

(No Model.)

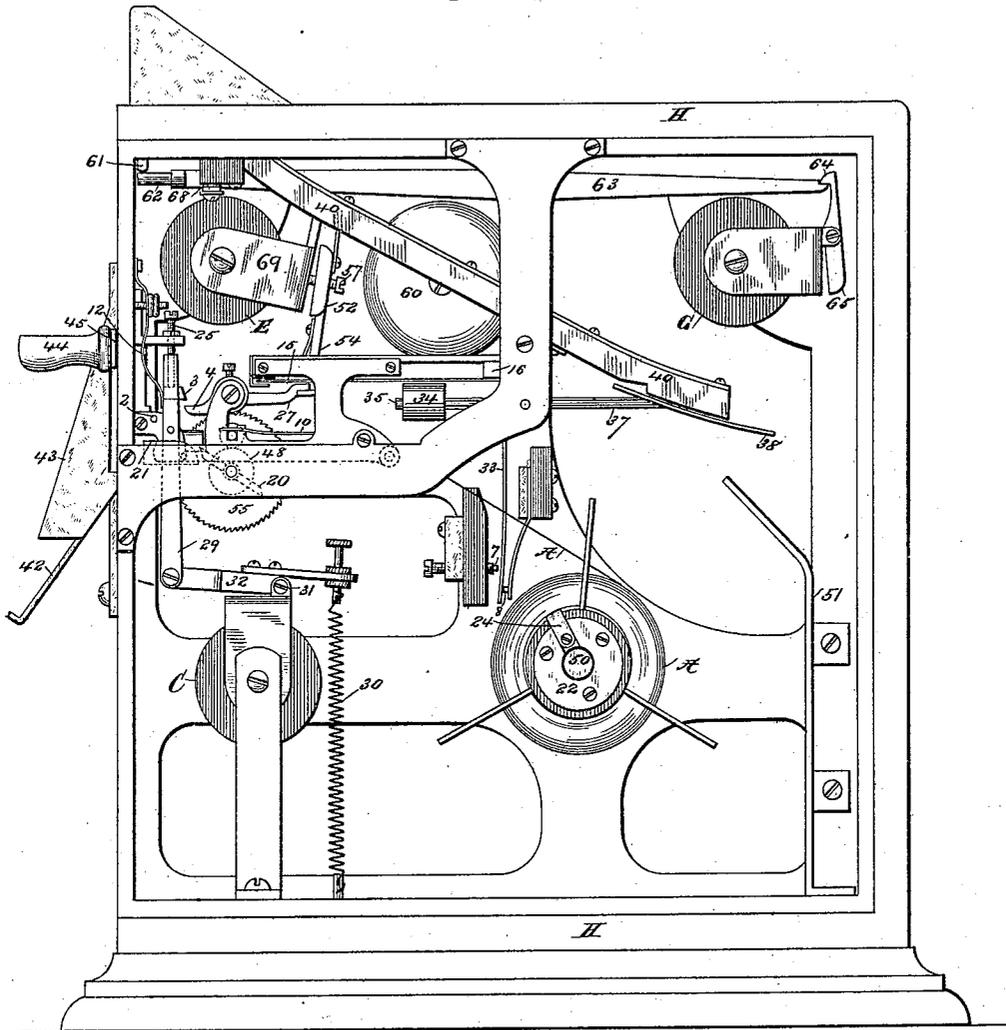
6 Sheets—Sheet 1.

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.

Fig. 1.



Attest:
Chas. H. Batts.
G. M. Borch

Inventor:
Constant F. de Redon
by Philip Phelps Hovey
Attys.

