed extension  $a^{10}$  at the bottom of and on the right hand side of the main casing  $a$ .

In Fig. 6 I have shown the method of hinging the pedestals  $a^4$ ,  $a^5$  and  $a^6$  at the left hand side of the main casing  $a$ , the pedestal  $a^5$  being shown in Fig. 6, and said pedestals are hinged to the back  $a^2$  of the main casing  $a$  and are provided with slotted feet  $a^{11}$  through which are passed bolts  $a^{12}$  provided with thumb nuts  $a^{13}$ , and this construction is shown in dotted line in Fig. 2 and full lines in Fig. 3, and by means of this construction the pedestals  $a^4$ ,  $a^5$  and  $a^6$  at the left hand side of the casing  $a$  may be rigidly held in position for use as shown in Figs. 4 and 6, or may be turned outwardly as shown in dotted lines in Fig. 6.

The left hand side  $a^8$  of the main casing  $a$ , the right hand side  $a^9$ , the top  $a^{14}$ , the bottom  $a^{15}$ , the front  $a^{16}$  and the supplemental casing or extension  $a^{10}$  at the right hand side of the main casing  $a$  are all formed integrally, and are rigidly connected with the back  $a^2$  of the main casing  $a$  by means of projecting ears  $a^{17}$  at the top  $a^{14}$  and bottom  $a^{15}$  which are rigidly secured to the projecting members  $a^3$  of the back  $a^2$ .

The back  $a^{18}$  of the supplemental casing  $a^{10}$  which is formed integrally with the back  $a^2$  of the main casing  $a$  is provided with a pedestal  $a^{19}$  which fits in the corresponding recess in the outer side wall  $a^{20}$  of the supplemental casing  $a^{10}$  as clearly shown in Fig. 4 and as partially shown in Fig. 3.

From this description, it will be seen, that the casing of my improved machine consists of a main part and a supplemental part, the back of both parts being the same and the sides, front, top and bottom of both parts being formed integrally and being detachably connected with the back part, but my invention is not limited to any particular



means for connecting said parts of the casing of the machine, nor other features thereof as described.

Mounted in the top portion of the main part of the casing, and in the oppositely arranged pedestals  $a^4$  thereof is a roller  $b$  on which is wound a strip or sheet  $b^2$  of paper from which towels are formed as hereinafter described. Below the roller  $b$  are two main feed rollers  $c$  and  $d$  which also serve as cutters for perforating or partially dividing the strip  $b^2$  at regular intervals, and these rollers are also corrugated diagonally or otherwise as indicated at  $c^2$  and  $d^2$  in Figs. 1 and 7 for the purpose of crimping, crapping or otherwise forming the strip  $b^2$  into such shape or manner as to adapt it to serve more conveniently and readily for the purpose intended, or as towels. The rollers  $c$  and  $d$  are of predetermined dimensions and designed at each complete revolution to feed a predetermined length, say from fifteen to eighteen inches, of the strip  $b^2$  through the front of the main casing at  $a^{21}$  at each complete revolution of said rollers, and said rollers are also provided, one with a longitudinal row of suitably formed recesses  $c^3$ , and the other with a longitudinal row of suitably formed teeth or projections  $d^3$  which, at each complete revolution of said rollers, will form in the strip or sheet  $b^2$  a transverse row of apertures  $b^3$  as clearly shown in Fig. 9, said apertures being separated by narrow longitudinal strips or connecting members  $b^4$ , and at each complete revolution of the rollers  $c$  and  $d$  in the operation of the machine as hereinafter described a part or section of the strip or sheet  $b$  is fed forward through a transverse aperture  $a^{22}$  in the front  $a^{10}$  of the main casing  $a$ , and in this operation the transverse apertures  $b^3$  in the strip or sheet  $b^2$  are fed forward to the point  $b^5$  in Fig. 3, at which point the transverse aperture  $a^{22}$  is provided with a downwardly directed transverse edge  $a^{23}$  and a quick upward pull on the projecting portion  $b^6$  of the strip or sheet  $b^2$  will tear off said projecting portion which may be used as a towel.

