

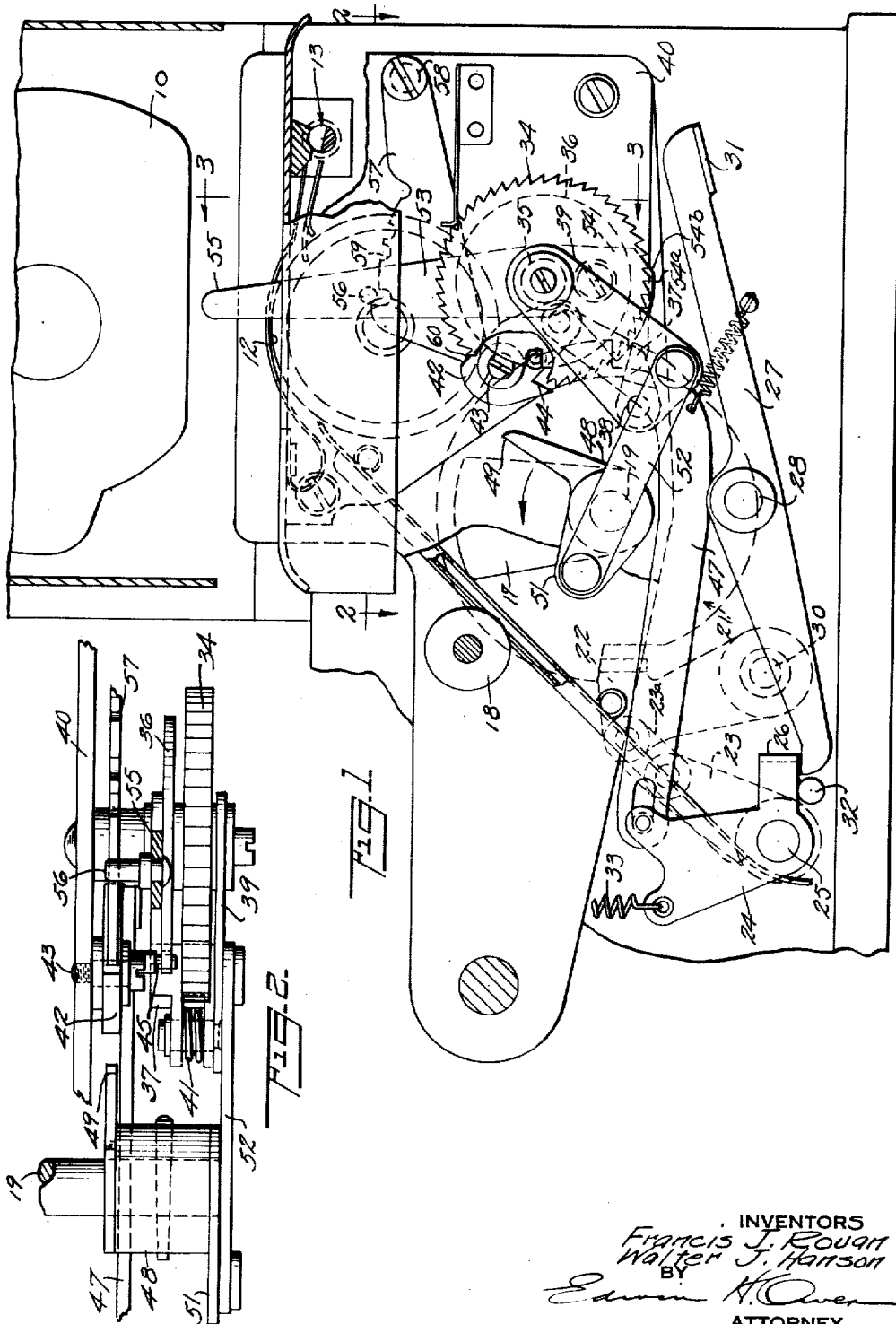
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F. J. ROUAN ET AL
STAMP ISSUING MECHANISM

