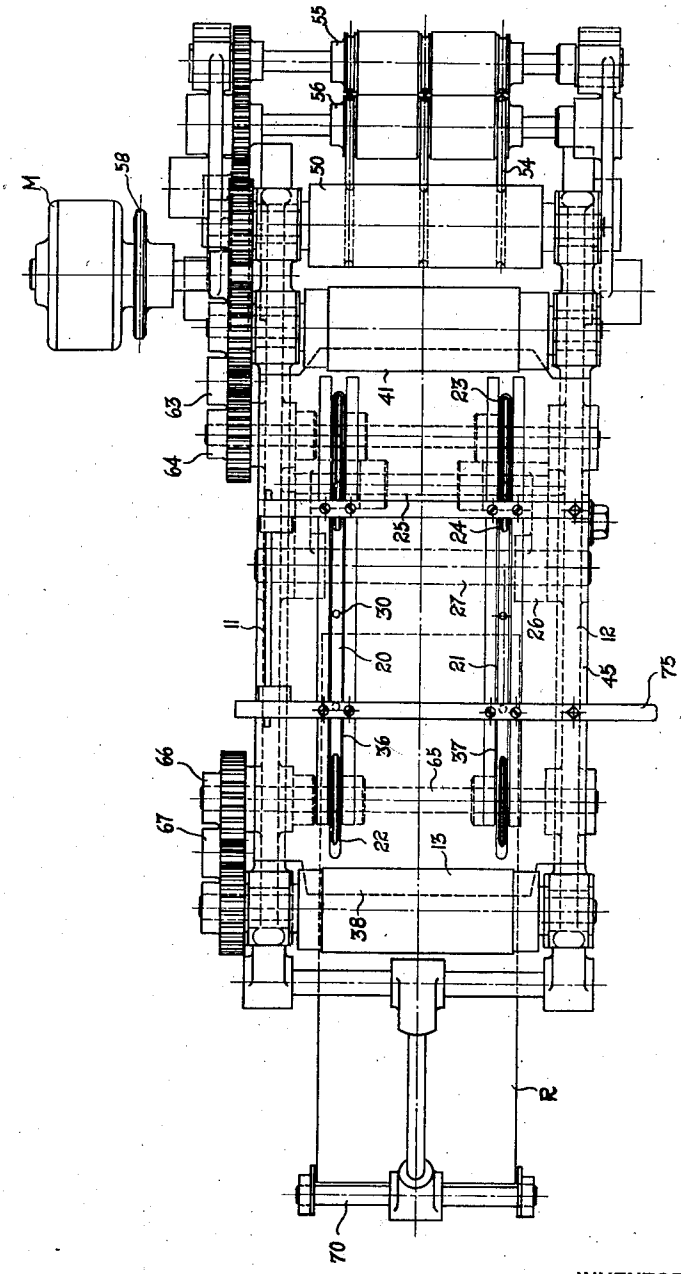
July 2, 1935. J. VAN BUREN 2,006,702

PAPER FEEDING MECHANISM

Filed April 30, 1934 3 Sheets-Sheet 1

FIG.-1



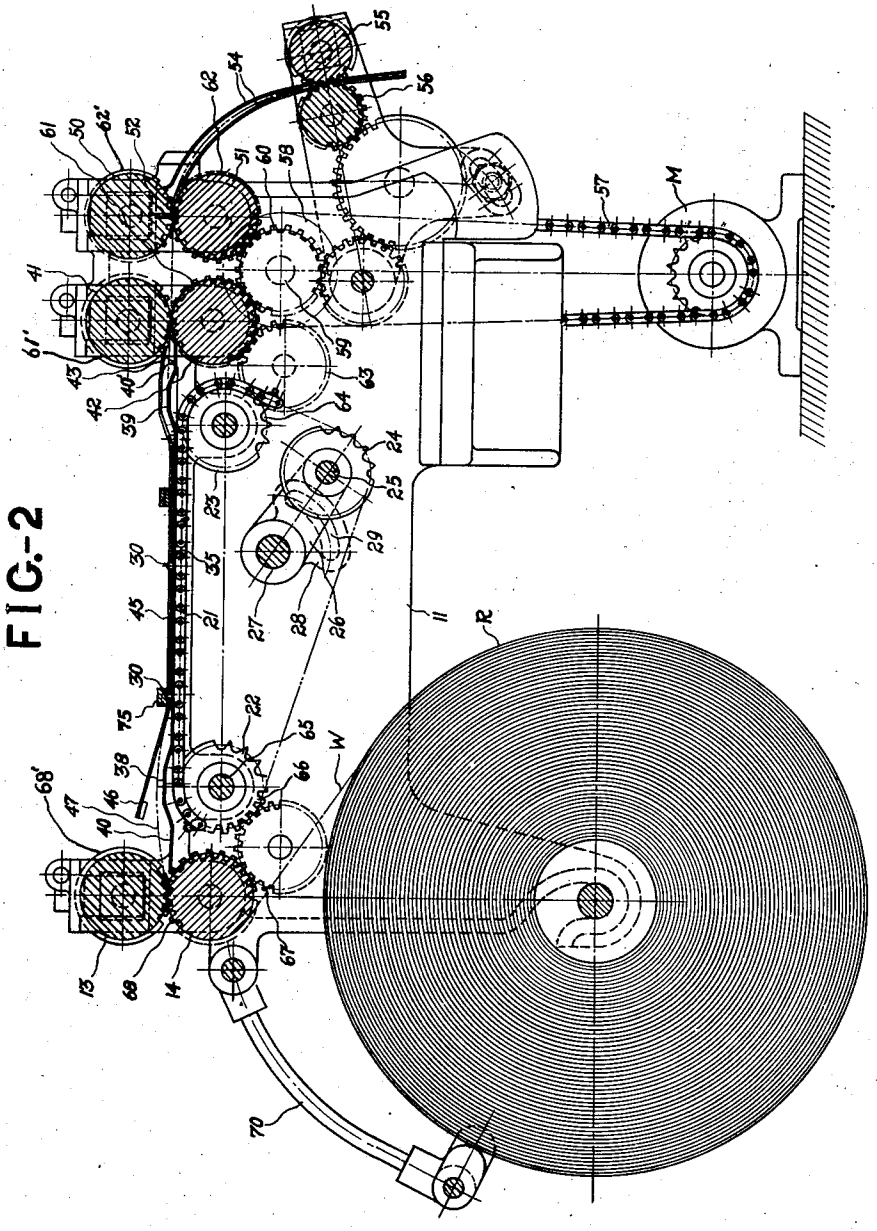
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PAPER FEEDING MECHANISM

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FIG.-2



