Nov. 7, 1933. E. A. BOLEN 1,933,840

STAMP VENDING MACHINE

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FIG. 1.

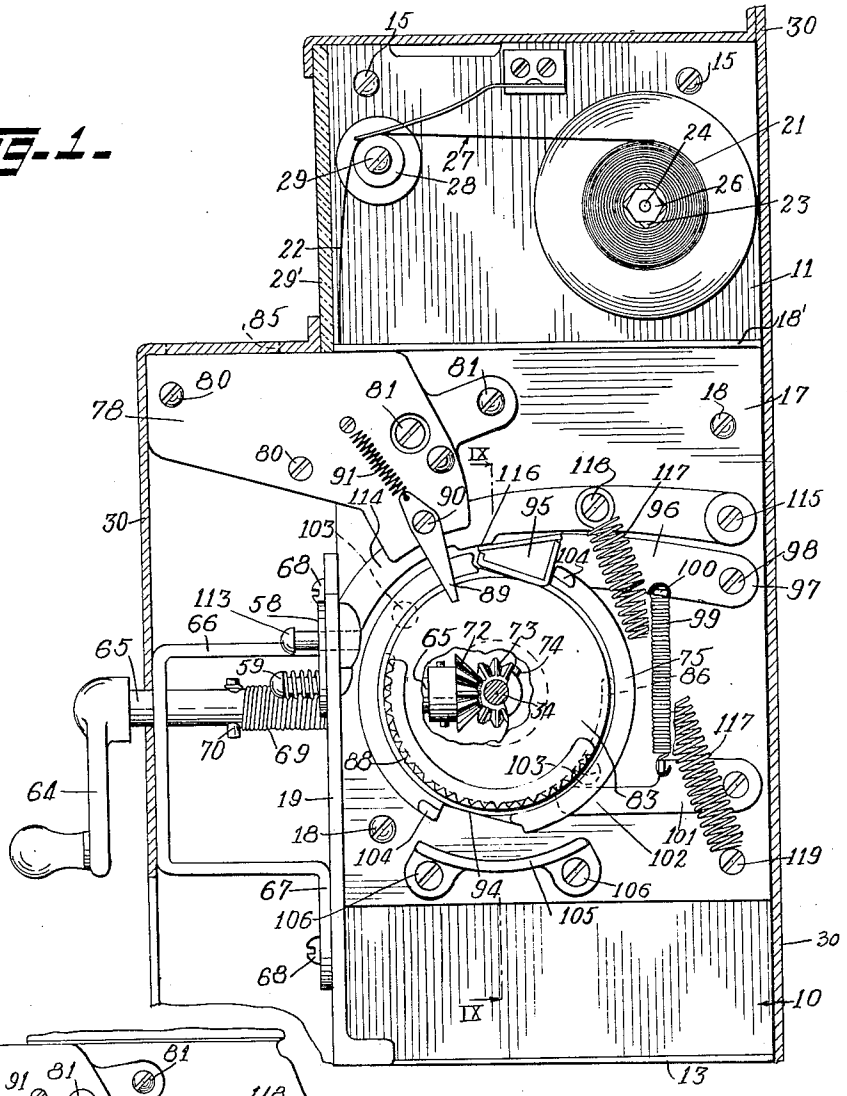
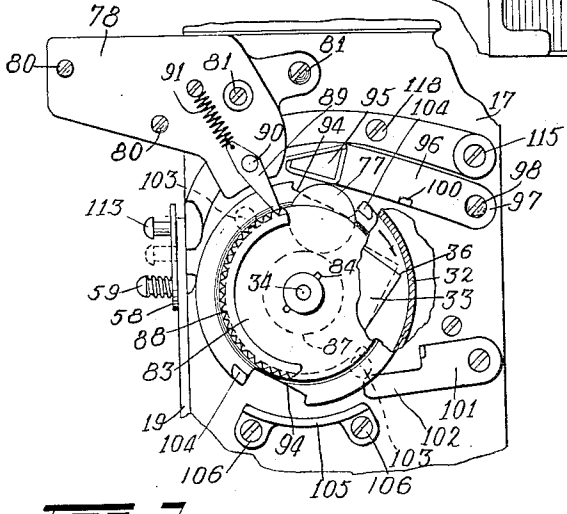


FIG. 2.



