

1,280,607.

W. WIDDOWSON.
FABRIC FINISHING MACHINE.
APPLICATION FILED MAY 19, 1917.

Patented Oct. 1, 1918.
2 SHEETS—SHEET 1.

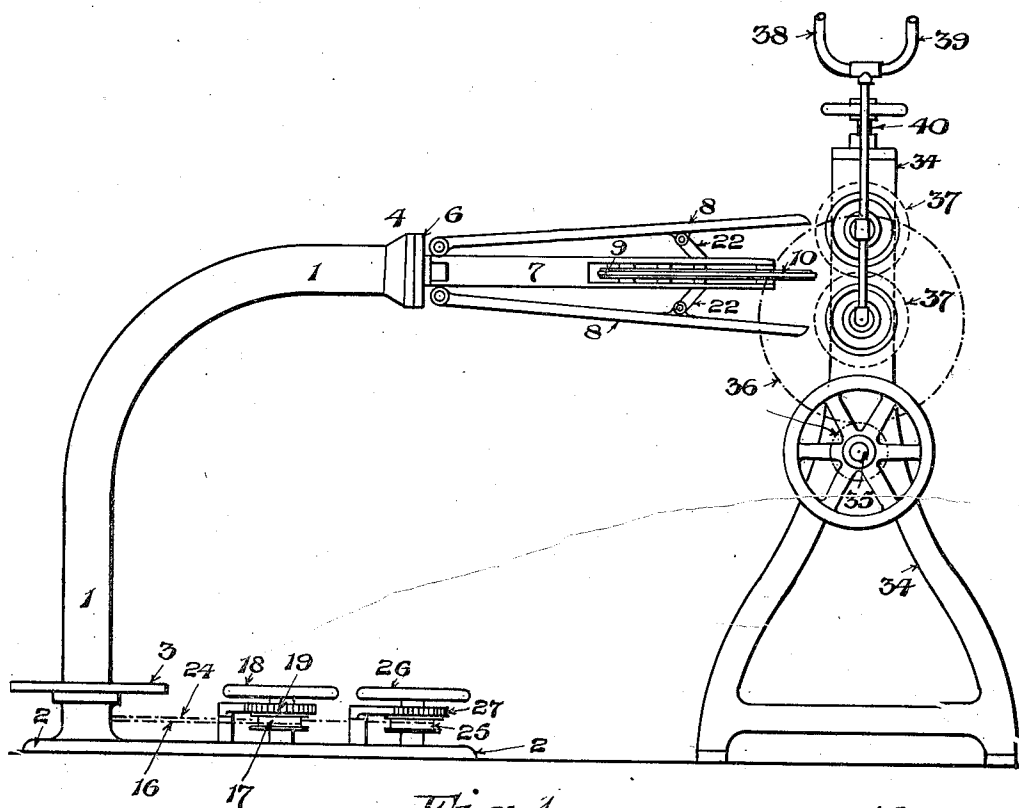


Fig. 1.

