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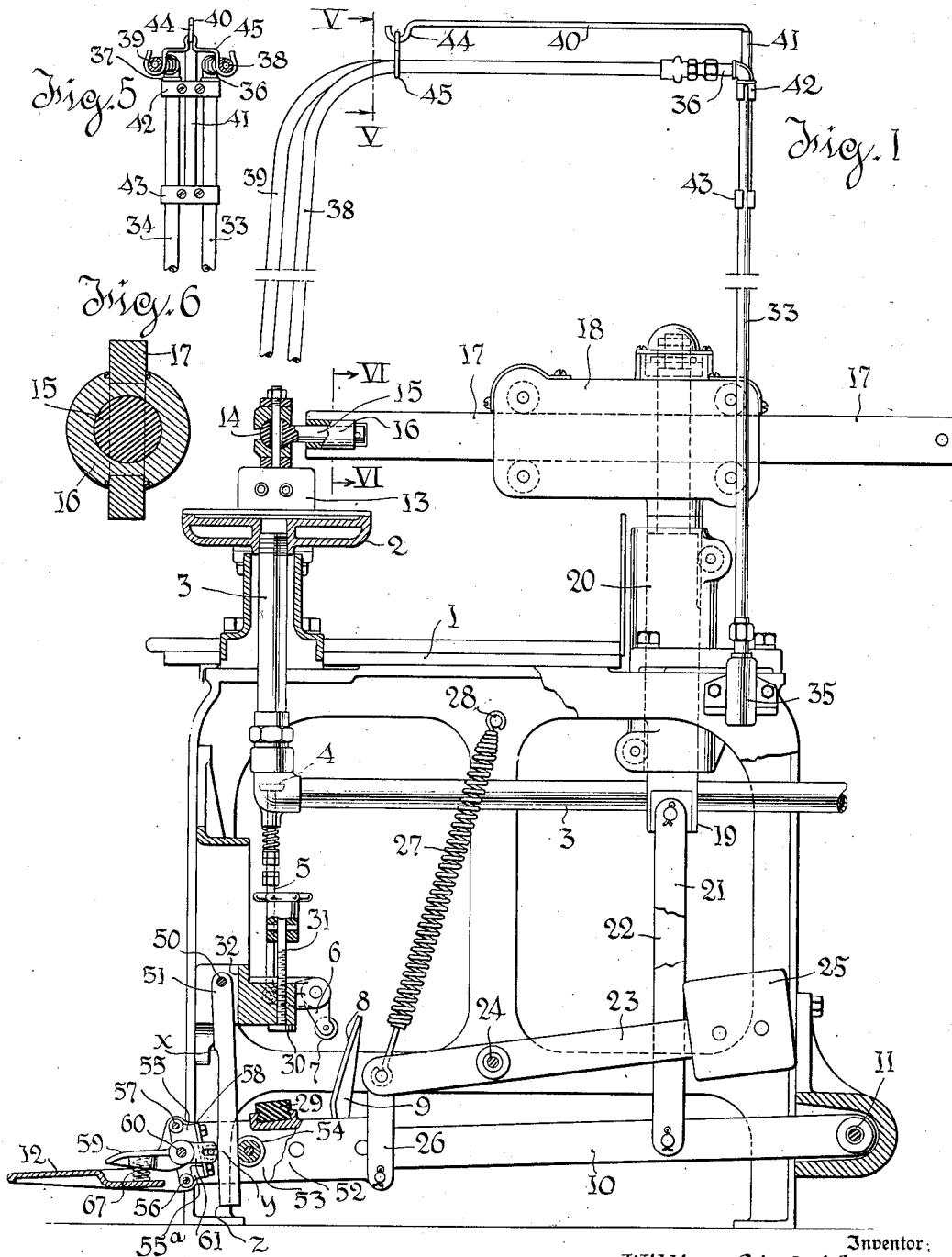
W. STROBRIDGE

