Dec. 21, 1943. E. DAVIS 2,337,086

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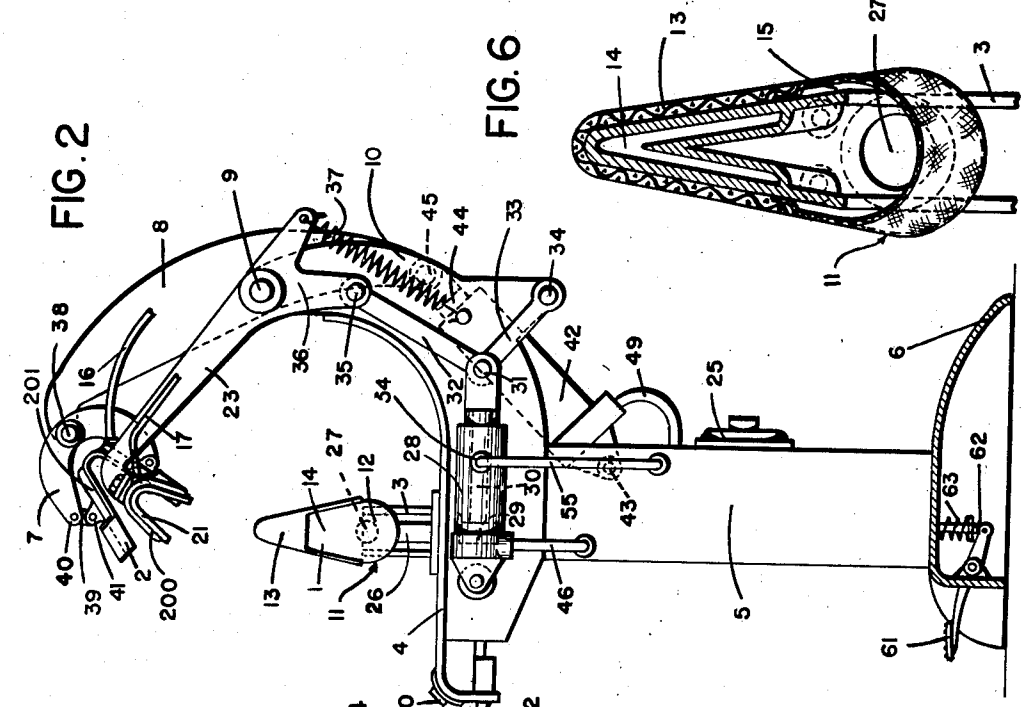