In the construction shown, the diagonally arranged corrugations  $c^2$  and  $d^2$  of the rollers  $c$  and  $d$  produce corresponding diagonally arranged projections or teeth on the face of said rollers and corresponding depressions, and in the construction shown, these teeth or projections not only serve to crimp or crape or break the surface of the paper, strip or sheet  $b^2$ , but also serve as inter-meshing gear teeth for the said rollers, and by means of which one of said rollers is turned by the other, in the operation of the machine as hereinafter described.

The object of hinging the pedestals  $a^4$ ,  $a^5$  and  $a^6$  on the left hand side of the casing  $a$  as shown at  $a^7$  in Fig. 6 and as above de-

scribed, is to facilitate the mounting of or removal of the rollers  $b$ ,  $c$  and  $d$ ; and the object of providing pedestal bearings for these rollers independent of the cover of the machine is to provide a construction whereby the machine may be opened up for inspection without disturbing any of the operating parts thereof.

The rollers  $c$  and  $d$  are secured to their shafts respectively by a key and key way construction well known and plainly shown in connection with the roller  $c$  at  $c^4$  in Fig. 6, and by means of this construction, in mounting the rollers upon the shafts, the key is first inserted in the key way of the roller and the roller and its key then passed over the shaft  $c^5$  as will be understood, the pedestal  $a^5$  being first moved outwardly as shown in dotted lines in Fig. 6 to permit of this operation.

Rigidly secured to the shaft  $c^5$  of the roller  $c$  is a crank disk  $e$ , and lateral motion of this disk is prevented by the pedestal  $a^5$  as plainly shown in Fig. 4; the disk  $e$  is provided with a wrist pin  $e^2$  rigidly secured thereto, and operating upon the wrist pin  $e^2$  is a spiral spring  $e^3$  ranging vertical therefrom and which is secured at its lower end to a post  $e^4$  rigidly secured to and extending forwardly from the back  $a^2$  of the machine as shown in Fig. 6 and indicated in Fig. 5. The wrist pin  $e^2$  is also rigidly connected to a ratchet disk  $e^5$  provided at its center with a bearing adapted to operate in connection with the end of a shaft  $e^6$  to be described later. The spring  $e^3$  operates to normally hold the disk  $e$  and the ratchet disk  $e^5$  in the positions shown in Fig. 5. The ratchet disk carries a spring pawl  $e^7$  shown in Fig. 6.

Operating in the pedestal  $a^{10}$  is a shaft  $e^8$  provided at its outer end with a crank  $e^8$  rigidly secured thereto, and inwardly of the pedestal  $a^{10}$  is a driving disk  $e^9$  also rigidly secured to the shaft  $e^8$  and the shaft  $e^8$  extends through the driving disk  $e^9$  inwardly thereof and occupies the bearing of the ratchet disk  $e^5$  as plainly shown in Fig. 4. As will be seen, the pedestal  $a^{10}$  supports the crank  $e^8$  and driving disk  $e^9$  and the disk  $e$  and ratchet disk  $e^5$  are supported by the pedestal  $a^5$  and the shaft  $e^6$ . Secured to the cover of the machine and extending rearwardly into the supplemental casing  $a^{10}$  is a vertically arranged partition  $e^{10}$  plainly shown in Fig. 5 which follows approximately the contour of the ratchet disk  $e^5$  to the bottom portion thereof from which it extends horizontally to the back  $a^2$  of the machine, and as shown in Fig. 4 this partition is bent away at its upper end from the right hand face of the ratchet disk  $e^5$ , and the partition  $e^{10}$  is provided with a segmental rib  $e^{11}$  at right angles to the partition  $e^{10}$  and which also follows approximately the contour of the ratchet disk  $e^5$  ex-



tending from a point adjacent to the lower side of said ratchet disk forwardly and upwardly to any suitable distance, or as in the construction shown, approximately one-quarter of the circumference of the ratchet disk  $e^5$ .

Pivoted at  $e^{12}$  to the partition  $e^{10}$  is a pawl  $e^{13}$  operating in connection with the teeth on the ratchet disk  $e^5$  and held normally thereon by a spring  $e^{14}$  also pivoted to the partition  $e^{10}$  at  $e^{15}$ , and this pawl prevents rotation of the ratchet disk  $e^5$  in a direction opposite to the arrow  $x$  as shown in Fig. 5.

