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D. McCLOSKEY, JR
SHOULDER-SHAPING DEVICE

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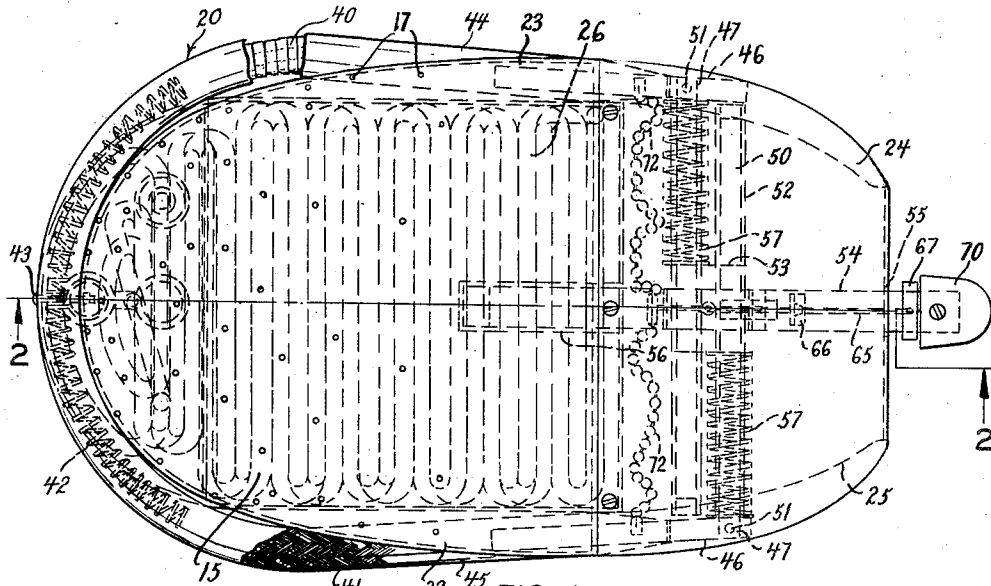