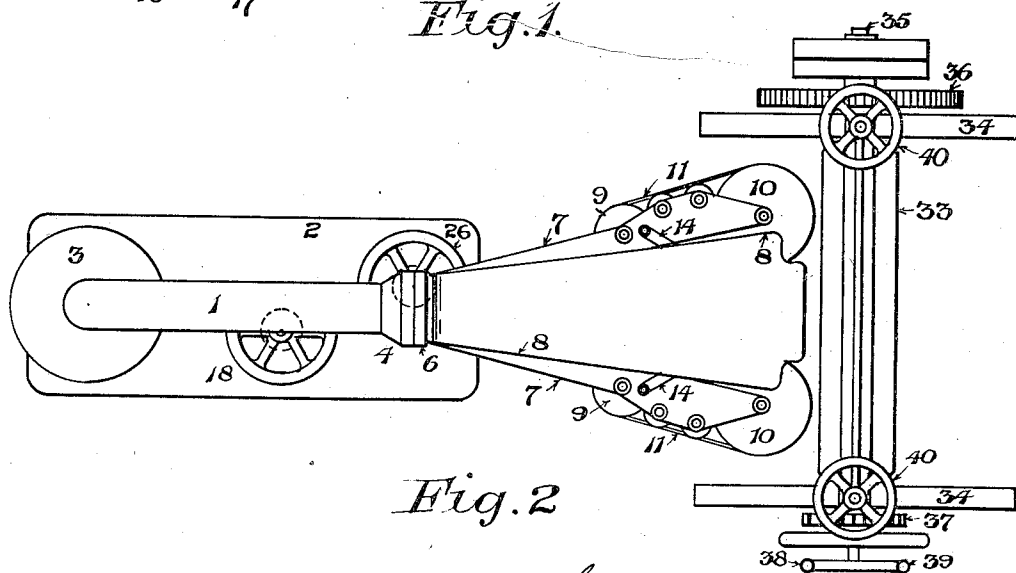


Fig. 2

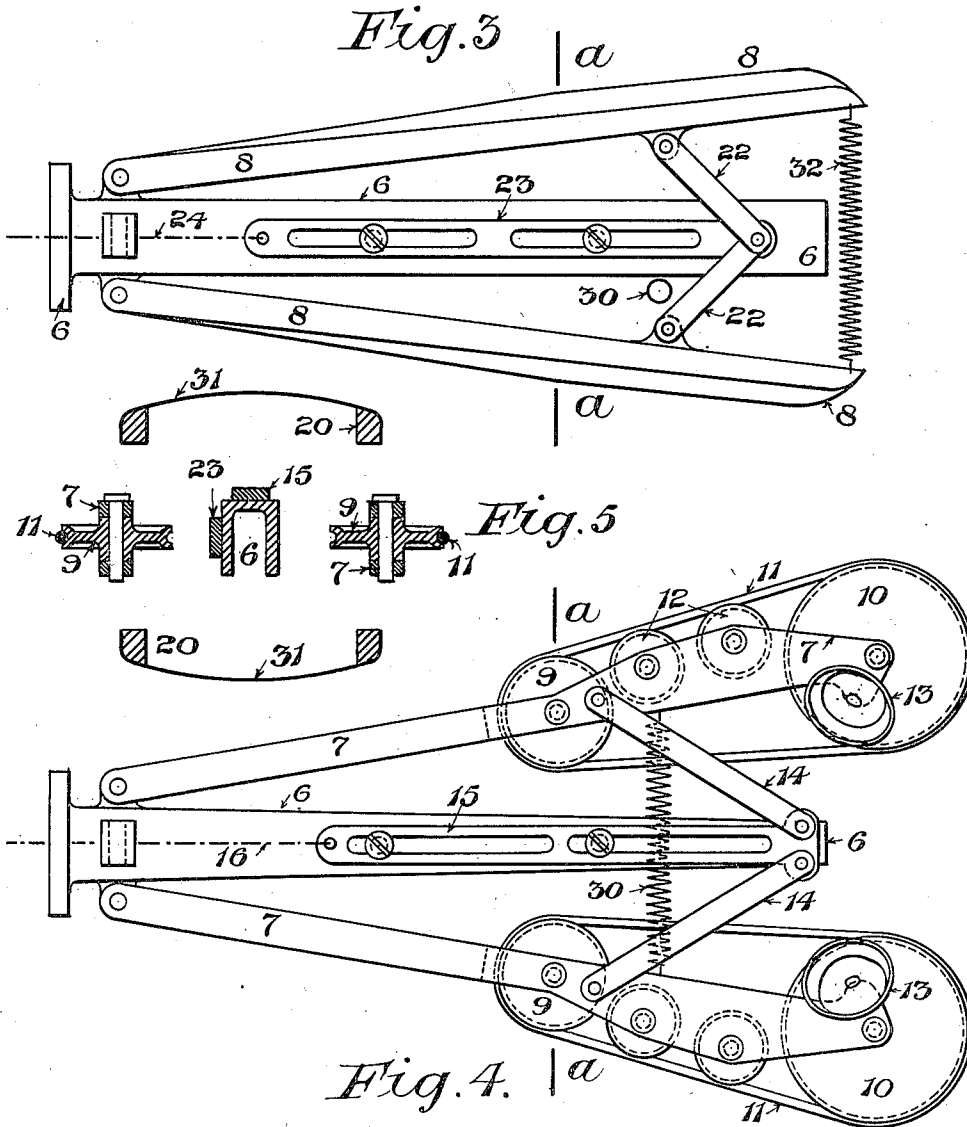
Inventor:
Walter Widdowson
By John W. Parker Atty.