2,014,300

GARMENT PRESSING MACHINE

Filed Dec. 2, 1932

4 Sheets-Sheet 1



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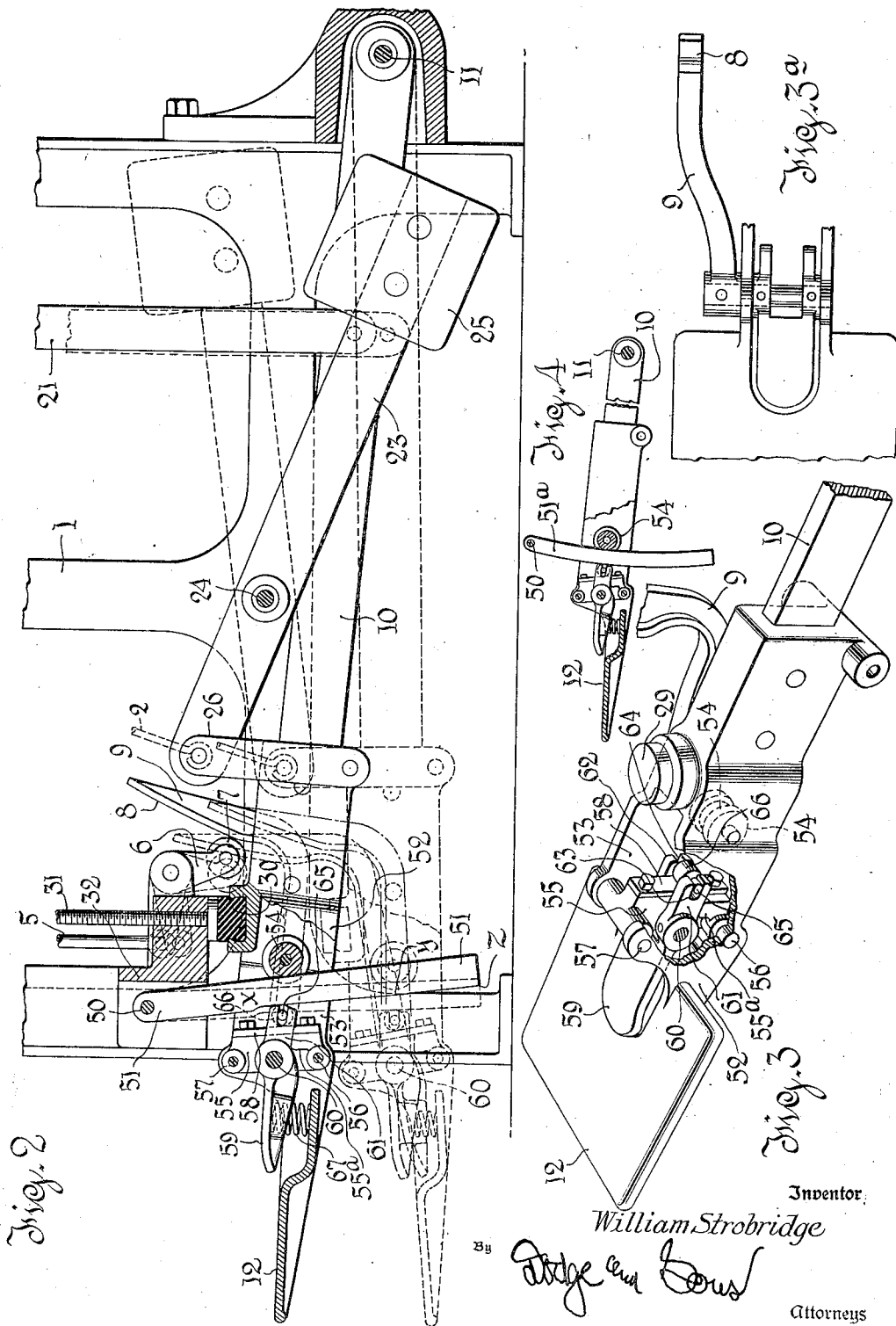
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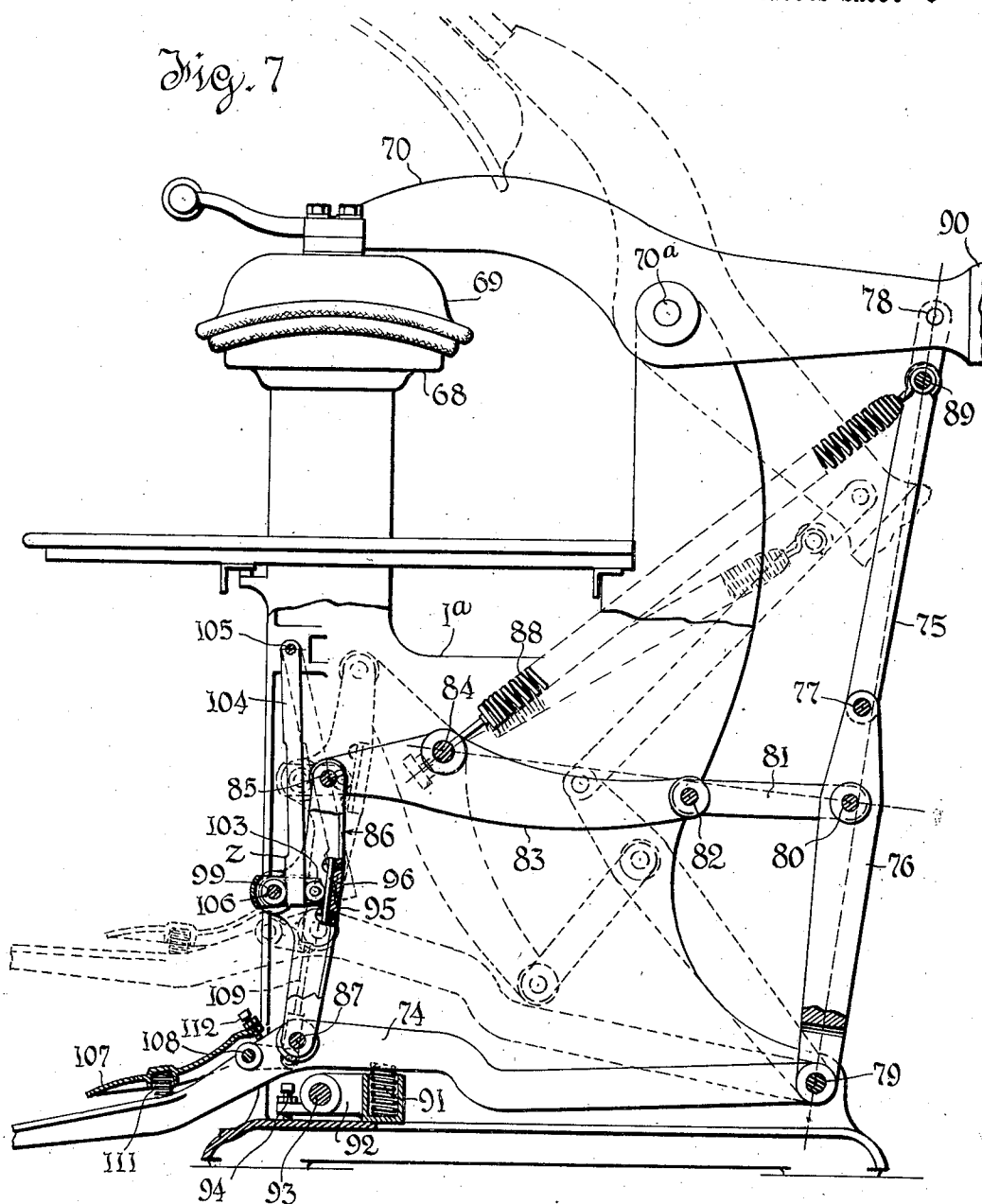
