Jan. 27, 1953 I. C. MAXWELL ET AL 2,626,733

SLEEVE PRESS

Filed Dec. 10, 1949 3 Sheets-Sheet 1

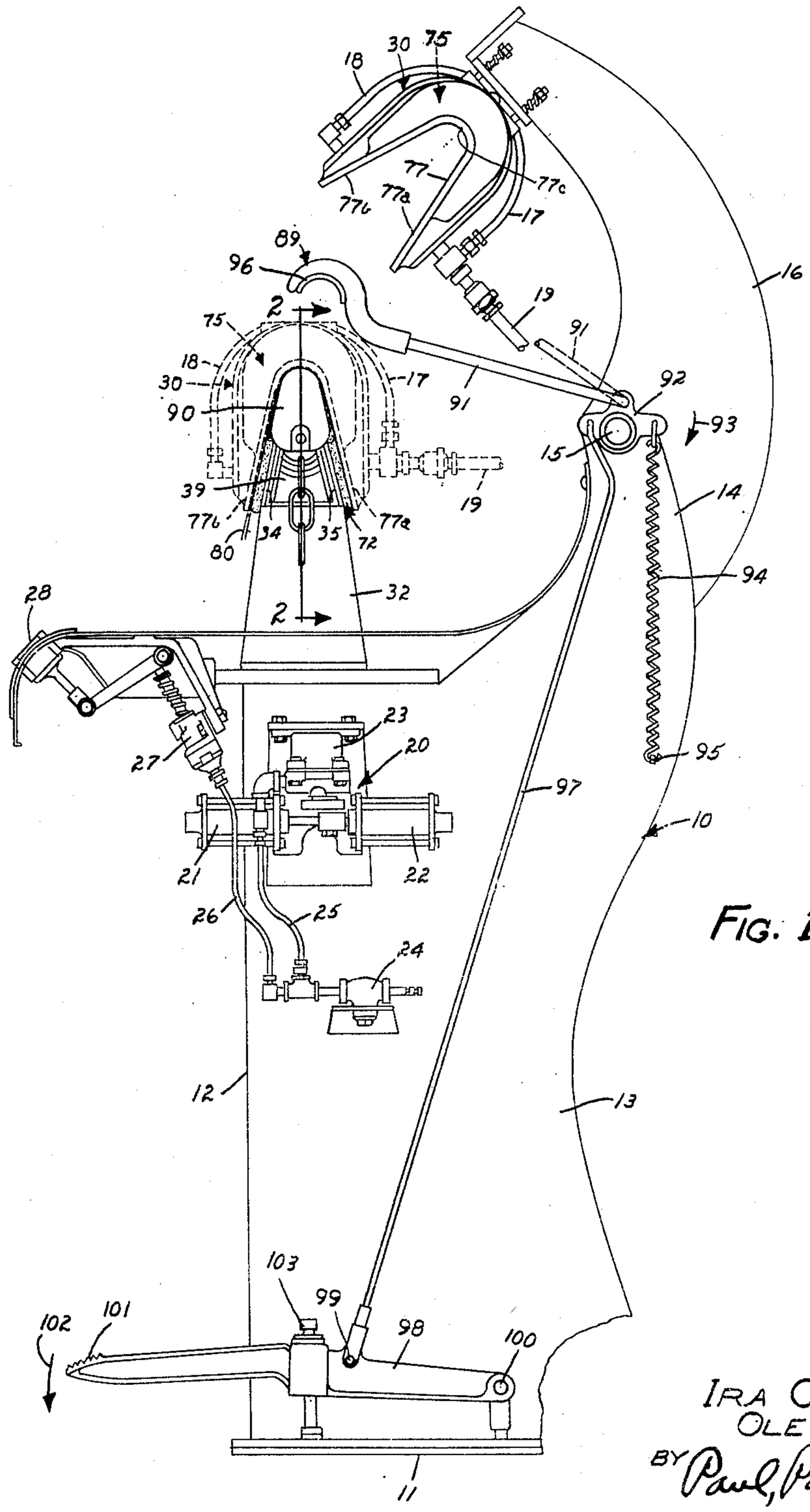

FIG. 1

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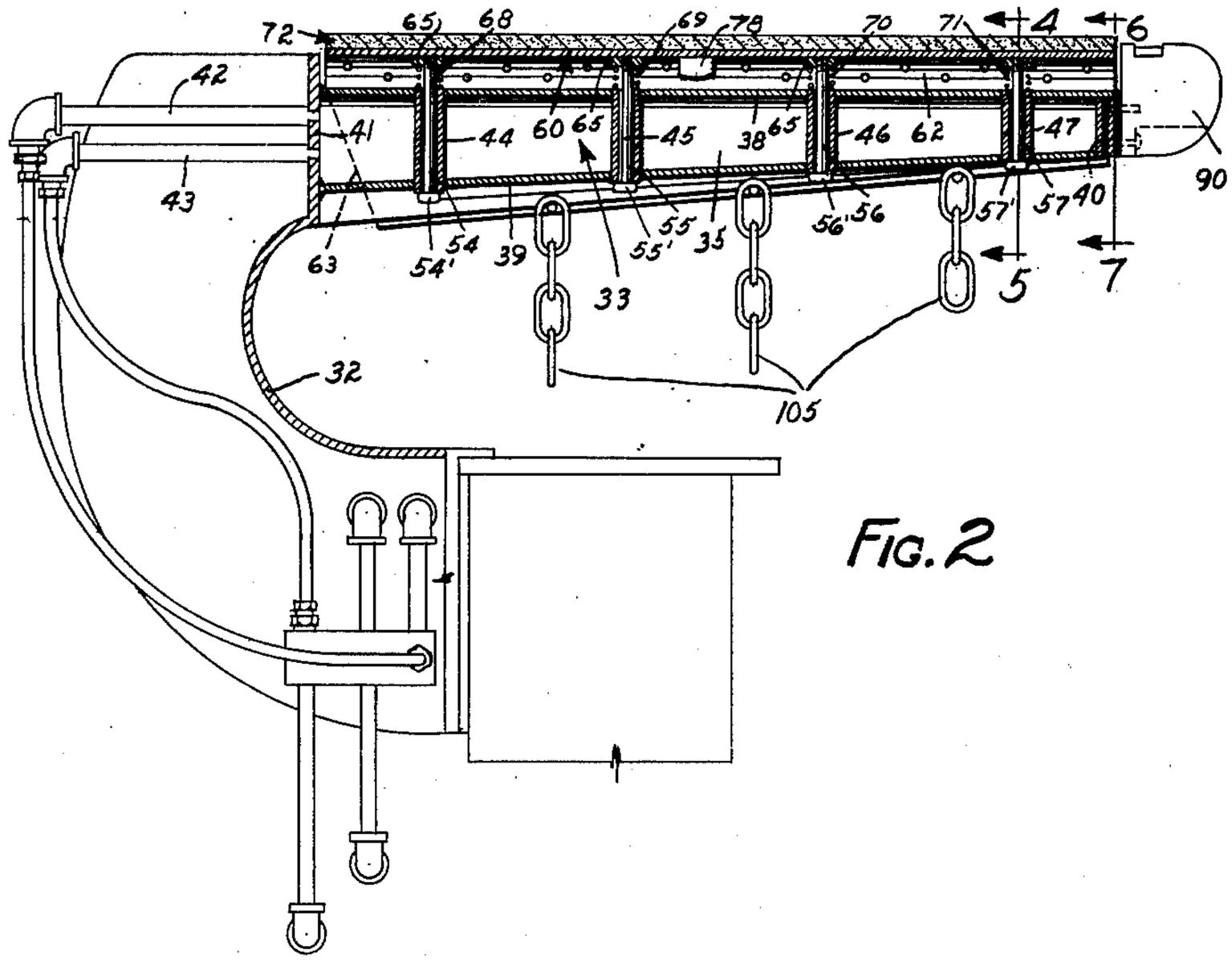

