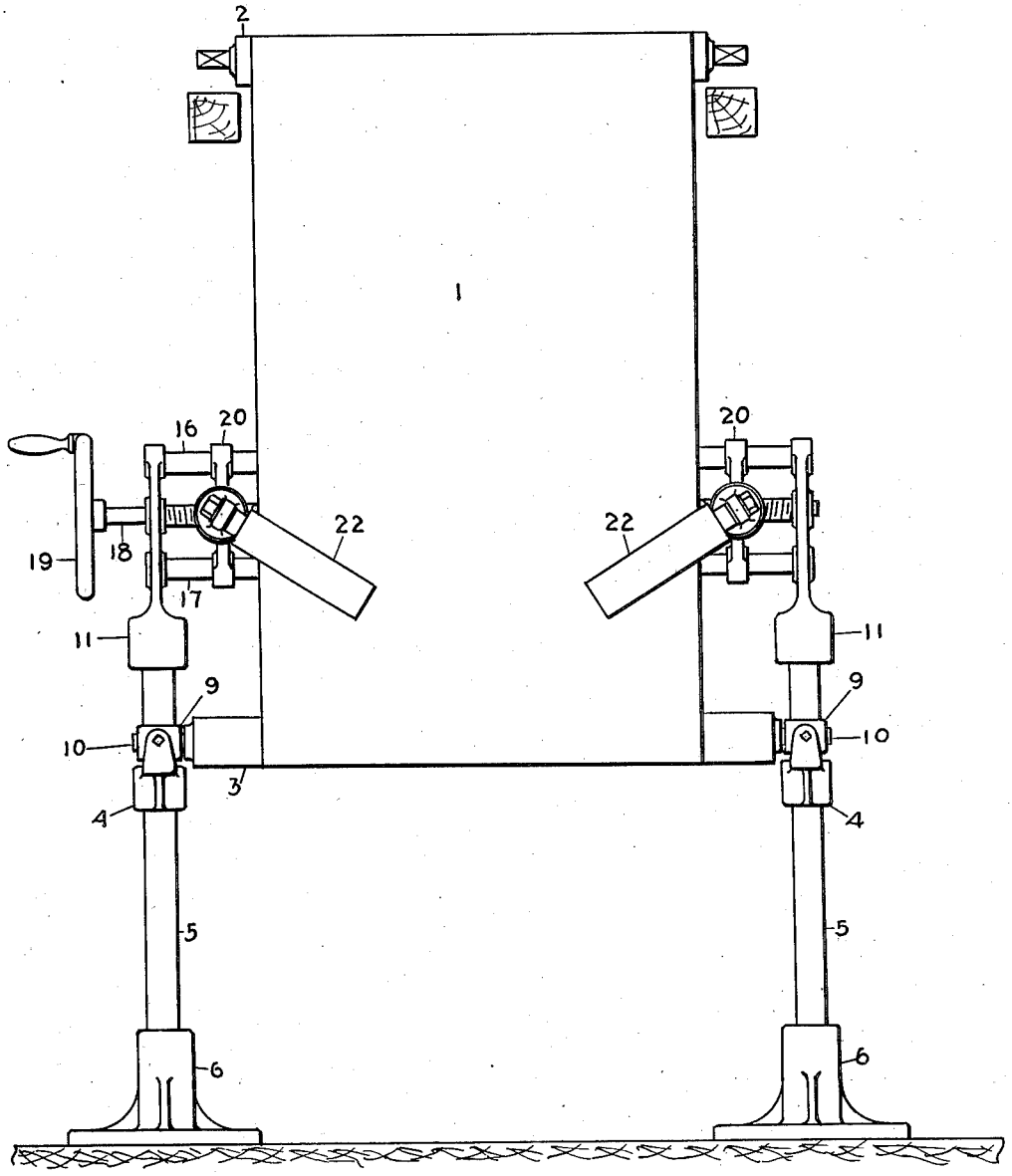
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CLOTH GUIDER

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FIG. 1.



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CLOTH GUIDER

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FIG. 5.

