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2,298,582

SLEEVE MOLDING MACHINE

Filed Nov. 22, 1939

2 Sheets-Sheet 1

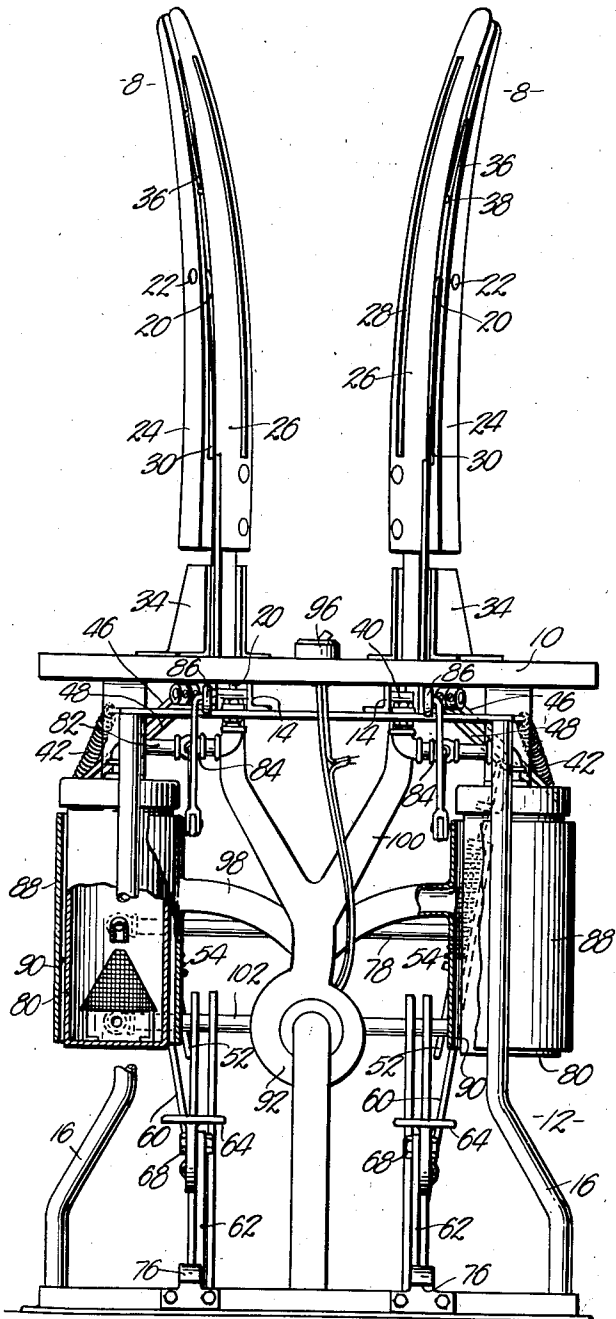


Fig. 1.

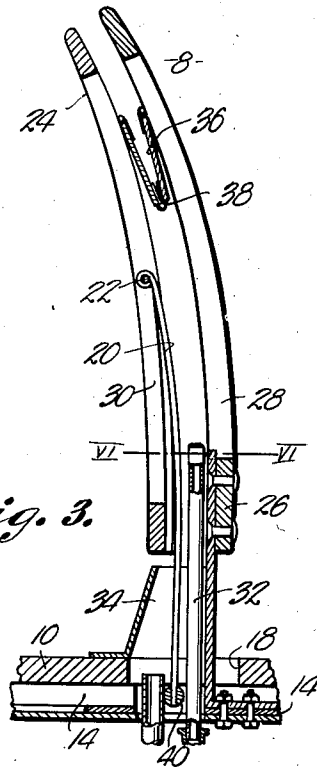


Fig. 3.

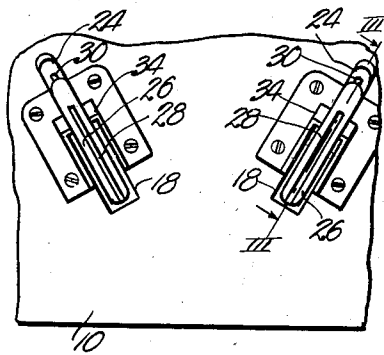


Fig. 4.

