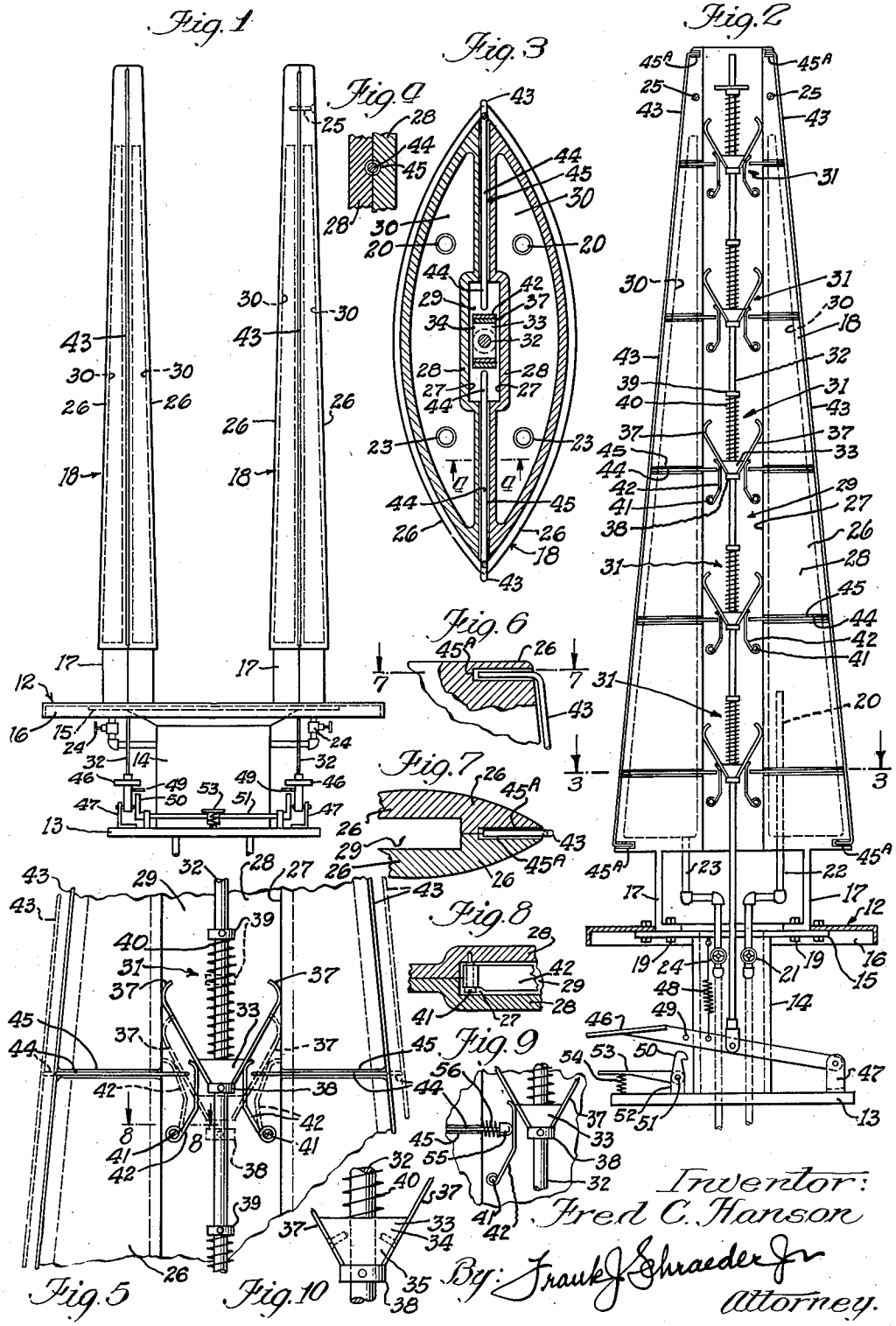
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LAUNDRY APPARATUS

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LAUNDRY APPARATUS

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This invention relates generally to new and useful improvements in laundry apparatus and has particular reference to novel improvements in ironing devices adapted for ironing tubular parts of apparel such as sleeves of shirts, coats or jackets and legs of overalls or trousers and the like.

