June 5, 1951 W. F. GAYRING 2,556,079

SHIRT FOLDING MACHINE

Filed March 31, 1948 5 Sheets-Sheet 1

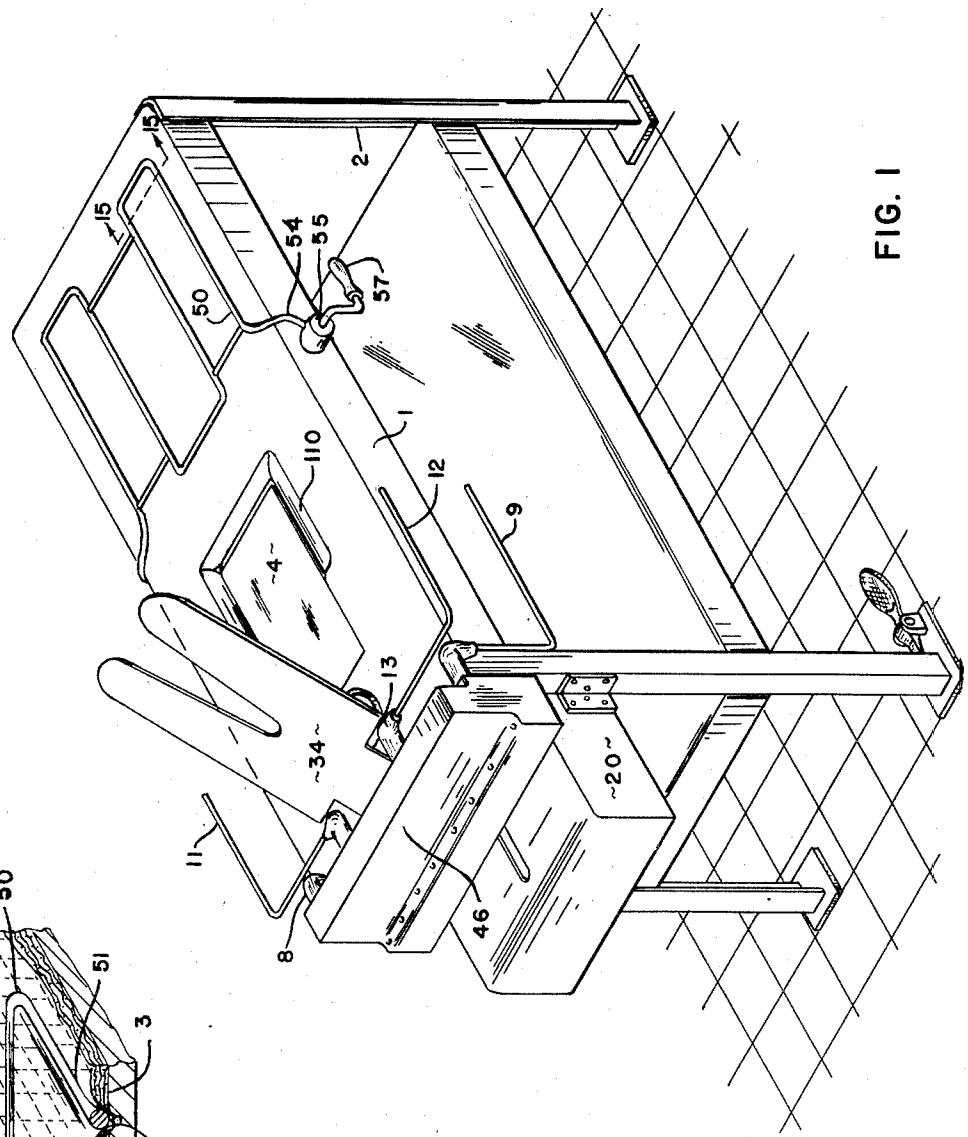



FIG. 1

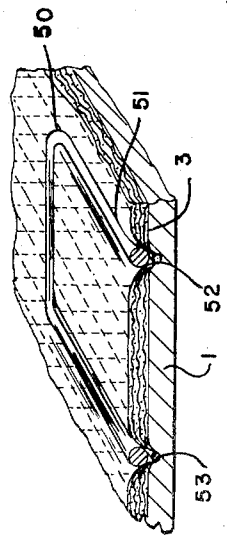



FIG. 15

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SHIRT FOLDING MACHINE

Filed March 31, 1948 5 Sheets-Sheet 2

