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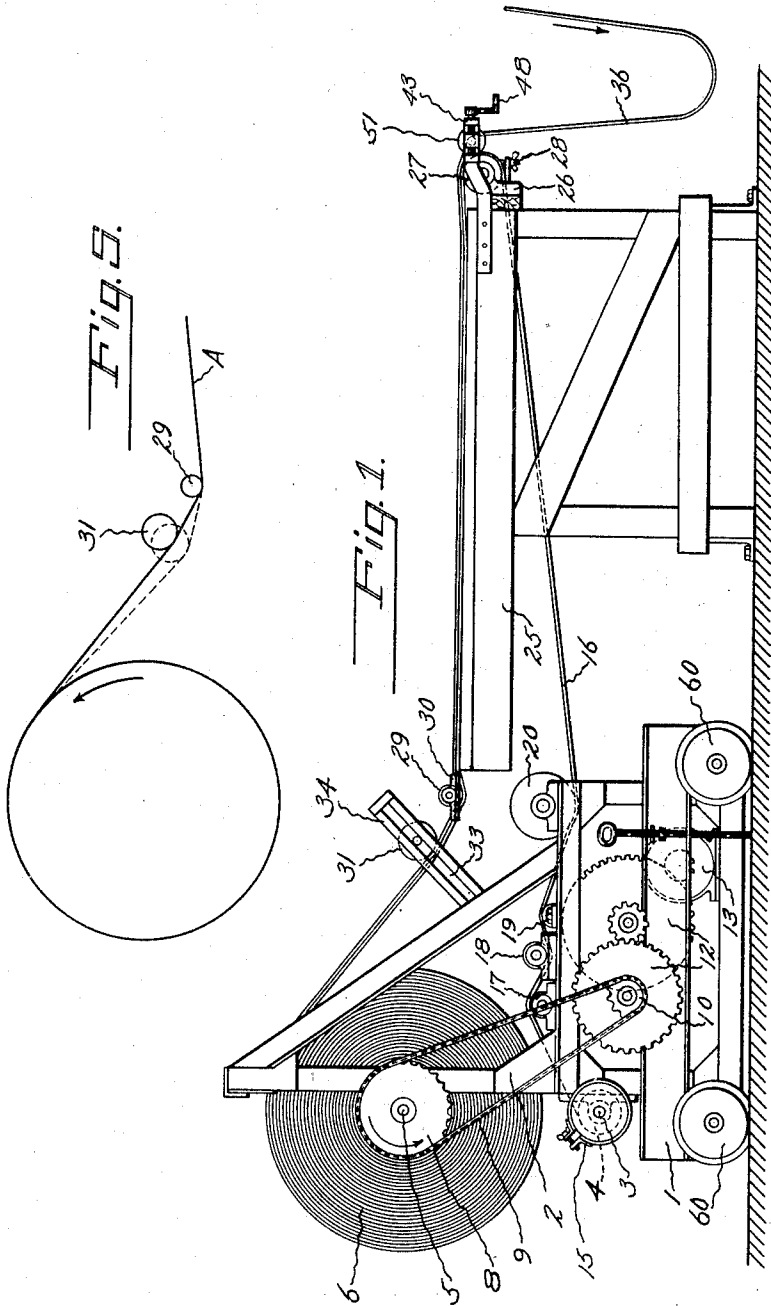
A. E. RICHEY

