Dec. 20, 1927. 1,653,192

E. D. STOCKER ET AL

PRESSING MACHINE

Filed May 19, 1923 2 Sheets-Sheet 1

Fig. 1.

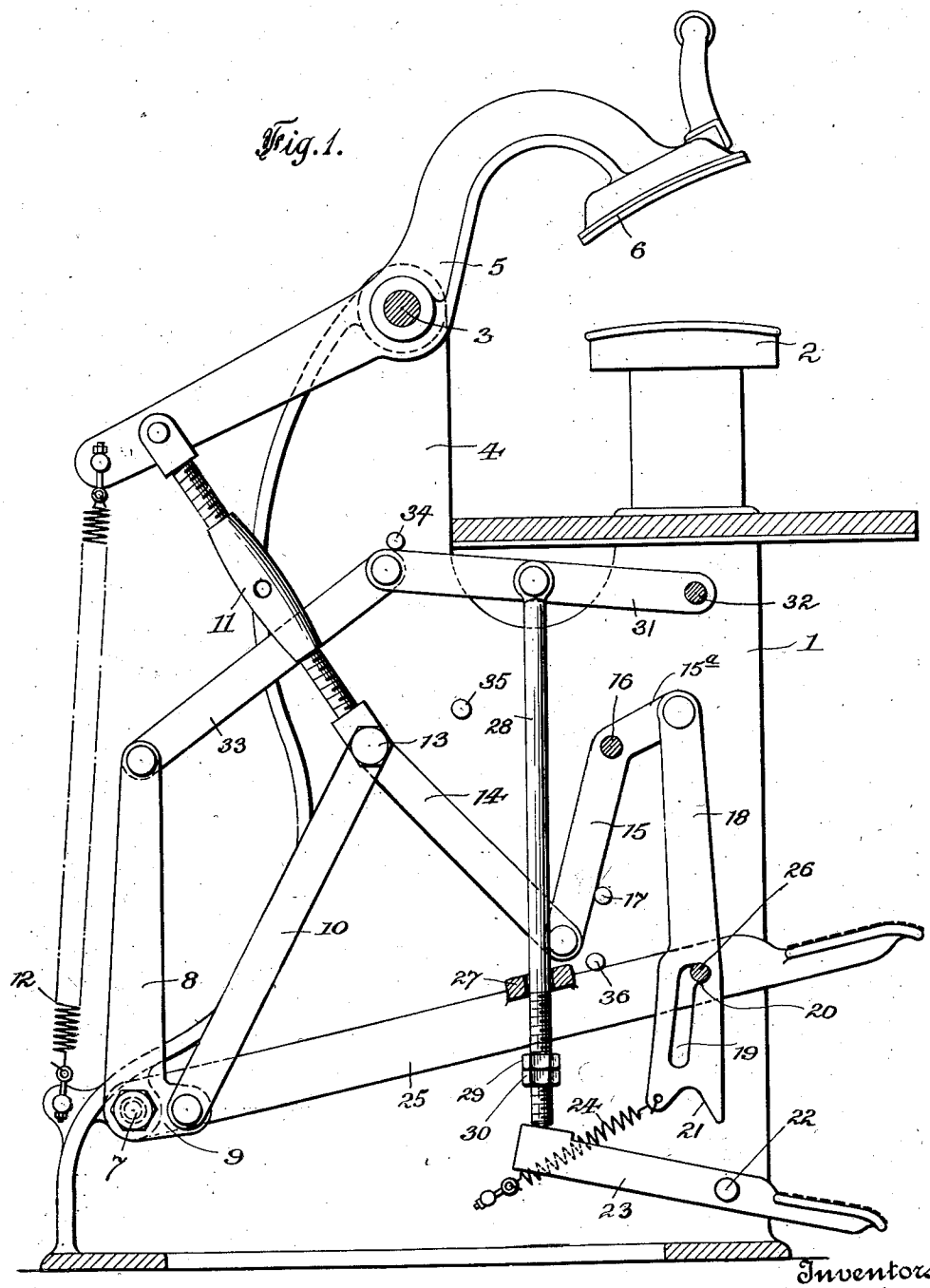

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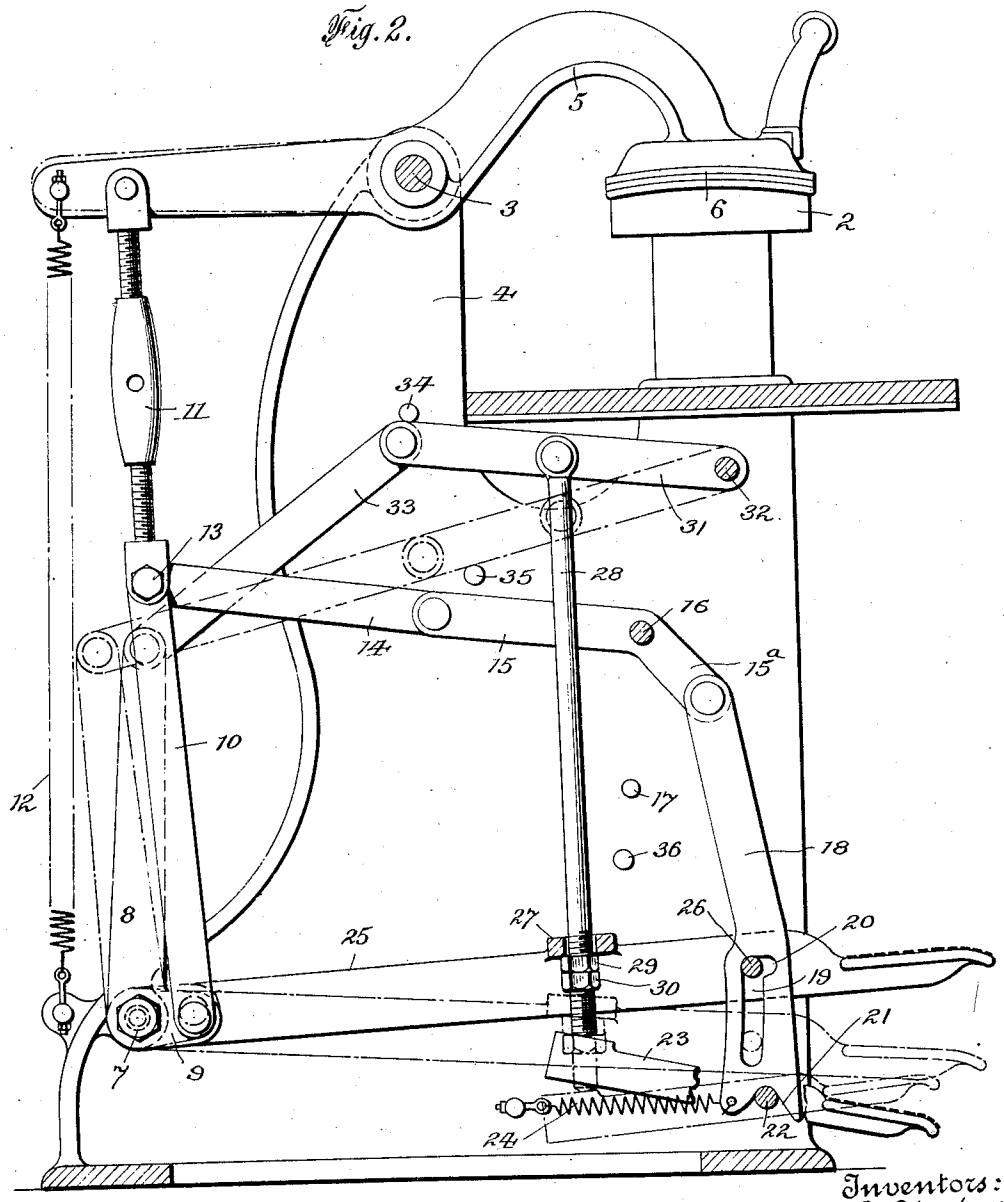
Fig. 2.



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UNITED STATES PATENT OFFICE.

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PRESSING MACHINE.

Application filed May 19, 1923. Serial No. 640,163.

This invention pertains to improvement in presses and more particularly to those designed for use in garment and laundry work.

In connection with the pressing of garments, it is oftentimes essential to produce a heavy pressure upon the garment to set the same and this is particularly true when such an operation known in the art as edge pressing, is being undertaken.

Various devices have heretofore been devised for producing such heavy pressure, some of them employing an electric motor or other power driven device to exert what is known as the final heavy pressure, while another form employs a pedal to initially close the press and a second pedal which has to be subsequently operated to produce the final heavy pressure. The use of the former type is attended by certain draw-backs, such for instance as the expense of a motor installation and the possibility of the current becoming short circuited through the leakage of the water of condensation which comes from the steam pipes or other elements which are commonly employed in connection with garment presses. The second or two-pedal type is objectionable from the operator's point of view in that he first has to depress one pedal then move his foot to the second pedal and depress that. The operation of this latter type of press imposes double duty upon the operator.