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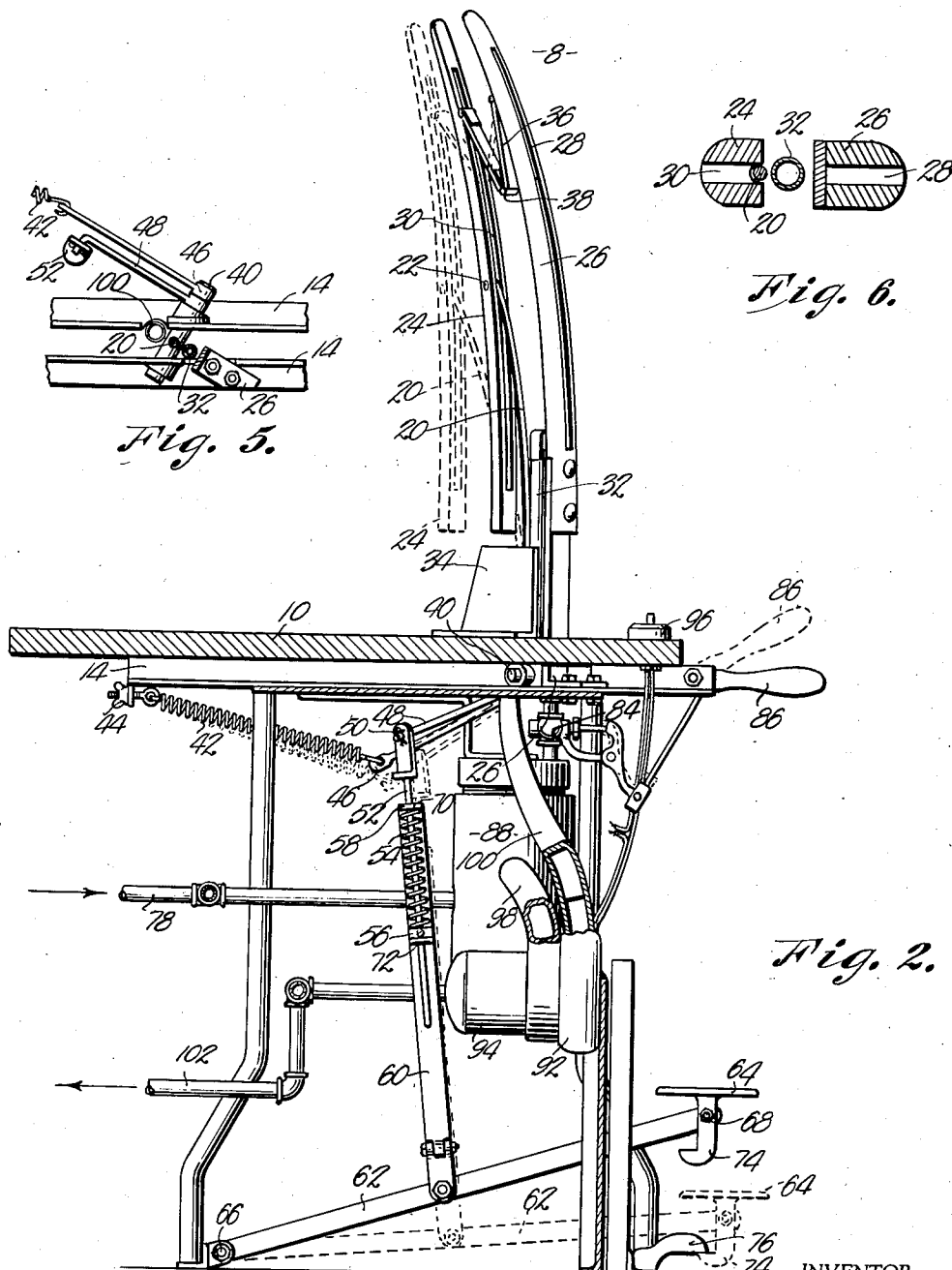


Fig. 6.

