J. HUETHER.

TAPEING MACHINE.

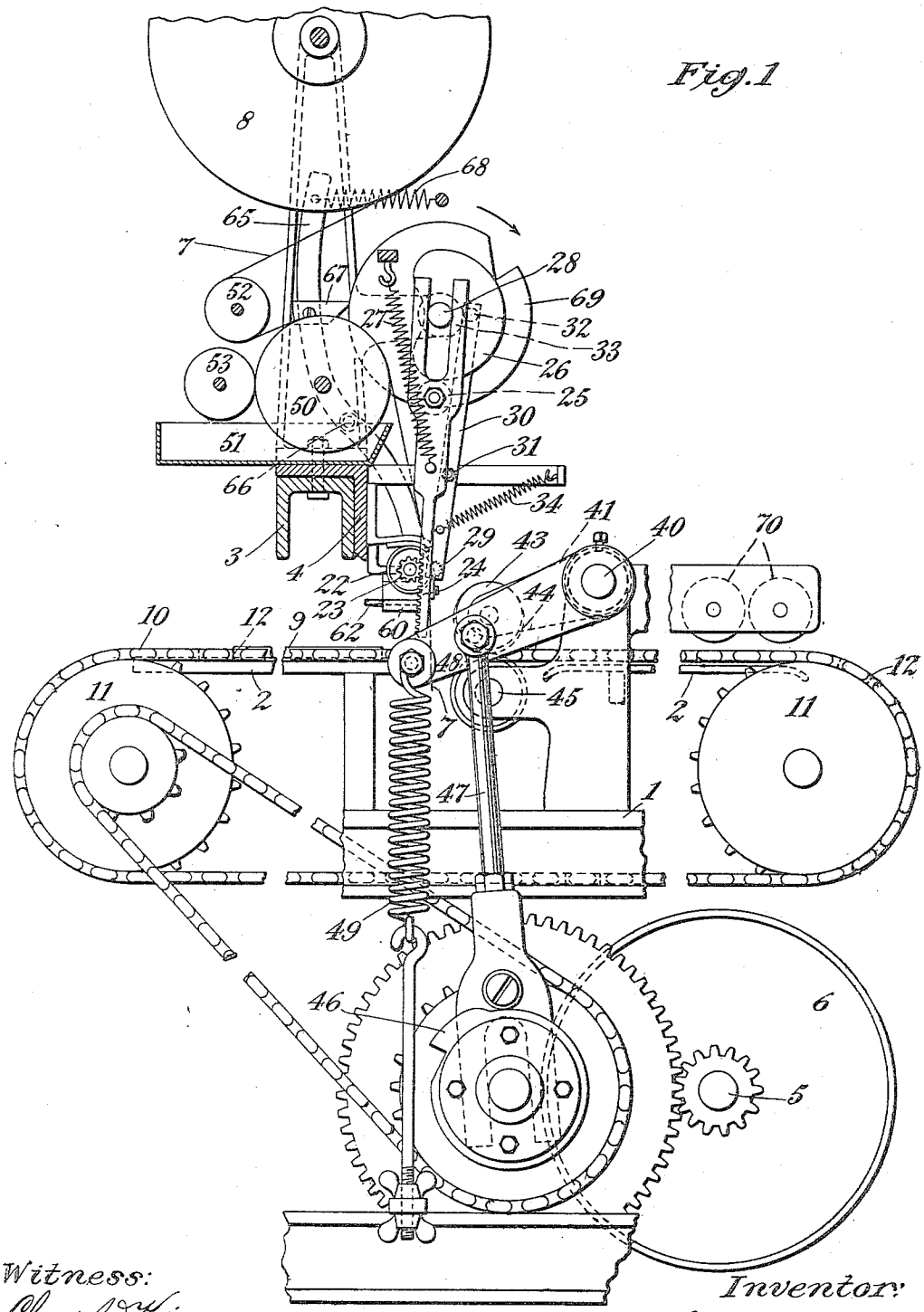
APPLICATION FILED JUNE 18, 1915.

1,235,319.

Patented July 31, 1917.

