Sept. 5, 1950 G. W. JOHNSON 2,521,374

SLACK TAKE-UP MEANS FOR SLEEVE PRESSES

Filed Jan. 16, 1947 2 Sheets-Sheet 1

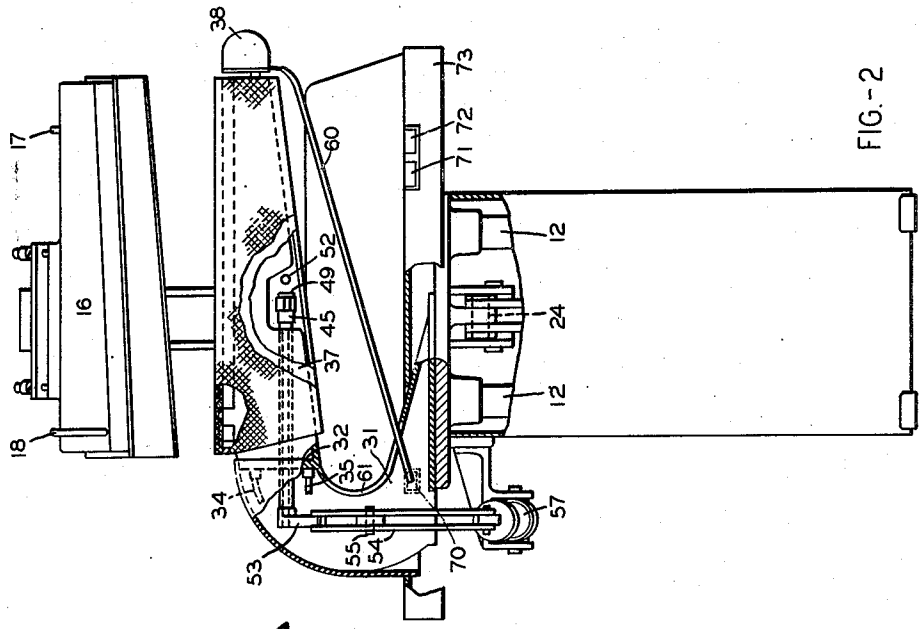


FIG. 2

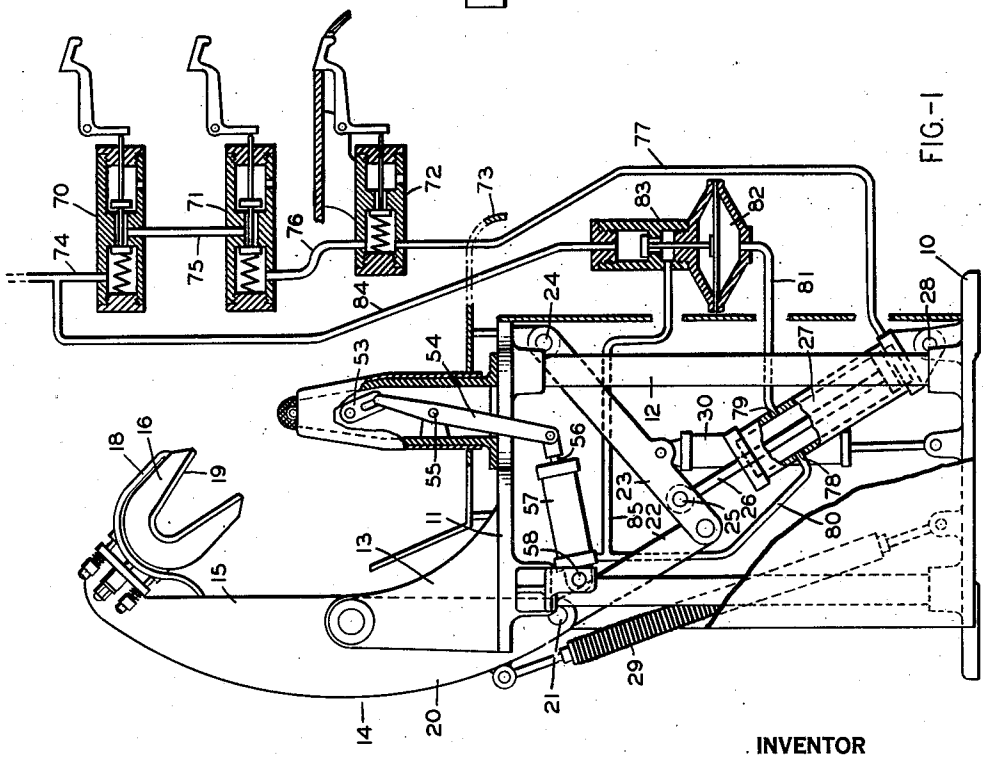


FIG. 1

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SLACK TAKE-UP MEANS FOR SLEEVE PRESSES