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STAMP VENDING MACHINE

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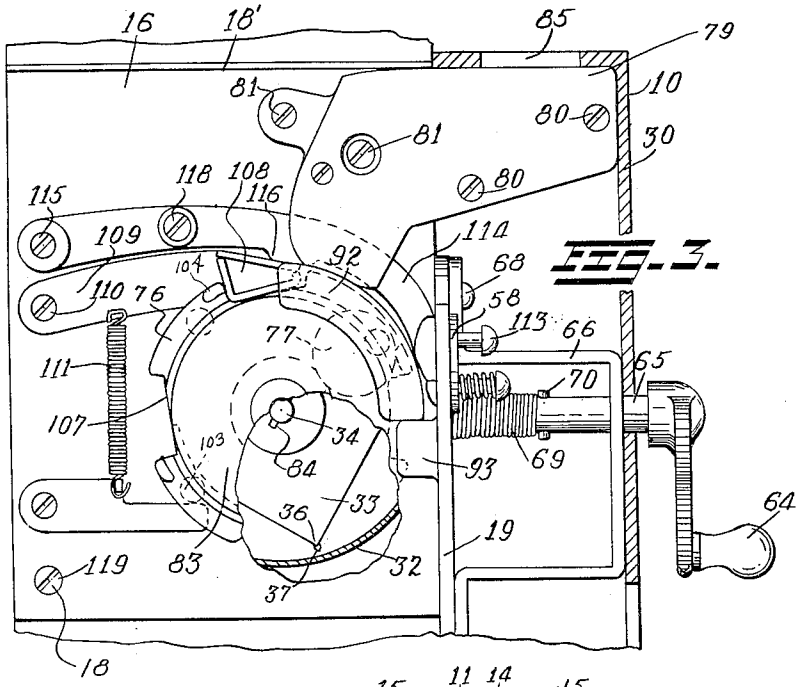


FIG. 3.

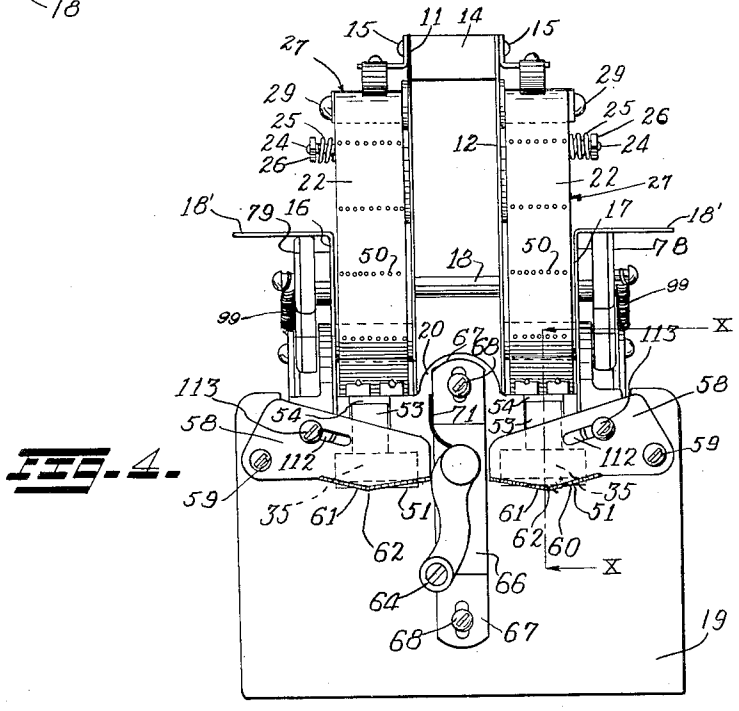


FIG. 4.

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STAMP VENDING MACHINE

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FIG. 5.

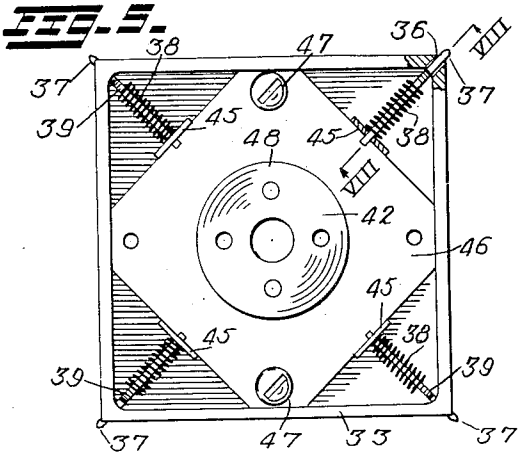
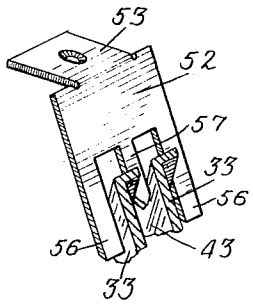


FIG. 6.



