Feb. 5, 1935. H. A. JOHNSTON 1,990,454

APPARATUS FOR AND METHOD OF STRETCHING GARMENTS

Filed Dec. 30, 1932 4 Sheets-Sheet 1

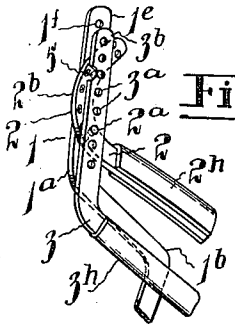


Fig. 3.

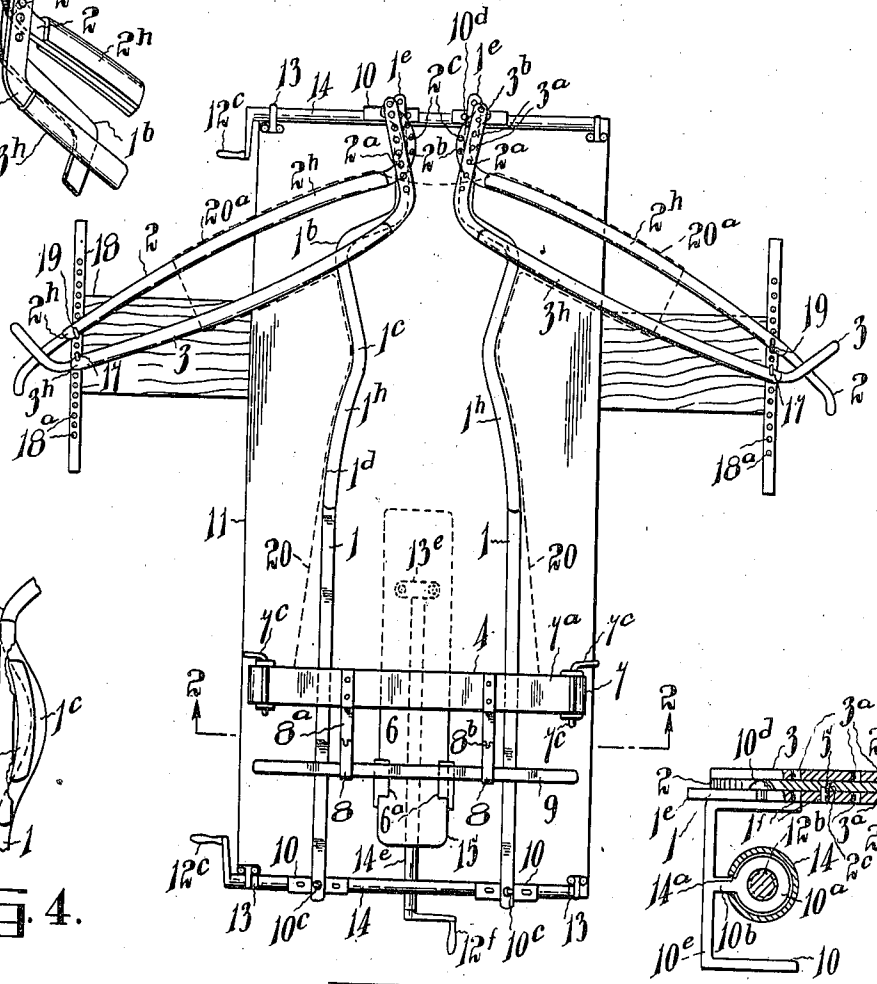


Fig. 1.

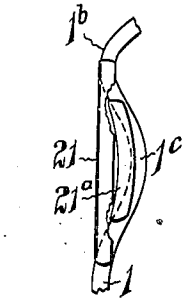


Fig. 4.

Fig. 5.

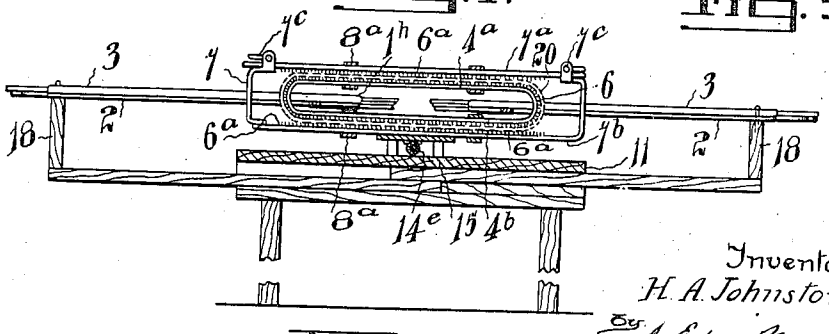


Fig. 2.

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Feb. 5, 1935. H. A. JOHNSTON 1,990,454

APPARATUS FOR AND METHOD OF STRETCHING GARMENTS

Filed Dec. 30, 1932 4 Sheets-Sheet 2

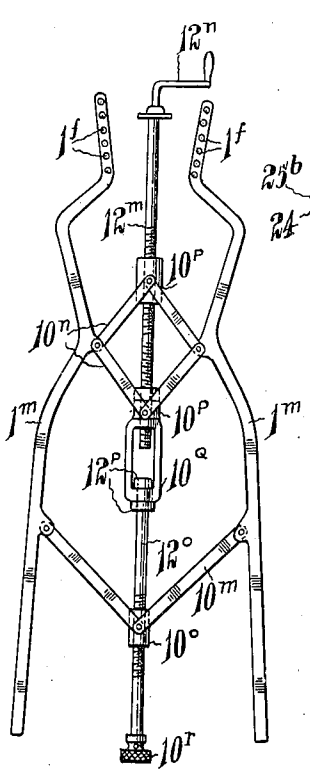


Fig. 8.

