Dec. 16, 1958 S. C. PARRILLA 2,864,539

FLAP TURNING AND OPENING DEVICE

Filed Aug. 7, 1957 2 Sheets-Sheet 1

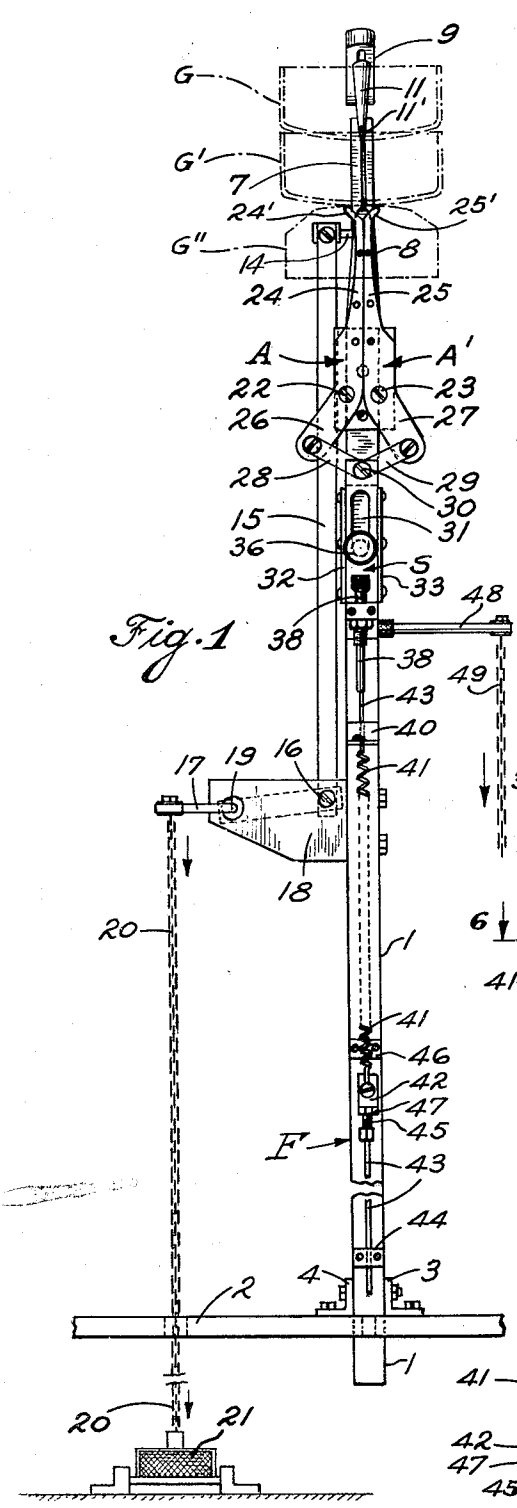