3 SHEETS—SHEET 1.

Fig. 1



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Inventor:
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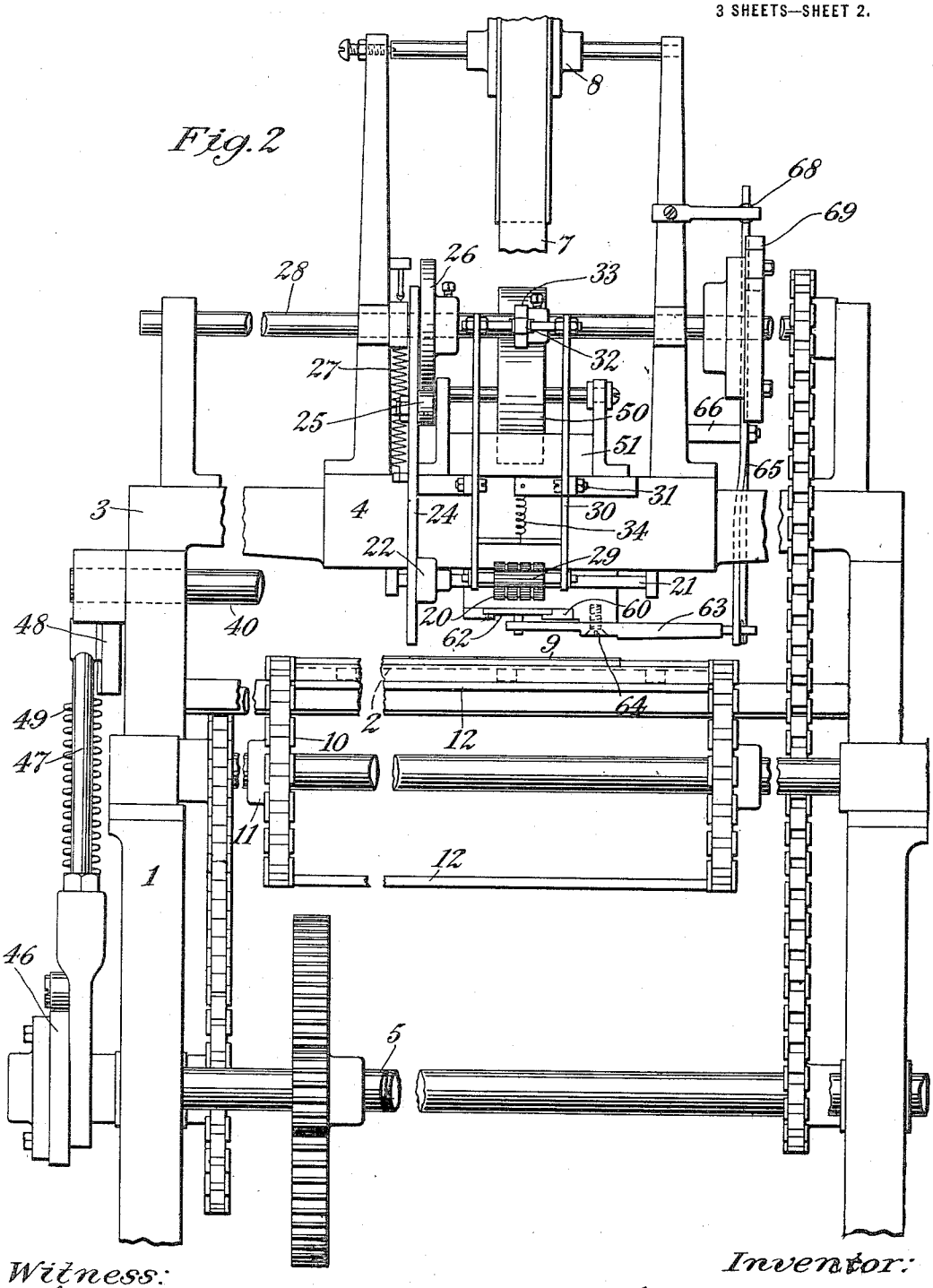
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3 SHEETS—SHEET 2.

Fig. 2



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3 SHEETS—SHEET 3.