FIG. 2

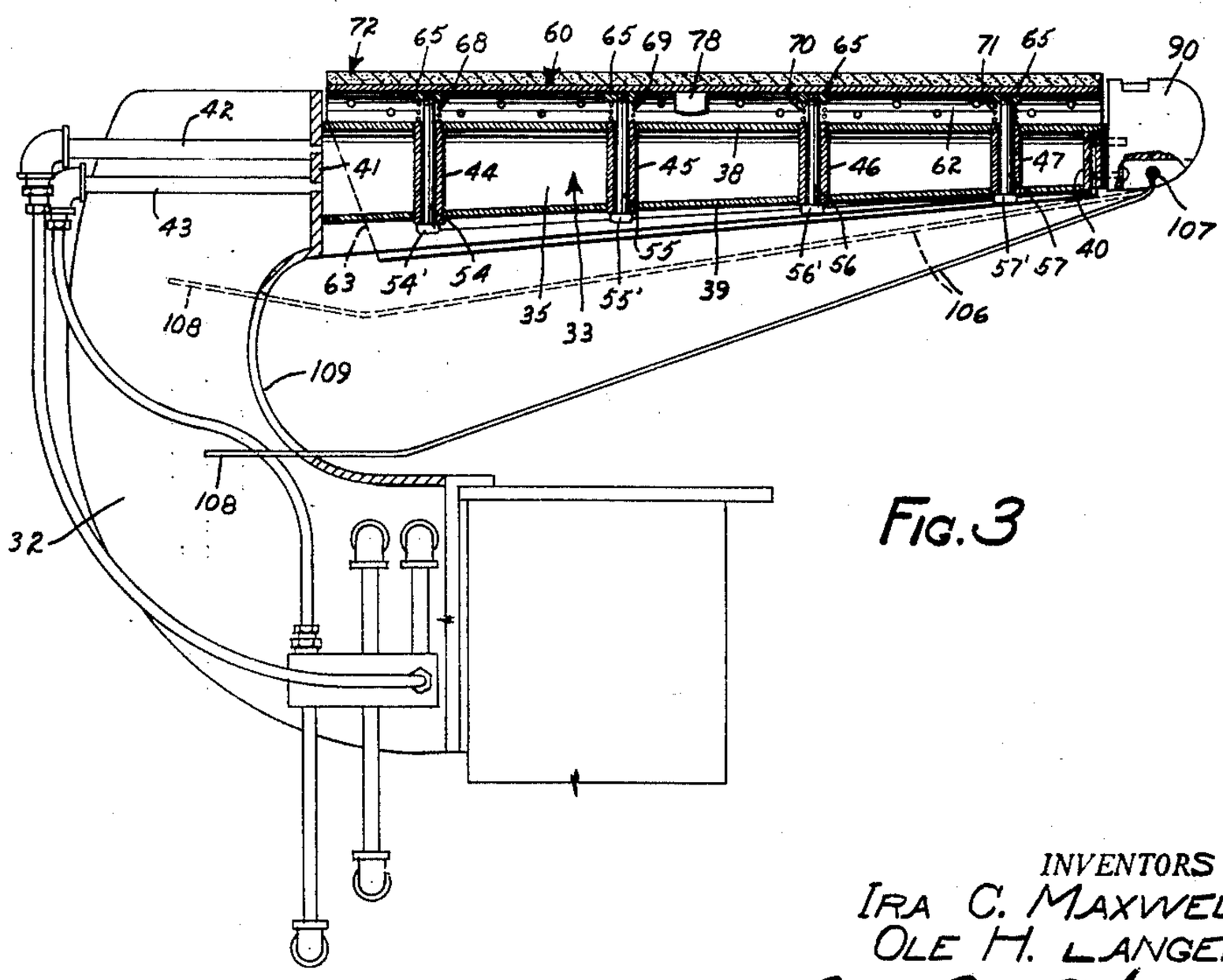

FIG. 3

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Filed Dec. 10, 1949 3 Sheets-Sheet 3