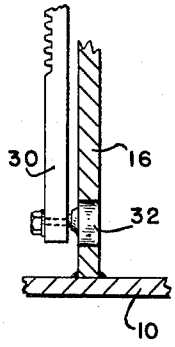



FIG. 4

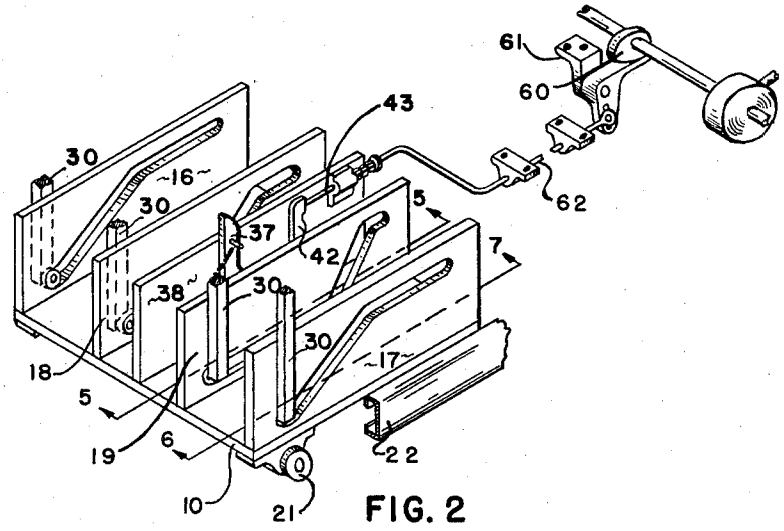



FIG. 2

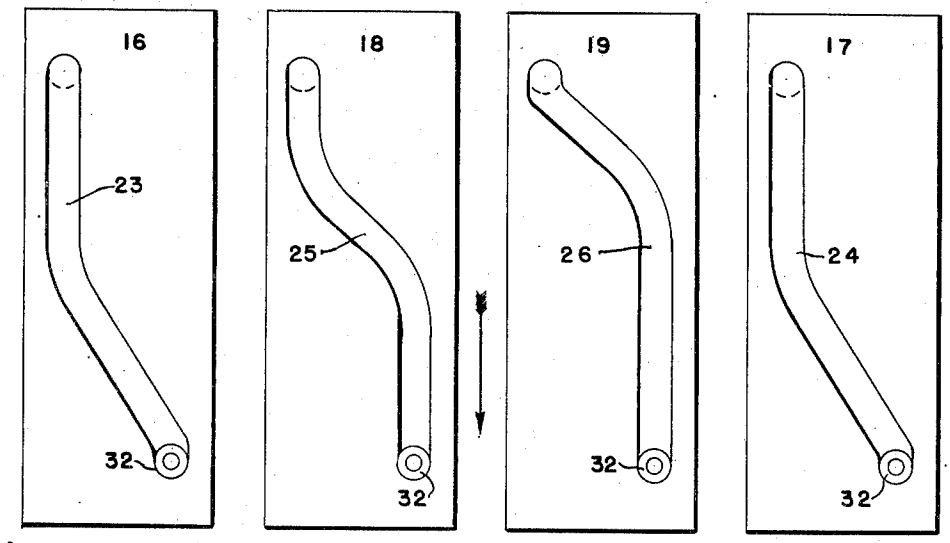



FIG. 3

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SHIRT FOLDING MACHINE

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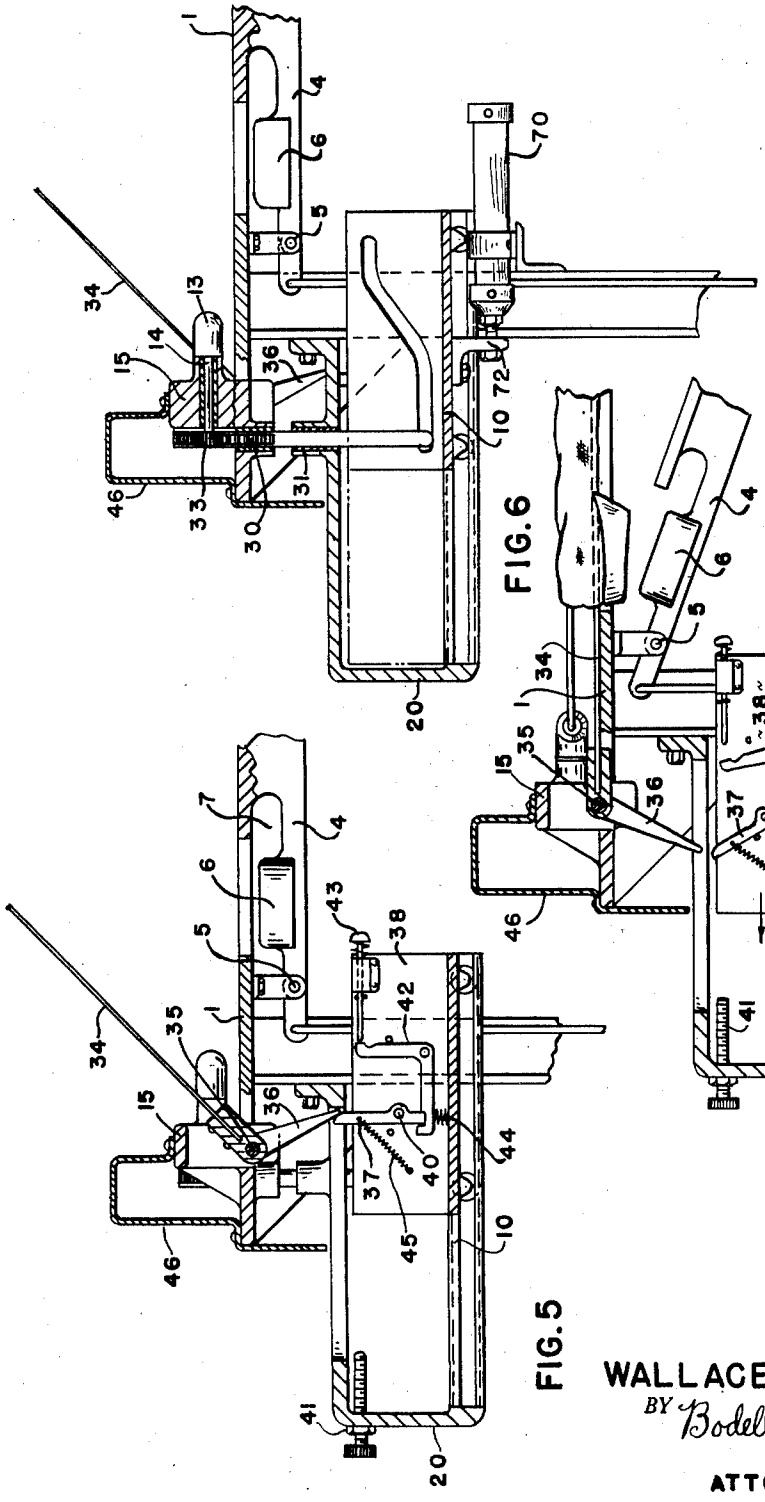