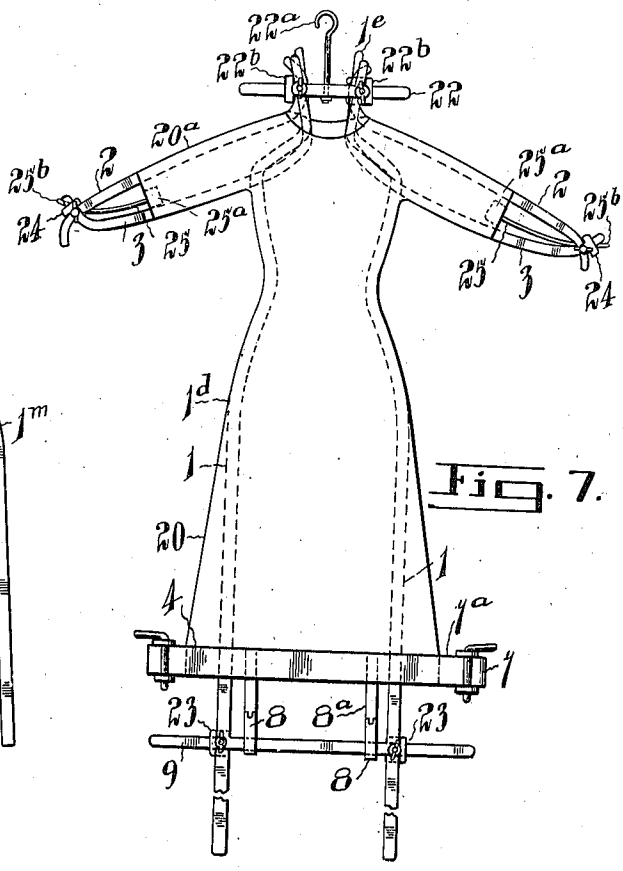


Fig. 7.

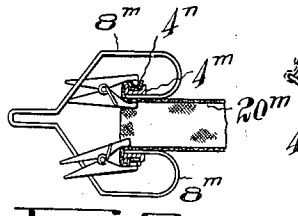


Fig. 9.

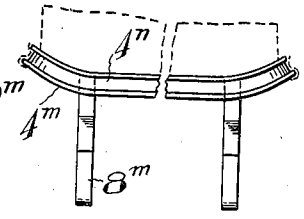


Fig. 10.

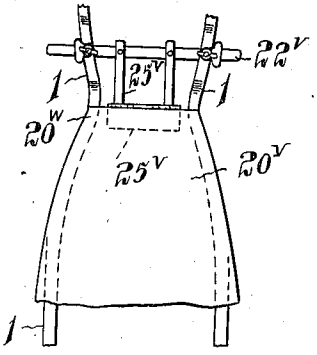


Fig. 11.

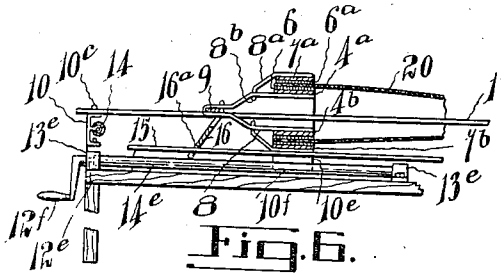


Fig. 6.

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Feb. 5, 1935. H. A. JOHNSTON 1,990,454

APPARATUS FOR AND METHOD OF STRETCHING GARMENTS

Filed Dec. 30, 1932 4 Sheets-Sheet 3

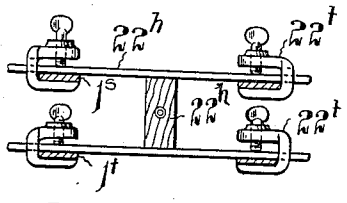


Fig. 15.

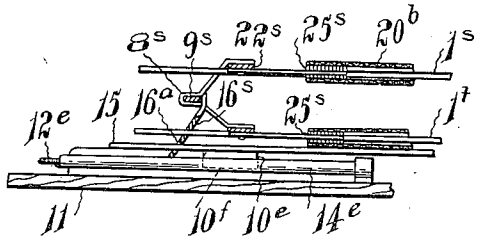


Fig. 14.

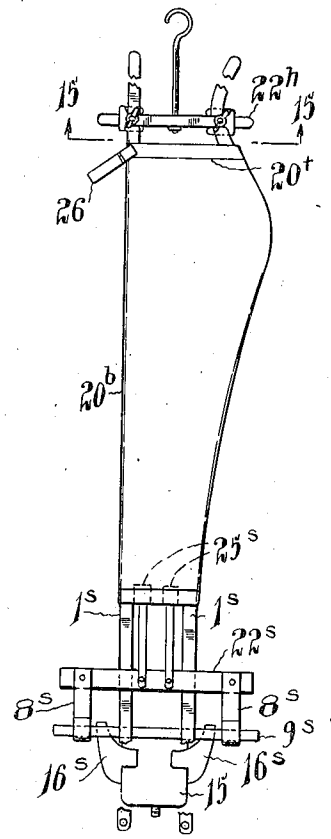


Fig. 13.

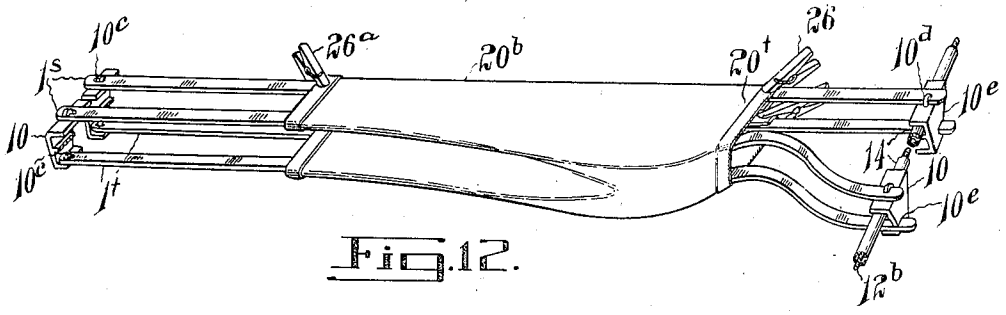


Fig. 12.