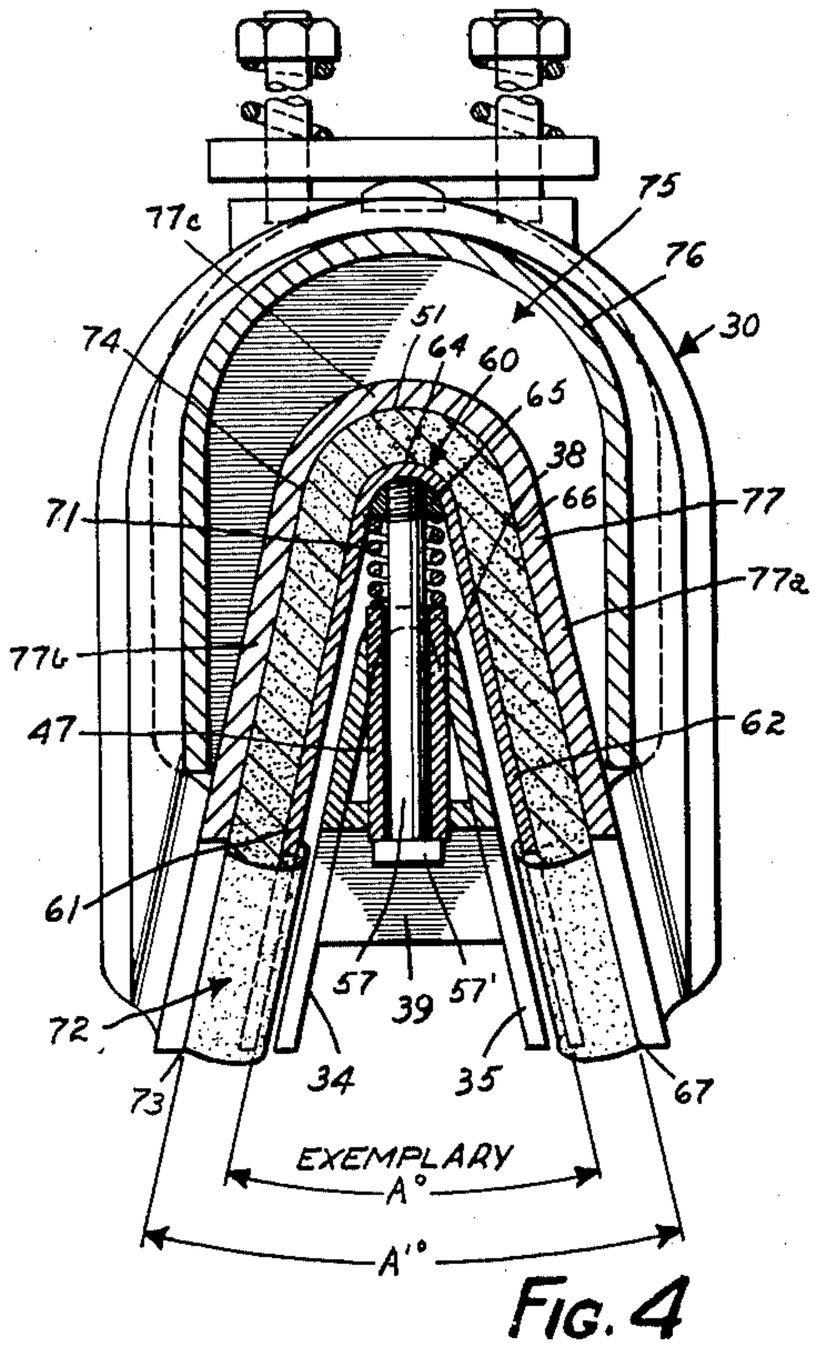

FIG. 4

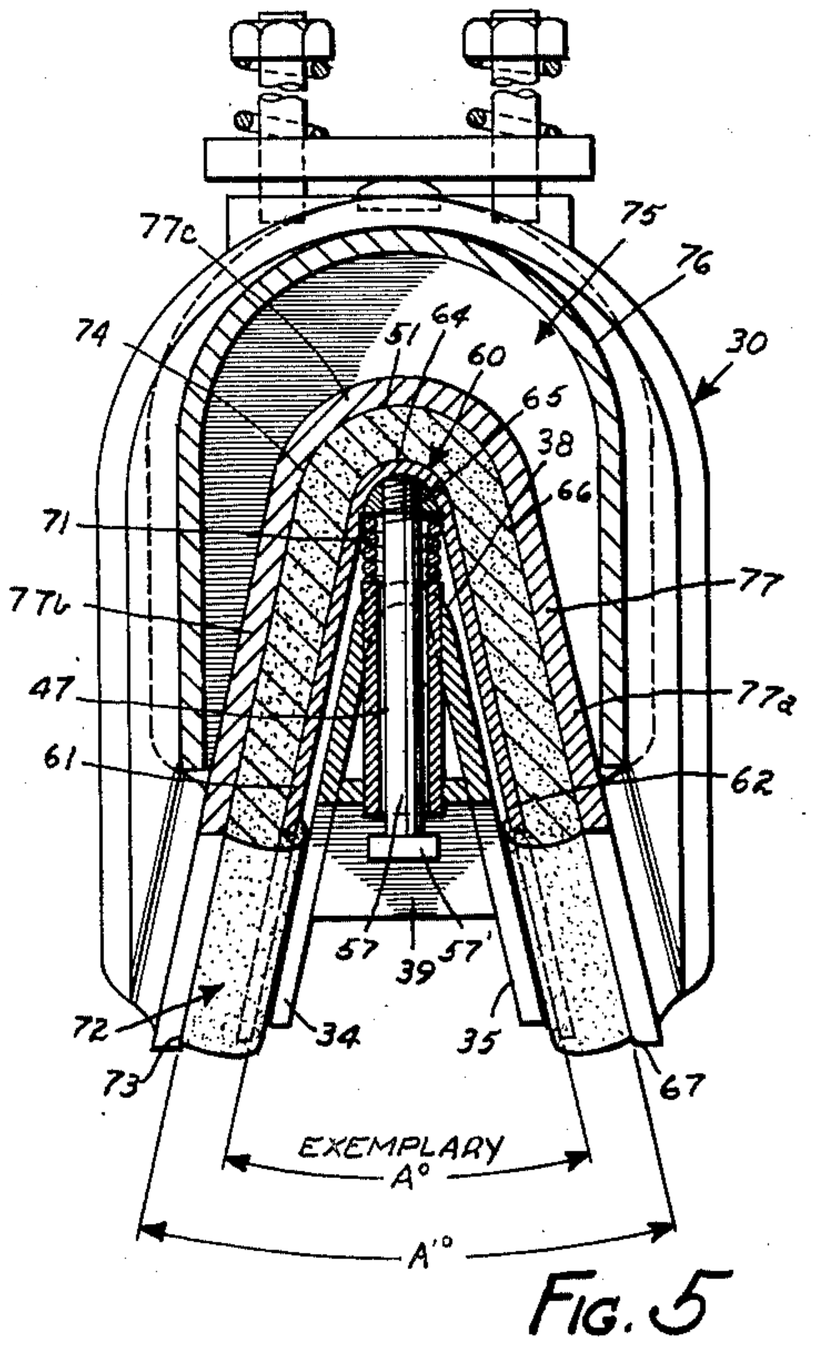

FIG. 5

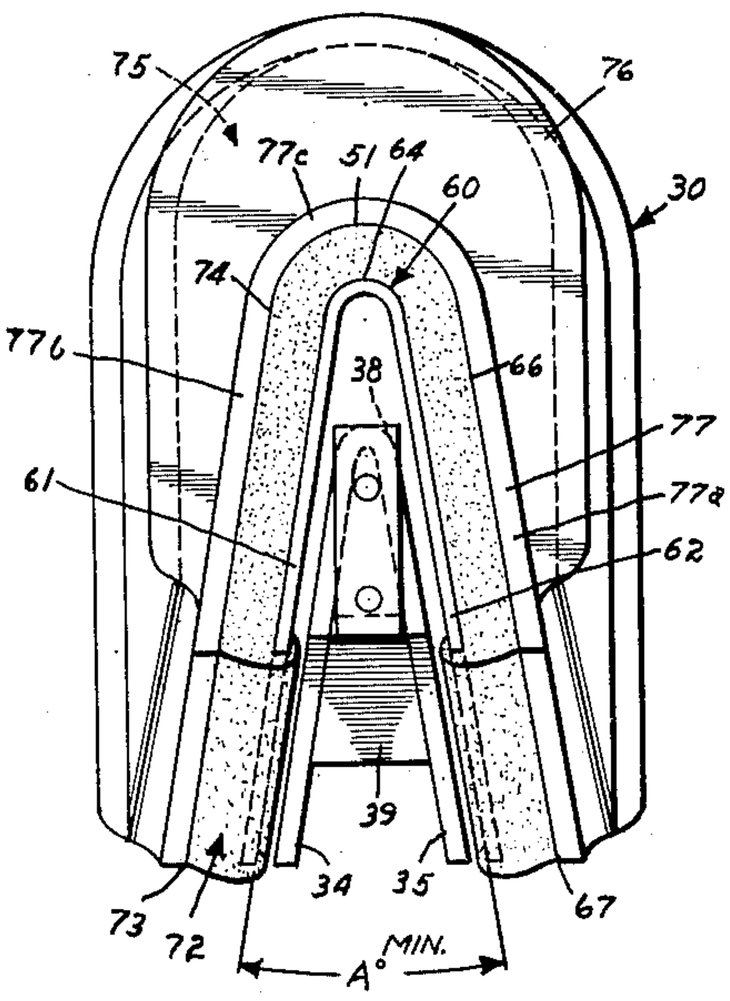

FIG. 6

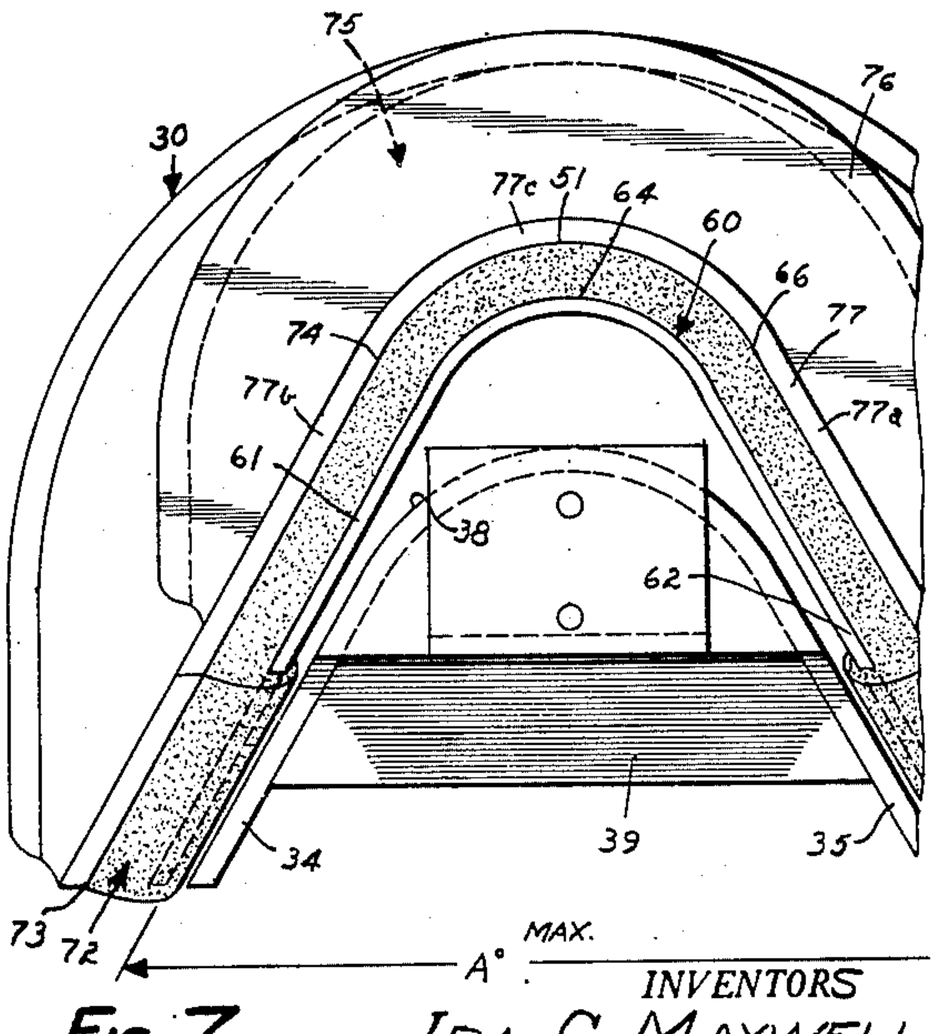

FIG. 7

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UNITED STATES PATENT OFFICE

2,626,733

SLEEVE PRESS

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Application December 10, 1949, Serial No. 132,331

