Sept. 4, 1923. 1,466,868

E. M. WITHERELL

DEVICE FOR SHAPING AND PRESSING FABRICS

Filed June 23, 1919

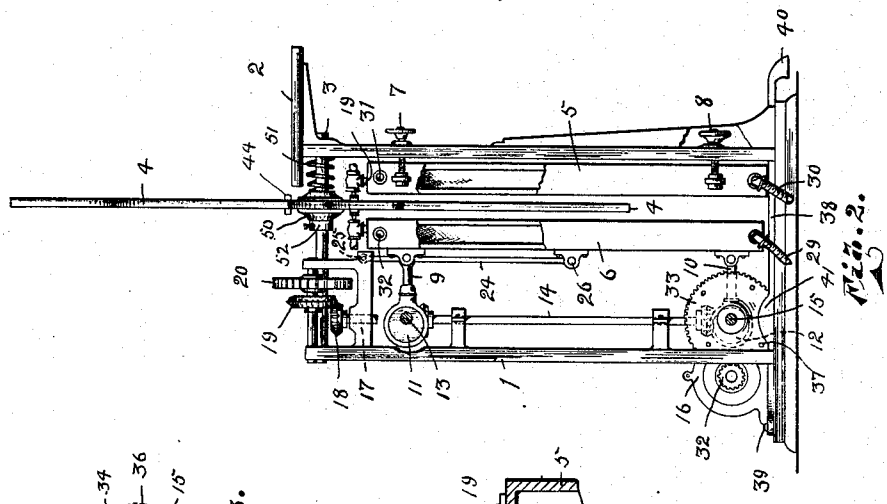


Fig. 2.

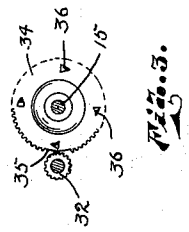


Fig. 3.

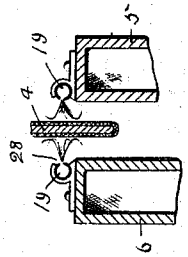


Fig. 4.

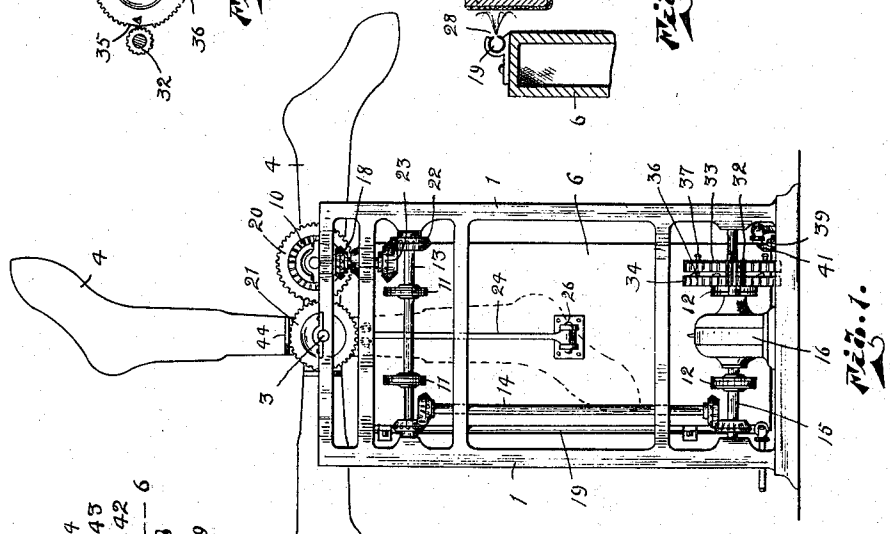


Fig. 1.

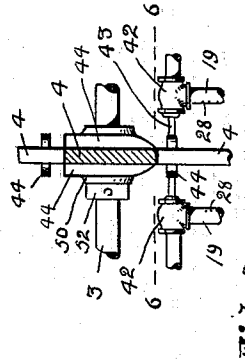


Fig. 5.

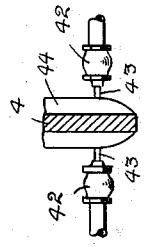


Fig. 6.

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UNITED STATES PATENT OFFICE.

EARL M. WITHERELL, OF DULUTH, MINNESOTA.

DEVICE FOR SHAPING AND PRESSING FABRICS.

Application filed June 23, 1919. Serial No. 306,128.

To all whom it may concern:

Be it known that I, EARL M. WITHERELL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Devices for Shaping and Pressing Fabrics, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a novel method of and device for shaping and pressing garments and has special reference to such garments as hosiery, mittens, et cetera.

The principal object is to produce a novel method and machine for practicing same which will result in a better quality of work and greater volume than heretofore accomplished by a single operator.

Other objects and advantages of the peculiar construction will appear in the further description of the invention.