Fig. 1

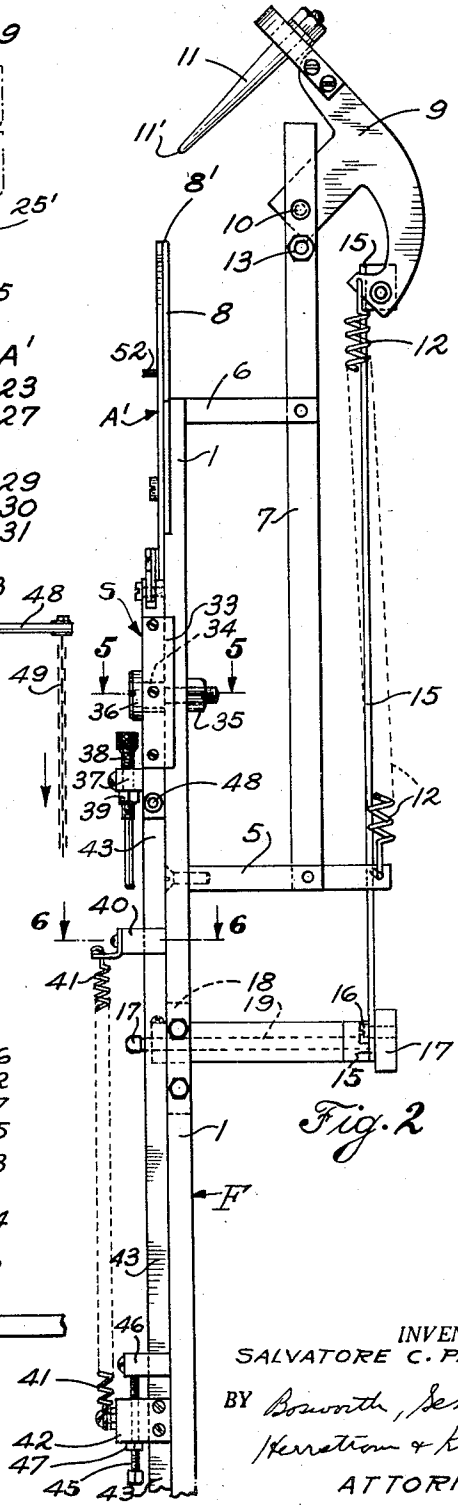


Fig. 2

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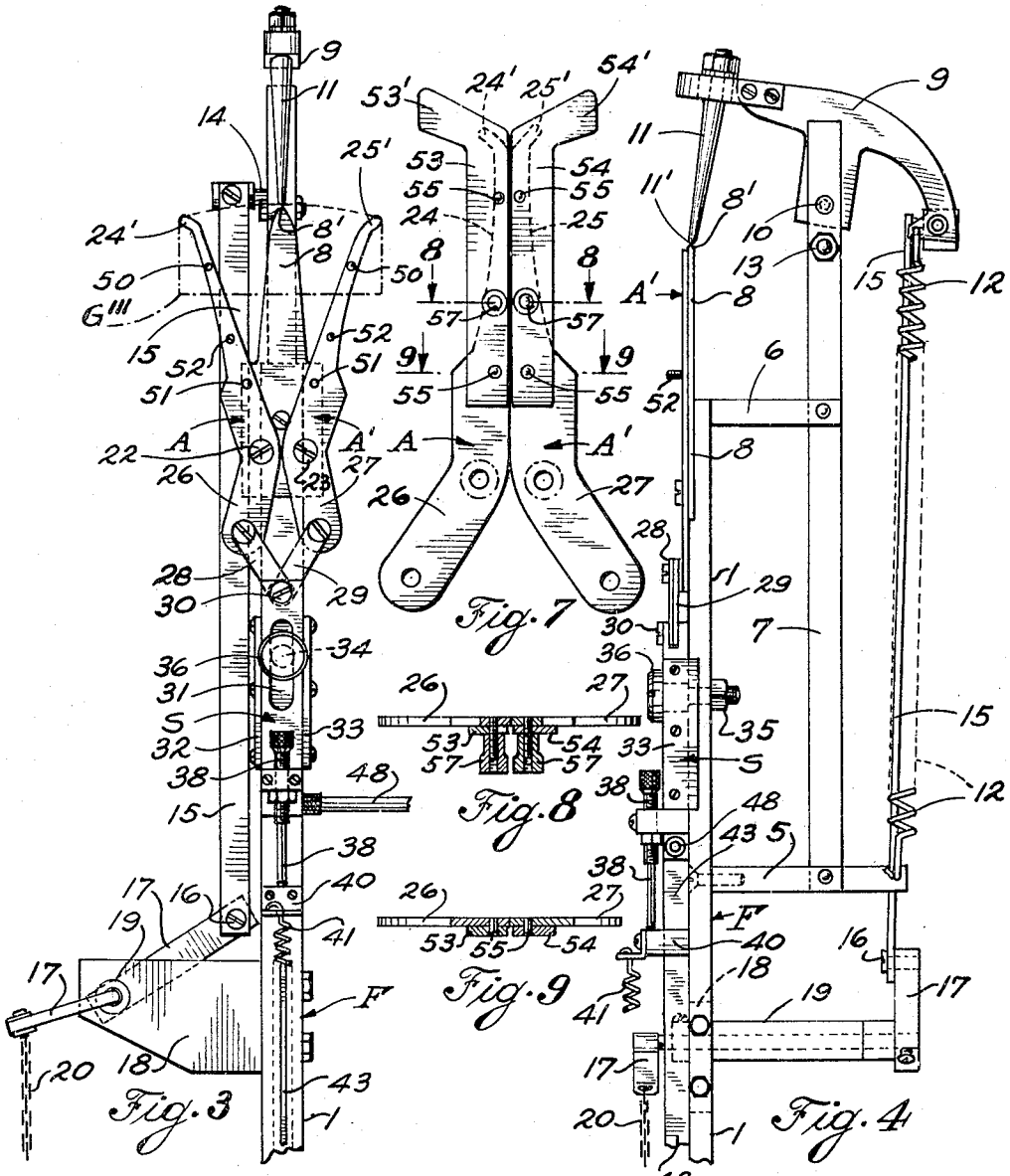


