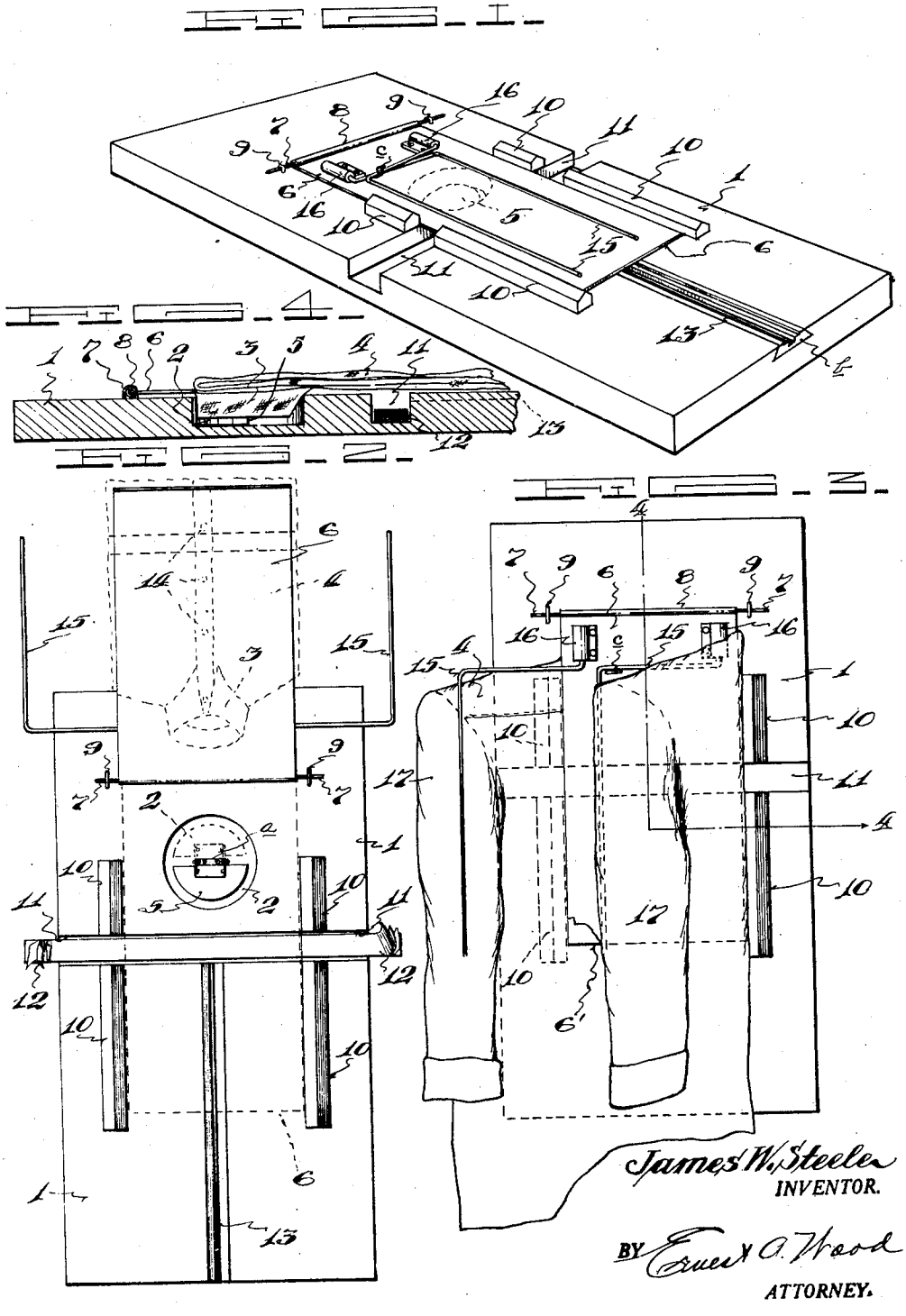
Aug. 6, 1935. J. W. STEELE 2,010,333

SHIRT FOLDING BOARD

Filed Jan. 30, 1931 2 Sheets-Sheet 1



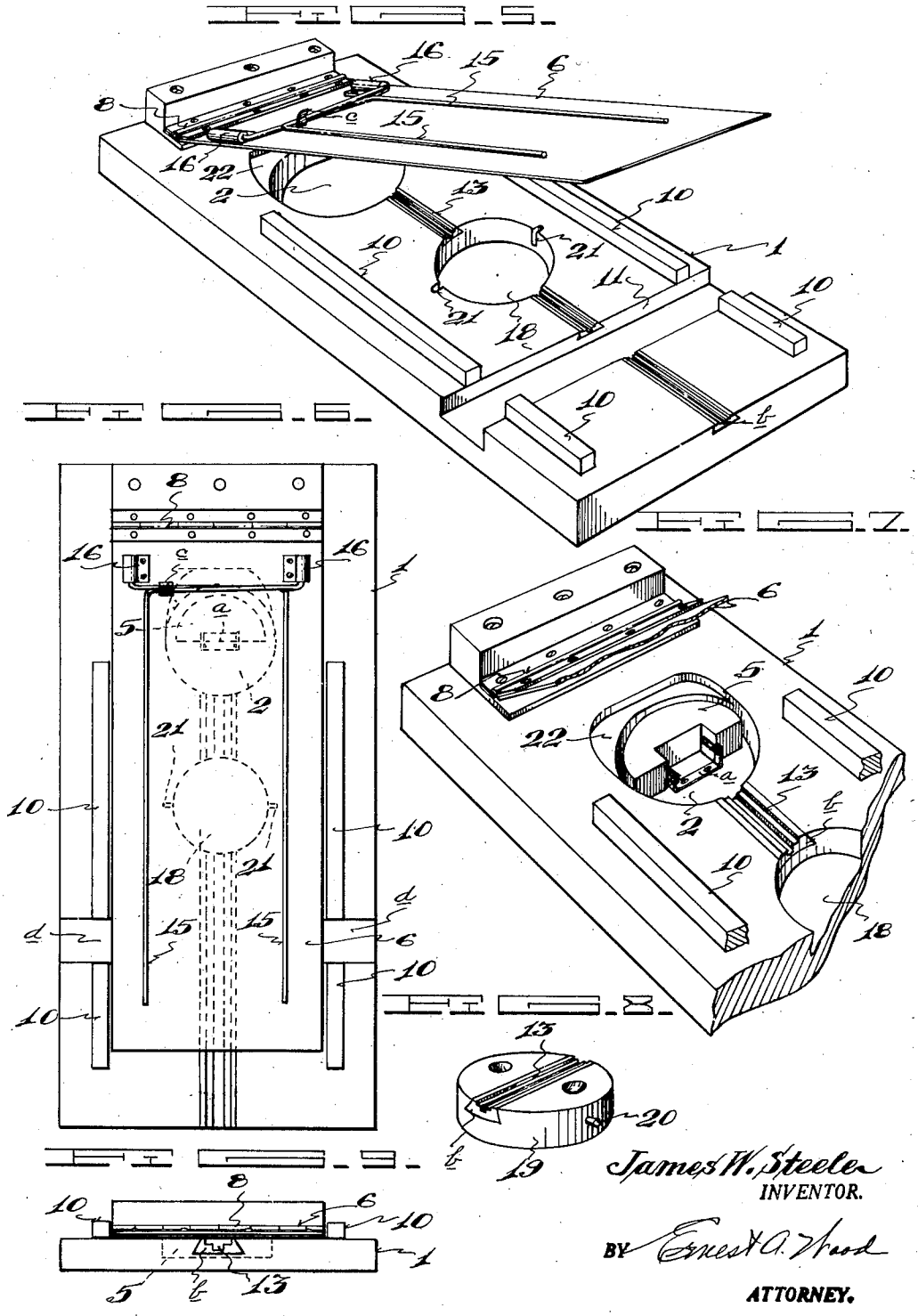
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SHIRT FOLDING BOARD

Filed Jan. 30, 1931 2 Sheets-Sheet 2



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Patented Aug. 6, 1935

2,010,333

UNITED STATES PATENT OFFICE

2,010,333

SHIRT FOLDING BOARD

James W. Steele, Dallas, Tex.