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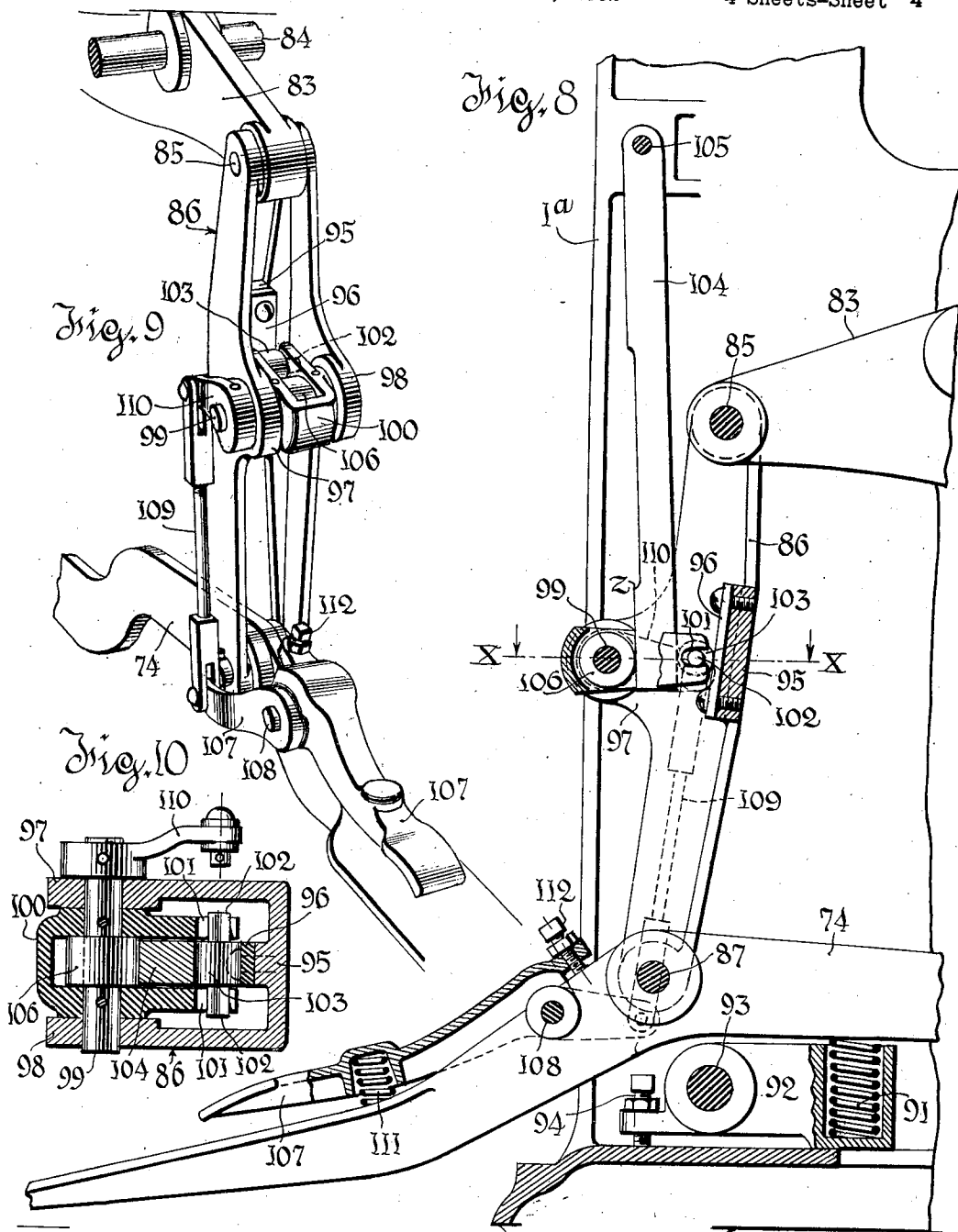
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GARMENT PRESSING MACHINE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,014,300

