

May 21, 1957

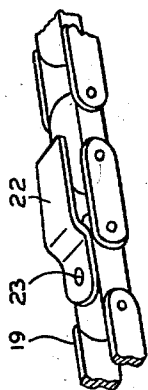
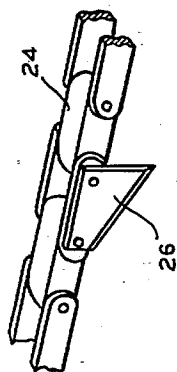
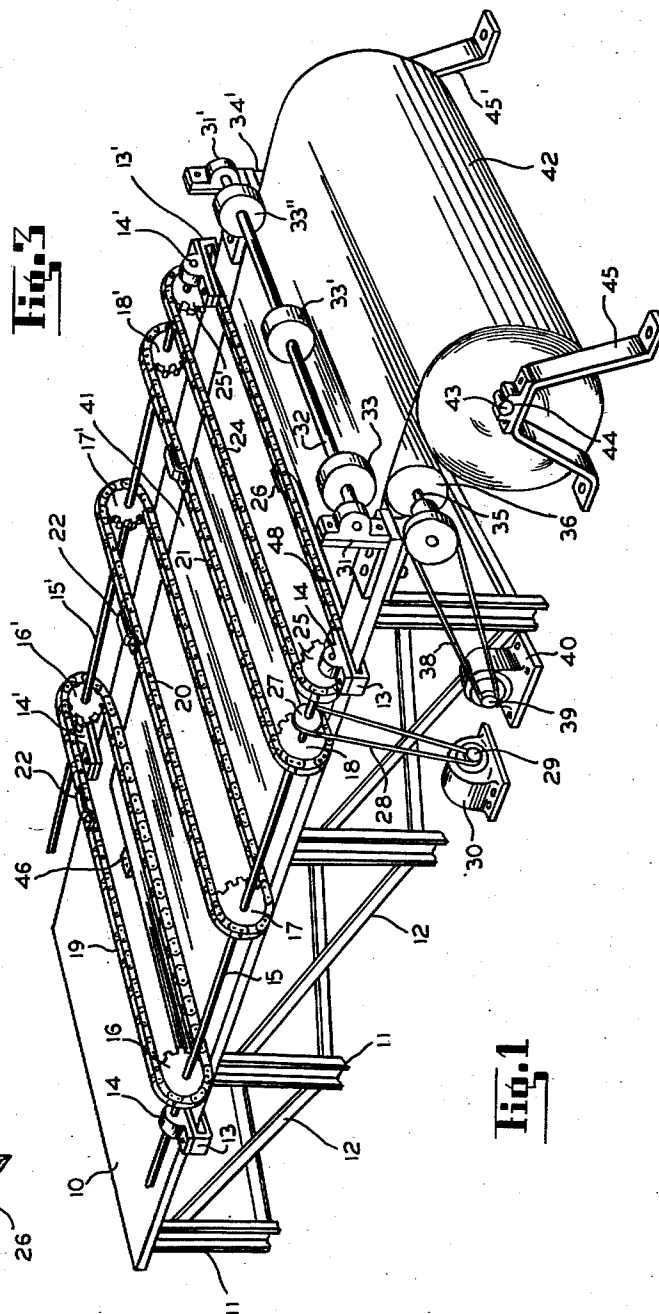
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CUTTING AND FEEDING DEVICES

