Feb. 17, 1942. B. KNAUER ET AL 2,273,272

TAPE AND LETTER PRINTING DEVICE

Filed June 6, 1940 2 Sheets-Sheet 1

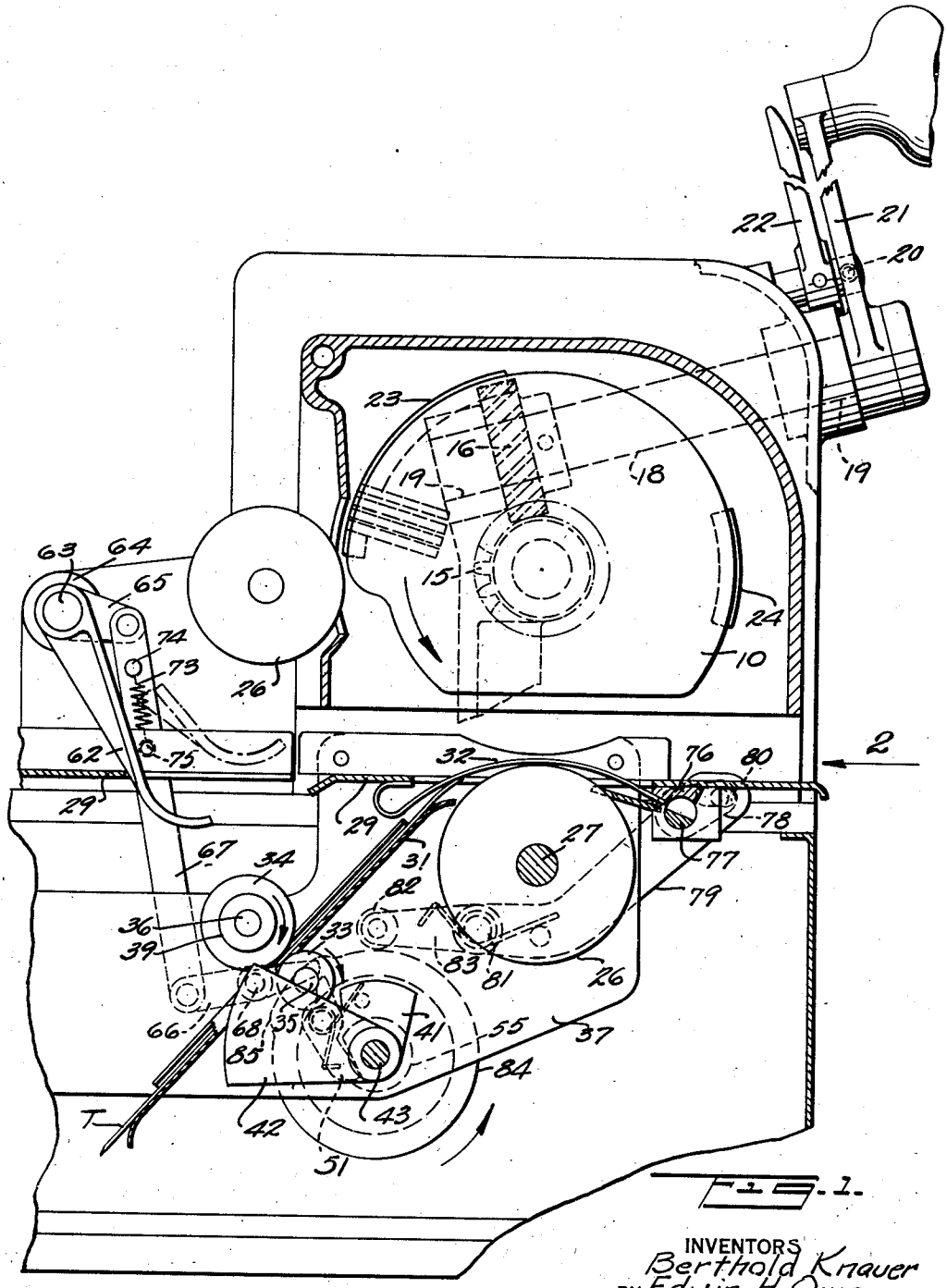


FIG. 1.

