

June 18, 1940.

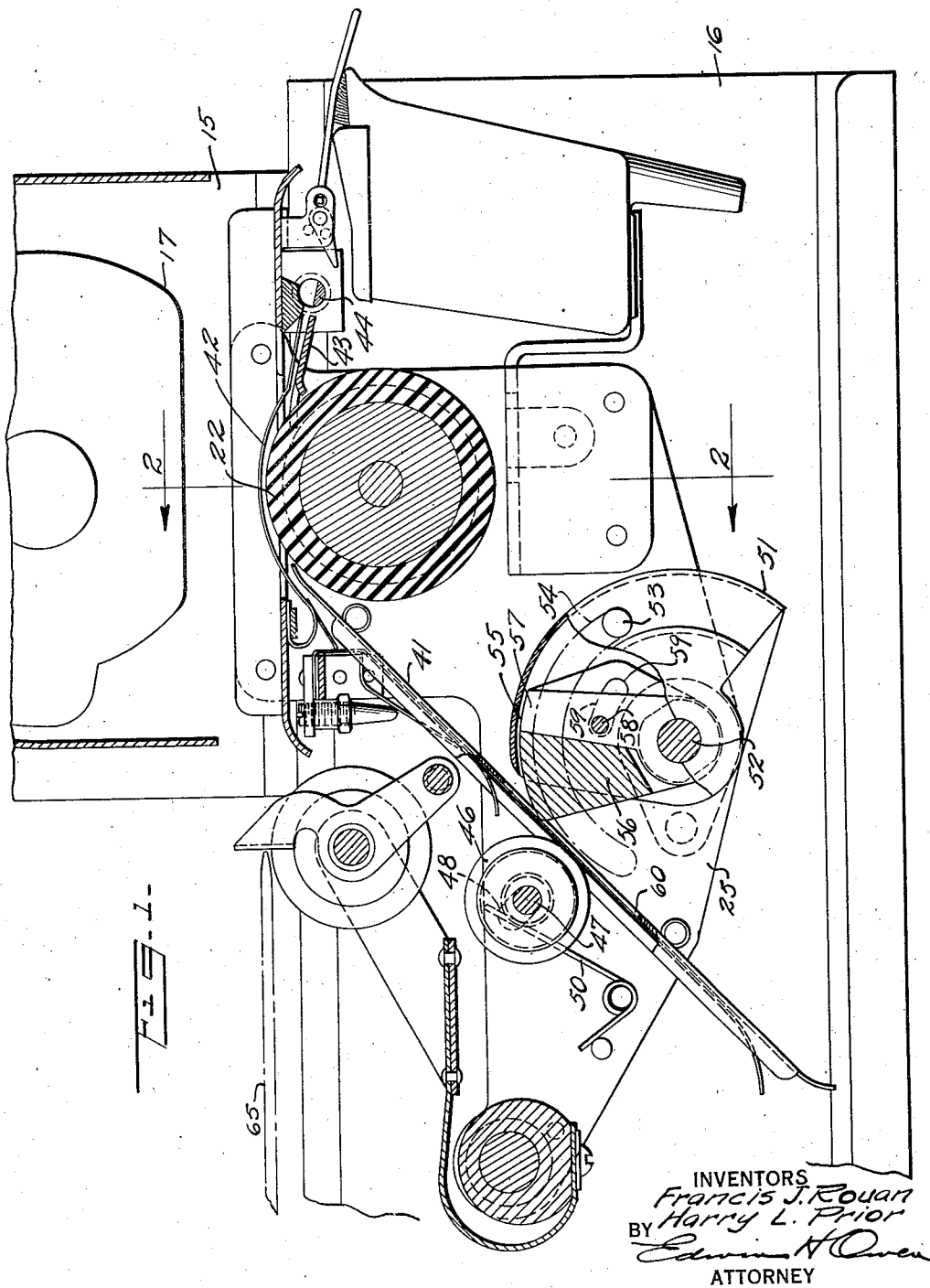
F. J. ROUAN ET AL

2,204,972

TAPE CONTROL DEVICE

Filed May 13, 1938

4 Sheets-Sheet 1



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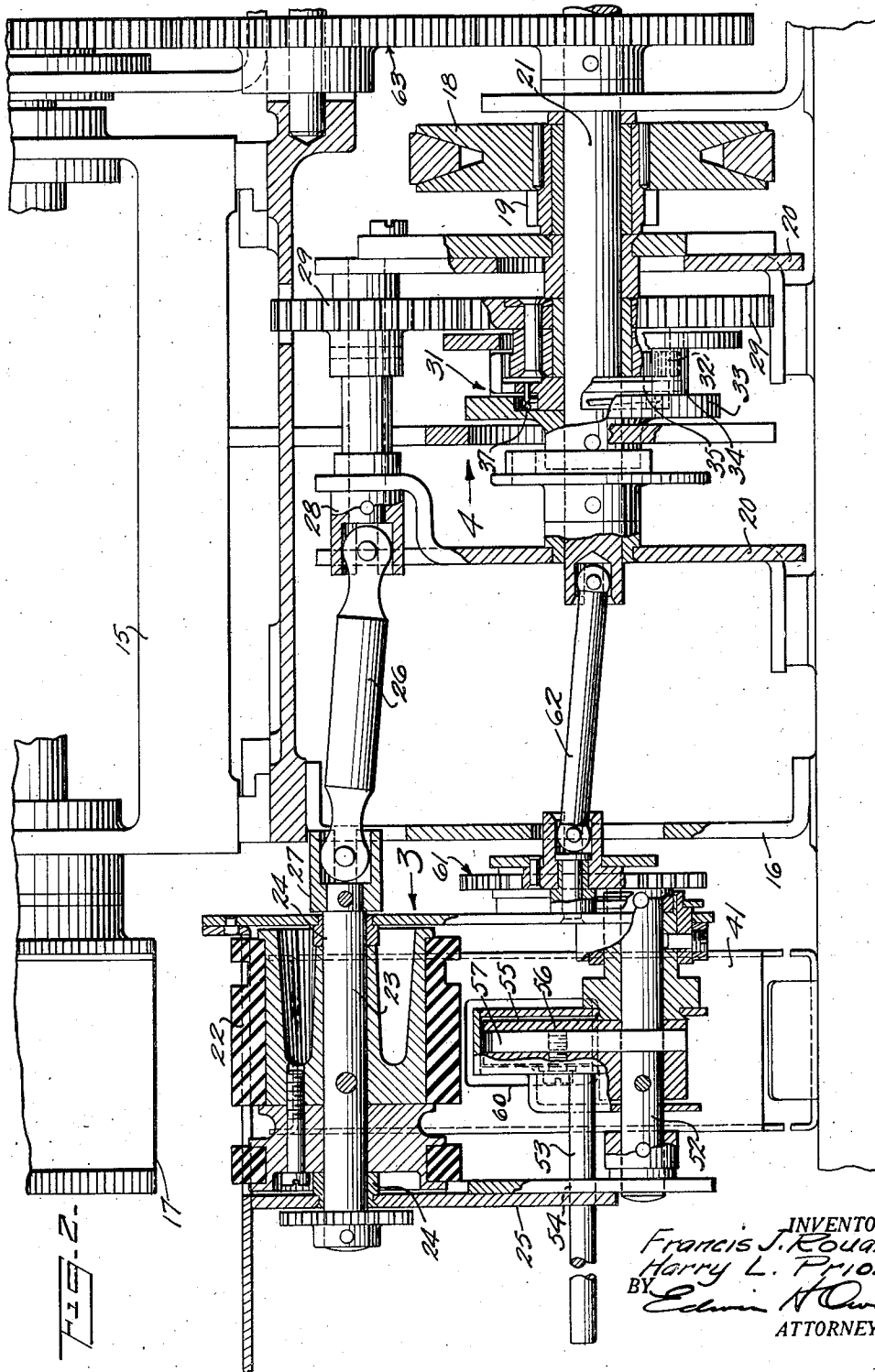
