

Aug. 4, 1959

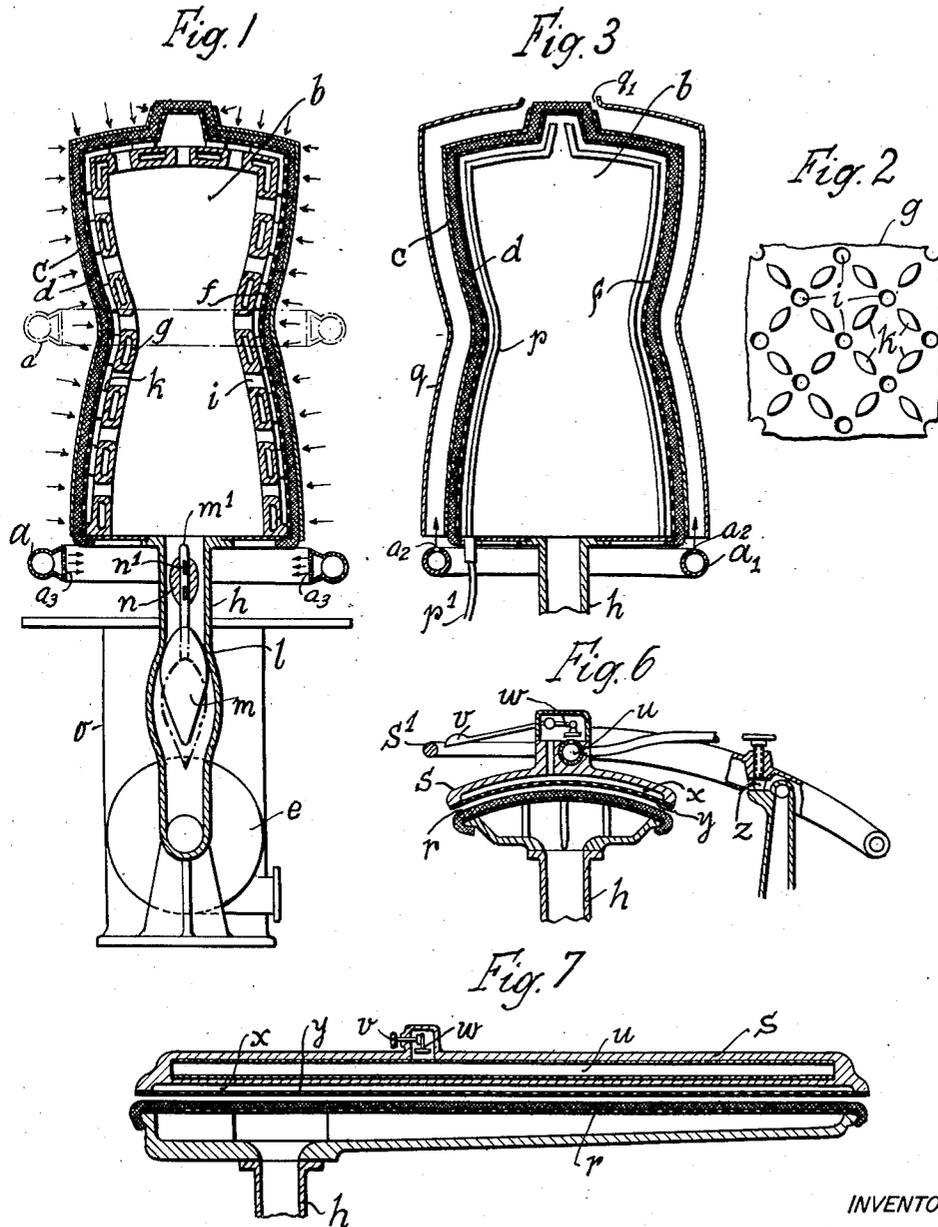
K. H. KANNEGIESSER ET AL

2,898,020

METHOD AND MEANS FOR SHAPING DRESSES

Filed Sept. 26, 1955

2 Sheets-Sheet 1



INVENTORS

KARL H. KANNEGIESSER
JOHANN R. JURASCHEK

BY *Toulmin & Toulmin*

Attorneys

Aug. 4, 1959

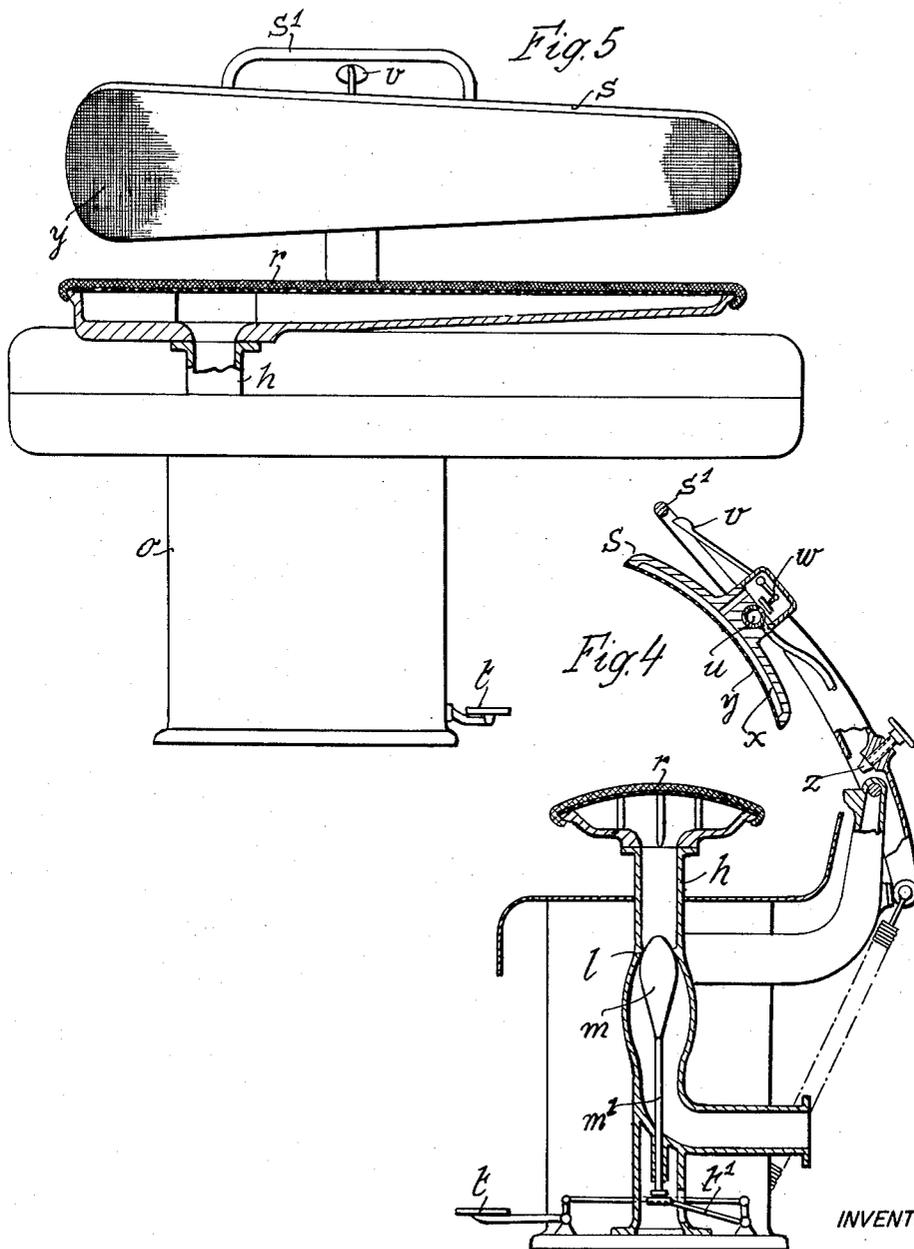
K. H. KANNEGIESSER ET AL

2,898,020

METHOD AND MEANS FOR SHAPING DRESSES

Filed Sept. 26, 1955

2 Sheets-Sheet 2



INVENTORS

KARL H. KANNEGIESSER
JOHANN R. JURASCHEK

BY *Toulmin & Toulmin*

Attorneys

1

2,898,020

METHOD AND MEANS FOR SHAPING DRESSES

Karl Herbert Kannegiesser and Johann Richard Juraschek, Vlotho, Germany, assignors to Kannegiesser & Co., Maschinenfabrik G.m.b.H., Vlotho, Germany, a corporation of Germany

Application September 26, 1955, Serial No. 536,679

Claims priority, application Germany September 29, 1954

2 Claims. (Cl. 223—70)

This invention relates to a method and means for shaping dresses; it relates more particularly to a new method for shaping dresses by pressing the same under heating, without the use of mechanically applied pressure.

It is well known in the art to use, for the purpose of pressing and shaping dresses, ironing or pressing machines which comprise a pressing table, a pressing shoe, and a device for making the cloth pliant. In such machines the dress is shaped between the aforesaid pressing table which is heated, and the pressing shoe under a considerable mechanically produced pressure.