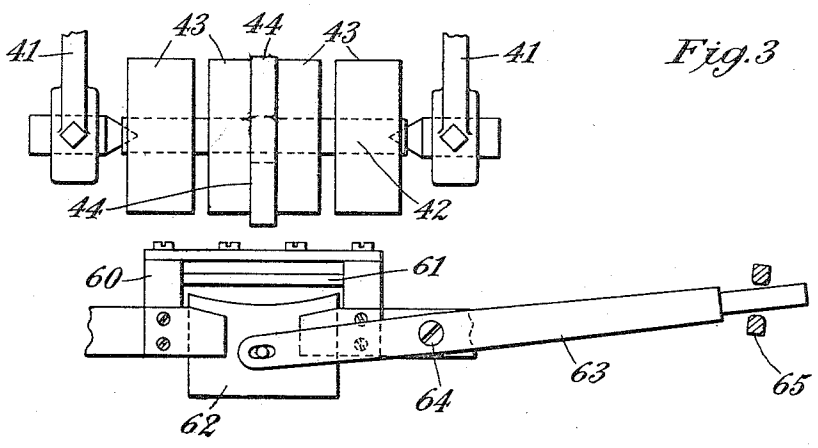


Fig. 3

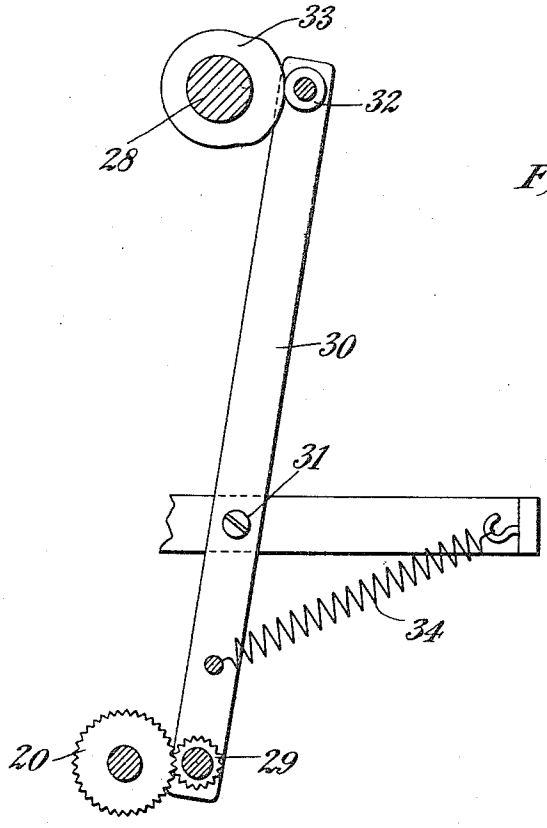


Fig. 4

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UNITED STATES PATENT OFFICE.

JACOB HUETHER, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE PAPER WORKING MACHINES COMPANY, A CORPORATION OF NEW YORK.

TAPEING-MACHINE.

1,235,319. Specification of Letters Patent. Patented July 31, 1917.

Application filed June 18, 1915. Serial No. 34,835.

To all whom it may concern:

Be it known that I, JACOB HUETHER, a citizen of the United States, and a resident of the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Tapeing-Machines, of which the following is a specification.

The invention relates to a machine for affixing strips of adhesive tape to the seams of folded box blanks whereby to unite the parts or reinforce the joints, and more particularly to improvements in the tape feeding and tape applying mechanism of such a machine.

The objects of my invention are to improve upon and simplify the construction of such machines; to provide a machine which is adapted to rapidly and efficiently perform its work, and wherein the movement of the blank is utilized to assist in feeding and applying the tape; and to arrange the parts so that they may be easily adjusted to the various requirements of the work.

A preferred form of the machine is illustrated in the accompanying drawings in which;

Figure 1 is a side elevation of a machine embodying my invention, with the frame broken away.

Fig. 2 is a front elevation of the same, partly broken and having the tape presser rolls removed.

Fig. 3 is a detail plan view, looking from the bottom, of the tape cutter and the presser rolls, and

Fig. 4 is a detail elevation of a part of the feed mechanism.

The various operative parts of the machine are mounted on a structure comprising a main frame 1 provided with a work supporting table 2 and a transverse superframe 3 which spans the table and supports the laterally adjustable carriage 4 of the tape feeding mechanism.

The operative parts consist generally of a work conveyer, a tape feed, a tape applier, and a tape cutter, all of which are actuated, through a suitable driving system, from a main driving shaft 5 provided with a pulley 6 to which the power is applied. Said parts being adjusted and cooperating to intermittently feed a tape 7 from a supply reel 8 and to affix a strip of predetermined length at a given position on each blank 9 during its passage through the machine.

The conveyer, which advances the blanks, one at a time, may be of any suitable construction. In the present instance it comprises a pair of endless chains 10 running lengthwise of the frame and supported at their ends, on sprockets 11. At intervals along the chains are a plurality of transverse pusher bars 12 which slide over the top of the table 2, on which rests a pile of blanks, so that each bar in turn will push the lowermost blank past the tape feed and under the tape applying rolls.

The tape feed is designed to operate, between the passage of succeeding blanks, so as to draw a length of tape and feed it downwardly to a position of rest wherein its lower end is suspended in the path of the approaching blank as shown in Fig. 1. Now as the blank advances it will impinge against the tape and sweep it forward to a position under the tape applying rolls. It being understood that at each operation of the tape feed a sufficient length of tape is fed to permit of its lower end reaching, when carried forward by the blank, to a point under said rolls.