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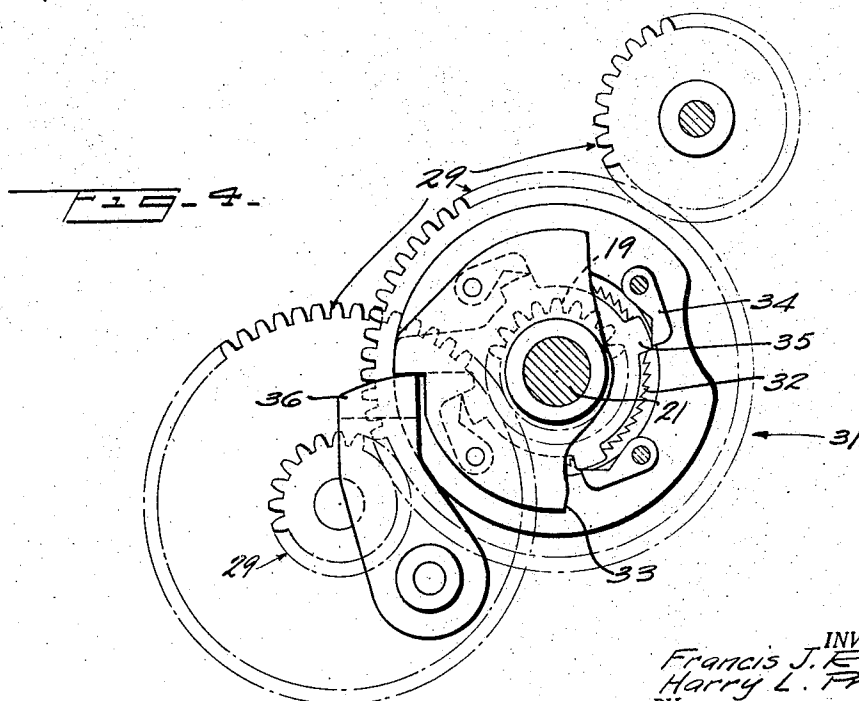
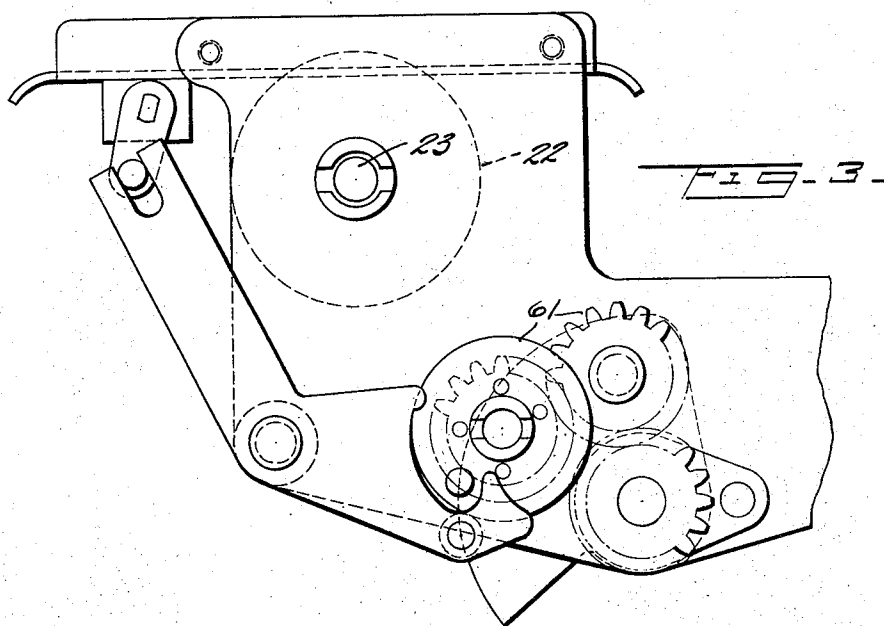
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4 Sheets-Sheet 3