FIG. 5



FIG. 7



FIG. 6

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SHIRT FOLDING MACHINE

Filed March 31, 1948 5 Sheets-Sheet 4

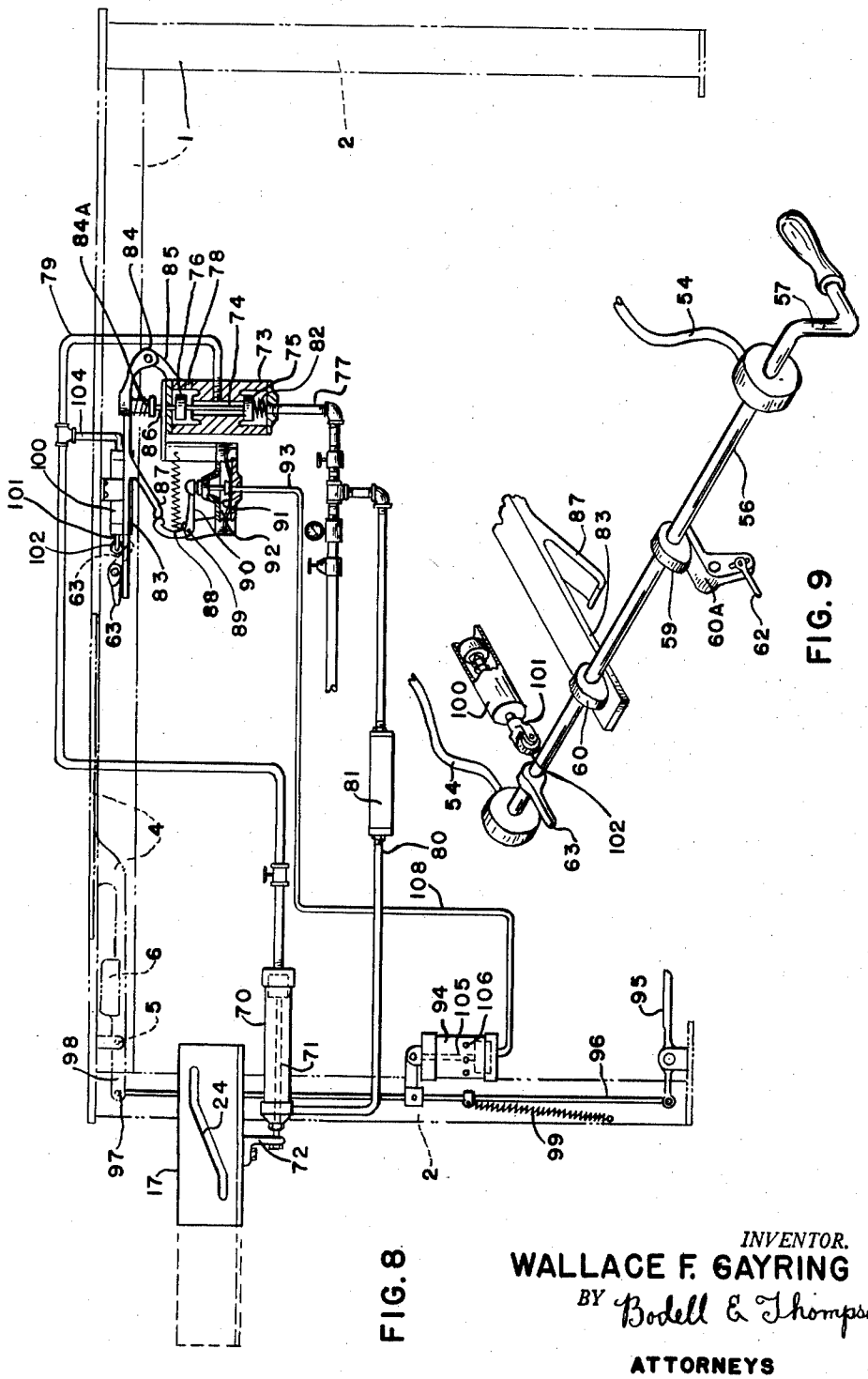



FIG. 9

FIG. 8

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SHIRT FOLDING MACHINE

Filed March 31, 1948 5 Sheets-Sheet 5

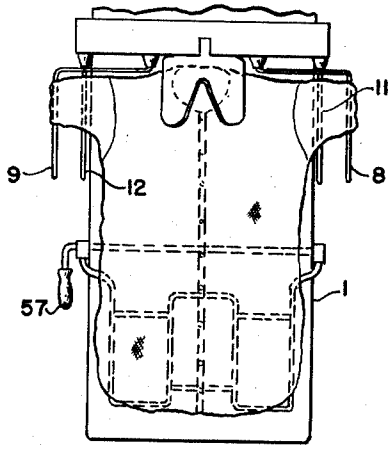



FIG. 10

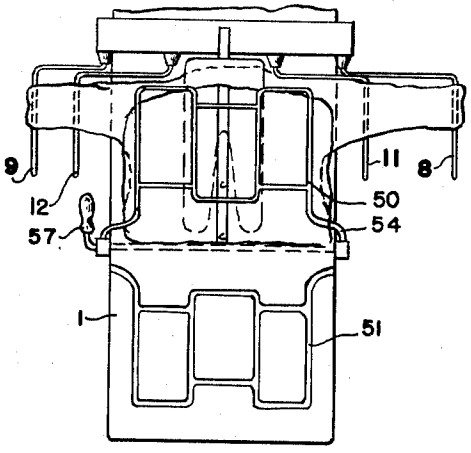



FIG. 11

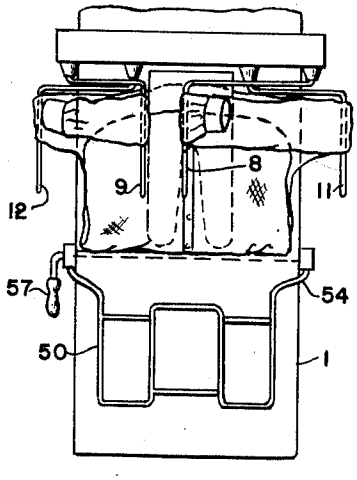



FIG. 12

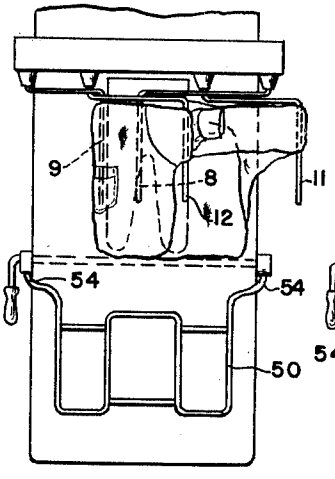



FIG. 13

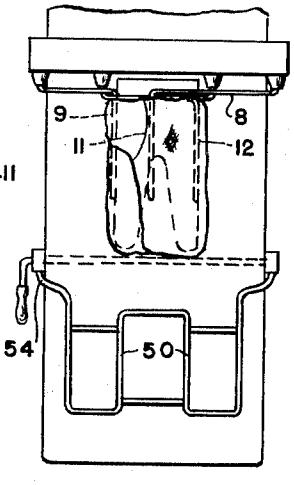



FIG. 14

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Patented June 5, 1951

2,556,079

# UNITED STATES PATENT OFFICE

2,556,079

## SHIRT FOLDING MACHINE

Wallace F. Gayring, Minoa, N. Y., assignor to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

Application March 31, 1948, Serial No. 18,261

13 Claims. (Cl. 223—37)

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This invention relates to shirt folding machines of the general type shown in Cooper Patent No. 2,362,976, November 21, 1944, and of Gayring and Neuroth application, Ser. No. 6,474, now Patent 2,508,108, dated May 16, 1950.

In the Cooper patent, outside and inside sets of folding arms of two arms each, fold the sleeves and lateral side portions of the shirt laid flatwise on the table of the machine, with the sleeves initially hanging over the side edges of the table, over on the lengthwise medial portion of the shirt. The tails of the shirt are folded by hand over on the back of the shirt and the folded sleeves and side portions. A paper band is then applied to hold the folded shirt, or a paper bag slipped over the shirt, and the packaged folded shirt slid off the folders. The folders then return to starting position. The outside set of sleeve folders are moved by power to folding position. The other or inside set of folders are moved by hand to folded position. Both sets return to unfolded position by power when the folded shirt is removed from the folders. In the Cooper patent, a pause is necessary before the inside set of folders are hand operated to give the operator time to rearrange the partly folded sleeves folded by the outside folders so that the cuffs will not be creased by the inside set of folders.

In both the Cooper patent, and in the Gayring and Neuroth application, there is no tail folder and hence time is lost folding the tails by hand. As the operator also usually tends a pressing machine performing the last pressing operation on a shirt, she attends the folding machine during short intervals when the pressing machine is closed, or is pressing. Hence, the amount of time she must be active at the folding machine between laying the shirt on the folding table and removing the folded shirt is a desideratum.

This invention has for its object a shirt folding machine having a tail folder which, upon being initially started to folding position, moves into and out of folded position and in so doing controls the folding operation without further attention of the sleeve and body folders of the machine to folded position, and also the lowering and elevating of a form or board about which the shirt is usually folded; so that the operator merely arranges the shirt on the folding table, starts the tail folder, and when the shirt is folded, places the band, or bag, thereon and slips the packaged shirt off the sleeve and body folders. No intermediate manipulations are necessary.

In shirt folding machines of the general type