Filed Jan. 31, 1955

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

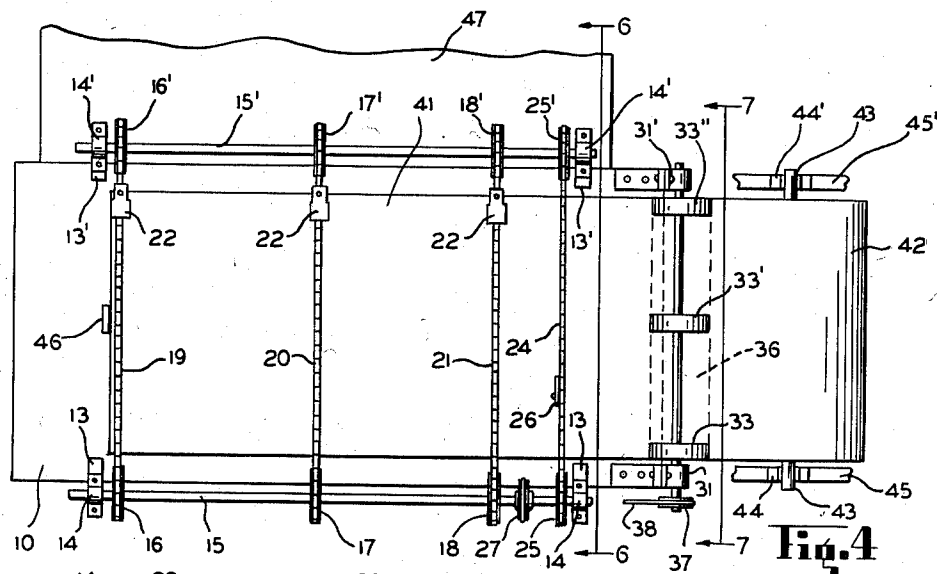
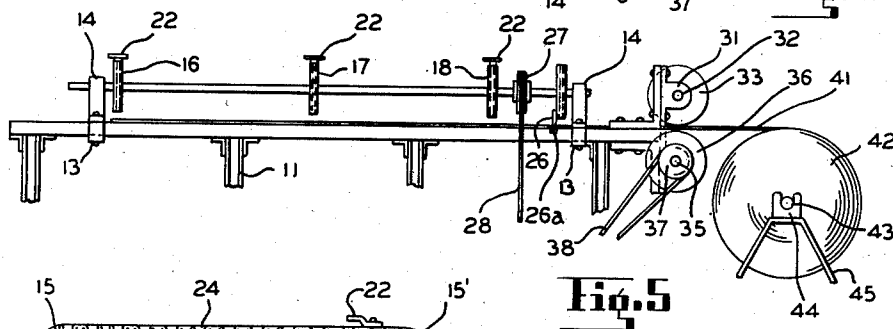
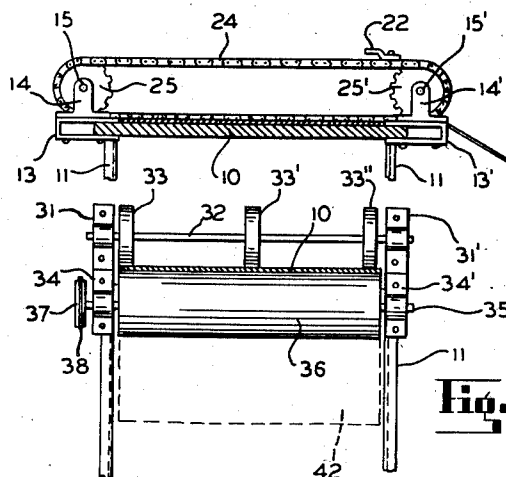


Fig. 7

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CUTTING AND FEEDING DEVICES

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Application January 31, 1955, Serial No. 484,907

3 Claims. (Cl. 164—73)

My invention relates to cutting and feeding devices and more particularly to a device for cutting sheets from a roll of paper or the like and feeding the cut sheets to a wrapping machine.

The prime object of my invention is to provide a device that feeds paper of the correct predetermined length, cuts it and transfers it to a wrapping machine.

Another object of my invention is to provide a machine in which the travel of the cutting blade and the transfer shoes are synchronized in their relation to the receiving mechanism for the paper.

The device is simple in construction, economical to manufacture and consists of relatively few parts, yet is highly efficient for the purpose for which it is intended.

Other and further objects of my invention will become more apparent as the description proceeds when taken in conjunction with the drawings, in which:

Figure 1 is a perspective view of the assembled device, with the paper fed thereon from a roll.

Figure 2 is a fragmentary perspective view of a portion of the chain conveyor with the cutting blade attached thereto.

Figure 3 is a similar view of a portion of the conveyer chain having the paper feeding shoe mounted thereon.

Figure 4 is a top or plan view of the assembled device.

Figure 5 is a fragmentary side elevation of the device as shown in Figure 4.

Figure 6 is a fragmentary cross sectional view of Figure 4 taken at the line 6—6 therein; and

Figure 7 is a fragmentary cross sectional view of Figure 4 taken at the line 7—7 therein.

