

April 2, 1935.

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1,996,548

EXPANDING COLLAR IRONING DEVICE

Original Filed Feb. 2, 1933 2 Sheets-Sheet 1

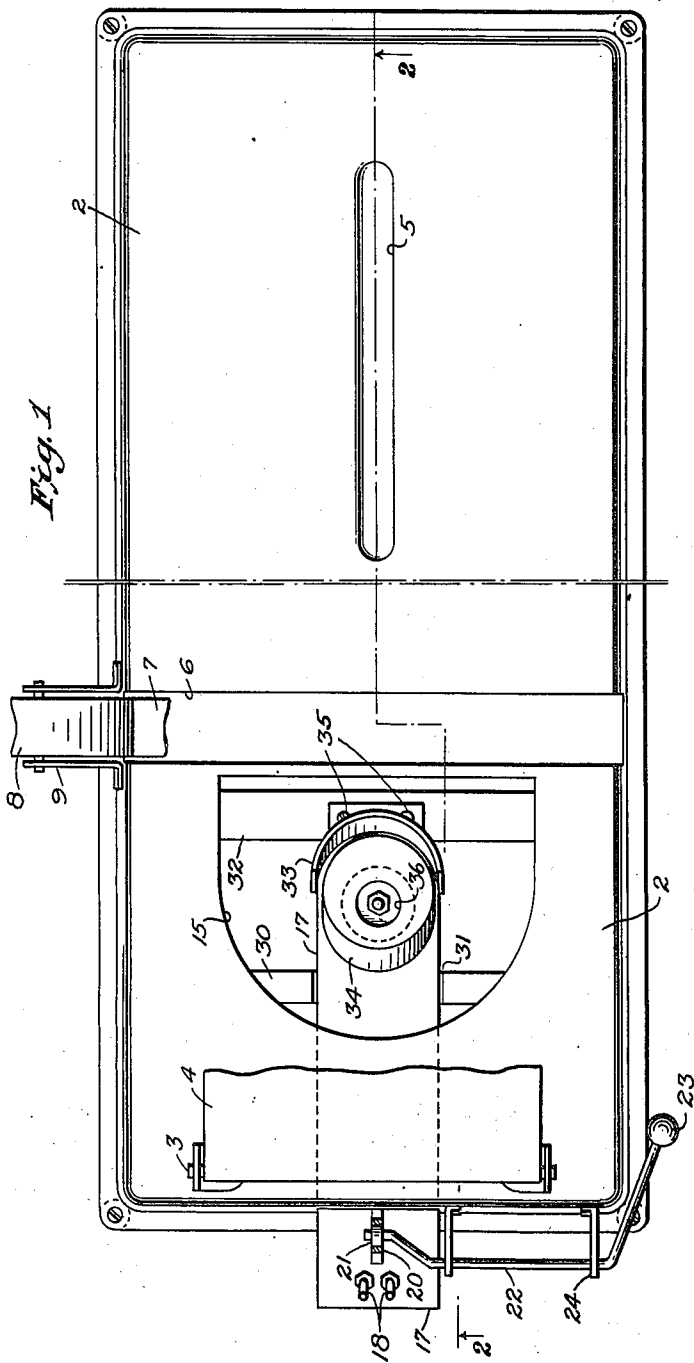


Fig. 1

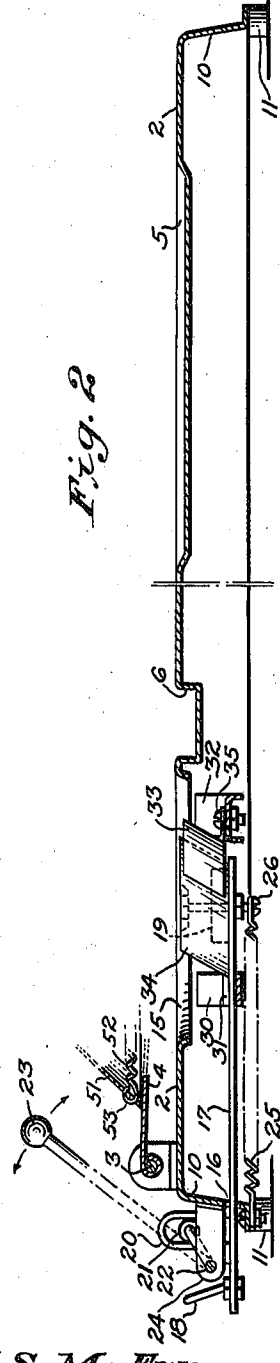


Fig. 2

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Fig. 3

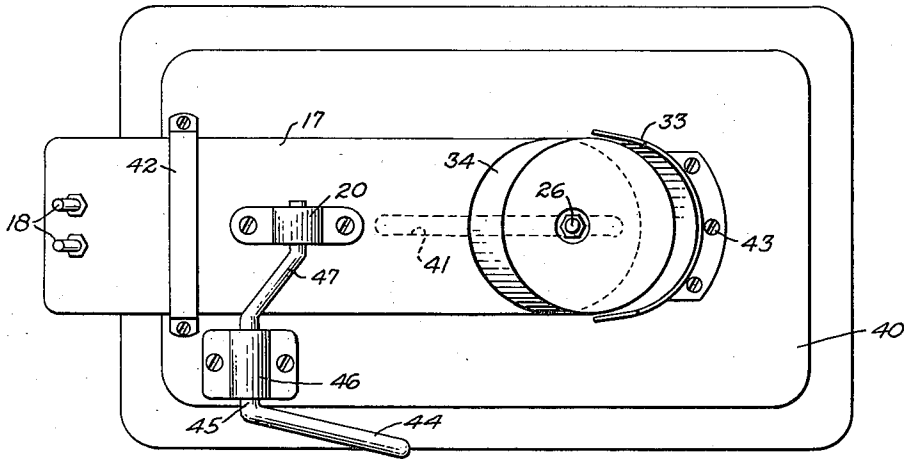


Fig. 4

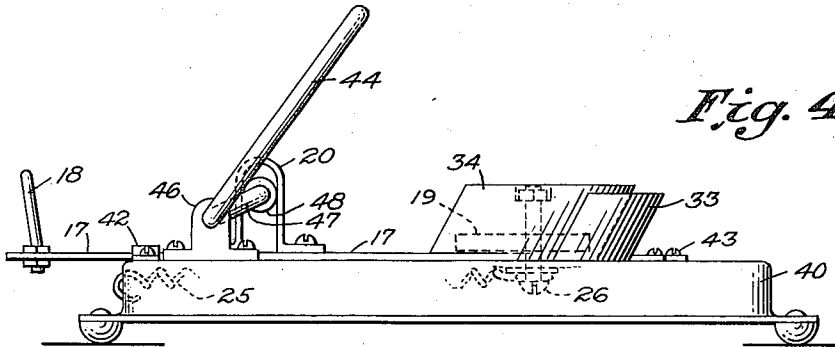
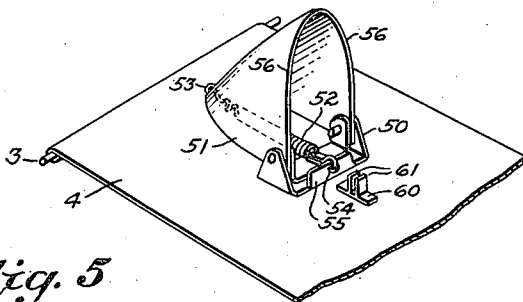


Fig. 5



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UNITED STATES PATENT OFFICE

1,996,548

EXPANDING COLLAR IRONING DEVICE

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Renewed November 2, 1934

7 Claims. (Cl. 223—15)

This invention relates to ironing devices for shirts and has for its object to provide a construction simple in parts and more efficient in operation than those heretofore proposed.

With these and other objects in view the invention resides in the novel details of construction and combinations of parts as will appear more fully hereinafter and be particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification and in which like numerals designate like parts in all the views,—

Fig. 1 is a top plan view of a shirt folding board to which this ironing device has been attached;

Fig. 2 is a vertical sectional view taken as on the line 2—2 of Fig. 1 and looking in the direction of the arrows;

Fig. 3 is a top plan view of a modification of construction wherein the ironing device is unassociated with a shirt folding board;

Fig. 4 is a side elevation of the parts shown in Fig. 3; and

Fig. 5 is a perspective view of the shirt clamp and cuff-buttonhole registering means.

