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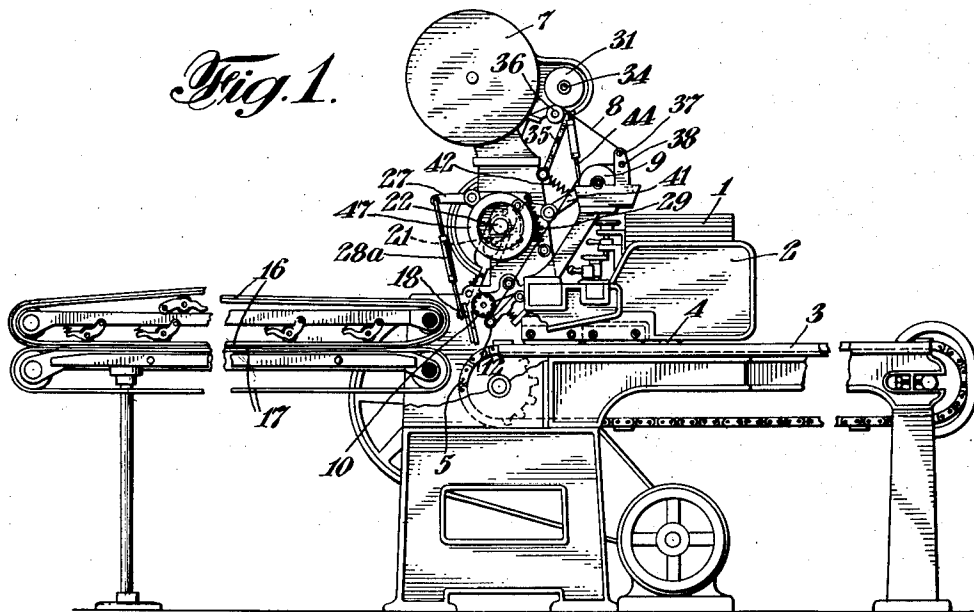
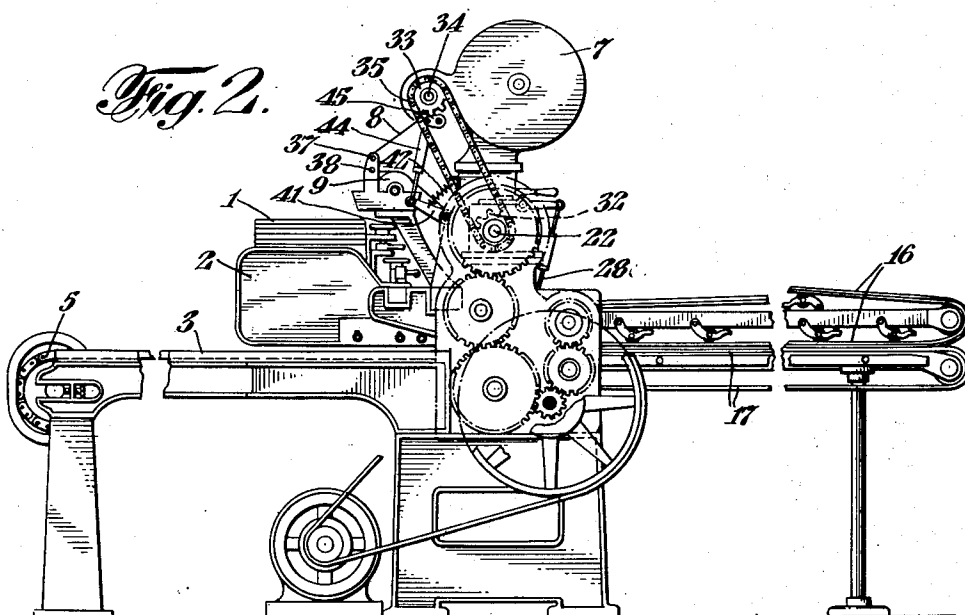
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1,890,477

TAPING MACHINE

Filed April 29, 1929

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 5.