FIG. 2

FIG. 6

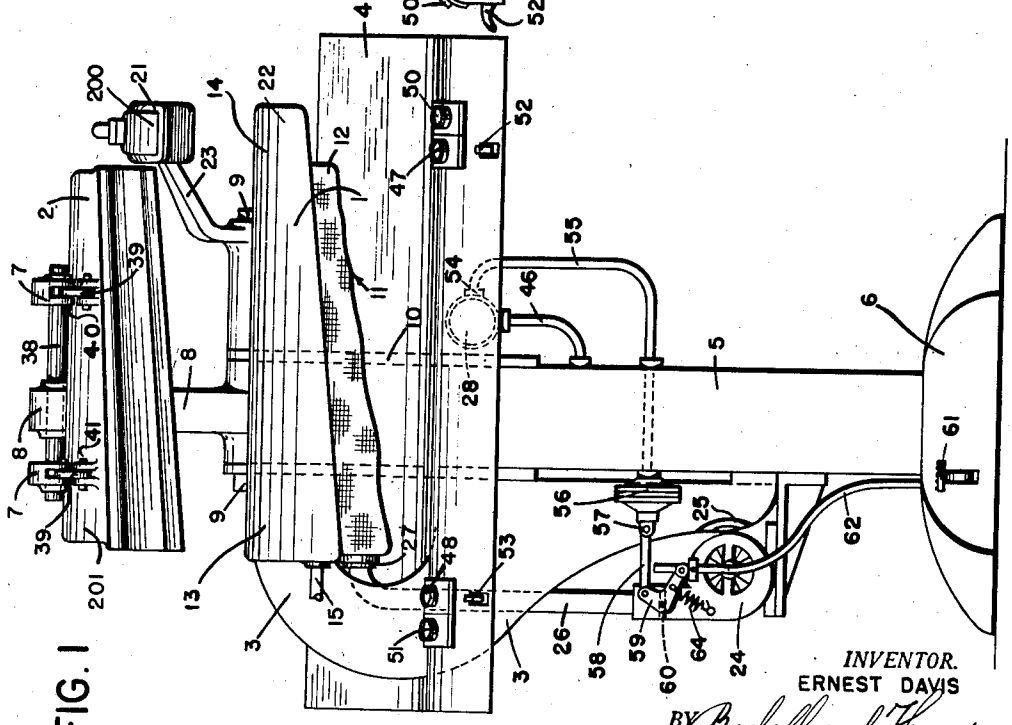


FIG. 1

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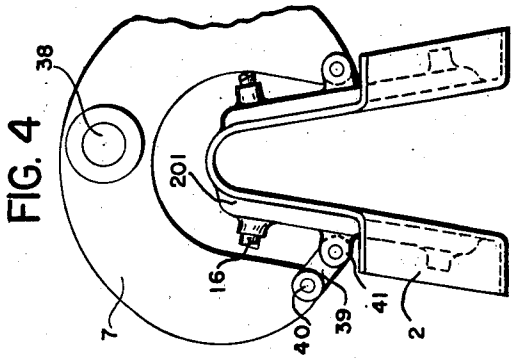