I am aware of certain improvements which have heretofore been made in various types of ironers to which my invention relates wherein the heated forms were made in relatively movable sectional forms to accommodate same to various widths of the tubular members to be ironed thereby, however, these ironers have been made of relatively complicated parts and provided with mechanisms relatively costly and did not afford the desirable features or advantages which may be secured by my improved ironer.

While these various former devices were to a certain extent adjustable at either or both ends of the elongated heated forms, they were not adjustable in their intermediate portions so as to be "form-fitting," that is, no adjustable means was provided in the intermediate portions of the heated forms affording relatively different expansion in spaced parts or points of such intermediate portions so that these heated forms could substantially conform to the various contours of "form-fitting" tubular parts of the garments to be ironed thereon.

It is therefore one of the objects of my invention to provide an ironing device of the type herein disclosed which shall be transversely adjustable in its intermediate portions to conform substantially to contours of irregular shapes of such "form-fitting" tubular parts of various garments.

Another feature of my invention resides in the provision of resilient means, preferably foot-operable, for simultaneously moving form-expanding members transversely of the stationary form portion in opposite directions and in degrees of movement corresponding to the general contour of the inner face of the tubular part, that is, the form-expansion members are adapted to be moved at spaced portions intermediate their ends different distances responsively to the different inside widths of the tubular part of the garment at such spaced portions.

Another feature of my invention resides in the provision of relatively flexible elongated members disposed on opposite sides of a stationary heated form which are adapted to be simultaneously moved outwardly and transversely of the longitudinal axis of the heated form whereby spaced intermediate portions thereof may be moved outwardly different distances from the longitudinal axis. The flexibility of such members adapts same to be slightly bowed in their intermediate portions to thereby lie in graceful curves or lines conforming to the normal "form-fitting" shape of the tubular member to be ironed on such heated form.

A further feature of my invention is found in the provision of flexible movable elongated members of wire of preferably round cross-section and of a comparatively small diameter positioned on opposite sides of a stationary heated form and movable in opposite directions whereby same shall function to produce oppositely disposed creases in the sleeves of various kinds of garments or in the legs of overalls, trousers and the like.

My invention consists in the novel combination, construction and arrangement of the parts and members shown in preferred embodiment in the attached drawing, described in the following specification, and is particularly pointed out in the appended claims.

In the illustrations in the attached drawing:

Fig. 1 is a front elevation of an ironing device embodying a preferred form of my invention;

Fig. 2 is an enlarged vertical section of one of the ironing members;

Fig. 3 is a further enlarged cross-section taken on line 3—3 of Fig. 2;

Fig. 4 is a cross-section taken on line 4—4 of Fig. 3;

Fig. 5 is an enlarged portion of the vertical section shown in Fig. 2 showing one of the resilient operators;

Fig. 6 is a partial section of the top of one of the forms showing the supporting recess for the upper end of the outwardly movable wire member;

Fig. 7 is a cross-section taken on line 7—7 of Fig. 6;

Fig. 8 is an enlarged cross-section taken on line 8—8 of Fig. 5;

Fig. 9 is a side view of a modified connection member for the adjustable wire member; and

Fig. 10 is an enlarged view of a portion of one of the operators showing the leaf spring securing screws.

In the illustration, 12 generally indicates a table-like support comprising a base 13, a hollow tubular pedestal 14 having a flanged top 15, and a table top 16 mounted on the flanged top 15.

Each of the two ironing forms is generally in-

dicated by numeral 18 and each of said forms is provided with a base portion 17 which is suitably secured, as by bolts 19, to the flanged top 15.

Vertical steam inlet pipes within the ironing forms 18 are indicated by 20 and valves for controlling the inlet of steam into the forms are indicated by 21 and the connecting pipes by 22.

The drain piping for the forms 18 is indicated by 23 and the controlling valves for same by numeral 24.

The following description of one of the forms 18 will apply to either of them as both are of like construction.

The steam heated forms 18 are preferably vertically mounted on the table 12.

Each form 18 is preferably constructed as an upwardly tapering structure having smooth sides, that is, the transverse section decreases progressively upwardly of the elongated structure.