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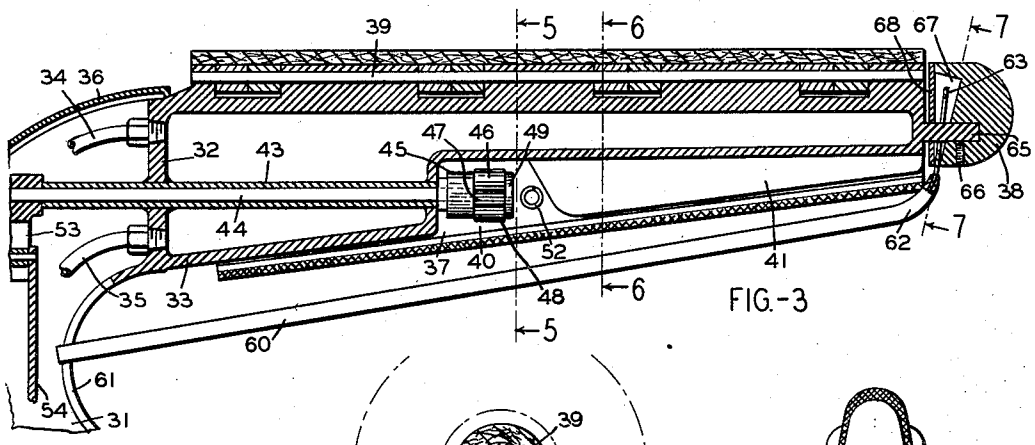


FIG.-3

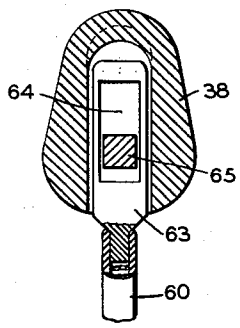


FIG.-7

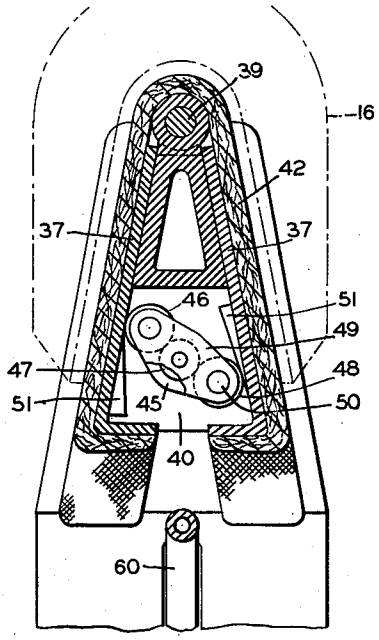


FIG.-5

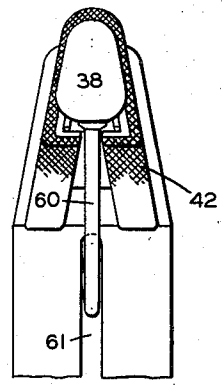


FIG.-4

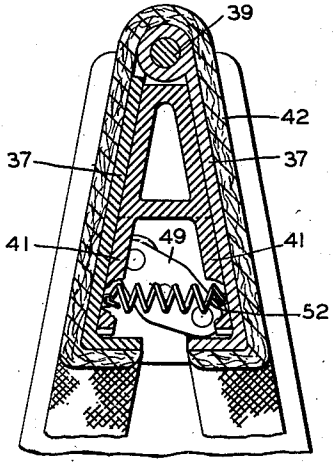


FIG.-6

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SLACK TAKE-UP MEANS FOR SLEEVE PRESSES

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Application January 16, 1947, Serial No. 722,393

1 Claim. (Cl. 38—12)

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This invention relates to garment presses and more particularly to those presses used in commercial laundries for ironing or pressing the sleeves of men's negligee shirts. Such presses commonly embody cooperating head and bed members shaped to provide a pressing space of generally inverted V-form in cross section and open at one end to enable the sleeve to be applied or taken off, the bed being of expansible form to assist in the application of pressure.

One object of the invention is to generally improve the press as a whole and its operating and control mechanism, to the end of securing high quality pressing effects but with simpler and more efficient apparatus, as well as one capable of extended and heavy use with minimum attention in the way of repair or replacement of parts.