As shown in Fig. 4, the ratchet disk  $e^5$  and the driving disk  $e^9$  are so mounted as to have a space between their adjacent faces, and extending downwardly into this space and formed integrally with the cover of the machine is a finger  $e^{16}$ , the shape of which is shown in Fig. 5.

The driving disk  $e^9$  is provided as shown in Fig. 6 with a tooth  $e^{17}$  which operates in connection with the spring pawl  $e^7$  on the ratchet disk  $e^5$  to prevent the independent rotation of the driving disk  $e^9$  in a direction opposite to the arrow  $y$  in Fig. 6 as will be understood, and the tooth  $e^{17}$  is indicated in dotted lines in Fig. 5.

The ratchet disk  $e^5$  and the driving disk  $e^9$  are provided with coin recesses  $e^{18}$  and  $e^{19}$  respectively which are similar in contour as shown in dotted lines in Fig. 4, and of the transverse shape shown in Fig. 6, and these recesses extend radially into their respective disks.

Mounted in the top portion of the supplemental casing  $a^{10}$  is a coin chute  $a^{24}$  which communicates with a corresponding slot  $a^{25}$  in the top portion of the supplemental casing  $a^{10}$  as shown in Figs. 4 and 5.

In the lower part of the supplemental casing  $a^{10}$ , and between the side wall  $a^{20}$  thereof and the partition  $e^{10}$  is a drawer or coin receiver  $e^{26}$ , and as plainly shown in Fig. 5 the drawer  $e^{26}$  is provided with a lock  $e^{27}$ , the tumbler of which operates in connection with the front wall or cover of the supplemental casing  $a^{10}$  by means of which the drawer  $e^{26}$  can be locked in position in the supplemental casing; and said drawer  $e^{26}$  preferably extends from the front part of the cover rearwardly to the base  $a^2$  as shown in Fig. 5.

According to the construction above described, it will be seen, that the spring  $e^3$  tends normally to hold the wrist pin  $e^2$  vertically under the shaft  $e^6$  and the recess  $e^{18}$  is so located that its corresponding normal position is directly under the coin chute  $a^{24}$ .

The driving disk  $e^9$  is free to turn in the direction of the arrow  $y$  in Fig. 6, by means of a crank  $e^8$ , and the spring pawl  $e^7$  is free to work over the tooth  $e^{17}$  and when the pawl  $e^7$  and tooth  $e^{17}$  are adjacent as shown in Fig. 5 at  $e^{28}$  the recess  $e^{19}$  in the driving disk  $e^9$  registers with the recess  $e^{18}$  and is

also directly under the coin chute  $a^{24}$ , and the driving disk  $e^9$  is prevented from being turned in a direction opposite to the arrow  $y$  of Fig. 6 since the tooth  $e^{17}$  will strike the spring pawl  $e^7$  tending to turn the ratchet disk  $e^5$  which is prevented from turning by the pawl  $e^{13}$ . The rib  $e^{11}$  of the partition  $e^{10}$  as shown in Fig. 4 extends over and covers the opening of the space between the driving disk  $e^9$  and the ratchet disk  $e^5$ .

The operation of this machine will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statements thereof. The apparatus is, at all times, normally inoperative since as above stated the crank can be turned idly in one direction but is positively restrained from being turned in the other direction; when it is desired to operate the machine to produce for use a towel as hereinbefore mentioned, a coin such as a penny, nickel, dime or other coin is placed by the operator in the upper end of the coin chute  $a^{24}$  and on being released drops downwardly therethrough and is received by the recesses  $e^{18}$  and  $e^{19}$ , the coin resting in the bottom thereof, its shape conforming to the shape of the bottom of the recesses as shown in Fig. 4. The crank  $e^8$  is, as before stated, prevented from being turned to the left, but if it now be turned to the right the driving disk  $e^9$  will move or turn the ratchet disk  $e^5$  because of the coin engaging the edges of the recesses  $e^{18}$  and  $e^{19}$  as will be understood, and as the two disks are now turned together toward the right the spring  $e^3$  tends to resist the revolution of the ratchet disk  $e^5$  throughout a half revolution thereof as will be understood, and when the driving disk  $e^9$  by means of the coin in the recesses  $e^{18}$  and  $e^{19}$  has turned the ratchet disk  $e^5$  more than a half revolution the spring  $e^3$  will tend to assist in the rotation of the disk  $e^5$  and the spring pawl  $e^7$  will engage and press upon the tooth  $e^{17}$  and the two disks will continue to rotate together. When the coin in its revolution with the disks has reached a point shown in dotted lines at  $f$ , the lower end of the finger  $e^{16}$  engages the inner edge of the coin  $f$ , and on a further revolution of the two disks the coin is gradually pushed out by the edge of the finger  $e^{16}$ , occupying in this operation the position  $f^2$ , until at  $f^3$  the coin is entirely freed from the recesses  $e^{18}$  and  $e^{19}$  in the disks  $e^5$  and  $e^9$ , and drops downwardly by gravity over the peripheries of the disks  $e^5$  and  $e^9$  around under the rib  $e^{11}$  and into the drawer  $e^{26}$ . When the coin has left the recesses as above described, the driving disk  $e^9$  is free to move independently of the ratchet disk  $e^5$  and the spring  $e^3$  operates to pull the disk  $e^5$  to a completion of its revolution or toward its normal position, as shown in the drawings, and thereby causes



