May 6, 1952 E. DAVIS ET AL 2,595,514

CUFF CLAMP MECHANISM FOR SLEEVE PRESSES

Filed July 28, 1948 3 Sheets-Sheet 1

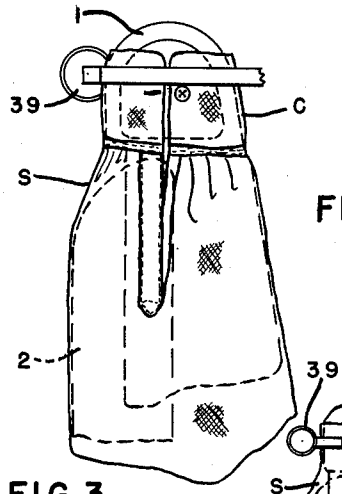


FIG. 3

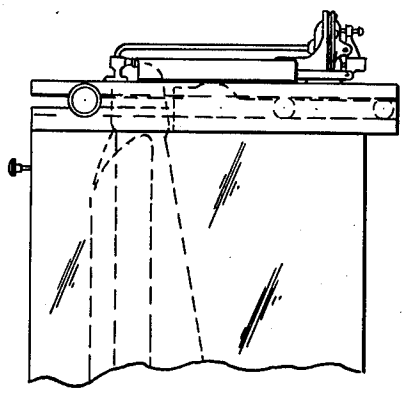


FIG. 2

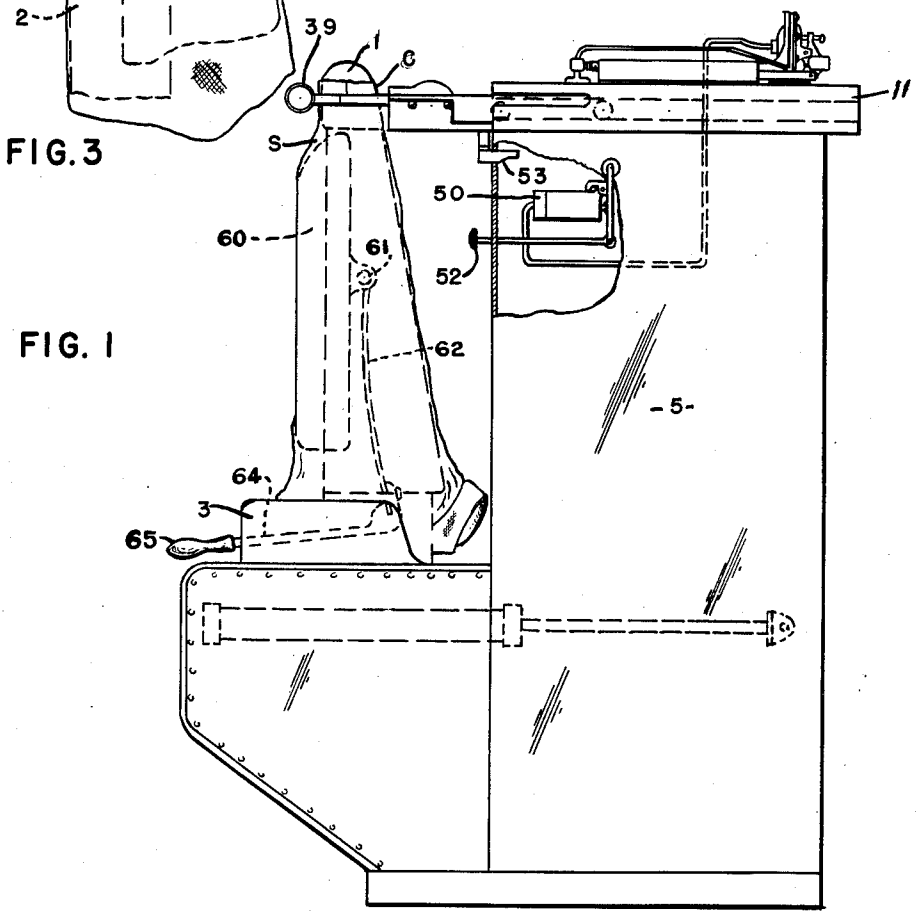


FIG. 1

INVENTOR.
ERNEST DAVIS
EMIL A. WINNEWISSER
BY Bodell & Thompson
Attorneys

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CUFF CLAMP MECHANISM FOR SLEEVE PRESSES