Furthermore, the so-called "steaming tables" have been devised for feeding and applying steam to the dress to be shaped, through the table padding, i.e. from below the table, the dress being lifted from the table by inflating the padding, whereupon the moisture remaining in the dress and the padding after the steam treatment, is sucked off by specially provided suction means. These "steaming tables" serve primarily for a preliminary treatment of the dress, which must then be finished on a different machine.

It has also been proposed in the art to use steaming dummies consisting of a heated sheet metal jacket having a permeable cloth covering thereon, on or over which the dress to be pressed and shaped is placed. Steam is then blown into the hollow space below the covering so as to penetrate the covering and the dress. The covering on the dummy is then inflated by blowing heated air into the dummy, whereby the dress on the same is stretched and dried. According to this known method the dress is thus shaped and dried by the application of steam and by inflation from within the dummy.

It is also known to create in such pressing machines operating with mechanical pressure a vacuum in the lower platen, whereby the saturated waste steam is sucked off through the garment and the padding of the lower platen, while the garment is being subjected to the mechanical pressure between the upper and the lower platen which pressure is usually brought about by means of a lever system acting upon the upper platen.

These known methods and means for pressing garments show several disadvantages. One drawback inherent in the known pressing and shaping methods is that the mechanical pressure exerted on the dress causes glazed portions to be formed in the neighborhood of thicker parts of the cloth such as facings, turn-ups, pockets, seams and borderings, which glazed portions give the visibly worn parts of the dress an unsatisfactory appearance.

Another deficiency of the known pressing and shaping methods resides in the fact that the upper pressing platen in pressing machines does not always cause a uniform pressure to be applied to the dress because of imperfect congruity of its pressing surface with that of the lower platen, especially if both platens possess vaulted pressing surfaces. This lack of congruity is often inevitable, since the thickness of padding and dress may vary, while the two platens can be made perfectly congruous only for a definite thickness of the padding and dress. As the pressure exercised by the upper pressing platen on the dress

2

and the lower platen cannot be adjusted to the above differences in thickness, the various parts of the dress at the center and toward the edge of the pressing table are subject to different pressures.

Inequality of pressure is further caused by thicker portions of the dress. For instance, a leg of a pair of trousers cannot be subjected to uniform pressure by any of the known methods of pressing, the turn-up of the leg being always pressed and smoothed strongly, while the leg portion next adjacent the turn-up forms a recess where pressure is not sufficient to yield a smoothing effect.

These drawbacks occurring with the known pressing machines and methods of pressing are particularly noticeable when applied to sensitive kinds of cloth such as velvet, plush, camel hair, velour, and the like, which suffer easily from pressure marks.

A further disadvantageous feature of the known ironing machines is that they must be provided with pressing pedals, rods, frames, structures and releasing devices required for producing the necessary mechanical pressure. Furthermore, they must possess complicated locking devices for the pressing shoe or platen, and, for instance, a knee lever system with a releasing device to arrest and release the pressing shoe or platen in its pressing position during the step of shaping the garment under high pressure. Machines operated with compressed air require also a hood and a pressing cylinder with control means as well as a compressor.

The steaming tables known in the art, on the other hand, only permit a preliminary treatment of the dress in order to make the same more pliant. As steam is fed to the dress from below through the table padding, the steaming step according to the known methods take a very long time, and yet, after the lengthy steaming is terminated, the dress is not even finally pressed, but has to be subjected further to a pressing step.

The known steaming dummies have the drawback that an unobjectionable smoothing or shaping cannot be obtained, because the dress is steamed solely from within the dummy, and that the shaping and drying must be achieved by inflating the cloth bag. For this purpose, it is indispensable to fasten the different dress portions such as coat tails, slit parts, sleeve openings and the like by means of elastic bands or clamps in order to maintain the dress in position in the desired shape during the pressing step. And in spite of the fact that this known step is very time-consuming and complicated, yet the result of this step is that the dress is only smoothed and not yet shaped.

It is an object of our invention to provide a new method and means for shaping and pressing garments whereby the aforesaid drawbacks and deficiencies are avoided.

It is another object of the invention to provide a new method and means which permit to press and shape a garment in a short time without adversely effecting the cloth of the same and without causing the formation of glazed portions of the garment surface.

It is also an object of our invention to provide a device for pressing and shaping dresses, which device is of simplified construction and wherein all elements required for producing mechanical pressure have been eliminated.

The aforesaid objects and advantages are achieved by our invention which is based on our discovery that dresses can be shaped with no mechanical pressure at all, by solely causing the heat transmitting medium such as, preferably, steam to act upon the dress when the latter is placed over a padded mold, from the outside of the dress, thus making the latter pliable, while at the same time, a depression (partial vacuum) is created in the hollow interior of the mold. Thereby the steam is sucked off through the interior of the mold, and the garment is pressed firmly onto the mold by the atmospheric

pressure acting from without upon the dress covering the evacuated mold.