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UNITED STATES PATENT OFFICE.

WALTER WIDDOWSON, OF NOTTINGHAM, ENGLAND.

FABRIC-FINISHING MACHINE.

1,280,607.

Specification of Letters Patent.

Patented Oct. 1, 1918.

Application filed May 19, 1917. Serial No. 169,722.

To all whom it may concern:

Be it known that I, WALTER WIDDOWSON, a subject of the King of Great Britain, and a resident of the city of Nottingham, England, have invented new and useful Improvements in Fabric-Fashioning Machines, of which the following is a specification.

This invention relates to improvements in machines used for stretching and ironing tubular knitted fabrics as part of the finishing process. These fabrics, after being knitted, have to be finished and for this purpose pass through one or more operations which may include washing, bleaching, dyeing and brushing, and in all cases the fabrics so treated are twisted and distorted and are unsuitable for making up into garments because the knitted wales are not parallel to the edges of the fabric and the transverse courses are not at right angles to the wales.

The present invention has for its object the production of a machine capable of restoring the position of the knitted wales and courses to their correct positions and of pressing or ironing the fabric, also the provision of means whereby the positions of the wales and courses and the width of the finished fabric can be varied as the fabric is passing through the machine, and improvements in the general construction and arrangement of the machine.

In the drawings:—

Figure 1 is a side elevation of the improved machine.

Fig. 2 is a plan of the same.

Fig. 3 is a side elevation of the vertical stretchers fitted with expanding mechanism.

Fig. 4 is a plan of the horizontal stretchers fitted with expanding mechanism, and

Fig. 5 is a combined section on the lines *a, a*, Figs. 3 and 4.

In the machine shown in the drawings there is a hollow curved support or work holder 1 which is circular in section to facilitate the movement of the work upon it. The lower end of the vertical part of this support is made with a base plate 2 by which the support can be firmly fixed in position, and freely mounted upon the support there is a rotatable plate or disk 3 which carries the weight of the fabric upon

the vertical part of the support and enables this part of the fabric to be more readily turned upon the support.

Attached to the end 4 of the horizontal part of the support there is an arm or bracket 6, Figs. 3, 4, and 5, to which all the stretchers are pivotally connected. There are two side stretcher arms 7 and two frames or arms 8 for the vertical stretchers, and the arms 7 and 8 are pivotally connected to the bracket 6 in substantially the manner shown in Figs. 3 and 4. At the front end of each arm 7 there are grooved pulleys 9 and 10 for an endless belt or band 11 which is supported between the pulleys 9 and 10 by grooved intermediate pulleys 12. The band 11 may be of leather or other similarly flexible material, but preferably this band is made from a coiled spring the ends of which are joined together. The stretcher arms 7 are also, or may also be, provided with top and bottom disk wheels 13 which are mounted upon inclined axles. These disk wheels may be of any convenient size and their axles may be mounted at any desired angle and they may be arranged in any suitable position relatively to the pulleys 10. The stretcher arms 7, as shown in Fig. 4, are connected by links 14 to a slide 15 which is fitted to move in or upon guides on the bracket 6. The rear end of the slide is attached to a flexible connection 16 which passes through the inside of the hollow support 1 and is connected to a drum 17, Fig. 1, outside the support. This drum is fitted to rotate upon a fixed axle and is connected to a hand wheel 18 for rotation of the drum and there is a ratchet wheel and pawl 19 by which accidental unwinding of the flexible connection is prevented. The flexible connection may be a "Bowden" wire, or it may be a chain or other flexible connection there may be rollers or the like for guiding the connection through the support, also there may be one or more springs connected to the stretchers and so arranged that they tend to close the stretchers upon the bracket 6.

The vertical stretchers 8 comprise smooth metal plates 31 of aluminium or other metal not affected by the moisture in the fabric and are substantially the shape shown in Fig. 2 and of a curved transverse section as

shown in Fig. 5. These metal plates are carried by light frames 20 which may be of wood or other suitable material and they are mounted upon horizontal axles carried by the bracket 6, also there is a spring 32 which tends to hold the stretchers in their closed positions. The stretchers 8 are connected by links 22 to a slide 23 Fig. 3, which is fitted to slide in or upon guides on the side of the bracket 6 and the slide is connected by a flexible connection 24 to a drum 25 which is connected to a hand wheel 26 and a retaining ratchet mechanism 27 in the same manner and for the same purpose as the corresponding parts used in connection with the side stretchers 7.

