Dec. 23, 1941. H. G. SUTTON 2,267,000

GARMENT PRESSING MACHINE

Filed Dec. 19, 1939 3 Sheets-Sheet 1

Fig. 1

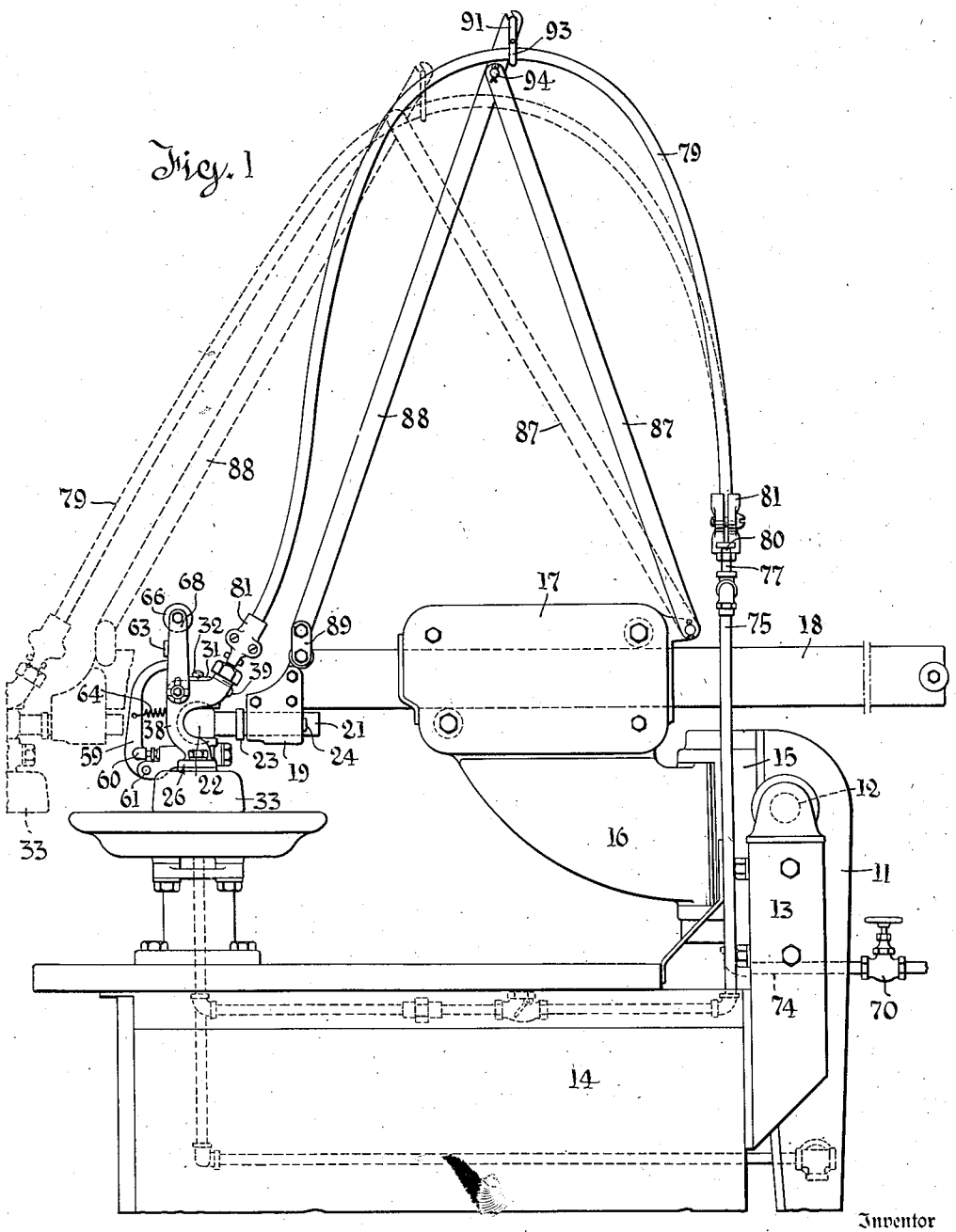

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Fig. 2

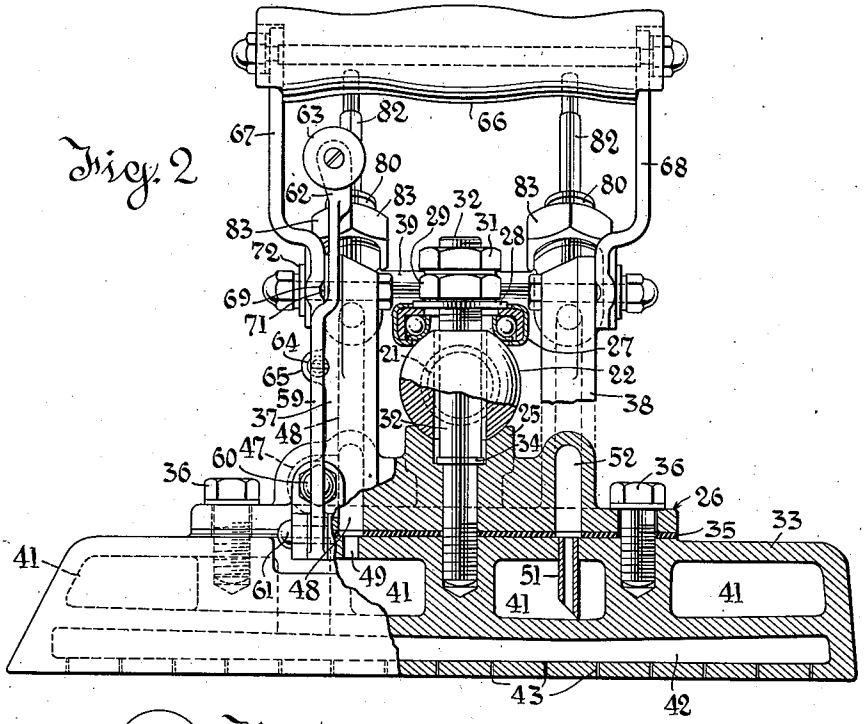

Fig. 3

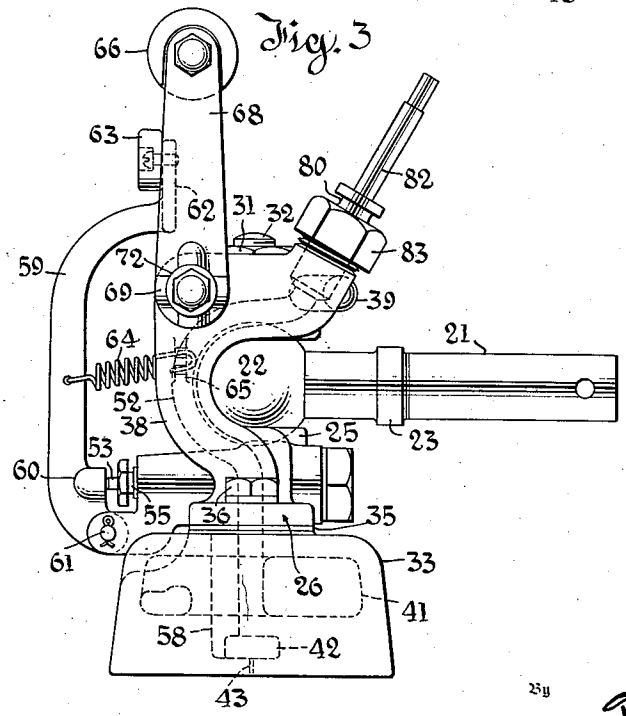

Fig. 7

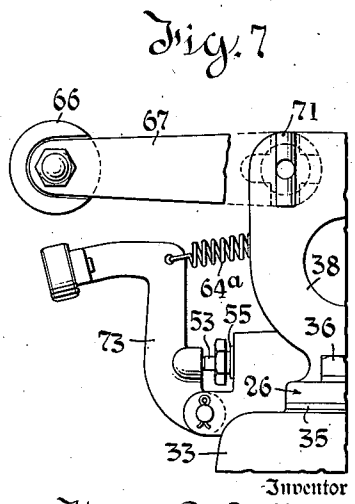