FIG. 1

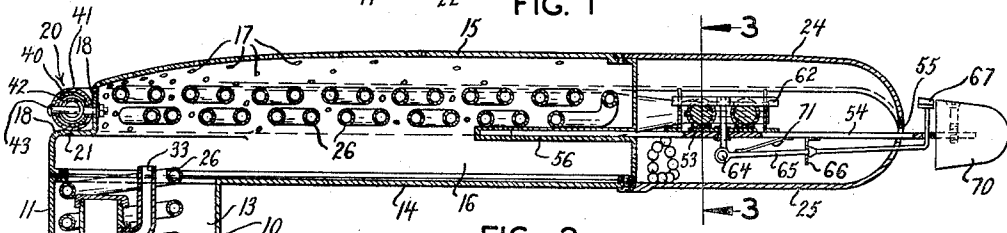


FIG. 2

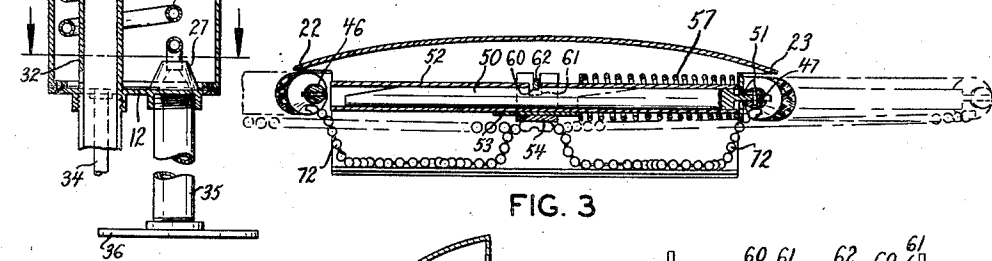


FIG. 3

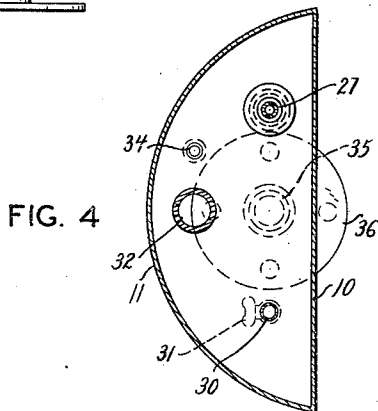


FIG. 4

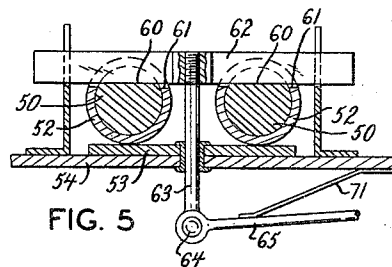


FIG. 5

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SHOULDER-SHAPING DEVICE

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14 Claims. (Cl. 223-73)

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This invention relates to improvements in shoulder-shaping devices, and more particularly to devices adapted to be inserted at least partly within the shoulder and adjacent sleeve region of a garment for the purpose of stretching and steaming, and thus removing all wrinkling effects in the garment shoulder areas.

There has long and universally prevailed an obstacle to thorough workmanship incident to the pressing of the shoulder regions of overcoats, suit coats, woolen blouses and like garments due to the entire inadequacy of existing equipment for this purpose. A few unsuccessful attempts have been made to the end of designing stretching equipment to be employed either alone or in conjunction with a steaming assembly, for the noted purpose. All such earlier devices have, based on a number of years experience of applicant in this field, failed to obviate unsightly wrinkling effects, particularly in the immediate region of the shoulder seam. The avoidance of this shortcoming, accordingly constitutes a major and principal objective of the present improvements.

A further and important object of the invention is realized in an improved shoulder-stretching device which is readily inserted into the shoulder and adjacent sleeve region of a garment, and which may be utilized either with certain items of conventional pressing equipment or, by preference, as a coacting part of a steaming device similarly inserted within the shoulder region of the garment.

An additional advantage realized in the present improvements, consists in an improved mechanical linkage and control members therefor, whereby with the shaping device disposed within the shoulder of a garment such controls may be actuated from a position externally of the garment sleeve.

A highly advantageous feature of present development consists in a floating support of a shoulder stretching member on a base structure therefor, the relation of this member and its base being such that the opposite sides of the stretching member may assume different positions with respect to the base, and such that each side of the stretcher may accommodate itself to the different conformities of the shoulder regions of different garments, and as well, is fully adaptable to all normal sizes of sleeves, including those of both men's and women's garments.

Further objective attainments realized in the present development include an improved shoulder conforming casing with heating connections

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to its interior, utilized with a stretching member or some counterpart thereof as aforesaid; the utilization in the most advanced form of the assembly, of a separate warming or heating coil in order to maintain at working temperatures the parts of the steam casing, and an optimum location, number, spacing and arrangement of steam emission ports in the steam casing, all of which are advantageously related to the coacting stretching member.

The foregoing and numerous other objects will more clearly appear from the following detailed description of a presently preferred embodiment of the invention, particularly when considered in connection with the accompanying drawing, in which:

Fig. 1 is a top or plan view of an assembly embodying the present improvements;

Fig. 2 is a longitudinal sectional view of the assembly of Fig. 1, particularly as taken along line 2-2 thereof;

Fig. 3 is a transverse sectional view taken in a vertical plane and particularly along line 3-3 of Fig. 2;

Fig. 4 is a sectional view in a horizontal plane transversely of the lower frontal portion of the casing particularly along line 4-4 of Fig. 2, and

Fig. 5 is an enlarged view, showing for clearness certain portions of the retracting linkage and latch mechanism therefor.

Referring now by characters of reference to the drawing, the assembly preferably includes a chambered housing or casing including a deeper forward portion, the front or shoulder-engaging side of which 11, is preferably rounded, and shown as of a part-cylindrical shape. A removable bottom element 12 serves at times to complete the enclosure of the well 13 resulting from this deeper front element of the casing. Detachably secured to the portion 10-11, is a relatively shallow, substantially flat-top portion of the casing which includes a bottom wall 14, a slightly rounded or crowned top closure portion 15 with which are formed integral drop side elements which complete the confinement of a steam chamber 16 in communication with the well or chamber 13.