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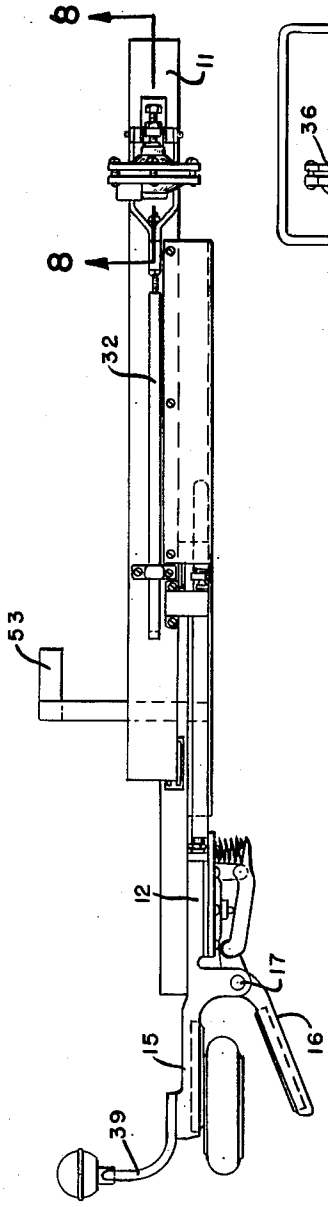