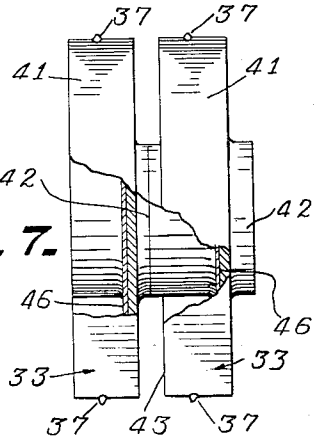
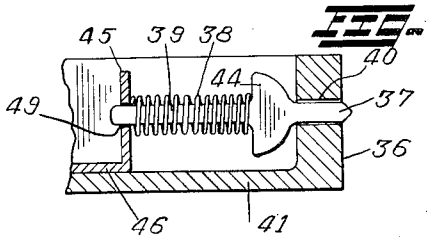


FIG. 7.

FIG. 8.



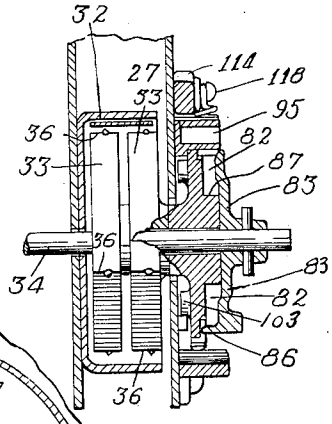


FIG. 9.

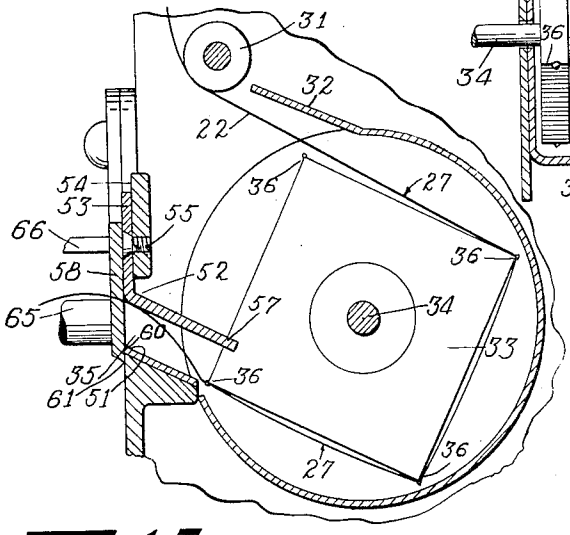


FIG. 10.

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UNITED STATES PATENT OFFICE

1,933,840

STAMP VENDING MACHINE

Emerson A. Bolen, Morris, Ill., assignor to Northwestern Corporation, Morris, Ill., a corporation of Illinois

Application May 5, 1930. Serial No. 449,716

6 Claims. (Cl. 194—63)

This invention relates to vending machines and more particularly to coin operated stamp vending machines, although certain features thereof may be employed with equal advantage for other purposes.

It contemplates more especially the provision of means for vending strip connected stamps responsive to the deposition of a coin for severed delivery. To accomplish this end, forwarding and cutting mechanism must be coordinated to effect severed delivery responsive to the actuation of an operating lever.

Numerous vending machines have heretofore been proposed for strip connected stamps and similar articles; however, these effect delivery without variance so that the purchaser is required to tear the delivered merchandise from the strip confined in the machine. This entails much labor, annoyance and care to the end that coin operated stamp venders have not experienced the desired popularity with venders.

It is apparent that such operation materially retards successive delivery of stamps, and presents the requirement of careful tearing along the line of perforation which is objectionable from the standpoint of the purchaser. The tearing along the line of perforation is not always attended with the desired success without displaying the required care, since stamps are often mutilated when carelessly removed. This accentuated by the fact that there is a delay encountered in complete delivery of the stamps renders such devices impractical from a merchandising standpoint.