GARMENT PRESSING MACHINE

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mesne assignments, to Reconstruction Finance
Corporation, a corporation of the United States

Application December 2, 1932, Serial No. 645,482

9 Claims. (Cl. 68—9)

This invention pertains to garment presses and relates, more particularly, to an improved means for locking and holding the movable press member in its pressing position.

The invention is applicable to garment presses of any type wherein a foot lever is employed to actuate the head or iron in relation to its companion member.

The main object of the invention is to provide a lock which, while simple of construction and easy of operation, is such that a very fine adjustment of the movable pressing member toward its companion member may be had and retained without the possibility of retrograde movement.

A further object of the invention is to provide means for initiating "vacuum" through the goods upon the buck at any position of the movable pressing element, said means being associated with the release means for the lock.

Other advantageous features are also present as will hereinafter appear.

Two embodiments of my invention are shown in the annexed drawings, one to a seam opener press and the other to a press of the jaw type.

In the drawings:

Fig. 1 is a sectional elevation of a seam opener press, the parts being shown with the iron or pressing head lowered and the lock in its effective position;

Fig. 2, an enlarged sectional elevation of the lower portion of the press illustrating the closing lever, the locking mechanism and certain other portions of the press structure;

Fig. 3, a perspective view with parts broken away showing the treadle mounted upon the press closing lever with the associated rocking carrier for one of the locking rollers;

Fig. 3a, a top plan view illustrating a portion of the main treadle, the lock release treadle, and the vacuum valve operating arm which is associated with and controlled by said release treadle;

Fig. 4, a vertical sectional view with parts in elevation showing a slightly modified form of the pendulous bar which forms an element of the locking mechanism;

Fig. 5, a vertical sectional view taken on the line V—V of Fig. 1 illustrating means for supporting the flexible pipes or conduits which lead to the iron or pressing head;

Fig. 6, a vertical sectional view taken on the line VI—VI of Fig. 1, illustrating the manner in which the socket is secured to the outer end of the sliding bar which supports the iron;

Fig. 7, a sectional elevation of a jaw type press

showing the applicability of the lever lock to a press of this type;

Fig. 8, a vertical sectional view showing the operating lever, the locking mechanism and the connection between the lever and a press actuating element;

Fig. 9, a perspective view of the parts just mentioned; and

Fig. 10, a horizontal section taken on the line X—X of Fig. 8 looking in the direction of the arrow.