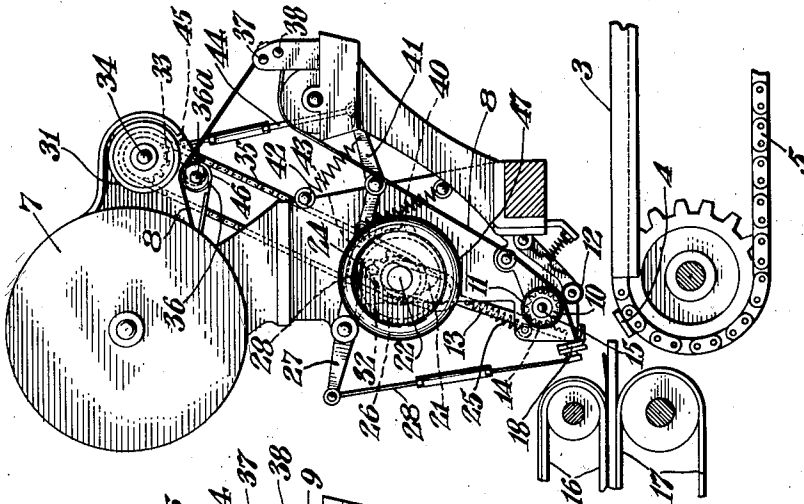


Fig. 4.

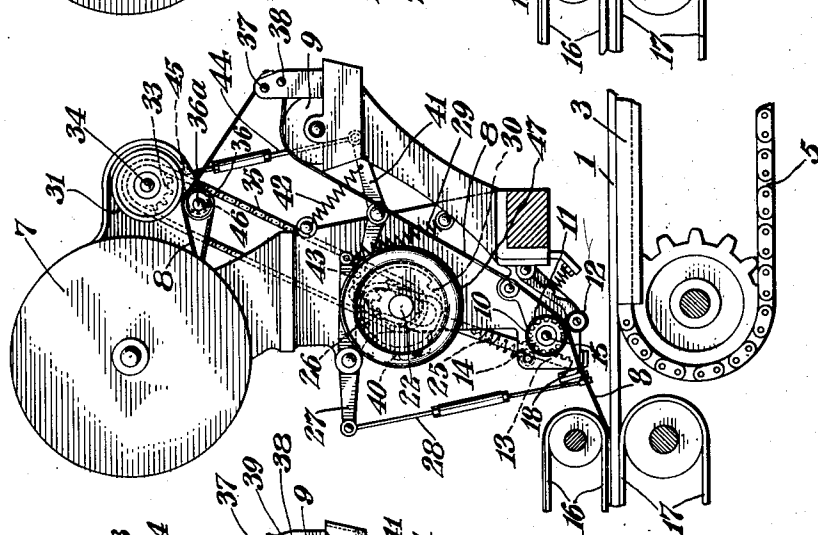
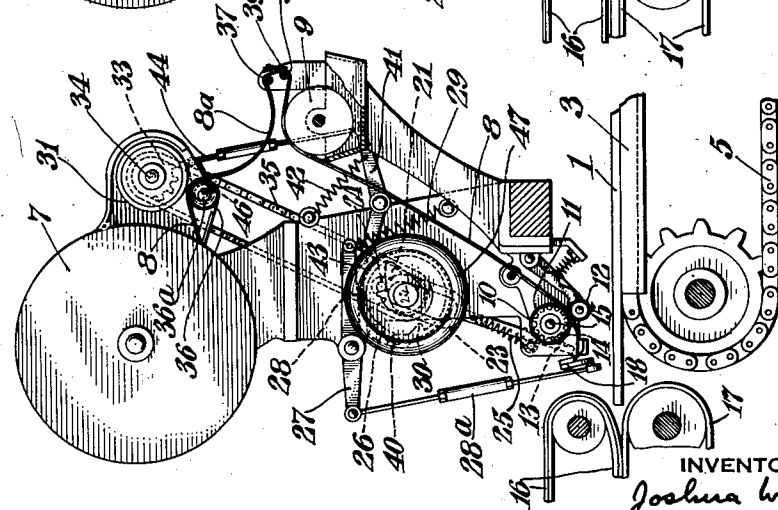


Fig. 3.



