

Aug. 24, 1926.

1,596,954

L. I. TUTTLE

STRIP GUIDER

Filed March 8, 1926

2 Sheets-Sheet 1

Fig. 1,

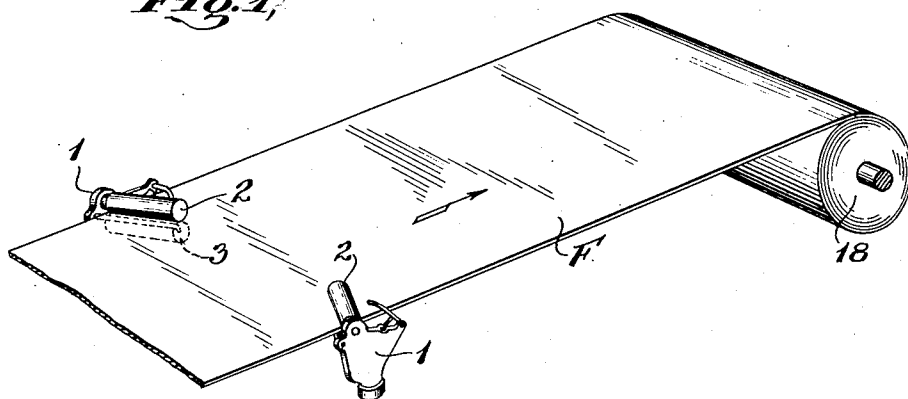
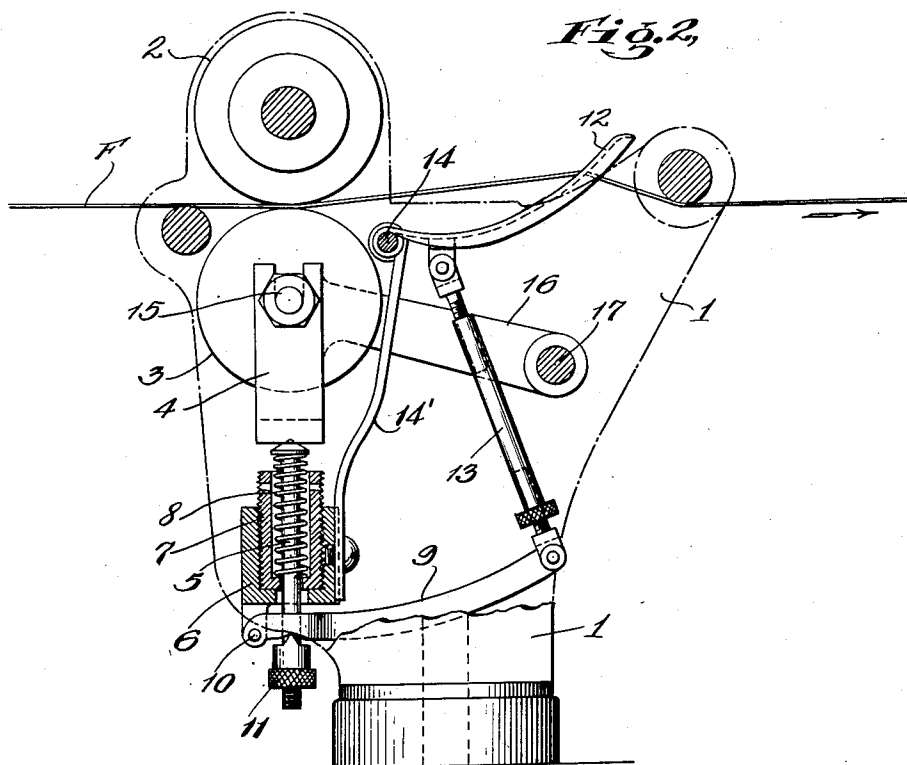