Application January 30, 1931, Serial No. 512,356

25 Claims. (Cl. 223—15)

This invention relates to laundry and shirt factory appliances and it has particular reference to certain new and useful improvements in shirt folding boards and the principal object of the invention resides in the provision of a shirt folding board capable of reducing to a minimum degree the number of operations required for the operator folding a shirt in the conventional manner for transportation, delivery or display.

Another object of the invention resides in its apparent simplicity and consequent economical manufacture, with the added features of practicability in that it is constructed so that a shirt may be folded in a natural manner without unseemly bulges, wrinkles or drawn seams, presenting an unsightly appearance when the shirt has been unfolded for use.

Still another object of the invention resides in the novel means by which the foregoing objects are attained, the mechanism being of such simplicity as to require but little training on the part of the operator, in order to fold the maximum number of shirts in a given period of time, and in addition to this, the number of operations required of the operator being materially reduced. as stated in the foregoing, this results in making the work less fatiguing and at the same time adding to the quality of the work performed by the operator on the invention.

Broadly, the invention comprehends the provision of an improved shirt folding board which is equally as proficient in its performance in factories as in laundries and makes for greater efficiency in either case, as well as lending materially to the appearance of the shirt, when folded.

With the foregoing objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts which will become manifest as the description proceeds, taken in connection with the accompanying drawings, wherein:—

Figure 1 is a perspective view of the invention showing the preferred design for use in laundries and the like.

Figure 2 is a plan view with leaf elevated.

Figure 3 is a further plan view, showing a shirt partially folded thereon.

Figure 4 is a fragmentary sectional view on line 4—4 of Figure 3.

Figure 5 is a perspective view of the preferred form of the invention for use in shirt factories, where a slightly different fold is required.

Figure 6 is a plan view of Figure 5, with the leaf in collapsed position.

Figure 7 is a fragmentary view in perspective showing the collar recess and adjustable retaining block.

Figure 8 is a detail view of a replacement block for use with one of the collar recesses of the boards shown in Figures 5 to 9 inclusive, and

Figure 9 is a rear end elevation of the board.

Continuing more in detail, it may be stated that while there appears to be a modified form of the invention in the several figures shown, it is pointed out that in these different views, the invention remains the same in principle and departs from the construction only to such extent as to render one of the forms more practical for the same use but under different circumstances. In other words, the board embodying the invention which is herein mentioned as being practical for laundry use is altered only slightly to render the same equally as practical for folding shirts in shirt factories, although the first mentioned construction may serve the purpose in each instance, depending upon the fold required by different factories and laundries. In some cases, the shirt, after having been folded is inserted into a suitable envelope, and in other cases it is found to be sufficient to place a band about the shirt to hold the same in folded position. Still in other cases, especially in shirt factories, the shirt is pinned in folded position and thus held against its being accidentally unfolded. The present invention anticipates these different conditions and provides a means by which each may be fully and effectively met. In order to describe the invention in the most comprehensive manner, the parts of each of the boards shown in the drawings will bear the same characters of reference.

The invention is comprised primarily of the base member or board 1, of a suitable length, width and thickness and composed of wood or metal, as is found to be most desirable. The board 1, conventionally, is placed upon a suitable table or bench of an appropriate height to be convenient to the operator, but may also be provided with legs by which it may be independently supported for portability. With reference to Figures 1 to 3 inclusive, it will be noted that a recess 2 is made in the board at the point adjacent to the top thereof. This recess is preferably circular and is intended to accommodate the collar 3 of the shirt 4, in the manner shown in Figure 4.