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Feb. 5, 1935. H. A. JOHNSTON 1,990,454

APPARATUS FOR AND METHOD OF STRETCHING GARMENTS

Filed Dec. 30, 1932 4 Sheets-Sheet 4

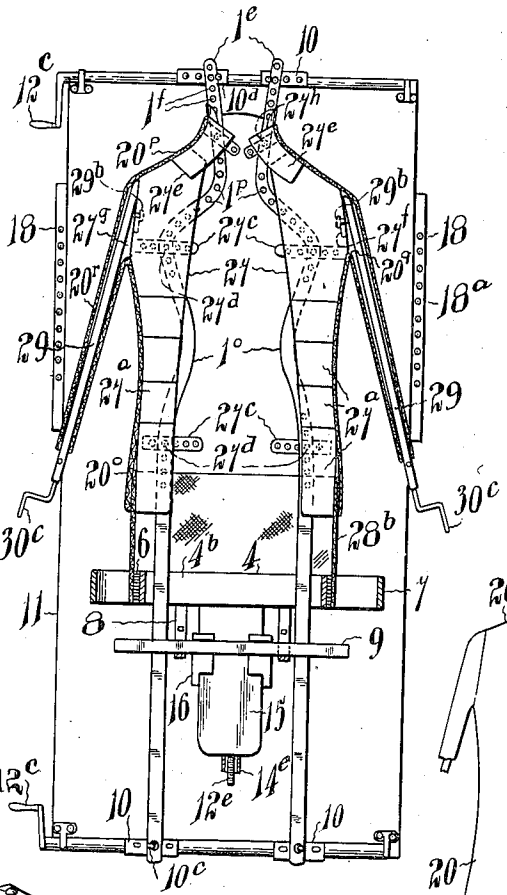


Fig. 18

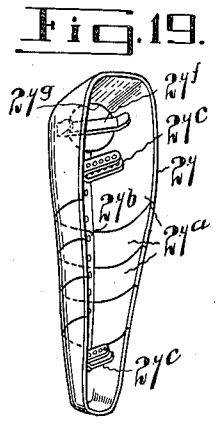


Fig. 19.

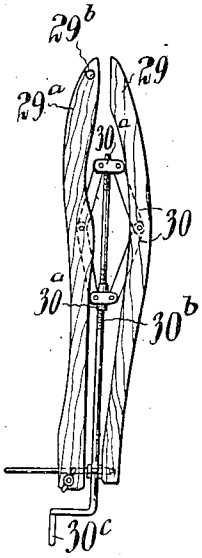


Fig. 20.

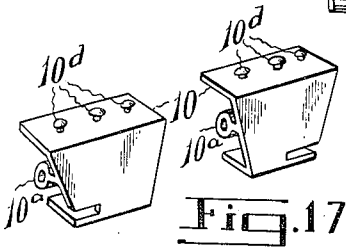


Fig. 17.

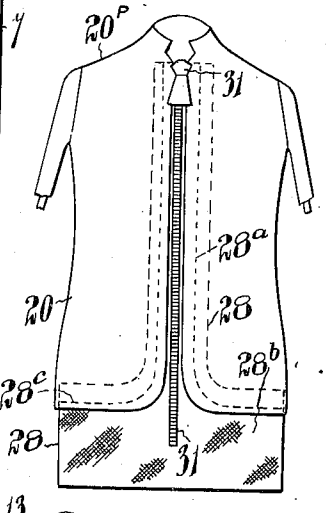


Fig. 21

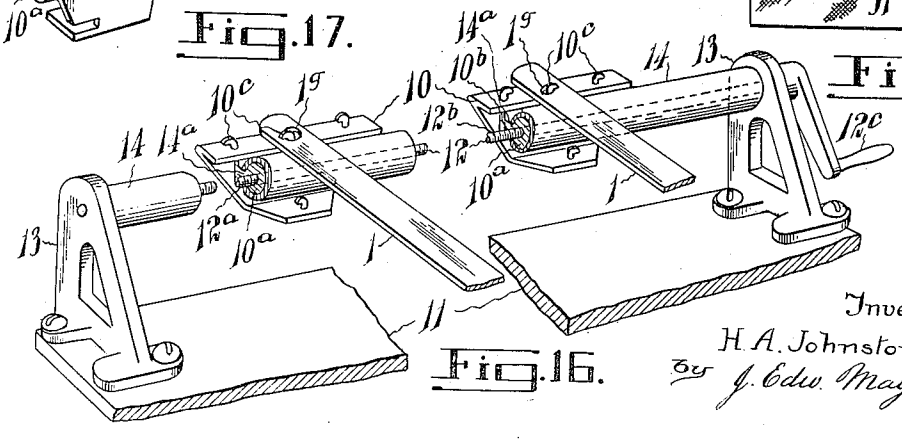


Fig. 16.

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Patented Feb. 5, 1935 1,990,454

UNITED STATES PATENT OFFICE

1,990,454

APPARATUS FOR AND METHOD OF STRETCHING GARMENTS

Howard Addison Johnston, Toronto, Ontario, Canada

Application December 30, 1932, Serial No. 649,471

16 Claims. (Cl. 223—19)

This invention relates to devices for stretching and re-shaping garments particularly after washing, cleaning or dyeing and during the drying thereof and my objects are to devise an expansible device on which the garment may easily be positioned, which is readily expanded by suitable mechanism to stretch the garment transversely and longitudinally as desired, which is readily secured in its expanded position with the garment thereon, and which is readily removed from its expanding mechanism while held in its expanded position with the garment thereon.

I attain my objects by providing a pair of side bars which are shaped to follow the general longitudinal contour of the garment to be stretched. The garment is fitted on the side bars and the sleeves of the garment are fitted on pairs of sleeve bars carried by the side bars, the sleeve bars of each pair being angularly and longitudinally adjustable to one another and to the adjacent side bar. Any suitable means may be provided to move the side bars away from one another and to move a band, to which the bottom of the garment is secured, away from the opposite end of the garment for stretching the garment transversely and longitudinally. The side bars are passed through the band which is actuated by a pull bar which lies across the side bars. After the stretching operations have been completed, the opposite ends of the pull bar are clamped to the adjacent side bars to retain one end of the latter and the band in their expanded positions. The other ends of the side bars and the sleeve bars are also retained in their expanded positions. The expansible device with the garment thereon is then removed from the expanding means or mechanism so that the garment may be dried on the device and during this period a number of fresh garments on a corresponding number of expansible devices may be stretched one by one by the expanding mechanism.