Fig. 2,



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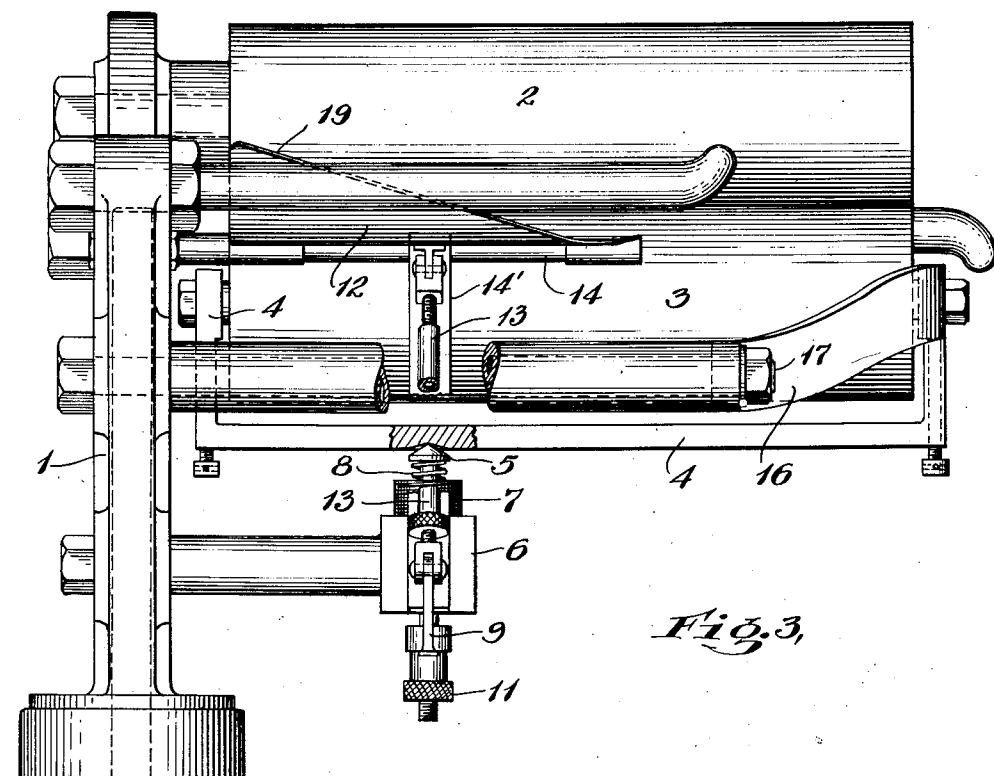
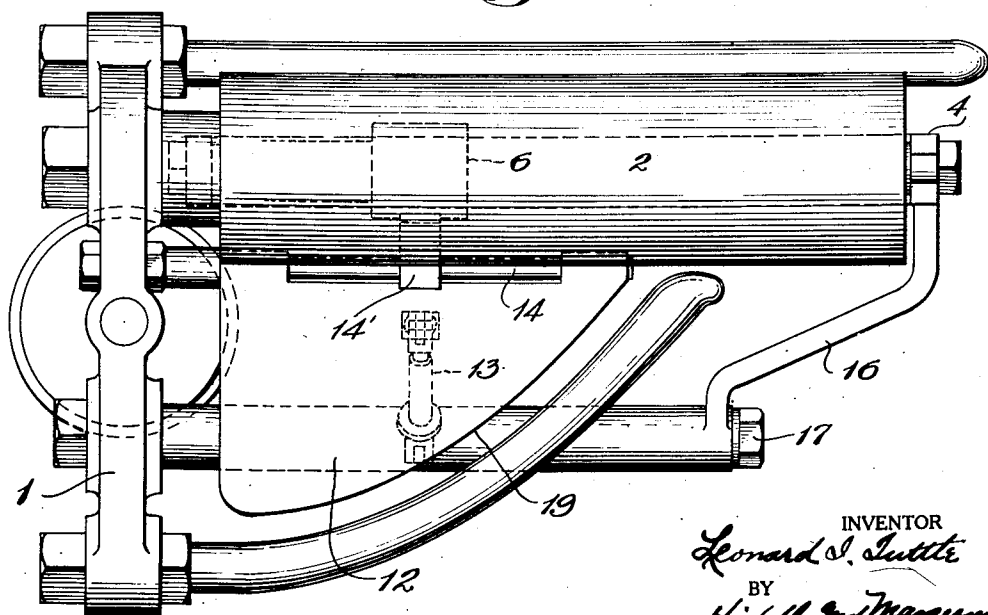


Fig. 4,



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UNITED STATES PATENT OFFICE

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STRIP GUIDER.