12 Claims. (Cl. 223—57)

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This invention relates to sleeve presses and more particularly to 2-lay sleeve presses. Heretofore in the pressing of sleeves of garments, it has been customary to press the sleeve in three lays, that is to say, the sleeve has been drawn onto the sleeve buck and the pressing head then brought down onto the buck for pressing a longitudinal segmental portion of the sleeve. After the pressing is complete for this portion the presser head is released and the sleeve is then loosened and rotated on the buck so as to encompass another longitudinal segmental portion overlapping the first pressed portion and the presser head is then brought down again so as to press this second segmental portion. The presser head is then again released and the sleeve again rotated so as to bring into alignment on the buck a third segmental portion which overlaps the first and the second, and the presser head is again then brought down onto the buck so as to complete the pressing operation of the sleeve. Such presses, known as 3-lay sleeve presses, have been satisfactory, but have required an excessive amount of time for the complete pressing of each sleeve.

In order to overcome this difficulty it was more lately suggested to provide a 2-lay sleeve press wherein the buck is of generally V-shaped configuration having movable panel-like front and rear portions hinged to each other at their upper edge portions and provided with mechanism for swinging the panel-like portions outward into pressing engagement with cooperating faces of the presser head. Such an arrangement has permitted the pressing of a wider segmental portion of the sleeve so that only two lays of the sleeve on the buck are necessary in order to complete the pressing operation.

Such known hinged-buck arrangements for the two-lay sleeve press have, however, been subjected to severe limitations and have resulted in unsatisfactory operation due to the fact that the hinging mechanism tends to freeze or become inactive and does not operate satisfactorily. This is due to the fact that in the pressing of any wet garment the buck is subjected to exceedingly harsh conditions of moisture and temperature which preclude any really satisfactory lubrication of moving parts that are subjected to such conditions. As a result, any mechanical support of a buck pad which involves moving elements and bearing surfaces is subjected to the most severe conditions, and in the instance of the hinged buck 2-lay sleeve press, the resultant action of the buck and operation has not been satisfactory in use.

It is an object of the present invention to provide an improved 2-lay sleeve press which dispenses with any hinged supports for the buck pad and dispenses with journalled or bearing elements.

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It is a further object to provide an improved 2-lay sleeve press wherein the entire pressing of any sleeve may be accomplished with only two lays on a buck of fixed shape devoid of hinged or swinging elements in the buck pad support.

It is a further object of the invention to provide an improved buck and head construction of a 2-lay sleeve press dispensing with any hinge joints and so shaped and conformed as to provide satisfactory operation.

It is a further object of the invention to provide a buck pad of fixed angular configuration but of a limited range of angular disposition of the front and back portions of the buck pad support in a two-lay sleeve press.

Other and further objects of the invention are those inherent in the apparatus herein illustrated, described and claimed.

The invention is illustrated with reference to the drawings in which corresponding numerals refer to the same parts, and in which

Figure 1 is a side elevational view of a pressing machine of the present invention showing in full lines the press in open condition and showing in dotted lines the condition when the presser head is just beginning to engage the buck;

Figure 2 is a fragmentary front elevational view partly in section, the sectioning being taken along the line and in the direction of arrows 2—2 of Figure 1, showing the buck and buck pad in the condition when head pressure is not exerted thereon;

Figure 3 is a view corresponding to Figure 1 showing a slightly modified form of arrangement for keeping the sleeve snug upon the buck;

Figure 4 is a sectional view of the buck and head, showing an exemplary angle between the front and rear planar areas of the buck, said figure being taken along the line and in the direction of arrows 4—5 of Figure 2. Figure 4 shows the pressing head in engagement with the buck but before heavy ironing pressure has been exerted;

Figure 5 corresponds to Figure 4 but shows the condition which maintains when heavy ironing pressure has been exerted by the ironing head upon the buck;

Figures 6 and 7 are views of the buck and head of the present invention, being sectional views taken at the line and in the direction of arrows 6—7 of Figure 2, Figure 6 illustrating the minimum angle of buck and head, and Figure 7 showing the maximum angle of buck.

Referring to the drawings the pressing machine of the present invention includes a frame generally designated 10 having a floor plate 11 and an upright front portion 12 and side portions 13 on each side of the press. The frame has an upreaching rear portion 14 which serves to support the pivot 15 upon which the presser arm 16 is adapted pivotally to be mounted for radial swinging movement. The presser arm carries a presser head generally designated 30 which is provided with steam connections at 17 that are served by the flexible supply line 19. The details of construction of the presser head, of the presser arm 16 and the frame 10, per se, form no part of this invention, except that the angularity and shape of the presser head must cooperate with the angularity and shape of the buck and to that extent are subject to the improvement of the instant invention, and the head is preferably mounted with reference to the buck as hereinafter stated.

The mechanism for operating the presser arm 16 so as to move it radially and thus move the presser head 30 arcuately into and out of engagement with the buck, also per se forms no part of the instant invention. Such mechanisms can be of any suitable form, such as shown in Patents Nos. 2,265,449 and Re. 22,041. Upon the right side of the press, as viewed from the front as shown in Figure 1, there is an operating valve arrangement generally designated 20 having control or pilot cylinders 21 and 22, by means of which the valve 23 is operated. The air supply is at 24 and is connected through the pipe 25 to the valve 23, a supply also being shown at 26 to the two-hand control valve mechanism 27, of which one of the hand elements is shown in the drawings. The valve mechanism 27 is operated by the push button at 28 in a known manner. The controls themselves serve merely to operate the press as is well known in the art for swinging the presser arm 16 and the head 30 into and out of engagement with the buck.