FIG.5

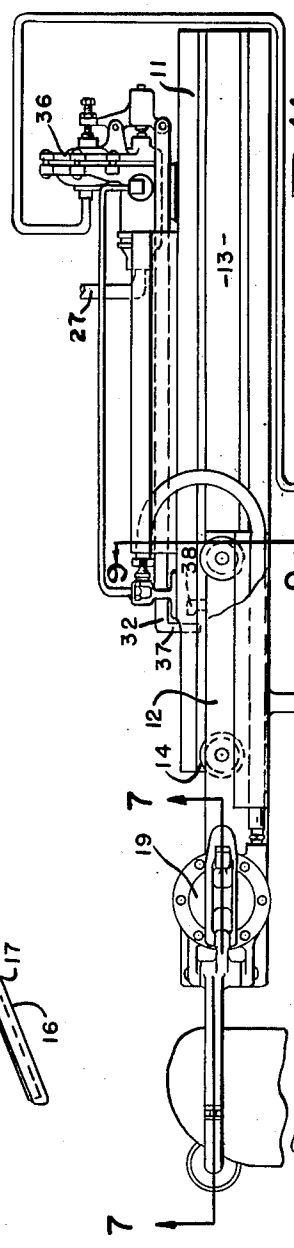


FIG.6

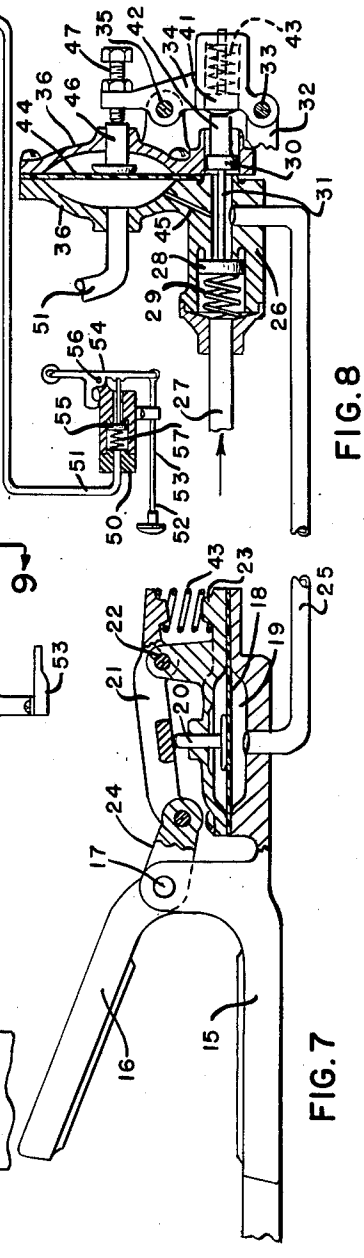


FIG.8

FIG.7

INVENTOR.
ERNEST DAVIS
EMIL A. WINNEWISSER
BY Bodell & Thompson
Attorneys

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Filed July 28, 1948 3 Sheets-Sheet 3

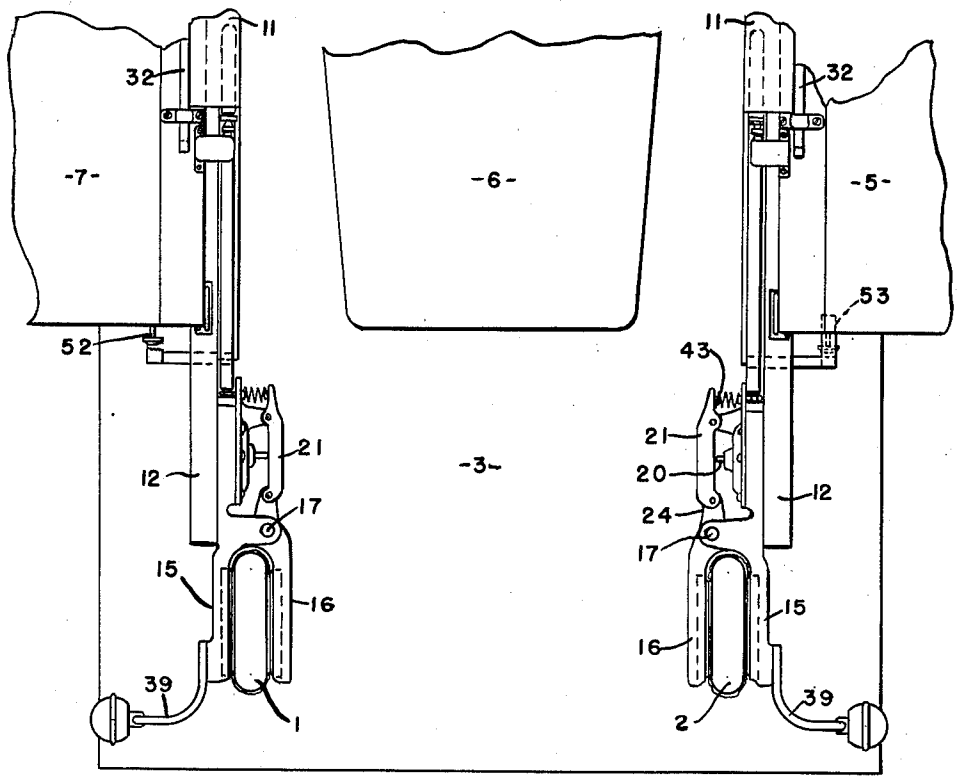


FIG. 4

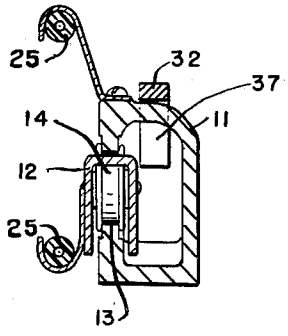


FIG. 9

INVENTOR.
ERNEST DAVIS
EMIL A. WINNEWISSER
BY Bodell & Thompson
Attorneys

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CUFF CLAMP MECHANISM FOR SLEEVE PRESSES