Another object is to simplify and improve the bed member, and more especially those parts operative to expand its side wings.

Still another object is to provide improved means for automatically taking up the slack in the material of the sleeve being pressed, and especially a very simple means for this purpose and one which performs satisfactorily without special attention and which is not likely to get out of order in service.

Still another object is to provide improved control and operating means of the fluid pressure type, including safe control mechanism for both closing the press and for expanding the bed, as well as for maintaining pressure until released.

Further objects of the invention in part are obvious and in part will appear more in detail hereinafter.

In the drawings, which represent one suitable embodiment of the invention, chosen solely for purposes of illustration and in no sense of limitation, Fig. 1 is a side or end elevation, some parts being broken away or in section, and including a schematic diagram of the fluid pressure control and operating mechanism, the press being shown open;

Fig. 2 is a front elevation, also with some parts broken away and in section;

Fig. 3 is a longitudinal sectional elevation, on a larger scale, through the bed, buck or lower pressing member;

Fig. 4 is an end elevation thereof from the right in Fig. 3;

Fig. 5 is a sectional elevation on the line 5—5 of Fig. 3;

Fig. 6 is a similar section on the line 6—6, Fig. 3; and

Fig. 7 is another section on the line 7—7, Fig. 3.

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The press shown in the drawings comprises a suitable frame including a base 10 and a table 11 supported on tubular posts 12. On supporting brackets 13 above the table is mounted a two armed lever 14, one arm 15 of which carries the hollow pressing head 16, heated by steam circulated through its chamber from a supply pipe 17 to a discharge pipe 18. The lower or pressing face 19 of the head is of inverted V-form in cross section, or in end view, as seen in Fig. 1, with the apex rounded, so that the head is somewhat saddle shaped, as it were.

The other arm 20 of lever 14 is pivotally connected at 21 to the end of one of a pair of toggle links 22, 23, the other being pivoted at 24 in the frame and also having connected thereto at 25 the rod 26 of a fluid pressure servomotor 27 hinged in the frame at 28.

At 29 is shown the usual press opening tension spring, while 30 indicates conventionally a shock absorber or snubber of the air cylinder dash pot type, requiring no detailed description.

The purpose of motor cylinder 27 is to preliminarily advance or close the head 16 into contact with the lower buck or bed.

Bed 11 supports a hollow goose neck pedestal 31 (Fig. 3) terminating in a solid end wall or plate 32 of generally triangular shape, to which is connected one end of the steam chest portion 33 of the bed, heating steam being circulated through the chest cavity by pipes 34, 35. A sheet metal housing 36 covers or closes the back and sides of the pedestal.

Chest 33 supports the side pressing wings or members 37 of the bed and also a nose piece 38. The wings are hinged to the bed on a longitudinal hinge pin or rod 39. The wing members 37 are substantially longitudinally coextensive with the chest, extending on both sides of a cam receiving recess 40, and overlying the dependent side flanges 41 of the chest (Fig. 6), in the region beyond said recess. Continuous padding 42 covers both side members 37.

In a bearing tube 43 welded in the bed is journalled a longitudinal shaft 44 provided, in the cam space 40, with a roller cam assembly including block 45, rollers 46, 47, 48, and end plate 49. The rollers are supported on studs 50 extending from block to plate. This provides a sturdy, practically frictionless cam device, solidly fixed to the shaft and rotatable with it, the cam working upon reversely inclined bearing plates 51 formed in or attached to the wings 37. These are of such size and shape as to produce uniform and sufficient expansive movement of the two

side wings by a quarter turn of the shaft. Spring 52 biases the wings toward each other.

At its outer end shaft 44 has fast therewith a slotted arm 53 (Figs. 3 and 1), in the slot of which works a pin on the upper arm of a lever 54, pivoted at 55 in the pedestal, the lower arm of which lever is pivoted to the piston rod 56 of a servomotor 57, hinged in the frame at 58.

It is at once apparent that a short expansive stroke of the piston of motor 57 produces a partial rotation of shaft 44, thus expanding side wing members 37.

The slack take up means is of very simple form, consisting of a one piece inflexible tube 60 of proper length, shape and weight. The tube shown, for the most part is straight, its straight end extending through and being freely movable, up and down, in a vertical slot 61 of the pedestal. The other end of the tube has an up curved portion 62, to which is secured a slotted retaining member 63 (Fig. 7) of plate form, having a rectangular vertically elongated slot or opening 64 through which extends the closely fitting square shank or stem 65 by means of which nose 38 is supported on the bed casting, being held in place there by set screws 66.