Fig. 2.

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# UNITED STATES PATENT OFFICE

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## SLEEVE MOLDING MACHINE

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4 Claims. (Cl. 223-73)

This invention relates to garment treating apparatus in the nature of that employed in cleaning and pressing establishments, or in other locations where the sleeves of coats and like wearing apparel are to be smoothed and molded.

The primary object of this invention is to provide a sleeve molding machine that is susceptible of treating the sleeves of a garment so that the wrinkles are removed therefrom and the same is made presentable without creating therein the usual and well-known crease.

Another object of this invention is to provide a machine of the aforementioned character wherein is included a novel and unique forming arm comprising a plurality of sections, inter-related and associated so that a sleeve of a garment may be easily drawn thereover and held taut as steam and air is directed thereinto, for the purpose of processing the fabric to remove wrinkles.

A still further object of this invention is the provision of a sleeve molding machine having novel foot operated structure for moving the sections of a forming arm toward and from each other, for the purpose of holding the sleeve of a garment in place while the same is steamed and thereafter dried by a blast of air created through the medium of a blower forming a part of the equipment.

A further object of the invention is to provide a garment treating machine in the nature of one specially adapted for use in molding garment sleeves, which has as a part thereof, manually controlled operating structure for the parts of the forming arm, which structure has elements for permitting a latch to be effective at a single station, while sleeves of different sizes are being handled.

Another aim of this invention is to provide a machine of the aforementioned character, having a steam nozzle, means for supplying steam to said nozzle and removing moisture therefrom, and means for directing a blast of air into the sleeve of a garment being molded, which air is heated prior to introduction to the garment by a heat exchanger, part of which constitutes means for directing the steam toward the aforesaid nozzle.

A large number of minor objects of great importance will appear during the course of the following specification, referring to the accompanying drawings, wherein:

Figure 1 is a front elevational view of a sleeve molding machine embodying the present invention.

Fig. 2 is a vertical, substantially central sectional view through the machine.

Fig. 3 is a vertical longitudinal sectional view through one of the forming arms, taken on line III—III of Fig. 4.

Fig. 4 is a fragmentary top plan view of the machine.

Fig. 5 is a detailed fragmentary sectional view through a portion of the machine illustrating the manner of mounting one of the sections of the forming arm; and

Fig. 6 is an enlarged sectional view taken on line VI—VI of Fig. 3.

Heretofore, when sleeved garments were to be treated so that the sleeves were without creases, the operator introduced a frame-like element into the sleeve and steamed the fabric by positioning the frame and sleeve between the upper and lower parts of a conventional pressing machine so that steam could be applied and the wrinkles removed from the fabric. The manner of handling garments in this way is objectionable in that only one sleeve can be treated at a time, and there is no way of shortening the time by first applying steam and thereafter a blast of air which dries the moistened fabric. In actual practise, a sleeve molding machine embodying the concepts of this invention, and made substantially as illustrated in the accompanying drawings, has proven commercially successful and advantageous.

In making the machine, it is desired to provide a pair of forming arms, each of which is generally designated in the drawings by the numeral 8, so that both sleeves of a coat or similar wrap may be molded simultaneously. Forming arms 8 are mounted for convenience, upon a table 10 carried by suitable frame-work 12, a part of which comprises horizontally disposed angle irons 14 that are carried by legs 16.

Table 10 has spaced apart slots 18 provided therein for the passage of a connecting rod 20, the upper end of which is pivotally secured as at 22 to the movable section 24 of forming arm 8. The forming arms are identically constructed, and therefore, a description of one will readily teach one skilled in the art the manner of disposing two of the arms so that both of the garment sleeves may be moved over a forming arm at the same time.

Reference to Fig. 3 indicates the manner of mounting the stationary section 26 of one of the forming arms 8 directly to the frame 12 or the table 10. This section is provided with a longitudinal slot 28 through which the steam and air

passes to the fabric of the garment. Section 26 is longitudinally arched to conform to the shape of the garment sleeve, and movable section 24 travels toward and from section 26, as the hereinafter described foot operated structure is manipulated. Movable section 24 is likewise longitudinally slotted as at 30 and arched so that when the sections 24 and 26 are moved apart to exert an outward force upon the garment sleeve, they will assume generally the position illustrated in dotted lines of Fig. 2.