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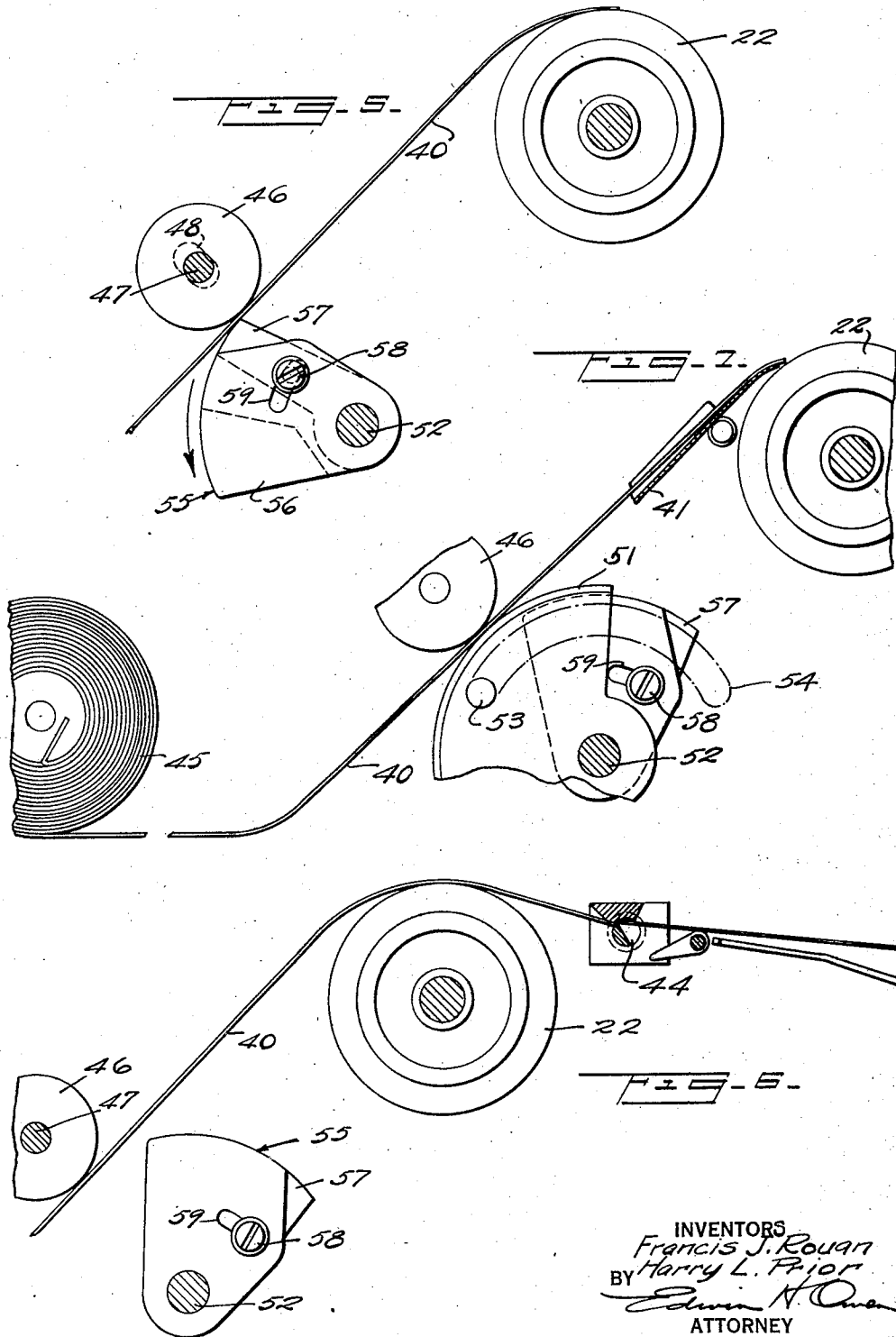
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TAPE CONTROL DEVICE