The constructions are hereinafter more fully described and are illustrated in the accompanying drawings in which

Fig. 1 is a plan view of my stretcher showing, in dotted lines, a dress thereon and showing the preferred mechanism for actuating the stretcher;

Fig. 2 is a cross section on the line 2—2 in Fig. 1;

Fig. 3 is a perspective detail, on an enlarged scale, of a side bar and a pair of sleeve bars showing their connection with one another;

Fig. 4 is a detail of part of a side bar showing a plurality of waist expanders attached thereto for increasing the waist dimension of the bar;

Fig. 5 is a cross sectional detail, on an enlarged scale, of a slide and the means for actuating it transversely of the table;

Fig. 6 is a longitudinal sectional detail of the mechanism for stretching a garment longitudinally;

Fig. 7 is a front elevation of a garment on the stretcher removed from the stretching mechanism in Fig. 1;

Fig. 8 is a plan view of a modified form of stretcher showing in dotted lines a garment thereon;

Fig. 9 is a cross section of a modified form of band;

Fig. 10 is a plan view of the band shown in Fig. 9;

Fig. 11 is a detail in plan of means for holding a waist band of a skirt on the side bars;

Fig. 12 is a perspective view illustrating the side bars employed for stretching a pair of trousers;

Fig. 13 is a plan view of a pair of trousers on the stretcher, showing means for stretching the trousers longitudinally and showing clamps applied to the head end of the stretcher;

Fig. 14 is a longitudinal section of the means for stretching the trousers longitudinally shown in Fig. 13;

Fig. 15 is a cross section on the line 15—15 in Fig. 13;

Fig. 16 is a perspective view, partly broken away and in section, of the transverse stretching mechanism at the foot end of the table;

Fig. 17 is a perspective detail of the slides at the head end of the table;

Fig. 18 is a plan view of the stretcher showing forms used in conjunction with the side bars to stretch a man's coat;

Fig. 19 is a perspective view of one of the forms shown in Fig. 18;

Fig. 20 is a side elevation of the sleeve stretcher bars shown in Fig. 18; and

Fig. 21 is a front elevation of part of the coat shown in Fig. 18 showing the piece of flexible material detachably connected with the marginal edges of the opening up the front of the coat and around the bottom thereof.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

The stretcher devices comprise a pair of side bars 1, a top sleeve-bar 2 and a bottom sleeve-bar 3 at each side of the bars 1, and a band 4 through which the side bars pass. The side bars 1 are shaped to follow the general longitudinal contour of a garment and have a neck portion

1a, bust portion 1b, waist portion 1c and a hip portion 1d. The upper end 1e of each side bar 1 is provided with a series of holes 1f any one of which is adapted to receive one end of a pin 2a which extends laterally from both sides of the inner end 2b of a top sleeve-bar 2. The other end of the pin 2a is adapted to be received in any one of a series of holes 3a formed in the inner end 3b of a bottom sleeve-bar 3. The top sleeve-bars 2 may thus be adjusted longitudinally of the side bars 1 and angularly thereto.

The bottom sleeve-bars 3 are also adjustable, by engaging different holes 3a with the pins 2a, relative to the top sleeve-bars 2 to vary the distance between the sleeve-bars of each pair at their inner ends and each pair of sleeve-bars are angularly adjustable to one another and to the side bars 1. Each top sleeve-bar 2 is held as adjusted by a pin 5 passing through one of a series of countersunk holes 2c in the inner end 2b of the said bar and through one of the holes 1f in a side bar 1. This pin 5 has a countersunk head which lies flush with the upper side of the bar end 2b.

By moving the adjacent ends of the side bars 1 away from one another, it is obvious that the width or circumference of a garment fitted on the side bars will be increased and that by spreading the bars 1 more at one end than at the other end, one end of the garment may be stretched transversely more than the other end.

To stretch the garment longitudinally, I provide upper and lower members 4a, 4b arranged on opposite sides of the side bars 1 and preferably joined together at the ends to form the band 4 through which the bars 1 pass. The bottom of the skirt portion of the garment is secured in any suitable manner to the band 4. For this purpose I have found the projecting wires on carding cloth very suitable and therefore I secure a strip of carding cloth 6 around the outer periphery of the band 4 as shown in Figs. 1, 2 and 6. A frame 7 surrounding said band 4 has the inner sides of its upper and lower portions 7a, 7b provided with carding cloth 6a which cooperates with the carding cloth 6 on the members 4a, 4b to secure the bottom of the garment between the said members and the frame. The upper portion 7a of the frame 7 is removably carried so that the frame may be opened to facilitate the engagement of the garment with the carding cloths 6, 6a on the band and lower portion 7b. The removed upper portion is then moved into position to bring its carding cloth 6a into contact with the garment and is releasably locked by pins 7c.

The carding cloths 6, 6a not only enable the garment to be readily secured thereto, removed therefrom and form a non-slipping grip connection therewith but permit a circulation of air around the gripped end of the garment so that this end will dry thoroughly and evenly which is very important especially in stretching garments which have been dyed.

As the neck of the garment is held from longitudinal movement in one direction by the top sleeve bars 2 it is obvious that, by pulling the band 4 and frame 7 away from the sleeve-bars 2, the garment will be stretched longitudinally. To the upper and lower members 4a, 4b of the band 4 are secured the ends of two substantially U-shaped yokes 8 (see Fig. 6) the closed ends of which are shaped to embrace a pull bar 9. The latter lies across the side bars 1 (see Figs. 1, 6 and 7) and the yokes lie substantially parallel to the bars 1 and between them so that the bars may be expanded without interfering with the yokes. The yokes 8 are also connected with the upper and lower portions 7a, 7b of the frame 7 so that the latter and the band 4 will be moved as a unit. This is accomplished by providing the said portions 7a, 7b with arms 8a located above and below the yokes 8, each arm is detachably connected with the overlapped part of the yoke adjacent thereto. These connections may be formed by fingers 8b carried by the arms and adapted to be received in holes formed in the yokes. The upper portion 7a of the frame 7 is thus disengageable from the yoke 8 and the latter with the band 4 is disengageable from the lower portion 7b of the frame. From this description it is obvious that, by clamping each of the side bars 1 to the pull bar 9 after these bars have been moved to stretch a garment, they will be held relative to one another as adjusted, (see Fig. 7).