The space between sections 24 and 26 receives steam from steam nozzle 32 and air from shield 34. In order to prevent the escape of steam and air out through the space between the free ends of sections 24 and 26, a baffle 36 is provided, the parts of which are articulated as at 33 so that the baffle will be effective, regardless of the distance between sections 24 and 26. When a sleeve of a garment, not here shown, is pulled over the forming arm, and the arm expanded, baffle 36 will cooperate with fabric in the sleeve to form a closed cavity into which steam and air may be directed.

Reference to Fig. 4 of the drawings indicates the manner in which the two forming arms 8 are disposed to receive both sleeves of a garment without distorting the fabric. It has been found that the sleeves of a garment are set at an angle of about 40° and therefore, forming arms 8 are mounted upon table 10 so as to conform to this angle.

The manner of moving section 24 toward and from section 26 is unique in that the structure devised will allow imparting a force upon the sleeve, while a single-station latch is used.

Connecting rod 20 is joined at its lower end to a stub shaft 40 journaled in angle irons 14 forming a part of the frame of the machine. As stub shaft 40 is rotated about its axis, connecting rod 20 will swing to and fro to move section 24 toward and from section 26.

A spring 42 is introduced to yieldably maintain rod and section 20 and 24 respectively, in a normal position. One end of spring 42 is adjustably secured as at 44 to a member on frame 12, while the other end is secured to an arm 46 projecting laterally and at an angle from stub shaft 40. Another arm 48 projecting laterally and at an angle downwardly and rearwardly from stub shaft 40, has a free end thereof joined to head 50 on a rod 52 about which spring 54 is wound. Rod 52 has a collar 56 mounted thereon and one end of spring 54 bears against this collar. While the lower end of spring 54 is seated against collar 56, the upper end thereof is against ear 58 on link 60, thus the force imparted to connecting rod 20 for the purpose of moving section 24 is through spring 54 and its resiliency will permit link 60 to be drawn downwardly by arm 62 as the operator presses upon foot pedal 64.

Arm 62 is pivotally connected at one end as at 66 to a part of frame 12, while foot pedal 64 is pivotally mounted as at 68 on the other end thereof. Link 60 pivotally joins arm 62 intermediate its ends and as link 60 is drawn down to the position shown in dotted lines of Fig. 2, rod 52 will slide through an opening 70 formed in ear 58 and a like opening formed in another ear 72, which extends laterally from link 60 in spaced relation to ear 58.

The latch has one portion 74 thereof formed upon a depending part of foot pedal 64, while a cooperating ear 76 is rigidly secured to a part of frame 12. Moving foot pedal 64 about pivotal

point 68, is all that is necessary to disengage the latch, which, for convenience, should have but a single station where the latch is effective, thus, when the operator encounters sleeves of different diameters, the operating structure will compensate automatically for the difference and the operator's foot will move to and from the position of the latch, shown in dotted lines of Fig. 2.

The relation between arms 46 and 48 as to length and angularity should be substantially as seen in Fig. 2, for it is desirable that spring 42 always urge connecting rod 20 and its associated parts back to its normal position. The use of ear 72 and spring 54 in the manner illustrated and described, is such as to create a buffer for the operating structure when the latch is released.

Nozzle 32 receives steam from a source of supply not here shown but which is reached by supply pipe 78 that is joined to a moisture separator 80. This moisture separator is of the conventional type and in addition thereto, steam line 78 may have a trap for removing any surplus condensate.

A pipe 82 has a whistle valve 84 therein that is operated by handle 86 so that dry steam is passed upwardly and out of nozzle 32 after a sleeve has been positioned over forming arm 8.

Moisture separator 80 has a jacket 88 therearound that provides an air space 90 from which blower fan 92 receives its supply of air. Fan 92 is of a conventional type and driven by a motor 94, controlled through suitable connections to switch 96 located in a convenient place where the operator may manipulate the same.