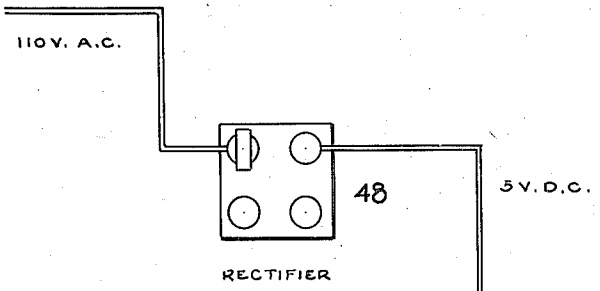
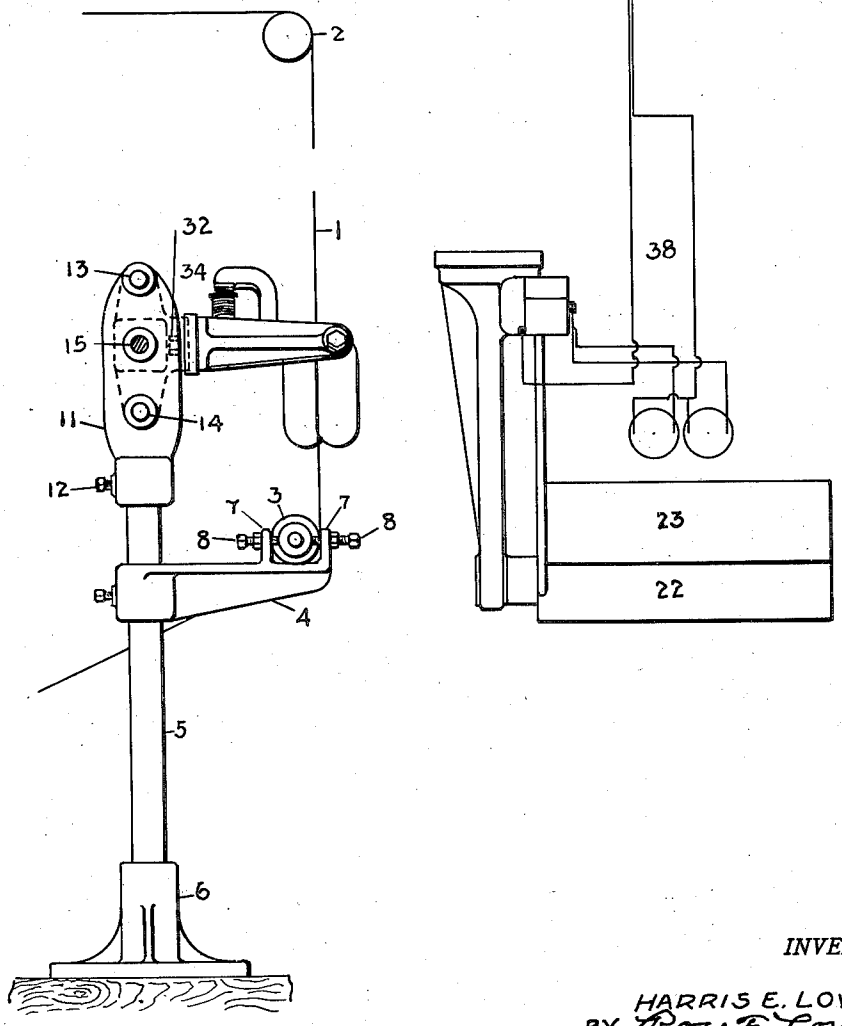


FIG. 2



INVENTOR:

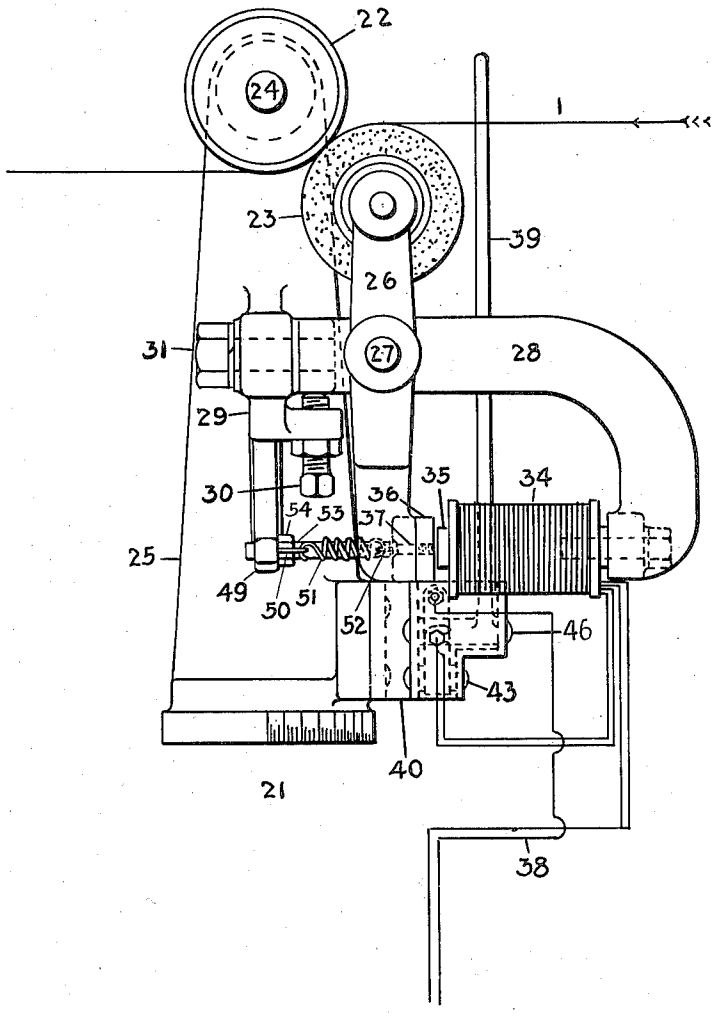
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CLOTH GUIDER