In the accompanying drawings forming part of this application and in which like reference characters indicate like parts;

Fig. 1 is a rear elevation of my complete machine as it would appear in operation,

Fig. 2 is a side elevation of Fig. 1,

Fig. 3 is a side elevation of the intermittently operated driving gear,

Fig. 4 is an enlarged fragmental portion of the clamping members showing the location of the garment moistening pipes,

Fig. 5 is a fragmental elevation of the upper ends of the moistening pipes and the hub of the form-carrying member showing their relative positions, and

Fig. 6 is a transverse sectional view taken on the line 6—6 Fig. 5.

1 represents an upright substantially rectangular shaped frame, constructed of any desired material suitable for the purpose and having a work-shelf 2 extending forwardly from the upper front edge thereof, and 3 represents a shaft suitably journaled within the central upper end of the frame extending from the front to the back thereof. This shaft carries a plurality—preferably four—radially disposed forms, indicated at 4, upon which the garments to be shaped and pressed are placed and in the illustration disclosed are shown forms suitable for the reception of hosiery. These forms are of thin solid substance, such as metal, or some suitably prepared composition which will stand alternate heat and moisture without becoming misshapened.

Within the frame 1 and longitudinally thereof, are two vertically disposed metal clamping members 5 and 6 extending practically the full height of the frame and normally spaced apart sufficiently to permit of the forms 4 passing therebetween when the shaft 3 is rotated. The clamping member 5 is securely attached to the front portion of the frame 1 and may be made adjustable axially of the shaft 3 by suitable thumbscrews 7 and 8. The clamping member 6 is made intermittently reciprocable by being connected to four suitably arranged eccentric rods 9—9 and 10—10, the eccentrics operating the rods 9 and 10 being illustrated respectively at 11—11 and 12—12. The eccentrics 11 are mounted upon the horizontally disposed shaft 13 which is rotated by means of the vertically disposed shaft 14 cooperating with suitable bevel gears and the shafts 13 and 15, the latter being the driving shaft journaled within the lower end of the frame and driven by a suitable electric motor 16.

The member 6 may be suspended within the frame upon one or more rods such as illustrated at 24 pivotally attached to the upper end of the frame at 25 and pivotally attached to the back of the member 6 at 26. A short shaft 17 extends upwardly from the opposite end of the shaft 13, from which it is driven, and co-operates with a suitable chain of gears illustrated at 18, 19, 20 and 21 for rotating the form-carrying shaft 3, said short shaft being driven by suitable cooperating beveled gears 22 and 23.

Small vertically disposed steam pipes are located one upon each of two opposed inner corners of the clamping members 5 and 6, these pipes being illustrated at 19, occurring upon the form receiving edges of the clamps and have a steam supply connection independent of the clamps. These pipes are provided with discharge apertures indicated at 28 which may be either a series of small holes spaced from each other longitudinally the pipe, or if preferred, may be a continuous open narrow slot. These discharge openings face towards each other and are for the purpose of discharging steam upon the garment being carried by the form as it passes between the pipes just prior to its being pressed.

Upon the upper end of each pipe 19, is installed a suitable valve 42 which is controlled by a reciprocable normally extended

stem 43. Upon the opposite sides of each form 4 adjacent the hub thereof is securely fixed a valve stem engaging member 44 and which is so positioned upon the form that when the latter is about to enter intermediate of the clamping members 5 and 6, they will simultaneously engage the two opposite stems 43 of the valves 42 and by such engagement cause the valves to be opened. This will admit steam into the pipes 19 through which it is projected upon the garment carried by the form and when the form has fully entered between the clamping members, the valve stems will have passed their engagement with the members 44 and become automatically closed. This will insure a thorough and positive automatically controlled moistening means for each garment being pressed and shaped.

The hollow clamping members 5 and 6 are provided with flexible steam supply pipes 29 and 30 at their lower ends and with discharge connections 31 and 32 at their upper ends, whereby they may be heated with steam and said steam supply is arranged to turn off and on intermittently with the operation of the device as above described.

I have shown this embodiment of the invention as being operated by an electric motor indicated at 16 and which carries an elongated driving pinion 32, which is in mesh constantly with the larger gear wheel 33, loosely mounted upon the shaft 15. A second gear wheel 34 is mounted on the shaft 15 adjacent the gear 33 and is identical therewith except that it is formed with a toothless space 35 in the peripheral edge thereto and is securely fastened to the shaft 15 for the purpose of rotating same. Pin engaging lugs 36 are formed upon the face of the gear 34 adjacent the gear 33 and are designed to be engaged by the reciprocable pins 37 carried by the gear 33 and of which there are preferably four as shown. These pins are arranged to normally remain withheld from engagement with the lugs 36 by suitable springs or other arrangement not shown and to counteract which, when it is desired that they shall engage said lugs, is provided the horizontally disposed lever 38 pivotally mounted upon the base of the frame 1, as at 39, and extending to the forward side of the frame as at 40 where it may be controlled laterally by the foot of the operator in stopping and starting the rotation of the forms. On the lever 38 is an upwardly extending segmental shaped portion 41 which is designed to engage and force inwardly the pins 37 as they pass, thereby when the segmental shaped portion is crowded towards the gear 33, during which time said inwardly thrust pin 37 will engage its respective lug 36 on the wheel 34 causing the wheels 33 and 34 to rotate in union so long as the pin and lug are engaged, and which latter is of sufficient duration to cause the teeth of the wheel 34 to become actively engaged by the pinion 32 of the motor 16. This having occurred, both wheels 33 and 34 will be driven simultaneously for at least approximately one revolution of the wheel 34, when the pinion 32 will again encounter the toothless space 35 in the wheel 34 and cease to rotate it until again brought into engagement by the pin and lug action above described.