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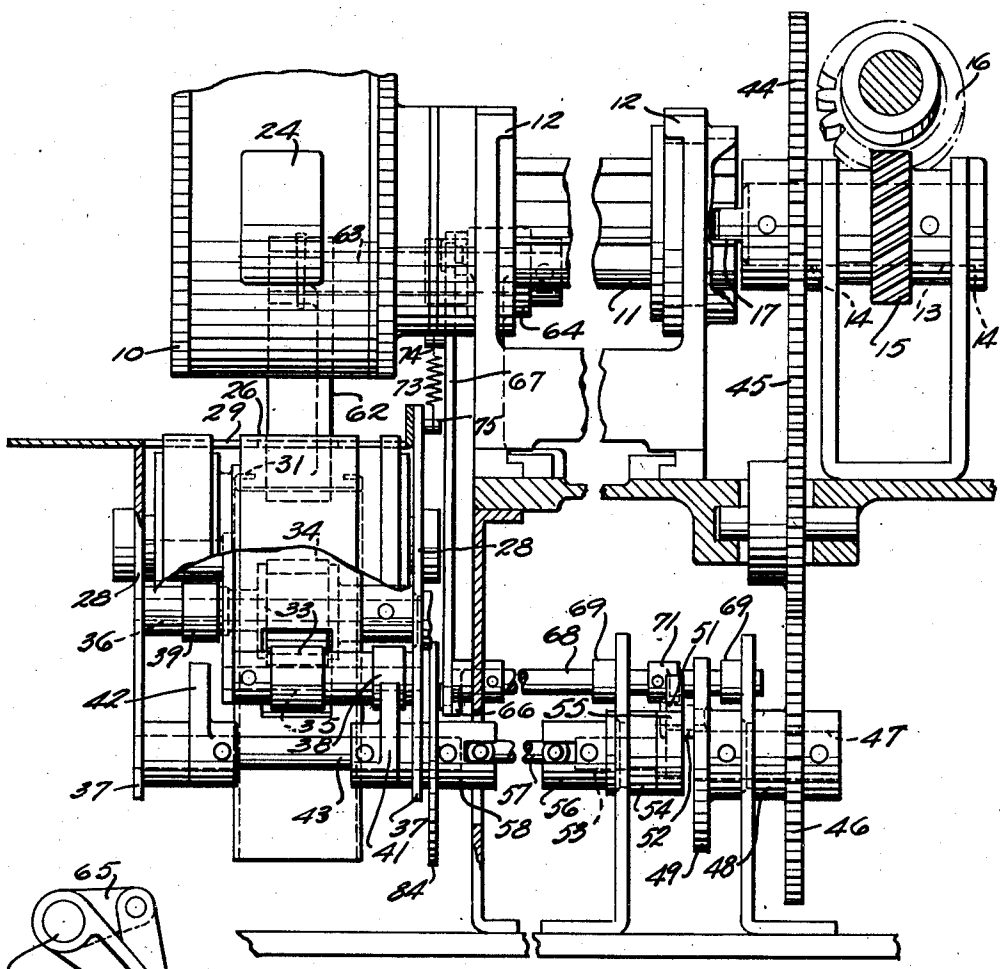


FIG. 2.

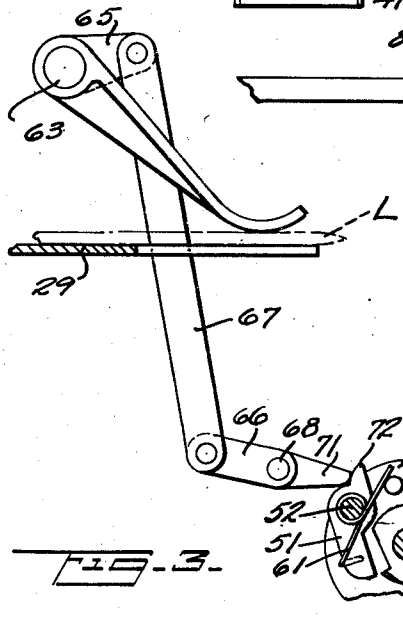


FIG. 3.

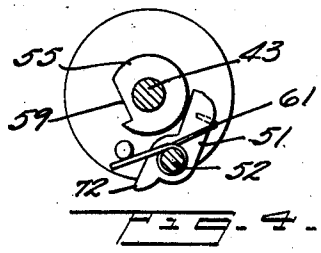


FIG. 4.

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UNITED STATES PATENT OFFICE

2,273,272

TAPE AND LETTER PRINTING DEVICE

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Application June 6, 1940, Serial No. 339,048

3 Claims. (Cl. 101—235)

This invention relates to a printing machine which is adapted to print upon either letters or tape at a single printing position.

It is the principal object of the invention to provide, in a machine which is normally adapted to print on tape, means whereby the insertion of a letter in the machine will disconnect the tape feeding means to thereby provide for the printing on letters instead of the tape.

It is another object to couple the machine drive with a tape feeding device, whereby tape is adapted to be fed to a printing position during each operation of the machine, and to provide means whereby, when a letter is inserted the coupling means is uncoupled, thus conditioning the machine for the printing of the letter instead of tape.