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PAPER FEEDING MECHANISM

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FIG.-3

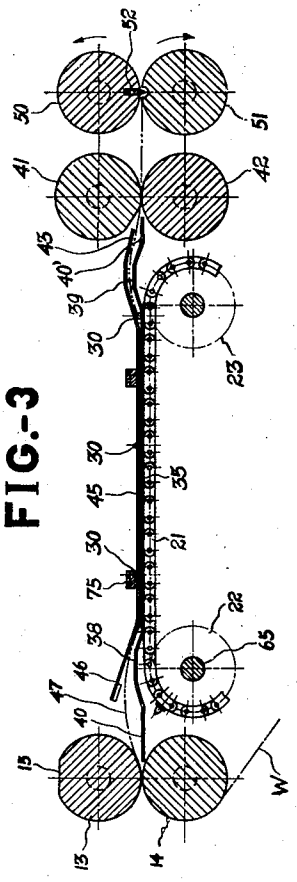


FIG.-4

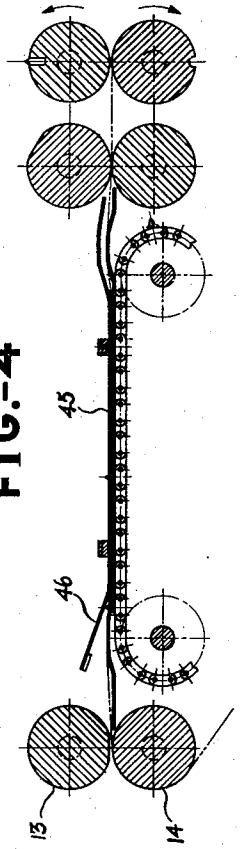
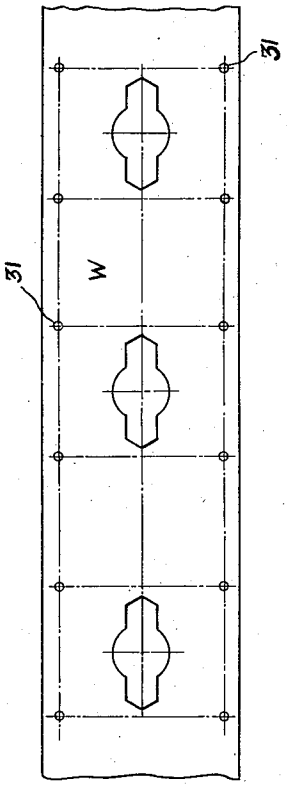