Now, when the wheel 34 is rotated it carries with it the shaft 15 and correspondingly operates the entire remainder of the device. The relative proportion of the gears is such that one complete rotation of the wheel 34 causes the shaft 3 to rotate just one-quarter of a full turn, that is to say if one of the forms 4 is at rest intermediate of the pressing clamps 5 and 6 which is its predetermined position when the gear 34 is inactive by reason of its presenting the toothless space 35 to the pinion 32, when said gear 34 is rotated a complete revolution, that form which was between the clamps and pressed, will be raised to a horizontal position and the next following one take its place intermediate of the clamps and be pressed thereby just prior to the next presentation of the toothless space 35 to the pinion 32 when the gear 34 will again cease to rotate, such inactive position of the gear being at a time when the clamps 5 and 6 are tightly engaging the form and garment therebetween.

By this arrangement it is apparent that when one form is intermediate of the clamps and engaged thereby, the diametrically opposed form is positioned upright in front of the operator ready to have the finished garment removed and another one applied in its place while the other two forms will each be carrying a garment, one having been treated in the clamps and the other just ready to enter.

The hub 50 which carries the forms upon the shaft 3 is made slidable thereupon. An expansive spiral spring 51 is interposed between the hub 50 and the forward bearing of the shaft which yieldably holds the hub 50 against the said collar 52. By this means the forms are normally held away from engagement with the face of the fixed pressing clamp 5 except when forced against it by the action of the clamp 6 when the process of pressing is carried on at which time the spring 51 will yield sufficient for the purpose.

The operation of the device is as follows:

Assuming that the motor 16 is in continuous operation, the gear wheel 33 will be correspondingly continuously rotated. The operator will, as convenience suggests, place a number of garments to be treated upon the shelf 2 and proceed to apply them individually to the forms 4. When one garment is

drawn down over the upright form in front of him and ready to pass on through the machine, he will with one foot press sidewise against the end 40 of the foot lever 38, forcing the segment 41 towards the wheel 33 which will cause the first engageable pin 37 to be thrust inwardly and engage one of the lugs 36 on the gear wheel 34, bringing the latter into meshed engagement with the driving pinion 32. This will set the entire machine in motion as before described and cause the form which was upright in front of the operator to assume a horizontal position when the next following form will be upright in place of the departed one. Again a garment will be placed upon the upright form, the lever 38 engaged by the operator's foot and the first garment supplied form will take its position intermediate of the clamps and the latter be brought tightly against same where they are held until the succeeding step in the cycle of the machine takes place. When a form carrying a garment is entering intermediate of the clamps 5 and 6, steam is automatically furnished to the upright moistening pipes 19 which forcibly apply steam to the garment, thus effectually dampening it prior to the heated ironing effect of the clamps, this being essential to a desirable finishing of the goods being treated.

It is evident that some other means may be resorted to for heating the clamping members 5 and 6, and that various modifications from the embodiment here shown and within the scope of the claims may be employed without departing from the spirit of the invention.

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

1. A garment pressing and shaping device of the character described, comprising an upright supporting frame, a rotatable shaft journalled in the upper portion of the frame, a plurality of garment receiving forms radially disposed upon the shaft, clamping and heating members within the frame intermediate of which the forms successively pass, and means whereby the form carrying shaft may be intermittently rotated.

2. A garment pressing and shaping device of the character described, comprising a suitable supporting frame, a rotatable shaft journalled within the frame, a plurality of thin flat garment receiving forms radially disposed upon the shaft co-operating heating and clamping members within the frame for pressing and shaping the garments upon the forms and which latter successively pass therebetween and means for rotating the form carrying shaft.

3. A garment pressing and shaping device of the character described, comprising an upright supporting frame, a rotatable shaft journalled in the upper portion of the frame, a plurality of garment receiving forms radially disposed upon the shaft, means whereby the form carrying shaft may be intermittently rotated, clamping and heating members within the frame intermediate of which the forms successively pass and means for dampening the garments while on the form prior to their being clamped and heated.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

EARL M. WITHERELL.

Witnesses:
W. L. DENHAM,
S. GEO. STEVENS.