Moreover, stamp vending machines have not been entirely successful in that the feeding mechanism thereof must be certain, dependable and uniformly effective without variation so that there is a delivery of a predetermined strip connected number responsive to the deposition of a coin. In combination with cutting instrumentalities, the feed mechanism must be unusually certain and positive in action since any feeding variation or slip would completely render the cutting means unsatisfactory owing to the fact that a fractional stamp delivery would render such impossible for use.

One object of the present invention is to simplify the construction and improve the operation of devices of the character mentioned.

Another object is to provide means for feeding strip connected stamps to effect the delivery of a predetermined number responsive to a substantially positive feeding mechanism.

Still another object is the provision of a feeding mechanism of novel construction for stamp or other article vending machines to insure a uniform delivery without appreciable variation.

A further object is to provide a vending device for strip connected stamps which is dependable and insures delivery of a predetermined severed unit without requiring manual shearing.

A still further object is to provide a vending device having feeder and severing mechanism in novel coordinate relation for predetermined functioning in sequence.

Still a further object is to provide a feeder mechanism for vending machines having resilient engaging prongs to effect the delivery of a predetermined unit.

An additional object is to provide a novel severing device for strip connected vendable articles which operates responsive to the manipulation of a single lever in conjunction with a feeding mechanism.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawings:

Figure 1 is a side view in elevation of a device embodying features of the present invention, the casing or inclosure therefor being removed or broken away to clarify the showing.

Figure 2 is a fragmentary view of the coin controlled mechanism shown in conjunction with the elements disclosed in Figure 1.

Figure 3 is a fragmentary side view in elevation viewed oppositely from Figure 1.

Figure 4 is a front view in elevation of the device disclosed in Figure 1.

Figure 5 is a side view in elevation of a feeder or driver mechanism embodying features of the invention.

Figure 6 is a perspective view of the guide finger extending between the face plate and feeding rotors.

Figure 7 is a front view in elevation of the driver disclosed in Figure 5, parts thereof being broken away to clarify the showing.

Figure 8 is a sectional view taken substantially along line VIII—VIII of Figure 5.

Figure 9 is a sectional view taken substantially along IX—IX of Figure 1.

Figure 10 is a sectional view taken substantially along line X—X of Figure 4.

The structure selected for illustration comprises a frame 10 preferably though not essentially assembled from vertically disposed, horizontally spaced plates 11 and 12, which terminate at their base in laterally directed flanges 13 which

serve as a support therefor. Suitable spacer bars 14 are disposed between the plates 11 and 12 for rigid connection by means of threaded studs or bolts 15 to establish a rigid joinder therebetween. Side plates 16 and 17 are spaced from the plates 11 and 12, respectively, on the exterior sides thereof for support in parallelism therewith owing to rods 18 extending therethrough for attachment to effect the support thereof. As shown, the side plates 16 and 17 terminate in laterally directed flanges 18' in horizontal alignment in a plane below the top extremities of the frame plates 11 and 12, it being noted that the side plates 16 and 17 extend downwardly for termination above the base flanges 13. A face plate 19 is secured to the forward edges of the plates 11, 12, 16 and 17 for rigid joinder therewith owing to a cast or otherwise formed standard 20 attached thereto along a vertical median line thereof for lodgement between the plates 11 and 12.

With the frame arrangement above described, rolls 21 or strip connected stamps 22 are carried by spools 23, in this instance of rectangular configuration, to establish frictional engagement with the cylindrical core of the rolls 21. The spools 23 are journalled on spindles 24 carried by the plates 11 and 12 for lateral extension above the side plates 16 and 17. Free rotation of the spools 23 is imparted by means of spiral springs 25 enveloping the extremities of the spindles 24 for retention thereon by nuts or other fasteners 26 to impart an axial urge in frictional contact with the spool extremities 23. The strip connected stamps may be of any width or combination within the compartments defined within the plates 16—17 and uprights 11—12, respectively, so that strips 27 are led over guide rollers 28 journalled on spindles 29 carried by the plates or uprights 11 and 12 proximate to the top thereof for downward extension substantially in alignment with the forward edges of the plates 11—12, 16—17 within view through a glass closure 29' constituting a part of a casing 30 which totally encloses the frame 10.