Similar characters of reference indicate corresponding parts throughout the several views.

Referring now to details of the embodiment of the invention shown in the drawings, 10 indicates a platform or table top which is horizontally disposed and is supported by suitable vertical standards shown as 11 supported by cross members 12. Clamps 13 and 13' are mounted along the side edges of the platform 10 for supporting shaft bearings 14 and 14' on both sides of the platform 10. The bearings 14 and 14' rotatably support a pair of longitudinal shafts shown as 15 and 15', spaced above the opposite sides of the platform.

Sprockets are fixed on the longitudinal shafts 15 and 15'. Certain of these sprockets are arranged in pairs 16 and 16', 17 and 17', and 18 and 18'. Endless chains 19, 20 and 21 are trained over each opposed pair of sprockets. Each chain is provided with a paper feeding shoe 22 extending outwardly of the orbital path of said chain. Said shoe may be made of rubber or the like to provide a frictional bearing face, and is suitably attached to one of the chain links as by a screw, bolt or rivet shown as 23 as indicated in Figure 3.

Another chain 24 is disposed over sprockets 25 and 25' fixed on the shafts 15 and 15' near one end of the platform 10. The latter chain is provided with a shearing blade shown as 26 suitably attached to one side thereof

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and also extending outwardly of the orbital path of its chain, as shown in Figure 2.

One longitudinal shaft 15 has a driven pulley 27 which is revolved by a belt 28 from a drive pulley 29 on a motor 30 mounted on the floor or any other convenient place. When the shaft 15 is revolved, the opposed shaft 15' will also revolve as an idler due to the driving of the sprockets mounted on the two longitudinal shafts; thus carrying the paper feeding shoes 22 and the shearing blade 26 in the same direction in their line of travel.

The feeding shoes 22 are located in substantially longitudinal alignment with each other on their respective chains 19, 20 and 21, and in synchronized relation to the shearing blade 26 on chain 24; that said shoes pass along the upper reaches of their chains when the blade is passing along the lower reach of its chain, and vice versa. Thus, the shearing blade and the feeding shoes are disposed, respectively, for consecutive non-registering movement laterally of the platform.

The extreme forward end of the platform 10 is provided with upright bearings shown as 31 and 31' which rotatably support a transversely disposed idler shaft 32 having upper receiving rollers 33, 33' and 33'' fixed thereon which may be covered with rubber or the like to provide frictional engagement with the paper.

A pair of lower bearings shown as 34 and 34' are mounted onto the end of the platform 10, immediately below bearings 31, 31', for rotatably supporting a transverse shaft 35 on which an elongated lower receiving roller 36 is fixed. This shaft 35 has a driven pulley 37 at one end actuated by a belt 38 from a drive pulley 39 mounted on a motor 40. The upper receiving rollers 33, 33' and 33'' and the lower roller 36 are adapted to have a sheet of paper indicated at 41 passing through between them. This paper is taken from a roll 42 supported by a shaft 43 which is laid on bearing yokes 44 and 44' carried on supports 45 and 45'. As the diameter of the paper roll 42 decreases, the paper will be carried over the receiving roller 36 between it and the rollers 33, 33' and 33'' to feed the paper over the top of the platform or table 10. Feeding movement of the paper sheet is controlled by a limit switch 46, mounted in any convenient manner on the table top 10, depending on the length of the paper that is to be cut. The limit switch 46 may be of any conventional contact-operated two-position type well known in the art, arranged to pass energizing current through motor 40 when thrown in one position and through motor 30 when thrown in its second position.

One side of the table has a delivery chute or slide 47 fixed therealong as shown in Figures 4 and 6. This chute is shown as downwardly inclined, terminating in curve toward the horizontal at its outer end for delivering sheets of cut paper to the wrapping machine or the like (not shown), which is used in combination with the device.

In operation, as the machine is set into motion, the receiving rollers are revolved by motor 40 carrying the paper along the platform or table until the extreme end will contact the limit switch 46, so as to switch the current from motor 40 to motor 30. The chains 19, 20, 21 and 24 are then put into operation and the shearing blade 26 on chain 24 will first pass across the face of the paper. For this purpose the blade may enter a transverse groove 26a (see Figure 5) in the table top to produce a cut shown as 48 in Figure 1. After the blade has passed entirely across the entire sheet the paper and the feeding shoes 22 will be brought into contact with the top surface of the cut sheet of paper, to cause said sheet to be laterally fed upon the chute 47 for delivery into the wrapping machine.