Ernest Davis and Emil A. Winnewisser, Syracuse, N. Y., assignors to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

Application July 28, 1948, Serial No. 41,098

4 Claims. (Cl. 223—57)

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This invention relates to pressing machines for pressing the sleeves of garments, as shirts, and has for its object a cuff clamp mechanism for clamping the cuff when properly dressed around the upper end portion of the form and automatically releasing the cuff when the form is shifted to carry the sleeve into position to be pressed. The cuff is located out of the ironing zone of the pressing elements of the machine.

The invention is here shown as embodied in a type of machine in which upright forms, on which the sleeves are dressed, are mounted on a carriage which is shiftable to carry the forms from a position out of between the pressing elements into position to be pressed between the pressing elements, or a machine of the general type shown in Davis Patent No. 2,420,818, issued May 20, 1947.

The invention has for its object a power operated cuff clamp mechanism comprising a support mountable on the frame of the pressing machine, a carriage movable forwardly and rearwardly along the support in a substantially horizontal path at the level of the upper end of the form about which the cuff of the sleeve on the form is wrapped, a clamp on the carriage, the carriage being movable manually forwardly into position to carry the open clamp into juxtaposition to the upper end of the form to clamp the cuff and shiftable by the form rearwardly back to starting position when the form shifts into position between the pressing elements, a motor on the carriage for closing and opening the clamp, a control member for controlling the energizing and deenergizing of the motor and hence, the closing and opening of the clamp, a connection between the carriage and the control member to operate the control member when the carriage reaches the limit of its outward movement to energize the motor, and means to operate the control member as the carriage and the form approach the limit of their inward movement to deenergize the control member.

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 a side elevation, partly broken away, of a sleeve press embodying the cuff clamp mechanism, the form or forms for the sleeve being shown in their outward position where the garment sleeves are sleeved thereon and removed therefrom, and the cuff clamps clamped on the cuffs.

Figure 2 is a fragmentary elevation of the upper portion of Figure 1, showing the forms shifted inward to between the pressing element and the cuff clamps therewith.

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Figure 3 is an enlarged fragmentary elevation of the form and sleeve thereon, showing the clamp gripping the cuff.

Figure 4 is a plan view of the parts seen in Figure 1.

Figure 5 is a plan view of the cuff clamp mechanism.

Figure 6 is an elevation looking upwardly in Figure 5, the contiguous part of the automatic release mechanism operated by the pressing machine being shown in section.

Figure 7 is an enlarged fragmentary sectional view, partly broken away, on line 7—7, Figure 6.

Figure 8 is a fragmentary sectional view and a continuation of Figure 7 taken on line 8—8, Figure 5.

Figure 9 is a fragmentary sectional view on line 9—9, Figure 6.

Sleeve presses are usually provided with two upstanding or vertical forms 1 and 2 mountable upon carrier means as a carriage 3 which has a rearward and forward movement to carry the forms 1, 2, into and out of position between pairs of cooperating pressing elements located in spaced upright housings 5, 6, 7, supported by the machine frame, members of each pair being located within the housing 6, and the opposing members of the pairs being located in side housings 5, 7. There is a clamp mechanism for each form and these are rights and lefts. The clamp mechanism for the form 1, at the left of Figure 3, is the left clamp mechanism. The right and left mechanisms are practically the same in construction. It is apparent that a sleeve pressing machine may have but one sleeve form and companion clamp mechanism, in which case the sleeves of a shirt would be successively pressed on the one form. Each clamp mechanism includes a support 11, a clamp carriage 12 movable along the support in a substantially horizontal path at the height of the upper end portions of the form 1 or 2 about which the cuff C of the sleeve S is wrapped when the sleeve is dressed or sleeved on the form, the carriage 12 being movable outwardly to bring the clamp carried thereby into juxtaposition to grip the cuff and being movable with the form inwardly as the form is shifted into a position between the pressing elements, means operating to close the clamp as it comes into clamping relation to the form at the end of the outward movement of the carriage 12, Figures 1, 2 and 5, and to release the clamp at the end of the inward movement of the clamp carriage 12, Figure 2. Said means specifically comprises a motor for actuating the movable jaw of the clamp to cause it to grip the cuff, a member for controlling the energizing and deenergizing of the motor, and a connection between the carriage 12 and the control member for operating the control member to energize the motor when the carriage 12 has been moved outward to bring the open