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FIG. 3.



INVENTOR:

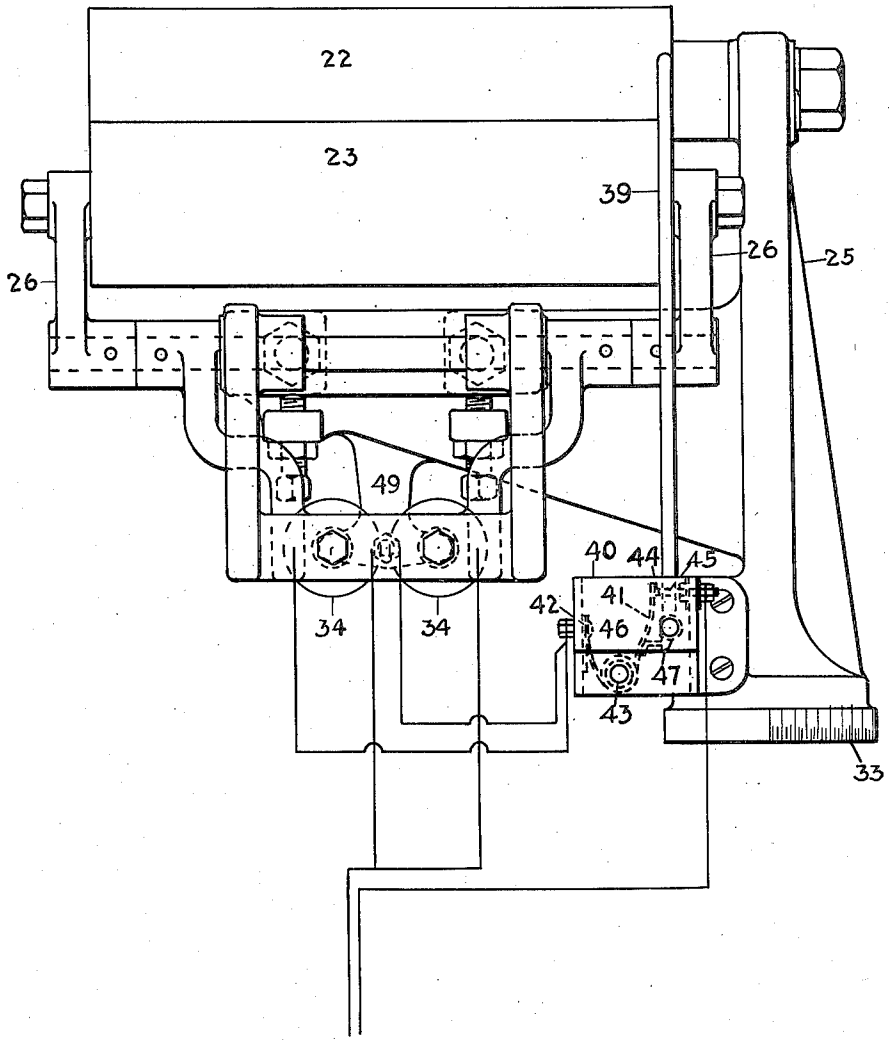
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CLOTH GUIDER

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FIG. 4.



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CLOTH GUIDER

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Application December 22, 1930, Serial No. 504,121

8 Claims. (Cl. 26—65)

This invention relates to a new and improved means for guiding cloth in its passage to a cloth finishing machine or between cloth finishing machines.