After this cycle of operation, the cycle may be repeated by again initiating the feeding of the paper longi-

itudinally along the table until it contacts the limit switch 46 for discontinuing the longitudinal feed of the paper and initiating the transverse movement of the cutting knife 26 followed by the lateral delivery movement of the friction shoes 22.

Although I have shown a particular arrangement of the component parts constituting my device, many changes in the form and configuration of the parts may be made without departing from the spirit and scope of my invention as defined in the appended claims.

I claim:

1. A sheet material cutting and feeding device adapted to be used with a wrapping machine, said device comprising a horizontal platform, a pair of shafts rotatably mounted along opposite edges of said platform, rollers fixed on said shafts, a plurality of endless delivery conveyers trained over said rollers, with one reach of each of said conveyers arranged for movement above and laterally across the upper surface of said platform, feeding shoes attached to each of said conveyers, a pair of auxiliary rollers also fixed on said shafts, an endless cutting conveyer trained over said auxiliary rollers and having a shearing blade fixed thereon, said cutting conveyer and feeding conveyers being disposed adjacent each other and having their shearing blade and feeding shoes disposed respectively thereon for consecutive non-registering movement laterally along said platform, electrical means for rotating said longitudinal shafts, a pair of receiving rollers rotatably mounted one above the other along the forward end of said platform adjacent said cutting conveyer for receiving the sheet material therebetween, electrical means for rotating said receiving rollers for feeding the material along said platform, a delivery chute attached to the one side of said platform, and a limit switch mounted on the upper face of said platform adapted for actuation by the end of the sheet material fed on the platform, said limit switch being arranged to cause deenergization of the means for rotating said receiving rollers and initiate operation of the means for rotating said conveyer shafts when engaged by said material end for effecting successive cutting of the sheet material by the shearing blade and delivery of the material to said chute.

2. A device of the character described consisting of a sheet material cutting and delivery machine adapted for use with a wrapping machine, said device comprising a horizontal platform, a plurality of endless feeding units movable laterally across said platform, an endless cutting unit disposed forwardly of said feeding units, and also movable laterally across said platform, means operated from a single drive shaft for actuating said feeding units and cutting unit simultaneously but with the cutting unit

operating in advance of said feeding units, receiving rollers rotatably mounted across the forward end of said platform adjacent said cutting unit, means for actuating said receiving rollers, a delivery chute at one side of said platform, and a limit switch on said platform adapted for actuation by the end of the sheet material, to cause deenergizing of the means for actuating said receiving rollers and initiate operation of the drive shaft for actuating said cutting units and said feeding units, thereby successively governing the length of the sheet fed to the platform and then initiating the successive actuation of said cutting and feeding units.

3. A device of the character described comprising in combination a horizontal platform, a pair of shafts rotatably mounted and extending longitudinally along the opposite sides and above said platform, a plurality of sprockets fixed on said shafts in opposed pairs, individual endless chains disposed over each of said sprockets, each of said chains having a feeding shoe on its outer face, another pair of sprockets fixed on said shafts in opposed relation to each other, a continuous chain disposed over said last named pair of sprockets, a shearing blade fixed on said last named chain and projecting outwardly therefrom, all of said chains being movable laterally of said platform at the same speed when said shafts are rotated, but with the shearing blade preceding said feeding shoes by substantially the width of said platform, means for rotating said shafts, a pair of opposed receiving rollers rotatably mounted along the forward end of said platform for receiving and feeding sheet material longitudinally of said platform, means for rotating said receiving rollers, a limit switch mounted on the top surface of said platform adapted for actuation by the end of the material to cause deenergization of the means for actuating said receiving rollers and energizing the means for actuation of said cutting and feeding units, a pair of supports disposed at the end of said platform adjacent said receiving rollers, said supports acting as journals for a removable shaft for supporting a roll of sheet material entering between said receiving rollers, and a discharge chute at one side of said platform, for guiding the cut sheets removed from said platform by said feeding shoes.

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