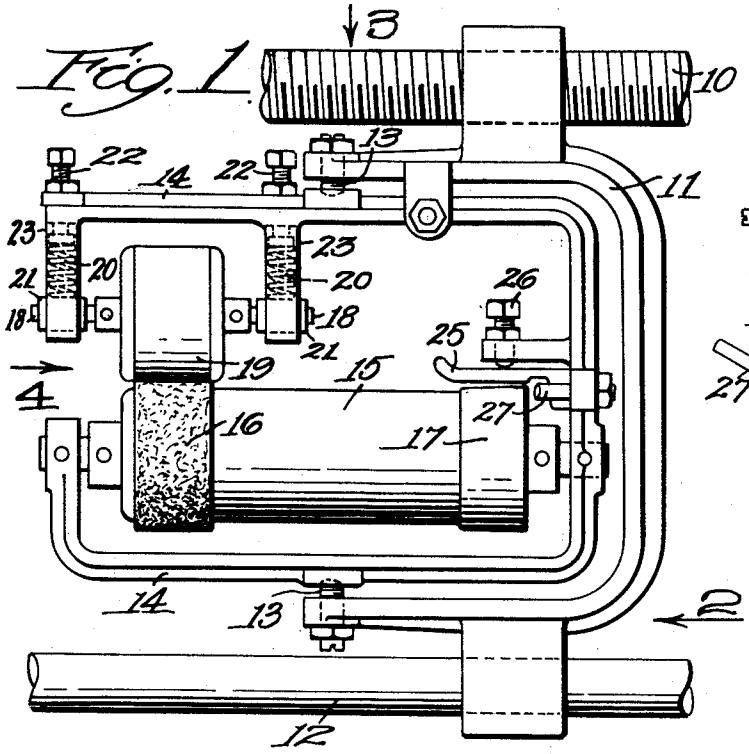
July 25, 1933. C. H. COOLIDGE 1,919,291

CLOTH GUIDING DEVICE

Filed Jan. 19, 1932

Fig. 1



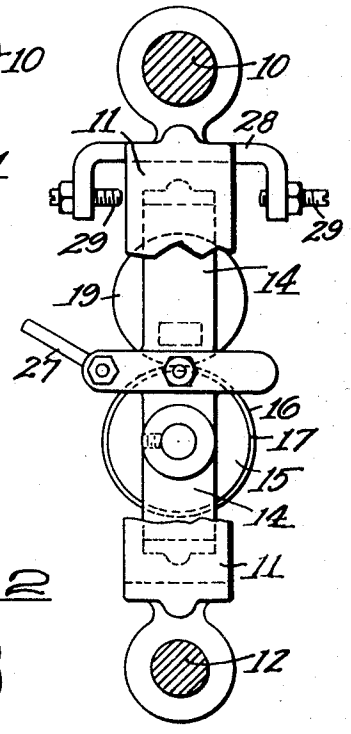
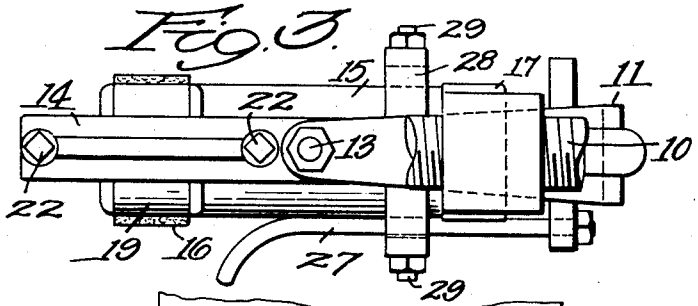