This invention constitutes an improvement over and an addition to that disclosed in the U. S. Letters Patent No. 1,937,430 issued November 28, 1933, to Norman S. McEwen and Leroy E. Moulthrop entitled Shirt folding machine in that there has been added a neckband or collar ironer. This ironer is applicable to both collar-attached shirts and those having no collar, but more especially is it useful in connection with the collar-attached type since considerable difficulty is experienced in laundries in properly ironing the collars. That is to say this invention makes it possible to overcome the heretofore objectionable substantially triangular shape imparted to attached collars, and to finish such collars substantially circularly to more closely approximate the shape of the neck of the wearer. By attaching this ironer to a shirt folding board, the collar or neckband may be given a finish and set while the shirt is being folded.

In the drawings, 2 indicates a raised base to which is pivotally secured as at 3 a shirt folding board 4 which latter is only partially shown in Figs. 1 and 2 for the sake of clarity in illustrating the ironer. There is also provided a longitudinally extending groove 5 for accommodating the buttons of the shirt when centering the latter upon the base and folding board, and there is also provided a transversely extending channel 6 to receive therein the paper securing band 7 feeding from a roll 8 mounted upon brackets

9. The base 2 is elevated by virtue of downwardly extending substantially vertical wall portions 10, the lower edges of which are outwardly flared to receive supporting legs or rubber pads 11. The foregoing parts are substantial duplicates in every respect of the corresponding parts shown in said patent.

The base 2 has provided therein an opening 15 to receive therethrough the neckband, or the attached collar, of the shirt to be folded. In other words, the shirt is first ironed, then buttoned, and transferred face down to the shirt folding device so that the collar will pass through the opening 15 and the buttons will fall in the centering groove 5. The folding board 4 is then lowered about its pivot onto the shirt, after which the sides of the shirt as well as the sleeves and the tail thereof are folded about the edges of said board and secured by an encompassing length of the paper band 7. The shirt may then be removed by merely sliding it off the folding board 4.

A slot 16 is formed in the wall portion 10 of the base 2, in the narrow end thereof adjacent the opening 15, and in this guide slot is positioned a slide 17 the inner end of which has mounted thereon a collar ironing member. The opposite or outer end of this slide carries the usual two-post connector element 18 adapted to be engaged by a complementally formed female member of any well known type of electric attachment cord, each of the posts being electrically connected in circuit (though not shown for clearness) with a heating coil generally indicated in dotted lines at 19 in the drawings. There is at all times, a portion of the slide extending outwardly beyond the wall 10 of the base 2 so that manipulation of the slide may be readily accomplished either directly by hand or mechanically, the latter case being illustrated. That is to say, on this extending portion is mounted a vertically extending yoke member 20 adapted to receive therein a roller 21 carried at one extremity of a crank 22 whose opposite end terminates in a handle 23, the main body portion or shaft of said crank being journalled in brackets such as 24 secured to said wall 10.

It will thus be seen that by raising and lowering the handle 23 as indicated by the arrows, an arcuate movement is imparted to the end of the crank carrying the roller 21, and because the roller is confined in the yoke 20, the slide 17 is given reciprocatory movement. An important feature lies in the fact that the brackets 24 are so positioned that the axis of the shaft portion of the crank 22 lies in a horizontal plane which

is above the horizontal plane of the axis of the roller 21 when the latter is in its lowermost position. In other words, and with particular reference to Fig. 2, when the handle 23 is depressed the roller 21 will travel downwardly in the yoke 20 and ultimately stop when it contacts the upper surface of the slide 17 in which position the axis of said roller is below the axis of the shaft portion of the crank 22, this angular difference being approximately three degrees with respect to the horizontal. This insures the slide remaining in the innermost position to which it has just been moved until the handle is next raised.