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of the Cooper patent, the shirt is laid with its bosom side down on the table and the ironed collar projects into a well or hole in the table on to a collar form. In removing the folded shirt, it is necessary to lift or tilt it so that the collar is freed from the collar form. The invention further has for its object a folding table in which the portion of the table overlaid by the folded shirt, that is the folding area of the table, is shiftable downward to free the shirt collar from the collar form and provide clearance for a bag to be slipped onto the folded shirt preliminary to sliding the shirt off the folding arms.

Other minor objects appear throughout the specification.

The machine comprises generally a table on which the shirt is laid flatwise with the sleeves hanging over the side edges of the table, sets of outside and inside sleeve and body folders located to swing laterally across the head end area or half of the table to fold the sleeves and side body portions of the shirt and also to fold the tails of the shirt with the side portions of the shirt when the tails of the shirt are first folded up on the body portion, a tail folder on the foot area or half of the table and movable in a direction at a right angle to the folding movement of the sets of folders, to fold the tails up or over the body portion, the tail folder being movable in one continuous operation into and out of folded position alternately with the folding operation of the sets of folders, the tail folder being movable into folding position and in so doing controlling the operation of power means effecting the return of the last folder to starting position and the folding operation of the sets of folders, and also the unfolding or return of the sets of folders after the folded shirt is removed or slipped off the sets of forms.

In the machine here shown, the tail folder operates to first fold the tails of the shirt over on the upper unfolded area of the shirt preliminary to the lateral folding of the sleeves and side portions of the shirt over on the folding area of the table and hence, the prime mover, or operator-operated member, first operates the tail folder, or initiates the operation of the tail folder. The tail folder makes a complete cycle into and out of folding position before the sleeves and body folders complete their folding operations, although they may be at an intermediate part of their folding operation before the tail folder completes its return movement. The sleeve and body folders are returned by power to starting position by their actuating mechanism when the

folded shirt is slid off the folders by an endwise movement of the folded shirt, and hence frees the sleeve and body folders.

The shirt is usually folded around a form which first overlies the shirt after the shirt is laid on the table. The form is elevated off the table by the actuating mechanism for the sleeve and body folders at the end of the unfolding movement of these folders. It is latched in elevated position. The latch is released by the initial movement of the tail folding mechanism and falls by gravity onto the shirt on the table.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is an isometric view of this folding machine, parts being omitted.

Figure 2 is a fragmentary isometric view of the actuating mechanism for the sleeve and body folders, parts being omitted.

Figure 3 includes plan views of the cam plates shown in Figure 2 showing the relative positions of the lift portions of the cam slots.