Fig. 3

Fig. 4

Fig. 7

Fig. 8

Fig. 9

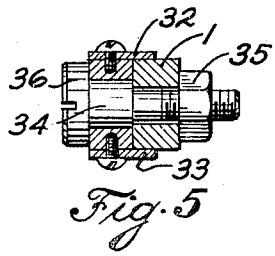


Fig. 5

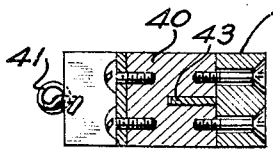


Fig. 6

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2,864,539

FLAP TURNING AND OPENING DEVICE

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Application August 7, 1957, Serial No. 676,808

13 Claims. (Cl. 223—41)

This invention relates to the manufacture of garment components such as pocket flaps and tabs, collars, cuffs and other items made of two layers of material stitched together around part of their periphery and which, before use, must be turned inside out preparatory to further stitching operations or being incorporated in a garment. More particularly, my invention relates to an improved apparatus for turning and opening such flaps or the like.

In the garment industry numerous clothing elements that are made of two layers of material must be stitched together around portions of their outer edges and thereafter turned inside out before attaching to the garment so that the stitching will not be visible in the finished article and so that the desired finished edge will be provided. The flaps which are commonly attached at the side pockets of men's suit coats are good examples of the type of garment component to which my invention is applied. However, other items such as collars, cuffs, etc. are made in the same manner and are subject to handling on my improved apparatus. Accordingly, where the term "flap" is used herein, it is intended to mean and include any and all garment components which are originally stitched together from two or more pieces of material and then turned inside out prior to incorporation in a finished garment. With many shapes of flaps, difficulty is experienced when they are turned inside out in getting the corners fully opened. Prior to my invention, flap turning and corner opening operations. have usually been carried on by hand in garment factories.

It is an object of my invention to provide apparatus which greatly facilitates the operations of turning a flap inside out and then spreading or opening the turned article so that all parts thereof are fully extended or expanded. Other objects of my invention include the provision of a flap turning and opening device which is readily adjustable to accommodate different sizes and shapes of flaps, which is rugged in design and which may be economically constructed and maintained, and by which an unskilled operator can turn and open a much larger number of flaps per unit of time than can be accomplished by the manual manipulations previously commonly employed in the garment industry.

The above and other objects of my invention will appear from the following description of one embodiment thereof, reference being had to the accompanying drawings in which:

Figure 1 is a front elevational view of my flap turning and opening apparatus mounted on a work bench or table and connected for foot treadle actuation, the parts being shown in their normal or idle positions ready to receive a flap for turning and opening.

Figure 2 is a side elevational view of the apparatus of Figure 1 but on a somewhat larger scale and illustrating only the upper portions thereof.

Figure 3 is a front elevation of the apparatus shown in Figures 1 and 2 but illustrating the parts in the positions they assume immediately after a flap has been turned and opened thereon.

Figure 4 is a side elevation of the apparatus shown in Figure 3, the parts being in the same positions as in Figure 3.

Figure 5 is a cross sectional view, taken substantially on line 5—5 of Figure 2, illustrating the support for the operating slide member.

Figure 6 is a cross sectional view, taken substantially on line 6—6 of Figure 2, illustrating the flap opening arm spring support, etc.