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Fig. 4

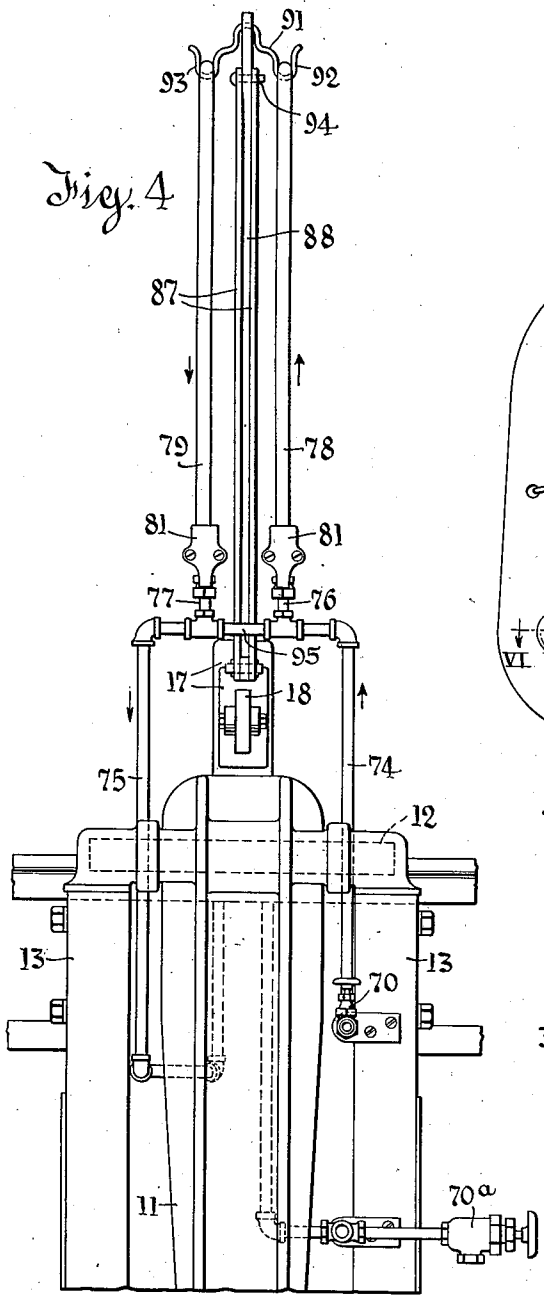


Fig. 5

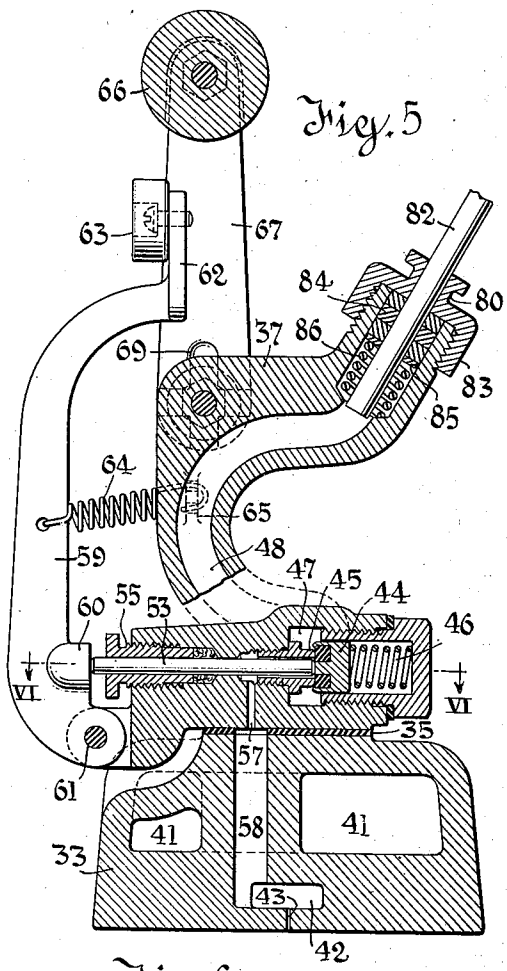
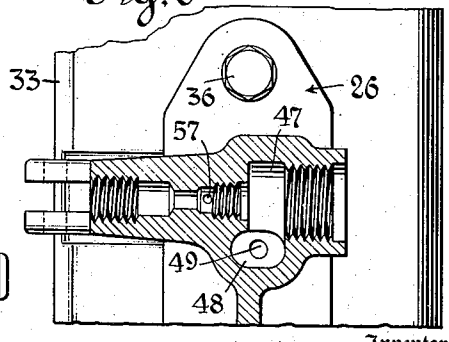


Fig. 6



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Patented Dec. 23, 1941 2,267,000

UNITED STATES PATENT OFFICE

2,267,000

GARMENT PRESSING MACHINE

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Application December 19, 1939, Serial No. 310,075

10 Claims. (Cl. 38—42)

This invention pertains to an improved press of the so-called "jumper type," which may be utilized in various garment pressing operations, it being particularly applicable for the opening and pressing of seams.