FIG. 4

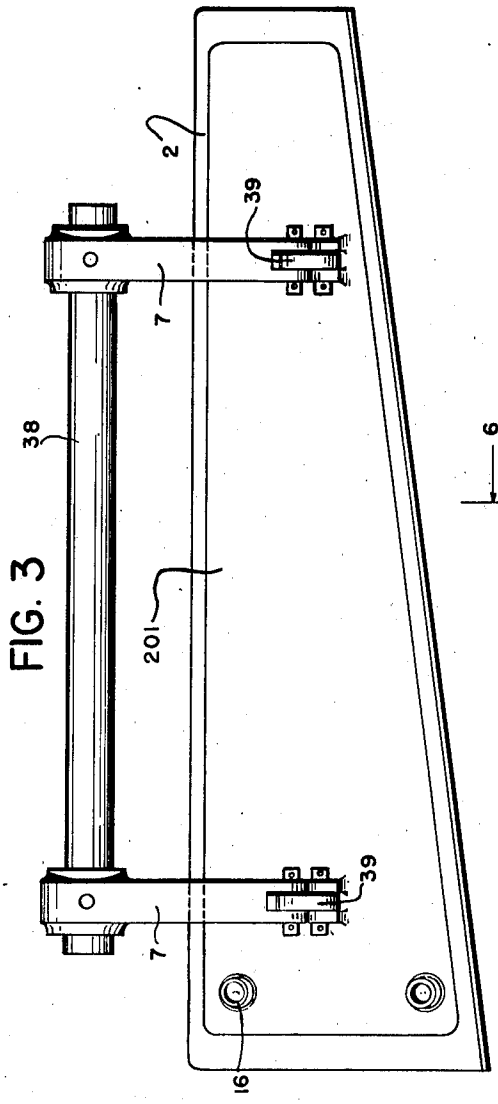


FIG. 3

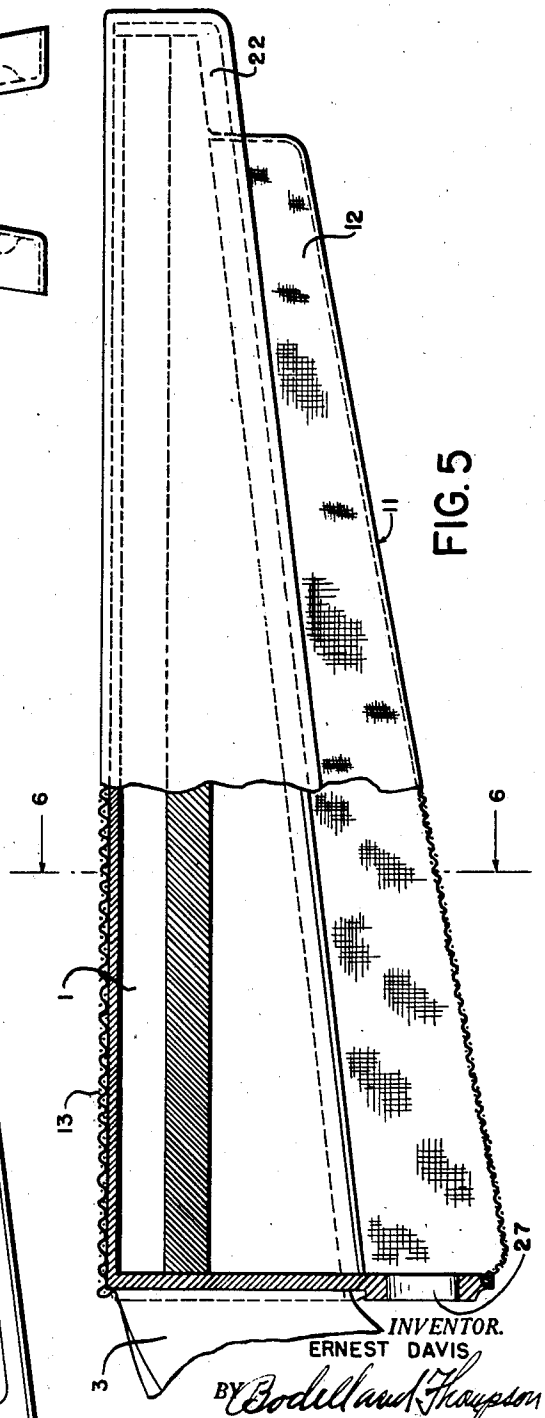


FIG. 5

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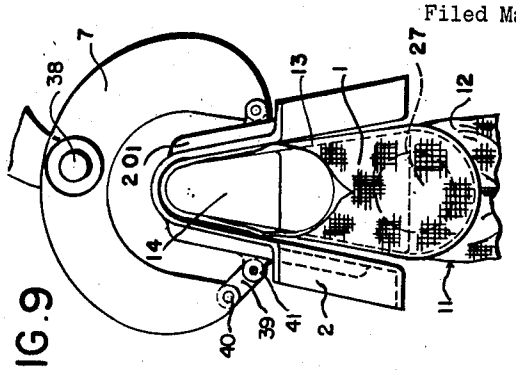


