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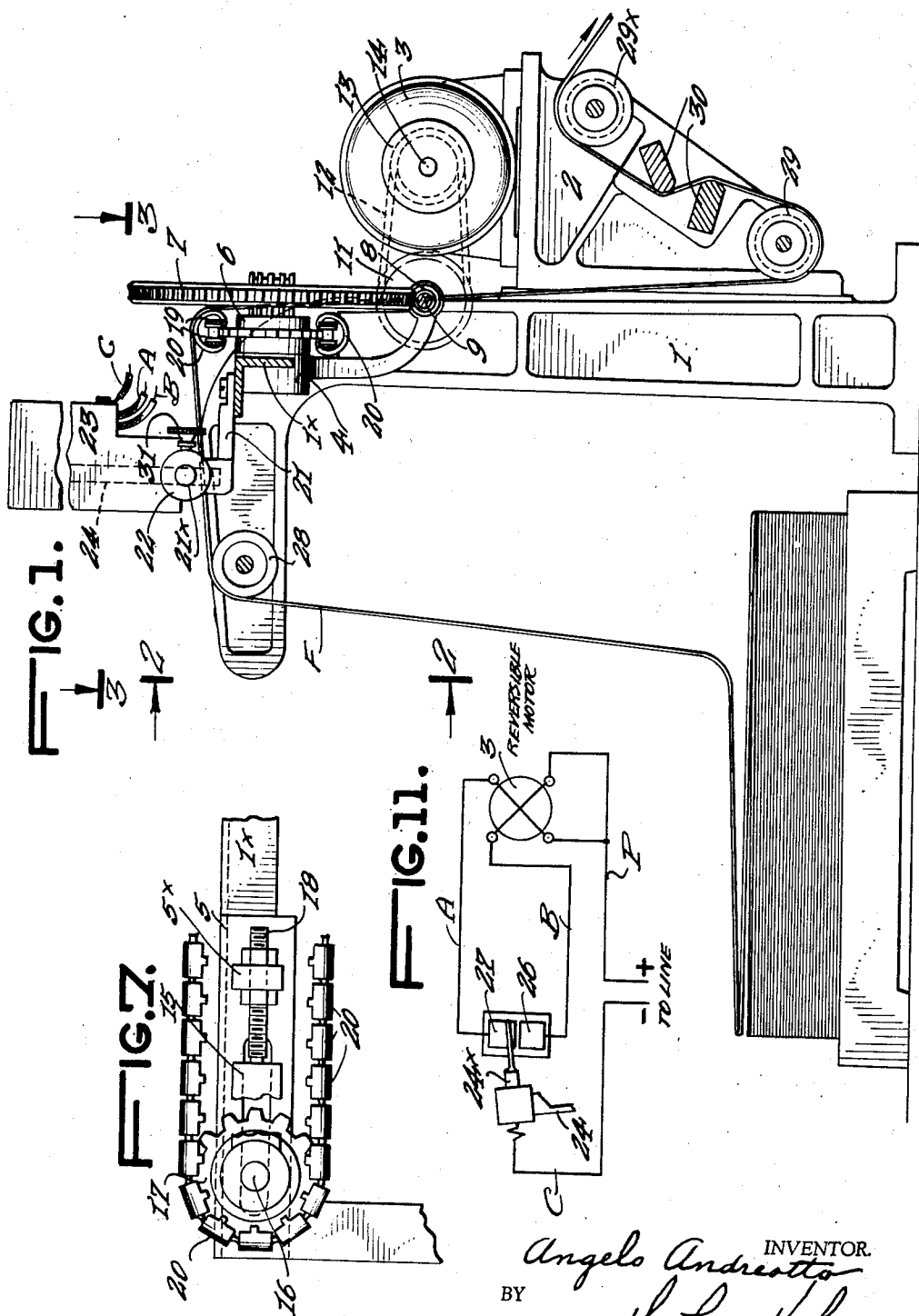
A. ANDREOTTO