As in machines of this type heretofore placed upon the market, the iron is pivotally mounted, as by a ball joint, upon one end of an arm or bar which is slidable through a guideway or support mounted for lateral swinging movement, as well as for tilting movement toward and from the underlying buck, the latter movement being for the purpose of applying pressure to the iron and, consequently, to the goods imposed upon the ironing board or buck.

Heretofore, seam opening machines of the same general type as that herein disclosed have had connections between the hose (supply and return) and the iron made at or adjacent the rear end of the iron, with the result that the weight of the hose was carried by the rear end of the iron. Such an arrangement causes a partial rotation of the iron about its ball joint support, so that the point of the iron when idle is tilted upwardly away from the horizontal plane of the work table. The iron, therefore, must be tilted to a horizontal position against the weight of the hose before it can be used. The present structure does away with this. Furthermore, the proximity of the hose connections to the rear end of the iron under the old constructions, made the clearance between the operator's elbow and the hose uncomfortably close, and as a consequence the operator's movements were cramped in avoiding contact with the hose.

The present construction has for one of its objects an arrangement which overcomes the objections of prior constructions by connecting the supply and return hose near the center of oscillation of the iron, and so arranging the hose connections that they will swivel at their point of connection to the steam iron when the iron is oscillated about its ball joint support. Furthermore, the steam hose and the return hose are both supported near the center of their length by a linkage system, one end of which is attached to the sliding bar which supports the iron, and the other end to the support in which the sliding bar is mounted. Thus, an automatic compensation for the support of the hose is provided at any position of the iron with reference to the buck of the machine.

The handle for the iron is so arranged that it may be placed either in a vertical position or a horizontal position. Thus, the steam iron assembly may be readily and quickly converted from what is known in the trade as a vertical handle iron to an offset handle iron, through means shortly to be described.

A further object of the invention is to employ a structure wherein the steam spray and steam return conduits are primarily formed in a superstructure casting securely attached to the body of the iron proper, and likewise wherein the steam control valve is incorporated in the supporting member, and not in the body of the iron, as has heretofore commonly been done.

With these and other objects and advantages in view, as will hereinafter appear, reference is had to the accompanying drawings, wherein:

Figure 1 is a side elevation of the upper portion of a jumper pressing machine with an iron of the present invention resting on the buck or table;

Fig. 2 is a side elevation of the iron proper, parts being broken away to show the interior construction and the ball joint;

Fig. 3 is a rear end elevation of the iron and the ball joint;

Fig. 4 is a rear end elevation of the upper portion of the machine, illustrating the connections for the steam supply and return lines;

Fig. 5 is a vertical sectional view illustrating the control valve for the steam inlet to the spray chamber of the iron, and likewise illustrating the swivel connection between the steam line and the attaching member secured to the upper portion of the body of the iron;

Fig. 6 is a horizontal sectional view through the valve portion of the attaching member on the line VI—VI of Fig. 5, the movable portions of the valve being omitted; and

Fig. 7 is a detailed view illustrating the handle moved to a horizontal position, and also showing a modified valve release lever employed in connection with the handle when so positioned.

Any suitable mechanism may be employed to press the iron down upon the goods imposed upon the buck or head. In the instant case, there is disclosed a lever 11 (Fig. 1) fulcrumed at 12 upon fixed elements 13 secured to the machine frame 14, which may be of any approved type. Any means may be employed in conjunction with the lever 11 to rock the same about its fulcrum, but inasmuch as such mechanism is common in the art and forms no part of the present invention, it is not deemed necessary to illustrate the same.

The lever 11 at its upper end is provided with a forwardly extending bifurcated portion 15

forming the support for an arm 16 swiveled thereto so that it may be swung laterally as the iron is manipulated in the manner hereinafter set forth. The upper end of the arm or lever 16 carries a guideway or support 17 in which is mounted for sliding movement a bar 18 which forms the support for the iron and its allied parts. At its forward end, bar 18 has rigidly secured to it a supporting element 19 in which is rotatably mounted a round stem 21 which terminates at its forward end in a ball 22. The stem 21 is free to be rotated in the member 19 but is precluded from endwise movement, except to a slight degree, through a collar 23 and a cross pin or similar element 24.