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3 Sheets-Sheet 3

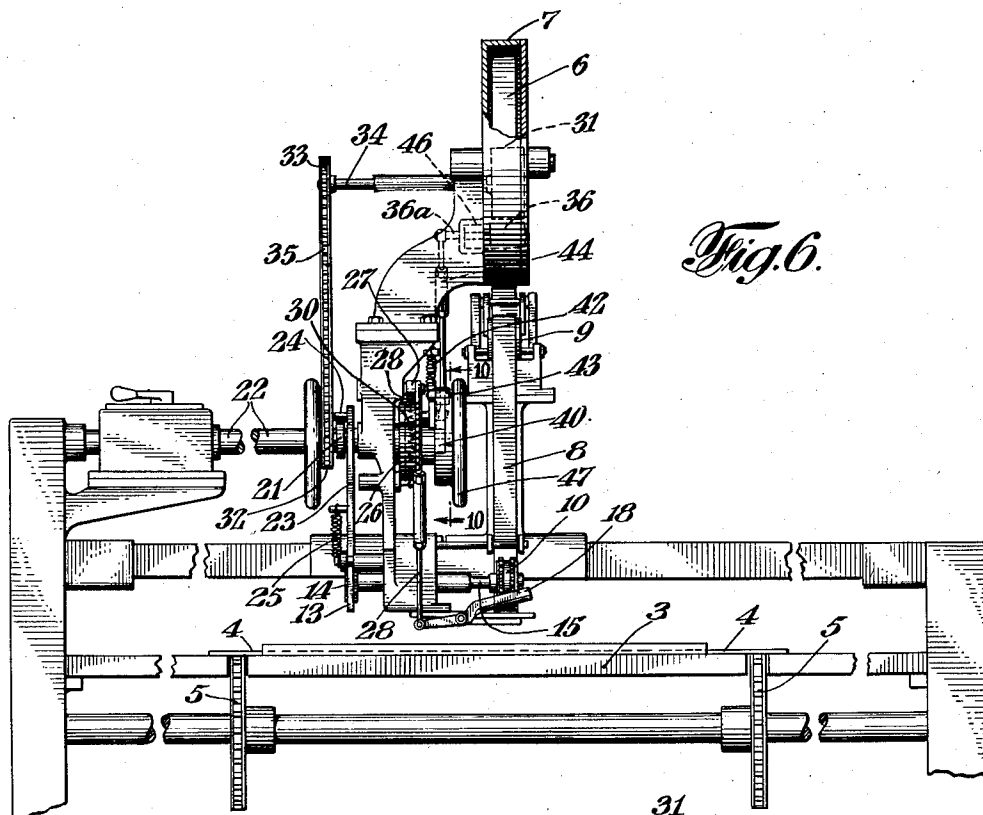


Fig. 6.

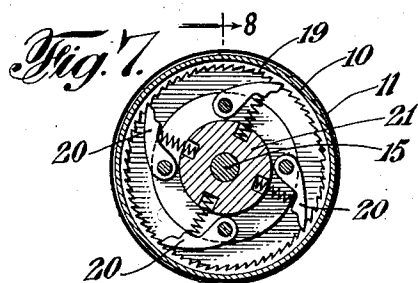
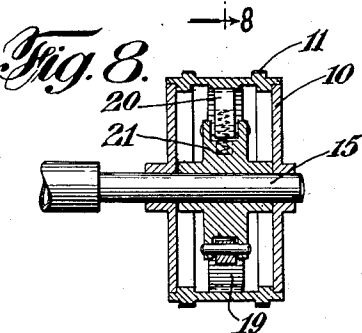
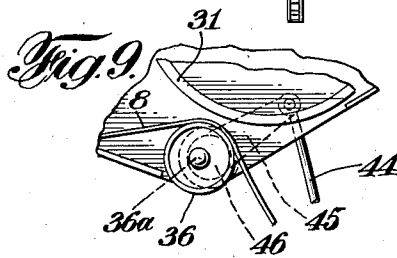
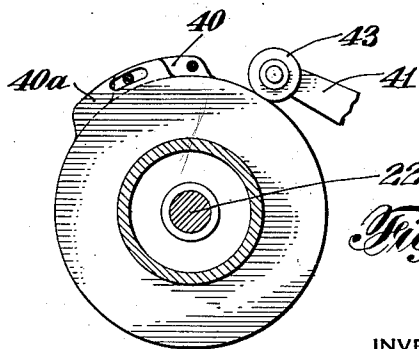


Fig. 10.

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TAPING MACHINE

Application filed April 29, 1929. Serial No. 359,032.

The invention relates to a machine for applying tape to articles such as box blanks which ordinarily require tape to be applied thereto as one operation in the manufacture of paper board boxes. Machines of the above character usually involve a ratchet driven roller which at the proper time advances the forward end of a strip of tape into engagement with the proper point on a box blank, and the present invention aims primarily to improve machines of the above type by providing in connection with a tape feeding roller or the like as above described, what may be termed a tape pre-feeding device of such nature as to relieve the usual tape feeding device from strains incident to the operation of drawing tape from off its supply roll, in order to avoid rapid wear in and injury to the feeding roller, and insure that the tape will be properly fed. Further objects and advantages of the invention will be in part obvious and in part specifically pointed out in the description hereinafter contained which, taken in conjunction with the accompanying drawings, discloses a preferred embodiment of the invention; such embodiment, however, is to be considered as merely illustrative of its principles. In the drawings—

Fig. 1 is a general side view of a taping machine constructed to operate in accordance with the invention.