Figure 4 is a fragmentary enlarged sectional view of the cam plates and the rack and the follower coacting therewith for transmitting the motion of each cam plate to one of the folders.

Figure 5 is a sectional view taken on approximately the plane of line 5—5, Figure 2.

Figures 6 and 7 are sectional views taken approximately on the plane of line 6—7, Figure 2.

Figure 8 is a schematic view of the power and control system for the actuating mechanism for the sleeve and body folders, and the tail folder.

Figure 9 is a fragmentary isometric view of the prime mover of the power and control system and contiguous parts.

Figures 10, 11, 12, 13 and 14 are plan views of the table with the shirt laid thereon, and the folders; Figure 10 showing the position of the folders at the start of the folding operation; Figure 11 showing the tail folder operated to folded position; Figure 12 showing the outside pair of sleeves and body folders in folded position and the tail folder back in starting position; Figure 13 showing one, as the left hand inside folder, in folding position; Figure 14 showing all folders, except the tail folder, in folded position.

Figure 15, Sheet 1, is an enlarged fragmentary sectional view through the table and pad thereon, on line 15—15, Figure 1.

The numeral 1 designates the table supported on standards 2. The top surface of the table is covered by a padding 3. The table is formed with a depressable section or door 4 toward one end, as the head end of the table, this being located midway between the side edges of the table and being of an area substantially the same as that of the folded shirt, or what might be called the folding area of the table. The section or door is hinged at 5 at its front edge to the table top and shifts downward about its hinge to carry a collar form 6 located in a depression 7 in the upper side of the door, out of the collar of the shirt, preliminary to removing the folded shirt from the table.

8 and 9 designate a pair of outside folding arms for partly folding the sleeves and side portions of the shirt, and 11 and 12 designate an inside pair of folding arms located to complete the folding of the sleeves and side portions of the shirt over onto the folding area of the table. The folding arms are in the general form of cranks mounted in hubs 13, one for each crank arm, these hubs being mounted, Figure 6, on shafts 14 journalled in frame bars 15 carried by the table at the head end thereof and extending transversely of the head end of the table. The frame bars are supported in position to overhang the table. The crank portions of the folding arms extend lengthwise of the table and terminate short of the transverse median line of the table. When the crank arms are folded, the folded shirt can readily be slipped off the ends of the crank portions.



The actuating mechanism for the folders 8, 9, 11 and 12, include reciprocally movable cam plates 16, 17, 18, 19, movable in a direction lengthwise of the table and being suitably slidably mounted in a carrier 10 movable in a support or casing 20 supported at the head end of the table and overhanging the same below the frame bars 15. The carrier 10 is provided with rollers 21 movable along tracks 22 supported by the frame or casing 20. Each cam 16, 17, 18, 19, is a flat plate, the plates being formed with cam slots 23, 24, 25 and 26, respectively, having their lift portions arranged in different transverse lines so that the cams start the actuation of the outside folders successively to each other, and the inside folders also successively to each other and to the outside folders. The motion of the cams is transferred to the shafts 14 of the folders by suitable motion transmitting means, each consisting of a vertically movable rack 30 carried by the casing 20 and slidable in suitable bearings 31, a follower 32 on each rack, the followers coacting with the slots 23, 24, 25 and 26 respectively, and pinions 33 on the shafts 14 respectively, and meshing with the corresponding racks. Obviously, as the cams move rearwardly, or to the left, from the position shown in Figure 6, the racks will be moved upwardly vertically and actuate the folders 8, 9, 11 and 12.

A form or board 34, about which the shirt is folded, is usually employed. This is here shown as pivoted at 35 to the frame bar 15, and as provided with a downwardly extending radial arm 36 for coacting with a latch 37 carried by a plate 38 movable with the carrier 10, the latch holding the form 34 in its raised or elevated position, Figure 5, and being releasable to permit the form to fall flatwise down onto the folded shirt on the table during the initial movement of the cams from their starting position so that the form lies flatwise on the shirt to be folded before the folders are actuated far enough to fold the shirt.

During the movement of the cam plates 16, 17, 18 and 19, and the plate 38 to the left, Figure 5, the folders 8, 9, 11 and 12, operate to fold the sleeves and side portions of the shirt over onto the form. The folders return to their starting position after the shirt is removed and therefore, the folders return to their starting position during the forward movement of the cams to the right back into the position shown in Figure 6. The latch 37, which is pivoted at 40 to the plate 38, is tripped at the beginning of the operating movement of the cams 8, 9, 11 and 12, to the left by operating means to be described, and is reset at the end of the operating movement of the carrier 10 to the left by a resetting pin 41 carried by the support or casing 20 and arranged to reset the latch 37 and hold it from pivotal movement during the return movement of the cams to the right so that the latch engages the arm 36 and

elevates the form into the position shown in Figure 5 at the end of the return movement of the carrier 10 and the cams 16, 17, 18 and 19. The latch 37 cooperates with a trip in the form of a bell crank lever 42 pivoted at its angle to the plate 38 and having one end in latching engagement with the latch 37, and its other end located to be engaged by an operating member 43 to be described. The movements of the trip 42 and the latch 37 are against returning springs 44, 45.

During the movement of the cams 16, 17, 18 and 19 to the left from the position shown in Figure 6, the folders 8, 9, 11 and 12, are moved to folded position. The latch supporting plate 38 at the same time moves from the position shown in Figure 5. At the initial movement of the cams and the plate 38, the arm 34 is released, permitting the form 34 to drop from the position shown in Figure 5 to that shown in Figure 7. When the cams 16, 17, 18 and 19 and hence the latch plate 38 reach the end of their movement to the left, the stop pin 41 engages the latch 37 and resets it into its latched position so that at the end of the return movement of the cams and the plate 38 to the right, the latch 37 will elevate the form into the position shown in Figure 5, this occurring after the folders 8, 9, 11 and 12 have been returned to their open or starting position. The operation of the form is one of the features of this invention.