A conduit 98 joins blower 92 with jacket 88 and pipe 100 leads from blower 92 to hollow shield 34. This shield 34 is upwardly and inwardly tapered and hollowed so that the sleeve of a garment over arm 8 will receive the same. Nozzle 32 is disposed between sections 24 and 26 and shield 34 is immediately therebelow. The width of shield 34, through which rod 20 passes, is great enough to allow the movable section 24 to be carried out as far as desired.

Obviously, as steam passes from pipe 78 through moisture separator 80 and to nozzle 32 air passing through space 90 will be raised in temperature prior to its introduction into the garment sleeve by way of blower 92 and pipe 100.

Because of the desirability of simultaneously treating both sleeves of a garment, a single blower having a pipe 100, which is branched, as shown in Fig. 1, is used. Two moisture separators 80 have been shown, one for each forming arm 8, but it is conceivable that different arrangements of these parts may be made without departing from the spirit of the invention.

It is obvious that pipe 102 joined to moisture separator 80 may be used to withdraw condensate therefrom. This pipe should be trapped in a manner well-known and not illustrated in the drawings.

Where two steam lines are used, two operating handles 86 for the valves are employed.

The operation of the sleeve molding machine has been made clear during the course of the foregoing specification, and it is obvious that when the sleeves of a garment are pulled over forming arms 8, both may be stretched and held in a taut condition when the manually operable structures are actuated by foot pedals 64. After the sleeves of the garment are smoothed, steam to an amount satisfactory to the operator, is introduced into the space formed between sec-

tions 24 and 26. The steam will pass out through slots 28 and 30 of sections 24 and 26 respectively and baffles 36 will preclude formation of a flue-like cavity which would, without baffle 36, allow steam to escape without being used. After a sufficient amount of steam has been introduced to moisten the fabric of the sleeves, the steam is cut off and switch 96 manipulated to start motor 94 for the purpose of directing a blast of air into the sleeves through pipe 100, the branches thereof and shields 34. When the garment is removed from forming arms 8, both sleeves will be molded and the remaining parts of the coat may be pressed as desired.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a sleeve molding machine of the character described, a forming arm including a pair of vertical sections; a steam nozzle projecting into the arm between the sections at the lower ends thereof; an articulated baffle plate at the upper ends thereof closing the space therebetween; and means for directing a blast of air into the arm while a sleeve is disposed thereon, said forming arm comprising a pair of opposed longitudinally arched sections appreciably narrower than the sleeve arranged to hold a major portion of the sleeve therebetween for direct contact with the steam and air entering the arm.

2. In a sleeve molding machine of the character described, a forming arm including a pair of vertical sections; a steam nozzle projecting into the arm between the sections at the lower ends thereof; an articulated baffle plate at the upper ends thereof closing the space therebetween; and means for directing a blast of air into the arm while a sleeve is disposed thereon, said sections being movable toward and from

each other to stretch the sleeve as steam and air are directed thereinto, said sections being solid attenuated members appreciably narrower than the diameter of the sleeve held thereby.

3. In a sleeve molding machine of the character described, a forming arm including a pair of vertical sections; a steam nozzle projecting into the arm between the sections at the lower ends thereof; an articulated baffle plate at the upper ends thereof closing the space therebetween; and means for directing a blast of air into the arm while a sleeve is disposed thereon, said pair of sections being movable toward and from each other, and means controllable by the operator for moving said sections, the major part of the sleeve being stretched between the sections without support to be directly acted upon by the steam and air.

4. In a sleeve molding machine of the character described, a support; a forming arm including a pair of longitudinally arched sections carried by the support; pipes for directing air and steam into the forming arm between said sections, one of said sections being rigid to the support, the other of said pair of sections having a connecting rod pivotally joined thereto intermediate the ends thereof for moving the section toward and from the rigid section, the movable section being free to articulate about its pivotal connection with the connecting rod; and an articulated baffle plate extending between the sections and attached thereto near one end thereof for closing the space therebetween as the said space is altered by movement of the movable section, said steam and air being directed into the space between the sections at the other ends thereof.

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