It is preferred to form the casing or housing of aluminum alloy castings for lightness, thermal conductivity and non-rusting characteristics. The material, manner of formation and location of separable closures will however be understood as matters of choice and current production economies.

A number of small diameter steam emission ports 17 are provided in the upper closure por-

tion for the purpose of steaming the shoulder and adjacent sleeve portions of the garment, as will appear. Additional such steam jet openings are indicated at 13, in the immediate region of a resilient shoulder-stretching member hereinafter detailed and now merely generally indicated at 20.

The resilient member 20 is of approximately circular section, and is seated on a ledge, shoulder or step formation of the casing as indicated at 21, and of a generally arcuate shape in plan, this ledge being in the assembly disclosed, coextensive in plan and angular extent, with the rounded frontal element 11 heretofore described. Along the sides of the structure forming the chamber 16, the top closure member 15 is laterally extended to provide flanges 22 and 23 which partly overlie the stretching and pressing member 20, particularly covering and guiding the free ends or arms of this member when the latter are in a retracted position, as same appear in Fig. 1. Similarly, the member 20, being of a generally U-shape, rests upon and may be given a flexing movement over the ledge or step 21, incident to its stretching operation, as will be described.

The housing structure forming the chamber 16, is provided as a rearward extension, with an open side, partial enclosure consisting of a top 24 bent upon itself over a widely curved portion to form a companion bottom member 25, the space between these elements serving as a housing for certain control elements later described. This rear extension may be detachably assembled to the upper steam casing as shown, with certain assembly advantages.

In the current embodiment as shown by the drawing, there is provided a steam heating coil internally of chambers 13 and 16. This may, without restriction, consist of a number of feet of flexible copper tubing, say of quarter inch size, and when supplied with steam, serves the purpose of maintaining the temperature of the device between periods of its active usage, whereby to avoid the undesirable conditions of starting the pressing operation over a chilled surface, and for the further purpose of avoiding bad condensation effects and the like. In machines heretofore in operation, a length of some 15 feet of the copper tubing indicated at 26, is distributed in a back-and-forth arrangement within the chamber 16, and in a generally spiral pattern within the space 13. This heating coil is supplied with steam from a suitable source (not shown) through a line identified with a connection 27, and is connected to a bleeder or return line 30 in which is supplied a valve or cock 31 through which the steam flow in tubing 26 may be throttled.

The chambers 13 and 16 are further directly supplied with steam, as through a fitting 32 connected to a suitable steam supply (not shown) and leading to the steam chambers proper as through an upstanding element 33. A return connection 34 may be connected to a vacuum line, or a return to trap or pump, depending upon the nature of the steam system. The relative locations of the various steam supply and return connections are best indicated in Fig. 4.

It is preferable that the shoulder shaping and forming assembly be fixedly supported, as from a work bench or table. This can be effected in any suitable manner, for example as by a stand 35 threadedly or otherwise secured to the portion 12, and at its lower end to a pipe flange 36 for attachment to the bench. The assembly is or may be in usual sizes, light in weight, and if provided

with flexible connections, may be hand-held and operated.

Provision for controlling the supply of steam as for pressing, directly to chambers 13 and 16, may consist of a valve (not shown) of any suitable form. If the device be stationary, this may take the form of a foot-control valve, the valve proper conveniently consisting of a so-called whistle valve such as frequently employed with steam pressing apparatus.