2,297,858

FABRIC CENTERING DEVICE

Filed July 24, 1941

3 Sheets-Sheet 1



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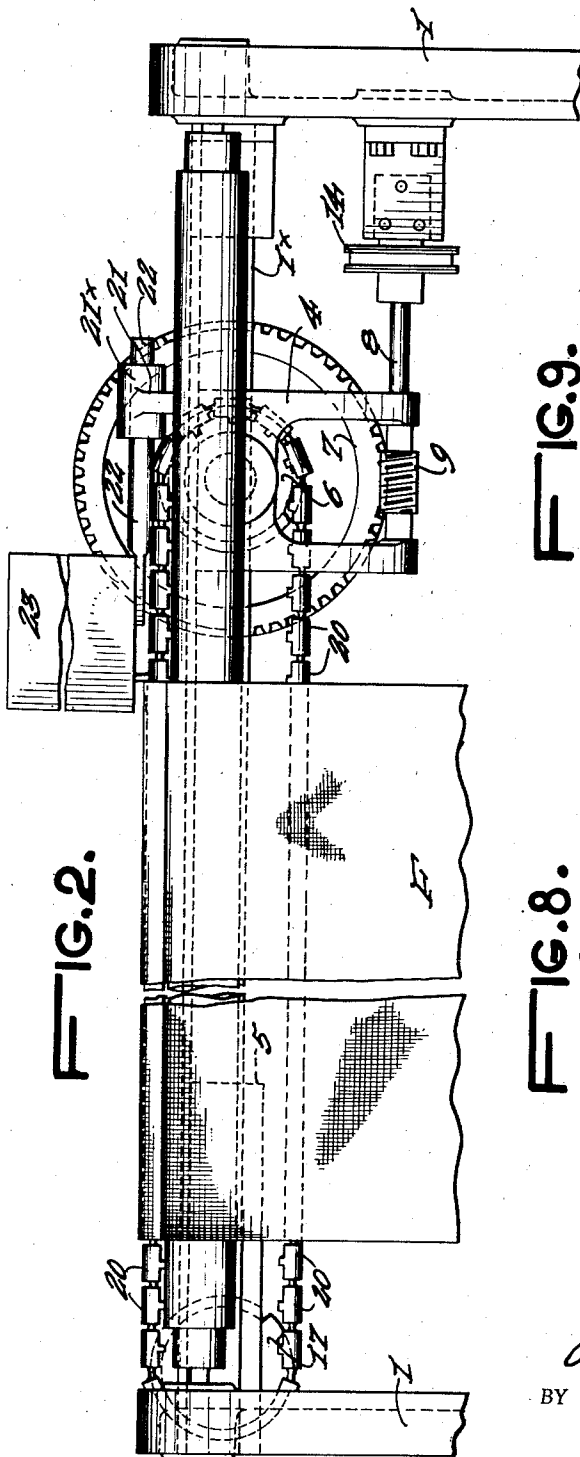
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3 Sheets-Sheet 3.

FIG. 6.



FIG. 3.