FIG. 9

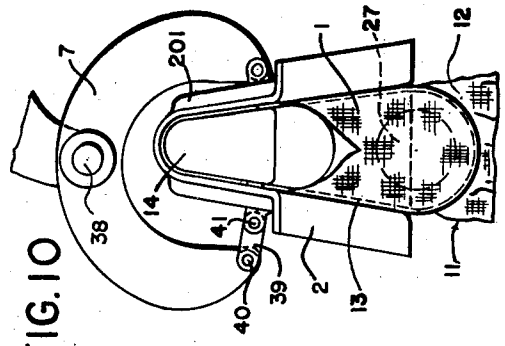


FIG. 10

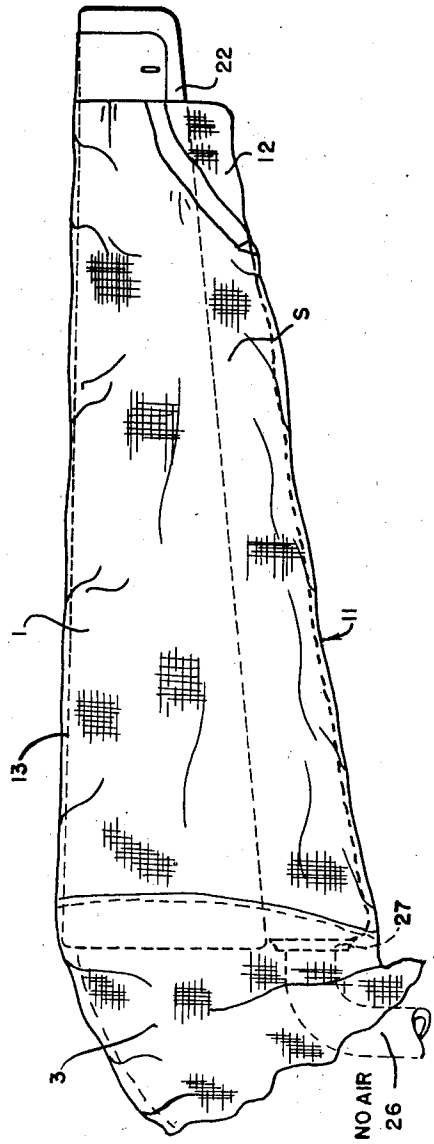


FIG. 7

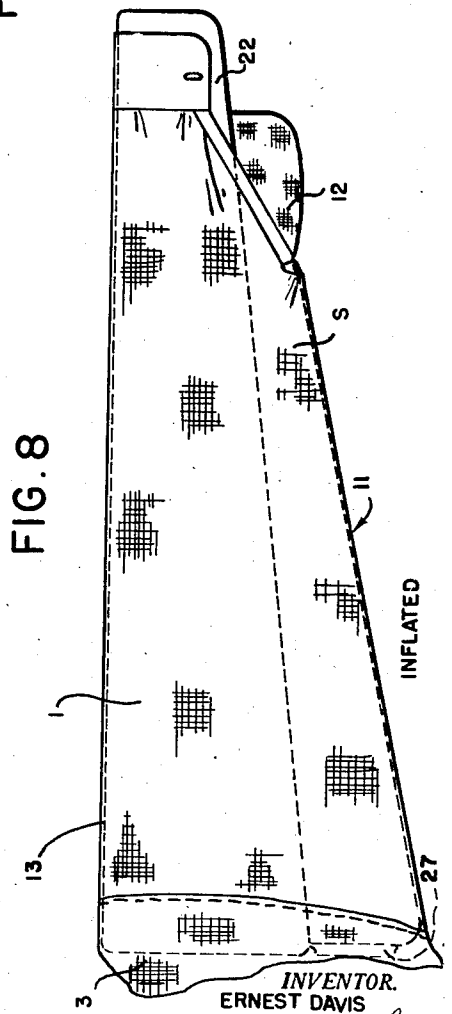


FIG. 8

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UNITED STATES PATENT OFFICE

2,337,086

SLEEVE PRESS

Ernest Davis, Syracuse, N. Y., assignor to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

Application May 3, 1941, Serial No. 391,777

3 Claims. (Cl. 223—57)

This invention relates to laundry and garment pressing machines, and has for its object a machine in which a tubular article, as the sleeve of a shirt, is completely pressed or ironed in one machine operation. More specifically, it has for its object a sleeve pressing machine or machine for pressing tubular articles in which the article is sleeved on one pressing element with a portion, substantially one half, laid on the pressing surface of the element, and the opposite portion, substantially one half, hanging free of the pressing element, with expansible means, preferably operated by internal pressure or compressed air, for smoothing the portion hanging free of the pressing element and drawing the portion on the pressing face smoothly and more or less tightly over the same preliminarily to an ironing or pressing operation.

It also has for its object such a machine which also embodies an element for ironing the cuff while the sleeve is on the pressing element and a control hereinafter set forth for controlling the sequence of operations of the machine.

Other objects appear throughout the specification.

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 front elevation of a machine embodying this invention.

Figure 2 is a side view looking to the left in Figure 1.

Figure 3 is an enlarged plan view of the upper pressing element and contiguous parts.

Figure 4 is an end view looking to the left in Figure 3.

Figure 5 is an enlarged front elevation, partly in section, of the lower pressing element.

Figure 6 is a sectional view on line 6—6, Figure 5.

Figures 7 and 8 are views similar to Figure 5 with a sleeve thereon, Figure 7 showing the position of parts before the expansible or inflatable means are operated, and Figure 8, after the same are operated.

Figures 9 and 10 are views similar to Figure 4 but including the lower pressing element, Figure 9 showing the relative position of the parts just prior to final pressure during the final closing operation, and Figure 10 showing the position of parts upon final closing.

In the illustrated embodiment of the invention, one of the pressing elements, as the lower pressing element, is stationary, and the upper element movable toward and from the lower during the opening and closing movement, the elements extending in a substantially horizontal direction. It will be understood, however, that they may be arranged in any suitable angular position and the elements mounted to effect the opening and closing movement in any suitable manner.

1 designates the lower pressing element, and 2 the upper, the lower pressing element being supported from one end by a bracket 3 to overhang the table 4 of the machine, the table and the bracket being supported by a suitable frame or pedestal 5 rising from a base 6. The upper pressing element 2, which is movable toward and from the lower pressing element 1, is carried by heads or yokes 7 which in turn are carried by a lever 8 pivoted at 9 to a bracket 10 rising from the frame in the rear of the lower pressing element 1, the yoke or lever 8 being actuated by mechanism hereinafter described.

The lower pressing element has a pressing face on its upper side on which a portion, substantially one half of the article or sleeve S lies, while the opposite portion hangs free of or spaced from the lower side of the pressing element, as at 11. This pressing element 1 is provided with expansible means on its lower side operable to engage the free portion of the sleeve or other article and draw the portion overlying the pressing surface of the lower pressing element, smoothly over said surface, this expansible means being conformable to the sleeve or article and self-adaptable to sleeves of different sizes or diameters.