Within the said recess 2 there is provided a semi-circular block 5, hinged at *a*, in order that the same may be adjusted to suit the requirements for shirts of different sizes, including those having attached collars and those having simple a collar band to which a separate collar is attached.

For shirts having relatively small-size collar openings, the position of the block shown in solid lines in Figure 2 is maintained, but in folding shirts of relatively larger size, the block 5 is moved to the dotted line or rearward position shown in Figure 2. A more comprehensive showing of the block 5 is made in Figure 7. In its forward position the block affords clearance for the back portion of the collar or neckband, and allows the front portion of the latter to be snugged up against the forward wall of the recess 2 as the shirt is pulled down to aline its button facing, as hereinafter referred to, while in its rearward position the curved edge of the block provides an abutment for the back portion of the collar or neckband as the shirt is pulled down and smoothed over the board 1 for the same purpose. In either of said positions the block moreover provides a rest for supporting the collar or neckband portion in the same plane with the body of the shirt as required to prevent the formation of wrinkles around the base of the collar opening.

Referring again to Figure 1, it will be noted that a plate 6, of metal or material of similar characteristics is hinged at one end to a point nearest the upper end of the board 1, the hinge, in the present instance, being represented by a rod 7 passing through a ferrule 8 integral with the end of the leaf or plate 6.

The ends of the rod 7 are passed through loops 9 and are adapted to turn therein to allow the leaf 6 to be moved to the position shown in solid lines in Figure 2. The leaf 6, when folded upon the board in the manner shown in Figures 1 and 3, lies between guide rails 10, disposed in parallel relationship, lengthwise of the board 1 and necessarily in spaced sections due to the presence of a transverse groove 11 extending across the board at a point a little below the collar recess 2. This groove is adapted to contain a multiplicity of strips of paper or other material 12, as shown in Figures 2 and 4, according to conventional practice, as explained in the course of the description of operation.

Communicating with the said groove 11 and extending the full length of the board 1, in parallel relationship with the guide rails 10 is a flute or dado 13. This flute or dado has a filler of rubber or other plastic material, designated at *b* and accommodates the row of buttons 14 down the front of the shirt. In this connection it is important to note in Figure 9 that the material *b* is provided with a large and small flute, the large flute being adapted to receive the facing of the shirt, while a smaller flute receives the buttons along the front of the shirt, which feature prevents accidental wrinkling or folding of the facing, and enables the operator to align the shirt with the maximum degree of uniformity.

Secured to the leaf 6 for pivotal, outward swinging movement are arms 15. These arms have their pivotal ends journaled in bearings 16 affixed adjacent the hinge 8 of the leaf 6 so that the said arms may be moved relative to and with the said leaf, but in inoperative position they are folded in the manner shown in Figures 5 and 6 and locked in such position by means of a clamp *c*. The leaf 6 is then capable of movement on its hinge 8 without being interfered with by the said arms 15. On the other hand, when the arms 15 are operatively moved, they are lifted out of engagement with the clamps *c* and thrown outward, as illustrated at the left in Figure 3, in which position the said arms are operative to engage the sleeves 17 of the shirt 4 and constrain their folding operation, in the manner to be described presently in the course of the description of operation.

Referring now particularly to Figures 5 to 9 inclusive, the board shown in these figures differs from the construction described in the foregoing only to the extent that an auxiliary collar recess 18 is provided in the board 1, just below the collar recess 2 adjacent the upper end of the board. This recess 18, when inoperative for any purpose, receives the block 19, shown in detail in Figure 8, said block having embodied therein a continuation of the dado 15 with the plastic filler *b*. The block is held in non-rotatable position in the recess 18 by means of pins 20, which are received in recess 21 in the walls of the said collar recess 18.

Particular attention is directed to the fact that the main collar recess 2 in the board shown in Figures 5, 6, 7 and 9 has a cutaway area 22 of only a fraction of the depth of the said recess 2. This feature enables the operator to make the necessary adjustments of the collar or collar band of a factory made shirt in order that other appurtenances of the shirt may fall within the desired positions. This feature is particularly important when the board is employed for folding shirts in factories and enables the operator to be assured of accurate alinement of the collar and bosom, as well as the sleeves of the shirt before any of the folding operations are begun.