Movement of the slide is accentuated by virtue of a coil spring 25, one end of which is secured to a bolt 26 utilized for securing the ironing member on one end of the slide, the other end of the spring being attached to the base 2, wherefore the slide is under a tension tending to cause its outward movement. Hence it is highly desirable to have the off-center relationship of the shaft 22 and the roller 21 in order that the hands of the operator may be free for folding the shirt. To aid in the reciprocal movement of the slide 17 there is provided a bracket 30 extending across and beneath the base 2 and having its ends secured to the walls of said base, said bracket having a depressed central channel portion indicated at 31 serving to guide the inner end of the slide. There is a second bracket 32 likewise secured to the under portion of the base for receiving a stationary ironing element now to be described.

The ironing device comprises two members one of which 33 is stationary whereas the other 34 is secured to and moves with the slide 17 toward and away from the member 33. Both members are substantially concentrically disposed with respect to the collar opening 15 and are located in the longitudinal center line of the base 2, the member 33 comprising a circularly bent piece of sheet metal having an extending flange adapted to be secured as by the bolts 35 to the bracket 32. The member 33 is substantially of semi-circumferential extent. The movable iron 34 is a chamber made of sheet metal whose horizontal top wall lies substantially in the plane of the upper edge of the stationary member 33, said top wall being provided with a depression 36 constituting a pocket to receive a securing nut applied to the free end of the bolt 26. The electric heating coil element 19, disposed within the chamber 34, may be suitably secured in place in any convenient manner as by the bolt 26 passing therethrough.

The member 34 is substantially cylindrical in cross section, with its axis inclined from the vertical about ten degrees in the central longitudinal plane of the slide. The stationary member 33 has a curvature similar to that of its companion member 34 and is also given a similar inclination in the vertical longitudinal plane of the slide, wherefore it may be said that the two members are parallelly disposed with respect to each other. This inclination of both members makes it possible to give to the neckband and/or collar the set which it eventually has, with respect to the rest of the shirt, when the shirt is being worn.

The inward throw of the slide 17 is limited when the roller 21 reaches its lowermost position in the yoke 20 and at this time the two members 33 and 34 are in substantial contact, with the result that they are ready to receive the neckband of the smallest size shirt to be ironed and folded. These members are expanded or moved

away from each other when the handle 23 is swung upwardly, this movement being aided by the force of the tensioned spring 25. Thus it will be seen that the ironing elements, upon the upward movement of the handle 23, may be said to automatically and substantially instantaneously adjust themselves to the size of the neckband of the particular shirt being folded, the spring holding the members in their expanded position until the folding operation is completed and the handle 23 lowered to release the pressure of the ironing members on the neckband.

Not all laundries may be equipped with boards for folding shirts, this operation being performed by hand, and therefore in Figs. 3 and 4 there has been shown a separate ironing device which can be used in such instances. In this modification there is provided a raised base 40 upon the upper surface of which is positioned the slide 17 carrying at one end the movable ironing member 34 secured as by the bolt 26, said bolt passing through a slot 41 formed in the upper surface of the base and serving to guide the ironing end of the slide. The remainder of the slide is guided by virtue of a metal saddle strap 42 disposed near the other end of the slide and suitably secured to the base 40. This strap may snugly fit the slide wherefore said slide may be manipulated directly by hand and therefore be devoid of any mechanical device for moving the slide such as that presently to be described. The stationary ironer element 33 is secured to the base 40 by virtue of the screws 43 as indicated. A modification of the crank heretofore disclosed is provided and constitutes a handle 44 angularly bent with respect to the axis of the shaft portion 45 which passes through a relatively wide single journal bracket 46 mounted on the upper surface of the base 40, the remainder of the crank having the offset portion 47 upon the end of which is mounted the roller 48 riding within the yoke 20 carried by the slide 17. The rest of the parts, as well as the operation thereof, are substantially identical to those hereinbefore described.

To the upper surface of the board 4 is attached a bracket such as 50 in which is pivotally mounted a substantially triangularly shaped clamp 51 preferably transversely of U-shape or similar formation to provide an interior space within which is disposed a coil spring 52 one end of which is secured to an end of the clamp as indicated at 53 and the other end of which is secured as at 54 to an upstanding tab portion 55 of the bracket 50. The point of spring attachment 54 is important since it is disposed below the horizontal plane of the pivots of the clamp as well as between the vertical plane of said pivots and the portion of the board 4 over which the shirt is folded.