FIG.-5



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2,006,702

UNITED STATES PATENT OFFICE

2,006,702

PAPER FEEDING MECHANISM

John Van Buren, Brooklyn, N. Y.

Application April 30, 1934, Serial No. 723,012

7 Claims. (Cl. 271—2.1)

This invention relates to paper feeding mechanism.

More particularly stated, the invention relates to mechanism for feeding paper to wrapping machines. When printed wrappers are fed from a strip, and are cut and the severed lengths are fed to wrapping mechanism it is very important that the feed be accurate in order that the printed matter shall be correctly positioned on the wrapped article.

This invention has for its salient object to provide practical and efficient feeding mechanism so constructed and arranged as to accurately guide, feed and cut a strip of wrapping material.

Another object of the invention is to provide strip feeding and cutting mechanism so arranged as to accurately position the strip and the printed matter thereon with reference to the wrapping mechanism.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application, and in which

Fig. 1 is a top plan view of a machine constructed in accordance with the invention;

Fig. 2 is a longitudinal sectional elevation of the machine shown in Fig. 1:

Fig. 3 is a detail sectional elevation somewhat diagrammatic showing the paper feeding and guiding means;

Fig. 4 is a view similar to Fig. 3 but showing the feed rolls in different positions from those shown in Fig. 3; and

Fig. 5 is a top plan view of the strip fed by the feeding and guiding mechanism.

The invention briefly described consists of paper feeding and guiding mechanism comprising feeding members having a plurality of spaced pins arranged to enter correspondingly spaced perforations in the strip and means for guiding the strip into proper relation to the feeding pins so that the pins and perforations will register and the paper will be accurately positioned during its feeding movement through the machine. In the particular form of the invention illustrated the strip or web of paper is fed from the roll by means of feed rolls and from the rolls passes to guiding means preferably positioned above and below the path of movement of the strip by means of which the strip is accurately positioned, as above stated.

Further details of the invention will appear from the following description.

In the particular embodiment of the invention illustrated in the drawings the machine comprises feeding, guiding and cutting mechanism which is supported on a pair of side frame members 11 and 12. The web of paper is supplied in the form of a roll R from which the web W is withdrawn by means of a pair of feed rolls 13 and 14. The roll 13, as shown particularly in Figs. 3 and 4 is provided with a flat portion 15 in its periphery and when this portion is disposed opposite the roll 14, as shown in Fig. 4, no feeding movement takes place.

The web of paper passes from the feed rolls 13 and 14 to means whereby it is positioned with absolute accuracy, this being particularly important when printed matter appears on the web. This is accomplished in the present machine by means of a pair of parallel feed chains 20 and 21 which are led around sprockets 22 and 23 and also around a chain tightener sprocket 24. One sprocket 24 is provided for each chain, these sprockets being mounted on a spindle 25 which is carried by arms 26 mounted on a shaft 27. The arms 26 also have connected thereto an arcuate sector 28 having a slot 29 which receives a bolt for holding the sector and arms in the desired position of adjustment.

The chains 20 and 21 are provided with spaced pins 30 which are arranged to enter correspondingly spaced perforations 31 in the paper web W.

In order to guide the paper web into properly alined position relative to the pins 30 a plate or supporting table 35 is mounted on the side frames and extends across the top of the machine between the frames, this plate or table having longitudinal slots 36 and 37 for receiving the chains 20 and 21.