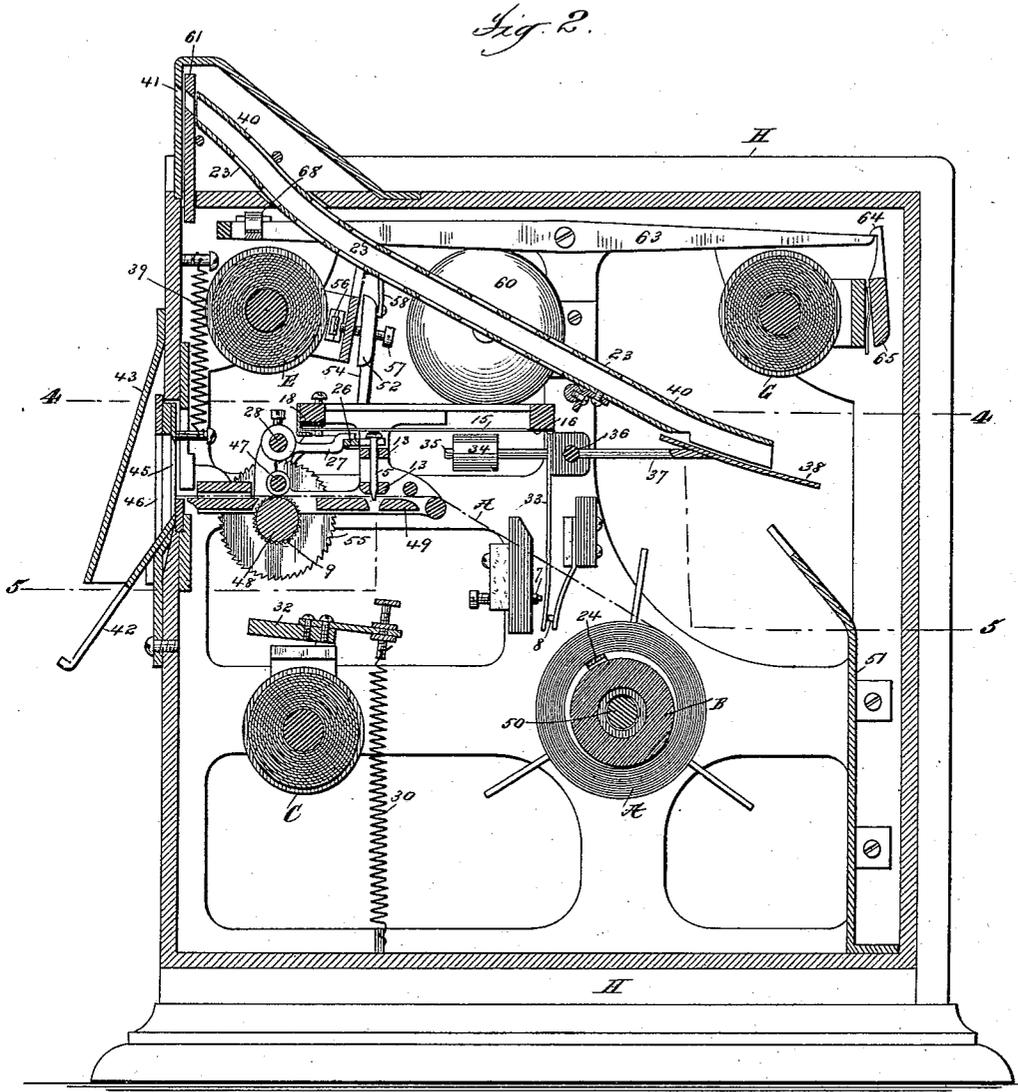
(No Model.)

6 Sheets—Sheet 2.

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.



Attest:

Geo. H. Watts,

G. M. Boer

Inventor,

Constant J. de Redon

by Philip Phelps Hoovey
Attys

(No Model.)

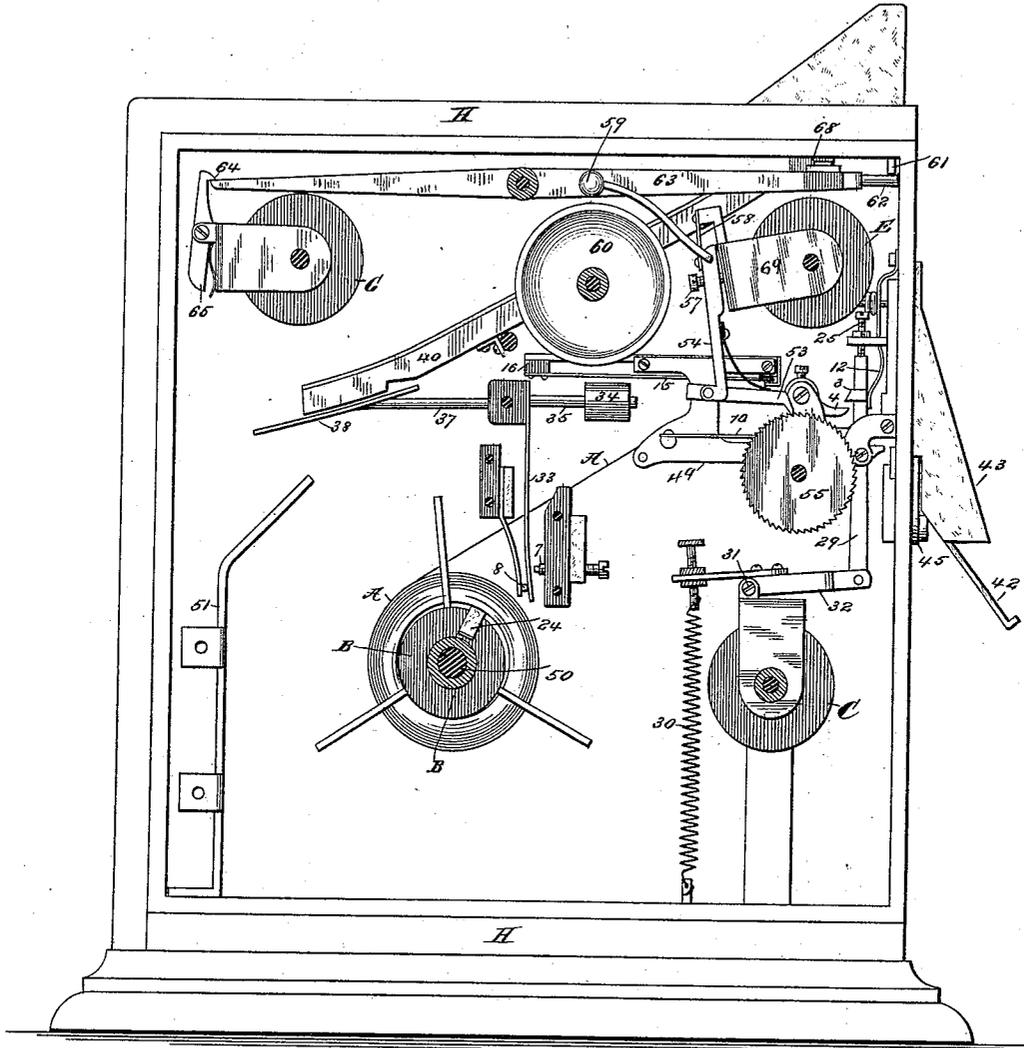
6 Sheets—Sheet 3.