This clamp is mounted centrally of the board 4 adjacent the hinged end thereof as shown, and is for the purpose of holding the folded over portions of the shirt adjacent the collar to free both hands of the operator for further operations. By forming the clamp as above stated, the walls thereof create edge portions 56 having a sufficient spread or spacing to clamp an appreciable area of the folded shirt to the board, as will be readily understood. Also the clamp is turnable about its pivots so that one or the other of its free ends may contact said board according to whether the clamp is in operative shirt holding position or is in its inoperative position which latter is illustrated in Figs. 2 and 5. By disposing the point of spring attachment 54 in off-center position with respect to the axis of the clamp pivots, the spring

52 will cause the clamp to automatically remain both in its operative and inoperative positions. A turning of the clamp about its pivots therefore will cause it to snap into the desired position.

5 This clamp is a substantial duplicate of that disclosed in said patent.

Also in the longitudinal center line of the board 4, and adjacent the clamp, there is mounted a device for registering the buttonholes of a double or French cuff in order to align the ends of the latter, said device comprising a plate 60 secured to said board and having two parallel upstanding blades 61 each in a transverse plane of the board. The blades are closely spaced so that they may lightly frictionally hold a suitable cuff holder not shown which will pass through the registered cuff buttonholes when the latter are slipped over the blades 61, the upper and protruding portion of the cuff holder being subsequently bent over prior to the removal of the cuff from said blades. The removal of the cuff will also remove the cuff holder from said blades, whereupon the lower portion of said holder may then be bent to secure the aligned cuff ends with their correctly registered buttonholes. This buttonhole registering device is a substantial duplicate of that disclosed in said patent.

The operation of the apparatus is as follows. A shirt is applied face down on the table or base 2 with the neckband or collar fitting about the ironing members 33 and 34 which latter are substantially together by virtue of the fact that the handle 23 has been depressed to bring the roller 21 to its lowermost position in the yoke 20 carried by the slide 17 in which position the slide is automatically locked under spring tension with the ironing members together. The collar or neckband is thus extending downwardly through the opening 15 in the top of the base, and the shirt is pivoted around said heating members until the buttons fall within the groove 5 wherefore it will be seen that these ironing members constitute a portion of the means for centering the shirt on said base. During this operation the folding board 4 will be in elevated position, and the clamp 51 will be in inoperative position with respect to said board because the clamp has to be moved into that position in order to remove the previously folded shirt from said board.

The usual cardboard stiffener may then be applied and the board swung downwardly so that the stiffener is between the shirt and the folding board. The cuffs of the shirt are then applied to the blades 61 for aligning the ends of said cuffs and the buttonholes thereof, and the cuffholder applied to the properly aligned cuffs, after which the sides of the shirt are successively folded over the longitudinal edges of the folding board, with each sleeve folded to extend longitudinally of the board. When the shirt is thus folded, the operator snaps the clamp 51 about its pivots to mechanically hold the shoulder portions, thereupon leaving the hands of the operator free to tightly and transversely draw the mid-portion of the shirt about the board adjacent the end thereof, and to then fold upwardly over said end edge the tail portion and cuffs of the shirt. The handle 23 is preferably raised at the time that the folding board is lowered, but of course it may be raised at any time after the placing of the shirt upon the base 2. When the handle is so raised, the roller 21 will move upwardly in the yoke 20 and as soon as it has passed the horizontal plane of the axis of the main body portion 22 of the operating crank, the tension of the spring 25 will automati-

cally urge the slide 17 in a direction to cause separation of the ironing members 33 and 34. This movement of the slide will continue until said members have become extended or expanded to closely fit the inner surfaces of the neckband or collar and, because the usual collar button has been applied previously to the application of the shirt to this apparatus, further movement or expansion of said ironing members will be prohibited due to the confines of the neckband or collar. The heat from the element 19 (or steam if electricity is not available) will have heated said members, and these heated members will remain in contact with the inner surface of the neckband until the handle 23 is again depressed to cause movement of said members toward each other, but said handle is not depressed preferably until the completely folded shirt is ready for removal from the folding board.