A suitable housing 46, which is mounted on the main housing 20 enclosing the cams 8, 9, 11 and 12, encloses the upper ends of the racks and pinions and the latch mechanism for the form 34.

The tail folder is mounted on the rear end area, or half, of the table, and moves about a transverse horizontal axis midway of the table in a general direction at a right angle to the movement of the sleeve and body folders. 50 designates the tail folder, this being shown as formed of light wire or rods. It overlies the top of the table, it being here shown as normally lying in grooves 51 formed in the table, or the padding thereof, the padding being shown as held in the grooves by a rod 52 seated in alined grooves 53 in the table top and pressed down therein, depressing the padding therewith, see Figure 15. The tail holder 50 is provided with downwardly extending arms 54 extending over the edges of the table and mounted in hubs 55 on a transverse shaft 56 mounted in bearings on the table top beneath the same, the shaft having a handle 57 at one end. The shaft 56 is the prime mover, or operating member, for initiating the operation of the mechanisms of the machine, and for moving the tail folder to folded position. The tail folder is operated by applying force to the handle 57 to flip the tail holder from the position shown in Figure 1 to fold the tails of the shirt overlying the folder over onto the upper portion of the shirt. The tail folder immediately returns to its starting position by power. The operation of the cams 16, 17, 18 and 19, and also the release of the latch 37 for the form 34 is controlled by the initial movement of the tail folder.

As here illustrated, the shaft 56 is provided with cams 59 and 60 thereon arranged in different radial angles. The cam 59 coacts with a motion transmitting member, as one arm of an angle lever 60A, pivoted at its angle to a bracket 61 secured to the under side of the table, the other arm of the lever being connected to a push



rod 62 which thrusts against the operating member 43 for tripping the pawl 42 which holds the latch 37 in its normal position. Upon the initial movement of the shaft 56 by the handle 57, the cam 59 operates to release the latch 37 permitting the form 34 to drop by gravity from its elevated position down onto the shirt from the position shown in Figure 10 to the position shown in Figure 11. The movement of the tail folder from its folded position in Figure 11 back to normal position, Figures 1, 12, 13 and 14, is controlled by a rock arm or cam 63 on the rock shaft 56.

The cam 60 on the rock shaft 56 operates a latch which holds the power control element in its operated position until released. The power is preferably compressed air and hence, the actuator for the cams 16, 17, 18 and 19 is a pressure operated motor as a cylinder and piston, and the control element is a valve.

70 designates the cylinder having a double acting piston 71 therein, the piston rod of which is connected at 72 to the carrier 10 for the cams 16, 17, 18 and 19. 73 designates a power control element or valve of the combined intake and exhaust type and being normally in power cut-off or exhaust position. It includes a casing having a self-closable, spring pressed valve member 74 therein provided with a normally closed intake head 75 and a normally open exhaust head 76. The intake end of the casing of the valve is connected to a source of air supply through an intake pipe 77, the other end exhausts at 78 to the outer air. The casing between the two heads is connected by a pipe 79 to one end of the cylinder 70 so that when the valve 73 is opened, air will flow to the right end of the cylinder 70 and actuate the piston therein to the left to move the carrier 10 for the cams 16, 17, 18 and 19 to the left, moving the cams to operate the sleeve and body folding folders to fold the shirt over onto the form 34, this occurring after the tail folder has moved into and out of folding position, or from the position shown in Figure 10 into the position shown in Figure 11, and back into the position shown in Figure 12. Figure 12 also shows the operation of the outside folders 8 and 9, and Figure 13 shows the successive operation of the folding of one of the inside folders 12, and Figure 14 the complete folding operation after the other inside folder 10 is operated, the operation and timing of the folders being controlled by the arrangement of the lift portions of the cam slots 23, 24, 25, 26, as shown in Figure 3. The sequence of operation of the folders forms no part of this invention and is the same as that shown in the Gayring and Neuroth application referred to.

The air is conducted to the left end of the cylinder 70 to return the cams 16, 17, 18, 19, to their starting position and unfold the folders 8, 9, 11 and 12 through a pipe 80 connected to the intake pipe 77 and having a pressure reducing tank 81 therein, the pressure being always applied and being less than that supplied to the pipe 79. Also, the pressure to the left face is further reduced by the fact that the piston area on the left end of the piston 71 is less than that on the right an amount depending on the cross sectional area of the piston rod. Thus, when the valve 73 is operated to close the intake head 75 and open the exhaust head 76, the pressure from the right end of the cylinder 70 can exhaust and the pressure in the left end of the