While any suitable means may be employed to move the side bars 1 away from one another, I preferably employ two pairs of screw actuated slides 10 for engaging the opposite ends of the bars 1 (see Figs. 1 and 16). Across the opposite ends of a support or table 11 are journalled shafts 12 each having right and left hand threads 12a, 12b and each provided with a crank handle 12c. The shafts are journalled in brackets 13 to which are secured tubes 14, each tube having a slot 14a extending transversely of the table. The slides 10 at each end of the table are carried on nuts 10a threaded on the threads 12a, 12b and adapted to pass through a tube 14, the connecting portions 10b between the nuts and slides extending through the slot 14a of the tube whereby the nuts are prevented from rotating with the shaft (see Fig. 5). The slides 10 at the foot end of the table 11 are each provided with one or a number of headed studs 10c any one of which is adapted to pass through a hole 1g in the foot end of a side bar 1. Preferably L shaped studs are employed, the heads thereof being directed in the direction of movement of the slides to which they are connected so that as the slides are moved to expand the bars 1 the heads of the studs will overlie the marginal edges of the holes 1g in the bars 1. The engagement of the foot ends of the bars is effected by shifting the bars laterally after the holes have received the studs, the inner sides of the bars adjacent the head ends thereof are then engaged with headed pins 10d carried by the slides 10 at the head end of the table. The heads of the pins 10d also overlie the upper surfaces of the bars to hold them flat on the slides and permit relative longitudinal movement between the bars and the slides at the head of the table while the stud and hole connections at the other ends of the bars 1 prevent the latter from moving longitudinally with the garment when it is pulled to stretch it longitudinally on the bars.

The pull bar 9 may also be moved by a screw actuated slide 10e which is carried on a nut 10f threaded on a shaft 12e extending longitudinally of the table 11 and journalled in brackets 13e (see Figs. 1, 2 and 6). The brackets carry a slotted tube 14e disposed on the nut 10f, the tube 14e being located beneath the transverse tube 14 at the foot end of the table. A crank handle 12f is connected with the shaft 12e, and a plate 15 is secured to the slide 10e.

To enable the band 4 and its frame 7 to be readily adjusted lengthwise of the table without moving the screw-actuated plate 15, I provide a

disengageable connection between the plate and pull bar 9. This connection may be formed by a pair of cramp bars 16 which engage the edge of the pull bar remote from the foot end of the table 11 and are provided with notches 16a, the edges of which are adapted to engage the opposite sides of the plate 15 to form a cramping engagement therewith.

Each bottom sleeve-bar 3 is retained as angularly adjusted, relative to the top sleeve-bar 2, by means of a pin 17 which engages the inner edge of the outer end of the bottom sleeve-bar and is received in any one of a series of holes 18a formed in an adjustable extension 18 slidably mounted on the underside of the table 11 to move laterally thereof. To relieve the stress on the pins 5, while the sleeves are being stretched transversely, the outer ends of the top sleeve-bars 2 are engaged by pins 19 which are also received in two of the holes 18a.

Assuming a garment such as the dress 20 shown in Fig. 1 has been wetted and disposed on the side bars 1, the latter have been passed through a band 4 and the opposite ends of these bars have been engaged with the pins 10c and 10d on the slides 10, the method of using the stretcher is as follows. The sleeve-bars 2 and 3 are then inserted through the sleeves 20a of the dress. The top bars 2 are first adjusted longitudinally of and then angularly to the side bars by shifting the pins 2a to the correct holes in the series of holes 1f and by swinging the bars on their pivots 2a to engage the sleeves along their upper contours. The pins 5 are then passed through the alined holes 2c and 1f, and the pins 19 are inserted in the holes 18a as hereinbefore described. The bottom sleeve bars 3 are then adjusted to engage the sleeves along their bottom contours and the inner ends thereof are fitted on the pins 2a. The outer ends of the bars 3 are held in contact with the sleeves by the pins 17 in the holes 18a.

The frame 7 is then opened up by removing the pins 7c and the bottom end of the dress is positioned in any suitable manner around the band 4 between the carding cloths 6 and 6a on the band and on the frame 7. The upper frame portion 7a is then re-engaged with the yokes 8 and locked by the pins 7c to firmly secure the carding cloths in engagement with the dress. The pull bar 9 is then drawn along the side bars 1 until the dress is taut in which position it is held by the cramp bars 16 which are slid along the plate 15 to engage the pull bar. The dress is stretched transversely by turning the crank handles 12c to move the slides 10 and thus the bars 1 away from one another, and the dress is stretched longitudinally by turning the crank handle 12f to move the band 4 away from the sleeve-bars 2, 3.

With this construction the dress is stretched to the desired size as to bust, waist, hip and length measurements and, if desired, any one or more of these measurements may be increased relative to the others. That is to say, by spreading the lower or foot ends of the bars 1 relative to the upper or head ends thereof the hip measurement of the dress will be increased relative to the bust measurement. If the dress to be stretched is straighter in contour than that of the side-bars 1, or if it be desired to increase the waist measurement of the dress, I provide a plurality of differently shaped waist adapters 21, 21a (see Fig. 4) which are U shaped in cross-section and are adapted to embrace the side bars and to frictionally engage the latter to retain them in position thereon. While two adapters 21, 21a are shown on the bar 1 in Fig. 4 it will be understood that only one adapter will be used on each side bar at one time.

When the dress has been stretched to the desired dimensions, a hanger 22 having a hook 22a (see Fig. 7) is secured to the upper ends of the side bars 1. Preferably this hanger extends transversely of the side bars and lies across the inner ends of the sleeve-bars 2, 3. Clamps 22b engaging the undersides of the side bars 1 and the top side of the hanger 22 hold all the bars 1, 2 and 3 as adjusted. Clamps 23 engaging the side bars 1 and the pull bar 9 hold the side bars from collapsing and the pull bar from shifting longitudinally thereof. The outer ends of the sleeve bars 2, 3 are also clamped together by clamps 24. The sleeves 20a may be stretched in any suitable manner longitudinally of the bars 2, 3 and be secured thereto by any suitable means, such as spring clips or sleeve grippers 25, each having carding cloth 25a on opposite sides thereof and at the opposite end to a handle 25b. These grippers may be used for both stretching and securing the sleeves.