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4 Sheets-Sheet 4



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2,204,972

TAPE CONTROL DEVICE

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7 Claims. (Cl. 101—227)

This invention relates to a tape control device which is particularly adapted for use with metered mailing machines of the type which print postage stamp impressions upon either letters or gummed tape by means of a single printing unit.

In a machine of this character, letters are adapted to be moved along a horizontal plane to a printing drum and an impression roller, and are drawn therebetween while receiving a postage stamp impression. Also, when desired, a strip of tape material may be arranged in the path of the printing drum to permit the printing of postage stamp impressions thereon instead of on letters.

When printing upon tape, the printed portion is advanced during the process of printing to a cutting position. Here the printed portion is cut off and after moistening the gummed surface thereof, it is applied to the mail matter. After removing the cut tape portion, the leading end of the tape will remain at the cutting position. Therefore, before another printing operation occurs, the said leading end is retracted to a position where it may again be picked up and advanced by the type surface of the printing drum during the next printing operation.

It is the principal object of this invention therefore, to provide a simple and novel form of automatically operated retracting means which will retract the leading end of the tape from a cutting position to a printing pick-up position.

It is another object to perform the said retracting operation at the beginning of the machine cycle of operation to thereby take advantage of a time period which elapses before the type portion of the printing drum has advanced to a printing position.

It is a further object to provide for the retraction of the tape by means of a rotatable element which will be driven through one revolution during each printing cycle of operation.