Briefly, the invention thus consists in shaping a dress on a mold by applying a heat-transmitting medium such as a gaseous or finely sprayed liquid agent, preferably steam, onto the dress from the outside thereof, while concurrently creating a depression in the interior of the mold, the latter being, of course, so devised as to permit the partial vacuum in its interior to act through the mold on the inner side of the garment.

Thereby, the garment adopts the shape of the mold, while wrinkles and folds in the dress can be easily removed during this treatment by shifting and stretching the dress on the mold as required. The amount of depression inside the mold is adjusted by suitable control means such as valves to correspond to the specific pressure which is approximately applied to dresses on the conventional pressing machines.

Since it is possible to eliminate completely the conventional pressing and fixing means required in the known machines, the pressing devices to which the method according to the invention is being applied, can be of much simpler construction, and be operated much more easily.

A further important advantage of the method according to our invention consists in that the pressure exercised from without upon the dress on the mold is infinitely variable by a corresponding variation of the vacuum inside the mold. Thus the dress to be shaped need not be exposed to a sudden pressure, but gentle increase of the pressure is possible, the shaping of the dress thus becoming more uniform. This feature of infinitely varying the pressure is indispensable in order to prevent that any parts of the dress lying beneath the surface layer, especially if the latter is of thin cloth, i.e. that such parts as turned seams, pocket linings and the like, appear in the surface layer by causing correspondingly elevated or "embossed" portions in the dress surface.

As is evident from the foregoing description, a new and advantageous effect of the method according to our invention resides in the fact that, as the steam acts upon the dress from without, the dress is pressed onto the mold by the air streaming from without toward the inside of the mold under a pressure corresponding to the difference between the atmospheric pressure and the partial vacuum produced inside the mold, while, at the same time, the dress is held in position in the shape determined by the mold, as a result of the drying and cooling effect of the air passing therethrough.

The method and means according to the invention will be still better understood from the description following hereinafter in connection with the accompanying drawings, which illustrate the same by way of example, and wherein:

Figure 1 is a sectional view of a hollow mold fitted with means for carrying out the method according to the invention.

Figure 2 is a schematic view of the streamlined openings provided between the outer and inner or heating mantle of the hollow mold shown in Figure 1.

Figure 3 shows another embodiment of the hollow mold according to the invention, in sectional view.

Figure 4 shows a cross-sectional view of a pressing machine having an upper and a lower platen and being adapted for carrying out the method according to the invention.

Figure 5 is a front view of the machine shown in Figure 4.

Figure 6 is a sectional view of Figure 4 illustrating in detail the upper platen and lower platen of the machine in closed position, and

Figure 7 is a longitudinal sectional view along line 7-7 in Figure 6.

Referring now to the drawings more in detail and in particular to Figure 1, the machine for shaping a gar-

ment according to the method of the invention comprises a hollow, padded mold *b* on or over which the dress to be shaped is placed. The garment *c* is placed on the mold *b* by slipping it over the same from above. The mold *b* in Figure 1 is devised as a dummy or lay figure, while in Figure 4, the garment must be placed on the lower platen *r* of a pressing table.

A suitable device for supplying the heat-transmitting medium such as steam, is provided, which comprises, in the embodiment shown in Figure 1, the annular feeding tube *a*, which can be passed manually over the mold *b* and the dress thereon, without coming into contact with the latter, for instance from below. A gaseous or finely dispersed liquid medium is caused to impinge upon the cloth of the dress *c* for instance by spraying from the orifices *a*₂ in the direction indicated by the arrows in Figure 1.

Simultaneously, a partial vacuum is created in the hollow interior *j* of the mold *b* by means of an exhaustor *e*, vacuum suction and correspondingly the pressure exercised by the atmosphere outside the dress on the latter, being controlled by means of displacing the valve body *m* of the valve *l*. Air as well as the water vapors in the cloth are thereby suctioned into the interior of the mold *b*. The latter is provided with a perforated outer hull *f* and a heating jacket *g*. The latter jacket or mantle *g* is provided with openings *i* whose cross sectional area as a total, is proportional to that of the evacuating line *h*. Moreover, ribs *k* are provided for supporting the outer hull *f* on the inner mantle *g*, which ribs are of streamlined cross-section and radially arranged about the circular perforations *i*.