Referring to Figures 2, 3 and 4–7, particularly, upon the frame of the machine there is a buck support arm generally designated 32 which extends upwardly at the left of the machine, as shown in Figures 2 and 3, this arm being connected solidly to the frame of the machine. The arm serves as a support for a steam chest generally designated 33 which has front and rear panel portions 34 and 35, as shown in Figures 4 and 5, that are connected together at their upper portion 38 and closed at the bottom by the bottom panel 39. The steam chest is closed by means of the end panels 40 and 41, and the entire steam chest is attached by welding to the support 32. A steam line serving the steam chest is illustrated at 42 and a condensate return at 43.

Through the steam chest there extend upright tubular members 44, 45, 46 and 47, as shown in Figure 2, and through these loosely extend a plurality of vertical rods 54, 55, 56 and 57. These rods are of a diameter such that there is a liberal amount of clearance between them and the inside of the tubes 44 through 47, so as to allow a limited tipping movement of the rods in the tubes. The rods 54 through 57 may be in the form of bolts having heads at 54′ through 57′ or the rods may simply have nuts in place of the heads. In any event the rods extend upwardly and are attached to a stiff buck pad support generally designated 60, as shown in Figures 4 and 5.

The stiff buck pad support 60 has a front, flat wall portion 61 and a rear flat wall portion 62, each of which has a greater lower to upper height at the left end than at the right end, so as to provide a somewhat tapered configuration, as shown in Figure 2, it being noted that these wall portions are cut along the slanting line 63 at the left end, as shown in Figure 2. The front and rear slanting wall portions have a fixed angle between them, as shown by the angle dimension A° of Figure 4 and Figure 5. In accordance with the instant invention, the angle A between the front and rear panels of the stiff buck pad support can be any angle from 20 degrees to 60 degrees, preferably 20 degrees to 30 degrees. As a specific example, an angularity of 26 degrees works excellently. The stiff front and rear panel portions 61 and 62 are joined to each other by the curved section 64 and the whole unit 61—62—64 is a unitary stiff section having flat rearwardly and upwardly slanted front portion 61, a flat forwardly and upwardly slanted rear portion 62 and a curved section 64, the whole being a unit in which the angle remains fixed throughout the action and the age of the machine.

The curved portion 64 has set into it a plurality of half circle blocks 65, or other suitable stiffening blocks, and into these the upper ends of the supporting rods 54—57 are attached in any suitable manner, as by threading as shown. The rods 54—57 thus are firmly attached to the buck pad support 61—62—64 and it and rods 54—57 move as a unit, being limited in its upward movement by the heads 54′—57′ on the lower ends of the rods 54—57. Between the upper ends of the tubes 44—47 and the lower surface of the blocks 65, there are interposed stiff springs at 68, 69, 70 and 71, and these serve to push upwardly and raise the buck pad support 61—62—64 to the position shown in Figures 2 and 4. Upon the buck pad support 61—62—64 there is fastened a buck pad 72 of resilient material.

This buck pad is provided with many tiny springs or spirals of resilient material and is of uniform thickness, thus presenting a pressing surface along the line 73—74 and thence around the curved portion 51 and thence along the line 66—67, which is at all times a uniform normal distance from the buck pad support. It is upon this inverted V-shaped pressing surface that pressing of the garment sleeve takes place.

The presser head generally designated 30 has a steam chest at 75 composed of the outer wall 76 and an inner wall 77, the lower surface of which conforms to the inverted V-shape of the buck pad and buck pad support. The angularity between the wall portion 77*a* and the wall portion 77*b* of the head chest is from 0 degrees to 2 degrees less than angle A of the buck pad support, it being remembered that the buck pad 72 is of uniform thickness and hence the angle of the pressing surface, as shown by dimensions A°, is substantially the same as angle A. Thus, the presser head angle is from 0 degrees to 2 degrees, preferably 0 degrees to 1 degree less than the angle A′ and from 0 degrees to 2 degrees, preferably 0 degrees to 1 degree, less than the angle A, the angles A and A′ being substantially identical. The under surface of the presser head composed of the surfaces 77*a* and 77*b*, together with the smoothly curved portion 77*c*, which is 0 degress to 2 degrees, preferably 0 degrees to 1 degree less than the angularity of the pressing

buck, is smoothly polished so as to present a mirror-like pressing surface.

The presser head, when it is fully in engagement with the buck and exerting pressing pressure thereon, deflects the springs 68 through 71 to the position shown approximately in Figure 5. As shown in Figure 2, a stop is preferably provided at 78 which limits the downward movement of the buck pad support 61—62—64 in respect to the heater chest upon which it is supported. The stop 78 has a curved bottom, as shown in Figures 2 and 3, so as to facilitate the end-to-end rocking movement.