Figure 7 is a detached front elevational view of the flap opening arms with a pair of removable auxiliary end members secured thereto in order to accommodate flaps of different sizes than may be handled with the basic flap opening arms.

Figure 8 is a cross sectional view taken on line 8—8 of Figure 7.

Figure 9 is a cross sectional view taken on line 9—9 of Figure 7.

Referring now to the drawings, the apparatus illustrated includes a frame structure, generally indicated at F, having a vertical main support member 1 mounted on a work bench or table 2 as by the angle brackets 3 and 4. Secured to and extending rearwardly from the main support member 1 are horizontal bars 5 and 6 which in turn carry secondary vertical support member 7.

Mounted on the upper end of the main vertical support member 1 and extending upwardly therefrom is a flap support finger 8 which has its upper end formed into a rounded point 8' as clearly seen in Figure 3. A lever member 9 is pivotally supported at 10 adjacent the upper end of the secondary support 7 and carries at one end the downwardly extending flap gripping finger 11. The pivotal support 10, flap support finger 8, and flap gripping finger 11 are so disposed and proportioned that, when the lever 9 is moved about its pivot 10, the lower end 11' of flap gripping finger 11 will be moved in a generally vertical direction between a closed or gripping position in which it will engage the upper end 8' of flap support finger 8 (unless a fabric flap or the like is interposed beneath the fingers in which case the fabric will be gripped between the ends of the fingers) and an idle or open position in which the lower end 11' and the upper end 8' are spaced apart to permit a flap to be inserted therebetween as will appear later.

A tension spring 12 is secured to and extends from the end of lever 9 opposite the gripping finger 11 downwardly and is anchored at its lower end on an extension of the horizontal bar 5. This spring urges the gripping finger toward its open position as seen in Figure 2 and holds same in said open position except when the operator moves it into closed or gripping position. Opening movement of the lever 9 and gripping finger 11 is limited by engagement of a corner portion of lever 9 with a stop pin 13 as seen in Figure 2.

In order to enable the operator to move the gripping finger 11 into closed or flap gripping position relative to the support finger 8, a rod member 14 is secured to lever 9 adjacent the point of attachment of spring 12 and extends laterally therefrom as clearly seen in Figure 1. A link 15 extends downwardly from the rod 14 and is pivotally attached at 16 to a lever member 17. Secured to the main support member 1 is a laterally extending flange 18 which carries at its outer end a pivotal support 19 for the lever 17. A chain 20 or the like is connected to and extends downwardly from the outer end of lever 17 (which, as seen in Figure 1, is disposed on the opposite side of pivot 19 from the point of connection of link 15 to said lever 17). For convenience of operation the chain 20 may extend through the bench 2 and be connected to a suitable foot treadle 21 whereby pressure of the operator's foot will pull downwardly on the

chain 20. It will be understood, however, that other means, such as hand actuated connections, might be employed for moving lever 9 and gripping finger 11 into gripping position.

As previously indicated, when the parts thus far described are in their idle or open positions, the spring 12 holds the fingers 8 and 11 in spaced apart relation. When the operator desires to grip a flap unit between the ends of fingers 8 and 11 (for purposes to be described later), he pushes downwardly on the foot treadle 21 which in turn moves the outer end of lever 17 downwardly and causes upward movement of link 15. This upward movement of link 15 pushes the inner end of lever 9 upwardly against the action of spring 12 with consequent rotation of lever 9 about pivot 10 (in counter-clockwise direction as seen in Figure 1) and downward movement of the gripping finger 11 until its lower end 11' comes into gripping proximity to the upper end 8' of the flap support finger 8.

A pair of flap opening arms, generally indicated at A and A' respectively, are pivotally mounted on fixed pivot pins 22 and 23 which in turn are secured in the lower end of the flap support finger 8. At this support finger 8 is attached to and carried by the vertical main support member 1 of the frame F, it will be seen that the arms A and A' are in effect pivotally supported on the frame structure of the apparatus.