Referring now in detail to the shoulder stretching assembly per se, and heretofore generally indicated at 23, this may consist of any flexible, smooth element, preferably of a rounded external contour. A preferred form of such member includes a hollow core of adjacent articulately connected annuli susceptible of moderate relative angular displacement. One suitable tubular structure of this kind is that known in the electrical trade as BX, this core being indicated at 40 (Fig. 1). This core, although operative of itself as a highly useful element 20, is given added resilience and a somewhat more smooth exterior surface by the addition of an enclosing sheath 41 formed of braided metal, this sheath extending closely about the core 40. As has been noted, member 20 is of a generally U-shape, and is provided internally of its bight portion with a relatively heavy coil spring 42. This spring, normally presenting a linear axis when unstressed, will act to impart added resilience to the bight portion of the U-shape member 20, and will prevent any unwarranted angulate deformation thereof. The stretching member 20 is operatively attached to the casing portion 14, by securement with a pin, screw or bolt 43, which, extending through the mid point of the bight of member 20, will permit independent flexure of the opposite sides of the bight of this element, as well as an independent floating adaptation of the two arms 44 and 45 of the resilient stretching member.

The free end of each of the arms 44 and 45 is provided with a special terminal, sweated or soldered into the adjacent free end of the tubular assembly 20. Each such terminal includes an axially projecting pin 46, provided with an open horizontal slot within which is pivotally attached a flattened end 47 of a rod or link 50, the attachment pin being indicated at 51 on each side, and the links 50 extended generally transversely to and inwardly of the arms 44 and 45. There is provided for each such link 50, a tubular guide, these guides being indicated at 52, the guides in turn being carried by a supporting plate 53 carried by a reciprocal plunger 54, it being noted that the supporting plate is susceptible of a limited pivotal movement with respect to plunger 54, as are of course, the guides 52.

It will now have appeared that there are desirably provided some means for retention of the arms 44 and 45 in an inoperative or convergent relation i. e. positions in which these arms closely engage the opposite sides of the housing 12-15, whereby to enable insertion of the device into the shoulder region of a garment to be pressed. Such provision consists in the assembly shown, of a latch mechanism carried by a plunger 54, the latter working through and extending rearwardly of an opening 55, extending forwardly through the enclosure 24-25 and with its forward end slidably and guidedly received in a horizontal recess 56 within chamber 16. The pocket 56 is however, sealed out of communication with the steam space.

As will best appear from Fig. 1, each of the

links 50 is provided externally with a compression spring 57 (Figs. 1 and 3). Each such spring has an outer abutment against one of the pins or studs 46, and at its inner end adjacent the guide, bears against a fixed collar. The action of such springs is normally to bias the opposite sides 44—45 of member 20, into a distinctly divergent relation, with a stretching action internally of the shoulder region of the garment.

In order to enable a releasable latching of the arms 44—45 in retracted position, each of the links 50 is provided with a transverse notch 60, and similarly the guide elements are formed with notches 61. When the arms 44—45 are in retracted position as shown by Fig. 1, all of the notches 60 and 61 are entered by a latch bar 62, to which is centrally connected a depending arm 63. The lower end of arm 63 is pivoted as at 64, to a rockable latch lever 65 extending through an aperture (not shown) in a pending support 66. The lever 65 extends outwardly through the opening 55, beyond which an actuated end is upturned and extends through a suitable opening in plunger 54. The upturned free end of lever 65 is provided with a manual engaging portion or key 67, located close to a knob 70 fixedly secured to the free end of plunger 54. In order to bias the lever 65 to a latching position, and hence tending to maintain bar 62 in the notches 60 and 61, there is provided a leaf spring 71 secured to the under side of plunger 54, with its free end engaging the lever 65, as best appears in Fig. 2.

Inasmuch as the inherent resilience of the side elements of the U-shape member 20 as augmented by the spring 42 and the loading of springs 57, serves to urge the arms 44 and 45 to an increasingly divergent relation, it is advisable to provide means limiting the range of such movement. This may be accomplished by anchoring the opposite end of each spring 57 to the terminals of the stretching member, and to the center guide structure. Alternatively or in addition, a suitable restriction on the spring actuation of the arms is conveniently provided by a flexible tie element such as a chain 72, shown as a bead chain, anchored to the terminals or studs 46, and secured to the guide structure or plate 53.