Upon referring to Figs. 2 and 3, it will be seen that the ball 22 rests in a rounded seat or socket formed in the upward extension 25 of the attaching member or superstructure casting, denoted generally by 26, to which the iron is secured and from which extend upwardly certain elements now to be described.

The ball is provided with an opening extending upwardly therethrough (see Figure 2) and imposed upon the upper portion of the ball is a ball bearing assembly denoted generally by 27 of any approved type, the bearing assembly being held in place upon the ball by a washer 28 and lock nuts 29, 31 mounted upon the threaded upper end of a stud or post 32, the lower threaded end of which passes freely through the extension 25 and through the member or casting 26 and into the body of the iron 33.

As will be seen upon reference to Fig. 2, the stud or post is provided with a lock washer 34 seated between a shoulder on the stud and a shoulder formed in the base of the extension 25. This assists in holding the main frame and the iron closely together and prevents the stud from backing out. The post 32 above the collar is of a diameter smaller than the opening through the ball 22 so that the ball and extension may have a tilting movement with reference to each other in all directions. The ball bearings 27 makes for ease in the manipulation or turning of the iron by hand, and the guiding of the same over the garment or seam. In addition to the stud as a securing means between the iron and the superstructure casting or supporting member 26, a gasket 35 is interposed between the two, and machine screws 36 are passed through the laterally extending flange of the member or casting, to hold the assembly together.

Extending upwardly from the member 26 (see Figs. 2 and 3) is a pair of arms 37 and 38, said arms being interconnected adjacent their laterally extending upper ends by a cross bar 39, the bar making for stability between the arms and rendering the structure strong and rigid. The arms are so curved at that portion which is in alignment with the ball 22 that the iron may be swung freely in any direction, and more particularly about a vertical axis (see Fig. 3). In other words, U-shaped recesses are formed which permit the iron to swing laterally with reference to the stem 21 and the ball 22, without interference or any cramping action.

The iron 33 is cored out to provide a heating chamber 41 and a spray chamber 42, from which latter extend a series of perforations or openings 43 terminating in the working face of the iron. These openings are preferably arranged in a line from the point of the iron to the rear face of the same. Mounted within the member or casting 26 is a valve 44 urged to its seat 45 by a spring 46 (Fig. 5). The valve and the projecting portion of the seat are located in a passage or conduit 47 which, in turn, forms an extension of a conduit 48 cored out in the arm 37. The conduit is connected with a steam supply line, hereinafter referred to. The chamber 47 (see Fig. 2) is in communication at all times with chamber 41 through an opening 49. Steam may thus circulate through the chamber 41 and water produced within the chamber due to the condensation of the steam is drawn off through a tube 51, the upper end of which opens into a discharge or return conduit 52 formed in the arm 38. The lower end of the pipe 51 is chamfered and the lowermost end rests upon the lower wall of the chamber 41.

To move the valve from its seat, a stem 53 extends loosely through the fitting upon which the valve seat is formed and through a packing gland 55. The conduit 47 may be brought into communication with the spray chamber 42 by moving the valve from its seat. Steam then passes around the valve stem 53 downwardly through a small opening 57 and into a conduit 58 which terminates at its lower end in the spray chamber 42. The spring 46 normally holds the valve upon its seat to prevent the passage of steam to chamber 42. There is, however, a passage of steam to the steam heating chamber 41 at all times so that the iron is kept hot. The valve stem 53 at its outer end is in alignment with an enlargement 60 on an operating lever 59 fulcrumed at 61 on member 26 and terminating at its upper end in an upwardly extending arm or finger 62 near the handle of the iron. The lever carries a button 63 against which the operator may press to open the valve. A tension spring 64 is connected between the lever 59 and a lug 65 on the arm 37, see Fig. 2. The spring has only sufficient tension to hold the enlargement 60 on the lever against the end of stem 53, or, in other words, to maintain the lever in operative position with reference to the stem but not to operate the valve.

A handle through which the iron is manipulated is denoted by 66 and is secured between two upstanding members 67 and 68, respectively, pivoted at their lower ends to the arms 37, 38. The lower ends of the upstanding members are each formed with a crossed seat or depression 69 designed to coact with a rounded enlargement 71 formed upon the adjacent member 37 or 38 as the case may be, and spring washer 72. The seat 69, therefore, always has one portion disposed vertically and another horizontally. By this arrangement the handle may be maintained in the vertical position, as in Figs. 1, 2, 3 and 5, or in the horizontal position, as in Fig. 7. In the latter case, a modified form of valve releasing lever is employed, the same being L-shaped as shown in Fig. 7, and designated generally by 73. The lever is maintained in position by the spring 64a and cooperates with the valve rod as in the prior construction.