In the drawings:—

Fig. 1 is a view in vertical front elevation showing the cloth passing between two idle rolls and also showing guiding rolls disposed between the idle rolls and engaging the cloth at opposite edges thereof;

Fig. 2 is a view in vertical side elevation of the parts shown in Fig. 1;

Fig. 3 is an enlarged detail view of a guider head and including a portion of the wiring diagram for controlling movements of one of the rolls;

Fig. 4 is a view of the guider head shown in Fig. 3, but taken at right angles thereto; and

Fig. 5 is a view of the wiring diagram for controlling the electromagnets and therethrough a movable roll at one side of the cloth.

Cloth 1 is shown as coming from above, passing around an idler roll 2 and then down and around a second idler roll 3 and from there to a machine for treating the cloth. The roll 3 is freely mounted at its ends in supports, herein shown as consisting of brackets 4 which in turn are adjustably secured to uprights or stanchions 5, which are supported in any convenient manner as by floor plates 6. Each bracket 4 is provided at its outer end with upwardly extending lugs 7 through which pass set screws 8 and between which screws is adjustably engaged a roll bearing 9 through which passes a reduced end 10 of a roll 3. Thus by vertical adjustments of the brackets 4, and adjustments of the companion set screws 8, the roll 3 may be properly adjusted with relation to the cloth.

Mounted upon the upper ends of the stanchions or uprights 5 are screw brackets 11 which latter are bored to receive the upper ends of the said stanchions and are retained in position as by means of set screws 12. Each screw bracket 11 is provided with three holes 13, 14 and 15. Through the upper and lower holes 13 and 14 pass the ends of guide rods 16 and 17 respectively, while through the intermediately positioned hole 15 passes an adjusting screw shaft 18. At one end of said shaft a hand wheel 19, or any other suitable means for turning the shaft 18, is provided.

The screw shaft 18 has reversely threaded portions adjacent to opposite ends thereof and mounted upon each such threaded portion is a guider head adjusting bracket 20 which is provided with holes through which the rods 16, 17 and 18 pass and along which the said guider head adjusting brackets 20 travel as the hand wheel is turned in one direction or the other. The guider head adjusting brackets 20 are each provided, intermediate their ends, with internally threaded nuts, the threads of which are in constant engagement with threads on the shaft 18. When the hand wheel is turned in one direction the brackets 20 move towards one another and when turned in the opposite direction the said brackets recede or move away from one another, the oppositely threaded shaft thus providing a convenient means for properly adjusting the guider heads with respect to the adjacent edges of the cloth.

A guider head 21 is mounted upon each bracket 20 and carries two cloth guiding rolls 22, 23, each roll 22 (Fig. 3) being, preferably, made of brass and being freely mounted upon a shaft 24 carried by a guider head bracket 25, while each companion roll 23 is, preferably, made of rubber and is carried by a lever 26 which is pivoted intermediate its ends as at 27 to bracket arms 28. The bracket arms 28 are mounted upon webs or extensions 29 which form part of and are, preferably, integral with brackets 25. Set screws 30 may be provided to coact with tap bolts 31, which latter pass through the extensions 29 and into threaded engagement with the ends of brackets 28, whereby the brackets 28 and consequently each roll 23 may be adjusted with respect to its companion roll 22.

Each guider head 21 which is fastened to a bracket 20 by means of a tap bolt 32 (Fig. 2) permits angular adjustments of each guider head bracket, the adjustments being determined by graduations 33 (Fig. 3) and any conveniently placed marking (not shown) on companion bracket 20.

Each pair of bracket arms 28 carries two electro-magnets 34 which have the usual soft iron cores 35. The arms of the levers 26, other than the arms which carry the rolls 23, have soft iron plates 36 attached thereto in any convenient manner, as by screws 37. As shown (Fig. 4) two such magnets are provided for each set of rolls 22, 23 and are intermittently magnetized, as hereinafter to be more fully described, when an electric circuit 38 is closed, the closing of the circuit being determined by a feeler or detector 39, one such feeler or detector being located adjacent to each edge of the travelling cloth 1.