cylinder 70 is free to react to return the cams 16, 17, 18 and 19, to their starting position. The valve member 74 is operated against a returning spring 82 by the cam 60, the cam coacting with a lever 83 pivoted at 84 to a bracket 85 on the body of the valve 73 and pressing through a buffer spring 84A against the stem 86 of the valve member 73, so that when the lever 83 is depressed, it closes the exhaust head 76 and opens the intake head 75. The lever 83 is provided with a latch arm 87 which coacts with a ratcheting holding pawl 88 pivoted at 89 to a fixed bracket on the under side of the table, and has an arm 90 which coacts with a releasable holding device for holding the valve in its operated position. This device, here shown, is a diaphragm 91 in a diaphragm chamber 92, and the pressure side of the diaphragm chamber is connected by a pipe 93 to a release cylinder 94 operated by a pedal 95 which actuates an endwisely movable rod 96 pivoted at 97 to an arm 98 on the front end of the removable door or section 4. The pedal is depressed by the operator preliminary to removing the folded shirt from the sleeve and body folders. The operation of the rod 96 by the pedal is against the action of a returning spring 99. The tail folder 50 is operated into its folded position, Figure 11, by the actuating of the rock shaft 56 under the impulse given thereto by the handle 57. It is returned by power to its normal position by a cylinder 100, this being single acting and the rod of the piston therein acting to thrust against the arm or cam 63 which, during the operation of the rock shaft 56, moves from the position shown in Figures 8 and 9, to the position indicated by the broken leader line to the numeral 63, Figure 8, where it is in contact with the outer end, or a roller 102 at the outer end of the piston rod 101. During the movement of the rock shaft 56 by the handle 57, the arm or cam 63 moves into juxtaposition to the roller 102 just prior to the time that the cam 60 operates the latch lever 83 to open the intake head 75 of the valve 73 and close the exhaust head 76. Thus, when the valve 73 is open to the intake of air, air passes through a branch 104 of the pipe 79 to the cylinder 100 and actuates the piston therein against the arm or cam 63 to cause the arm or cam to rock the shaft 56 in the reverse position, and return the tail folder to its normal open position. Upon the operation of the valve 73 to close its intake head and open the exhaust head 76, a spring in the cylinder 100 returns the piston to its starting position. The operator merely gives a starting impulse or flip to the handle 57 to carry the tail over into folded position, Figure 11, and immediately thereafter the piston in the cylinder 100 is actuated by the air to return the tail folder to its normal position. At the same time that air enters the cylinder 100, the air also enters the cylinder 70 so that the sleeve and body folders are on their way toward folded position but have not progressed far enough to interfere with the returning action of the tail folder. The cylinders 70 and 100 are generally the same, one being operated by lower pressure air in reverse direction when the control valve 73 is in exhaust position, the lower pressure air being overruled by the high pressure air when the valve 73 is open to the flow of air; the cylinder 100 operating to reverse position by a spring which is overcome when the valve 73 is open to the flow of air. Both cylinders are controlled by the valve 73.



The latch arm 87 on the valve operating lever 83 holds the latch 89 depressed to hold the diaphragm 91 in its depressed position. When, to remove the shirt the pedal 95 is depressed to lower the door section 4 to cause the collar band holder to be withdrawn free of the collar of the shirt, the piston 105 is drawn upwardly in the cylinder 94 to uncover inlet ports 106 therein. The cylinder 94 is connected by a pipe 108 to the pressure side of the diaphragm chamber 92 so that when the pedal 95 is released and the rod 96 pulled downwardly by its spring 99, the piston in the cylinder 94 is also pulled downwardly, giving an impulse of air through the pipe 108 to the diaphragm chamber 92, forcing the diaphragm 91 upward to unlatch the latch lever 89 from the arm 87 of the lever 83 so that the movable valve member of the valve 73 returns to normal position where its intake head is closed and its exhaust head open. The piston in the cylinder 100 is then returned by its spring to starting position. Upon the opening of the exhaust valve head 76, the lower air pressure through the pipe 80 to the cylinder 70 is free to react on the piston 71 in the cylinder 70 and return the folders 8, 9, 11 and 12 to their starting position. As before stated, the form 4 is unlatched so that it can drop down onto the shirt dressed on the table at the beginning of the actuating movement of the cam plates 16, 17, 18 and 19, and the latch lever 37 is reset or latched at the end of the folding movement by reason of the latch lever engaging the pin 41 and hence, the latch 37 engages the arm 34 at the end of the return movement of the cams to their starting position, Figure 5, and elevates the form 34 off the table in order that a new shirt may be dressed on the table. Thus, after a shirt is dressed on the table, the operator merely actuates the handle 57 in one direction to move the tail folder to folded position and thereafter the operation and timing of the folding mechanism is automatic.

In order to facilitate the placing of a bag on the shirt after it is folded, the table top around the door opening is cut away, or beveled, as at 110, Figure 1, this facilitating the sliding of the bag on the shirt after the door or movable section 4 has been shifted downwardly about its pivot by the operation of the pedal 95. The operator holds her foot on the pedal while placing the bag on the folded shirt and while pulling the folded shirt off the sleeve and body folders.

By this folding machine, the operator, after placing the shirt on the table with the sleeves hanging over the side edges of the table under the inside folders and over the outside folders, merely initiates the movement of the tail folder and the folding operations take place in proper sequence automatically, the tail folder moving into and out of folded position so that the folded shirt can be readily removed from the folded sleeve and body folders.

What I claim is:

1. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table, a tail folder on the foot area of the table and movable in a general direction at a right angle to the movement of the sets of folders, and actuating mechanisms for the sets of folders and the tail folder respectively, an operating member for actuating the tail folder into folding position and a power system controlled

by the movement of the operating member to shift the tail folder into folded position to operate the actuating mechanism for the tail folder out of folded position, and the sets of folders into folded position.

2. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table, a tail folder on the foot area of the table and movable in a general direction at a right angle to the movement of the sets of folders, and actuating mechanisms for the sets of folders and the tail folder respectively, an operating member for actuating the tail folder into folding position and a power system having a self-returnable control element therein normally in power cut-out position; each of the actuating mechanisms including a reversely movable motor being operable in one direction by power through said control element, and self-returnable in the opposite direction when the control element is in power cut-out position, and means on the operating member to operate and hold the control element to power cut-in position when said member is operated to carry the tail folder to folding position, a second operating member operable to release the operating member to power cut-out position.

3. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table and remaining in folded position until the folded shirt is removed, actuating mechanism for the sets of folders, a tail folder on the foot area of the table movable in a general direction at a right angle to the movement of the sets of folders into and out of folding position in one continuous cycle, actuating mechanism for the tail folder, and an operating and control system for said mechanisms operable to effect the operation of the actuating mechanism for the sets of folders into folding position successively to the actuation of the tail folder mechanism to carry the tail folder through a complete cycle into and out of folded position.

4. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table and remaining in folded position until the folded shirt is removed, actuating mechanism for the sets of folders, a tail folder on the foot area of the table movable in a general direction at a right angle to the movement of the sets of folders into and out of folding position in one continuous cycle, actuating mechanism for the tail folder, and an operating and control system including an initially operator-operated member connected to the tail folder to shift it into folded position, power conducting connections to the actuating mechanism for the sets of folders and to the actuating mechanism for the tail folder to actuate it in a return direction, a self-returnable power control element common to both actuating mechanisms normally in position to cut off the flow of power, and means operated by said member when the tail folder approaches folded position to operate the control element to cut in the power, and an operator controlled release lock operable to locked position by said member to hold the control element in operated position.

5. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table and remaining in folded position until the folded shirt is removed, actuating mechanism for the sets of folders, a tail folder on the foot area of the table movable in a general direction at a right angle to the movement of the sets of folders into and out of folding position in one continuous cycle, actuating mechanism for the tail folder, and an operating and control system for said mechanisms operable to effect the operation of the actuating mechanism for the sets of folders into folding position alternately with the actuation of the tail folder mechanism to carry the tail folder through a complete cycle into and out of folded position, the actuating mechanism for the sets of folders including a reversely movable motor, the actuating mechanism for the tail folder including a second reversible motor, and an initially operator-operated member operable to shift the tail folder to folded position, a self-returnable power control element normally in position to cut off the flow of power, power conducting connections between the control element and both motors to conduct the power thereto at the same time to actuate each in one direction when said element is in power cut-in position, means acting to actuate the motors in the reverse direction when said element is in power cut-off position, a lever operable to shift the control element to cut in the flow of power, motion transmitting parts on the operator-operated member arranged to move successively into juxtaposition to the second motor to be operated thereby and into position to operate said lever when the tail folder approaches folded position, and an operator controlled releasable lock for holding the control element in power cut-in position operated by said lever to holding position.

6. The folding machine of claim 5 in which the initially operated member is a rock shaft on which the tail clamp is mounted, and the motion transmitting parts are cams mounted on said rock shaft in different radial angular positions.

7. In a shirt folding machine, a table, sets of laterally movable sleeve and body folders movable over the head end area of the table, a tail folder normally overlying the foot area of the table and movable in a direction at a right angle to the direction of movement of sets of folders to fold the tails of the shirt dressed flatwise on the table over onto the shirt body, actuating mechanism for the sets of folders, actuating mechanism for the tail folder including a reversely movable member, operator-operable in one direction to move the tail folder into folded position, and means controlled thereby to return the tail folder to starting position and energize the actuating mechanism for the sets of folders alternately with the movement of the tail folder into and out of folded position.

8. In a shirt folding machine, a table, sets of laterally movable sleeve and body folders movable over the head end area of the table, a tail folder normally overlying the foot area of the table and movable in a direction at a right angle to the direction of movement of sets of folders to fold the tails of the shirt dressed flatwise on the table over onto the shirt body, actuating mechanism for the sets of folders, actuating mechanism for the tail folder including a reversely movable member, operator-operable in one direction to move the tail folder into folded position, the sets of folders being movable into folded position alternately with the movement of the tail folder into and out of folded position, and mechanism controlled by the movement

of the tail folder into and out of folded position to control the operation of the actuating mechanism for the sets of folders into folded position and out of folded position when the folded shirt is removed therefrom.

9. A shirt folding machine including a table having a door in the head end area thereof located midway between the side edges of the table, the door having a collar form and being mounted on the table to be depressible to carry the form below the level of the table top surface, folders operable to fold the shirt over onto the folding area defined by the door, and operating means connected to the door to depress and elevate the same.

10. A shirt folding machine including a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table and remaining in folded position until the folded shirt is removed, actuating mechanism for the sets of folders, a tail folder on the foot area of the table movable in a general direction at a right angle to the movement of the sets of folders into and out of folding position in one continuous cycle, actuating mechanism for the tail folder, and an operating and control system for said mechanisms operable to effect the operation of the actuating mechanism for the sets of folders into folding position alternately with the actuation of the tail folder mechanism to carry the tail folder through a complete cycle into and out of folded position, the actuating mechanism for the sets of folders including a reversely movable motor, the actuating mechanism for the tail folder including a second reversible motor, and an initially operator-operated member operable to shift the tail folder to folded position, a self-returnable power control element normally in position to cut off the flow of power, power conducting connections between the control element and both motors to conduct the power thereto at the same time to actuate each in one direction when said element is in power cut-in position, means acting to actuate the motors in the reverse direction when said element is in power cut-off position, a lever operable to shift the control element to cut in the flow of power, motion transmitting parts on the operator-operated member arranged to move successively into juxtaposition to the second motor to be operated thereby and into position to operate said lever when the tail folder approaches folded position, and an operator controlled releasable lock for holding the control element in power cut-in position operated by said lever to holding position, the table having a



door section over which the shirt is folded, the door section having a shirt collar form thereon and the door section being depressible to remove the collar from the folded shirt, a self-returnable pedal for operating the door section to carry the collar form clear of the shirt, and means operated by the return movement of the form to starting position to release said lock.

11. A shirt folding machine including a table, sets of sleeve and body folders movable transversely over the head end area of the table, the table having a door section over which the shirt is folded, the door section having a shirt collar form thereon, and the door section being depressible to remove the form from the folded shirt, and an operating member for shifting the door section.

12. A shirt folding machine comprising a table, sets of laterally movable sleeve and body folders movable transversely over the head end area of the table, a tail folder on the foot area of the table movable in a general direction at a right angle to the movement of the sets of folders, power actuating mechanism for the sets of folders, power actuated mechanism for returning the tail folder to starting position, the tail folder being operator operated into folding position, a power control operated by the movement of the tail folder into folding position to control the operation of the tail folder returning actuating mechanism and the actuating mechanism for the sets of folders into folded position, and an operator operated member to release the power from said actuating mechanism.

13. A shirt folding machine comprising a table, side and tail folding members movably mounted on the table, actuating means for the folding members to effect folding of the side and tail portions of a shirt on the table, there being a cooperative interconnection between the means for actuating the tail folding member and the side folding members, and means controlled by the tail folder actuating means to move the tail folding member out of folded position and the side folding members into folded position.

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