The operation of the assembly is thought to have been fully apparent from the foregoing description of its parts and reference to their respective functions, but it may be noted for completeness that, assuming a fixedly mounted assembly as described, and assuming the use of any suitable pressing equipment for the various areas of the garment such as a coat, except for the shoulder portions, the shoulder region of a coat for example, is drawn over that portion of the housing forming the chamber 16 so that the rounded frontal part 11 as well as the rounded frontal portion of the upper housing lie within or just below the rounded shoulder seam of the coat. This latter is interiorly abutted by the bight portion of the U-shaped member 20, the whole device now being overlain by the sleeve of the coat, through the fabric of which may be actuated the knob 70, hence plunger 54, as well as the depressible latch-actuating button 67. The housing having been kept near operating temperature through the coil 26, steam is admitted through the control valve (not shown) to the chambers 13 and 16 from which steam will issue through the jet openings 17, 18. These latter are provided in greater numbers in the immediate region of the coat shoulder and shoulder seam. The U-shaped, resilient stretching member will

have been retracted prior to application of the garment thereover and the arms 44, 45 in convergent and inoperative position, as in Fig. 1. After preliminary steaming, the key or plunger 67 is depressed, with the effect of lifting the latch bar 62 out of notches 60 and 61, thus permitting the compression springs 57 to augment the inherent resilience of the U-shaped structure. These arms will then engage internally the opposite sides of the coat sleeve and the immediate shoulder portion adjacent the seam will likewise be subjected to a stretching action. Since this stretching action fully relieves the shoulder portion of the garment of all wrinkling effects, it is sometimes herein referred to as a pressing action or effect. The supply of steam to chambers 13 and 16 hence through ports 17—18, is repeated as often as desired and necessary to remove all wrinkling effects. The arms 44—45 may, when desired, be manually brought together, even though the device is covered by the sleeve of the garment, and with the plunger or key 67 released, when the springs 57 are thus sufficiently compressed, the action of spring 71 will again serve to bring the latch bar 62 into the notches 60—61 and retain the U-shaped member in retracted relation until the stretching action is again desired.

The action of the plunger 54 through knob 70 results in a certain further and positive spreading action on the arms 44, 45 and is useful to the operator in tensioning the sleeve and shoulder portions tightly over the device incident to the described pressing action. With the shoulder of the coat or like garment snugly engaging the bight portion of member 20, endwise pressure in a longitudinal direction imparted toward the front of the assembly through knob 70, will serve to tension the fabric in the shoulder region both longitudinally and transversely. This action serves to eliminate all of the many minor longitudinal and other wrinkling effects heretofore accepted as inevitable in the use of conventional garment pressing equipment. The action of the plunger as just described, will be more apparent when it is considered that the links 50, pivoted to terminal members 46, are operatively connected through the guides and guide plate, to the plunger. The links are normally somewhat out of line, and hence may be considered as the divergent elements of a toggle linkage which is connected to the plunger as an actuating member. Thus the plunger when urged forwardly, tends to center the toggle linkage, and exhibits a spreading action on the arms of the member 20.

It is particularly noted that although the combination in its most advanced form, consists of the combination of the U-shaped stretching member 20, with the specially designed steam equipment serving as a support for member 20, the latter is nonetheless susceptible of use with advantage either of itself, or apart from any other than perhaps a plate supporting element (not shown). Such a stretching element may for example, be employed with distinct improvements in results, with conventional tailor's irons, bucks and other well known equipment. It is for this reason that the U-shaped assembly 20 is of itself regarded as operative and useful.

A period of successful usage of the assembly as described, indicates that it fully realizes all of the several objectives heretofore expressed, as well as others implied from the description of parts and their function.

Although the invention has been described by

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making detailed reference to a selected and advanced embodiment of the invention, the detail of description is to be understood solely in an instructive, rather than in any limiting sense, numerous variants being possible within the scope of the claims hereunto appended.