Fig. 2

Fig. 3



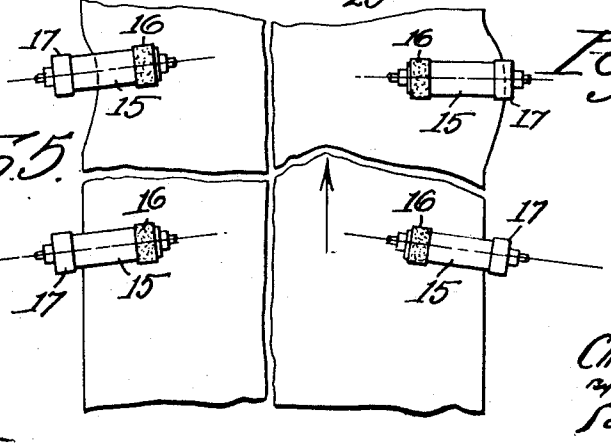


Fig. 5

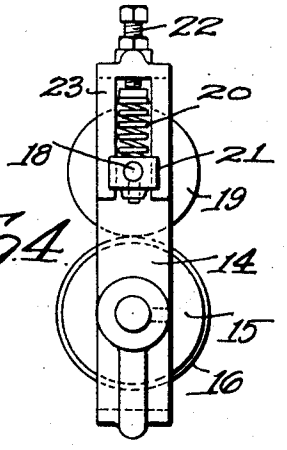


Fig. 4

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UNITED STATES PATENT OFFICE

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CLOTH GUIDING DEVICE

Application filed January 19, 1932. Serial No. 587,565.

The principal objects of this invention are to provide a self-contained, self-actuated, means for changing the angle of the roller used for guiding cloth into a machine; to provide a construction which can be installed to use a much shorter length of cloth travel than heretofore; to provide a construction therefor which will be very much simplified over the present arrangements and will not involve any outside mechanical or electrical apparatus and which will be very inexpensive to manufacture and maintain; to provide a construction and method of operation combining in each unit a positiveness of action for correcting any deviation of the cloth from a correct line of travel; and to provide a construction which can be used for cloth having a slack or elongated selvage.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing, in which

Fig. 1 is an elevation of the device for use on one edge of the cloth;

Fig. 2 is an end view of the same;

Fig. 3 is a plan;

Fig. 4 is a view of the end opposite that shown in Fig. 2, and

Fig. 5 is an elevation showing the devices on both sides of the cloth and illustrating the cloth being guided through this device.

It is customary to guide cloth, where it is desired to have it enter a machine in certain definite position, between pairs of guides located at opposite edges and having rollers which are automatically brought out of operation by complicated electrical or mechanical means operated by the edge of the cloth and depending on its tautness when the cloth moves to one side. Thus the guiding devices on the other side will bring the cloth back into central position. The said roller guides are mounted at an angle to a transverse line across the cloth. It is chiefly to avoid the complicated mechanical and electrical devices that this invention is made.

Fig. 5 shows the rollers of a pair of these devices running at an angle and in their normal position in the lower part of the figure, with the cloth running centrally. When in the position shown below in Fig. 5, the rollers have a filling extending spreading action on the cloth and they are supposed to act equally so that the cloth will remain central. When the cloth does move to one side, these rollers, which have previously involved a pair of rollers in each case for gripping the cloth, are released from gripping contact with it, that is, either the upper or lower roller is moved away. The result is of course that the rollers in contact on the other side of the cloth will gradually pull it over into central position, then the mechanism will operate automatically again to provide full contact at both edges.

According to the present invention, there is a right and left-hand screw 10 extending across the machine adapted to be turned to adjust the two frames 11, which have screw-threaded lugs for this screw, toward or from each other to provide for cloths of different widths. This frame 11 is mounted in stationary position aside from its adjustment and has a lug on the bottom adapted to slide along a rod 12 which is parallel to the screw.

The frame is U-shaped and is provided at the top and bottom with pointed pivot screws 13 axially in alignment with each other. These screws enter depressions in a pivoted frame 14 and constitute pivots for that frame. This pivoted frame 14 is provided with a roll 15 which has an enlarged cylindrical section 16 of soft rubber or the like having a friction surface and it is also provided with an end roll 17 somewhat conical, of greater diameter than the roll 15. The surface of the roll 15 between these two elements 16 and 17 is either smaller or smoother than those surfaces to prevent the cloth being gripped by it.