Application filed March 8, 1926. Serial No. 93,078.

My invention relates to an improvement in strip guiders, and has for an object the provision of a structure for guiding fabrics to a wind-up roll so that the same will be properly wound up thereon.

More specifically, my invention has for an object the provision of a guider construction adapted for use in the manufacture of oil cloth, with particular reference to the winding or rolling up of the finished product, my construction so controlling the cloth that the same will run straight and true about the wind up roller.

A still further object of my invention is the provision of a guider such as above indicated which will control the material at all times as it passes to the wind-up roll or roller, the guider being so constructed and arranged as to correct at the outset any tendency of the material to deviate from the desired path of travel.

Another object of my invention is the provision of a guider which is positively operated by the material being guided, my construction being such as to eliminate the use of solenoids or other electrical equipment, or the use of compressed air and similar apparatus. My improved construction reduces the cost of installation and maintenance to a minimum, and yet, as I have demonstrated on a commercial scale, provides an apparatus which is extremely efficient in operation.

Briefly, my invention provides two pairs of guider rollers, a pair at each side of the material to be guided, the edges of the material on its way to the wind up roller passing between these rollers. One of the rollers of each pair is pivotally mounted so as to be moved bodily under certain conditions out of "pinching" position with respect to its co-operating roller, this movement being effected by the material being guided passing over a plate provided for that purpose in the path of the material, the movement of this plate, due to deviation in the direction of travel of the material, causing the plate to be swung about a pivot, to effect thereby bodily movement of the roller. The reduction of the "pinching" action on the material as well as the shape of the plate itself causes the material to swing back to or assume the desired path of travel.

By providing the plate above mentioned,

I effect a positive actuation of the roller, which is much more desirable and practicable than relying upon the action of a solenoid, for instance, the circuit of which is controlled by the material being guided, and much more practicable than operating an air valve which will set mechanism in operation for actuating a roller. Again, by my improved construction, trip fingers, valves, switches, and the like, which are inherently objectionable, are entirely done away with. I wish it to be noted also that the material being guided in my construction passes over the actuating plate so that the face of the material, as distinguished from the mere edge thereof, is in contact therewith at all times, thus eliminating all danger of the edge of the material being injured and providing, so far as the actuating plate is concerned, a relatively extensive surface for the material to work on.

In the accompanying drawings, wherein I have illustrated a practicable embodiment of my invention,

Fig. 1 shows my invention, more or less diagrammatically, in operation on a length of fabric;

Fig. 2 is an end elevation of one of my improved guiders, a part thereof being broken away to show interior construction;

Fig. 3 is a side elevation of one of the guiders; and

Fig. 4 is a plan view.

Referring to the drawings in detail, and first of all to Figs. 2, 3 and 4, 1 designates a stand or base on which the guider mechanism is mounted. This base may be affixed to a table or other suitable support. At the upper part of the stand a guider roller 2 is provided, mounted in a suitable bearing provided for that purpose. Immediately below the roller 2 is a second guider roller 3, this roller, which is bodily movable so that the relative positions of the two rollers may be varied, being mounted in a movable bearing 4.

Inasmuch as the fabric to be guided passes between the two rollers 2 and 3, it will be apparent that the "pinch" on the fabric may be varied by adjusting one of the guider rollers with respect to the other, that is to say by moving one roller at an angle to the direction of travel of the fabric being guided.