The following is claimed:

1. A device for stretching and shaping the shoulder portions of coats or like garments, said device including a resilient U-shaped element, the bight portion of the U-shaped element adapted internally to engage the rounded part of the garment shoulder, spring means acting transversely of the ends of the arms of said U-shaped member and coaxing therewith in stretching the sleeve and shoulder portion of the garment for pressing purposes and a relatively shallow casing for a heating medium, located between the arms and bight portion of the U-shaped element.

2. In a device adapted for internally spreading and stretching the shoulder regions of a coat or like garment, a tubular resilient assembly of a generally U-shaped form, and of a relatively smooth, rounded surface contour, the ends of the arms of the U-shaped member normally tending to diverge incident to a stretching action within portions of the garment sleeve, a coil spring within the tubular assembly and arranged therein to augment the stretching effect of the bight portion of the U-shaped member, a pair of links pivotally connected to end portions of the arms of said resilient elements, the links being directed transversely and inwardly of said arms, and spring means acting on the links in a direction tending to spread said arms with a sleeve stretching action.

3. The combination and arrangement of elements as recited by claim 5, but characterized by the addition of a support for the U-shaped member, to which such member is movably attached and over which parts of the latter are movable, and a latch acting on said links, for the selective retention therethrough, of the free end portions of the U-shaped member in a convergent relation, whereby to facilitate their insertion to a position internally of a garment shoulder.

4. In a device adapted as a stretching agency for the shoulder portion of a coat or like garment, a normally inverted U-shaped member having an exterior substantially free of projections or protuberances, said U-shaped member consisting of a length of jointedly connected annular members, adjacent such members being susceptible of misaligning relative movement, a braided metal sheath substantially enclosing and confining the jointed structure, a spring core in the bight region of the U-shaped member, and springs between the end regions of the U-shaped member, said springs being loaded and arranged to force the arms thereof apart, when the device is in stretching relation within the shoulder of the garment.

5. The combination and arrangement of elements as recited by claim 4, but further characterized by a support for the U-shaped member and to which the latter is operatively assembled, a plunger acting in spreading relation to the arms of the U-shaped member, and latch means for releasably retaining the arms of the U-shaped member in a relatively retracted relation to each other and to the support.

6. In a steam pressing device for shaping the shoulder portions of a coat or like garment, a steam casing rounded at one end and formed to provide a deep chamber at its rounded end,

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steam supply and return piping to the casing, the casing including a top closure portion, a step ledge or shoulder formation around the top closure in the region of the rounded end of the casing, a resilient, tubular, shoulder-stretching member seated on said step formation and extending around the sides of the casing along the top closure portion, and a control element carried by the casing, and having operative connection with the stretching member.

7. In a device for steaming and shaping the shoulder portions of a coat or like garment, a chambered steam casing of rounded formation at one end and adapted to be inserted in the shoulder region of a garment to be pressed, steam supply and return piping to the casing, the casing including a top closure portion, a ledge around the top closure in the region of the rounded end of the casing, a flexible, tubular, shoulder-stretching member seated on said ledge and anchored to the casing substantially intermediate the rounded end thereof, the stretching member extending laterally of the casing along the sides of said top closure portion, and a control element reciprocally movable and carried by the end of the casing opposite the rounded end thereof, the control element being operatively connected with the stretching member.

8. The combination and arrangement of elements as recited by claim 7 but further characterized in that the recited ledge is spaced below the top closure of the casing a distance approximating the diameter of the tubular stretching member, whereby the latter is substantially flush with the top closure of the casing.

9. In a device for stretching, steaming and shaping the shoulder portions of a coat or like garment, a casing having a steam chamber therein, steam supply and return piping directed to said chamber, the casing including a top closure portion, a ledge or shoulder around the casing and just below the top closure, a resilient, tubular, stretching member seated on said ledge and including arms extending along opposite sides of the casing, the top closure portion of the casing having lateral flanges adapted to overlie portions of the tubular stretching member when the latter is in retracted or inoperative positions, a control element guidedly carried by the casing and having operative connection with the stretching member and acting to vary the spacing of opposite arms thereof, and acting through said arms to impart a tensioning effect on the shoulder of the garment, the casing and other elements of the assembly being of a proportion to enable insertion of at least certain portions of the casing and resilient stretching member, within the upper end of a garment sleeve.