clamp in juxtaposition to the upper end of the form, and release means operated by the return of the clamp carriage 12 inwardly to its normal position at the end of the inward movement of the form between the pressing elements to operate the control member to deenergize the motor and permit the clamp to be open during the pressing operation.

The support 11 is here shown as a channel or a frame member formed with a slot 13 providing tracks along which run rollers 14 on the clamp carriage 12. The clamp carriage 12 is provided with the fixed jaw 15 of the clamp, and with a movable jaw 16 pivoted at 17 to the fixed jaw.

The power used for operating the clamp is preferably air and hence the motor is an air motor. The motor here shown is of the diaphragm type and includes a diaphragm 18 located in a chamber 19 acting on a sliding stem 20 which thrusts against a spring returned lever 21 pivoted at 22 at one end to a lug 23 on the diaphragm chamber and pivoted at its other end to an arm 24 on the movable jaw 16, the stem 20 thrusting against the lever 21 between the ends of the lever. Air is supplied to the pressure side of the diaphragm through a flexible pipe 25 connected to the diaphragm chamber on the pressure side of the diaphragm and to the casing 26 of a control member or two-way valve which is connected to a suitable source of air supply through an intake pipe 27. This valve is of the normally closed combined intake and exhaust type and as here shown the movable valve member includes an intake head 28 normally pressed against its seat by a spring 29, a normally open exhaust valve head 30 and a stem 31 connecting the heads. The valve is opened against the spring 29 by a connection between the clamp carriage 12 and the movable valve member, this connection being shown as a link 32 connected at 33 at one, or its rear, end to a lever 34 which is pivoted at 35 to the casing of a diaphragm chamber 36, to be described, the link having a shoulder 37 at its other, or front, end arranged in the path of a coacting shoulder 38 on the carriage 12 and located to engage the shoulder 37 when the carriage 12 is pulled out manually by means of its handle 39 and approaches the limit of its outward movement wherein the open jaws are in juxtaposition to the cuff wrapped around the upper end of the form.

The valve operating lever 34 carries a suitable spring pressed buffer plunger head 41 which thrusts against the stem 42 of the exhaust valve head 30. When the clamp carriage 12 is pulled outwardly to the limit of its outward movement, the shoulder 38 on the carriage 12 encounters the shoulder 37 on the link 32 and thus operates the movable valve member of the control valve to close the exhaust valve head 30 and open the intake valve head 28, permitting air to flow from the intake pipe 27 through the flexible pipe 25 to the pressure side of the diaphragm chamber 19, thus closing the movable jaw 16 against the action of the returning spring 43. The valve is locked in its operated position by a diaphragm 44 in the diaphragm chamber 36 and connected to the interior of the control valve casing 26 by an air duct 45. The diaphragm 44 acts on a sliding stem 46 coacting with the lever 34 through an adjusting screw 47. Thus, when the control valve is operated to open its intake head 28 and close its exhaust head 30, air at the same time leaks through the duct 45 to the pressure side of the diaphragm chamber 36, actuating the diaphragm 44 to press the stem 46 against the set screw 47 and thus lock the intake and exhaust valve heads 28 and 30 in their operated position.