Fig. 2 is a view similar to Fig. 1, but taken from the opposite side of the machine.

Figs. 3, 4 and 5 are similar parallel vertical sections through the machine, but illustrate different positions which certain of its parts assume at different periods in its cycle of operation.

Fig. 6 is an end view of the machine looking from the right as the machine appears in Fig. 1 and with certain parts removed for clearness.

Fig. 7 is a detail section of a ratchet operated tape feeding roller forming a part of the machine.

Fig. 8 is a section on line 8—8 of Fig. 7.

Fig. 9 is a detail view showing enlarged an eccentrically mounted roller forming a part of the tape pre-feeding mechanism herein-
after described.

Fig. 10 is a detail section on line 10—10 of Fig. 6 looking in the direction of the arrows.

The invention as illustrated is applied to a taping machine wherein a stack 1 of box blanks to be taped is held between side guides 2 over a table 3, having a suitable means such as pusher bars 4 driven by chains 5, for feeding the blanks successively to the tape applying parts of the machine.

In the illustrated machine the tape 8 is supplied from a roll 6 (Fig. 6) enclosed within a housing 7, and after passing over a moistening roller 9, is led to a tape feeding device shown in the form of a roller 10 having a roughened surface 11 (Figs. 7 and 8) against which the tape is pressed by a spring-pressed roller 12.

At suitable periods timed with respect to the feed of blanks 1, the tape feeding roller 11 is actuated, for example by a rack 13 (Fig. 4) meshing with gear 14 on shaft 15 which supports roller 10, to advance a length of tape to the path of movement of the blank, in such manner that the forward end of the length of tape so advanced, comes into contact with the proper point on the blank, and the blank and tape then pass between a pair of traveling conveyor belts 16 and 17 which draw the taped blank along to the delivery end of the machine and press the tape firmly in proper position on the blank. A knife 18 (Fig. 6) cuts off the tape so fed in proper length according to the size of the blank being operated upon, after which the cycle of the machine is repeated on the next succeeding blank. The rack 13 ordinarily rotates the tape feeding roller 10 only to such an extent as is necessary to advance the tape to the proper point on the blank, after which the pull of the conveyor belts 16 and 17 feeds out the remainder of the required length of tape, the roller 10 being shown as provided with internal ratchet teeth 19 (Fig. 7) which are engaged by spring-pressed dogs 20, pivoted with respect to the shaft 15 or a hub 21 secured thereto, thus permitting the roller 10 to turn in the direction of feed of the tape, in respect to shaft 15 and the rack 13 which drives the latter.

As shown, the rack 13 is actuated to ad-

vance the forward end of a length of tape to the blank at the proper time, by a cam 21 (Figs. 3 and 6) carried by the drive shaft 22, the rack member 13 having a slotted head 23 which encloses shaft 22 and is provided with a pin 24 engaging the cam. After rack 13 has been raised by cam 21 to rotate tape feed roller 10, a spring 25 (Fig. 6) draws rack 13 down again to its initial position, the above described ratchet construction in roller 10, relieving the latter of any consequent reverse motion.

The knife 18 in the illustrated form of the invention, is actuated from a second cam 26 (Figs. 3 and 6) on shaft 22, a pivoted arm 27 having a tooth 28, being pressed against cam 26 by a spring 29 in such manner that at the proper time the tooth 28 drops into a depression 30 in cam 26, thereby rocking arm 27 and a link 28 which connects arm 26 with the knife 18, to actuate the knife.

The tape pre-feeding mechanism as previously stated, acts primarily to relieve the tape feeding roller 10 of strains incident to the operation of withdrawing tape from the tape supply device 6, the tape feeding roller 10 being inherently somewhat delicate in its construction and subject to rapid wear and injury. In the illustrated form of the invention a rotating roller 31 is provided adjacent housing 7, the roller being shown as driven by sprockets 32 and 33 (Fig. 2) which are mounted respectively on shaft 22 and a spindle 34 which carries roller 31, and a chain 35 running on such sprockets. Normally the tape 8 does not engage roller 31, but runs over an idler roller 36 (Fig. 9) mounted on spindle 36^a, and then past a friction device shown (Fig. 3) as consisting of rollers 37 and 38 and a spring finger 39, to the moistening roller 9.