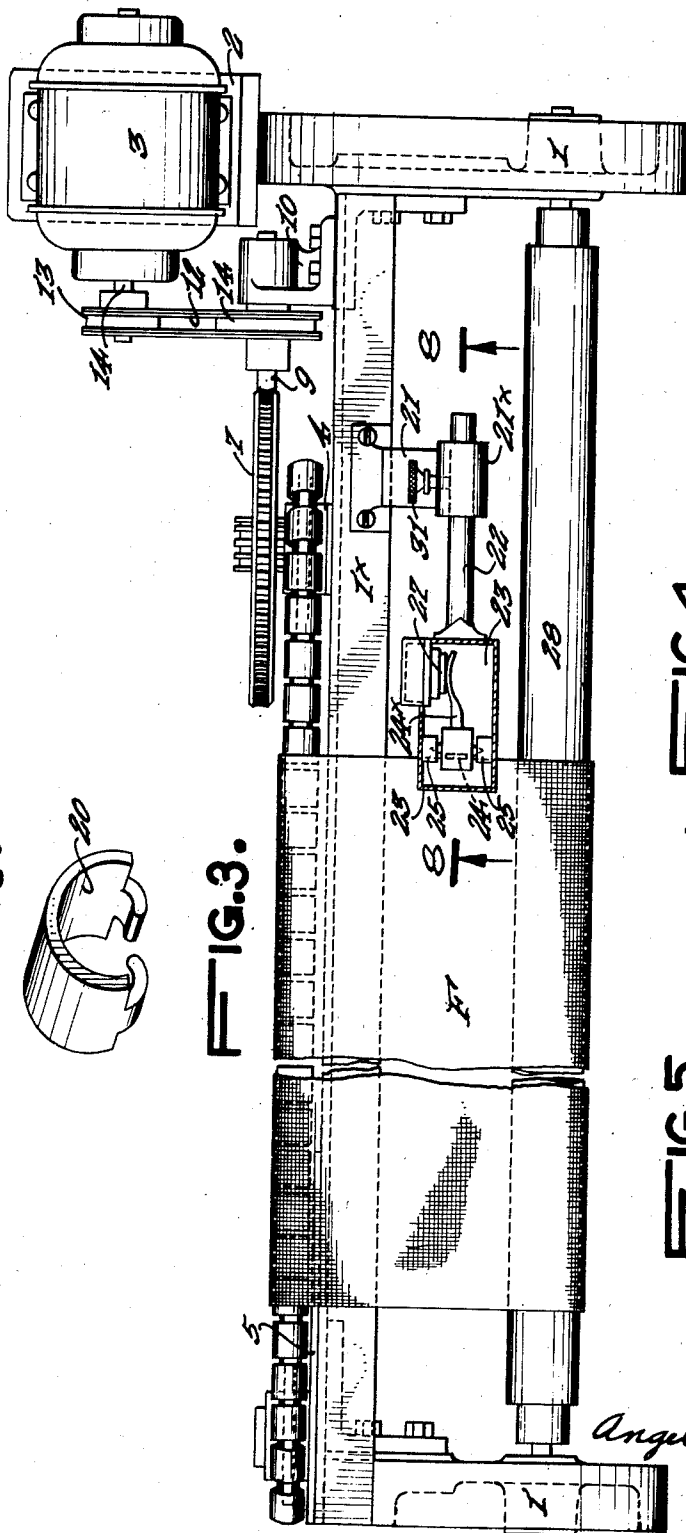


FIG. 5.

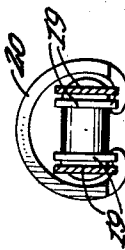
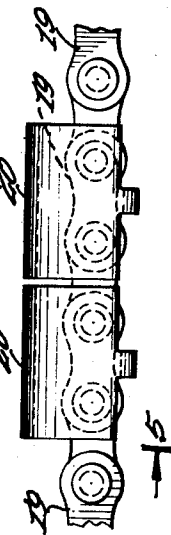


FIG. 4.



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UNITED STATES PATENT OFFICE

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FABRIC CENTERING DEVICE

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Application July 24, 1941, Serial No. 403,887

7 Claims. (Cl. 271—2.6)

The present invention relates to centering devices for lengths of fabric being fed to a point at which the fabric is acted upon chemically or otherwise, as in the finishing of fabrics. In many cases lengths of fabric are led to the feeding mechanism from roughly folded or stacked arrangements, and it is necessary for an operator to constantly watch the fabric as it is led to the initial roller of the feed mechanism in order to keep the fabric centered. Various means have been proposed for centering fabric lengths in the feeding thereof, as, for example, endwise movable rollers in combination with electrical means for shifting the rollers endwise. Such devices, however, are very limited in their action due to the short distance at which such a roller may be shifted endwise. There are instances when it is necessary to exert upon the moving web of fabric a lateral shifting force which will continue for a substantial period of time, and may even continue throughout the feeding of a substantial length of fabric, due to any one of several factors. In such cases centering endwise movable rollers are wholly inadequate.

It is the object of the present invention to provide centering means for fabric lengths which will meet every condition required for centering fabrics of all kinds regardless of the weave, and which centering means will render it wholly unnecessary to manually control the movement of the fabric from the roughly folded stacked or otherwise arranged length which is being fed.