2,475,804

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3 Sheets-Sheet 1



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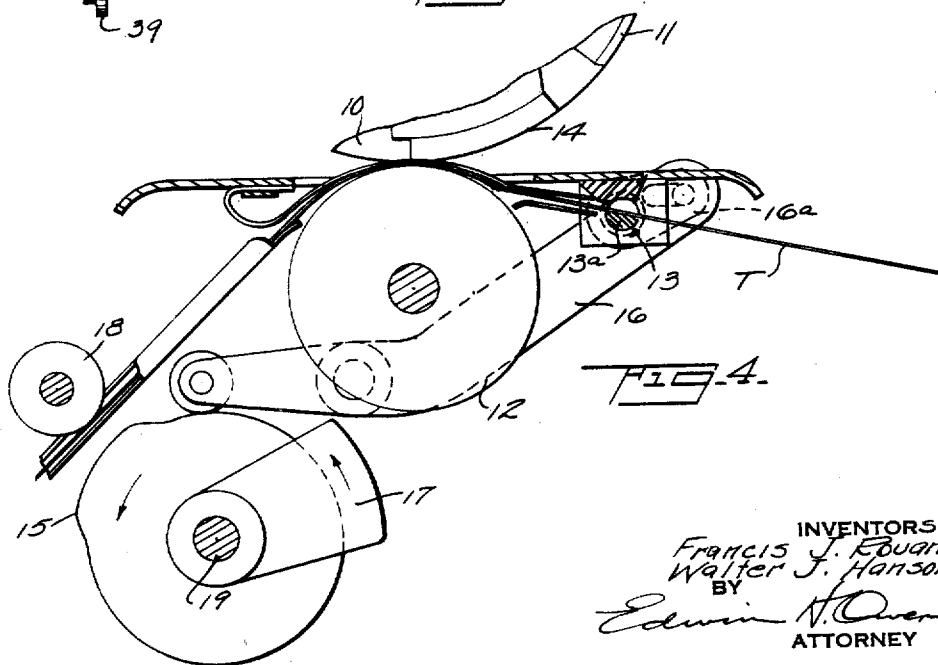