The gripper is inserted in the open end of a sleeve between the bars 2 and 3 and the carding cloths 25a are engaged with the opposite sides of the sleeve. The operator then pulls the sleeve along the bars 2, 3 and clamps the handle 25b, by means of the adjacent clamp 24, to the outer ends of the sleeve-bars so that the sleeve is maintained in its stretched condition. The cranks 12c are then operated to move the adjacent slides 10 towards one another to permit the side bars 1 to be disengaged from the pins 10d on the upper slides 10 and from the studs 10c on the bottom slides 10.

The stretcher with the garment thereon is then removed from the stretching mechanism and as all the bars 1, 2, 3 and 9 and the hanger 22 are held by the pins 2a and 5 and the clamps 22b, 23 and 24 in the position to which they were adjusted on the mechanism, the stretcher will remain as adjusted when removed from the stretching mechanism and hung vertically from the hook 22a in a drying room. The table 11 with its stretching mechanism is thus free to receive another set of stretcher devices 1, 2, 3 and 4 for stretching a fresh dress while the garment or garments which have been stretched are drying on their stretchers.

I preferably construct the side bars 1 and sleeve-bars 2, 3 of flat metal bars which are provided with wooden covers 1h, 2h and 3h respectively along their edges of contact with the garment 20. These covers are rounded off and polished to prevent any marks or creases being formed in the garment and to facilitate the stretching of the garment longitudinally of the bars.

Referring to Figs. 1, 5, 6 and 16 it will be noted that the slides 10 are each provided with a lower and an upper flange. The lower and upper flanges of the slides 10 at the foot of the table are provided with the headed studs 10c, (see Figs. 6 and 16). Referring to Figs. 5 and 17 the upper flanges of the slides 10 at the head of the table are provided with the headed pins 10d. In Figs. 12 to 15 two sets of side bars 1s, 1t are shown which bars are shaped to follow the general longitudinal contour of a pair of trousers 20b, the bars 1s being arranged side by side and engaged with the upper sets of pins 10c, 10d and the bars 1t

being arranged side by side and having their ends engaged with the lower sets of studs 10^e carried by the lower flanges on the slides 10 at the foot of the table. The other ends of the lower set of bars 1^t rest on the lower flanges of the slides 10 at the head end of the table and are engaged with shoulders 10^e which may be provided by forming notches in the webs of these slides. The waist end 20^t of the trousers is stretched (by moving the slides 10 at the head of the table away from one another) and is clamped to the side bars by the clips 26, the legs are then stretched to the desired width and length and held on the bars by the clips 26^a. Any suitable means, such as two H frames 22^h and suitable clamps 22^t, may be employed to hold the ends of the side bars in spaced relationship as adjusted by the slides before removal from the latter so that the stretching mechanism may be employed to stretch a fresh garment while the trousers are being stretched. The H frames extend across the upper and lower sets of side bars 1^s, 1^t at the opposite ends thereof and are clamped thereto. These frames thus not only hold the side bars of each set apart as adjusted but maintain the sets of bars in the same spaced relationship as that determined by the flanges on the slides 10.

If desired the legs of the trousers may be stretched longitudinally of the bars 1^s, 1^t by the hereinbefore described screw actuated slide-plate 15. In this case the clips 26 hold the waist end 20^t and the carding cloths of grippers 25^s (similar to the grippers 25) are inserted in the bottom of each leg of the trousers (see Fig. 13). These grippers are secured to an H frame 22^s having yokes 8^s which are adapted to embrace a pull bar 9^s. The latter may be connected with the plate 15 by means of cramp bars 16^s and when the trousers have been stretched to the desired length, the cross bars of the H frame 22^s are clamped by the clamps 22^t to the side bars 1^s, 1^t in the same manner as the above described H frames 22^h. That is to say when the H frame 22^s is used to stretch the trousers this frame is substituted for the H frame 22^h at the bottom ends of the bars 1^s, 1^t before they are removed from the table 11.

It will be understood that various modifications in the constructions heretofore described may be made without departing from the spirit of the invention. For instance, in Fig. 8 a modified form of stretching apparatus is shown in which the side bars 1^m are moved away from and towards one another by toggle links 10^m, 10^n which are actuated by nuts 10^o, 10^p threaded on a screw shaft 12^m having a crank handle 12^n. The shaft 12^m has an extension 12^o connected therewith by a yoke 10^q carried by the lower nut 10^p so that the shaft and extension may be rotated relative to one another whereby the spacing of the foot ends of the bars 1^m relative to the head ends thereof may be varied to adjust the relative dimensions of the hips and bust of a garment being stretched.

The yoke is journalled on the end of the extension 12^o between two collars 12^p secured thereto so that the extension 12^o will be moved axially with the nut 10^p and the extension may be rotated to move the nut 10^o axially and thus contract or expand the links 10^m relative to the links 10^n. By turning the handle 12^n the bars 1^m will be simultaneously moved away from or towards one another and by turning the knurled hand grip 10^r, which is secured to the extension 12^o, the latter will be rotated independently of the shaft 12^m and thus the nut 10^o will be moved axially thereof to move the foot ends of the bars 1^m relative to the head ends thereof. In Figs. 9 and 10 is shown a modified form of band 4^m having one or more grooves 4^n extending therearound. The yokes 8^m are connected with the internal periphery of the band and are curved around the edge of the band remote from the pull bar to provide clearance for the bottom of the garment 20^m which extends through the band and is folded to lie over the groove 4^n. Any suitable means such as a plurality of spring clips, a tongued bar or an endless elastic retainer may be employed to clamp the bottom end of the garment in the groove or grooves 4^n.

In practice, the bands 4, 4^m are of various sizes to suit different sized garments so that the perimeter of the bottom of a garment may be fitted on a band with a minimum of overlapping.