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.

Fig. 3.



Attest:

Geo. H. White

G. M. Brown

Inventor:

Constant F. de Redon

by Philip Phelps Hoovey

Attys

(No Model.)

6 Sheets—Sheet 4.

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.

Fig. 4.

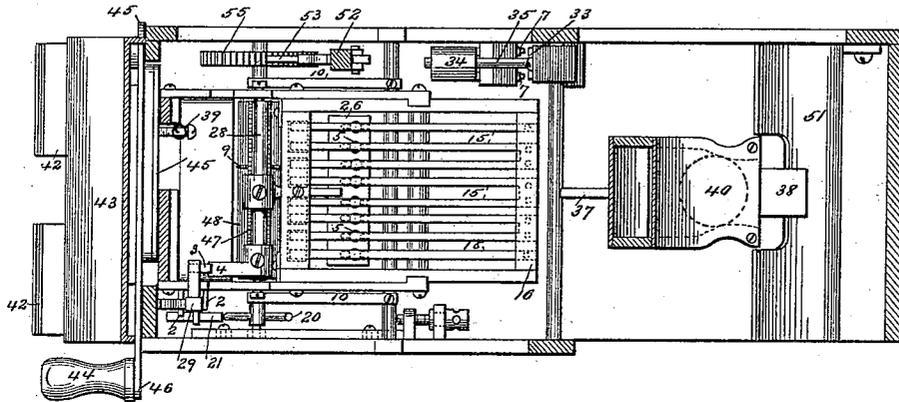
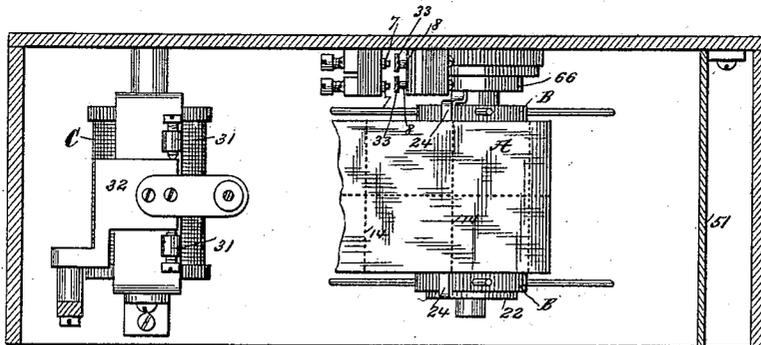


Fig. 5.



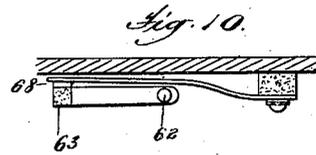
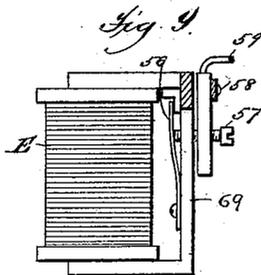
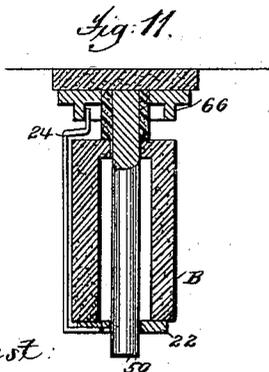
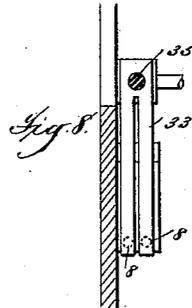
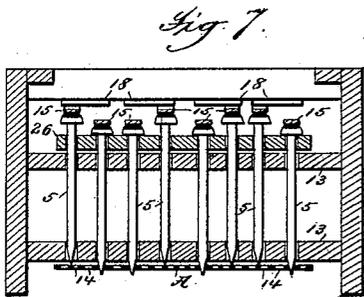
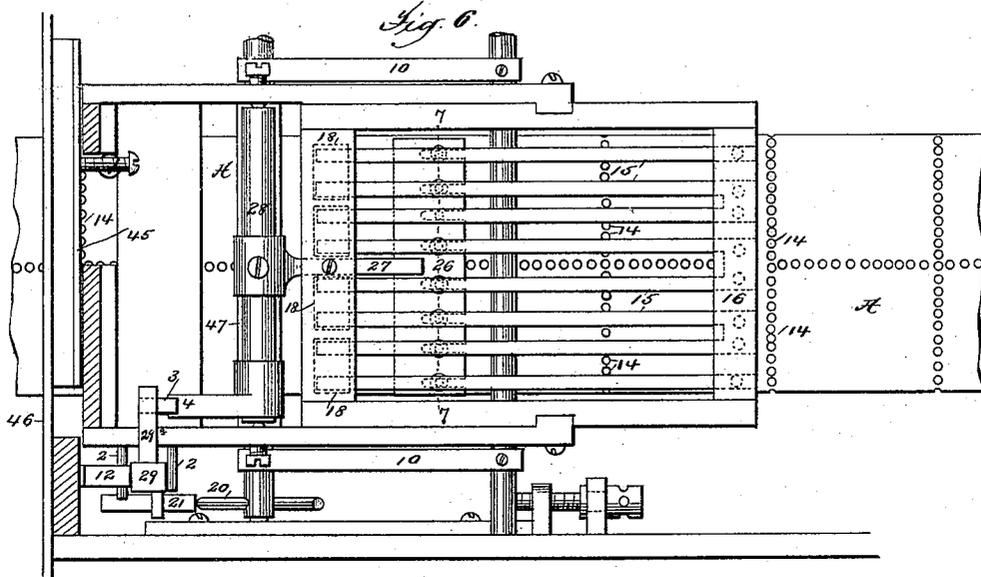
Attest:
Geo. H. Botsch
G. M. Borch