In operation, the board best suited for laundry use will be first referred to, since there are slight variations in the manner in which the shirts are folded. The leaf 6 is raised into the position shown in Figure 2, in order that it will not interfere with the placing of the shirt in position for folding. When the leaf is in this position, the arms 15 are of course in collapsed position and so locked by the clamp *c*. The operator so places the shirt on the board that its collar or neckband portion rests upon the block 5 in the recess 2, and by pulling slightly upon the facing of the shirt to snug the front of said collar or neckband against the front wall of the recess (or the curved edge of the block) as already explained he smooths out the front of the shirt and at the same time determines proper placement of the buttons and facing by running the fingers down the facing lining.

After so placing the shirt, the leaf 6 is moved to the position shown in Figure 1 so that the edges of the said leaf 6 will engage the garment upon which there is brought a slight tension by reason of the guide rails 10, on either side of the edges of the leaf 6. This action tends to remove any wrinkles which might be present in the bosom of the shirt, which lies face downward, as assembled in Figure 4. After this operation is completed a suitable paste board card 6′ of a width slightly greater than the width of the leaf 6 is placed upon the leaf after the arms 15 have been released and moved outwardly so that the longer portions thereof overlap the edges of the board 1, as shown in Figure 3. The arms 15 being thus extended outwardly provide elements over which the sleeves of the shirt may be drawn to impart additional stretching and smoothing tension to the shoulder and the bosom portions of the shirt. Due to the fact that the arms 15 are in fixed relation with the leaf 6, insofar as lateral movement is concerned, the fold in the sleeve is always uniform and while the sleeve is not initially too tightly drawn over the extended arm, it is drawn sufficiently tight to insure proper tension when the arm is folded inwardly

over the leaf 6, in the manner shown in Figure 3, whereby additional stretching action is produced by virtue of the pivot of the arm being located inside the edge of the leaf 6 around which the shirt folding action is taking place; and when so folded, the clamp *c* engages and retains the folded arm and holds the sleeve in positive folded position. This is likewise the case of the other sleeve of the shirt, that is to say, when it is folded by means of the arm 15 in overlapped relationship to the other sleeve, the clamp *c* engages the lateral portion of the arm 15 and holds the same during the folding operation of the remaining portions of the shirt up around the end edge of the leaf 6 and then upon the previously folded portions of the shirt. The strips of paper or other material 12 being always accessible in the groove 11, are so arranged that the ends thereof protrude beyond the edges of the board 1, in the manner shown in Figure 2. The ends of one of the strips 12 in the groove are grasped and brought together about the folded shirt, including the interposed leaf 6. These strips usually have a suitable portion of adhesive material thereon and may be thus held together or the ends thereof may be joined together by means of a common pin. With the completion of this last operation, the shirt may be withdrawn from the leaf 6 for delivery. It is pointed out that in the course of the folding operations aforesaid, the stiffening board 6' may be applied before or after the leaf 6 is dropped to operative position, and since this board has been slightly bowed in its position between the rails 10, it of course springs back to its normal flat state when removed with the shirt, thus snugly engaging the side fold lines thereof, and by its spring action preserving the smooth finish of the shirt front. It is further pointed out that the invention is not limited to the use of the sealing bands 12, since it is apparent in Figure 2 that the leaf 6 may be raised to such position that an envelope of a suitable design may be slid upon the shirt while the latter is in folded position on the said leaf. Thus, the shirt contained in the envelope may be removed from the leaf in completely folded condition for delivery.

With reference to the slightly modified form of board shown in Figures 5 to 9 inclusive, the operation of folding the shirt is substantially the same with but one exception, in some cases. This exception lies in the fact that shirts prepared for display are usually folded twice as regards their length, probably so that they may be packed in more compact form for shipment and other purposes.