After the tail of the shirt has been folded upwardly and over the end of the folding board as hereinbefore stated, the clamp 51 is slightly raised and the extreme end of the tail of the shirt slipped thereunder after which the clamp is permitted its full operative position for holding the tail as well as the previously mentioned shoulder portions of the shirt. The two hands of the operator are again free and consequently the free end of the paper securing band 7 is passed through the channel 6 and brought up and over the completely folded shirt, and a suitable length cut from the supply roll 8 so that the free ends of the band may be secured. Then the clamp 51 is snapped to its full inoperative position indicated in Figs. 2 and 5, and the folded and banded shirt slipped off the folding board. The board is then raised about its pivot to permit the application of the next shirt to be folded and at this time it will be understood that the handle 23 will have been depressed to contract the heating or ironing members.

In case no mechanical device is employed for moving the slide, there may be provided a simple handle on the extending portion of the slide beyond the base 2 or 40, or the operator may move the slide by taking hold of any portion thereof. In such instance, the tension spring 25 will be eliminated, and the slide maintained in the position to which it is moved by virtue of frictional engagement with the slide supports and/or slide guiding means. On the side of safety, a light flat spring may be inserted between the slide and a surface of its guide and/or support to create a slight friction of constant tension sufficient to hold the slide in the desired position.

It is obvious that those skilled in the art may vary the details of construction as well as arrangements of parts without departing from the spirit of the invention, and therefore it is not desired to be limited to the foregoing except as may be required by the claims.

What is claimed is:—

1. In an apparatus of the character described the combination of a base upon which a shirt is placed; a board hinged to said base and over the edges of which the shirt is folded; a groove formed in the upper surface of said base to position a securing band beneath the folded shirt; and means to iron the inner surface of the neckband during the folding operation.

2. In an apparatus of the character described the combination of a base upon which a shirt is placed; a board hinged to said base and over the edges of which the shirt is folded; means formed in said base to position a securing band beneath

the folded shirt; and means to iron the inner surface of the neckband during the folding operation.

3. In an apparatus of the character described
5 the combination of a base upon which a shirt is laid face down; a board adapted to be placed over the laid shirt and over the edges of which the shirt is folded; means comprising two members, one member stationary and the other reciprocable, one of said members heated, said means
10 to iron the inner surface of the neckband during the folding operation; a slide mounted on said base and carrying the reciprocable ironing member; a spring interposed between said slide and said base to urge the former in a direction to
15 separate the ironing members; and means to actuate said slide, said means adapted to automatically hold said slide under the tension of said spring in a position with said members substantially together.

4. In an apparatus of the character described
20 the combination of a base upon which a shirt is laid face down; and means to iron the inner surface of the neckband while the shirt is so inverted, said means comprising two members one stationary
25 and the other reciprocable, one of said members heated and the other member partially surrounding the heated member to derive heat therefrom when both of said members are in close relationship.

30 5. In an apparatus of the character described

the combination of a base upon which a shirt is laid face down; and means comprising two neckband engaging members one reciprocable under spring tension to iron the inner surface of the neckband while the shirt is so inverted, the reciprocable member movable into and out of the other member.

6. In an apparatus of the character described
10 the combination of a base upon which a shirt is laid face down; means comprising two members, one member stationary and the other reciprocable, one of said members heated, said means to iron the inner surface of the neckband; a slide mounted on said base and carrying the reciprocable
15 ironing member as well as a connection to a source of heat; and means to actuate said slide while the shirt is so inverted.

7. In an apparatus of the character described
20 the combination of a base upon which a shirt is laid face down; means comprising two members, one member stationary and the other reciprocable, one of said members heated, said means to iron the inner surface of the neckband; a slide mounted on said base and carrying the reciprocable
25 ironing member; a spring interposed between said slide and said base to urge the former in a direction to separate the ironing members; and means to hold said slide under the tension of said spring in a position with said members substantially together.

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