Inventor:
Constant J. de Redon
by Philip Phelps & Hoovey
Attys

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.



Attest:
 Geo. H. Batts
 G. M. Borch

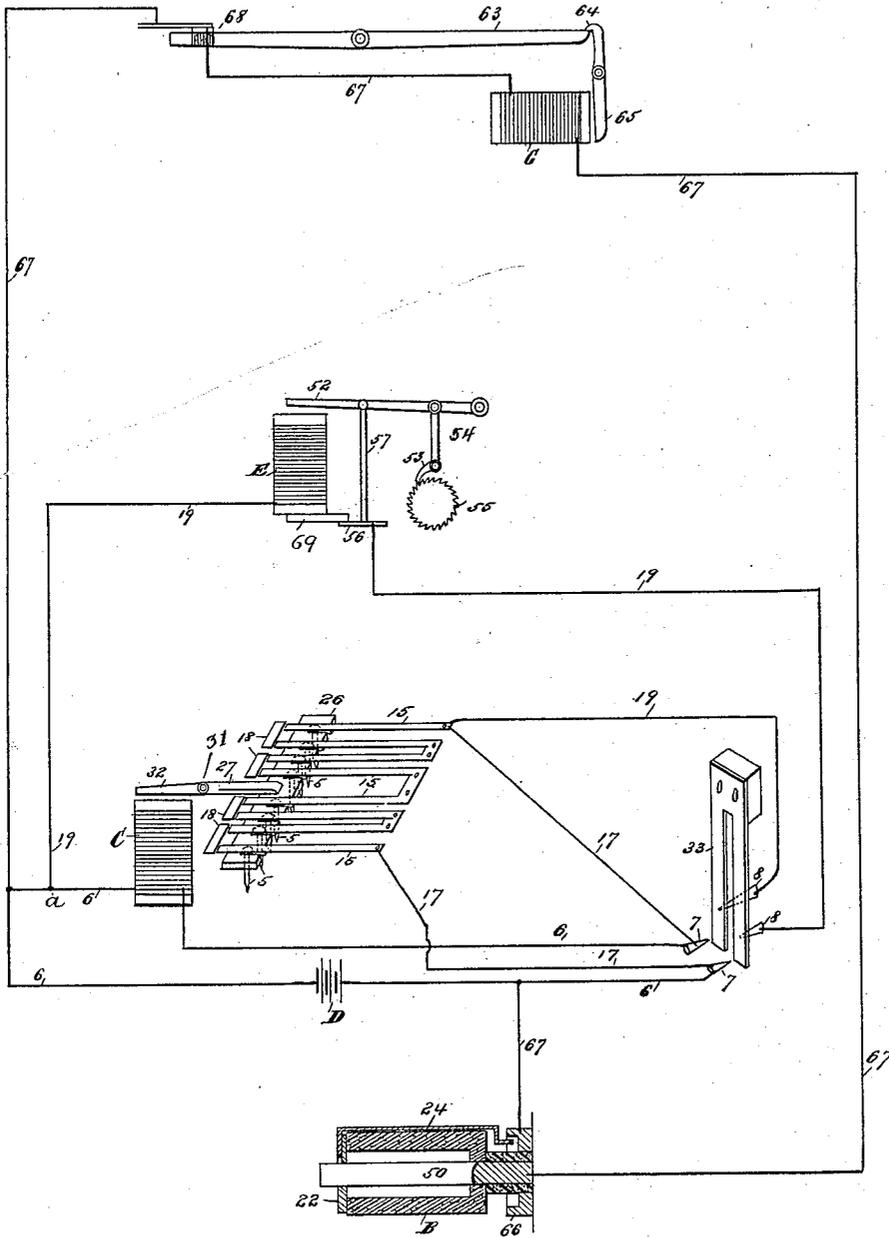
Inventor:
 Constant F. Redon
 by Philip Phelps & Henry
 Attys

C. F. DE REDON.
VENDING APPARATUS.

No. 397,975.