It is also an object to provide a manually controlled member by which the tape may be initially advanced to a cutting position or may be withdrawn from said cutting position when it is desired to print upon letters, and further, to utilize said member to prevent the engagement of the tape retracting member with the tape after the leading end of the tape is withdrawn from the cutting position.

With the foregoing 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 embodi-

ment 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 part elevational and part sectional view of a tape control unit and printing and cutting devices as viewed from the front of a metered mailing machine;

Fig. 2 is a sectional view taken substantially along the line 2—2 of Fig. 1 with parts broken away and continued through the interior of the machine base showing part of the machine drive;

Fig. 3 is a rear elevational view of a portion of the tape control drive taken in the direction of the arrow 3 of Fig. 2;

Fig. 4 is an elevational view of the clutch drive taken in the direction of the arrow 4 of Fig. 2;

Fig. 5 is a diagrammatic view showing the tape retracting member in a position after it has retracted the leading end of the tape from a cutting to a printing pick-up position at the beginning of its one revolution cycle of movement;

Fig. 6 is a view similar to Fig. 5 but showing the position of the tape retracting member at the end of its cycle of movement, and further includes the cutting of the printed portion of the tape, which occurs near the end of the cycle of movement; and

Fig. 7 is also a diagrammatic view particularly illustrating the function of a shutter member which is adapted to advance the tape to or remove the tape from a printing pick-up position, and further is adapted to prevent the retraction of the tape when in the latter or illustrated position.

Referring to Fig. 2 of the drawings, a portion of the meter unit is shown at 15 and a portion of a base unit is shown at 16. The meter unit is adapted to support a printing drum 17 and is detachably mounted upon said base unit. Within the base unit a drive mechanism is provided which includes a power driven pulley 18 and pinion 19. Said pulley and pinion are freely and continuously rotatable about a clutch controlled shaft 21, which shaft is suitably supported by brackets 20—20.

At the forward end of the machine is an impression roller 22, which is positioned directly beneath the printing drum 17 and is mounted upon a shaft 23. Said shaft 23 is rotatably mounted in suitable bearings 24—24 in a frame structure 25, which frame is suitably carried by the machine base. A drive is provided for said

impression roller by means of a universal drive shaft 26 which is connected at one end with a coupling 27, fixed to the shaft 23, and at the other end with a coupling 28. Said coupling 28 and impression roller are continuously driven by means of a gear drive indicated at 29, which gear drive is directly driven from the pinion 29 as best shown in Fig. 4.

A one revolution clutch mechanism 31 is provided between the gear drive 29 and the clutch controlled shaft 21. Said mechanism may be of the pawl and ratchet type as shown, which includes a ratchet wheel 32, fixed to one gear of the gear drive 29, and a pawl supporting disk 33 which is fixed to the clutch shaft 21. Pawls 34 are suitably arranged around the disk 33 and are normally held out of engagement with the ratchet 32 by means of a cam disk 35, which disk is normally urged in a pawl engaging direction by means of a spring 37. Said cam disk 35 is normally maintained in a stationary position by means of a clutch stop arm 36, which may be actuated by any suitable means, such as by a hand manipulated trip device or by means of a letter actuated trip member when the letter is fed between the printing drum and the impression roller. Trip devices form no part of the present invention however, and are therefore not shown.

Referring to Figs. 1, 5, 6 and 7, a tape guide member 41 is shown suitably supported upon the frame structure 25, which member is positioned below the normal path of the letter feed and is arranged so as to guide a strip of gummed tape 40 upward to a position where the leading end thereof may be drawn between the printing drum and impression roller when a tape printing operation is effected. Cooperating with said guide 41, at the position of the impression roller, are suitable spring members 42, which members also cooperate with a stripper plate 43 to guide the leading end of the tape between the jaws of a cutting device 44. A suitable tape supply is indicated at 45, Fig. 7, which may be arranged in any convenient position within the base of the machine.

A pressure roller 46 is mounted at a position substantially between the end of the guide member 41 upon a suitable shaft 47, which shaft is positioned within elongated openings 48, provided in the frame structure 25, in such manner as to provide for lateral movement of the roller. By means of a spring member 50, the said pressure roller 46 is maintained in engagement with the upper surface of the tape guide or the tape 40 when said tape is positioned within the guide 41.

According to the arrangement of the tape guiding devices, the leading end of the tape will terminate at any one of the three different positions shown in Figs. 5, 6 and 7, Fig. 5 showing the printing pick-up position, Fig. 6 showing the cutting position, and Fig. 7 showing the normal non-printing position.