The present invention has for its main object the production of a press wherein through the operation of a single treadle the press may be first initially closed and then during the final downward movement of the treadle, heavy pressure exerted. The amplitude or range of movement of the treadle lever is substantially that which now obtains with the ordinary closing movement of the presses upon the market.

The press embodying our invention is shown in the annexed drawings, wherein:

Figure 1 is a sectional elevation of the press and the closing mechanism, the head being elevated and the press shown in its open position; and

Figure 2 a similar view showing the parts in their closed position.

In the drawings, 1 denotes the frame of the machine and 2 the buck or fixed pressing element supported thereon. Pivotally supported upon a shaft 3 in an upward extension 4 of the frame is a lever 5, which at its forward end carries the head or second pressing element 6. Fulcrumed upon a bolt or other fixed element 7, secured in the lower rear portion of the frame is a bell-crank comprising a long up-standing arm 8 and a shorter substantially horizontally disposed arm 9. Interposed between the inner end of the arm 9 and the rear end of the lever 5 is a toggle comprising links 10 and 11, the latter being adjustable as to length to vary the pressure which is exerted therethrough upon the lever 5 and consequently between the cooperating pressing elements 2 and 6.

A spring 12 interposed between the lever 5 and a fixed portion of the frame normally tends to draw the rear end of the lever 5 downwardly and to hold the pressing elements separated.

Pivotally connected to the bolt 13 by which the links 10 and 11 are connected is a link 14 which at its opposite end is pivotally connected to a lever 15 fulcrumed upon a fixed bearing 16. The link 14 and that portion of the lever 15 between the fixed bearing 16 and the pivotal attachment of the link 14 to the lever forms a second toggle, which when straightened tends to straighten the toggle 10, 11. A stop 17 tends to limit the movement of the lever 15 when the toggle 14, 15 is broken. Pivotally attached to the opposite end of the lever 15 or more specifically, to the end 15[a] thereof, is a depending arm 18, said arm being provided with a longitudinally disposed slot or opening 19 provided at its upper end with a lateral offset portion 20. The lowermost end of the arm 18 is provided with a cam face 21 adapted, as will hereinafter appear, to coact with a fixed bar or member 22, which in the present instance, is shown as the pivotal bearing for the kick-off treadle lever 23. A spring 24 connected at one end to the lower end of the arm 18 and to a fixed portion of the machine, tends to draw the lever 18 to the left or in a clockwise direction.

The treadle lever is denoted by 25 and is fulcrumed at its rear end upon the bolt or fixed bearing member 7. Said treadle lever carries a pin 26 which projects into the slot or opening 19 and its lateral extension 20. The treadle lever 25 is also provided with a fixed eye or abutment member 27 through which freely extends a draw rod or bar 28,

the lower end of the rod being threaded and having mounted thereon a nut 29 and a lock nut 30. The rod at its upper end is pivotally connected to a link 31, one end of said link being pivoted upon a fixed bearing 32, while its opposite end is pivotally connected to a second link 33, the opposite end of which latter is pivotally connected to the upper end of the up-standing arm 8 of the bell-crank lever. The links 31 and 33 form a third toggle member and stops 34 and 35 serve to limit respectively, the movement of said third toggle in its broken and straightened positions. A stop 36 is employed to limit the upward movement of the treadle lever 25.

The operation of the press may be briefly described as follows:

With the parts in the position shown in Figure 1, the various toggles are broken and the treadle lever is in its uppermost position, the pin 26 at such time resting in the lateral extension 20 of the slot formed in the arm 18. The downward movement of the treadle lever 25 with the pin 26 in engagement with the lateral extension 20 will draw the arm downwardly and rock the lever 15, 15a, thereby straightening the toggle 14, 15 and through such straightening action cause straightening of the toggle 10 and 11 with a consequential rocking of the lever 5 and an initial closing of the press element 6 upon the buck 2. As the arm 18 descends through a downward movement of the treadle lever 25, the abutment 27 will contact the nut 29. At the same time, the cam face 21 will contact the member 22 and be moved counter-clockwise so as to withdraw the pin 26 from the lateral extension 20, thus unlocking the treadle lever 25 from the arm and permitting the treadle lever to move downwardly independent of the arm. As just noted, the abutment member 27 is in contact with the nut 29 and upon a further downward movement of the treadle lever 25, downward movement or pull will be imparted to rod 28 and as a consequence, the third or final pressure applying toggle composed of the links 31 and 33, will be brought from the full line position in Figure 2 to the dotted line position in said figure. In other words, this third toggle will be straightened and a rocking of the bell-crank lever will be produced which has the effect of elevating the inner end of the short arm 9 thereof and applying a direct upward thrust upon the then straightened toggle 10, 11 and through such thrust heavy pressure will obtain between the pressing elements 2 and 6. The lower end of the rod 28 overlies the inner end of the kick-off lever 23 and when it is desired to open the press it is only necessary for the operator to depress the outer end of said kick-off lever, thus moving the inner end upwardly and breaking the third toggle (31, 33) which, acting through the connections above specified, assisted by the spring 12, also breaks the other toggles and allows the press to come to its open position.