Patented Feb. 19, 1889.

Fig. 12.



Attest:
Geo. H. Botta
G. M. Borch

Inventor
Constant F. de Redon
by Philip Phelps Hoovey
Atty

UNITED STATES PATENT OFFICE.

CONSTANT F. DE REDON, OF NEW YORK, N. Y., ASSIGNOR TO FRANCIS L. WELLMAN, OF SAME PLACE.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 397,975, dated February 19, 1889.

Application filed July 16, 1888. Serial No. 280,107. (No model.)

To all whom it may concern:

Be it known that I, CONSTANT F. DE REDON, a citizen of the Republic of France, residing in New York, county of New York, State of New York, have invented certain new and useful Improvements in Vending Apparatus, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of automatic vending apparatus in which the deposit of a coin of the proper denomination in the apparatus sets in motion suitable mechanism for automatically ejecting or delivering the goods in position to be taken by the purchaser, thus avoiding the necessity of the services of a salesman.

The apparatus constituting the invention is especially designed for the automatic vending of postage-stamps, railway-tickets, accident-insurance policies, and similar things which are or may be prepared and put up in the form of long strips and wound upon a reel or spool.

A full understanding of the invention can only be given by an illustration and a detailed description of an apparatus embodying the same. All preliminary description will therefore be omitted and a full description given, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the working parts of the apparatus, one side of the casing being removed. Fig. 2 is a sectional elevation of the same. Fig. 3 is a side elevation, partly in section, showing the side of the apparatus opposite that shown in Fig. 1. Fig. 4 is a horizontal section taken on substantially the line 4 of Fig. 2. Fig. 5 is a similar view taken on substantially the line 5 of the same figure. Fig. 6 is an enlarged view of a part of Fig. 4. Fig. 7 is a cross-section of the parts shown in Fig. 6, taken on the line 7 of said figure. Figs. 8 to 11 illustrate details which will be hereinafter referred to, Fig. 8 being a view of the circuit-closer for closing the circuit through the releasing-magnet; Fig. 9, a view of the feeding-magnet; Fig. 10, a view of the circuit-breaker for breaking the circuit through the stop-magnet, and Fig. 11 a section of the spool upon which the strip is wound. Fig. 12 is a diagram illustrating the

electrical connections for operating the apparatus.

Referring to said drawings, it is to be understood that the postage-stamps, tickets, or other articles A, which are to be vended, are prepared in the form of a long strip, and are wound upon a spool, B, mounted to turn freely upon a spindle, 50, supported upon the framework.

As the apparatus as herein illustrated is especially constructed for vending postage-stamps, the strip A will hereinafter be referred to as comprising postage-stamps. The stamps A are led from the spool B, and after passing above a support, 49, are led between a pair of feeding-rolls, 48 47, and are projected through an opening, 46, in the front of the apparatus. The feed-roll 48 is positively driven to advance the proper number of stamps through the opening 46, in a manner which will be hereinafter explained, and in order to secure a more positive feed of the stamps it is provided with one or more series of points, 9, which give it a more positive feeding action. The companion roll 47 revolves by frictional contact, and is pressed against the roll 48 by means of springs 10, which bear upon its journals.

Located upon the front of the apparatus and pivoted in suitable position to move across the opening 46 is a cutting-blade, 45, which is provided with a suitable handle, 44, projecting at the side of the apparatus, and by which the blade can be depressed so as to sever the stamps from the strip A as they are projected through the opening. The blade 45 is normally held in its raised position, so as not to obstruct the opening 46, by means of a spring, 39. The opening 46 will preferably be covered by a downwardly-opening hood, 43, which will conceal the opening and the cutting-blade, and there will also, preferably, be located beneath the hood and the opening a ledge, 42, upon which the stamps, as they are severed, will fall in position to be taken by the purchaser.

The apparatus is provided upon its front and near its top with an opening, 41, to receive the purchase-money. This opening is of just sufficient size to receive a coin of the proper denomination, which in the case shown