Referring first to the structure disclosed in Figs. 1 to 6, both inclusive, 1 denotes the main frame work of the machine, 2 the fixed table or buck made hollow for heating purposes and having a suction or vacuum pipe 3 connected up with any suitable exhauster.

A spring seated valve 4 controls the flow through pipe 3, the valve having its stem 5 connected to one end of a bell crank 6, the opposite end carrying a roller 7. Said roller stands in front of and, when the valve is closed, in spaced relation to, a rearwardly inclined bearing face 8 formed upon the upwardly extending end of an L-shaped lever 9. At its lower forward end 25 of the lever is secured to the pivot pin or shaft of the lock release treadle or lever hereinafter to be described. Said lever, denoted by 10, is fulcrumed at 11, and carries at its forward end a main treadle 12.

Referring to Fig. 1, it will be seen that the iron or ironing head, denoted by 13, is secured by suitable clamps to the outer rounded head 14 of a post or stem-like member 15 which finds its bearing in a sleeve or bushing 16. In order to effect a rigid connection between said bushing and the iron supporting arm 17 to which the bushing is attached the end of the arm 17 is notched out and the bushing is likewise grooved upon the upper and lower surfaces as shown in Fig. 6 so that the bushing may be slipped into the opening with the adjacent portions of the bar entering the grooves. The parts may then be welded and in effect an integral structure is produced.

Bar 17 extends through the head denoted by 18, being supported in any suitable manner therein for free movement therethrough. The head 18 is secured to the upper end of a vertically disposed member 19 mounted for sliding movement through a suitable supporting and sustaining member 20. To the lower end of this member there is secured a pair of links 21, 22 which at their lower ends are secured to the main operating lever 10. This arrangement of parts

is substantially old with the exception of the manner of securing the socket 16 to the iron supporting arm.

In order to compensate for the dead weight of the iron, the iron supporting bar, its supporting head, the vertical member 19, the treadle lever, and the connecting links, there is preferably provided a lever 23 fulcrumed at 24 to the main frame, carrying at its rear end a weight 25 and connected at its forward end to the lever 10 or more correctly the rear portion of the treadle housing through a link 26.

Weight 25 is purposely made so light that it will not fully counterbalance the iron and its allied elements and to effect a quick or snappy opening movement of the parts a tension spring 27 is interposed between the lever mechanism, say from the connection of the link 26 to the lever 23, and a fixed point 28 on the frame of the machine.

In order to limit the upward movement of the free end of the lever 10, and consequently the upward movement of the other parts which are actuated thereby, the lever is provided with a bumper 29, which when the lever moves upwardly contacts an adjustable stop element 30 carried by the lower end of a threaded stem 31 mounted for rotation in a fixed cross element 32 of the main frame.

Usually the iron 13 is heated by suitable medium, such as steam, and inasmuch as the iron is moved back and forth along the fixed member 2 a suitable support is needed for the conduits leading thereto. To this end a pair of rigid pipes 33, 34 extend from the usual supporting bracket 35 secured to the frame of the machine. The pipes at their upper ends are provided with short horizontal extensions, as 36 and 37, to which the flexible conduits 38 and 39 are secured, said conduits extending downwardly and being connected to the iron. In order to afford a support for such conduits between their connection with the pipes or extensions 36, 37 there is provided an outwardly extending arm 40, the inner end of which finds its bearing in the tubular member 41 held in place with reference to the pipes by suitable clamps 42 and 43. At its outer end the rod 40 is provided with a hook 44 which forms the support for a double hook-like member designated generally by 45. This arrangement allows the iron to be freely moved without placing any undue strain upon the conduits and without impeding the free movement of the iron.

The lever locking mechanism will now be described. Pivotally secured at its upper end to the frame member 32, as at 50 (Figs. 1 and 2), is a pendulous bar 51, said bar extending downwardly through an opening formed in the casting forming the treadle 12. Mounted in the rear portion of the side walls 52 and 53 of the opening is a grooved roller 54 which bears against the rear edge of bar 51 as well as the sides thereof. This arrangement tends to steady lever 10 against side-wise movement or twisting action and hence relieves fulcrum 11 from strain.

Secured in the outer portion of the opening in the treadle between the upstanding walls 52, 53 is an abutment block or casting 55, the block being rigidly affixed in place by through pins 56, 57 or the like. The inner face of the block has secured to it a bearing plate 58 formed of hard wear resisting metal such as tool steel, the plate inclining inwardly from the vertical at its lower end toward fulcrum 11. Such wearing face might of course be formed upon the block 55 itself

but the construction just described is preferable for obvious reasons.