the spring pawl  $e^7$  to remain adjacent to the tooth  $e^{17}$ , and thus the disk  $e^9$  and the disk  $e^5$  continue to rotate together, and when the complete revolution has been effected the initial conditions are restored and a further revolution of the disk  $e^5$  is impossible without the insertion of another coin. As hereinbefore stated, the paper  $b^2$  on the roller  $b$  is fed between the two rollers  $c$  and  $d$  and, as just described, on the insertion of a coin into the machine, the roller  $c$  may be revolved through one revolution by means of the crank  $e^8$ , and during this operation a predetermined length of paper is fed between the rollers  $c$  and  $d$  thus giving the treatment hereinbefore mentioned of crimping or craping its surface, which give it a porous absorbent texture. The longitudinal row of recesses  $c^3$  and corresponding teeth  $d^3$  are so located upon the rollers  $c$  and  $d$  that when the said rollers are in their normal positions, these recesses and teeth occupy relatively the position shown in Fig. 7 so that on a completion of one revolution of the rollers above described, the predetermined length of paper towel is formed and fed out through the delivery slot at  $a^{21}$  and is perforated or cut transversely by the recesses  $c^3$  and projections  $d^3$ , and this transverse row of perforations is fed forward to and stopped at the transverse edge  $a^{23}$  of the delivery aperture  $a^{22}$  so that the predetermined length of towel or strip  $b^2$  may be torn off along said edge.

As will be understood in connection with the above description, the rib  $e^{11}$  and the partition  $e^{10}$  direct the path of the coin discharged by the finger  $e^{16}$  from the recesses  $e^{18}$  and  $e^{19}$  and prevent its falling off into the interior of the machine, and the point in the revolution of the disks  $e^5$  and  $e^9$  at which the coin is ejected from the recesses  $e^{18}$  and  $e^{19}$  by the finger  $e^{16}$  is determined by, and may be adjusted to occur at any desirable point in the revolution of the said disks by varying the contour of the finger  $e^{16}$  and the length of the rib  $e^{11}$  as will be understood.

The crank  $e^8$  will normally hang, due to its weight, at the lowest point of its revolution as shown in Fig. 4, or it may be held in this position normally by any desired means, but it will be understood that if by accident it does not occupy this position when the coin is inserted, the driving disk  $e^9$  may be revolved idly in the direction of the arrow  $y$  of Fig. 6 until the recess  $e^{19}$  registers with the recess  $e^{18}$  and with the coin chute  $a^{24}$  when the coin will drop into the recesses  $e^{18}$  and  $e^{19}$  and the machine may be operated as above described.

When the roll of paper  $b^2$  on the roller  $b$  has become exhausted, a new one may be substituted by first removing the cover of the machine and then letting down the

hinged pedestal  $a^4$  constructed as above described.

The method of connecting the cover to the base  $a^2$  may be modified and arranged in any desired way and other details of the construction of my improved towel vending machine may be changed and modified without departing from the spirit of my invention or sacrificing its advantages, and I do not wish to be limited to the exact forms of construction and details by which the principle of my invention is applied as herein set out.