The steam supply line for the iron is denoted by 74 (Fig. 4) and the return line by 75. As is usual, they are provided with the proper valves for controlling the flow of steam therethrough and the drainage of water therefrom. The supply valve is designated 70 and the drainage valve 70a.

Suitable nipples 76 and 77 extend upwardly from the pipes 74 and 75, respectively, and each in turn is connected to a flexible hose 78 and 79. A swivel connection 81 connects each hose to its associated nipple. The opposite end of each hose

section is connected to one of the arms 37 and 38, preferably as illustrated in Fig. 5. A tube 82 is secured to the end of the hose by the clamp which forms a part of the swivel connection 81, the lower inturned ends of which extend into an annular groove 80 formed on the upper end of a packing nut 83 (see Fig. 3). Such a nut is threaded onto the upper end of each of the members 37 and 38. Located within the upper end of the arm 37 is a series of packing washers 84 which are backed up by a metallic washer 85 and an underlying compression spring 86, the latter at its lower end bearing upon a shouldered portion formed in the conduit 48 through which the steam passes.

With a view of holding the pipes 74 and 75, and consequently the nipples 76 and 77, in fixed relation, the fittings from which the nipples extend (see Fig. 4) are interconnected by a solid rod or bar 95 threaded into the fittings.

In order to maintain the hose in position where it will not contact the operator's person when he is manipulating the iron, strut links are employed, as best shown in Figs. 1 and 4, there being a pair of laterally spaced strut links 87 connected at their lower ends to the support 17, and a strut link 88 connected to bar 18 through shackle 89. The two links 87 are connected to link 88 at 94. The link 88 extends beyond the pivot 94 and is provided with a notch to receive a suitable hanger as 91 preferably formed of wire and extending laterally to provide two hooks 92 and 93 in which the looped portions of the hose lines 78 and 79 may rest (Fig. 4).

As will be readily appreciated from a mere inspection of the drawings, and more particularly Fig. 1, as the iron is moved in any direction, the strut links will pivot about their connection to the respective elements and maintain the hose in its elevated position without undue binding or cramping of the same. The weight of the hose is substantially equalized on the two sides of the hanger, so that there is no tendency for the same to rock or tilt the iron, but on the other hand the swivel connections between the iron structure and the hose facilitate manipulating the iron. Thus the weight of the hose is substantially removed from the iron, the hose is always centrally supported, and substantially all biasing forces tending to tire the operator and interfere with his work are done away with, and his freedom of movement materially increased.

The swivel joints between the hose and the operating elements also make for ease of operation of the iron, as there is no twisting movement imposed upon the hose. The fact that the connections (supply and return) between the hose and the iron structure are located centrally of the iron also does away with the imposition of any twisting movement upon the hose.

It is thought from the foregoing that the operation of the structure will be readily understood, but it may be pointed out that the ball bearing imposed upon the upper portion of the ball 22 makes for ease of operation, and inasmuch as the iron normally stands in parallelism or substantially so to the buck or ironing board, the operator is not called upon to move the iron from a tilted position. By mounting the valve in the member or superstructure casting 26 and forming the steam conduits therein, expensive manufacture and assembly is minimized. The valve is in a position where it may be readily disassembled and again assembled if for any reason inspection or repair becomes necessary. So, too, irons of different weight may be readily attached to the supporting element 26 by merely backing out the stud or post 32 and the screws 36.

What is claimed is:

1. In an ironing machine of the seam opener type, the combination of a frame; a buck mounted thereon; a bar support mounted for free swinging movement horizontally; a bar movable longitudinally through said support; an iron, said iron being provided with steam heating and spraying chambers; a universal connection between the iron and the bar; means for rocking the bar support downwardly to impose pressure through the iron upon the goods imposed upon the buck; two hose lines connected with the heating chamber, one of said lines serving as a supply line and the other as a return line; a valve controlled port leading from the heating chamber to the spray chamber, said valve being normally closed; strut links connected respectively to the support for the bar and to the forward end of the bar, said links being pivotally connected at their upper ends; and means carried by at least one of the strut links at its upper end for supporting the hose lines in looped position.