A release treadle 59 is fixed on a pin or shaft 60, the inner end of the treadle casting being bifurcated, producing two arms 61 and 62. The outer end of each arm is formed with an open end slot, as 63 and 64, respectively, in which is seated the pintles 65 extending outwardly to each end of a roller 66 formed of hardened steel. Said roller lies between the forward face of bar 51 10 and the inclined bearing plate 58, the roller at all times, other than when release pedal 59 is depressed, being urged downwardly between the converging plate and bar through the action of an expansion spring 67 interposed between a depressed portion of the main treadle 12 and the under face of said release pedal.

Theoretically, the bar 51 should be made to a radius about the center of rotation of the lever 10, as shown in Fig. 4 wherein the pendulous bar designated by 51^a is so formed. This method of construction, however, besides being somewhat expensive is undesirable practically in that rapid opening of the press head, after release from pressure, is restricted by the necessity for continued depression of the release treadle 59 throughout the total travel of the main treadle 12. Practically, therefore, I prefer to utilize the straight bar 51 shown in the other figures of the drawings. The bar 51 is made straight between points y and z, the range of pressure movement of the lever 10, and the inclination of the bearing face 58 to bar 51 is rather narrowly confined to say between the limits of 8° and 13°. From point y to point z, which is the range of the free movement of the press head after release from pressure, the front edge of bar 51 is relieved so that no wedging of roller 66 between surfaces 58 and 51 is possible and the parts therefore move freely to the upper release position through the action of the counterweight and spring. Where a curved bar as 51^a is employed it need not necessarily be pivoted.

A stop lug, as 55^a, is formed on block 55 and limits the downwardly swinging movement of the inner end of treadle 59 when the parts are in release position.

In operation, upon depression of the main treadle 12 roller 66 will move downwardly along the face of the bar 51, during which movement it is inoperative to act as a wedge between said bar and the plate 58;—this in view of the fact that it may move upwardly inasmuch as it is carried by the pivoted supplemental treadle 59.

In moving from the full release position shown in Fig. 2 to the dotted line position in said figure, the lower end of the bar 51 will swing forwardly. When, however, pressure upon the treadle 12 is relieved any tendency of the lever 10 to move upwardly will be arrested by the wedging action of the roller 66 between the pivoted or pendulous bar and the bearing plate 58. The backing roller 54 prevents retrograde movement of the bar 51, and spring 67 urges the roller 66 downwardly through tipping of treadle 59. The roller 66 is thus urged downwardly between the bearing plate 58 and the bar 51 and any tendency of the lever 10 to move upwardly is therefore resisted. By this arrangement a very fine adjustment of the iron or pressing head toward the fixed element 2 may be had and maintained. The roller 54, which is located on a common center line of roller 66 and the fulcrum 11 of the lever 10, serves to keep all stresses incident to the wedging action within

the lever proper thus throwing no strain on the frame of the machine.

The vacuum valve, heretofore referred to, is directly associated with the release treadle 59 by reason of the fact that the lever 9 is secured to the pin or shaft 60 to which said treadle is likewise secured. Normally, the spring 67 holds the parts in such position that the vacuum valve will not be open. When, however, it is desired to open such valve the operator merely depresses the release treadle 59 thereby rocking the L-shaped lever 9 into contact with the roller 7 and, through the connections before described, lifts the valve 4 from its seat. The valve may be held in an open position so long as the member 59 is held depressed. In other words, the vacuum is under the direct control of the operator through the combined release and vacuum treadle 59, which, as noted, is directly associated with the main actuating treadle 12.

As above stated, the locking mechanism may also be applied to presses of the jaw type and reference will now be had to Figs. 7 to 10 inclusive.

In Figs. 7 and 8, 1^a denotes the frame of the machine, there being present the usual buck 68 and head 69. Said head is attached to the forward end of a lever 70 fulcrumed at 70^a to an upward extension of the frame 1^a.

Lever 70 is swung to carry the head from open to closed position and vice versa through a rear toggle actuated by a second toggle, the latter being moved through a foot lever 74 and a link connection presently to be described.

The rear toggle comprises links 75 and 76 pivotally connected at 77. The upper end of link 75 is pivotally connected at 78 to the rear portion of the lever 70, while the lower end of link 76 is pivotally mounted on the fixed fulcrum shaft 79 which is also common to the foot lever 74.

Pivotally connected at 80 to the link 76 is a third link 81 which in turn is pivotally connected at 82 to the rear arm of a lever 83 fulcrumed upon a shaft 84 secured in the frame of the machine. The rear portion of the member 83 and the link 81 form a secondary toggle designed to actuate the rear toggle 75, 76, and to thus open and close the head.