Although I have shown and described the feed rollers  $c^2$  and  $d^2$  as geared together by means of teeth or projections and corresponding recesses formed in the faces thereof, it will be apparent that these rollers may be geared together by means of gears at the ends thereof; or in any other desired manner, and by means of the construction herein described, I provide a machine which will form from a roll of smooth paper a towel having a rough, porous and absorbent surface or texture delivered for use upon the insertion of a coin in the machine and upon the turning of a crank to operate the same; but my invention is not limited to the construction, combination and arrangement of the various parts of the machine herein shown and described, since it will be evident that a roll of paper previously craped and made porous and absorbent and previously provided with transverse rows of perforations or apertures may be used and fed out between differently formed rollers controlled by the coin operated mechanism described, or some other form of coin operated mechanism may be used to control the corrugated feed rollers and perforators constructed as described; and various other changes in and modifications of the construction herein described may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a coin operated mechanism, the combination with a casing of a driving disk and a crank device for revolving the same, a supplemental disk mounted independently of said driving disk and provided with a centering device tending to maintain said supplemental disk in a normal position, and with a ratchet device operating to prevent the rotation of said supplemental disk in one direction, a tooth on said driving disk and a corresponding pawl on said supplemental disk operating in connection with said ratchet device to prevent the rotation of said driving disk in one direction beyond a predetermined point, said driving disk and said supplemental disk being provided with transverse radial recesses adapted to re-



ceive a coin whereby said supplemental disk may be turned by said driving disk, a rib or guard member secured to said main frame or casing and closing the open  
 5 ends of said recesses during a part of the revolution of said disks, and a finger cam operating in connection with a coin in said recesses to remove said coin from said  
 10 recesses at a certain point in the revolution of said disks.

2. In a coin operated mechanism, the combination with a main support or casing of a driving disk, a crank device for turning said disk, a supplemental disk mounted in-  
 15 dependently of the driving disk, said disk being provided with transverse radial recesses in a plane at right angles thereto and adapted to receive a coin whereby on revolving the driving disk the supplemental  
 20 disk will also be revolved and means for preventing the rotation of the supplemental disk in one direction, said supplemental disk being also provided with a centering device tending to maintain the same in its normal  
 25 position.

3. In a coin operated mechanism, the combination with a main support or casing, of a driving disk, means for turning the same, a supplemental disk mounted independently  
 30 of the driving disk, said supplemental disk being provided with a centering device tending to maintain it in a normal position and with a ratchet device tending to prevent its rotation in one direction, said  
 35 driving disk being provided with a tooth, and said supplemental disk being provided with a corresponding pawl, said supplemental disk and said driving disk being also provided with radial transverse recesses  
 40 adapted to receive a coin whereby said supplemental disk may be revolved by said driving disk.

4. In a coin operated mechanism, the combination with a main support or casing of a  
 45 driving disk, means for turning the same, a

supplemental disk mounted independently of the driving disk, said supplemental disk being provided with a centering device tending to maintain it in a normal position and  
 50 with a ratchet device tending to prevent its rotation in one direction, said driving disk being provided with a tooth, and said supplemental disk being provided with a corresponding pawl, said supplemental disk and  
 55 said driving disk being also provided with radial transverse recesses adapted to receive a coin whereby said supplemental disk may be revolved by said driving disk, and said casing being provided with a finger cam  
 60 operated in connection with the coin to cause said coin to leave said recesses at a predetermined point in the revolution of said disks.

5. In a coin operated mechanism, the combination with a main support or casing of a  
 65 driving disk, a crank device for turning the same, a supplemental disk mounted independently of the driving disk, said disk being provided with transverse radial recesses adapted to receive a coin whereby on turn-  
 70 ing the driving disk the supplemental disk will also be turned, said casing being provided with a rib which closes the open ends of said recesses during a part of the revolution of said disks, and a finger cam adapted  
 75 to operate in connection with said coin to cause it to leave said recesses at a predetermined point in the revolution of said disks, said supplemental disk being also provided with means for turning in one direction and  
 80 with a centering device by which it is normally held in a predetermined position.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this  
 85 3rd day of May 1909.

HARRY R. CANFIELD.

Witnesses:

C. E. MULREANY,  
 M. E. DOODY.