The plate 35 is provided with raised portions 38 and 39 at the ends thereof and in the rear of the portion 38 has a flat portion 40 which extends to a position adjacent the meeting portions of the feed rolls 13 and 14. At the other end a flat end portion 40' extends beyond the raised portion 39 to a position adjacent the meeting portions of a pair of delivery rolls 41 and 42. The delivery roll 41 is flattened at 43 in a manner similar to the flat portion 15 of the feed roll 13.

The path of travel of the paper web between the feeding and delivery rolls is furthermore determined and guided by means of an upper plate 45 which rests on the web above the plate 35 and is provided with correspondingly positioned slots through which the pins travel. The receiving end of plate 45 extends upwardly at an incline, as shown at 46. This machine was designed particularly for feeding relatively thin

paper material such as wax paper or like paper material and when this material is fed upwardly from the supply roll R and through the feed rolls 13 and 14 it buckles slightly, as shown at 47 in Fig. 3. It is prevented from engaging the upwardly traveling pins around the sprocket wheels 22 by means of the supporting plate or table 35 and particularly the portions 40 and 36 thereof. The portion 46 of the plate 45 directs the web downwardly and it is engaged by a pair of pins 30 as they reach the horizontal portions of the paths of movement of the feed chains 20 and 21. The pins will remain positioned in the apertures 31 of the web W until they pass around the sprocket 23 and by means of the pins the web will be accurately positioned during its feeding movement. During the engagement of the pins with the web the web will be held in position between the plates 35 and 45.

From the delivery rolls 41 and 42 the web passes between a pair of rolls 50 and 51, the roll 50 having a cutting knife 52 extending radially and the roll 51 having a longitudinally extending groove 53 for receiving the knife. The flat portion of the roll 41 is disposed above the roll 42 and between the axes of the rolls just after the strip is severed, as will be clear from the showing in Fig. 3. This permits the rolls 50 and 51 to feed the severed strip without the coaction of or interference from rolls 41 and 42 at this period in the cycle.

From the rolls 50 and 51 the sheet passes between guiding members 54 and between a pair of feed rolls 55 and 56 by which the severed strips are fed to the wrapping mechanism.

The feed rolls above described are driven in the following manner: A motor M is connected by a chain 57 to drive a sprocket wheel 58 mounted on a shaft 59. This shaft has also mounted thereon a gear 60 which meshes with gears 61 and 62 which are mounted respectively on the shafts of rolls 42 and 51. Gears 61 and 62 mesh respectively with gears 61′ and 62′ mounted on the shafts of the upper feed rolls 41 and 50. The gear 61 meshes with an idler gear 63 which in turn meshes with a gear 64 which is mounted on the spindle of the sprocket wheels 23. The sprocket chains 20 and 21 transmit the drive from the spindle of the sprocket wheels 23 to the spindle 65 which carries the sprocket wheels 22. The spindle 65 has mounted thereon a gear 66 which drives a gear 67 which in turn meshes with a gear 68 carried by the spindle of the feed rolls 14. Gear 68 meshes with a gear 68′ on the shaft of feed roll 13.

A tension device 70 provides a friction brake on the rotation of the supply roll R, thus maintaining the web taut as it is withdrawn from the supply roll.

The feed rolls 13 and 14 withdraw the web from the supply roll and feed it to the feeding chains 20 and 21 which by means of the pins positioned in the perforated portions of the web feed the web to the machine through the delivery rolls 41 and 42. As shown in Fig. 3, the web when fed by the feed rolls 13 and 14 buckles slightly, as shown at 47 in Fig. 3, but when these rolls reach the position shown in Fig. 4 there is a space between the flat portion 15 and the lower roll 14 and the slack or buckled portion 47 flattens out due to the tension on the supply roll R.

The web is fed and is accurately positioned as above stated by the pins 30 and during its feeding movement by the feeding chains and pins the web is held between the plates 45 and 35. The plate 45 may be lifted or removed by means of a handle 75 which extends laterally from the plate.

From the feeding chains the web passes between the delivery rolls 41 and 42 and thence to the cutter and between the rolls 50 and 51. After being cut by the knife 52 the severed lengths pass between the guiding means 54, being delivered to the wrapping mechanism by the feed rolls 55 and 56 which are rotated slightly faster than the other feed rolls above described.