The presser head 30 is mounted upon the presser arm 16 in such a manner that the portion 77*a* of the presser head engages the corresponding cooperating surface of the buck pad slightly before the portion 77*b* of the presser head engages the corresponding front portion of the buck pad. Accordingly, as shown in Figure 1, there is a slight clearance at 80 between the portion 77*b* of the presser head and the corresponding portion of the buck pad, as portions 77*a* and 77*c* of the presser head have engaged the corresponding portions of the buck pad. Then, as the presser head proceeds to final pressure condition, shown in Figure 5, the presser head gradually compresses and engages the entire top part 77*c* and the slanting rear portions 77*a* and finally the front part 77*a* of the buck pad and causes the buck pad to be depressed down and as the pressure increases the springs 68—71, which push upwardly on the buck pad support 61—62—64, are compressed. The buck pad support being thus pushed upwardly by the springs, is free to rock slightly and thus equalizes the pressure on the front and rear surfaces 77*a* and 77*b*. The mounting of the buck pad support 61—62—64 upon springs 68—71 with only a limited degree of movement, as provided by the rods 54—57 in the tubes 44—47, thus permits a limited rocking movement of the buck to conform to the presser head, and the adjustment is made as previously described so that either the rear or the front cooperating portions of the head and buck pad engage before the corresponding front or rear portions of the buck pad and head have engaged. By this means the portion of the sleeve being pressed is drawn slightly and neatly pressed. During the pressing operation the relatively heavy pressure exerted by the presser head upon the entire buck causes the supporting arm 32 and the steam chest 33 to deflect slightly, and this deflection is most noticeable at the right end of the buck, as shown in Figures 2 and 3. The mounting of the buck pad 61—62—64 upon springs 68—71 permits the buck to "float" to a limited degree, however, and hence the deflection of the support 32—33 of the buck pad and buck pad support does not cause any appreciable diminution of unit pressure at the right end of the buck, as compared to the left end of the buck as shown in Figures 2 and 3. Furthermore, as the presser head 30 goes to final pressing position, as shown in Figure 5, the stop 78 engages upon the upper portion of the chest 33 and hence the entire buck pad support 61—62—64 and the buck pad thereon are stopped from further downward movement, but are free to rock from side to side and from front to back on the curved under surface of stop 78 so as to fit home neatly into the presser head, regardless of the condition of deflection of the buck assembly, thus unifying the pressure over the entire pressing area.

It may be noted that by adjusting the angle of the presser head 75 with reference to presser arm 16, the clearance 80 can be shifted to either the front, as shown, or to the back of the buck.

Figures 6 and 7 illustrate the range of angularity between the front and rear panel-like faces of the buck pad support, the pressing area of the buck pad and the corresponding pressing surface of the presser head which may suitably be used in accordance with the present invention. In Figure 6 there is illustrated the approximate minimum angle of 20 degrees for the buck pad support, it being remembered that the thickness of the buck pad itself is uniform upon the support and hence the outer surface of the pad has the same angle. The angle between the surfaces 77*a* and 77*b* of the presser head 30, however, are 0 degrees to 2 degrees less than 20 degrees for the minimum angle condition shown in Figure 6. In Figure 7, which illustrates the maximum appropriate angle which may be used in accordance with the present invention, the angle between the front portion 61 of the buck pad support and the rear portion 62 of the buck pad support is the maximum angle of approximately 60 degrees, again it being remembered that the thickness of the buck pad 72 is uniform on the buck pad support. The angularity between the front portion 77*b* of the presser head and the rear portion 77*a* in this maximum angle for the range shown is from 0 degrees to 2 degrees less than the stated 60 degrees. Thus, we have discovered that any angle in the range of approximately 20 degrees to approximately 60 degrees for the buck pad support (and buck pad thereon) is suitable and that the presser head may be 0 degrees to 2 degrees, preferably 0 degrees to 1 degree, less than the selected angle in this range.

In Figures 2 and 3 there is illustrated the cuff knob at 90 which is attached to the right end of the steam chest and into engagement with which there is adapted to be swung the cuff clamp generally designated 89. The cuff clamp is mounted upon the rocker 92 that is normally urged in the direction of arrow 93 by means of the spring 94 attached to the frame at 95. In Figure 1 the clamp is shown partly depressed, so as to make the drawing clearer. In normal use the upper position of the clamp is when the arm 91 is as shown in the dotted line position. The rocker 92 thus carries the supporting arm 91 of the cuff clamp and it in turn carries the cuff clamping portion of the arrangement at 96 that moves into and out of engagement with the cuff knob 90. The rocker 92 is arranged to be moved opposite to the direction of arrow 93 by means of the pull rod 97 that is attached to the lever 98 by means of the pivot 99, the lever 98 being pivotally mounted upon the base frame at 100 and provided with a treadle portion at 101 by means of which the lever can be swung down in the direction of arrow 102. The lever is provided with a stop at 103 which limits its upward movement. By pressing on the treadle 101 the rocker 92 is moved opposite to the direction of arrow 93 and the cuff clamping portion 96 is pressed into engagement with the cuff knob, thus holding the cuff firmly in place upon the cuff knob.

In Figure 2 there are shown a plurality of downwardly extending chains at 105 which, by their weight and number, serve to press downwardly on the inner surface of the sleeve being pressed, thus holding the sleeve taut upon the pressing buck. In Figure 3 there is illustrated

another form of sleeve stretcher, in this case a rod, as at 106, is pivoted at the cuff clamp knob through the pivot bolt 107, the end 108 of the rod being extended through a vertical slot 109 on the inner surface of the buck supporting arm 32. The slot 109 serves to limit the swinging movement of the rod 106 and also limits the side sway of the rod 106. The rod normally sags to the position shown in Figure 3 and is somewhat flexible. As a sleeve is drawn onto the buck, the rod 106 will be pulled up to its upper limiting position, as shown in dotted lines in Figure 3, or to any intermediate position, depending upon the circumference of the sleeve. The sleeve is in this manner also snugly held upon the buck.

As many apparently widely different embodiments of this invention may be made without departing from the spirit and scope thereof, it is to be understood that we do not limit ourselves to the specific embodiments herein.

What we claim is:

1. In a press for tubular garment portions, such as sleeves and legs, having a horizontally extending buck for drawing the tubular garment portion thereon, and a cooperating presser head and means for moving the presser head into and out of cooperating pressing engagement with the buck, an improved buck construction comprising a stiff buck pad support extending lengthwise of the buck from one end to the other, said buck pad support having front and rear substantially planar wall panels, the front panel being slanted backwards and the rear panel slanted forward so that the two panels converge, said panels being joined by a smoothly curved portion forming the upper longitudinal median area of the buck pad support, said panels and curved portion being integral and stiff and forming together a shape of inverted V-transverse section, the angle of said inverted V formed between the front and rear wall panels being from about 20 degrees to about 60 degrees, a springy pad of substantially uniform thickness fastened to and covering the outer surface of said buck pad support, said presser head having substantially planar front and rear upwardly converging pressing areas joined by a smoothly curved area corresponding to the shape of the outer surface of the pad on the stiff buck pad support, except that the angle between the converging front and rear pressing areas of the presser head is from 0 degrees to 2 degrees less than the angle between the front and rear panel portions of the buck pad support.