Each form 18 is composed of two separate, like and hollow sections 26 secured together at their base 17, and as by the countersunk screw 25.

Each hollow section 26 is formed of preferably segmental cross-section progressively decreasing in area upwardly from its base portion 17, and each sectional is provided with a central recess 27 formed within the outer face of the inner wall 28 and extending longitudinally the full length of the vertical form 18.

When the two sections 26 are secured together, as shown in Figs. 1 and 3, these recesses 27 will form an interior chamber 29 of rectangular cross section extending through the upper and lower ends of the form 18.

The fully closed steam chamber in each form 18 is indicated by numeral 30. Each steam chamber 30 is provided with the steam inlet pipe 20 and a drain connected with the drain pipe 23.

The elongated chamber 29 of rectangular cross-section constitutes a housing for a plurality of spaced operators generally indicated by numeral 31 which are simultaneously operable by a single operating rod 32.

Each of the operators 31 comprises a V-shaped block 33 having a pair of parallel and perpendicularly disposed opposite sides 34, of a width slightly less than the inside width of the operating mechanism chamber 30, and a pair of opposite sides 35 disposed angularly downwardly toward the other. Each V-shaped block 33 is slidably mounted on the operating rod 32.

Secured to each of the angularly disposed sides 35 of the V-shaped blocks 33, as by countersunk head screws 36, is a pair of upwardly oppositely angularly disposed steel leaf springs 37 having free end portions in sliding engagement with opposite end walls of the chamber 29.

A set collar 38 is fixed to the operating rod 32 adjacent to the lower end of each V-shaped block 33 and another set collar 39 is fixed to the operating rod 32 a distance above the top of the V-shaped block 33. A spiral spring 40, under normal slight compression, is mounted with one end in abutment with the underside of the collar 39 and the other or lower end in abutment with the top face of the V-shaped block 33.

Pivotally supported below each V-shaped leaf spring supporting block 33 on one of the side walls of the chamber 29, as on the end-threaded pins 41, is a pair of connecting rod operating arms 42 of slightly irregular shape. These arms 42 are preferably made of comparatively heavy material such as cast or malleable iron, although same might be made of a steel stamping, to insure their normal gravitational positioning with their free slightly curved ends in engagement with the lower ends of the leaf springs 37.

One of the important features of my invention, as generally stated above, resides in the provision of a pair of adjustable and preferably flexible form-expanding members 43 which are positioned on opposite sides of each stationary heated form 18 and are adapted to be simultaneously moved transversely of the longitudinal axis of such stationary form distances differing in amount or degree at spaced intermediate portions of such form-expanding members 43.

While, as above pointed out, these form-expanding members 43, need not be flexible since same might readily be made of thin rigid steel bars, I find it an additional advantage to construct such members 43 of a comparatively thin round wire of sufficient flexibility to permit it to be slightly bent or bowed at spaced intermediate portions in different degrees of curvature so as to conform to the curvatures of various "form-fitting" tubular portions of garments such as the sleeve or leg portions. Being of a comparatively small diameter, such form-expanding wires 43, due to their close proximity of and contact with the heated stationary tapered form 18 through their transversely disposed vertically spaced connecting rods 44, are readily maintained heated and are particularly adapted for forming the desirable creases in opposite sides of the tubular garment portions.

It will be observed that these form-expanding wire members 43 extend along the slightly flattened narrow edges of the opposite sides of the tapered stationary heated form 18 from its bottom to its top.

The upper and lower ends of each of such wire members 43 are preferably slidably supported and may be bent inwardly of the form 18 to extend into the recesses 45A which are formed in the upper and lower end portions of the complimentary sectional parts 26 of the form 18, as indicated in Figs. 6 and 7 which show such recess 45A at the upper end of the form 18.

Since most tubular parts of "form-fitting" garments are made with comparatively long sweeping and slightly curved shapes, the vertically spaced connecting rods 44 may be welded to the form-expanding wire members 43, although a small inwardly disposed pivotal connection between the rod 44 and wire 43 might be employed.