The bearing 4 for the roller 3 is resiliently supported by means of a pin 5 which engages the under side of the bearing, this pin passing down through a block 6 rigidly secured to the base 1. This block receives a threaded plug 7 threaded into the block and carrying a spring 8, surrounding the pin 5, the upper end of this spring thrusting against the head on the pin 5, while the lower end of the spring rests in the bottom of the plug 7. The plug 7 being threaded, may be adjusted in the block 6 so as to regulate the thrust of the spring.

Pivotaly attached to or mounted on the base or stand 1 is a lever 9 fulcrumed at 10. The pin 5 above mentioned and which supports the bearing 4 passes through the lever 9, and below this lever is provided with a nut 11 threaded thereon, whereby the movement imparted to the pin 5 by actuation of the lever 9 may be varied. The free end of the lever 9 is attached to a plate 12, interposed in the path of the fabric to be guided, by means of a connecting rod 13, the ends of which are attached to the plate 12 and lever 9 by threaded connections, whereby the effective length of the connecting rod and hence the throw of the lever 9, may be varied. The plate 12, which is to be described more in detail hereinafter, is pivoted on a rod 14, extending longitudinally of the rollers 2 and 3, this rod being carried in the base 1 and partially supported by a member 14' fixed to the block 6. The bearing above referred to is in part supported on a pivoted arm 16, pivoted at 17 in the support or base 1.

It will be apparent from the description so far given that pressure on the plate 12 to pivot the same about the rod 14 will, through the connecting rod 13 and lever 9, impart positive movement to the supporting pin 5 to permit the roller 3 to move downwardly bodily, thereby to decrease the "pinch" of the rollers 2 and 3 on the fabric F to be guided, while release of this pressure will permit the spring 8 to function to increase this "pinch".

The plate 12 is so positioned, as will be apparent from Fig. 2, that the fabric F passing through the guider rollers 2 and 3 to the wind-up roll 18, will pass over and in contact therewith. This plate likewise is slightly curved longitudinally and in addition is provided with a sloping or inclined forward edge which I have designated 19, so that the forward edge of this plate instead of extending parallel to the longitudinal axis of the rollers 2 and 3, is deflected downwardly from the outside edge thereof. This provides a plate so constructed that the fabric F, when attempting to deviate from its prescribed path of travel, is obliged to ride up an inclined edge of the plate gradually to increase the depression of the plate

12 as the edge of the fabric approaches the outer edge of the plate. The effect of this is to gradually decrease the pinch of the rollers 2 and 3 on the fabric, the greater the deflection of the edge of the fabric out of its predetermined or desired path of travel the more the roller 3 moves away from the roller 2, to correspondingly decrease the "pinch" on the fabric.

It is to be understood that two sets of these guiders are employed for the guiding of a strip of fabric, as shown in Fig. 1, a set of guiders being provided at each side or edge of the strip being guided.

With reference to Fig. 1, it will be apparent that with the fabric F moving in the direction of the arrow on said figure, should the fabric tend to move to the right, for example, out of the desired path of travel, this will cause the fabric to travel up the inclined edge 19 of the plate 12 of the right-hand guider in said figure to cause the said plate to be depressed, this depression of the plate increasing the higher the fabric rides up the edge of the plate. The resulting depression of the plate 12 will through the connecting rod 13 and lever 9, permit the bearing 4 to lower, thereby permitting the roller 3 to move downwardly away from the roller 2, to relieve the "pinch" on the right-hand edge of the fabric. Under these conditions the "pinch" on the left-hand edge of the fabric is the maximum, with the result that the fabric will be caused to resume its prescribed path of travel over the wind-up roller 18. I wish it to be understood that the movement of the fabric F out of its predetermined or desired path of travel is but very slight, the fabric being brought back to its normal path again before it has had an opportunity to be deflected more than but very slightly. Should the fabric tend to move to the left, as viewed in Fig. 1, the set of guider rollers at that side of the fabric will operate, that is to say, the lower roller 3 thereof will be depressed so as to relieve the "pinch" on the fabric at that edge thereof in the same manner as explained in connection with the right-hand guider rollers.