The invention will be described with reference to the accompanying drawings, in which:

Figure 1 is a view in end elevation, partly in section, illustrating an embodiment of the invention.

Figure 2 is a fragmentary front elevation, looking in the direction of the arrows 2—2, Figure 1.

Figure 3 is a plan view, the switch box being shown in horizontal section taken on the line 3—3, Figure 1.

Figure 4 is a fragmentary view in elevation, showing a section of the endless centering belt, certain of the links being shown in dotted lines.

Figure 5 is a vertical section on the line 5—5, Figure 4.

Figure 6 is a perspective view of one of the covering shields forming part of the endless belt.

Figure 7 is a fragmentary view in elevation, showing the idler sprocket end of the endless centering belt, the adjusting means therefor, and certain frame elements.

Figure 8 is a view in elevation, partly in section, on the line 8—8, Figure 3, showing the

switch box, the selvage switch member, and adjustable carrier for the said members.

Figure 9 is a transverse section taken through the switch box, but not through the switch elements therein, the section being on the line 9—9, Figure 8.

Figure 10 is a horizontal section on the line 10—10, Figure 8.

Figure 11 is a wiring diagram.

Referring to the figures, it will be seen that the embodiment therein illustrated comprises the upright frame members 1 connected in any suitable manner as by cross frame member 1x which in the embodiment is an angle bar. One of the uprights may carry a bracket 2, Figure 1, for supporting a motor 3.

Carried rearwardly of the cross frame member 1x are brackets 4 and 5. Rotatably mounted on bracket 4 in any suitable manner is a sprocket wheel 6, Figure 1, carried by a worm gear 7. The worm gear is in mesh with a worm 8 on a shaft 9. Shaft 9 is journaled in the bearing aperture of bracket 10, Figure 3. Shaft 9 carries a pulley 11 driven by belt 12 from a pulley 13 on the motor shaft 14. Bracket 5 is longitudinally apertured to provide a receiving guideway for an adjustable bearing block 15 which will carry a shaft 16 for a sprocket wheel 17. The adjustment of block 15 is effected by rotation of a screw shaft 18 rotatably carried by the block and threaded in a laterally extending arm 5x of bracket 5.

Received upon the sprocket wheels 6 and 17 is an endless link belt which may be of the construction shown in Figures 4 and 5, and composed of a plurality of pivotally connected links 19, the links being arranged in opposed pairs and each pair of links receiving a covering shield 20.

Secured upon cross frame member 1x is an arm 21 formed at its end with a sleeve 21x which adjustably receives supporting shaft 22 for a switch device. The switch device in the present embodiment comprises a box-like housing 23 having an aperture in its base for the movement of the switch arm 24 pivoted between opposed arms 25. Switch arm 24 acts by gravity to move a contact finger 24x into engagement with a circuit-closing contact 26, and the finger is also positively movable in a reverse direction to carry contact point 24x into engagement with a second circuit-closing contact 27. Contact point 24x normally lies between contacts 26 and 27 through engagement by a properly centered web of fabric F with the switch arm 24. From the usual roughly folded pile fabric the fabric web is led over a guide roller 28 and thence over the top lead of the endless belt

from which the fabric web is pulled by the mechanism which carries the fabric web to and through the fabric treating zone. In the present embodiment I have shown the fabric web led from the endless belt over a guide roller 29 then into engagement with stretcher bars 30 and then over a second guide roller 29x.

The motor 3 is reversible. As shown by the diagram, Figure 11, the power feed line P is connected to both of the positive poles of the motor, whereas one pole at the negative side is connected by line A to switch contact 27 and the second negative pole is connected by line B to switch contact 26, the contact finger 24x being grounded. Thus when contact finger 24x engages contact 27 the motor will rotate in a given direction, and when contact finger 24x engages contact 26 the motor will rotate in a reverse direction.