The strips 27, in this instance two, confined within the compartments defined between the plates 11—16 and 12—17, are thence guided by idler rollers 31 journalled therein for vertical alignment with the rollers 28' immediately in front of the entrant orifice of retainer rims 32 associated with the uprights 11 and 12 for fixed attachment thereto. Delivery or feed rotors 33 journalled on a shaft 34 extending transversely through the frame 10 are confined within the rim or cup shape retainer members 32 for cooperation therewith to receive the strip of connected stamps therearound for ultimate extension to a delivery opening 35. This mechanism is included between the confronting faces of the side plates 11—16 and 12—17 and are substantially of the width of a stamp. The polygonal form of rotor 33, in this instance square-shaped to receive two stamps 22 on any of its surfaces, effects engagement of the strip connected stamps always at three corners 36 thereof.

To insure positive engagement of the rotor 33 with the strip 27, the corners thereof have projecting prongs 37, in this instance two, which are resiliently urged therethrough owing to springs 38 which envelop the shank 39 thereof. As shown, the prongs 37 extend radially through the rotor corners 36 which are provided with apertures 40 for this purpose. The rotor is preferably composed of chambered sections 41 having the hubs 42 thereof in contacting alignment to present a median slot 43 therebetween for a purpose which will appear more fully hereinafter.

The chambered rotor sections 41 are secured together in any suitable manner to constitute a unitary driver or feeding mechanism which idles on the shaft 34 for rotation in unison therewith responsive to connection established through the mediary of a coin of predetermined value as will be more specifically described hereinafter. The shank 39 of the prongs 37 lying within the chambered sections 41 is provided with a shoulder 44 serving as a limit stop for the spring 38 which is supported by flanges 45 stamped or otherwise shaped from a disc 46 fixed to the interior of the rotor sections 41 by means of fasteners 47 they being provided with axial bores 48 to receive the hubs 42 thereof.

As shown, the flanges 45 are provided with apertures 49 to slidably receive the shank 39 therethrough for guidance in alignment with the apertures 40 in the rotor corners 36. In consequence thereof, the prongs 37 are urged outwardly in a radial direction to engage the line of perforation 50 which divides the strip connected stamps 22 to effect the feed thereof corresponding with the linear circumferential rotary displacement of the driver or feed mechanisms 33 without any possible slip occurring therebetween. As shown, the arcuate retainer rim or cup shaped member 32 guides the strip 27 in a circular path for emergence through delivery openings 35 provided in the face plate 19 described supra.

The delivery opening 35 has the bottom edge thereof provided with a stationary knife 51 which is inclined downwardly for interior extension to meet the discharged end of the arcuate retainer rim 32 to define a path of travel for the strip 27. So that the strip 27 may not deviate from its delivery path, a top guide 52 is inclined for inward extension in spaced parallelism with the stationary knife 51, it being provided with a vertically upward tab 53 complemental to a countersunk area 54 provided in the face plate 19 to effect rigid attachment thereto by means of fasteners 55. In consequence thereof, the tab 53 of the top guide 52 lies flush with the face of the plate 19 to permit the operation of movable knives as will appear more fully hereinafter. As shown, the guide 52 is provided with spaced edge extending prongs 56 to receive the driving rotors 33 therebetween for lodgement of an intermediate prong 57 within the median slot 43 thereof, thereby defining an enclosed path of travel for the strip 27 following its emergence from the arcuate rim or guard 32 to the delivery opening 35.

In order to effect the severance of a predetermined extent of the strip 27 just subsequent to the delivery thereof beyond the opening 35, movable knives 58 are pivoted as at 59 to the face plate 19 for cooperation with the sharpened edges 60 of the stationary knife 51 which provides a clean shearing action. As shown, the movable knives 58 have the sharpened edges 61 thereof formed angularly so that the merging point 62 thereof will first contact with the strip 27 so that continued pivotal movement thereof will gradually shear to effect complete severance in cooperation with the stationary knife edge 60 flush therewith.

The driving means for the rotors 33 consists, in this instance, of a manually operated lever 64 fixed to the extremity of a stub shaft 65 journalled in a bracket 66 fixed to the face plate 19 along a vertical median line thereof owing to

flanges 67 which have threaded studs or other fasteners 68 projecting therethrough for engagement with the face plate 19. The interior extremity of the stub shaft 65 projects through the standard 20 fixed to the interior side of the face plate 19 for spaced journalled support of the shaft 65 in conjunction with the brackets 66.