There is a connection for releasing the locking of the valve by exhausting the air from the pressure side of the diaphragm chamber 36, this being operated when the carriage 12 reaches the limit of its inward movement by reason of being clamped to the form, and the form being moved into position between the pressing elements. As shown, a release valve 50 is provided which is connected by a pipe 51 to exhaust the air from the pressure side of the diaphragm chamber 36 faster than the air leaks into the diaphragm through the duct 45. The release valve may be operated by a manual 52, Figures 1 and 7. It is normally operated however automatically by a cam, as 53, Figures 1 and 6, movable with one of the carriages 3, 12, as the clamp carriage 12, the cam 53 coacting with a latch lever 54 which normally holds the exhaust or release valve head 55 closed, the cam 53 acting to move the latch lever 54 about its pivot 56 to unlatch the lever 54 and cause the lever 54 to press against the stem of the exhaust valve 55 and open it against a spring 57. The cam 53 on the carriage 12 is located to release the latch lever 54 as the forms approach the limit of their inward movement between the pressing elements.

It is desirable to release the clamps from the cuffs during the pressing operation to prevent pulling strains on the cuffs during the pressing operation. The manual 52 for this exhaust valve is connected to the latch lever 54 to operate it manually.

In operation, after the sleeves are dressed or sleeved on the forms 1, 2, with the cuffs at the upper ends of the forms, the operator brings together the edges of the cuffs one by one and pulls out the corresponding clamp carriage 12 for the cuff clamp by means of the handle 39, this operation being performed on each cuff separately. When both handles are pulled out and both cuffs clamped, the operator, through a suitable control mechanism, energizes shift mechanism which moves the carrier means 3 for the forms into position between the pressing elements. The cuff clamps being clamped to the cuffs thus move rearwardly and when they approach their rearward position, operate the release valves to open the cuff clamps.

This cuff clamp mechanism is particularly useful with forms 1, 2, embodying an expander to adjust the forms to sleeves of various widths, or to stretch the sleeves widthwise before the forms are shifted between the pressing elements. The forms are usually of flat elliptical shape in cross section, and the expander extends from within the form through one edge of the elliptical formation. As the expander expands the sleeve, the cuff clamp is clamped on the cuff so that the sleeve adjacent the cuff is held from distortion and wrinkling during the widthwise tightening of the sleeve, and also the liability of straining and distorting the sleeve along the slash extending from the ends of the cuff and into the sleeve, or straining the gusset at the inner end of the slash, is avoided.

60, Figure 1, designates the expander in each sleeve, this being here shown as being pivoted at 61 between its upper and lower ends to an upright spring arm 62 of an angle lever pivoted at its angle, the other arm 64 of the angle lever extending forwardly and having a handle 65 at its

front end. The spring arm 62 extends into and lengthwise of the hollow form from the lower end thereof and has a follow-up action on the expander. The expander per se forms no part of this invention. It is however usually operated automatically by the machine power system as the form is shifting from its outer position to between the pressing elements. The cuff clamp remains closed on the cuff until the form reaches pressing position between the pressing elements. Hence, the cuff clamp is closed on the cuff before the expander is operated. The cuff clamp is released when the form reaches pressing position between the pressing elements.

What we claim is:

1. A cuff clamp mechanism for sleeve pressing machines of the type comprising a frame, cooperating pressing elements supported by the frame between which the sleeves of a garment are pressed, a form on which the sleeves of garments are individually dressed, and carrier means for the form shiftable to shift the form into and out of pressing position between said pressing elements; the cuff clamp mechanism comprising a support mounted on the frame of the pressing machine, a clamp carriage on the support movable horizontally outward relative to the support and inward toward the support in a path terminating at its outer end at the level of the upper end of the form about which the cuff of the sleeve dressed on the form is wrapped, a cuff clamp on the clamp carriage, the clamp carriage being shiftable manually outward on said support to carry the cuff clamp into juxtaposition to clamp the cuff to the upper end of the form, a motor on said clamp carriage operable to close the cuff clamp, a control member for controlling the energizing and deenergizing of the motor, said control member being carried by the frame of the pressing machine, a connection between the clamp carriage and the control member to operate the control member to energize the motor when the clamp casing reaches its outward position in juxtaposition to the cuff of the sleeve dressed on the form, and to deenergize the motor and release the cuff clamp when the clamp carriage approaches the limit of its inward movement with said sleeve form when the form is between the pressing elements.