At the proper time after a length of tape has been pulled out by belts 16 and 17 and cut off by knife 18 as above described, and prior to the time when tape feeding roller 10 advances the next succeeding length of tape to the blank, roller 36 is moved to press the tape 8 against the rotating roller 31, whereby the tape is frictionally gripped between the above two parts of the tape pre-feeding mechanism, and the amount of tape which is next to be fed to the blank by tape feeding roller 10, is pulled from off the supply roll 6 in such manner as to create a slack portion 8^a (Fig. 3) in the part of the tape between the pre-feeding mechanism and the friction device consisting of parts 37, 38 and 39. The operation of the tape pre-feeding mechanism exerts no strain on tape feeding roller 10, since the pull of the pre-feeding mechanism is in the direction of feed of the tape, and after the required length of tape has been so pre-fed, roller 36 is moved away from roller 31 to release the tape from any further mo-

tion until roller 10 feeds it forward as above described.

In the illustrated form of the invention the tape pre-feeding mechanism is actuated by a third cam 40 (Figs. 3, 6 and 10) on shaft 22, a rocking lever 41 being urged by spring 42 to press a roller 43 carried thereby against cam 40. A link 44 connects between the opposite end of arm 41 and an arm 45 (Fig. 9) which is connected to the spindle 36^a, which latter is fixed eccentrically in a cylinder 46 (Figs. 6 and 9) so that the eccentric mounting of roller 36 enables it to be rocked back and forth to move the tape into and out of contact with roller 31 in accordance with the actuation of arm 41 by cam 40.

A suitable adjustment should be provided for cam 40 to enable the pre-feeding mechanism to be adjusted according to the size of box blank being taped; as shown, a hand wheel 47 (Fig. 6) is provided for this purpose, in combination with an angularly adjustable sector 40^a (Fig. 10) on cam 40. Similar adjustments will be understood as desirable in connection with the cams 21 and 26 previously described which operate the tape feeding roller 10 and knife 18, but these latter adjustments it is not deemed necessary to describe in detail.

While a specific form of the invention has been described it will be understood that many changes may be made therein without departing from its principles as set forth in the appended claims.

I claim:

1. In a machine of the class described, a periodically operated tape feeding device adapted to feed a length of tape to a blank to be taped, a tape supply device, a tape moistening device interposed between said first mentioned devices, and periodically operated means interposed between said tape supply device and said tape moistening device for relieving said tape feeding device from strains incident to the operation of drawing tape from said supply device, said last mentioned means being timed to begin operation somewhat before said tape feeding device operates.

2. In a machine of the class described, a periodically operated tape feeding device adapted to feed a length of tape to a blank to be taped, a tape supply device, a tape moistening device interposed between said first mentioned devices, periodically operated means interposed between said tape supply device and said tape moistening device for relieving said tape feeding device from strains incident to the operation of drawing tape from said supply device, said last mentioned means being timed to begin operation somewhat before said tape feeding device operates, and means for holding the tape taut against the tape moistening device.

3. In a machine of the class described, a

periodically operated tape feeding device adapted to feed a length of tape to a blank to be taped, a tape supply device, a tape moistening device interposed between said first mentioned devices and a periodically operated tape prefeeding mechanism interposed between said tape supply device and said tape moistening device, said mechanism being timed to begin operation somewhat before said tape feeding mechanism operates and acting to frictionally engage the tape and pull a length thereof from the supply device and being released from the tape at least by the time when the said tape feeding device has completed its operation.

4. In a machine of the class described, a ratchet actuated roller operating periodically to feed a length of tape to a blank to be taped, a tape supply roll, a tape moistening device interposed between said supply roll and said feeding roller, and a periodically operated tape pre-feeding mechanism interposed between said supply roll and said device, said mechanism including a rotating roller and means for periodically pressing the tape against said last mentioned roller to feed a length of tape from said supply roll, and then freeing the tape from said last mentioned roller.

5. In a machine of the class described, a ratchet actuated roller operating periodically to feed a length of tape to a blank to be taped, a tape supply roll, a tape moistening roll and a periodically operated tape prefeeding mechanism interposed between said supply roll and said moistening device, said mechanism including a rotating roller and an eccentrically mounted roller with means for periodically shifting said last mentioned roller to press the tape against and release it from the rotating roller.

In testimony whereof I have signed my name to this specification.

JOSHUA WAGNER.