Pivotally connected, at 85, to the forward end of the lever 83 is a link which is denoted generally by 86 (see more particularly Figs. 8 and 9), the lower end of which is pivotally connected at 87 to the foot lever 74.

A tension spring 88 is connected to the shaft 84 and its upper end is attached, as at 89, to the upper portion of the link 75 of the rear toggle. This spring acts to collapse the toggles and, acting in conjunction with the counterweight 90, a portion of which is shown in Fig. 7 at the rear of the lever 70, the press will readily open when the toggle mechanism is released from its locked or latched position.

The opening movement of the press is assisted by a compression spring 91 which is seated in a socket formed in the outer end of a casting or bracket 92 mounted upon a shaft 93, which latter is the shaft usually employed in connection with various operating levers, such as the vacuum lever, etc.

The inner portion of the member 92 is provided with a set screw or bolt 94 whereby said member 92 may be adjusted to suit inequalities in contacting parts due to manufacture.

As will be seen upon reference to Figs. 9 and 10, the link, denoted generally by 86, is formed with two side walls connected at the rear and adja-

cent the mid-length of the link by a cross bar or element 95 to the inner face of which there is secured a bearing plate or bar 96, said bar standing in an inclined relation and extending forwardly of the vertical toward its lower end.

Mounted in forward extensions 97 and 98 of the side walls of the link 86 is a pin or shaft 99, said shaft having pinned thereto between said walls a U-shaped carrier 100, the forward ends whereof are each slotted, as at 101, to receive the pintles 102 of a roller 103. Said roller stands in line with and rests against the bearing plate 96 and against the inner straight face of a pendulous bar 104 fulcrumed at 105 to a fixed portion of the machine frame 1^a. The lower part of the bar also contacts a roller 106, as best seen in Figs. 7 and 10, when the head is depressed and the locking mechanism is in locking position. It is designed to have the locking mechanism come into operation only during that period of the movement of the head 20 when pressure is to be applied to the goods. This is true of the structure heretofore described and is true of the present form also.

The locking of the head is designed to begin when the head is approximately three-quarters of an inch above the padded face of the buck. The locking mechanism comes into operation when the roller 106 passes the point *z* on the bar 104. Above the point *z* on the bar 104 it is cut away or relieved so as to permit the bar to swing toward the fulcrum pin or shaft 99 so that no wedging action between the bar, the roller 103, and the bearing plate will obtain when the roller 106 passes into the relieved portion as the link 86 moves upwardly.

As in the other structure, roller 103 is mounted in a swinging carrier and is designed to be rocked so as to carry the parts out of locking engagement through an auxiliary pedal lever 107 fulcrumed upon the main operating lever 74, at 108. The rear portion of this lever 107 is connected to a link 109 which extends upwardly to a rocker arm 110 secured to the fulcrum shaft or pin 99.

A compression spring 111 is interposed between the member 107 and the forward treadle portion of the lever 74, said spring acting, through the connections above described, to move the free end of the U-shaped rocker or carrier member 100 downwardly and thus bring the roller 103 into operative locking position with the angularly disposed member 96 and the adjacent edge of the bar 104. An adjustable stop screw 112 is provided in connection with the pedal lever 107 to limit its movement in opposition to the spring 111.

It is, of course, desirable to have the press head movable to its open position with the minimum of effort. In other words, to have the head 69 nicely balanced. With a locking mechanism such as is here described it has been found that the weight of the foot on the main treadle lever when releasing the lock by means of the auxiliary treadle lever 107 is sufficient to prevent the main foot treadle lever 74 from rising rapidly and therefore interfering somewhat with the free opening of the head.

It is to be noted that the lever 74 only contacts the compression spring 91 in the last portion of the downward travel of such lever so that the resistance offered by this spring to foot pressure is negligible inasmuch as it occurs at a point when the maximum pressure of the foot is being exerted upon the lever. The energy stored up in the spring by the compression there-

of is sufficient, as above noted, to exert enough push against the main lever 74 so that when the release pedal is operated the main pedal will follow up with the weight of the foot resting thereon.

It will be noted, upon an examination of Fig. 7, that neither of the toggles come to a straightened position. That is to say the rear toggle pivot 77 stands short of the straight position as indicated by the dotted line, which passes through the points 78 and 79, and the horizontal toggle 81, 83 has its pivot stop short of a straight line, passing through the pivotal points 80 and 84. Thus when the locking mechanism is released the lever 74, acting under the impetus of the spring 91 and the spring 88 together with the counterweight, will move upwardly bringing the toggles to the dotted line position with the head fully elevated.