The arms A and A' have upper portions 24 and 25, above the pivot points 22 and 23, which lie closely adjacent the front face of the flap support finger 8 and, when the parts are in their open or idle positions as seen in Figure 1, are disposed adjacent to each other. The ends 24' and 25' of upper portions 24 and 25 preferably flare outwardly as seen in Figure 1 and are normally disposed adjacent to each other and to the upper end 8' of flap support finger 8.

As is also clearly seen in Figure 1, the lower end portions 26 and 27 of arms A and A' extend downwardly below the pivot pins 22 and 23 in diverging relation to each other when the parts are in their normal or idle positions. Operating links 28 and 29 are respectively pivotally connected at their outer ends to the lower ends of portions 26 and 27 of arms A and A'. The inner or lower ends of links 28 and 29 have a common pivotal support at 30 on an operating slide member S. This slide member S has an elongated slot 31 extending therethrough, and the side guide flanges 32 and 33 (see Figure 5) project rearwardly and engage the sides of the vertical main support member 1. A guide pin 34 extends through and is secured to the main support member 1 as by a nut 35 and has an enlarged head portion 36. Pin 34 extends through the slot 31 on slide member S and, together with the flanges 32 and 33, holds the slide S on the support member 1 for limited vertical sliding movement relative thereto. The lower end portion 37 of slide S projects forwardly and has a threaded hole extending vertically therethrough, through which a threaded adjusting screw 38 extends. Lock nut 39 on screw 38 may be tightened against the underside of lower end portion 37 to secure the screw 38 in the desired position of vertical adjustment for purposes which will later appear.

When the apparatus is moved into flap opening position as seen in Figures 3 and 4, the screw 38 moves downwardly with slide S until its lower end engages the top of a stop member and spring support 40 secured to and carried by main support member 1. The upper end of a tension spring 41 is secured to spring support member 40, and the spring extends downwardly in front of and generally parallel to support member 1. The lower end of spring 41, as clearly seen in Figure 2, is secured to a block 42 which in turn is secured to the vertically extending bar member 43. This bar member 43 extends upwardly adjacent the front side of main support member 1 through a slot in spring support member 40 (see Figure 6) and is secured at its upper end to the lower end of slide member S. In order to guide and properly support the bar 43, a guide block 44 is secured to support member 1 which, as seen in Figure 1, is slotted to permit vertical sliding movement of the lower end of bar 43 therethrough.

As the spring 41 is pre-loaded in tension, it at all times exerts an upward pull on block 42 and the bar 43. As bar 43 is secured at its upper end to the slide S, spring 41 is effective at all times to urge the slide S toward its upper or idle position. In order to provide a positive stop for this upward movement of slide S, an adjusting screw 45 extends through block 44 and is adapted, when the parts are in their normal idle or open positions as seen in Figures 1 and 2, to engage a stop member 46 mounted on main support member 1. Lock nut 47 is adapted to secure screw 45 in the desired position of adjustment which, as seen in Figures 1 and 2, is preferably such that upward movement of bar 43 and slide member S is stopped at the point when the upper portions 24 and 25 of flap opening arms A and A' just come together. As will be understood from the later description of the operation of my apparatus, in some cases it may be desired to limit upward movement of slide S at a point when arms A and A' are spaced apart to a degree, and the screw 45 and its associated parts permits such an adjustment readily to be effected.

Extending laterally from the lower end of slide S is an operating arm 48 having a chain or the like 49 secured to its outer end and extending downwardly to a suitable foot treadle (not shown but which may be similar to treadle 21 and mounted on the floor below the bench 2). When the operator pushes on this foot treadle, the chain 49 will be moved downwardly and the slide S will also move downwardly against the action of spring 41 until the lower end of adjusting screw 38 engages the stop member and spring support 40, as seen in Figures 3 and 4.

The operation of the above described apparatus to turn and open a flap will now be explained.

When the operator is not exerting pressure on the foot treadles, the parts will be in their normal open or idle positions as seen in Figures 1 and 2. The lower end 11' of flap gripping finger 11 is elevated above the upper end 8' of flap support finger 8, and the upper ends 24' and 25' of the flap opening arms A and A' are disposed close together and adjacent the upper end 8' of support finger 8.