In order to effect the return of the lever 64 to its original position responsive to the complete operative rotation thereof, a coil spring 69 envelops the shaft 65, it having one extremity thereof anchored thereto by means of a pin 70. The other extremity 71 of the springs 69 extends radially therefrom to engage the upper flange 67 of the bracket 66 (Figure 4), thereby imparting a clockwise urge thereto to return the lever 64 to its initial position. The extremity of the shaft 65 which extends interiorly between the uprights or plates 11 and 12 carries a beveled gear 72 for mesh with a correspondingly shaped beveled gear 73 fixed to the shaft 34 by means of a pin 74, thereby establishing a driving connection between the lever 64 and the shaft 34 so that the latter may be rotated responsive thereto.

Control members 75 and 76 in the form of disc shaped cams, are disposed adjacent the side plates 16 and 17 of the frame 10 for fixed connection to the rotors or drive members 33 to idle on the shaft 34 to constitute a rotative stamp propelling means. The manual power lever 64 is connectible, preferably through the intermediary of a coin or token 77 with the disc or controlled member 75 and 76 of the stamp propelling structure responsive to the insertion thereof in coin chutes 78 and 79, in this instance two, individual to each control member 75 and 76, respectively. The coin chutes 78 and 79 are composed of cast or other suitably prepared confronting plates secured to each other by fasteners 80 for support by the side plates 16 and 17 owing to fasteners 81 extending therethrough for engagement therewith, thereby directing the coin for discharge into a circular coin passage 82 defined by a coin wheel 83 carried by the shaft 34 for rotation in unison therewith owing to an attachment pin 84 extending diametrically therethrough.

The coin wheels 83 are disposed in the path of the coin chutes 78 and 79 which communicate with the coin slots 85 provided in the casing 10. A lateral interrupted flange 86 is formed integrally or otherwise with the periphery of the coin wheels 83 to extend in the direction of the control members 75 and 76 so as to engage the deposited coin 77 when lodged within the circular passage 82 on the hub 87 of the control members 75 and 76 disposed therebetween. As a consequence, the coin 77 is carried in a clockwise direction (viewed from Figure 2) on the hub 87 responsive to the rotation of the coin wheel 83 in a corresponding direction by manipulating the lever 64.

Rotation of the coin wheels 83 with the shaft 34 in a counter-clockwise direction (viewed from Figure 2) is precluded by a series of ratchet teeth 88 formed on one or the other of the coin wheels 83 on the exterior side thereof with respect to the control member hub 87. The ratchet teeth 88 cooperate with a pawl 89 which is pivoted as at 90 for normal engagement therewith owing to the urge exerted thereon by a spring 91. The pawl 89 will, therefore, tend to ride over the ratchet teeth 88 during the counter-clockwise movement of the coin wheels 83 (viewed from Figure 2) for positive engagement therewith in the event a reversed rotation is effected unless the shaft 34 rotates for an extent sufficient to have the ratchet teeth 83 move beyond the pawl 89.

In the extreme clockwise displaced position of the coin wheels 83 (viewed from Figure 2) the spring 91 will tend to return the pawl 89 to its normal position so that the coin wheel may return with the pawl 89 riding over the ratchet teeth 88 in an opposite direction. It is to be noted that one of the coin wheels 83 preferably though not essentially devoid of the ratchet teeth 88, is provided with an arcuate lug 92 (Figure 3) integrally or otherwise formed on the periphery thereof in the path of a cooperating lug 93 fixed to the interior surface of the face plate 19 to limit the extreme rotary displacement of the shaft 34 as well as its return to initial position responsive to the urge of the coil spring 69 with some play permitted to afford the return of the pawl 89 to its normal position so as to control the directional operation of the shaft 34.

In order to effect the driving connection between the shaft 34 and rotors 33, the control members 75 and 76 are each provided with notches 94 provided in the periphery thereof in suitable number and circumferentially spaced relation depending upon the desired rotary displacement sought responsive to the deposition of a coin in any particular coin chute 78. To this end, the control member 75 is provided with diametrically opposed notches 94, in this instance two, which cooperate with a correspondingly shaped pawl 95 integrally or otherwise formed on the extremity of a lever 96 pivoted at the free end 97 thereof by means of a stud or pin 98 extending from the side plate 17.

A coil spring 99 is anchored to the lever 96 as at 100 with the other extremity thereof anchored to the frame or other relatively stationary object, in this instance a lever 101 pivoted to the frame studs 18 so that the extremity 102 thereof will lie in the path of studs 103 laterally extending from the control members 75 and 76 to effect the downward displacement or tensioning of the springs 99 so that a corresponding directional urge will be imparted to the lever 96 effecting constant contact of the pawl 95 with the periphery of the control member 75 for lodgement in the notches 94 during their arrival in the path thereof, thereby precluding further rotation of the driver 33 attached thereto.