Pressure on the dress can be infinitely varied by adjusting the position of the streamline-shaped valve body *m* in the air valve *l*. For this purpose the valve body *m* is provided with a displaceably mounted rod *m*₁ which is guided in a streamline-shaped guide rib *n* of the vacuum conduit *h* and may, for instance, be actuated by a member *n*₁ connected to a foot pedal (not shown).

While the Figure 1 shows the position of the valve body *m* and the rod *m*₁ in closed position in uninterrupted lines, the same parts in dashed lines indicate the position in which the valve is open. The entire device is mounted in a known manner on a frame *o* which is provided with a working table *o*₁.

In the embodiment shown in Figure 3, the steam-heated inner jacket *g* is replaced by an electric heating means *p* which is equally adapted to the outer shape of the mold *b*. Heating voltage is fed to the heating means *p* by way of a lead-in *p*₁. In the same embodiment the feed pipe *a* is replaced by hood *q* which serves to lead the heat transmitting medium on to the dress.

A heat-conductive and moistening medium such as steam is introduced between the hood *q* and the outer hull *f* from orifices *a*₂ in the upper surface of the stationary conduit *a*₁ as shown by the arrows in Figure 3. The steam may escape from the top of the hood *q* through the opening *q*₁. Also, the interior of the hood is under atmospheric pressure since the room atmospheric air also can penetrate under the hood.

The arrows in Figure 1 indicate how steam is distributed and caused to act on the garment to be shaped, and in which direction pressure is caused to be exerted on the garment by the depression prevailing in the interior of the mold *b*.

In the pressing machine shown in Figures 4 to 7, the lower platen *r* and the upper platen *s* cooperate to press and shape the garment (not shown), which is placed on the lower platen *r*. The evacuating means are identical with those shown in Figure 1, the valve body *m* being actuated from a pedal *t* via a lever system *t*₁ displacing the valve rod *m*₁.

Steam is supplied to the upper platen *s* by way of the heating pipe *u* and the valve actuating lever *v* of the steam valve *w* and fed into the steaming chamber formed

5

by a recess x in the upper platen s . The upper platen s is not padded but only provided with a perforated screen plate y closing the recess x . Steam passes through the perforations of plate y from the steaming chamber x into and through the garment on the lower platen r when the machine is in closed i.e. operating position as shown in Figures 6 and 7. In this position, the blocking means z prevent the upper platen s from exercising any mechanical pressure on the garment which pressure would disarrange the position of the garment on the lower platen r . Pressure is exclusively brought about by suction from the evacuated hollow space h through the garment on the steam and air mixture present in the steaming chamber x .

Correspondingly the upper platen s need only be closed manually by means of the handle s_1 . However, it may also be coupled with the pedal t so as to synchronize its closing and opening with the admission of steam to recess x and the evacuation of hollow space h through the valve l . On the other hand all devices for fixing the upper platen in pressure position on the lower platen and releasing the same can be completely eliminated.

By lifting the steam feeding means from time to time from the lower platen, the dress may be smoothed manually between successive steaming steps in order to remove folds and wrinkles and to straighten borders, edges, and the like.

The streamlined shaped of the ribs between the outer hull and the inner jacket of the mold prevents losses of pressure in the air flowing through the garment into the interior of the mold from the surrounding atmosphere. Pressure on the garment may also be increased by superimposing a layer of material being less permeable to air and steam than the cloth of the garment to be shaped over the latter.

6

It will be understood that this invention is susceptible to further modifications and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

What we claim is:

1. A method for pressing and shaping garments comprising the steps of placing the garment on a porous mold, applying a heat-transmitting gaseous medium upon the outside of the garment, evacuating the interior of the mold so as to establish a partial vacuum therein to cause pressure to be exercised exclusively by the atmosphere on the garment from the outside thereof so that a current of atmospheric air and the heat-transmitting gaseous medium will pass concurrently through the garment from the outside thereof toward the interior of the mold.

2. A method for pressing and shaping garments as described in claim 1, further comprising the step of varying the pressure on the garment by controlling the degree of vacuum created in the interior of the mold.

References Cited in the file of this patent

UNITED STATES PATENTS

1,536,637	Turnauer	May 5, 1925
1,797,011	Milazo et al.	Mar. 17, 1931
1,839,472	Forse	Jan. 5, 1932
1,977,403	Pere	Oct. 16, 1934
2,140,961	Lendle	Dec. 20, 1938
2,453,730	Shaw	Nov. 16, 1948
2,562,956	Shaw	Aug. 7, 1951
2,667,291	Petrich	Jan. 26, 1954

FOREIGN PATENTS

646,334	France	Nov. 9, 1928
---------	--------	--------------