With both types of presses herein shown a fine adjustment of the pressure of the head or iron upon the work may be obtained and retained. There is no ratchet mechanism or in fact any mechanism which needs manual adjustment to effect the locking of the parts in position. The slightest depression of the operating lever will be maintained automatically through the locking mechanism as above described, throughout the locking range of said mechanism.

It is manifest that a ball or even a spring pressed block may be utilized instead of a roller as the locking element coacting with the converging members 51 and 58, and 96 and 104, respectively. For various reasons, however, the roller as shown is preferred.

What is claimed is:

1. In a pressing machine, the combination of a pair of pressing members one movable relative to the other; means for moving one of said members into pressing relation with the other, said means including an actuating lever, toggle means connected to said movable member, and a link interconnecting a member of the toggle means and the lever; a lock for said means comprising a pendulous bar attached to a fixed portion of the machine, a bearing surface on said link, said bearing surface and bar standing in converging relation in the direction of movement of the lever toward press closing position; a locking member interposed between said bar and the bearing surface; a pivoted support for said locking member; means for rocking the support to carry said locking member inwardly between the bearing surface and the opposing face of the pendulous bar in the direction of their convergence; and means for holding the bar against swinging movement away from the locking member and maintaining it in close contact with the locking member.

2. In a garment press, the combination of a frame; a buck thereon; a head; a lever to which the head is attached; a toggle interposed between the rear portion of the lever and a fixed portion of the frame; a second toggle, the rear link whereof is pivotally connected to the first named toggle and the forward link forms the rear portion of a lever fulcrumed in the frame; an operating lever fulcrumed at its rear end to the frame; a link pivotally connected to the operating lever and the forward end of the lever which is included in the second toggle; a pendulous bar; an inclined bearing surface on the link opposite the bar, said surface and bar standing in downwardly converging relation; means for maintaining the bar in such relation; a locking member

interposed between the bar and said surface; means urging said member downwardly; and means under the control of the operator for moving said member upwardly.

3. A structure as set forth in claim 2, wherein the means under the control of the operator for moving the locking member comprises a pivoted carrier in which the member is mounted; an auxiliary lever associated with the main operating lever; and a link connecting said carrier and the auxiliary lever.

4. A structure as set forth in claim 2, wherein each of the toggles stops short of fully straightened position when the press head is fully lowered.

5. A press as set forth in claim 2, wherein a compression spring is placed beneath the operating lever adjacent its forward end, said spring acting when the lever is released from its lock to impart an upward movement thereto.

6. In a garment press, the combination of a buck; a head movable toward and from the same; means for moving said head, including a lever and a treadle; a lock for holding the lever in its pressing position; an auxiliary treadle for releasing said lock, said treadle being pivoted on the main treadle; a vacuum valve for said buck; and means operable by the auxiliary treadle for opening the vacuum valve.

7. In a garment press, the combination of a buck; a head; a press closing lever fulcrumed upon the frame of the press; a lock for the lever; a treadle pivoted on said lever for releasing said lock; an arm likewise pivoted upon the lever and interconnected with the treadle for movement therewith upon rocking of the treadle; a vacuum valve; and means interposed between the vacuum valve and said arm whereby the vacuum valve may be opened upon rocking of the treadle.

8. In a garment press, the combination of a buck; a head; means for moving said head into pressing relation with the buck; a lock for holding the press in closed position; a releasing treadle pivoted upon and movable with an element of the means for moving the head into pressing relation; a vacuum valve; and actuating means for the valve interposed between said valve and the releasing treadle, said means being normally inoperative and designed to be moved to operative position upon depression of the treadle.

9. In a pressing machine, the combination of a pair of pressing members, one movable relative to the other; means for moving one of said members into pressing relation with the other, said means including an actuating lever and interconnections between said lever and the movable pressing element; a lock for said means comprising a pendulous bar attached to a fixed portion of the machine; a bearing surface carried by said press closing means, said surface and the pendulous bar standing in converging relation in the direction of movement of the actuating lever aforesaid toward press closing position; a locking member interposed between said bar and the bearing surface; a pivoted support for said locking member, said support being carried by and movable with an element of the press closing means; means for rocking the support to carry said locking member inwardly between the bearing surface and the opposing face of the pendulous bar in the direction of their convergence; and means for holding the bar against swinging movement away from the locking member and maintaining it in close contact with said locking member.