To thus intermittently feed the tape, I provide a mechanism which, in its preferred form, comprises a feed roller 20 fixed to a spindle 21 which is suitably mounted in the lower part of the carriage 4. At the left hand end of the spindle is a clutch 22 provided with a pinion 23 which engages the reciprocating rack 24 whereby the feed roller is driven. The clutch operates to produce a positive rotation of the feed roller during the downward movement of the rack and to leave said roller free on the return stroke. The upper, forked, end of the rack carries a follower 25 which is held in contact with the face of its actuating cam 26 by the tension of a spring 27; said cam being fastened to revolve with the cam shaft 28 and being adjustable thereon.

In order that the feed shall operate properly, the tape must be pressed against the roller 20 while the latter is being positively driven. For this purpose I provide an idle roller 29 which is suitably journaled in the lower ends of two vertically oscillating arms 30, each of which is pivoted, as at 31, in a projecting bracket of the carriage 4. Ex-

tending across the upper ends of the arms 30 is a roller 32 which rides on the face of an eccentric cam 33 revolving with the shaft 28. Said cam being adjusted and timed, with relation to the cam 26, so that while the feed roller is being driven the idle roller will be held inwardly in contact therewith as shown in Fig. 4. The idler is retracted by a spring 34.

The tape applying device comprises a rock shaft 40 suitably supported on the frame and provided with a pair of arms 41 between which are carried a freely rotatable spindle 42 having mounted thereon a plurality of fixed presser rolls 43 and a loose roll 44, as best seen in Fig. 3. The roll 44 is preferably made of rubber and it has a bore which is slightly larger than the diameter of the spindle. Under the presser rolls is a bed roll 45 which serves to support the traveling blanks. The actuation of the presser rolls is controlled by a cam 46 through a rod 47 which is pivoted to a crank arm 48 of the rock shaft 40. Said cam being radially adjustable on its axis to afford regulation of the timing of its operation with respect to the travel of the blank. An adjustable tension spring 49 coöperates with the presser rolls in providing sufficient pressure to affix the tape to the blanks.

At the moment when the end of the tape is carried by the movement of the blank to a point under the presser rolls 43 said rolls will be in raised position clear of the face of the traveling blank. The middle roll 44, at that time, hangs eccentrically on the spindle 42 and bears lightly on the tape so as to hold it smoothly, in a fixed position, against the blank without, however, sufficient pressure to cause it to adhere thereto. At the point in the travel of the blank where it is desired to affix the front end of the tape the presser rolls 43 operate to press the tape firmly on the blank.

Now as the blank continues to move forward after the front end of the tape has been affixed thereto, it will draw with it an additional length of tape which in turn passes under the presser rolls 43 and is thereby applied to the blank. In other words, the travel of the blank is utilized as a feed for the tape.

The tape is preferably gummed on one side. At a suitable point in its travel it passes over a moistening device which, in the present instance, is supported in the carriage 4 and consists of a fountain roll 50 revolving in a tank 51 and provided with an idler 52 serving to hold the tape in contact with the fountain roll and a wiper 53 for removing the surplus moisture.

The machine is provided with a cutter which automatically operates to cut the tape after a strip of the desired length has been drawn by the forward movement of the blank. The cutter, which is clearly shown in Fig. 3, comprises a cutting block 60 provided with a slit 61 through which the tape passes and slidably carrying on its lower surface a knife 62. The knife is moved to and fro by means of a horizontal lever 63 pivoted at 64 to an extension of the cutting block and engaging the lower end of a curved vertical lever 65, which is pivoted at 66 to the carriage 4 and is provided with a projection 67. A tension spring 68 serves to hold the piece 67 in contact with the notched disk 69 by means of which the operation of the knife is controlled. The disk 69 is fixed to revolve with the cam shaft 28 and is adapted for radial adjustment so as to afford regulation of the length of the severed strips.

One or more pressure rolls 70, under which the blank travels after it leaves the tape applying rolls, are provided to apply an additional pressure on the tape whereby to assure of its proper adhesion to the blank.

It will be obvious that many changes may be made in the construction and arrangement of the parts of the various mechanism herein described and shown, without departing from the scope of my invention and I do not therefore limit myself to the precise construction defined except in so far as I am limited by the state of the prior art or the terms of the appended claims.