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 view of a portion of a metered mailing machine with parts broken away and parts in section;

Fig. 2 is a side view of Fig. 1, looking in the direction of the arrow 2, with the covers removed and parts of the machine broken away and parts in section;

Fig. 3 is a detail view showing the operation of a letter operated coupling release device; and

Fig. 4 is an operation view showing the movement of the coupling device during a machine cycle of operation.

Referring now to the drawings in detail, the machine comprises a printing drum 10 carried by a shaft 11, which shaft is supported in suitable bearings 12—12. A drive for said shaft 11 is provided by means of a short drive shaft 13 carried in bearings 14—14 and having a gear 15 thereon which meshes with a driving gear 16. The shaft 11 and drive shaft 13 are adapted to be coupled together by means of a key and slot connection, as indicated at 17, to provide for the removal of the unit which supports the drum 10. The driving gear 16 is mounted upon a shaft 18, which shaft is supported in bearings 19—19 and is adapted to be driven by means of a crank 21. In devices of this character the printing drum is rotated through a complete revolution for each revolution of the crank 21. To limit the stroke of the crank 21 to one revolution, a stop may be employed such as is indicated at 20, Fig. 1, which stop is adapted to be removed from the path of the crank by means of a finger 22 when starting a printing cycle of operation.

On the printing drum 10 is a printing die plate 23 which has suitable postal stamp indicia engraved thereon and is adapted to effect the printing and feeding of the letters or tape. A feed shoe 24 is also provided for the continued feeding of the tape to a cutting position after printing, an operation which will be later referred to. An ink roll 25 is provided for the inking of the printing die plate 23.

Associated with said printing drum 10 is a platen roller 26 carried by shaft 27 which is supported in bearings indicated at 28—28. Provision is made for the passing of either letters or tape to the said printing drum, which, upon being rotated, will engage said letters or tape and, in cooperation with the platen roller 26, will effect the printing thereof.

Horizontally disposed letter guide plates 29—29 are provided to support a letter when it is presented for printing, and by means of tape guides 31 and 32, the tape may be guided to a printing pick-up position.

In the present machine, the mechanism is arranged for the normal printing of tape. That is, for each operation of the crank 21, the tape will be advanced to a printing position, then printed. After printing, it will be further advanced to a cutting position where the printed portion will be cut-off. Before the end of a cycle of operation, the tape will be returned to its normal starting position. Each of said tape operations will next be described.

A tape feeding roller 33 and a tape retracting roller 34 are positioned so as to engage the lower and the upper surfaces of the tape T respectively. The roller 33 is carried by a shaft 35 and the roller 34 is carried by a shaft 36, each of said shafts being supported in suitable bearings provided in the frame structure 37—37. A drive roller 38 is provided as a part of the roller 35 so as to rotate therewith, and a drive roller 39 in a like manner is provided as a part of the roller 34.

The drive of the tape feeding and retracting rollers 33 and 34 is provided by means of drive segments 41 and 42 respectively, which segments are fixed to a shaft 43 supported in the frame

structure 37. The segment 41 is adapted to frictionally engage the roller 38 and thus drive the tape feed roller 33. The segment 42 is adapted to frictionally engage the roller 39 and thus drive the tape retracting roller 34. Said segments 41 and 42 are arranged on the shaft 43 in such manner as to provide, first for the rotation of the roller 33 to advance the tape T to a printing pick-up position at the beginning of a cycle of operation, then for the rotation of the roller 34 during the latter part of a cycle of operation to retract the tape to its normal position. Further detail with regard to the operation of the tape feeding and retracting mechanism may be found in a co-pending application Serial No. 331,921.

A drive is provided for the segment shaft 43 from the drive shaft 13 by means of gears 44, 45 and 46, the latter being carried by the shaft 47, which shaft is supported in a bearing 48, as shown in Fig. 2. Also fixed to the shaft 47 is a disc 49, and on said disc, a pawl 51 is pivotally mounted upon a stud 52.

A stub shaft 53 is supported in a bearing 54, adjacent the disc 49, and has a head 55 formed thereon, which head is positioned in alinement with the pawl 51. A coupling member 56 is fixed to the opposite end of the stub shaft 53 and is coupled with a flexible shaft 57. Said flexible shaft 57 is further coupled with a coupling member 58 fixed to the segment shaft 43.

A notch 59, in the head 55, provides a seat into which the pawl 51 is normally urged by means of a spring 61, to thus provide a suitable coupling drive between the drive disc 49 and the stub shaft 53. In the normal operation of the machine said pawl 51 remains coupled with the head 55 to provide for the normal tape feeding and retracting operation for each machine cycle of operation in the manner previously described. In said operation the drive from the crank 21 is transmitted to the gearing 44, 45 and 46, the disc 49, and then through the pawl and notched head 55 to the segment shaft 43.