The spacing of the rods and their number may obviously be arranged to suit the designer of the ironing device.

The connecting rods 44 are arranged to extend through the transverse tubular passages 45. Each tubular passage consists of a recess of semicircular cross-section formed in the outer face of the inner wall 28 of each section 26 and the recesses of the two sections 26 are arranged for alignment to form a tubular passage 45 when the sections 26 are secured together.

The inner ends of the connecting rods 44 are brought to close proximity of the straight face portions of the outer sides of the pivoted arms 33.

The operating rod 32, which simultaneously operates all of the operators 31 associated therewith, extends downwardly through the hollow support 17 and table top 16 for pivoted connection with the foot-operable pedal 46 which is pivotally supported at one end on the support 47 formed integrally with the base 13. A spiral spring 48 maintains the pedal 46 in normal raised position.

Each of the pedals 46, as shown in Figs. 1 and 2, is provided with a laterally extending pin 49 which is adapted to be engaged by a hook 50, when the pedal is moved down into operative position, to retain same in such operative position.

The hooks 50 are rigidly connected to the ends of rod 51 which is pivotally supported on the upstanding supports 52 formed integrally with the base 13.

Rigidly connected to the center of rod 51 is a foot-releasable pedal 53 which is normally held in raised position by spring 54. A downward movement of the pedal 53 will rock the hooks 50 to thereby disengage same from the pins 49 to thus release the foot pedals 46.

In the modification shown in Fig. 9 each of the connecting rods 44 has a threaded connection at its inner end with a slightly enlarged rounded head 55 between which head 55 and the face of the end wall of chamber 29 is a coil spring 56 which functions to assist in positively returning the rod 44 into normal inoperative position.

The provision of the springs 56 on each rod 44 is illustrated in Fig. 9 as a possible modification although such spring-return of the rods 44 is not necessary for satisfactory operation, since the release of all operators 31 and the removal of the article ironed will readily permit mounting of an unironed tubular garment portion thereon and in such mounting the wires 43 will be moved inwardly against the stationary heated form by such tubular garment portion.

As indicated by the title, the device herein disclosed is particularly adapted for use by laundries for simultaneous form-drying and pressing, or smoothing by means of a heated form, tubular parts such as sleeves of shirts or legs of over-alls or trousers.

In the operation of the device for form-drying and pressing, for example, the sleeves of a shirt, the operator mounts the two sleeves on the forms 18 so that the shirt body will overlie the table top and the enlarged portions of the sleeves adjacent the shoulders are positioned over the lower portions of the steam heated forms. After the sleeves are so mounted the operator then depresses the pedals 46 to thereby cause an outward movement of the form-expanding wire members 43 to effect expansion of the sleeve forms to stretch, dry, press and crease both sleeves in one operation.

When the pedals 46 are depressed they are automatically locked in such operative position by the spring-pressed hooks 50 which engage over the pins 49.

In the movement of the foot-operated pedals 46 into operative position, the operating rods 32 are moved downwardly and in such movement the rods 32 simultaneously operate all of the operators 31 which move the two form-expanding wire members 43 on each form 18 outwardly in opposite directions.

In such downward movement of the operating rod 32 all of the collars 38 and 39 of the several operators 31 are simultaneously moved downwardly to compress all of the springs 40 to thereby cause by the pressure of such springs 40 a downward movement of the V-shaped blocks 33 with their attached upwardly flared leaf springs 37.

The downwardly moving blocks 33 and leaf springs 37 will cause the loosely pivoted arms 42 to swing outwardly about their pivot pins 41 to thereby simultaneously push all of the connecting rods 44 outwardly of form 18 and thus cause relatively opposite outward movements of the two form-expanding members 43 to properly stretch the sleeves.

Oppositely disposed creases will be formed in the sleeves by the hot small wire members 43. The thickness or diameter of these form-expanding and creasing members 43 is preferably about three thirty-seconds of an inch. The diameter of the connecting rods 44 may be approximately the same as that of the wire members 43 or about one-eighth of one inch. Obviously, the cross-sectional form and thickness of the members 43 and rods 44 may be varied.