From the foregoing description it will be clear that the feeding and guiding mechanism described will accurately feed a web of wrapping material and that the material will be positively and definitely located at all times during the feeding movement thereof, and furthermore that the web will be properly severed with reference to the printed matter thereon.

Although one specific embodiment of the invention has been particularly shown and described it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. Means for feeding and guiding a strip of sheet material comprising parallel feeding chains mounted for movement in a horizontal plane to feed a strip of material and having a plurality of spaced pins arranged to enter correspondingly spaced perforations in the material being fed, means for feeding the strip to said feeding chains, and means positioned above the path of movement of the web and between said feeding means and said chains for guiding the material into correct feeding relation to said pins, said guiding means comprising means for guiding the strip above the paths of movement of the pins until the chains are disposed in the horizontal feeding plane and means for guiding the strip downwardly to said feeding plane and pins.

2. Means for feeding and guiding a strip of sheet material comprising parallel feeding chains movable upwardly to a horizontal feeding plane, horizontally in said plane and downwardly away from said plane having a plurality of spaced pins arranged to enter correspondingly spaced perforations in the material being fed, means for feeding the strip to said feeding chains, and means having slots for receiving the pins and located between said feeding means and said chains for guiding the material into correct feeding relation to said pins, said guiding means being constructed and arranged to guide the strips above the paths of movement of the pins until the chains and pins are disposed in the horizontal feeding plane.

3. Means for feeding and guiding a strip of sheet material comprising a pair of feed rolls, a pair of endless feeding members for receiving the strip from the feed rolls, said members having spaced pins arranged to register with and be positioned in corresponding spaced perforations in the sheet being fed and being movable upwardly to a horizontal feeding plane, horizontally in said plane and downwardly away from said plane, a plate for supporting the sheet as it is fed by the pins, said plate having a raised portion for guiding the strip above the paths of movement of the pins until the feeding members and pins are traveling in the horizontal feeding

plane, and a second plate arranged to rest on the sheet as it is being fed by the pins, said lower plate extending to a position adjacent the interengaging portions of the feed rolls and said upper plate being inclined upwardly at the receiving end of the lower plate.

4. Means for feeding and guiding a strip of sheet material comprising strip feeding means, a pair of endless feeding members for receiving the strip from the strip feeding means, said members having spaced pins arranged to register with and be positioned in corresponding spaced perforations in the sheet being fed, spaced supporting means for supporting said endless feeding members for travel in a substantially horizontal plane, a plate for supporting the sheet as it is fed by the pins, said plate having elevated portions above said supporting means to guide the strip above said means, and a second plate arranged to rest on the sheet as it is being fed by the pins, said second plate having a downwardly inclined portion at the receiving end of the endless feeding members to guide the strip into engagement with the pins.

5. In a machine of the character described, a pair of feed rolls, a pair of delivery rolls, a supporting plate between said pairs of rolls, a pair of endless feeding members having spaced pins arranged to enter correspondingly spaced apertures in a web of material being fed and to feed the web across said plate, the contacting portions of the feed rolls and of the delivery rolls and said plate between said sets of rolls being disposed substantially in the same plane and strip guiding means between the feed rolls and the supporting plate for elevating the strip above said plate.

6. In a machine of the character described, a pair of feed rolls, one of said feed rolls having a flattened portion spaced from the other feed roll when disposed opposite thereto, a pair of delivery rolls, a substantially horizontal supporting plate between said pairs of rolls, a pair of endless feeding members having spaced pins arranged to enter correspondingly spaced apertures in a web of material being fed and to feed the web across said plate, means between the feed rolls and endless feeding members for elevating the strip above the plane of the feeding members and plate and means adjacent the horizontal path of the members for guiding the strip into engagement therewith.

7. In a machine of the character described, a pair of feed rolls, a pair of delivery rolls, a supporting plate between said pairs of rolls, a pair of endless feeding members having spaced pins arranged to enter correspondingly spaced apertures in a web of material being fed and to feed the web across said plate, the contacting portions of the feed rolls and of the delivery rolls and said plate between said sets of rolls being disposed substantially in the same plane, strip guiding means between the feed rolls and the supporting plate for elevating the strip above said plane, and means above the strip for guiding the strip downwardly to the plane of the supporting plate.

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