is supposed to be a nickel five-cent piece. This opening communicates with an inclined chute, 40, which extends to the rear part of the apparatus and terminates in position to discharge the coins into a hopper, 51, arranged for their reception. The bottom portion of the inner end of the chute 40 is composed of a tilting table, 38, over which the coins must pass as they arrive at the end of the chute, and from which they are discharged into the hopper. The table 38 is supported upon an arm, 37, extending from a rock-shaft, 36, which is provided with an arm, 35, carrying a weight, 34, which is so adjusted as to just counterbalance the weight of the table 38 and hold it in its raised position, but which will not be sufficient to prevent the tilting of the table by the weight of the coin passing over it. The shaft 36 also carries a U-shaped circuit-closer, 33, (see Fig. 8,) the two arms of which, when the table 38 is in its raised position, make contact with two contact-points, 8, but which, when the table 38 is depressed by the passage over it of a coin, are rocked by the movement of the shaft 36, so as to make contact with two contact-points, 7, located upon the opposite side of the circuit-closer. The contact-points 7 are included in an electric circuit, 6, which includes a suitable battery, as indicated at D, and an electro-magnet, C, which I term, for convenience, the "releasing-magnet." The magnet C is provided with an armature, 32, which is pivoted as indicated at 31, and is provided with a suitable retractile, 30. The armature 32 is connected to a vertical rod, 29, which is pivoted to the armature, so as to have a slight rocking movement between stops 2, and is acted on by a spring, 12, so as to be normally pressed inward against its inner stop. The rod 29 is provided with an inward lateral projection, 29^a, which is acted on by a back-stop, 25, to limit the upward movement of the rod, and is provided with a toe, 3, which is so arranged that as the rod is drawn downward by the movement of the armature 32 it will engage with a toe, 4, projecting from a rock-shaft, 28, having an arm, 27, to which is secured a plate, 26, having a number of slits, through which pass a series of pins, 5, which play loosely in openings in transverse bars 13 and normally rest upon the upper surface of the stamps as they pass forward over the support 49. The pins 5 are provided at their upper ends with heads which engage with the plate 26 as the latter is moved upward by the rocking of the shaft 28, and thus cause all of the pins to be simultaneously elevated slightly from the stamps. The strip A of stamps is provided with the usual transverse rows of perforations, 14, marking the lines of division between the several stamps, and if the strip comprises other articles—such as tickets or insurance policies instead of stamps—then the individual tickets or policies will be separated by rows of similar perforations. The pins 5, which form a trans-

verse row extending partly or wholly across the strip, are arranged at irregular distances from each other, as shown in Figs. 6 and 7, so that as the strip is advanced by the feed-rolls 47 48, and as each transverse row of perforations arrives beneath the ends of the pins, some one or more of the pins will be sure to be in position to enter and fall through some one or more of the perforations in the row. The purpose of this will appear when the operation of the apparatus is explained. Located above the heads of the pins 5, in position to be engaged by the heads of the pins when the latter are raised by the upward movement of the plate 26, are a series of springs, 15. One end of each of the springs is fixed upon but insulated from a cross-bar, 16, while the opposite end is free to be moved up and down by the action of the pins 5. The two outer springs of the series are connected at their fixed ends by wires 17 with the contact-points 7, or with the circuit 6 upon opposite sides of the contact-points 7. The intermediate springs, 15, are also electrically connected at their fixed ends in pairs, as indicated. Located above the free ends of the springs 15 are insulated contact-plates 18, which are so arranged that when the springs are all raised by the action of the pins 5 they connect the free ends of the springs in pairs, as also indicated, and thus form a continuous electrical connection through the entire series of springs. From this it will be seen that the springs 15 form a series of circuit-closers which are included in the circuit 6 to 17, and so arranged that when all of the springs are raised by the pins 5 the circuit will be closed, and that whenever any one of the pins 5 is allowed to fall so as to disconnect its spring from the contact-plate 18 the circuit 6 to 17 will be broken. The contact-points 8, before referred to, are included in a branch circuit, 19, which connects with one of the outside springs 15 and with the circuit 6 between the releasing-magnets and the battery, as indicated at a in Fig. 12, and includes an electro-magnet, E, termed, for convenience, the "feeding-magnet." The armature 52 of the magnet E is provided with an arm, 54, which carries a spring-pressed pawl, 53, which engages with a ratchet, 55, fixed upon the shaft of the feed-roll 48 in such manner that as the armature is vibrated by the energizing of the magnet the roll 48 will be operated to advance the strip of stamps.

To effect the rapid energizing and de-energizing of the magnet E to operate the feed-roll, the circuit 19, which includes the magnet, is provided with an automatic circuit closer and breaker, 56, (see Fig. 9,) which is supported upon the bracket 69, which supports the magnet, and is operated through an adjustable point, 57, carried by the armature in the usual manner, to break the circuit as soon as the magnet is energized and has attracted its armature, and to close the circuit and re-energize the magnet as soon as the armature is re-

tracted, the retraction of the armature being accomplished by means of a retractile, 58.