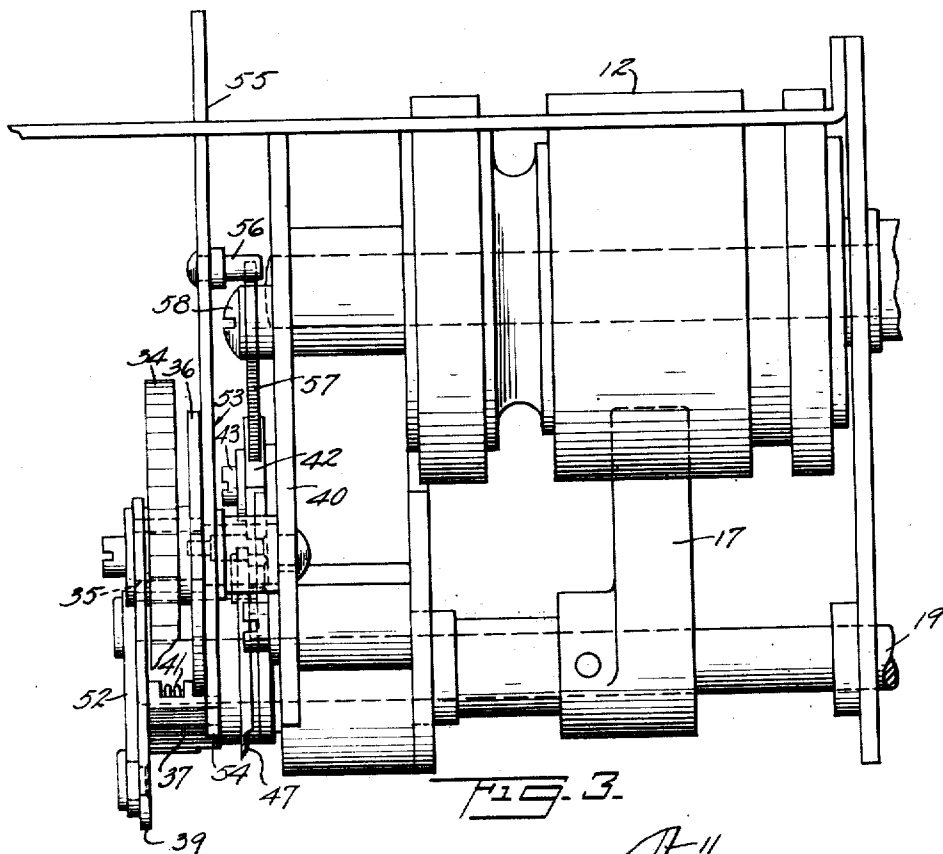
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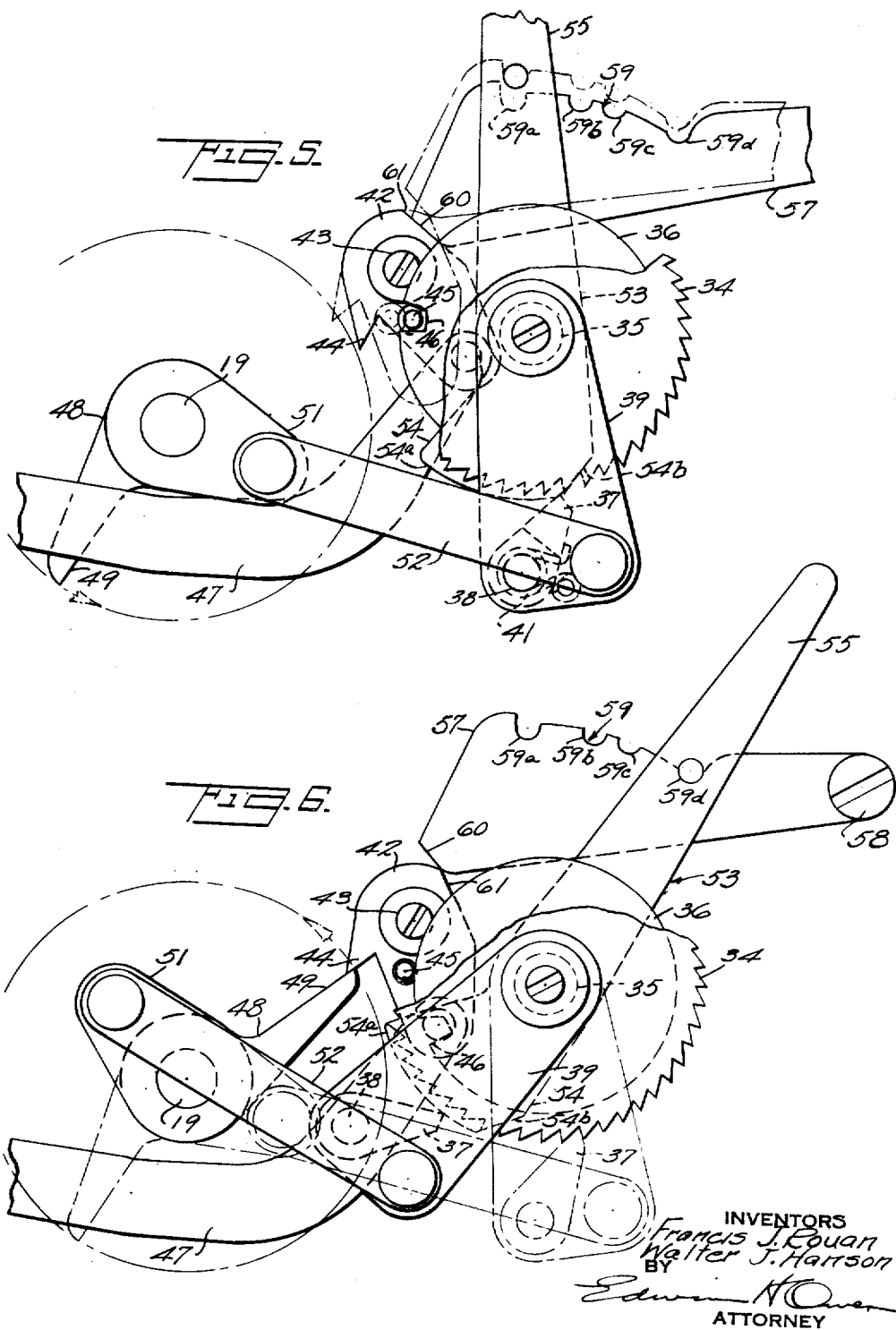
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UNITED STATES PATENT OFFICE