The collar or neck band, in the case of a shirt having either an unattached collar or a flat instead of an upstanding collar, is alined in the space 22, about the collar recess 2 and is thus placed upon the board at a point higher than in the previous case, so that two folds may be made in the body of the shirt rather than the single fold made in the laundered shirt. When this is done, the leaf 6 is dropped as in the previous case and the arms 15 extended, the space 22 accommodating the collar portion at such a level as to permit said leaf to rest flat upon the body portion of the shirt.

The arms 17 of the shirt are folded as explained in the foregoing, with or without the conventional stiffening board. The shirt may then be grasped at some point below the lower edge of the leaf and pulled downwardly, with the arms 15 in collapsed position, until the collar or collar band falls into the recess 18. The shirt is then folded at a point at the approximate middle of the bosom so that the lower portion of the bosom will overlie the folded arms of the shirt, after which the tail of the shirt is folded in the opposite direction and instead of extending upwardly, in this case the extreme tail of the shirt extends downwardly, whereupon one of the bands lying in the area *d* in Figure 6, is brought around the folded shirt to hold the same in folded position. The shirt is then drawn from its position on the leaf 6. In this connection it may be mentioned that while the strips of paper or other material used for binding the shirt in folded position are deemed desirable, they are not necessarily used in connection with the invention, since it is obvious that the shirt may be pinned in folded position in accordance with conventional practice. On the other hand, the shirt may be placed in a suitable envelope as in the preceding instance.

It is clearly apparent from the foregoing description that through the medium of the improvements afforded by the present invention, a number of operations required in folding shirts both in laundries and in shirt factories may be reduced to the very minimum, thereby effecting a material saving in time and expense to the owners and minimizing the effort on the part of the operator required to fold the shirts and consequently increasing the number of shirts which the operator is capable of folding. In addition to this, the shirts so folded are devoid of any wrinkles and consequently add materially to the quality of service afforded by any laundry or factory.

Manifestly, the construction shown is capable of considerable modification and such modification as is considered within the scope and meaning of the appended claims is also considered within the spirit and intent of the invention.

What is claimed is:

1. A garment folding apparatus including a base portion having a collar receiving recess therein and guide rails affixed to said base portion and extending in parallel relationship therewith, a leaf member hinged to be received between said guide rails and foldable means on said leaf member arranged to be operatively extended beyond the edges of said base portion.

2. A garment folding apparatus including a base portion having a collar receiving recess and a pair of guide rails, means conformably receivable between said rails to bring tension on said garment and means attached to said tensioning means to be operatively extended beyond the side edges of said base portion.

3. A garment folding apparatus including a board having a collar receiving recess and a pair of sectional guide rails spaced to receive the body of a garment, means foldable on said garment whose edges are brought into contiguous relationship with said guide rails to tension said garment and means carried by said foldable means and extendable outwardly in opposite directions to provide tensioning means for the sleeves of said garment.

4. A garment folding board having a collar receiving recess and a pair of opposed guide rails to receive the body of said garment, means foldable into the area between said guide rails to bring tension on said garment jointly with said guide rails and means carried by said latter means to provide a tensioning means for the appurtenances of said garment.

5. A garment folding apparatus including a board having a collar receiving recess therein, a leaf member hingedly connected to said board and having pivoted means connected thereto arranged to be operatively extended beyond and parallel to the edges of said leaf member.

6. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and also with a longitudinal groove for accommodating the button facing thereof, and a lining of resilient material within said groove.

7. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and also with a longitudinal groove provided with a lining of yielding material for accommodating the button facing of the garment, said groove having a deepened portion for accommodating the buttons on said facing.

8. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and also with a longitudinal groove for accommodating the button facing thereof, the upper face of said member also having a deeper transverse groove intersecting said first groove for the storage of garment securing bands in position to be lifted into wrapping engagement with the folded garment.

9. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and also with a longitudinal groove for accommodating the button facing thereof, a lining of resilient material within said groove, and a leaf or panel member movable into and out of position over said groove and recess.

10. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and a block element pivotally mounted for movement to either side of said recess for accommodating different collar formations of the garment.