1,737,127

WEB HANDLING DEVICE

Filed March 15, 1928

2 Sheets-Sheet 1



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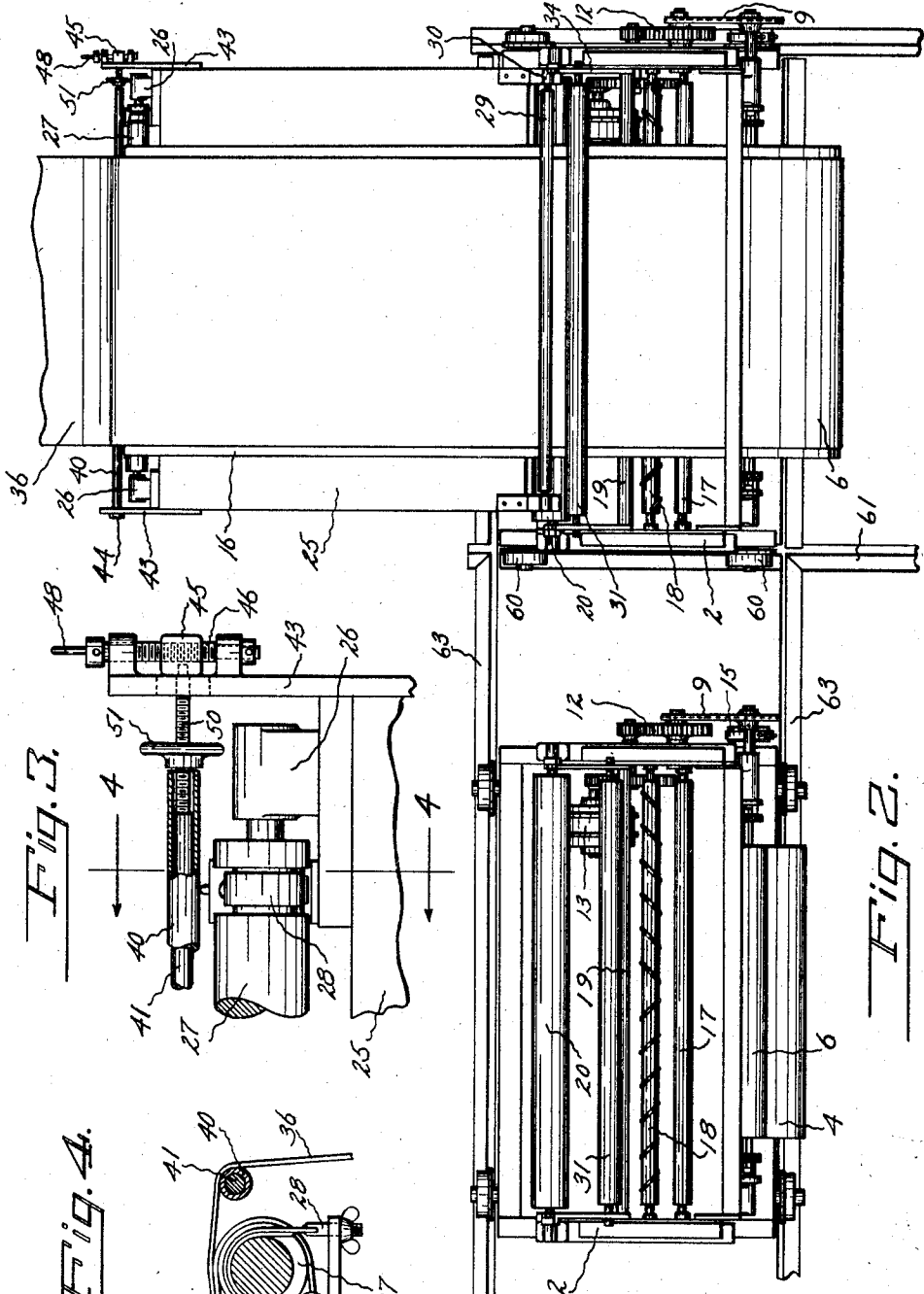


Fig. 3.

Fig. 2.

Fig. 4.

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WEB-HANDLING DEVICE

Application filed March 15, 1928. Serial No. 261,800.

My invention relates to wind-up devices and more particularly to wind-up device for winding material into a liner.