The operator now takes a flap, for example a flap for the side pocket of a man's coat such as indicated in phantom lines at G in Figure 1, which is in the condition that it comes from the original stitching operation and slips it over the flap gripping finger 11 into the position seen at G as seen in Figure 1. The open end of the flap is up, and two layers of material are disposed on opposite sides of the finger 11. The flap is so positioned that its center is approximately at the lower end 11' of finger 11. After the operator so positions the flap he pushes down on foot treadle 2, moving the finger 11 downwardly until the material of the lower edge of the flap is gripped between end 11' of gripping finger 11 and the end 8' of support finger 8. The flap is now held by these fingers in the position indicated at G' in Figure 1 but has not yet been turned "inside out." The operator now "turns" the flap downwardly, using both hands for this operation and keeping his foot pressure on treadle 21 so that the flap is firmly held by the fingers 8 and 11, until the flap is reversed and assumes a position as seen at G'' in Figure 1. During this turning operation the upper corners of the flap frequently are not fully opened and to insure proper full opening the operator pushes downwardly on the flap opening treadle (not shown) which is connected to chain 49.

The downward pull on chain 49 in turn moves the slide S downwardly carrying with it the common pivot pin 30 of links 28 and 29. As slide S moves down-

wardly, the lower ends **26** and **27** of arms A and A' are drawn together and the upper ends **24** and **25** thereof are spread apart into the position seen in Figure 3. The outwardly flared upper ends **24'** and **25'** of arms A and A' are moved outwardly into the extreme corners of the flap causing these to be fully opened into proper condition for the next operation as seen at G''' in Figure 3.

As previously mentioned, downward movement of slide S is limited by adjusting screw **38** which is so set that when it engages the stop **40**, as seen in Figures 3 and 4, the ends **24'** and **25'** of the arms A and A' will have been spread apart just enough to exert the desired and proper corner opening force on the flap G. By adjusting the setting of screw **38** the opening movement of arms A and A' may be set to accommodate flaps of different widths but it will be understood that as long as one particular size and style of flap is being handled no adjustment of screw **38** will be required. If a shorter flap is to be handled, the screw **38** will be adjusted downwardly so that the downward stroke of slide S is less, thus reducing the outer or spreading movement of the upper ends of arms A and A'. Conversely, if a wider flap is to be handled, within the limitations of the apparatus, the screw **38** will be adjusted upwardly to permit greater spreading of the arms A and A'.

From the above description, it will be observed that my apparatus enables an operator to turn and fully open flaps in rapid succession, it being understood that upon completion of the opening operation the operator releases the pressure on both foot treadles, thus permitting spring **12** to lift the gripping finger **11** and spring **41** to close the arms A and A' back to their idle positions, whereupon the operator lifts the completely turned and opened flap off from support finger **8** and repeats the operation on another flap.

In order to facilitate proper opening of flaps of various sizes and shapes, I have provided means for readily changing the contour and size of the upper ends of flap opening arms A and A'. Referring to Figures 7, 8 and 9, the arms A and A' are the same as those illustrated in the other views. The upper end portions **24** and **25** of arms A and A' are each provided with locating holes **50** and **51** and forwardly projecting attaching screws **52**. Extension members **53** and **54**, having widely flaring upper end portions **53'** and **54'**, each have locking pins or dowels **55** which, as seen in Figure 9, extend into the holes **50** and **51** of arms A and A'. These extension members **53** and **54** also each have a hole **56** adapted to fit over the attaching screws **52** of arms A and A', as seen in Figure 8. Thumb nuts **57** are screwed onto the forwardly projecting ends of screws **52** and these nuts, when they are tightened down, serve, together with the dowel pins **55**, firmly to secure and lock the extension members **53** and **54** in position on the arms A and A'. The upper ends **53'** and **54'** of extension arms **53** and **54** may assume a wide variety of shapes and dimensions in order to accommodate different types and styles of flaps which are to be opened, and it will be understood that those illustrated in Figure 7 represent only one example.

As the extension members **53** and **54** may quickly and easily be changed, and as both the upper and lower limits of movement of slide S may readily be adjusted by means of screws **38** and **45**, it will be understood that even an unskilled operator can set up my flap turning and opening apparatus to handle a wide variety of different flap type garment components.