When the pressing operation has been performed the release pedal 53 is depressed to thereby simultaneously release both pedals 46 into upward release movement of the rods 32 and all of the operators 31.

It will now be understood that the form-expanding and creasing wire members 43, due to their own flexibility and the resiliency of the leaf springs 37 and that of the springs 40, may readily assume straight or slightly curved formations in their medial or intermediate portions conforming to the "form-fitting" or tailored shapes of the sleeves or legs of the garment ironed. In other words, the connecting rods 44 may be readily moved relatively different distances by the arms 42 because of the relatively different permissible movements of the V-shaped blocks 33 and their operatively associated resilient members 37 and 40.

As above pointed out the pressure applied to wires 43 caused by the removal of the pressed garment and the mounting of another to be pressed on the forms 18 will permit the form-expanding wires 43 to be easily moved back against the stationary form 18 into normal position, however, where automatic return of the form-expanding members 43 is desired, the construction and spring-actuated connected rods 44 shown in Fig. 9 may be employed.

Various changes and modifications in details of construction and arrangement will become readily apparent to those skilled in the art to which my invention appertains upon perusal of the above specification and attached drawing without departing from the spirit of my invention defined in the appended claims.

I claim:

1. In an ironing device of the character described, an elongated tapered stationary heated form including a pair of separate steam chambers, one for each opposite side of the form, a separate mechanism chamber disposed within said form between said steam chambers, elongated form-expanding members disposed on opposite sides of said form movable outwardly from said form, a spring-pressed mechanism within said mechanism chamber, and foot-operable means disposed exteriorly of said form adapted to operate said spring-pressed mechanism for moving said form-expanding members.

2. In an ironing device of the type described, an elongated upwardly tapering stationary heated form, comparatively narrow elongated form-expanding and garment creasing members disposed on opposite sides of said stationary form movable outwardly from said stationary form sides, a plurality of vertically spaced rod members connected to said form-expanding and garment creasing members, said stationary heated form having a chamber disposed longitudinally thereof, a separate mechanism chamber enclosed with-

in said form, a plurality of operators disposed in said mechanism chamber, and means operable by the foot of the operator of the device extending into said mechanism chamber and adapted for moving said operators after the garment is in place on the form to thereby simultaneously forcibly move all of said vertically spaced rod members to effect a simultaneous outward movement of said form-expanding and garment creasing members.

3. In an ironing device as embodied in claim 2 and including said tapering stationary heated form comprising a pair of separate adjacently mounted hollow tapering bodies each enclosing a steam chamber therein, said hollow tapering bodies being secured together and having portions of adjacent interior walls provided with opposed longitudinally extending aligned recesses combining to define said separate mechanism chamber for said plurality of operators.

4. In an ironing device of the character described, a stationary steam-heated form having an enclosed steam chamber therein, comparatively narrow form-expanding and garment creasing members of a solid cross-section disposed on opposite sides of said stationary heated form, a separate mechanism chamber within said steam-heated form, spaced oppositely disposed passages extending laterally through said steam chamber and communicating with said mechanism chamber, an operating mechanism within said mechanism chamber including rods extending through said passages whereby said form-expanding and creasing members are movable outwardly from the form sides, and foot-operated means operable for moving said members in relatively opposite directions.

5. In an ironing device of the character described, an elongated stationary heated form having a separate mechanism chamber therein, form-expanding and garment creasing flexible wire members movably mounted on opposite sides of said stationary heated form, a plurality of rods connected to each of said flexible wire members at spaced points thereof, a plurality of spaced simultaneously oppositely movable resilient means within said mechanism chamber adapted for moving said rods relatively different distances to cause said form-expanding wire members to be moved oppositely outwardly of said heated form and to conform the shapes of same to the contours of opposite side portions of a tubular garment part mounted on the device, and foot-operable means disposed exteriorly of said heated form extending into said mechanism chamber and adapted for simultaneously moving said resilient means.

6. In an ironing device of the character described, an elongated tapered stationary heated form, elongated form-expanding and garment creasing flexible wire members movably mounted on opposite sides of said stationary heated form, a plurality of rods connected to each of said flexible wire members at spaced points thereof, resilient means adapted for moving said rods relatively different distances to cause said form-expanding wire members to be moved oppositely outwardly of said heated form and to conform the shapes of same to the contours of opposite side portions of a tubular garment part mounted on the device, and resilient means for each of said rods normally urging said rods inwardly of the stationary heated form.