In a co-pending application of Daniel E. Hennessy, Serial No. 25,166, filed April 22, 1925, is disclosed and claimed a wind-up device for receiving, directly from the cutter, rubberized material which has been partially severed, and winding it into a wide liner roll under conditions to prevent wrinkling or separation of the partially cut strips and so as to form a tight compact roll. In certain cases it is desirable to provide an opportunity to measure and otherwise inspect the material as it passes from the cutter to the liner roll. At the speed of operation necessary for economical production the length of material exposed for inspection must be substantial, and it is further essential that the relation of the rubberized material to the liner should remain constant from the time the material meets the liner until it is firmly wound in the roll. It is the object of my invention to provide a device which will meet all of the requirements and conditions imposed in handling rubberized material, so cut, and at the same time give ample opportunity for inspection. The manner in which I accomplish this together with further and more specific objects of my novel combination of parts will be apparent from the following specification and claims.

In the accompanying drawings which illustrate one embodiment of my invention,

Fig. 1 is a side elevation of the device;

Fig. 2 is a plan view;

Fig. 3 is a detail on an enlarged scale of the web guiding mechanism, parts being shown in section;

Fig. 4 is a section on line 4—4 of Fig. 3; and

Fig. 5 is a diagrammatic view illustrating the function of one of the means for controlling the fabric.

Referring to the drawings, 1 designates a base supporting an upright frame 2 in which are journaled a shaft 3 for the let-off roll 4 and a shaft 5 for the take-up roll 6. Shaft 5 is positively driven in the direction of the arrow in Fig. 1 through a sprocket 8 secured thereto and connected by a sprocket chain 9,

to a sprocket 10 connected in turn by suitable gearing 12 to an electric motor 13 mounted on base 1. Shaft 3 of the let-off roll is provided with a brake, indicated at 15, to apply tension to the liner 16 as the latter is drawn from the let-off roll by the positive drive of the take-up roll. From the let-off roll the liner passes over a smooth roll 17, beneath a spreader roll 18, over a fixed bar 19 and beneath a smooth roll 20 positioned at the forward edge of the frame, rolls 17, 18 and 20 being freely journaled in suitable bearings supported by frame 2.

Adjacent base 1 and in substantial alignment therewith is an inspection table 25. Mounted in suitable journals 26 secured to that end of the table remote from the let-off and wind-up devices just described is a roll 27 about which the liner passes from roll 20, as shown in Fig. 1, and which is provided with a tension imparting brake 28 (see Fig. 4). From roll 26 the liner travels rearwardly over table 25, beneath a roll 29 journaled in bearings 30 extending from the rear edge of the table and beneath a gravity actuated roll 31, the shaft of which slides freely in slots 33 formed in standards 34 secured to frame 2 of base 1, and thence to wind-up roll 6. The material for which my device is peculiarly adapted is a web of rubberized cord fabric which has been partially cut into transverse strips, that is, in which the upper coating of rubber and the fabric or cord body have been severed and the strips are held in web form by the under coating of rubber. Such a web is indicated at 36 as coming from a vertical bias cutter, not shown. It is difficult to alter the relation of a web of this character with respect to its liner, once the two have been brought together, without disrupting the uncut coating of rubber and it is therefore necessary to bring the web into contact with the liner in proper position and alignment. This is especially true where the liner is drawn over a table of substantial length. For this purpose I provide a roll 40 in the form of a shell rotatable on a rod 41. Rod 41 is secured in brackets 43 extending from the edge of the table 25 so as to position roll 40 beyond roll