11. A garment folding construction comprising a base member formed with a recess for accommodating the collar portion of the garment, and also with a longitudinal groove for accommodating the button facing thereof, one side of said collar recess having a relatively shallower portion to form a supporting ledge for said collar portion during the initial part of the folding operation.

12. A garment folding construction comprising a base member provided with a supporting surface formed with spaced recesses located midway between the sides of said surface for accommodating the collar portion of the garment at different periods of the folding operation, and a leaf or panel member movable into and out of position over said recesses.

13. A garment folding construction comprising a base member provided with a supporting surface formed with spaced recesses located along the middle portion of said surface for accommodating the collar portion of the garment at different periods of the folding operation, a leaf or panel member movable into and out of position over said recesses, and a removable block for temporarily closing one of said recesses.

14. A garment folding construction comprising a base member formed with spaced recesses for accommodating the collar portion of the garment at different periods of the folding operation, and a removable block for temporarily closing one of said recesses, said base member being also formed with a longitudinal groove for accommodating the button facing of the garment and said block also having a groove continuous with and in alinement with said first groove.

15. A garment folding construction comprising a base member formed with spaced recesses for accommodating the collar portion of the garment at different periods of the folding operation, and a leaf or panel member movable into and out of position over said recesses.

16. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and movable elements carried by opposite sides of said panel member and operative to impart a slight tensional action to the opposite sides of the garment in the process of folding the same over said panel member.

17. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and garment folding elements carried by opposite sides of said panel member and operative to engage and fold the opposite sides of the garment over onto said panel member and simultaneously impart a transverse tensional action to the garment.

18. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and swinging garment folding and tensioning arms carried by the opposite sides of said panel member and operative by inward swinging movement to fold the opposite sides of the garment over onto said panel member while simultaneously producing a transverse tensioning action in the garment across said member.

19. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and garment folding and tensioning arms pivoted to said panel member upon axes spaced apart a distance slightly less than the width of said member, whereby the inward swinging movement of said arms for folding the sides of the garment upon the panel member will produce a simultaneous tensioning action in the garment crosswise of said member.

20. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, garment folding elements carried by opposite sides of said panel member and operative to engage and fold the opposite sides of the garment over onto said panel member and simultaneously impart a transverse tensional action to the garment, and means for latching said folding elements in garment folding relation.

21. A garment folding construction comprising a base member providing a garment supporting surface, fixed longitudinal strips spaced apart on said base member a distance representing the width to which the garment is to be folded, a movable leaf or panel member operative to press the garment between said strips, and means carried by the opposite sides of said panel member for folding the sides of the garment over onto said panel member and simultaneously imparting

a transverse tension action to the garment across said member.

22. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and parallel swinging arms carried by said panel member and movable from positions wherein the arms are separated a greater distance than the width of said member to positions overlying said member for folding the sides of the garment thereupon.

23. A garment folding construction comprising a base member providing a garment supporting surface, a leaf or panel member movable into and out of superposed relation to said surface, and parallel swinging arms carried by said panel member and movable from positions wherein the arms are separated a greater distance than the width of said member to positions overlying said member for folding the sides of the garment thereupon, said arms being pivoted upon axes separated a distance slightly less than the width of said member whereby the inward folding movement of said arms will produce a transverse tensioning action in the garment across said panel member.

24. Garment folding apparatus comprising a base member provided with a garment supporting surface, and spaced longitudinal guide rails on said surface for determining the longitudinal fold lines of the garment, said member having a transverse groove open to said surface for the storage of garment securing bands and said rails having openings registering with said groove for permitting the bands to be lifted into wrapping engagement with the folded garment.

25. A garment folding process which consists in laying and folding the garment along predetermined longitudinal fold lines, placing an expansible stiffening board upon the garment thus folded with said board slightly bowed transversely and its longitudinal edges in engagement with said fold lines, and thereafter completing the folding of the remaining portions of the garment over the board and releasing the board to expand to its normal state within the garment.

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