When a letter L is moved along the letter guide plates 29—29 to a printing position, means is provided to remove the pawl 51 from engagement with the notch 59 to thereby prevent the drive of the segment shaft 43. To accomplish the latter, a finger 62 is fixed to a shaft 63, which shaft is rotatably mounted in a bearing 64. Also fixed to the shaft 63 is a short lever 65, which lever is connected with another lever 66 by means of a link 67. Said lever 66 is fixed to a shaft 68 carried in bearings 69—69. On said shaft 68 is a finger 71, the free end of which is positioned above and in the path of a lug 72 on the pawl 51. Upon moving a letter along the letter guide 29—29 to a printing position, the finger 62 will be raised from the position shown in Fig. 1 to that shown in Fig. 3, whereupon, the lever 65 will be rocked with the shaft 63, which in turn will effect the rocking of shaft 68 and finger 71. The rocking of said finger 71 will cause the free end thereof to engage the lug 72 of pawl 51 and rock the pawl free from its engagement with the notch 59 of the head 55, as shown in Fig. 3.

Upon rotation of the crank 21 in the usual manner, the disc 49 will be rotated, carrying the pawl 51 therewith, while the notched head 55 remains stationary. The pawl 51, during the rotation of said disc 49, will ride over the peripheral surface of the head 55, as shown in Fig. 4, and consequently become reengaged with the notch 59 upon reaching the end of a cycle. When the letter is drawn away from the finger 62, during the combined printing and feeding operation, said finger will be returned to its normal position by means of a light spring 73 stretched between a pin 74 on the link and a pin 75 projecting from a part of the frame structure 37.

A rotary cutting device is provided to cut the printed portion of the tape during a machine cycle of operation. Said device comprises a stationary cutting knife 76 and a rotary cutting knife 77, the same being suitably mounted beneath the letter guide plate 29, as best shown in Fig. 1. A lever 78 is fixed to the rotary knife 77 and has its opposite end fixed to a knife actuating member 79 by means of a pin and slot connection 80. Said actuating member is pivotally mounted on a stud 81 and has a roller 82 rotatably mounted upon an extension arm 83 thereof. A cam member 84 forms an integral part of the coupling member 38, previously described, and therefore rotates with the segment shaft 43. Said cam member is positioned in the path of the roller 82 and has a raised portion 85 thereon which is adapted to engage said roller 82 after the tape has been advanced by means of the feed shoe 24 through the cutting knife. The actuating member 79 is thus rocked about the stud 81, and the rotary knife 77 is rocked in such direction as to provide for the cutting of the printed portion of the tape.

Having described the invention, what is claimed is:

1. In a machine for printing upon letters and tape which are advanced in the same general direction through the same printing point, the combination with a rotary printing member, horizontally disposed guide means for directing letters in a continuous path past the printing member, and merging tape guide means; of a drive to rotate said printing member, whereby feeding of letters or tape is effected while printing, tape devices operable by said drive to move tape to a printing position upon initiating a printing cycle of operation, means engageable and movable by a letter when passed along the letter guide means to a printing position, and means controlled by said movable means for rendering the tape feeding device ineffective.

2. In a machine for printing upon letters and tape which are advanced in the same general direction through the same printing point; the combination with a rotary printing member, horizontally disposed guide means for directing letters in a continuous path past the printing member, and merging tape guide means; of a drive to rotate said printing member, whereby feeding of letters or tape is effected while printing, tape feeding means operable to advance tape from a normal non-printing to a printing position during a machine cycle of operation, tape retracting means operable to retract the tape to a non-printing position during a machine cycle of operation, means connecting the tape feeding means and tape retracting means with the drive, and a letter engaging member operably connected with the latter means and movable by a letter to a disconnecting position, whereby tape feeding and retraction is prevented during a machine cycle of operation when printing upon a letter.

3. In a machine for printing upon letters and tape which are advanced in the same general direction through the same printing point; the combination with a rotary printing member, horizontally disposed guide means for directing

letters in a continuous path past the printing member, and merging tape guide means; of a drive to rotate said printing member, whereby feeding of letters or tape is effected while printing, tape feeding means operable to feed tape from a normal non-printing to a printing position during a machine cycle of operation, tape retracting means operable to retract the tape to a non-printing position during a machine cycle of operation, coupling means connecting the tape feeding means and tape retracting means with the drive, and a letter engaging member operably connected with the coupling means and movable by a letter, whereby, when a machine cycle of operation is effected for letter printing, the coupling means is uncoupled to prevent operation of the tape feed means and retraction means.

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