7. An ironing device of the character described comprising a table-like support, a pair of elongated upwardly tapered stationary heated forms rigidly mounted on said support, each of said forms being composed of a pair of separate adjacently secured sections of substantially segmental cross-section having adjacent wall portions, each of said sections enclosing a steam chamber therein and each of said adjacent wall portions having a central recess, said recesses of each section being aligned with one another to constitute a central mechanism chamber extending longitudinally of the stationary heated form, form-expanding and garment creasing members disposed on opposite sides of each of said stationary heated forms, each of said form-expanding members comprising a wire having ends slidably supported on the stationary heated form and a plurality of vertically spaced laterally disposed rods connected to said wire members and movable within and extending through passages in opposite sides of said stationary heated form into said mechanism chamber, said rods of one of said wire members being laterally aligned with the said rods of the other of said wire members, a vertical operating rod in each mechanism chamber, an operator disposed in said mechanism chamber for each pair of said laterally aligned rods comprising a pair of spaced collars secured to said vertical operating rod, a block slidably mounted on said vertical operating rod normally resting on the lower one of said collars, a pair of oppositely disposed upwardly flared leaf springs secured to said block having their free ends in sliding contact with opposite walls of said mechanism chamber, a coiled spring having one end in abutment with the upper one of said collars and its other end in abutment with said block, a pair of arms pivotally supported on a wall of said mechanism chamber and having free ends in sliding engagement with said leaf springs, said operating rod in each of said stationary heated forms being movable to simultaneously act to compress all of the coil springs to move all of said blocks and their leaf springs to thereby cause a movement of said leaf springs relatively to said pairs of pivoted arms whereby said arms will be moved outwardly in opposite directions by said leaf springs to move said connecting rods and the form-expanding wire members connected therewith outwardly in opposite directions, both of said operating rods extending downwardly through said table-like support, a separate foot-operable pedal connected to each of said operating rods, spring-actuated means for locking either one or both of said operating rods in operative form-expanding and garment creasing position, and a single foot-operable arm adapted for simultaneously releasing both of said operating rods or either one of said operating rods.

8. In an ironing device as embodied in claim 4, and including a plurality of rods extending through said passages and connected to said form-expanding and garment creasing members at spaced points thereof, said rods extending into said separate mechanism chamber within the interior of said stationary heated form, and resilient means normally urging said rods inwardly of said stationary heated form and resisting outward movement of said rods by said foot-operated means.

9. In an ironing device as embodied in claim 2 wherein said elongated form-expanding and garment creasing members each consist of a wire, and including said rod members arranged in vertically spaced and laterally aligned oppositely

movable pairs, and wherein each of said operators includes spring-pressed means adapted for moving said pairs of said rod members in relatively opposite directions, foot-operable means, said pairs of rod members being movable by foot-operable means relatively different distances to cause said form-expanding wire member to be simultaneously moved outwardly of said stationary heated form and to conform the shapes of said wire members to the general contour of the opposite side portions of a tubular garment part engaged by said wire members.

10. In an ironing device of the character described, comprising a pair of elongated upwardly tapering stationary heated forms, comparatively narrow elongated form-expanding and garment creasing means disposed on opposite sides of each of said stationary forms movable transversely to the longitudinal axis of each of said stationary forms, operating means disposed within said stationary forms for moving said form-expanding and creasing means comprising lateral members connected to said form-expanding means extending into the interior of said stationary heated forms, resilient instrumentalities within said stationary heated forms adapted to cause opposite outward movements of said lateral members and said form-expanding and garment creasing means, and means for operating said resilient instrumentalities comprising an operating rod extending into each of said stationary heated forms, a separate foot-operable pedal connected to each of said operating rods, spring-actuated means for locking either one or both of said rods in operative form-expanding and garment creasing position, and a foot-operable arm adapted for simultaneously releasing both of said rods or either one of said operating rods.

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