In consequence thereof, the insertion of a coin of predetermined value in the chute 78 for lodgement in the coin slot 82 between the coin wheel 83 and control member 75 will effect the positive displacement thereof responsive to the manipulation of the lever 64, thereby confronting the pawl 95 which is first elevated by the coin 77 (Figure 2) for disengagement from a notch 94 in the periphery of the control member 75 until contact is made with a laterally extending lug 104 formed integrally with the control member 75 proximate to the remote edge of the slots 94.

Corresponding rotation of the control member 75 with its driver rotor 33 is effected in that the coin 77 serves as an intermediary or connection between the coin wheel 83 and driver 33. The strip connected stamp will thence be fed owing to the engagement of the driver prongs 37 with the lines of perforation 50 to effect delivery of a predetermined extent governed by the lodgement of the pawl 95 in the succeeding notch 94, in this instance disposed 180° apart to effect one-half revolution of the driver 33, in this instance gauged to present four stamps for delivery in such distance of rotation. The coin 77 will drop

from the coil slot 82 for deposit on an arcuate stop 105 fixed to the side plate 17 proximate the lower edge thereof by means of fasteners 106. With the return of the coin wheel 83 to its initial position responsive to the urge of the spring 69 on the operating lever shaft 65 the lateral flange 86 thereon (Figure 9) will engage the coin deposited on the stop 105 to effect the discharge thereof into a receptacle below or for confinement in the casing 30 which completely envelops the frame 10.

It is important to note that the disc control member 76 which is individual to the other driver rotor 33 mounted adjacent the side plate 16, is provided with notches 107 similar to the notches 94 on control member 75, but circumferentially spaced half the distance to present four notches in sequence. As a consequence, the pawl 108 carried by the lever 109 pivoted as at 110 to the plate 16, will permit displacement thereof for only half the distance of the control member 75 responsive to the deposition of a coin in the chute 79.

As a result, delivery of two stamps is only effected responsive to the manipulation of the lever 64 in that the spring 111 urges the pawl 108 to become lodged in the successive notches 107 spaced 90° or one-fourth revolution from each other in comparison to the 180° spacing of the notches 94 on the control member 75. As a result four one cent stamps will be delivered responsive to the deposition of a five-cent piece in the coin chute 79 compared to the delivery of two two-cent stamps with the deposition of a coin of similar value in the coin chute 79. Although the control members 75 and 76 may be varied within a wide range to effect the delivery of any predetermined extent of strip connected stamps or other merchandise responsive to the deposition of a coin of selected value, it is also important to note that any number of driver rotors 33 or equivalent expedients may be provided on a single shaft 34 so as to enable the vending of varied articles responsive to the manipulation of a single control lever 64.

In order to effect the severance of a strip delivered through the opening 35, the knives 58 are rendered responsive to the coin mechanism in timed sequence with the operation of the feeding rotors 33. To this end, the knives 58 are provided with inclined slots 112 for the reception of a stud 113 therethrough. The studs 113 are anchored in levers 114 which are shaped to conform with the curvature of the pawl levers 96 and 109 to extend thereover in adjacent parallelism for pivotal mounting by pins or studs 115 in vertical alignment with the pivots 110 of the pawl levers 96 and 109.

As shown, the levers 114 have lugs 116 formed on the lower edges thereof for contact with the pawls 95 and 108 responsive to the urge of coil springs 117 anchored thereto as at 118 with the other extremity thereof held fast to the side plates 16 and 17 by means of studs 119 in engagement therewith. It will thus be apparent that the springs 117 will urge the levers 114 in the direction of the pawls 95 and 108 for contact therewith in all positions thereof so that the studs 113 fixed thereon will normally descend to the end of riding upwardly in the knife slots 112. The upward camming of the studs 113 in the slots 112 normally effects the rotation of the knives 58 in the direction of delivery opening 35 for cooperation with the stationary knives 60 to effect the severance of the strip extending therebeyond.