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STAMP ISSUING MECHANISM

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6 Claims. (Cl. 101—224)

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This invention relates to tape printing and cutting mechanism for use with a value printing machine, and more particularly to the issuing of individual printed stamps in selected predetermined quantities.

It is the principal object of the invention to provide a combination with driven tape printing and cutting mechanism, and manual release means for effecting a cycle of operation; of actuator means which is adapted to cooperate with mechanical release means to produce a predetermined number of operations after manual release of the machine is effected, and thereby control the issuance of predetermined quantities of printed and cut stamps.

Another object is to provide selective control mechanism, whereby the mechanical release means is adapted to be variably set for controlling the issuance of variable quantities of printed and cut stamps.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a front elevational view of a portion of a tape printing and cutting device including control mechanism for issuing predetermined quantities of printed and cut stamps;

Fig. 2 is an enlarged fragmentary plan view of the stamp issuing control mechanism taken substantially along the lines 2—2 of Fig. 1;

Fig. 3 is an enlarged end view of a portion of the mechanism shown in Figs. 1 and 2, and is taken substantially along the lines 3—3 of Fig. 1;

Fig. 4 is a fragmentary detailed view showing the operation of advancing the printed tape portion to a cutting position;

Fig. 5 is an enlarged detail operational view showing the stamp issuing control mechanism during a cycle of operation and with the mechanism set for the printing of a single stamp; and

Fig. 6 is a further detail operational view showing the control mechanism set for issuing a plurality of stamps, and showing an actuator member effecting a mechanical clutch release operation.

Referring to the drawings in detail, the machine comprises a printing drum 10, having a 55

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printing die 11, Fig. 4, which is adapted to cooperate with a platen roller 12, in the printing of impressions upon tape T. Upon leaving the printing position, the tape is guided to a cutting member, generally indicated at 13, and by means of a tape feed shoe 14, is advanced sufficiently to permit the printed portion thereof to pass beyond the cutting edges of the cutting member before cutting is effected, as best shown in Fig. 4. Cutting is effected in the usual manner by means of a cam actuated device, such as by a cam 15, which is adapted to rock levers 16 and 16a, the latter being secured to the rotor portion 13a of cutting member 13. After a cutting operation is completed, the tape is adapted to be retracted by means of a segment 17, which is driven in a counter-clockwise direction and cooperates with an opposing pressure roller 18.

A power driven shaft 19 has a clutch 21 associated therewith. Said clutch is normally maintained in a non-driving position by means of a clutch trip lever 22, which lever is carried by a shaft 30 and is adapted to be rocked in a counter-clockwise direction to effect release of the clutch and initiate a cycle of operation. The means for rocking said trip lever 22 includes lever members 23 and 24, fixed to a shaft 25, the lever 23 being linked with the trip lever 22 at 23a. A manual control lever 27, pivoted at 28, has one end 29 engaged beneath an extension 26 of lever 24, which extension is normally urged against a stop 32 by means of a spring 33. When therefore, a cycle of operation is to be effected, the operator will depress the handle portion 31 of the manual lever 27 to rock the levers 24 and 23 in a counter-clockwise direction, thereby effecting rocking of the trip lever 22, and the consequent release of the clutch 21. At the end of one revolution of the clutch, the trip lever 22 will have returned to the position shown in Fig. 1, under the impulse of spring 33.

The above mechanism is of the conventional type generally found in metered mail machines and forms the operating medium with which the mechanism of the invention is combined.

Referring now to the mechanism of the invention, a device is provided for the issuing of variable quantities of printed stamps as desired. Said device comprises a ratchet wheel 34, supported on a stub shaft 35, extending from a bracket 40, and has axially joined therewith, a disc 36. A pawl 37 is supported on a pin 38, projecting from a lever 39, which lever is pivotally mounted at the end of the stub shaft 35. Said pawl 37 is also

urged toward the ratchet teeth of the ratchet wheel by means of spring 41.

A mechanical or automatic clutch release is provided, which includes a rocker lever 42, having a projecting portion 44. Said rocker lever is pivotally mounted upon a stud 43 extending from the bracket 40. A pin 45, extending from one face of the rocker lever 42, is normally urged toward the peripheral surface of the disc 36 and will normally engage a notch 46 therein. Said rocker lever 42 is also connected with the manually actuated lever 24 by means of a link 47. Hence, when the lever 24 is rocked, through the manipulation of the lever 21, the rocker lever 42 is also rocked to effect removal of the pin 45 from engagement with the notch 46, and to further effect movement of the projection 44 of the rocker member 42, into the path of a driven actuator member 48.

The actuator member 48 is fixed to the drive shaft 19, and has one projecting finger portion 49. Said finger 49 is adapted to cooperate with the projecting end 44 of the rocker lever 42 to effect the rocking thereof, and the consequent tripping of the clutch 21, for effecting a subsequent cycle of operation. Another portion 51 of said actuator member 48 is connected with the pawl supporting lever 39, by means of a link 52. Hence, when the actuator member 48 is rotated, the pawl supporting lever 39 will be rocked to effect a reciprocating movement of the pawl 37.