2. In a press for tubular garment portions, such as sleeves and legs, having a horizontally extending buck for drawing the tubular garment portion thereon, and a cooperating presser head and means for moving the presser head into and out of cooperating pressing engagement with the buck, an improved buck construction comprising a stiff buck pad support extending lengthwise of the buck from one end to the other, said buck pad support having front and rear substantially planar wall panels, the front panel being slanted backwards and the rear panel slanted forward so that the two panels converge, said panels being joined by a smoothly curved portion forming the upper longitudinal median area of the buck pad support, said panels and curved portion being integral and stiff and forming together a shape of inverted V-transverse section, the angle of said inverted V formed between the front and rear wall panels being from about 20 degrees to about 60 degrees, a springy pad of substantially uniform thickness fastened to and covering the outer

surface of said buck pad support, said presser head having substantially planar front and rear upwardly converging pressing areas joined by a smoothly curved area corresponding to the shape of the outer surface of the pad on the stiff buck pad support, except that the angle between the converging front and rear pressing areas of the presser head is from 0 degrees to 2 degrees less than the angle between the front and rear panel portions of the buck pad support, means for heating and mounting the pad support for slight side-to-side and front-to-back rocking movement.

3. The combination of claim 1 further characterized in that the stiff buck pad support has openings therethrough for ventilation.

4. The combination of claim 1 further characterized in that the stiff buck pad support is supported on a heater chest of generally inverted V-shape in cross section extending substantially throughout the length of the buck pad support, spring means between the heater chest and stiff buck pad support for urging the latter vertically, and stop means for limiting the vertical upward movement of the stiff buck pad support.

5. The combination of claim 4 further characterized in that a stop is provided between the stiff buck pad support and the heater chest, said stop being located between the ends of the stiff buck pad support.

6. An improved 2-lay sleeve press comprising a buck assembly of generally long tapered configuration horizontally disposed and supported only at the larger end thereof, said buck having a non-resilient support with a resilient padding thereon, the buck being of inverted V-shaped transverse section with generally planar front and back faces converged toward each other at the top and connected by a smoothly curved top area, the entire buck being mounted on springs for fore and aft and side to side rocking movement, a presser head having unitary generally planar front and back portions connected with a smoothly curved portion forming an inverted V-shape conforming to the shape of the buck, said presser head being mounted for movement arcuately and having power means connected thereto so as to bring the open portion of the inverted V-shaped presser head arcuately towards the curved top area of the buck and thence into engagement with said buck, said buck having an angularity of 20 degrees to 30 degrees between its generally planar front and back faces and the presser head having 0 degrees to 2 degrees less angularity between the front and back portions thereof as compared to the angularity between the planar areas of the buck.

7. An improved 2-lay sleeve press comprising a buck assembly of generally long tapered configuration horizontally disposed and supported only at the larger end thereof, said buck having a non-resilient support with a resilient padding thereon, the buck being of inverted V-shaped transverse section with generally planar front and back faces converged toward each other at the top and connected by a smoothly curved top area, the entire buck being mounted on springs for fore and aft and side to side rocking movement, a presser head having unitary generally planar front and back portions connected with a smoothly curved portion forming an inverted V-shape conforming to the shape of the buck, said presser head being mounted for movement arcuately and having power means connected thereto so as to bring the open portion of the

inverted V-shaped presser head arcuately towards the curved top area of the buck and thence into engagement with said buck, said buck having an angularity of 20 degrees to 30 degrees between its generally planar front and back faces and the presser head having 0 degrees to 2 degrees less angularity between the front and back positions thereof as compared to the angularity between the planar areas of the buck, said presser head and buck being mounted so that one cooperating pair composed of one face of the buck and the cooperating portion of the head which comes in contact therewith begin to come into contact with each other before the other cooperating face of the buck and portion of the head begin to contact.

8. The improved 2-lay sleeve press of claim 6 further characterized in that the angularity between the generally planar front and back faces of the buck is 24 degrees to 26 degrees.

9. The improved 2-lay sleeve press of claim 8 further characterized in that the angularity between the front and back portions of the presser head is not more than 2 degrees less than that of the buck.

10. An improved 2-lay sleeve press comprising a frame having a generally elongated tapered buck and cooperating similarly shaped presser head thereon, means for moving the head along an arcuate path of movement into pressing engagement with the buck, said buck including a buck support post extending upwardly from the frame at one end of the buck, a heater chest extending substantially horizontally outwardly from the buck support post, said chest having front and back planar walls slanted upwardly towards each other, a substantially horizontal upper web jointed to the upper edges of the front and back walls, a lower web gradually slanted upwardly toward the outer ends of the walls and joined thereto, end walls sealing off the entity into a chest, tubes extending vertically through the lower and upper webs along the length of the chest, a stiff buck pad support having front and back panels in close proximity to the front and

back walls of the chest and connected by a smoothly curved section, vertical rods attached to the stiff buck pad support and extending downwardly and loosely through said tubes and movable vertically and to a limited extent universally therein, stops on the rods contacting with the tubes and limiting the upward movement thereof, springs around said rods and between the upper part of the chest and the under side of the curved portion of the buck pad support for urging the latter upwardly, said buck pad having a resilient pad of uniform thickness on the outer surface thereof, said presser head being shaped to conform to the shape of the outer surface of said buck pad.

11. The apparatus of claim 10 further characterized in that the angularity between the front and rear surfaces of the buck pad on the stiff buck support is 20 degrees to 30 degrees and the angularity of the front and rear faces of the presser head cooperating with the front and rear faces of the buck pad support is from 0 degrees to 2 degrees less than said first mentioned angularity.

12. The apparatus of claim 11 further characterized in that a positive stop is provided between the stiff buck pad support and the chest, said stop being approximately midway between the ends of the buck pad support and approximately midway in the fore and aft position.

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