10. In a device for the general purpose noted, a casing chambered to be supplied with steam in aid of pressing the shoulder portion of a coat or like garment, steam supply and return piping to the casing, the casing including a substantially U-shaped ledge on one of its end portions, a resilient tubular shoulder stretching member seated on said ledge and of a substantially U-shape, the stretching member having arms extended along opposite sides of the casing, means on the casing tending to guide the arms of the stretching member while permitting a limited movement thereof in a direction transversely of a garment shoulder and top sleeve portion in which the assembly is inserted, the casing being provided with a plurality of steam emission ports located in the region of said stretching member, and a

control element guidedly carried by the casing, and having an operative connection with said stretching member.

11. In a device for the general purpose described, a chambered steam casing over which a shoulder and upper end of the sleeve of a garment may be drawn for stretching, steaming and pressing, the casing including a top closure characterized by a convex curvature in section, thus presenting a top crown formation, the casing being formed to provide a curved or bowed front ledge just below the top closure, the top closure being provided with lateral extensions constituting side flanges, a substantially U-shaped resilient tubular member including a bight portion anchored centrally to said bowed front ledge of the casing, the bight portion extended to form a pair of arms, the arms being disposable just beneath the side flanges of the top closure, and means for actuating the arms of the resilient tubular member between a divergent relation in which the arms and bight act to stretch or internally tension a garment shoulder and sleeve, and a position in which said arms are convergent and relatively retracted, whereby to facilitate application and removal of the garment sleeve for the purposes noted.

12. In a steaming and stretching device for the shoulder and adjacent sleeve portions of a coat or like garment, a casing provided with a steam chamber and over which the sleeve is drawn for stretching and steaming, steam supply and return piping connected with the chamber, a heating coil within said chamber, separate steam-supply and return leads to said heating coil, said heating coil being within but out of direct communication with the chamber in said casing, and a resilient member of substantially U-shape, having a rounded or bight end adapted with stretching action to engage the rounded portion of the shoulder portion of a coat or like garment, the rounded portion extended to provide a pair of arms, the casing being provided with a substantial number of steam emission ports in the region of said flexible stretching member, an actuating arm slidably carried by the casing and linkage elements connecting said arm to the lateral or leg portions of the said U-shape stretching member.*

13. In a stretching device for garment shoulders, a resilient, U-shape stretching member, a base on which said member is operable, a toggle linkage between the arms of the U-shaped member, said linkage including a pair of links, one connected pivotally to each of the arms of the

U-shaped member, a plunger operatively carried by the base and a connection between the plunger and the toggle linkage, whereby the plunger is adapted for actuation to spread the arms of the stretching member.

14. In a stretching device for use as an aid in pressing the shoulder of a coat or like garment, a supporting base over which the shoulder and adjacent sleeve portions of the garment are adapted to be drawn, a U-shaped stretching member carried by said base and secured thereto in a manner to permit opposite yet independent movements of the arms of the U-shaped member, in directions transversely of the sleeve, whereby to enable a floating adaptation of said flexible member to the interior of sleeves of different size and shaping in their shoulder regions, the arms of said shaping member being provided near the outermost end of each, with a pivot, a link connected to each of said pivots, the links extending for movement in opposite directions, transversely and inwardly of the free ends of said arms, a guide structure through which said links are operative, a latch bar movable transversely of said links and in the region of the guide structure, the inner end portions of said links being provided with recesses adapted to be engaged by the latch bar to retain the links and hence the arms in a relatively retracted position to facilitate application of the sleeve and shoulder parts of the garment, a reciprocable plunger operable longitudinally of the support and connected to said guide structure, a latch lever on said slide connected to the latch bar for actuation thereof out of said recesses, and spring means acting on the latch bar and normally tending to bias same into said recesses when said recesses are aligned due to inwardly movement incident to retraction of the arms.

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