The stretcher mechanisms herein described are used in connection with a pair of rollers 33, Figs. 1 and 2, which are carried by the standards 34 and driven from the shaft 35 by the toothed gear wheels 36. The rollers are geared together by long toothed gear wheels 37 and are heated by internal gas jets, the gas being supplied by the pipe 38 and the air from a fan by the pipe 39. There are also screws 40 by which the pressure of the rollers upon the fabric can be regulated and varied.

After the fabric has been washed and, or, otherwise treated it is brought to the improved machine for having the position of the wales and courses corrected and for the pressing or ironing of the fabric. The rollers 33 are separated by placing a piece of wood between them and one end of the piece is passed between them. This end of the piece is opened and placed upon the stretchers and the whole length of the piece is then drawn over the stretchers on to the support 1 and is turned upon the support until the wales are approximately parallel to the center line of the machine. The side stretchers are adjusted according to the desired width of the finished fabric, and the vertical stretchers according to the curve of the courses, and these adjustments have to be varied according to the character and condition of the fabric to be treated. The end of the piece last drawn on to the support is then placed between the rollers the rollers closed upon it and the machine started. The fabric is then pulled off the holder and over the stretchers by the rotation of the rollers and the delivered work examined. If the width of the piece and the position of the courses are not correct the positions of the stretchers are adjusted from the hand wheels 18 and 26 and the fabric as it passes forward is turned upon the support as may be necessary. The width of the fabric is regulated from the side stretchers and different parts of the same piece may be finished to different widths. The position of the transverse courses in the finished fabric, relatively to the edges of the fabric, is varied by the stretch-

ers 8 and if the courses in the finished fabric are concave relatively to the rollers 33 the stretchers 8 are opened a greater distance to hold the center part of the moving fabric at a greater distance from the rollers. The disk rollers 13 are used for supporting the fabric between the center and side stretchers and are particularly useful when wide fabrics are being treated.

I claim:—

1. The combination of a pair of heated rollers, a fabric holder, a pair of side stretchers, a pair of vertical stretchers, and means by which either or both pairs of stretchers can be adjusted when the stretchers are inclosed within the fabric being treated substantially as herein set forth.

2. The combination of a pair of heated rollers, a curved fabric holder, a bracket attached to the front end of the holder, side arms pivotally mounted upon the said bracket, grooved pulleys at the front ends of the said side arms and a coiled spring arranged as an endless band upon the pulleys substantially as herein set forth.

3. The combination of a pair of heated rollers, a fabric holder, a bracket attached to the front end of the fabric holder, side arms pivoted to the sides of the bracket, pulleys and a band carried by the arms, a slide on the top of the bracket pivoted links between the slide and the side arms, winding up mechanism at the base and a flexible connection between the slide and the winding up mechanism substantially as herein set forth.

4. The combination of a pair of heated rollers, a curved fabric holder, a bracket attached to the front end of the fabric holder, top and bottom stretchers pivotally mounted upon the bracket, a spring between the said stretchers, a slide at the side of the bracket, pivoted links between the slide and the stretchers, winding up mechanism at the base and a flexible connection between the slide and the winding up mechanism substantially as herein set forth.

5. In a machine for stretching and ironing tubular knitted fabrics the combination of a curved fabric holder, a bracket at the front end of such fabric holder, vertical stretchers pivotally mounted upon the bracket attached to the front end of the holder, a slide and links for varying the position of the stretchers, a pair of side stretchers also mounted upon the bracket, grooved rollers carried by the stretchers, an endless band upon the grooved pulleys, a slide and links for varying the position of the side stretchers and disk wheels carried by inclined axles on the side stretchers substantially as herein set forth.

6. In a machine for stretching and shaping tubular knitted fabrics, a fabric holder adapted to be inserted into the articles to be

stretched comprising a pair of stretchers the elements of which are adapted to be separated, another pair of stretchers, the elements of which are also adapted to be
5 separated, and are movable in planes at right angles to the movable elements of the first pair, and means for adjusting the stretchers independently of each other arranged to operate when the holder is inclosed within the fabric being operated upon.

WALTER WIDDOWSON.

Witnesses:

WILLIAM H. POTTER,
ERIC POTTER.