2. A cuff clamp mechanism for sleeve pressing machines of the type comprising a frame, cooperating pressing elements supported by the frame between which the sleeves of a garment are pressed, a form on which the sleeves of garments are individually dressed, and carrier means for the form shiftable to shift the form into and out of pressing position between said pressing elements; the cuff clamp mechanism comprising a support mounted on the frame of the pressing machine, a clamp carriage on the support movable horizontally outward relative to the support and inward toward the support in a path terminating at its outer end at the level of the upper end of the form about which the cuff of the sleeve dressed on the form is wrapped, a cuff clamp on the clamp carriage, the clamp carriage being shiftable manually outward on said support to carry the cuff clamp into juxtaposition to clamp the cuff to the upper end of the form, the clamp comprising a movable jaw and a fixed jaw, an air motor on the clamp carriage and connected to the movable jaw of the cuff clamp, a control valve of the combined intake and exhaust type in a fed conduit leading to the air motor and normally closed to the intake and open to the exhaust of air, the control valve being carried by said support, a connection between the clamp carriage and the control valve to open the valve to the intake of air when the cuff clamp carriage reaches the limit of its outward movement, and means operated by the clamp carriage to close the control valve to the intake of air and open it to the exhaust of air when the clamp carriage approaches the limit of the inward movement with the form as the form is shifted to between the pressing elements by the carrier means for the form.

3. A cuff clamp mechanism for sleeve pressing machines of the type comprising a frame, cooperating pressing elements supported by the frame between which the sleeves of a garment are pressed, a form on which the sleeve of a garment is dressed, and carrier means for the form shiftable to shift the form into and out of position between said pressing elements, the form embodying an expander operable to stretch the sleeve widthwise of the form; said cuff clamp mechanism comprising a support fixed to said frame, a clamp carriage shiftable on the support, a cuff clamp carried by the clamp carriage, the clamp carriage being movable outward on the support to locate the cuff clamp in juxtaposition to a cuff of a sleeve dressed on the form, the cuff being located at the top end of the form so that the cuff clamp grips the cuff and holds the cuff during the widthwise stretching operation of the expander, the clamp carriage being movable rearward when clamped to the form during the movement of the form into position between the pressing elements with said carrier means, and mechanism operated by said clamp carriage to close the clamp at the end of the outward shifting of the clamp carriage and to open the cuff clamp at the end of the inward movement of the clamp carriage with the form by its carrier means.

4. A cuff clamp mechanism for sleeve pressing machines of the type comprising a frame, cooperating pressing elements supported by the frame between which the sleeves of a garment are pressed, a form on which the sleeve of a garment is dressed, and carrier means for the form shiftable to shift the form into and out of position between said pressing elements, the form embodying an expander operable to stretch the sleeve widthwise of the form; said cuff clamp mechanism comprising a support fixed to said frame, a clamp carriage shiftable on the support, a cuff clamp carried by the clamp carriage, the clamp carriage being manually movable outward on the support to locate the cuff clamp in juxtaposition to a cuff of a sleeve dressed on the form, the cuff being located at the top end of the form so that the cuff clamp grips the cuff and holds the cuff during the widthwise stretching operation of the expander, the clamp carriage being movable rearward when clamped on the form during the movement of the form into position between the pressing elements with said carrier means, and mechanism operated by said clamp carriage to close the clamp at the end of the outward manual shifting movement of the clamp carriage and to open the cuff clamp at the end of the inward movement of the clamp carriage with the form by its carrier means.

ERNEST DAVIS.
EMIL A. WINNEWISSER.

No references cited