During the delivery of the strip connected stamps 22 the pawls 95 and 108 are removed from their respective notches 94 and 107 to the end of elevating the levers 114 therewith to remove the knives 58 from the delivery opening 35 so that the stamps may be discharged therethrough. With the arrival of the succeeding notches 94 or 107 in the path of the respective pawl 95 or 108, the latter become lodged therein, thereby halting the feeding mechanism or driver rotors 33 and simultaneously permitting the springs 117 to exert an urge on the levers 114 for effecting descent of the studs 113. The camming of the studs 113 in the slots 112 responsive to the descent thereof effects the rotary or pivotal movement of the knives 58 in the direction of the stationary knives 60 to effect the severance of the strip of stamps extending therebeyond. The severed stamps are then completely severed for discharge to the bottom of the casing provided with an opening in the forward wall thereof to enable access thereto by the purchaser.

With the above arrangement of parts it will be apparent that a novel feeding and severing mechanism has been provided for coin or other operated mechanisms to effect the uniform delivery of strip connected stamps or other articles in a single operation or mechanical manipulation. The feeding mechanism possesses such features as to insure positive, uniform delivery which in conjunction with severing instrumentalities automatically operable in timed sequence therewith, effects the delivery of strip connected articles without delaying or inconveniencing the purchaser or requiring a sales attendant which proves exceedingly costly for articles or merchandise of the character mentioned.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention as defined in the appended claims.

I claim:

1. In a device for dispensing stamps or the like, the combination with selectively operable strip feeding means, of severing means responsive to a predetermined operation of said feeding means to remove a predetermined length from said strip, cam means connected to said feeding means, pivotal pawl in the path of said cam means to control the operation of said feeding means through the medium of a coin deposited in the path thereof, a pivotal lever in the path of said pawl, an operable connection between said lever and severing means, and spring means for urging said severing lever and pawl against said cam means to operate said feeding means and severing means in timed sequence.

2. In a stamp dispensing machine, the combination with a casing having a delivery opening, of a stationary arcuate retainer having a peripheral opening toward said delivery opening, a rotatable polygonal driver having each face adapted to receive a plurality of strip connected stamps, prongs resiliently mounted for extension from the corners of said driver to coact with said retainer with strip connected stamps disposed therebetween for feeding by said driver, spring actuated shearing means, cam means for controlling said shearing means responsive to the predetermined feeding of the strip for severing a predetermined length therefrom, and means for actuating said

driver responsive to the deposition of a coin to establish an operative connection therewith.

3. In a stamp dispensing machine, the combination with a casing having a delivery opening, of a stationary arcuate retainer having a peripheral opening toward said delivery opening, a rotatable polygonal driver having each face adapted to receive a plurality of strip connected stamps, prongs resiliently mounted for extension from the corners of said driver to coact with said retainer with strip connected stamps disposed therebetween for feeding by said driver, spring actuated lever shearing means, cam means for controlling said shearing means responsive to the predetermined feeding of the strip for severing a predetermined length therefrom, and means for actuating said driver responsive to the deposition of a coin to establish an operative connection therewith.

4. In a stamp dispensing machine, the combination with a casing having a plurality of delivery openings, a plurality of rotatable polygonal driver members corresponding in number with said delivery openings, prongs extending radially from each of said driver members to engage strip connected stamps for feeding through said delivery openings responsive to the rotation of said driver members, cutting means operatively connected to said driver means for severing strips of predetermined extent responsive to the feeding movement thereof, a single lever journalled in said casing, coin receiving slots individual to each of said delivery openings, and means interposed between said shaft and driver members to effect the feeding of stamps to said delivery openings responsive to the deposition of coins in selected slots individual thereto.

5. In a device for dispensing a plurality of independent strip-connected stamps, a casing, a shaft journalled in said casing, a plurality of polygonal members rotatively mounted on said shaft for independently feeding strip connected stamps, cutter means mounted in the path of the strip connected stamps delivered by said polygonal members, and cam means individual to each of said polygonal members, and means for actuating said polygonal members responsive to the deposition of a coin establishing operative connection therewith for rendering the feeding and cutting means selectively operative responsive thereto.

6. In a device for dispensing a plurality of independent strip-connected stamps, a casing, a shaft journalled in said casing, a plurality of polygonal members rotatably mounted on said shaft for independently feeding strip connected stamps, said polygonal members having straight sides presenting corners, resilient prongs projecting from said corners to engage strip connected stamps, cutter means mounted in the path of the strip connected stamps delivered by said polygonal members, coin chutes for each of said polygonal members, and cam means individual to each of said polygonal members for rendering the feeding and cutting means selectively operative responsive to the deposition of a coin in said chutes.

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