2. In a garment press of the seam opener type, the combination of an iron; a superstructure casting mounted and secured upon the upper face thereof, said casting being formed with two upwardly extending arms, each having a conduit therein in communication with a steam chamber formed in the iron body; an iron support having a spherical head, said head extending inwardly of reentrant portions formed in the arms aforesaid; a ball bearing resting against the upper portion or face of the spherical head; and a stud or post extending freely through the ball bearing and likewise through an opening formed in the spherical head and screwed at its lower end into the iron.

3. A structure as set forth in claim 2, wherein the spherical head rests at its lower portion in a socket or recess formed in the upper face of the casting intermediate the arms aforesaid.

4. In a garment press of the seam opener type, the combination of a buck; an iron mounted for universal movement with reference to the buck, said iron being provided with a steam heating chamber; a superstructure casting secured to the upper face of the iron, said casting being formed with a pair of spaced arms each having a conduit therein in communication with the steam chamber in the iron; a valve for controlling the inlet of steam to a spray chamber formed in the iron, said valve being normally closed; a flexible conduit extending upwardly from each of the arms aforesaid, compensating means for so supporting the flexible conduits with reference to the iron that the pressing face of the iron normally lies parallel to the buck or table; and means attached substantially at the center of oscillation of the iron for supporting the iron above the table.

5. A structure as set forth in claim 4, wherein the flexible conduits are supported by a pair of upwardly extending pivoted thrust links which compensate for the relative movement of the iron and conduits as the iron is used.

6. In a garment press of the seam opener type, the combination of a frame; a table mounted thereon; an iron; a casting secured to the upper face of the iron and having two upwardly extending arms in which conduits are formed for the inlet and return of steam to and from the

iron; a bar mounted for universal movement, said bar having at its outer end a spherical head seated in a socketed recess formed on the upper face of the casting between the arms aforesaid; a ball bearing seated upon the upper face of said spherical head; and means for securing said bearing in place and to likewise hold the spherical head upon the socket or recess aforesaid, the parts being so proportioned and arranged that the iron may have substantial universal movement about the spherical head.

7. In a garment press of the seam opener type, the combination of a frame; a table mounted thereon; an iron; a casting secured to the upper face of the iron and having two upwardly extending arms in which are formed steam inlet and return conduits for the iron; a valve mounted in the casting for controlling the introduction of steam into a spray chamber formed in the iron; a handle pivotally mounted upon the arms; and means for holding the handle in a vertical or a horizontal position as desired, whereby the iron may be employed as a vertical handle iron or an offset handle iron.

8. In a garment press of the seam opener type, the combination of a frame; a table mounted thereon; an iron containing heating and spray chambers; a superstructure casting attached to the upper face of the iron and having two upwardly extending arms containing steam inlet and discharge conduits connected to said heating chamber; a handle pivotally mounted on said arms; means for holding said handle in either a vertical or a horizontal position to permit the iron to be employed either as a vertical handle iron or as an offset handle iron; a valve in said superstructure for controlling the passage of steam from said heating chamber to the spray chamber; and a valve operating lever pivotally connected to said superstructure casting in proximity to said handle.

9. In an ironing machine, an iron; a frame; a supporting means movably connected to said frame for swinging and raising and lowering movements with respect thereto; a bar movable longitudinally of said supporting means; a cored support attached to said iron; a ball and socket connection between said support and said bar; at least one flexible tube means connected at one end to a relatively fixed portion of the machine, and at the other end to said support adjacent said ball and socket joint for supplying heating medium to said iron; a compensating support for said flexible tube means, said support comprising a vertically disposed linkage having pivotally connected branches, the free end of one branch being pivotally connected to said bar adjacent the ball and socket connection and the free end of the other branch to said supporting means; and means carried by said linkage adjacent the pivotal connection of its two branches for supporting the tube and causing the movements thereof to conform to the movements of the linkage as the iron is manipulated.

10. In an ironing machine of the jumper type; a frame; a buck on said frame; an iron mounted on said frame for movement in both horizontal and vertical planes; a universal connection between the iron and its mounting means, said connection being located substantially at the center of oscillation of said iron; flexible tubing for supplying heating medium to said iron, said tubing being connected between a fixed portion of the machine and a point adjacent said center of oscillation; means comprising an inverted V linkage connected at one end to move with said iron and at the other end to said iron mounting; and means carried substantially at the apex of said linkage for holding the tubing suspended substantially at its mid-point and permitting free movement thereof during manipulation of said iron.

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