The mechanical and electrical connections, whereby, when a detector 39 is engaged and actuated by an edge of the cloth 1 a roll 23 is released

from control of its electro-magnets **34**, include such detector **39** the lower end of which projects into a housing **40**. Within said housing is also enclosed a flat spring **41** fastened at one end to the housing **40** as at **42**, the intermediate portion of the said spring being bent around a pin **43** and the other end **44** of the spring being normally in contact with a pin **45**. When the end **44** of a spring and a pin **45** are in contact the circuit is closed and the magnets **34** maintain the roll **23** closely adjacent to the companion roll **22**, whereby the cloth **1** is firmly engaged or gripped by the said rolls **22, 23** and the cloth **1** pulled in the direction of the said rolls. However, when the cloth **1** comes in contact with a detector **39** the detector is rocked upon its pivot **46**, whereupon a lug **47** engages spring **41** and breaks the contact between the end **44** of the spring and pin **45**. When the circuit **38** is thus broken the electro-magnets **34** are de-energized, the roll **23** is no longer influenced by the magnets **34** and consequently the said roll **23** is not held in close contact with the companion roll **22** or rather with the cloth **1** held therebetween, although the said roll **23** still remains in engagement with the cloth **1** and thereby prevents the same from wrinkling. The momentary releasing of the rolls **22, 23** at one side of the cloth permits the corresponding rolls at the other side of the cloth to pull the said cloth towards the said other side of the machine. The circuits **38** which control the rolls **22, 23** at the two sides of the cloth **1**, are constantly being energized and de-energized, the circuits at said two sides never both being closed or open at the same time. Thus the constant making and breaking of the two circuits **38** maintains the cloth **1** properly centered with respect to the two sets of rolls **22, 23**, the cloth thereby being so positioned as to pass through a cloth finishing machine without wrinkling or the edges folding.

Ordinarily current will be taken from a lighting circuit of one hundred and ten volts or more, alternating current, and in order to step down the voltage and at the same time change the alternating current to direct current, a suitable transformer and rectifier **48** must be provided to step down and convert the current to approximately five volts, direct current.

Although as hereinbefore stated the circuit is "normally" closed, as a matter of fact both sets of rolls **22, 23** are never exerting traction on the cloth at the same time, one circuit **38** being closed while the other circuit is open.

In many of the present day guiders, electric or otherwise, the rolls corresponding to the rolls **22, 23** herein shown, are so positioned that one is directly in line with the other and at right angles to the cloth, and when so positioned the movable roll of each pair, when released, recedes or moves away from the other, thereby permitting the cloth to wrinkle. Furthermore the companion rolls are separated to such an extent that the said rolls cannot immediately be brought into close engagement with the cloth when the electric circuit or other means operates to cause the rolls to re-engage the cloth.

An important feature of the construction herein disclosed resides in the positioning of the companion rolls **22, 23** with respect to each other and with respect to the cloth. As shown in Fig. 2 the cloth **1** is vertically disposed with respect to the floor upon which the machine is supported, and the rolls **22, 23** are disposed at angles with respect to the edges of the cloth. Consequently each roll **23** is above its companion roll **22** and also is offset therefrom laterally, i. e., the roll **23** is not positioned directly above its companion roll **22** and both rolls are below the level of the detector **39**. By positioning the companion rolls **22, 23** as shown, Fig. 3, the weight of each roll **23** is supported by the companion fixed roll **22**, and the cloth **1**, deflected out of a straight path, is, due to such deflection and to the weight of the roll **23**, prevented from wrinkling. Furthermore the offsetting and overlapping of the companion rolls, **22, 23** provides a much more sensitive arrangement than is provided for by the usual disposition of rolls for guiding the cloth, the circuits **38** at opposite sides of the cloth, when once broken, being readily and instantly again closed.

Among the many advantages inherent in the construction hereinbefore disclosed are: constant engagement of the cloth between companion rolls **22, 23** at each side of the said cloth whether the respective circuits **38** are open or closed, whereby wrinkling of the cloth is avoided; maintaining the companion rolls **22, 23** in such close proximity, at all times, that even when the circuits are open the movable rolls may be quickly moved into close engagement with the cloth **1**.

When the cloth passing between the rolls is thin and has little strength, such as chiffon, it may be advisable, when a circuit is open, to hold a roll **23** separated from its companion roll **22** about one sixty-fourth of an inch, more or less, the overlapping of the two companion rolls **22, 23** causing the cloth to take a tortuous course and thereby prevent the said cloth from wrinkling.