As the web of fabric is pulled over the endless belt it will, if properly centered, maintain a light pressure on switch arm 24 and will hold it against gravitational action intermediate contacts 26 and 27 and the motor will remain idle. Should the moving web of fabric creep to the right, switch arm 24 will carry finger 24x into engagement with contact 27 and the motor will rotate to turn sprocket wheel 6 counter-clockwise thus shifting the fabric web to the left until finger 24x moves to a point intermediate the contacts. In many cases there will be a lateral creeping of the fabric which is progressive over a considerable period of time, and, in such case, the slowly moving endless belt will act throughout such period to maintain that part of the web which passes off the endless belt properly centered with respect to roller 29 or any other receiving elements. Should the web creep to the left the gravitational action of switch arm 24 will cause finger 24x to engage contact 26 and a reverse action of the belt will take place.

The adjustment of the switch device enables the latter to be moved to the right or the left, clamping stud 31 being released prior to the adjustment and being tightened after the adjustment. The stud is threaded in bracket sleeve 21x and its end engages supporting shaft 22 which carries the switch device.

By means of the invention, it is unnecessary for an operator to watch and manipulate the fabric web as it is led to the initial roller of the mechanism, the endless belt and its associated elements automatically centering the web of fabric by exerting thereon a lateral shifting force in either of two directions, which force will continue until the web is properly centered, and if the web has a constant tendency to creep, the corrective shifting force will be constantly applied.

Having described my invention, what I claim and desire to secure by Letters Patent, is as follows:

1. In fabric centering devices and in combination with means for feeding a web of fabric, of an endless belt over which the web of fabric may be led, rotary driving means for the belt, power means for actuating said rotary means in a given direction and in a reverse direction, and means adapted to be engaged and moved by the web of fabric for controlling the direction and duration of movement of said rotary means in accordance with creeping movements of the web of fabric transversely of its longitudinal

axis, said driving means, power means and time-directional control means being adapted to effect continuous movement of the endless belt in a given direction and for an unlimited time when during said time the web of fabric continues creeping action in engagement with said time-directional control means.

2. In fabric centering devices and in combination with means for feeding a web of fabric, of an endless belt over which the web of fabric may be led, opposed rotary carriers for the belt, a reversible motor and connection with a rotary carrier for rotating the same in reverse directions, and means adapted to be engaged and moved by the web of fabric for controlling the direction of movement of said rotary means in accordance with creeping movements of the web transversely of its longitudinal axis.

3. In fabric centering devices and in combination with means for feeding a web of fabric, of an endless belt over which the web of fabric may be led, opposed rotary carriers for the belt, a reversible electric motor, and connections between the motor and one of said carriers for rotating the same, two electrical circuits, one leading to the motor for operation thereof in a given direction and one leading to the motor for operation thereof in a reverse direction, and a movable circuit-closing device adapted to selectively close the two circuits, said device including an arm adapted to lie in contact with an edge of the web of fabric and to be moved thereby in accordance with creeping movements of the web of fabric transversely of its longitudinal axis.

4. In fabric centering devices and in combination with means for feeding a web of fabric, of an endless chain belt over which the web of fabric may be led, opposed sprocket wheels carrying the belt, a reversible electric motor, and connections between the same and a sprocket wheel for rotating the same in reverse directions, two electrical circuits leading to the motor, one for controlling the rotation thereof in one direction and one for controlling the rotation thereof in an opposite direction, and a switch device for selectively closing the two circuits including a switch-actuating member adapted to be engaged by an edge portion of the web of fabric and to be moved in accordance with creeping movements of the web of fabric transversely of its longitudinal axis.

5. In fabric centering devices constructed in accordance with claim 4, a plurality of curvilinear shield members applied to the links of the endless belt and adapted to directly receive the web of fabric.

6. In fabric centering devices constructed in accordance with claim 4, in combination with supporting means for the switch device including a fixed bracket and an arm slidably movable relatively to the bracket.

7. Fabric centering devices constructed in accordance with claim 1, in combination with means for supporting and adjusting the position of the switch device, including a bracket having a bearing sleeve, a shaft within the bearing sleeve and carrying the switch device and a set screw for clamping the arm in the sleeve.

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