Plate 63 extends into a milled out cavity 67 of the nose, which cavity decreases in depth toward the bottom, so that with the cover plate 68 it forms a narrow slot at the bottom of the nose piece about the bottom edges of which the plate pivots as the rod moves up or down. Of course, the front and rear wall surfaces of the recess or cavity 67 diverge upwardly to permit such pivoting movement. This allows the rod as a whole to freely accommodate itself to any of the various sizes of sleeves which are sleeved over the end of the bed for pressing but prevents any transverse rocking motion of the rod. Thus it cannot climb with and follow the material of the sleeve as the sleeve is turned on the bed to present different parts for pressing.

In other words, the rod can move freely, up and down, at both ends, and thus apply its weight to straighten the lay of the sleeve, but it cannot move sideways.

Fig. 1 illustrates the fluid pressure control system. It includes three valves 70, 71, 72, the operating levers for which are mounted on the work table 73 as shown in Fig. 2. Valves 70, 71 are the two hand valves used to close the pressing head upon the bed, while valve 72 is the release or press opening valve.

When valves 70, 71 are both opened, fluid pressure flows from the source by pipe 74, valve 70, pipe 75, valve 71, pipe 76, valve 72, and pipe 77 to motor 27. This raises the motor piston, straightens the toggles, and swings the head to closed position with relation to the bed. As the motor piston advances, it simultaneously passes ports 78, 79 in the cylinder wall, thus allowing pressure to flow by pipe 80 to the supply end of cylinder 57, producing a power stroke of its piston and expansion or outward movement of hinged wing or pressing members 37 and applying ironing pressure to that portion of a sleeve within the pressing area.

At the same time, air flows by pipe 81 to diaphragm chamber 82, thus opening valve 83. This is in a line or pipe 84 bypassing the original air supply line and communicates with pipe 85, connected to pipe 80. Thus air is now admitted directly from pipe 85 to motor 57, and by pipe 80, but in the reverse direction, to motor 27, so that a closed or maintaining circuit is set up and the operator can release valves 70, 71, but the pressure on the work continues in effect.

When the work has received sufficient pressure, release valve 72 is opened, allowing air to flow to exhaust from cylinder 27 through the exhaust port of valve 72. Diaphragm 71 drops, valve 83 closes, cutting off further supply of air. Spring 29 now becomes effective to open the press and return the piston of motor 27 to its original position.

The short stroke of the piston of motor 57 allows the wings 37 to begin to retract before the chest rises any appreciable amount, although in practice it has been found desirable to allow the hinged wings to exert a small amount of outward pressure while the head is leaving them, thus securing an added smoothing or ironing effect. This is accomplished by properly proportioning the relative sizes of pipes or orifices or by otherwise accurately adjusting the rate of air flow at the proper points or places, as by needle valves not shown.

In the operation of this press, by sliding a sleeve over the bed, with the press open, rod 60 takes up the slack, its curved end portion 62 fitting closely into that part of the sleeve immediately behind the cuff. By closing the press the sleeve parts within the pressing area are pressed or ironed to smooth form. Then the press is opened and the sleeve is turned to present its opposite side, which is ironed in the same manner. Thus a sleeve is usually fully ironed in two lays.

The mechanism as a whole is of simple form, offering no complexities requiring attention of the operator, who can devote her entire attention to manipulation of the shirt and sleeve and the three control buttons. The finished work is of fine quality and the press is both durable and quick in operation.

Other advantages of the invention will be apparent to those skilled in the art.

What I claim is:

In combination in a sleeve press, an elongated pressing bed having one end free, a hollow support for the other end thereof provided with a vertically extending narrow slot opening toward the free end of the bed, and slack take-up means for cooperation with said bed, comprising a rigid rod having a straight body-portion lying beneath the bed and sloping downwardly toward its support and extending through the slot thereof, the slot width being substantially the same as the rod, the other end of the rod curving upwardly and being provided with a plate lying in a plane transverse to the length of the bed and extending upwardly into a recess of the free end of the bed, said recess having front and rear wall surfaces which diverge upwardly and permit tilting motion of the rod about a transverse axis, said bed being provided with a stem extending longitudinally across said recess and having spaced opposed side faces lying in vertical planes, and said plate having an elongated vertical opening through which the stem extends, the width of said opening approximating the spacing between opposed vertical faces of the stem, whereby the slack take-up rod is confined against lateral motion at both ends but is free for limited vertical motion at either end to accommodate itself to and take up the slack in a sleeve dressed on the bed.

GEORGE W. JOHNSON.

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