A variable feed of the ratchet wheel 34 is provided by varying the position of engagement of the ratchet teeth by the pawl 37. This is accomplished by shielding the pawl from engagement with the teeth of the ratchet wheel during a portion of the driving stroke of the pawl. Said shielding is effected by means of a lever 53 pivotally supported upon the stub shaft 35, and having a lower segmental end portion 54 thereof arranged with an arcuate edge 54a extending beyond the outer edges of the ratchet teeth of the ratchet wheel 34. A handle 55 projects upwardly from the lever 53 and has a pin 56 projecting from one face thereof. By varying the position of the lever 53, the pawl 37 is adapted to be controlled so that it will engage and advance the ratchet wheel the distance of one, two, or four teeth. With forty-eight teeth in the ratchet wheel, provision is thus made for issuing forty-eight, twenty-four or twelve stamps respectively.

The locking of the shielding portion of the lever 53 in any adjusted position, is provided by means of a notched lever 57. Said lever 57 is mounted upon a stud 58, carried by the bracket 40, and has notches 59 spaced along an upper arcuate edge thereof. The lower left end 60 of said lever 57 bears against a flat cam portion 61 of the rocker lever 42. When the lever 42 is rocked as a result of the engagement of the actuator finger 49 with projection 44, the notched lever 57 will be rocked upwardly by the cam portion 61 to effect engagement of the pin 56 with one of the notches 59.

When the handle 55 is set in the extreme left position, opposite the notch 59a, as indicated in Fig. 5, the arcuate edge 54a of the shield 54 will occupy a position relative to the ratchet teeth which will prevent the pawl from moving into active engagement therewith during the operating stroke thereof. Referring to Fig. 1, where the parts are shown in a home position, the pawl 37 is shown positioned the distance of sev-

eral teeth from the right end of the shield. Referring now to Fig. 5, wherein the actuator member 48 has moved 180° to advance the pawl a full stroke forward, it will be seen that the tooth engaging edge of the pawl has advanced to the end of the shield, but has not moved into engagement with a ratchet tooth. Inasmuch as the pawl has not engaged and moved the ratchet wheel 34, no motion will be imparted to the disc 36. Therefore, the pin 45 on rocker lever 42, will re-engage the notch 46 in the disc 36, before a cycle of machine operation is completed. A single stamp is thus issued after each operation of the manually controlled lever 27.

When the handle 55 is set opposite the second notch indicated at 59b, the arcuate edge 54a of the shield 54 will become positioned two teeth to the left of the position shown in Fig. 1. During the cycle of operation the pawl 37 will move beyond the right end of the shield into engagement with the ratchet teeth, and will advance the ratchet wheel the distance of one tooth. It is to be noted that the movement of the pawl down the ramp portion 54b of the shield 54, will not transmit movement to the ratchet wheel 34.

When the ratchet wheel is moved, the disc 36 will move a like distance and the notch 46 will move beyond the path of the pin 45. The projecting portion 44 of the rocker lever 42 is thus maintained in the path of the actuator finger 48, and will be rocked when engaged by said finger. Rocking of the rocker lever 42 will effect release of the clutch 21 for another cycle of operation, which action will be repeated after each cycle until the disc 36 has moved through 360° to its home position. When in said home position, the pin 45 will re-engage the notch 46, and the projection 44 will be withdrawn from the path of the actuator finger 49. Also, when the disc 36 has moved, setting lever 53 is maintained in a locked position until the required number of stamps have issued.

When the handle 55 is set opposite the notch 59c, the pawl 37, during its normal stroke will move two teeth beyond the end of the shield 54, thus advancing the ratchet wheel the distance of two teeth. With forty-eight teeth in the ratchet wheel, the two tooth advance will issue twenty-four stamps during one revolution of said ratchet wheel.

In a like manner when the handle 55 is advanced to the last notch 59d, the pawl 37 will advance the ratchet wheel the distance of four teeth during each forward stroke thereof. It will be noted that the notch 59d is twice the distance from notch 59c, as 59c is from 59b, hence the advance of the ratchet wheel is proportionately greater. Twelve stamps are thus issued during each cycle when the handle is set to the last notch position.