The remaining features in the construction and organization of the apparatus will be described in connection with an explanation of its operation, which is as follows: The spool B having been supplied with stamps or other articles which are to be vended by the apparatus in the form of a continuous strip, A, the strip will be led from the spool above the support 49 and between the feed-rolls 47 48 and its end advanced just to the opening 46. The apparatus will then be ready for operation. When a purchaser desires to make a purchase, he will drop the proper coin—a nickel five-cent piece, for example—through the opening 41. The coin dropped through the opening will pass downward in the inclined chute 40 and onto the tilting table 38. The sides of the chute 40 are (see Fig. 4) contracted immediately above the table 38 to such an extent that the coin will be momentarily arrested directly above the table, so as to rest thereon. The weight of the coin resting upon the table will tilt it downward, thereby releasing the coin from the contracted sides of the chute and allowing it to drop into the hopper 51. As the table is tilted downward, the circuit-closer 33 will be rocked into contact with the two contact-points 7, thereby closing the circuit 6 through the releasing-magnet C. This will energize the magnet C and cause it to attract its armature 32, thereby drawing downward the bar 29 and causing the toe 3 to engage with the toe 4, so as to rock the shaft 28 and raise the plate 26. As the plate 26 is raised, the sides of the slits in the plate will engage with the heads of the pins 5 and raise all of the pins out of contact with the strip A, and at the same time press the heads of the pins against the springs 15, so as to raise the free ends of the latter and cause them to make contact with the plates 18. This will close the circuit 6 to 17 through the magnet C. As soon as the coin passes from the table 38 the weight 34 will restore the table to its normal position, thereby rocking the circuit-closer 33 away from the contact-points 7 and into contact with the points 8. The magnet C having, however, been energized, so as to raise the springs 15 and close the circuit through the branch 17, the circuit 6 to 17 through the magnet C will remain energized after the circuit-closer 33 has been rocked away from the contact-points 7. As soon as the circuit-closer 33 is rocked into contact with the points 8, as just explained, the circuit will also be closed through the branch 19 and feeding-magnet E, so that a part of the current will pass through the branch 19 and the magnet E, thereby energizing the latter magnet. As soon as the magnet E is thus energized it will attract its armature 52, and thereby, through the pawl 53, operate the feed-rolls 48 47 to advance the strip of stamps. As soon as the armature 52 is attracted it will, through the point 57 and circuit-breaker 56, break the circuit through

the branch 19, and thus release the armature and retract the pawl 53. The releasing of the armature 52 will operate to again close the circuit through the branch 19 and re-energize the magnet, and so the operation will be repeated and the strip of stamps will continue to be advanced. The armature 52 will also, preferably, be provided with a striker, 59, which as the armature is vibrated will strike upon a gong, 60, and thus give notice that the apparatus is being operated. The shaft of the roll 48 is provided with one or more arms, 20, which, as the shaft is revolved, come into engagement with the pivoted lug 21, carried upon the side of the bar 29, in such manner as to rock the bar outward and carry the toe 3 out of engagement with the toe 4, thereby allowing the plate 26 to rock downward away from the heads of the pins 5. This will not, however, take place until after the strip of stamps has been advanced by a partial revolution of the roll 48, so that the pins when released by the plate 26 will rest upon and be supported by the strip, so as to still maintain the springs 15 in contact with the plates 18, and thus maintain the circuit through the magnets C E closed. The magnet E will then continue to operate the pawl 53 and feed-rolls 48 47 to advance the strip A until one of the transverse rows of perforations 14 arrives beneath the ends of the pins. As soon as this takes place one or more of the pins 5 will come into register with one or more of the perforations, and will drop through said perforations, thereby allowing one or more of the springs 15 to fall away from the plate or plates 18, (see Fig. 7,) and thus break the circuits 6 to 17 and 6 to 17 through the magnets C E. This will at once de-energize the magnets, so as to arrest the feed-rolls and allow the bar 29 to be restored to its normal position by its retractile 30. The parts will be so adjusted that when the strip of stamps is thus arrested by the falling of one or more of the pins 5 through one or more of the perforations between the stamps the next line of perforations, or some previous line of perforations, will be directly beneath the edge of the cutting-blade 45. As soon, therefore, as the feed-rolls are arrested, notice of which will be given to the purchaser by the stopping of the ringing of the gong, the purchaser has only to depress the cutting-blade 45, which will sever the stamps which have been projected through the opening 46, and the stamps thus severed will fall upon the ledge 42, from which they can be taken, and so the operation will be repeated each time a coin is dropped through the opening 41.

In order to prevent the deposit of coins in the apparatus after the stamps with which it is supplied have become exhausted or nearly exhausted, it is desirable to provide means by which the opening 41 will be automatically closed as soon as the supply of stamps has become nearly or quite exhausted. For this purpose the apparatus is provided with a

sliding gate, 61, which is arranged to close the opening 41, so as to prevent the insertion of a coin after the stamps have been nearly or quite exhausted. The gate 61 is acted upon by a stud, 62, extending from the end of a lever, 63, the opposite end of which is arranged to be engaged by a catch, 64, carried by the armature 65 of an electro-magnet, G, which I call the "stop-magnet." The parts are so arranged that so long as the catch 64 remains in engagement with the lever 63 the gate 61 will be elevated so as to leave the opening 41 unobstructed, and that whenever the catch 64 is disengaged from the lever the latter will be rocked by its own weight so as to allow the gate 61 to fall and close the opening 41. The spool B, upon which the strip A is wound, is made of insulating material, and is provided at its end with a metallic disk, 22, (see Fig. 11,) which is in contact with the spindle 50, upon which the spool is mounted. The disk 22 is provided with a spring, 24, which extends along the spool and the end of which extends within a metallic ring, 66, which is insulated from the spindle 50. The ring 66 and spring 24 form a circuit-closer, which is included in a branch, 67, of the circuit 6, and which also includes the magnet G. When the strip is wound upon the spool B, the spring 24 will be pressed inward close to the spool, so that its end will be held out of contact with the ring 66, and the circuit through the branch 67 will therefore be broken. As soon, however, as the strip is nearly or quite unwound from the spool the spring 24 will be released and will spring away from the spool, so that its end will come into contact with the ring 66, and thus close the circuit through the branch 67. This will at once energize the magnet G, which will attract its armature 65 and release the lever 63, thereby allowing the gate 61 to fall and close the opening 41. In order to break the circuit through the branch 67 as soon as the gate 61 has been allowed to fall, and thus prevent the running down of the battery, the circuit 67 is provided with a circuit-closer, 68, (see Fig. 10,) which is operated by the lever 63 in such manner as to close the circuit through the branch 67 so long as the lever is held by the catch 64 and to break the circuit through the branch 67 as soon as the lever is allowed to rock upon being released from the catch 64.