To stretch a skirt 20^v longitudinally on the bars 1 (see Fig. 11) it is necessary to hold the waist band 20^w thereof to resist the pull applied to the bottom of the skirt by the hereinbefore described screw actuated slide 15 which is connected therewith through the medium of the hereinbefore described cramp bars 16, pull bar 9, yokes 8, band 4 and frame 7. This may be accomplished by inserting the carding cloths of a gripper 25^v (similar to the gripper 25 and 25^s) in the open end of the waist band of the skirt so that they will engage the opposite sides thereof between the side bars 1. The gripper 25^v, which may comprise a plurality of the grippers 25, is secured in any suitable manner to a cross bar 22^v which is clamped to the bars 1 after the head ends thereof have been separated sufficiently to determine the desired size of waist band.

In stretching certain garments, particularly tailor made coats, it is necessary to not only stretch them transversely and longitudinally but to stretch them to follow the general cross-sectional contour of a human body especially around the shoulders. In other words, this type of garment if stretched flat will not regain its initial shape and therefore must be stretched on something resembling the shape it is intended to fit. Further the sleeves must be stretched in a direction substantially at right angles to the upper surfaces of the side bars 1. While deeper bars 1 could readily be made, I prefer to employ flexible auxiliary means to obtain this result, (see Figs. 18 and 19). To each side bar 1^o is connected a side form 27 comprising a plurality of sections 27^a each of which is secured to a strip 27^b of springy material extending lengthwise of the form. The upper portion of the upper section of the form is adapted to engage the shoulder 20^p of the coat 20^o to be stretched and the lower portion of the upper section extends downwardly from the shoulder portion to engage the back, front and side of the coat and to lie adjacent the sleeve opening 20^q.

The other sections 27^a also extend around the underside, outer edge and the top side of a side bar 1^o to engage the back, the side and the front of the coat throughout its length. Preferably these sections are formed of U shaped pieces of sheet metal in which case the strip 27^b is secured to the inner sides of the portions between the legs of the U sections, and the end sections of each form are each provided with a pair of fingers 27^c extending inwardly from the said portions for embracing the adjacent side bar 1^o.

Each pair of the fingers are provided with a

series of alined holes adapted for the passage of a pin 27^d which is also adapted to pass through one of a series of holes 1^p in the bar 1^o. While the opposite ends of each form 27 are thus held from shifting longitudinally and laterally of the bar 1^o, these ends may pivot slightly on the bar and the strip 27^b will permit the other sections to adjust themselves accordingly so that the form will follow the longitudinal contour of the side of the coat. If desired, the pins 27^d in the lower pair of fingers 27^c may engage the outer sides of the bars 1^o instead of passing through the holes 1^p therein. In this case the lower end of the coat 20^o limits the outward spread of the lower ends of the forms 27 and the engagement of the lower pins 27^d with the side bars limit the inward movement of the forms.

To enable the front of the coat adjacent the marginal edges of the longitudinal opening therein to be stretched evenly with the other parts of the coat, a piece of cloth 28 divided longitudinally and connected by means of a slide fastener 31 has its parts sewn or basted at 28^a to the said marginal edges. This cloth 28 is cut on the bias so that it will permit the coat to stretch transversely and longitudinally.

The slide fastener 31 when opened enables the operator to reach the pins 27^d. To support the shoulder and collar of the coat during the stretching operation, collar pieces 27^e formed of sheet metal are adjustably pivoted at 27^h at one end on the side bars 1^o and have their other ends resting on the shoulder supporting portions of the upper sections 27^a. These upper sections are provided with transverse guides 27^f which lie behind the sleeve openings 27^g in the coat 20^o. To stretch the sleeves 20^r, I provide sleeve stretchers 29 each of which is provided with a laterally extending pin 29^b provided with a head for detachable connection with the adjacent guide 27^f. The stretchers 29 are thus free to move on the guides 27^f to compensate for any variation in the positioning of the sleeves in different coats. When the forms 27 are made of sheet metal, as shown in the drawings, openings 27^g are formed in the upper sections and the guides 27^f are formed as braces which extend across the openings 27^g. Each of these stretchers comprises two bars 29, 29^a which are adjusted relative to one another by means of toggle links 30 actuated by nuts 30^a threaded on right and left hand threads on a spindle 30^b having a crank handle 30^c. By turning the latter in one direction of rotation the nuts 30^a are axially moved towards one another to expand the bars 29, 29^a and thus stretch the sleeve of the coat.

While it is obvious from the foregoing description that various means may be employed to engage the bottom end of the coat 20^o and be actuated by the hereinbefore described slide 15 for stretching the coat longitudinally of the forms 27, I prefer to accomplish this result as follows. The cloth 28 is so cut that the lower end of it will extend around the bottom of the coat and project therefrom to form a circular extension 28^b which is sewn or basted at 28^c around the bottom edge of the coat. This cloth extension 28^b is engaged by the carding cloths 6, 6^a on the hereinbefore described band 4 and frame 7 in the same manner as the bottom end of the dress 20. The band and frame are then connected with the screw actuated slide 15 by means of the yokes 8, pull bar 9 and cramp bars 16 as hereinbefore described whereby the coat will be stretched longitudinally by turning the crank handle 12^f.

After the coat with the cloth 28 secured thereto is fitted on the forms 27, the sleeve stretchers 29 are inserted in the coat sleeves and the pins 29^b are engaged with the braces 27^f whereby the bars 29, 29^a will be positioned to transversely stretch the sleeves in a plane substantially at right angles to the upper surfaces of the side bars 1^o. When the stretching operations have been completed the opposite ends of the bars 1^o will be retained as adjusted by the hereinbefore described hanger 22 with its clamps 22^b, and the clamps 23 which secure the pull bar 9 to the ends of the bars 1^o remote from the hanger 22. The bars 1^o, frame 4, forms 27, sleeve stretchers 28 and the coat may thus be removed as a unit from the stretching apparatus so that the latter may be used to stretch another garment while the coat is drying.