The frame 14 also is provided with a shaft 18 having a steel roll 19 thereon free to rotate. In fact, both rolls are free to rotate in their bearings. The shaft of this roll 19 is pressed down by springs 20 against the roll 16 to apply pressure to it. When the cloth is running between these rolls, they will have the effect of spreading it and holding it centrally as will be described. The springs 20 press down against boxes 21 in which the ends of the shaft 18 are located and the pressure of

the springs is adjusted by screws 22 above. The bearings or boxes 21 are mounted in guides 23 on the frame 14.

On the frame 14 is mounted a compression plate 25 which is up-turned at the end so that the cloth can be guided in under it in contact with the roll 17. This plate is adjustable by a screw 26 so as to bring it in such relationship with the roll 17 that, if the cloth comes into this bite, it will fill the space and exert a pressure on this roll 17 so that the roll will perform a certain function as will appear. Also there is a guide 27 mounted on the frame 14 for guiding the cloth into this position. It is to be noted that the change is effected by action on the opposite surfaces of the cloth, instead of the edge. This makes it possible to operate accurately on slack or elongated selvages.

On the frame 11 is a bar 28 which is provided with two adjustable stops 29 at opposite sides adapted to engage the frame 14 as it swings on its pivots and limit the motion in both directions.

The normal running of the cloth, whether it is moving vertically, horizontally, or otherwise, is shown in full lines in Fig. 5. Here, as stated, two pairs of rolls 16 and 19 always engage the cloth near its selvages, both during normal and during abnormal running, and tend to keep it spread out flat and also to keep it running in a straight line. As the frame 14 is mounted on pivots 13 freely, the travel of the cloth will pull these rolls forward with the cloth and they will assume the angular position shown in Fig. 5. This frame may engage at that time one of the stops 29 and then is not capable of moving beyond that point. If the cloth moves to one side, as indicated in the upper position in Fig. 5, far enough to come in between the roll 17 and the plate 25, it will turn this roll with the cloth and as the compression plate is stationary on the frame 14, it will turn the whole frame on its pivot substantially into a position at right angles in the direction of travel of the cloth. The result of this is to leave the rolls 16 and 19 on the other side pulling the cloth over to that side and eventually pulling the edge of the cloth out of the bite between the roll 17 and the plate 25. It will be obvious that when the frame is turned, in the manner just described, to a position substantially at right angles to the line of travel of the cloth, the frame 14 may strike the other stop 29 and then cannot be moved any farther in that direction. The action just described will bring the cloth back to central position, no matter which way it is wandering out of that position, and the cloth will always get back to center under all circumstances. This of course has been true of the devices now on the market but in this case no mechanism is involved outside of the guiding means itself, no electrical or pneumatic apparatus is required, and the mechanical connections previously used are practically all eliminated. The device necessarily operates to bring itself back to true running position by the pull of the cloth on the rolls 16 and 19 when there is no longer any pull on the roll 17.

It is a very simple device in operation and is inexpensive to manufacture and involves very few parts that ever have to be repaired. The adjustments are extremely simple. Of course it has to be adjusted for cloths of different widths and also the plates 25 have to be adjusted to cloths of different thicknesses and other qualities such as smoothness, etc.

Although I have illustrated and described only one form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

In a device for guiding cloth or the like, the combination of a frame pivoted to swing freely on an axis transverse to the direction of the cloth or the like, a freely rotatable roll having at one end an enlarged cylindrical soft-surfaced portion and at the other end an enlarged conical portion, the roll between said two enlarged portions being of small diameter to prevent the cloth from pressing against it, a spring-pressed freely rotatable roll pressing against the soft-surfaced portion of the first named roll to hold the cloth between the mat a distance back of the selvage thereof, a friction plate carried by said frame and projecting over the conical surface and having a guide for guiding the selvage of the cloth into the space between the guide and the conical surface, said two enlarged parts of the first named roll being located on opposite sides of the axis, whereby normally the travel of the cloth will swing the frame forwardly at the inner end but when the selvage of the cloth enters the space between the conical roll surface and the plate, the roll and frame will be turned by the friction of the cloth in the opposite direction to bring the axis of the roll into a line transverse to the direction of the motion of the cloth.

CHARLES H. COOLIDGE.