27. One end of rod 41 is held in the bracket as by a nut 44, the connection being such as to permit a small pivoting action. The other end of the rod is secured in a block 45 (see Fig. 3) threaded on a screw 46 which is journaled in lugs 47, secured to the bracket 43, and is provided with a suitable handle 48. As will be evident, adjustment of block 45 along screw 46 changes the inclination of the roll 40 in the plane of the table and the web 36 in passing over the roll may thus be nicely centered with respect to the liner as it comes into contact with the latter. Another variable factor to be contended with is a variation in the tackiness of the rubberized surface of the web which affects its tendency to adhere to the liner and the resulting tendency to wrinkle or break at the cuts as it accommodates itself to the liner in being wound in a roll. To take care of this variable factor the rod 41 is formed at one end with a reduced portion 50 upon which is threaded a hand wheel 51 by means of which roll 40 may be crowded against the opposite bracket 43 to variably restrict its freedom of rotation and exert a slight drag on the web 36. Preferably the reduced portion 50 is made of sufficient length so that wheel 51 may be backed off entirely free of roll 40 to permit the operator to grasp the end of roll 40 with his hand and vary the drag exerted by roll 40 or its position on rod 41 by the pressure and position of his hand. This procedure is found desirable in cases where variations in the tackiness or alignment of the web occur with a rapidity which is difficult to follow with hand wheel 51 and handle 48.

The roll 31 previously described performs a special function which will be now described, reference being had to the diagrammatic Fig. 5 in which for convenience of illustration the combined liner and web are designated by a single line A. When for any reason the operation is stopped and the liner relieved of its driving tension the liner and web tend to sag between roll 6 and roll 29 as indicated in dotted line in Fig. 5, and upon starting up again the renewal of the driving tension tends to "whip" the liner and web causing the latter to break and separate at the cuts. I overcome this condition by the provision of the roll 31 which when the sag occurs assumes the dotted line position in Fig. 5 and prevents free slack in the liner and web. Upon resumption of the operation the roll resumes its running position, shown in full line, absorbing by its weight the tendency of the liner and web to whip.

As will be clear from the above description the tension in the relatively long runs of the liner above and below the table are nicely controlled by brakes 15 and 28, the web is brought into contact with the liner

under nice control by roll 40 and its adjustments and the relation of the web and liner is maintained by roll 31, giving an opportunity to adequately inspect the web as it passes over table 25.

The base 1 is preferably provided with wheels 60 to form a carriage running on rails 61 permitting the carriage to be moved away from table 25, to permit loading and unloading, and a second carriage, designated at 62, and exactly similar to that above described except that it is adapted to run on rails 63 positioned at right angles to rails 61, may be provided to cut the interruption due to loading and unloading to a minimum.

Having thus described my invention, I claim:

1. A device of the character described comprising a liner let-off device and a liner wind-up device positioned one above the other, a table positioned with one end adjacent said devices and means to guide the liner from the let-off device in a path beneath the table, around the remote end of the table and back along the top of the table to the wind-up device.

2. A device of the character described comprising a liner let-off device and a liner wind-up device positioned one above the other, a table positioned with one end adjacent said devices, means to guide the liner from the let-off device in a path beneath the table, around the remote end of the table and back along the top of the table to the wind-up device, tension applying means associated with the let-off device and tension applying means positioned at the remote edge of the table.

3. A device of the character described comprising a liner let-off device and a liner wind-up device positioned one above the other, a table positioned with one end adjacent said devices, means to guide the liner from the let-off device in a path beneath the table, around the remote end of the table and back along the top of the table to the wind-up device, driving means for the take-up device, tension applying means associated with the let-off device, tension applying means positioned at the remote edge of the table and in the liner, and web guide and tensioning means carried by the table and positioned to act on a web immediately prior to its contact with the liner.

4. A device of the character described comprising a liner let-off device and a liner wind-up device, positive driving means operatively connected to the wind-up device, brake means associated with the let-off device to tension the liner as it is wound by the wind-up device, an inspection table beneath and over which the liner passes in its travel from the let-off to the wind-up device, a roll mounted on one edge of the table and about which the liner passes, a second tension imparting brake means associated with the last named roll, a manually adjusted guiding device posi-

tioned to act upon a web of material just
prior to its contact with the liner and a grav-
ity actuated roll resting on the web of ma-
terial and liner and positioned between the
5 point where the web and liner leave the table
and the wind-up device.

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