In order to prevent the apparatus from being set in operation by means of a wire inserted through the opening 41, and thus causing stamps to be fed out through the opening 46 when no coin has been deposited, the chute 40 is provided upon its top and bottom with a large number of perforations, 23, into which the end of a wire, if one should be introduced into the chute, will enter, so as to prevent the wire from reaching the table 38.

The apparatus when in use will of course be inclosed in a suitable cabinet or casing, H, one side of which will be in the form of a door, which can be removed or swung to one side

to gain access to the interior and to permit of the removal and replacing of the spool B when it is necessary to supply the same with stamps, and also for the removal of the accumulation of coins from time to time.

What I claim is—

1. The combination, in a vending apparatus, of a feeding mechanism for advancing a strip comprising the articles to be vended, a feeding-magnet for controlling said feeding mechanism, an electric circuit including said feeding-magnet and controlled by a coin, and a chute for receiving a coin and directing it into proper position to control the circuit, substantially as described.

2. The combination, in a vending apparatus, of a pin arranged to enter an opening in a strip comprising the articles to be vended, a releasing-magnet for withdrawing said pin, and an electric circuit controlled by the deposit of a coin to control the releasing-magnet, substantially as described.

3. The combination, in a vending apparatus, of a feeding mechanism for advancing a strip comprising the articles to be vended, a pin arranged to enter an opening in the strip, a releasing-magnet for withdrawing the pin, a feeding-magnet for operating the feeding mechanism, and an electric circuit controlled by the deposit of a coin to energize said magnets, substantially as described.

4. The combination, in a vending apparatus, of a feeding mechanism for advancing a strip comprising the articles to be vended, a feeding-magnet for controlling said feeding mechanism, an electric circuit including said feeding-magnet, a circuit-closer for said circuit arranged to be operated by the deposit of a coin, and a chute for receiving a coin and directing it to said circuit-closer, substantially as described.

5. The combination, in a vending apparatus, of a pin arranged to enter an opening in a strip comprising the articles to be vended, a releasing-magnet for withdrawing said pin, an electric circuit including said magnet, and a circuit-closer for said circuit operated by the deposit of a coin, substantially as described.

6. The combination, in a vending apparatus, of a feeding mechanism for advancing a strip comprising the articles to be vended, a pin arranged to enter an opening in the strip, a releasing-magnet for withdrawing the pin, a feeding-magnet for operating the feeding mechanism, and a circuit-closer operated by the deposit of a coin to control said magnets, substantially as described.

7. The combination, with the case having the opening 41, of the gate 61, for closing the opening, the magnet G, for controlling the position of the gate, and a circuit-closer controlled by the strip comprising the articles to be vended to operate the magnet and close the opening when the strip is nearly or quite exhausted, substantially as described.

8. The combination, with the case having

the opening 41, of the gate 61, for closing the opening, the magnet G, for controlling the position of the gate, the spool B, having the spring 24, the ring 66, co-operating with the
 5 spring to form a circuit-closer, and an electric circuit including the spring, ring, and magnet, substantially as described.

9. The combination, with the pins 5, adapted to pass through openings in the strip comprising the articles to be vended, of the springs
 10 15, arranged to be engaged by said pins and forming a number of circuit-closers in an electric circuit, substantially as described.

10. The combination, with feed-rolls 47 48, of the blade 45, the feeding-magnet for operating the rolls, the chute 40 and tilting table 38, and the circuit-closer 33, operated by said
 15 table to energize the feeding-magnet, substantially as described.

20 11. The combination, with the feed-rolls for advancing the strip comprising the articles to be vended, of the pins 5, arranged to pass through perforations in said strip, the springs 15, acted on by said pins and forming circuit-

25 closers, the plate 26 and magnet C, for simultaneously raising all of the pins, the magnet E, for operating the feed-rolls, electric circuits including the magnet C, the magnet C and springs 15, and the springs 15 and magnet
 30 E, and the circuit-closer 33, normally closing the circuit through the magnet E and springs 15, and operated by the deposit of a coin to temporarily close the circuit through the magnet C, substantially as described.

12. The combination, with the springs 15, 35 of the pins 5, the feed-rolls 47 48, the magnet C, for raising the pins, the magnet E, for operating the feed-rolls, and an arm, 20, carried by one of the rolls, for releasing the pins after the feeding has commenced, substantially as
 40 described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CONSTANT F. DE REDON.

Witnesses:

T. H. PALMER,
 GEORGE H. BOTTS.