It will be seen from the foregoing therefore, that I have provided a machine or apparatus for the guiding of fabrics being wound upon a wind-up roller, whereby deflection of the fabric as it is being rolled up is eliminated or reduced to a minimum. It will be seen also that my apparatus is exceedingly simple in construction and is mechanically operated throughout, so that a strong, sturdy construction can be incorporated in the apparatus to thereby insure positive working of the apparatus at all times. This is a distinct advantage over such types of apparatus as those employing compressed air, in which a relatively fragile valve or valve-controlling member must be

operated by the fabric being guided, and as compared with electrically operated guiders, in which a contact finger is actuated by deviation of the moving fabric. It will be seen also that my improved apparatus is positively operated by the fabric being guided, the fabric itself actually operating the plates 12, this operation of these plates through the connection of the plates to the movable bearings in turn causing the lower guider rollers to be moved bodily with respect to the companion roller of each set. It will be also seen that I have provided means for adjusting my improved apparatus throughout, so that it is possible to set the machine properly when the same is first installed, thereby making it unnecessary to adjust the machine from time to time thereafter.

What I claim is:

1. In a guider for fabrics the combination of an upper guider roller and a lower guider roller and means positively actuated by the engagement therewith of the fabric being guided to vary the relative positions of said rollers.

2. In a guider for strip fabric the combination of a pair of guider rollers and means connected to one roller and positively actuated by the engagement therewith of the fabric being guided for moving one roller relatively to the other roller.

3. In a guider for strip fabric the combination of a pair of guider rollers, a movable bearing for one of said rollers, and means mechanically connected to said bearing and actuated by the engagement therewith of the fabric to be guided for positively moving said bearing to thereby impart bodily movement to the roller.

4. In a guider for strip fabric the combination of a pair of guider rollers, a movable bearing for one of said rollers and a plate interposed in the path of travel of the fabric being guided and adapted to be moved thereby to actuate said movable bearing and the roller carried thereby.

5. In a guider for strip fabrics the combination of a pair of co-operating guider rollers adapted to guide and pinch the fabric being used, a movable bearing in which one of said rollers is mounted, a support for said bearing and a pivoted plate over which the fabric is passed, said plate under predetermined conditions being depressed by the fabric to effect a bodily movement of said bearing support.

6. In a guider for strip fabrics a bodily

movable roller over which the fabric to be guided is passed, a pivoted plate adapted to be engaged by the fabric to be guided, and a mechanical connection between said plate and the said roller whereby as the plate is depressed by the deviation of the fabric out of its predetermined path of travel the roller will be depressed to cause the fabric to resume its predetermined travel.

7. In a guider for strip fabrics the combination of a bodily movable roller having movement at an angle to the direction of movement of the fabric being guided, a support for said roller, and a plate interposed in the path of travel of the fabric and actuated thereby to positively impart bodily movement to said support, said roller upon movement of said support moving at an angle to the direction of movement of the fabric.

8. A guider for strip fabrics comprising a pair of rollers between which the fabric to be guided is passed, a bodily movable bearing for one of said rollers, a support for said bearing and a plate having an inclined portion adapted to be engaged by the fabric being guided, said plate being positively connected to said support to move the same as the plate is depressed, the movement of the said support and hence of the roller varying, due to the inclined portion of said plate.

9. In guider mechanism for strip fabric the combination of a pair of guider rollers at each edge of the fabric being guided and means attached to a roller of each pair of said guider rollers adapted to be engaged by the fabric being guided to vary the pinch on the edge of the fabric, said means being positively actuated by the fabric and functioning when the fabric deviates from its predetermined direction of travel to either side.

10. A guider for strip fabric comprising a frame, a pair of rollers carried by said frame, a movable bearing carried by said frame for supporting one of said rollers, a pivoted lever attached to said bearing, a pivoted plate interposed in the path of travel of the fabric as the same passes between said rollers and a lever connected to said bearing and to said plate, whereby as the plate is deflected the bearing and the roller carried therein will be given bodily movement.

This specification signed this 4th day of March, 1926.

LEONARD I. TUTTLE.