The means for keeping the companion rolls slightly separated when the circuit is open, includes a lug **49** forming part of web **29**, to which lug **49** is attached a hook **50**. A coil spring **51** connected, at one end, to the said hook and at its other end to a second hook **52**, which is attached to the lever **26**, tends to move the roll **23** away from its companion roll **22** but the said spring is not strong enough to overcome the force exerted by the magnets **34** when the circuit is closed; however, when the circuit is open, the spring elevates the roll **23** above the companion roll **22**, the movement of the roll **23** being limited by a stop pin **53** which is adjustably connected to the web **29** by means of a lock nut **54**, the other end of the pin **53** being set adjacent to the lever **26**. The spring **51** and pin **53** thus, when the circuit is open, maintain the roll **23** adjacent to its companion roll **22** but slightly separated therefrom, whereby flimsy cloth may be guided and prevented from wrinkling without unduly stretching the same.

Although a single spring **51** for each roll **23** is sufficient for the purpose intended, two such springs may be, and as herein shown, are utilized, one such spring being located at each side of the pin **53**.

Although "cloth" has been referred to in the foregoing description, the invention is applicable to any sheet material, and although specific reference has been made to various parts, nevertheless certain of the said parts may be omitted and/or replaced by others if desired, the scope of the invention being determined by the claims hereto appended.

I claim:

1. An electric cloth guider including opposed pairs of guiding rolls, each pair of said rolls adapted to guide the cloth along one edge thereof, one roll of each pair being movable and adapted

to rest against the companion roll of said pair, the movable roll being positioned above and overlapping the companion roll, in combination with an electric circuit which when closed tends to maintain the movable roll pressed against the companion roll.

2. A cloth guider including two pairs of rolls, each pair adapted to engage opposite sides of the same portion of cloth, one roll of each pair being fixed while the companion roll is relatively movable, the companion rolls of each pair being relatively offset with respect to the cloth passing between them thereby causing the cloth to travel in a tortuous path, in combination with electrically controlled means for momentarily separating the companion rolls which still engage the cloth and deflect the same from a straight path to and between the rolls.

3. A cloth guider including two pairs of guiding members adapted to engage opposite sides of the same portion of cloth, at least one member of each pair being movable relatively with respect to its companion member, and each pair of members being relatively offset with respect to the cloth so that the cloth which is adapted to pass between them is deflected by the said members, in combination with electrically controlled means for momentarily separating the companion rolls which still engage the cloth and deflect the same from a straight path to and between the rolls.

4. A cloth guider including two pairs of guiding members adapted to engage opposite sides of the same portion of cloth, at least one member of each pair being movable relatively with respect to its companion member, each pair of companion members being so relatively offset with respect to the cloth passing between them that the said cloth is deflected from its normal path, the movable member of each pair adapted to be supported by its companion member, whereby the cloth passing between the companion member is, at all times, acted upon by the said companion members and prevented from wrinkling, in combination with electrically controlled means for momentarily separating the companion rolls which still engage the cloth and deflect the same from a straight path to and between the rolls.

5. A cloth guider including two pairs of guiding members adapted to engage opposite sides of the same portion of cloth, at least one member of each pair being movable relatively with respect to its companion member, and each pair of members being relatively offset with respect to the cloth so that the cloth which is adapted to pass between them is deflected by the said members, in combination with an electric circuit which when closed maintains a pair of members in clamping engagement with the cloth.

6. A cloth guider including opposed pairs of guiding rolls each pair of said rolls adapted to guide the cloth along one edge thereof, one roll of each pair being movable and adapted to rest against the companion roll of said pair, a detector adapted to be actuated by the cloth, in combination with an electric circuit including a member spring-held in circuit closing position, movement of the detector being transmitted to the said member quickly to open the circuit and effect momentary separation of the rolls which still engage the cloth and deflect the same from a straight path to and between the rolls, the circuit when closed tending to maintain the movable roll pressed against the companion roll.

7. A cloth guider including opposed pairs of guiding rolls each pair of said rolls adapted to guide the cloth along one edge thereof, one roll of each pair being movable and adapted to rest against the companion roll of said pair, electrically controlled and automatically actuated means for effecting momentary separation of the two rolls, the said rolls while separated still engaging the cloth and deflecting the same from a straight path in its passage to and between the rolls.

8. A cloth guider including two pairs of rolls, each pair adapted to engage opposite sides of the same portion of cloth, one roll of each pair being fixed while the companion roll is relatively movable, the companion rolls of each pair being relatively offset with respect to the cloth passing between them thereby causing the cloth to travel in a tortuous path, in combination with automatically controlled means for momentarily separating the companion rolls which still engage the cloth and deflect the same from a straight path to and between the rolls.

HARRIS E. LOVELL.