It will be noted that we have employed three toggles, one comprising links 10 and 11 which may be termed the thrust toggle; two, the toggle comprising the members 14 and 15, which may be termed the closing toggle; and third, the toggle comprising the links 31 and 33 which may be termed the pressure applying toggle.

It is to be noted that the arm 18 and the pin 26 produce what may be termed a lost motion connection between the arm and the treadle lever and that the rod 28 and the nut or stop element carried thereby and the eye or abutment 27 form a second lost motion connection between the lever and the final pressure applying toggle or mechanism. It is also to be noted that one of these connections is broken at or about the time the other one comes into operation. Or in other words, the arm 18 and the rod 28 are successively brought into operative relation with the treadle lever.

Having thus described our invention, what we claim is:

1. In a press of the character specified the combination of cooperating relatively movable pressing elements; a treadle lever; a toggle for normally bringing said elements into pressing position under initial pressure; a second toggle actuated by the treadle to straighten said first named toggle during the initial downward movement of the treadle lever; and means including a third toggle adapted upon and by a further depression of the pedal to exert thrust upon the first named toggle and to thereby set up a heavy pressure between the pressing elements.

2. In a press of the character specified the combination of cooperating relatively movable pressing elements; a treadle lever; a toggle mechanism connected to the lever and embodying a lost motion connection, said toggle mechanism upon the initial downward motion of the lever serving to close the press; and means embodying a second toggle likewise connected with the treadle through a lost motion connection and serving as the treadle moves through its lower portion of travel to apply thrust to the first named toggle mechanism.

3. In a press of the character specified the combination of cooperating relatively movable pressing elements; a treadle lever; toggle mechanism for initially closing the press; a separable connection between said toggle mechanism and the treadle lever for straightening the toggle mechanism closing the press; means serving to break said connection when the treadle lever has been moved downwardly to such an extent that the press

is closed; a second toggle mechanism adapted to set up heavy pressure between the pressing elements upon further depression of the treadle lever; and a lost motion connection between said treadle and the second toggle mechanism.

4. In a press of the character specified the combination of cooperating relatively movable pressing elements; a lever by which one of said elements is carried; a toggle connected to the lever at one end and serving when straightened to rock the lever and close the press; a second toggle adapted when straightened to straighten the first named toggle; a treadle lever; an arm connected to the second toggle, said arm having a lost motion connection with the treadle lever; means acting when the treadle is partially depressed to break the connection between the arm and the treadle; a third toggle interposed between a fixed fulcrum and the first named toggle and acting when straightened to impart a thrust to the first named toggle; and connections between said third toggle and the treadle lever adapted to come into operation to straighten said last named toggle when the lever is disconnected from the arm and during the latter portion of the downward movement of the treadle lever.

5. In a press of the character specified the combination of cooperating relatively movable pressing elements; a lever by which one of said elements is carried; a bell crank lever having a long and a short arm; a toggle interposed between the short arm of said bell-crank and one end of the first mentioned lever; a second toggle one end of which is connected to the first named toggle and serving when straightened to straighten the first named toggle; a treadle lever; an arm connected to the second toggle, said arm having a pin and slot connection with said treadle lever; means, acting when the treadle is partially depressed and the toggles aforesaid are straightened, to release said connection; a third toggle, one end of which is connected to the long arm of the bell-crank lever and serving when straightened to rock the lever and to apply endwise thrust to the first named toggle; and a lost motion connection between said third toggle and the treadle lever, said connection coming into operation after the connection between the arm aforesaid and the treadle has been broken and the treadle moves through the latter portion of its downward movement.

In testimony whereof we have signed our names to this specification.

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JAMES C. LEDBETTER.