The tape controlling devices are either manually or automatically operated to place the leading end of the tape in any one of the above said positions. In considering the several operations, it must be understood that after a machine cycle of operation has been completed, the leading end of the tape is left in the cutting position of Fig. 6. Hence, the first operation, which occurs at the beginning of a machine cycle of operation, is the return of the leading end of the tape from the cutting position of Fig. 6 to the printing pick-up position of Fig. 5. It is thus apparent

that the cutting position is the locating position from which the other positions of the tape will be measured. When therefore, the initial operation of threading the tape from a new roll is effected, the leading end of the tape is continued through the guiding devices to the cutting position.

Two separate devices are provided for the control of the tape, one of which is manually operated to prepare the machine for the printing of stamp impressions upon tape and the other of which is automatically operated to retract the tape from a cutting to a printing pick-up position.

Considering the manually operated tape control device first, the said device comprises a shutter member 51 which is pivotally mounted upon a shaft 52, supported within the frame structure 25, and has a handle 53 projecting forwardly thereof and through an arcuate slot 54, provided within the front wall of the frame structure 25. When said shutter member 51 is in the position shown in Fig. 7, the handle 53 is in engagement with the extreme left-hand end of the arcuate slot 54, and the peripheral surface of said shutter member, which is in engagement with the underside of the tape 40 directly opposite the pressure roller 46, will have effected the movement of the tape to a non-printing position. An opening 60 is provided within the tape guide 41 to expose that portion of the tape 40 which lies opposite the pressure roller 46.

When the shutter member is moved so that the handle 53 engages the extreme right end of the arcuate slot 54, as in the position shown in Fig. 1, the tape will have been moved by the said shutter from the non-printing position shown in Fig. 7 to the cutting position of Fig. 6.

By means of said shutter member, it will be seen that the leading end of the tape may be advanced from the non-printing to the cutting position when it is desired to print upon tape or may be retracted from a cutting position to a non-printing position when it is desired to print upon letters. In other words, the shutter member functions in the capacity of a selector to place the machine in condition for printing upon either letters or tape.

When the leading end of the tape is in a cutting position, it is retracted to the printing pick-up position shown in Fig. 5 at the start of a new machine cycle of operation. Such retraction is provided by means of the automatically operated tape control device, previously referred to, which comprises a sector member 55 including a fork shaped member 56 fixed to the shaft 52, and an adjustable member 57 which is adapted to slide within the space between the walls of the fork member 56. By means of a screw 58 which is secured within the fork member 56, and which passes through an elongated slot 59 in the adjustable member 57, the length of the tape engaging peripheral surface of said retracting member may be increased or decreased. The length of tape to be retracted may thus be adjusted as required within the limit of the said adjustment.

Said retracting member 55 is also adapted to be rotated through one revolution during each revolution of the printing drum. A drive is thus provided for the shaft 51, which drive comprises a gear drive 61, best shown in Fig. 3, which is connected through a universal coupling including a shaft 62, driven from the drive shaft 21 through the clutch unit 31.

When the machine is tripped to perform a printing cycle of operation, the shaft 21 will receive one revolution, which in turn will drive the printing drum shaft through one revolution by means of the gearing indicated at 63, Fig. 2, and further, will rotate the retracting member 55 through the medium of the universal drive connection 62.

It will therefore be seen that when the shutter member 51 is in the position shown in Fig. 1, the retracting member 55 will be free to engage the lower surface of the tape upon each revolution thereof, and when it engages said tape opposite the position of the pressure roller 46, the tape will be retracted a distance equal to the length of the peripheral surface of the retracting member.

When it is desired to print stamp impressions upon letters instead of on tape, the shutter member is manually rocked to the position shown in Fig. 7 to thereby retract the leading end of the tape to a position below the feeding surface of the impression roller, and further, to shield the retracting member 55 and prevent the peripheral surface thereof from engaging with the tape during each printing cycle of operation while the machine is so set.

The feed of a letter to a printing position is indicated at 65, in Fig. 1. The said letter is advanced by suitable feeding devices from a feed hopper to the point of engagement with a trip actuating member 66, from which position it will continue to be advanced to a printing position. By the time the letter reaches the printing position, the drum will have advanced to effect the printing operation and will continue to advance the letter to an ejecting position. All details relative to the feeding and printing of letters are well known and further description is not deemed necessary.