What I claim as my invention is:

1. A garment stretcher comprising a pair of expansible side bars adapted to be fitted within the garment to be stretched; means for limiting the longitudinal movement in one direction of one end of the garment relative to the side bars; upper and lower members between which the bars pass; carding cloth carried by the members on their sides remote from said bars; and means for carrying carding cloth to cooperate with that on the members to secure one end of a garment between oppositely directed carding cloths, the said members and the last mentioned means being movable lengthwise of the bars.

2. A garment stretcher comprising a support; a pair of slides at each end of the support, the slides of each pair being movable away from and towards one another; side bars having their opposite ends removably carried on said slides; and means for securing the bars in the relative position to which they have been moved by the slides so that they will retain this position after removal therefrom.

3. A trouser stretcher comprising two pairs of slides spaced apart, the slides of each pair being movable away from and towards one another and each slide having two shoulders' located one above the other; and two pairs of side bars, each pair of side bars adapted to be fitted within a leg of the trousers so that the pairs of side bars overlie one another, each end of each side bar being engaged by one of the said shoulders.

4. A garment stretcher comprising a table; a shaft having right and left hand threads journalled at each end of the table; a slotted tube disposed on each shaft and secured from rotating therewith; nuts threaded on said right and left hand threads of each shaft; a slide carried by each nut and provided with a portion extending through the slot of a tube; and a pair of side bars removably carried by said slides.

5. A coat stretcher comprising a pair of expansible side bars; forms carried by said bars adapted to be fitted within the coat to be stretched for engagement with the shoulders and sides thereof; means for closing the longitudinal opening in the front of the coat comprising a piece of flexible material sewn to the marginal edges of said opening, the flexible material being divided longitudinally to provide access to the forms; and a slide fastener for connecting the marginal edges of the divided flexible material.

6. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; mechanism for moving the bars away from one another to stretch the garment

transversely, the bars being removably carried on said mechanism; and means for securing the bars in the relative position to which they have been moved by the said mechanism so that they will retain this position after removal therefrom.

7. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; means carried by the bars for limiting the longitudinal movement in one direction of one end of the garment relative to the side bars; means for gripping the other end of the garment; a pull bar connected with said gripping means and arranged transversely of the side bars; mechanism for moving the side bars away from one another, the side bars being detachably connected with said mechanism; mechanism for moving the pull bar and the gripping means relative to the first mentioned means to stretch the garment longitudinally, the pull bar being detachably connected with the second mentioned mechanism; clamps for securing the side and pull bars as adjusted by the said mechanisms; and means for securing the ends of the side bars remote from the pull bar in the relative position to which the side bars have been moved by the first mentioned mechanism so that all the said bars will retain their relative positions after removal from the mechanisms.

8. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; two pairs of sleeve bars, each pair of sleeve bars being adapted to be fitted within a sleeve of the said garment; and a pin extending laterally from both sides of one of each pair of sleeve bars, one end of each pin being adjustably engaged with a side bar, the other bar of the pair of sleeve bars being adjustably mounted on the other end of the pin.

9. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; two pairs of sleeve bars, each pair of sleeve bars being adapted to be fitted within a sleeve of the said garment; and a pin carried by one of each pair of sleeve bars, the side bars and the other sleeve bars each having a series of holes any one of which is adapted to receive a pin.

10. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; two pairs of sleeve bars, each pair of sleeve bars being adapted to be fitted within a sleeve of the said garment, the side bars and one of each pair of sleeve bars each having a series of holes, the other of each pair of sleeve bars having a series of countersunk holes; pivot pins carried by the last mentioned sleeve bars adapted to be received in any one of the holes in the side bars and the first mentioned sleeve bars; and a headed pin carried in any one of the countersunk holes in each of the sleeve bars provided with such holes for engagement with a side bar.

11. A coat stretcher comprising a pair of expansible side bars; forms carried by said bars adapted to be fitted within the coat to be stretched for engagement with the shoulders and sides thereof, each form comprising a plurality of sections; and means for resiliently mounting the sections of each form on a side bar so that they will follow the longitudinal contour of a side of the coat.

12. A coat stretcher comprising a pair of expansible side bars; forms carried by said bars adapted to be fitted within the coat to be stretched for engagement with the shoulders and sides thereof, each form comprising a plurality of sections; strips of springy material, the sections of each form being secured to one of the strips; and means for detachably and adjustably mounting the strips on the side bars so that the sections of the forms will follow the longitudinal contours of the sides of a coat.

13. A method of stretching a garment which consists in drawing the garment over expansible stretcher side bars shaped to follow the general longitudinal contour of the garment, mounting the side bars on expanding mechanism, inserting sleeve bars in each sleeve of the garment; adjusting these bars relative to the adjacent side bars, operating the mechanism to expand the side bars, securing the upper ends of the side bars and the sleeve bars in fixed relationship, securing the bottom ends of the side bars in fixed relationship, securing the free ends of the sleeve bars in fixed relationship, and removing the side and sleeve bars with the garment stretched thereon, from the mechanism.

14. A method of stretching garments which consists in wetting the garment, positioning it upon a plurality of form fitting bars, mounting the bars on expanding mechanism, operating the mechanism to expand the bars, securing the opposite ends of the bars in fixed relationship, removing the bars, with the garment stretched thereon, from the mechanism, and drying the garment in its expanded position on the bars.

15. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; mechanism for moving the bars away from one another to stretch the garment transversely, the bars being removably carried on said mechanism; means carried by the bars for limiting the longitudinal movement in one direction of one end of the garment relative to the side bars; means for gripping the other end of the garment; mechanism for moving the gripping means to stretch the garment longitudinally, the gripping means being detachably connected with the last mentioned mechanism; and means for securing the bars and the gripping means in the relative positions to which they have been moved by the said mechanisms so that they will retain these positions after removal therefrom.

16. A garment stretcher comprising a pair of side bars adapted to be fitted within the garment to be stretched; two pairs of sleeve bars, each pair of sleeve bars being adapted to be fitted within a sleeve of the said garment; a pin carried by one of each pair of sleeve bars, the side bars and the other sleeve bars each having a series of holes any one of which is adapted to receive a pin; and means for locking the sleeve bars having the pins to the side bars.

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