Although I have described the illustrated embodiment of my invention in considerable detail, it will be understood that variations may be made in the specific form, arrangement and proportions of the various parts and elements thereof without departing from the spirit of my invention. I do not, therefore, wish to be limited to the exact apparatus herein shown and described but claim as my invention all embodiments thereof coming within the scope of the appended claims.

I claim:

1. Apparatus for turning and opening garment flaps or the like including, a frame structure, a stationary upwardly extending flap support finger supported on said frame structure, a flap gripping finger, means on said frame structure for supporting said flap gripping finger for movement between a flap gripping position in close proximity to said support finger and an open position in which said fingers are spaced apart, a pair of separable flap opening arms carried by said frame structure and each having an upper flap engaging end portion, said flap engaging end portions being normally disposed adjacent to each other and to said flap support finger, and means carried by said frame structure for moving said arms to spread said end portions apart.

2. Apparatus for turning and opening garment flaps or the like including, a frame structure, a stationary upwardly extending flap support finger supported on said frame structure, a flap gripping finger, means on said frame structure for supporting said flap gripping finger for vertical movement between a flap gripping position in close proximity to said support finger and an open position in which said fingers are spaced apart, a pair of separable flap opening arms carried by said frame structure and each having an upper flap engaging end portion, said flap engaging end portions being normally disposed adjacent to each other and to said flap support finger, and means carried by said frame structure for moving said arms to spread said end portions apart equally and uniformly from said flap support finger.

3. Apparatus for turning and opening garment flaps or the like including, a frame structure, a stationary upwardly extending flap support finger supported on said frame structure, a flap gripping finger means on said frame structure for supporting said flap gripping finger for vertical movement between a flap gripping position in close proximity to said support finger and an open position in which said fingers are spaced apart, a pair of separable flap opening arms carried by said frame structure and each having an upper flap engaging end portion, said flap engaging end portions being normally disposed adjacent to each other and to said flap supporting finger, means carried by said frame structure for moving said arms to spread said end portions apart, and adjustable stop means for limiting the spreading movement of said arms.

4. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each movably supported on said frame below said upper end of said support finger, said arms having upper flap engaging end portions normally disposed adjacent to each other and to said upper end of said flap support finger, and means for moving said arms to spread said upper ends thereof apart equally and uniformly from said flap support finger.

5. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger pivotally supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends

are spaced apart, spring means for urging said gripping finger toward said open position, means for moving said gripping finger into said flap gripping position, a pair of flap opening arms each movably supported on said frame below said upper end of said support finger, said arms having upper flap engaging end portions normally disposed adjacent to each other and to said upper end of said flap support finger, and means for moving said arms to spread said upper ends thereof apart equally and uniformly from said flap support finger.

6. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each movably supported on said frame below said upper end of said support finger and having an upper flap engaging end portion, spring means for urging said upper end portions of said arms toward each other and said upper end of said flap support finger, and means for moving said arms to spread said upper ends thereof apart equally and uniformly from said flap support finger.

7. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, spring means for urging said gripping finger toward said open position, means for moving said gripping finger into said flap gripping position, a pair of flap opening arms each movably supported on said frame below said upper end of said support finger and having an upper flap engaging end portion, spring means for urging said upper end portions of said arms toward each other and said upper end of said flap support finger, and means for moving said arms to spread said upper ends thereof apart equally and uniformly from said flap support finger.

8. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, spring means for urging said gripping finger toward said open position, means for moving said gripping finger into said flap gripping position, a pair of flap opening arms each movably supported on said frame below said upper end of said support finger and having an upper flap engaging end portion, spring means for urging said upper end portions of the arms toward each other and said upper end of said flap support finger, means for moving said arms to spread said upper ends thereof apart equally and uniformly from said flap support finger, and adjustable stop means for limiting the spreading movement of said upper ends of said arms.

9. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger pivotally supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each having pivotal support on said frame below said upper end of said support finger, said arms having upper flap engaging end portions above said pivotal supports and normally disposed adjacent to each other and to said upper end of said flap support finger and lower actuating portions below said pivotal supports, said upper flap engaging end portions and said lower actuating portions of said arms being angularly offset relative to each other, an operating slide member supported on said frame structure for vertical sliding movement thereon, connecting links extending from the lower ends of said actuating portions of said arms to said slide member and having pivotal connections to said arms and said slide member whereby downward movement of said slide member will move said actuating portions of said arms together and said upper flap engaging portions apart, and means for moving said slide member vertically on said support to open and close said flap engaging portions of said arms.

10. Apparatus for turning and opening garment flaps or the like comprising a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger pivotally supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each having pivotal support on said frame below said upper end of said support finger, said arms having upper flap engaging end portions normally disposed adjacent to each other and to said upper end of said flap support finger above said pivotal supports and also having lower actuating portions below said pivotal supports, said upper flap engaging end portions and said lower actuating portions of said arms being angularly offset relative to each other, an operating slide member supported on said frame structure for vertical sliding movement thereon, connecting links extending from the lower ends of said actuating portions of said arms to said slide member and having pivotal connections to said arms and said slide member whereby downward movement of said slide member will move said actuating portions of said arms together and said upper flap engaging portions apart, spring means for urging said slide member upwardly on said support to close said flap engaging portions of said arms, and operator actuated means for moving said slide member downwardly to open said flap engaging portions of said arms.

11. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger pivotally supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each having pivotal support on said frame below said upper end of said support finger, said arms having upper flap engaging end portions normally disposed adjacent to each other and to said upper end of said flap support finger above said pivotal supports and also having lower actuating portions below said pivotal supports, said upper flap engaging end portions and said

lower actuating portions of said arms being angularly offset relative to each other, an operating slide member supported on said frame structure for vertical sliding movement thereon, connecting links extending from the lower ends of said actuating portions of said arms to said slide member and having pivotal connections to said arms and said slide member whereby downward movement of said slide member will move said actuating portions of said arms together and said upper flap engaging portions apart, spring means for urging said slide member upwardly on said support to close said flap engaging portions of said arms, operator actuated means for moving said slide member downwardly to open said flap engaging portions of said arms, and adjustable stop means for limitng said downward movement of said slide member.

12. Apparatus for turning and opening garment flaps or the like comprising, a frame structure, an upwardly extending flap support finger rigidly secured to said frame structure, a downwardly extending flap gripping finger pivotally supported on said frame structure above said support finger for movement between a flap gripping position in which the lower end of said gripping finger is in close proximity to the upper end of said support finger and an open position in which said lower and upper ends are spaced apart, means for moving said gripping finger into and out of said flap gripping position, a pair of flap opening arms each having pivotal support on said frame below said upper end of said support finger, said arms having upper flap engaging end portions normally disposed adjacent to each other and to said upper end of said flap support finger above said pivotal supports and also having lower actuating portions below said pivotal supports, said upper flap engaging end portions and said lower actuating portions of said arms being angularly offset relative to each other, an operating slide member

supported on said frame structure for vertical sliding movement thereon, connecting links extending from the lower ends of said actuating portions of said arms to said slide member and having pivotal connections to said arms and said slide member whereby downward movement of said slide member will move said actuating portions of said arms together and said upper flap engaging portions apart, spring means for urging said slide member upwardly on said support to close said flap engaging portions of said arms, operator actuated means for moving said slide member downwardly to open said flap engaging portions of said arms, adjustable stop means for limiting said downward movement of said slide member, and independent adjustable stop means for limiting said upward movement of said slide member.

13. Apparatus for turning and opening garment flaps and the like including, a frame structure, a stationary flap support finger supported on said frame structure, a flap gripping finger means on said frame structure for supporting said flap gripping finger for movement between a flap gripping position in engagement with said support finger and an open position in which said fingers are spaced apart, a pair of movable flap opening members carried by said frame structure and each having a flap engaging portion, said flap engaging portions being normally disposed adjacent to said flap support finger, and means carried by said frame structure for moving said flap opening members to spread said end portions apart and simultaneously open and form a pair of spaced corners of a garment flap.

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