Having described this invention what is claimed is:

1. The combination with a tape printing device which is adapted to print and advance a strip of tape after printing, and a cutting device which is adapted to cut the printed portion of the tape after each printing operation; of a rotatable tape retracting member having a frictional tape engaging surface, a pressure member engageable with the tape at a position opposite the position of engagement of the tape retracting member, means to rotate said tape retracting member once during each printing cycle of operation in a direction opposed to the normal printing feed of the tape to thereby retract the leading end of the tape to a printing position after cutting, and a shutter member movable through the path of the retracting member to a position opposite the pressure member, whereby the tape engaging surface of the retracting member is obstructed from engagement with the tape when the printing of tape is not to be effected.

2. In a metered mailing machine normally adapted to print stamp impressions upon letters, the combination with a tape printing device which is adapted to print and advance a strip of tape after printing, and a cutting device which is adapted to cut the printed portion of the tape after each printing operation; of a rotatable tape retracting member having a frictional tape engaging surface, a pressure member engageable with the tape at a position opposite the position of engagement of the tape retracting member, means to automatically rotate said tape retracting member once during each printing cycle of

operation in a direction opposed to the normal printing feed of the tape to thereby retract the leading end of the tape to a printing position after cutting, and a manually controlled shutter member engageable with the tape to retract the leading end thereof from a printing position and to provide for the free movement of the retracting member therebeneath when letters are to be passed through the machine.

3. In a machine of the character described having a rotary printing member and adapted to print impressions upon letters and tape, a tape supply including means to guide the tape to a printing position, selector means including a manually controlled shutter member having motion in one direction to move the tape to a position for the printing of impressions thereon, and a reverse motion to remove the tape from a printing position when impressions are to be printed upon letters, means to cut the printed portion of the tape, and a member rotatable through the path of the shutter member adapted to retract the tape to a printing position after the cutting of the tape is effected.

4. In a machine of the character described having a rotary printing member and adapted to print impressions upon letters and tape, a tape supply including means to guide the tape to a printing position, selector means including a manually controlled shutter member having motion in one direction to move the tape to a position for the printing of impressions thereon, and a reverse motion to remove the tape from a printing position when impressions are to be printed upon letters, a tape retracting member having a frictional tape engaging surface, means to rotate said tape retracting member once during each printing cycle of operation, said retracting member being adapted to engage the tape when the shutter has moved the tape to permit the printing of impressions thereon, and being prevented from engaging with the tape when the shutter has returned the tape to a non-printing position.

5. In a machine of the character described having a rotary printing member and adapted to print impressions upon letters and tape, a tape supply including means to guide the tape to a printing position, selector means including a manually controlled member having motion in one direction to move the tape to a position for the printing of impressions thereon, and a reverse motion to remove the tape from a printing position when impressions are to be printed upon letters, a rotary driven member arranged to retract the tape after each printing operation when the selector means is moved to a tape printing position, and a shutter member associated with said selector means arranged to obstruct the engagement of the rotary retracting member with the tape when the selector means has moved the tape to a non-printing position.

6. In a device of the character described, a rotary printing device including a printing drum and an impression roller, a tape supply, means to guide tape to a position between said printing drum and impression roller, a manually controlled tape feed member arranged to advance the leading end of the tape between the printing and impression rollers for the printing of stamp impressions thereon, or to return same to a non-printing position, means to advance the tape while printing, means to cut the printed portion of the tape, and tape retracting means including a rotatable member having a frictional tape en-

gaging surface to withdraw the tape from a cutting to a printing pick-up position, means to rotate said tape retracting member one revolution during each printing cycle of operation, and means to prevent the engagement of the retracting member with the tape when the tape feed member has been moved to return the tape to a non-printing position.

7. In a device of the character described, a rotary printing device including a printing drum and an impression roller, a tape supply, means to guide tape to a position between said printing drum and impression roller, a manually controlled tape feed member arranged to advance the leading end of the tape between the printing

and impression rollers for the printing of impressions thereon or to return same to a non-printing position, means to advance the tape while printing, means to cut the printed portion of the tape, tape retracting means including a rotatable member having a frictional tape engaging surface to withdraw the tape from a cutting to a printing pick-up position, and means to rotate said tape retracting member one revolution during each printing cycle of operation, said rotatable member being arranged so as to engage and retract the tape at the beginning of the cycle of operation.

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