The expansible means is here shown as a sack or bag 12 to which internal pressure, as air under pressure, is applied. The sack is flexible and preferably resilient, and also porous or pervious to permit the escape of some air throughout its are while the air is being supplied thereto under pressure.

The pressing element 1 is here illustrated as generally convex, and more specifically, as inverted V-shaped in cross section, and the expansible means or sack 12 depends from the lower edges of the side walls of the inverted V formation at the open side of the V formation. The upper surface of the element 1 is usually provided with a padding 13. The upper pressing element 2 is complemental to the lower pressing element, but the side portions of the V formation are arranged to normally or initially flare outwardly to a slightly greater extent than the

sides of the V formation of the lower pressing element 1, and means is provided for pressing the sides of the upper pressing element 2 against the flaring sides of the lower pressing element 1 in a general direction at a right angle to said sides, as the press closes. This upper pressing element 2 is usually made of resilient sheet metal, as stainless steel, to permit the compressing movement thereof during the final closing, and the side portions flexing adjacent the apex portion of the V formation. The lower pressing element is usually heated and provided with an internal stream chamber 14 to which steam is applied through a pipe 15. The upper pressing element 2 is similarly provided with a steam chamber connected to a suitable steam supply through a pipe 16, and likewise the cuff clamp 21 is steam heated through a steam pipe 17. The steam chambers are usually provided by securing, as by welding, segmental or U-shaped cases or boxes 200 to the outer flaring sides of the cuff pressing element and 201 of element 2. The sleeve pressing element 2 is flexible but the cuff pressing element is rigid.

21 designates a cuff clamp and cuff ironing member for coacting with the end portion 22 of the lower pressing element 1 located beyond the area covered by the upper pressing element 2. This cuff clamp is shown as carried at the free end of an arm 23 also mounted on the pivot or shaft 9.

Air is supplied to the sack 12 through suitable means, as a blower 24, actuated by an electric motor 25, the outlet of the blower being connected by a pipe 26 to one end of the sack 12, as at 27. The cuff clamp is actuated by a pressure or air operated motor, as a cylinder 28 having a piston 29 therein, the piston rod 30 of which is connected at 31 to the joint of the toggle links 32, 33 pivoted respectively at 34 to a fixed point on the frame and at 35 to one end of the arm 36 on the arm 23 carrying the cuff clamp 21. When air enters one end of the cylinder 28, obviously the toggle will be straightened and the cuff clamp and ironing member 21 brought down on the cuff, which is on the lower pressing element 1, and press or iron the cuff of the sleeve. This closing movement is against the action of a returning spring 37. The yokes 7, which carry the upper pressing element 2, as here shown, comprise two spaced apart units mounted upon a shaft 38 mounted in the front end of the lever arm 8, the units being U-shaped and arranged astride and spaced apart from the upper pressing element 2. The ends of the arms of the U shaped formation are connected to the sides of the V formation of the upper pressing element 2 through motion transmitting means which during the final closing of the press, transfers the closing movement into a compressing action on the side portions of the upper pressing element 2 in the general direction of a right angle to the side faces of the lower pressing element 1.

This motion transmitting means includes, as here shown, links 39 between the arms of the U formation and at the side portions of the upper pressing element 2, the links being pivoted at like ends respectively at 40 to the arms of the U formation and at their other ends at 41 to the side portions of the V formation of the upper pressing element 2. The arm 8 is actuated by a suitable motor, as the cylinder 42, suitably carried at 43 by the frame, and a piston therein, the rod 44 of which is pivoted at 45 to the end of the arm 8 below the pivot 9. When air enters the cylinder 42 and the piston is actuated, and obviously the upper pressing element 2 moved in an arc downward toward the lower pressing element 1. Because of the relative arrangement of the lower pressing element 1 and the pivot 9, the final closing movement will be in substantially a straight vertical line. During the final closing movement, as the upper pressing element comes in contact with the work on the lower pressing element, the yoke or head 7 will continue to close and its motion be converted into a pressing movement on the sides of the V formation of the upper pressing element 2, due to the straightening of the links 39. This operation results in applying pressure in a direction at a right angle to the side faces of the pressing element 2, and hence results in applying compression pressure rather than a sliding pressure to the sleeve, and avoids a sliding scuffing action on the padding. The air to the cylinder 28 is applied through a supply pipe 46 having a suitable valve therein, which is controlled by a two hand control including two push buttons 47, 48. Air is supplied to the cylinder 42 through a pipe 49 having valves therein controlled by a pair of push buttons 50, 51. These valves and the two hand controls form no part of this invention, and as various forms of two hand controls are well known, description thereof is thought to be unnecessary.