What I claim is:

1. In a machine of the type set forth, blank feeding means, tape feeding means for feeding tape across the path of the feeding means so as to cause the advancing blank edge to sweep the free end of the tape forwardly, tape pressing means including opposed members arranged to engage the under face of the blank and the upper face of the tape, a vertical oscillatory carrier for the upper of said members, means to normally exert downward tension on said carrier and adjustable means to actuate said carrier at a predetermined period to cause said upper member to move away from the lower member to admit the succeeding blank.

2. In a machine of the type set forth, blank feeding means, tape feeding means for feeding tape across the path of the feeding means so as to cause the advancing blank edge to sweep the free end of the tape forwardly, tape pressing means including a lower member, a pivoted carrier, an upper member borne by the carrier, means to tension the carrier, means to positively move the carrier to cause its said member to press against the lower member, and means to mount the upper member on said carrier whereby to enable same to have predetermined vertical movement independent of said carrier.

3. In a machine of the character described, in combination, a blank feeder, a tape feeder, and a tape presser, the tape feeder operating to draw a length of tape from a supply and feed it downward to a position wherein the lower end hangs in the path of the advancing edge of the blank so that as the blank advances it sweeps the tape-end forward under the presser, the presser being arranged, and timed to operate, to press the tape-end onto the face of the moving blank at any desired place thereon.

4. In a machine of the character described, in combination, a blank feeder, a tape feeder, and a tape presser, the tape feeder operating to draw a length of tape from a supply and feed it downward to a position wherein the lower end hangs in the path of the advancing edge of the blank so that as the blank advances it sweeps the tape-end forward under the presser, the presser, having an element which normally bears lightly on the tape-end so as to keep it in position without causing it to adhere to the moving blank, and being arranged to apply sufficient pressure on the tape-end to affix it to the face of the blank at any desired place thereon.

5. In a machine of the character described, in combination, a blank feeder, a tape feeder, a tape presser, and a tape cutter, the tape feeder operating to feed the tape downward to a position wherein its lower end hangs at rest in the path of the advancing edge of the blank so that as the blank advances it sweeps the tape-end forward under the presser, the presser operating to affix the tape-end to the face of the moving blank at any desired place thereon so that the blank continues in its movement it draws an additional quantity of tape which passes under the presser and is thereby affixed to the blank, the cutter operating, while the tape is being drawn, to cut a strip of desired length.

6. In a machine of the character described, in combination with a blank conveyer, tape presser rollers mounted on a spindle, a loose roller carried on the spindle between the presser rollers and having a bore slightly larger than the diameter of the spindle, rock-arms secured to a rock-shaft and bearing the spindle, and a mechanism actuating the rock-shaft to alternately raise and lower the presser rollers from and against the face of the blank, said loose roller being arranged to rest on the blank while the presser rollers are in raised position.

7. In a machine of the type set forth, blank feeding means, tape feeding means for feeding the tape across the path of the blank so as to cause the advancing blank edge to sweep the free end of the tape forwardly, tape pressing means including a pair of opposed rollers, an oscillatory carrier carrying one of said rollers for movement toward and away from the other roller, means to tension said carrier to normally hold the roller thereof in pressing position, and means to positively actuate said carrier at a predetermined time including a cam adjustable to effect the time of operation of the carrier.

8. In a machine of the type set forth, blank feeding means, tape feeding means for intermittently feeding the tape across the path of the blank so as to cause the advancing blank edge to sweep the free end of the tape forwardly, actuating means for the tape feeding means, means to cut the tape, adjustable means operable by said actuating means to operate the tape cutting means, tape pressing means, and adjustable means to actuate the tape pressing means to bring the latter into operation at any desired period along the length of the tape.

9. In a machine of the type set forth, blank feeding means, tape feeding means for feeding the tape across the path of the blank so as to cause the advancing blank edge to sweep the free end of the tape forwardly, means to cut the tape, a radially adjustable cam to actuate the tape cutting means to cut different lengths of the tape, tape pressing means including a pair of opposed elements, one of which is movable toward and away from the other, and means to move said movable element toward the other element including a cam radially adjustable so as to enable said movable element to be operated at different times in the travel of the blank.

10. In a machine of the type set forth, blank feeding means, tape feeding means for feeding the tape across the path of the blank so as to cause the advancing blank edge to sweep the free end of the tape forwardly, tape pressing means openable to receive the blank and tape, and adjustable means to move the tape pressing means into operative position at different times in the travel of the blank.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JACOB HUETHER.

Witnesses:
JOHN F. MCCABE,
TOBIAS E. RAFFEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."