Having described the invention what is claimed is:

1. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a predetermined path during each operating cycle, an actuator operable upon operation of the manual release means, means to control the quantity of pieces of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and movable to an operative position relative to the actuator upon effecting operation of the manual release,

whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, means to control the number of subsequent cycles of operation including an element movable into engagement with the mechanical release means, and means to provide disengagement of the mechanical release means with said element after a predetermined number of operations are effected.

2. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a complete revolution during each operation cycle, a rotatable actuator operable upon operation of the manual release means, means to control the quantity of pieces of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and movable to an operative position relative to the rotatable actuator upon effecting operation of the manual release, whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, and means to control the number of subsequent cycles of operation including an element having a surface movable into or out of engagement with the mechanical release means.

3. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a predetermined path during each operating cycle, an actuator operable upon operation of the manual release means, means to control the quantity of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and movable thereby to an operative position relative to the actuator upon effecting operation of the manual release, whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, means to control the number of subsequent cycles of operation including a rotative member having one portion thereof arranged to maintain the mechanical release means in operative relation with the actuator and another portion to allow the mechanical release means to move away from an operative relation with the actuator, during one revolution thereof, a ratchet wheel rotatable with said rotative member, a reciprocating pawl adapted to effect the drive of the ratchet wheel once during each machine cycle of operation, a shield extending beyond the teeth of the ratchet wheel and normally engaged by said pawl for a predetermined part of the forward motion thereof during each cycle of operation, and means to effect adjustment of said shield to vary the number of teeth of engagement by the pawl and thereby vary the quantity of stamps issued.

4. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a predetermined path during each operating cycle, an actuator operable upon operation of the manual release means, means to control the quantity of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and moveable thereby to an operative position relative to the actuator upon

effecting operation of the manual release, whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, means to control the number of subsequent cycles of operation including a rotative member having one portion thereof arranged to maintain the mechanical release means in operative relation with the actuator and another portion to allow the mechanical release means to move away from an operative relation with the actuator during one revolution thereof, a ratchet wheel rotatable with said rotative member, a reciprocating pawl adapted to effect the drive of the ratchet wheel once during each machine cycle of operation, a shield extending beyond the teeth of the ratchet wheel and normally engaged by said pawl for a predetermined part of the forward motion thereof during each cycle of operation, means to effect adjustment of said shield to vary the number of teeth of engagement by the pawl and thereby vary the quantity of stamps issued, and locking means cooperating with the adjustment means to retain the adjustment throughout a period controlled by the one revolution of the rotative member.

5. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a predetermined path during each operating cycle, an actuator operable upon operation of the manual release means, means to control the quantity of pieces of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and movable thereby to an operative position relative to the actuator upon effecting operation of the manual release, whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, means to maintain the mechanical release means in operative relation with the actuator for a predetermined number of operations, a reciprocating pawl, a ratchet wheel intermittently driven by said pawl, a disc having a notch in the periphery thereof and joined with the ratchet wheel, and a projection on said mechanical means engaging the notch and movable into alignment with the peripheral surface of the disc when the manual release of the machine is effected, said disc being movable by the pawl and ratchet drive to effect engagement of the peripheral surface of the disc with the projection and thereby maintain the mechanical release means in operative relation with the actuator until the ratchet wheel and disc have been rotated a complete revolution.

6. The combination with driven tape printing mechanism including tape cutting, tape retraction and means to limit the printing cycle to a single operation; of manual release means to start a cycle of operation through a predetermined path during each operating cycle, an actuator operable upon operation of the manual release means, means to control the quantity of pieces of printed and cut tape issued and comprising, mechanical release means associated with the manual release means and movable thereby to an operative position relative to the actuator upon effecting operation of the manual release, whereby release for a subsequent cycle of operation may be effected when desired before the current cycle has been completed, means to maintain the mechanical release means in operative rela-

tion with the actuator for a predetermined number of operations, a reciprocating pawl, a ratchet wheel intermittently driven by said pawl, a disc having a notch in the periphery thereof and joined with the ratchet wheel, a projection on said mechanical means engaging the notch and movable into alignment with the peripheral surface of the disc when the manual release of the machine is effected, said disc being movable by the pawl and ratchet drive to effect engagement of the peripheral surface of the disc with the projection, and means to urge the projection toward the peripheral surface, whereby when the disc has completed one revolution the projection will be urged into the notch and thereby remove

the mechanical release means from operative relation with the actuator.

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