To open the press, the air is exhausted from the cylinders 28 and 42 and the exhaust is controlled from these cylinders respectively by release levers 52 and 53. Release mechanism likewise is well known and forms no part of this invention.

The blower 24 is normally idle and the operation is, in this embodiment of the invention, controlled by the closing of the cuff clamp, and also the blower may be operated at will, as will be presently described. In so far as the control by the cuff clamp is concerned, when the piston 29 travels a predetermined distance on its power stroke sufficient to close the clamp 21, the piston passes a port at 54 in the cylinder 28 and the air passes through pipe 55 to a diaphragm chamber 56 actuating a diaphragm therein which acts on a plunger 57 which through a link 58 actuates a bell crank lever 59 which operates a butterfly valve or a switch 60 controlling the flow of air from the blower 24. This actuating mechanism 59 may be operated at will from a pedal 61 located in the base 6 and connected to the operating member 59 through a rod 62, the operation of the rod being against a suitable returning spring 64. When the air is released from the cylinder 28 and the piston 29 returns to its starting position, under the impulse of the spring 37, the air exhausts back out of the diaphragm chamber 56 and permits the valve actuating mechanism to return to its normal position under the action of a returning spring 64. After the air is administered to the bag 12, the push buttons 50, 51 are operated to permit the compressed air to enter the cylinder 42 and close the upper pressing element 2 down on the lower element 1. When the pressing operation is completed, the release levers 52, 53 are operated, permitting the press to open and the actuating member 59 for the valve 60 of the blower 24 to close.

In Figure 7, the sleeve is shown as hanging free before the sack or bag 12 is inflated, and in Figure 8 is illustrated the sleeve when the bag is inflated.

In the general operation, the article is drawn over the lower pressing element 1 (a shirt sleeve

usually has a cuff) then the push buttons 47, 48 are operated to bring the cuff pressing element 21 onto the cuff. The closing of the cuff pressing element results in the opening of the valve 60 for the blower 24, so that the blower is actuated to blow air into the bag or sack 12 and expand the same to fill out the portion of the article hanging between the lower pressing element 1, regardless of the contour, taper or size of the article, as a sleeve. This action smooths the sleeve on the lower pressing element 1 and also presses out the wrinkles in the portion of the sleeve hanging free below the element 1. The push buttons 50, 51 are then operated to permit air to enter the cylinder 42 and close the upper pressing element down on the lower pressing element 1. At the end of the pressing operation, the release levers 52, 53 are operated to open the press.

What I claim is:

1. In a garment press, upper and lower pressing elements, one of which is movable toward and from the other, the lower element having a pressing face inverted V-shaped in cross section, the upper element being also inverted V-shaped in cross section and complemental to the lower pressing element, the sides of the V formation of the upper pressing element being movable inwardly, an expansible sack carried by the lower pressing element at the open side of the V formation, mechanism for moving the upper pressing element into and out of coaction with the lower pressing element and moving the side portions of the upper pressing element inwardly in a general direction at a right angle to the side portions of the lower pressing element during the final closing movement of the upper pressing element into coaction with the lower pressing element, and means for applying internal pressure to the sack.

2. In a sleeve press, a rigid inexpansible pressing element V-shaped in cross section and having pressing faces on its outer sides and on the apex portion of the V formation, expansible means depending from the open side of the V formation operable to expand and engage the portion of the tubular article sleeved on said element, opposed to the open side of the V formation and draw the portion of the article overlying the surfaces of the V formation against said surfaces, said means comprising an expansible bag carried by and extending along the open side of the V formation, means for applying internal fluid pressure to the bag, and a pressing element coacting with the former pressing element, said pressing elements having relative movement one toward and from the other and means for actuating one toward and from the other.

3. In a garment press, upper and lower pressing elements, one of which is movable toward and from the other, the lower element having a rigid pressing face inverted V-shaped in cross-section, the upper element being also inverted V-shaped in cross-section and complemental to the other pressing element, an expansible sack carried by the lower pressing element at the open side of the V formation, mechanism for moving the upper pressing element into and out of coaction with the lower pressing element, and means for applying internal pressure to the sack.

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