Oct. 7, 1941. J. J. McCABE ET AL 2,258,499

IRONING MACHINE STRUCTURE

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FIG. 1.

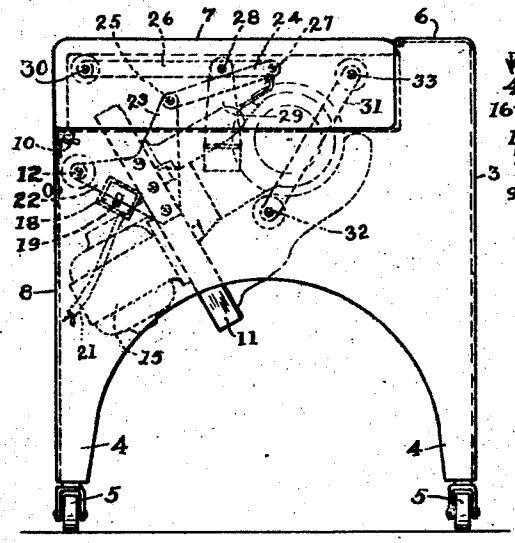


FIG. 2.

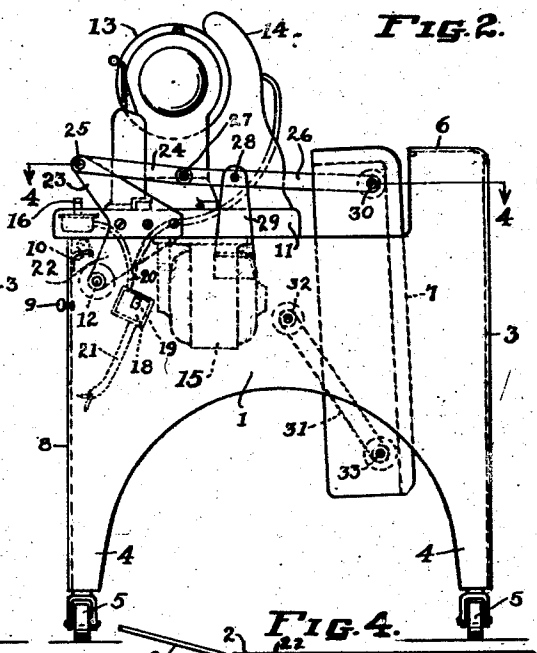


FIG. 3.

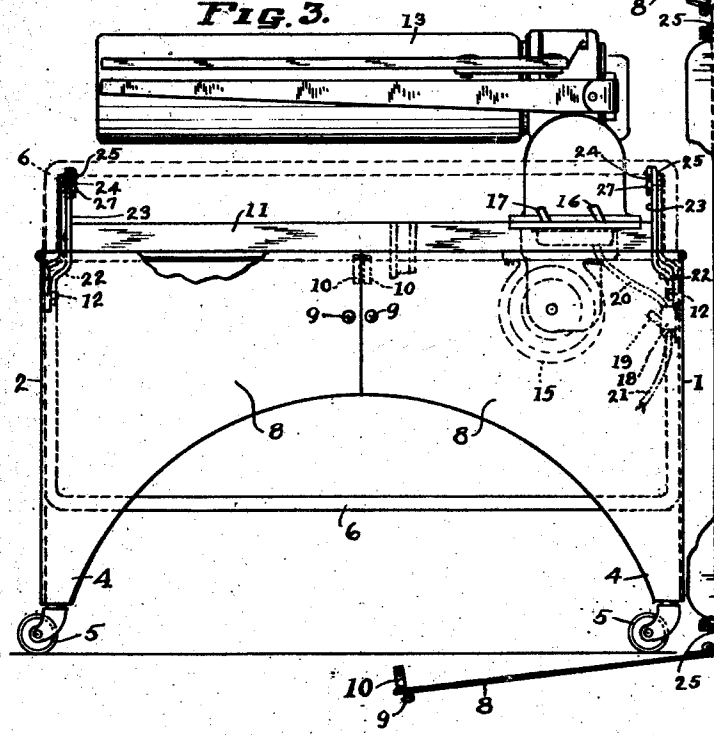
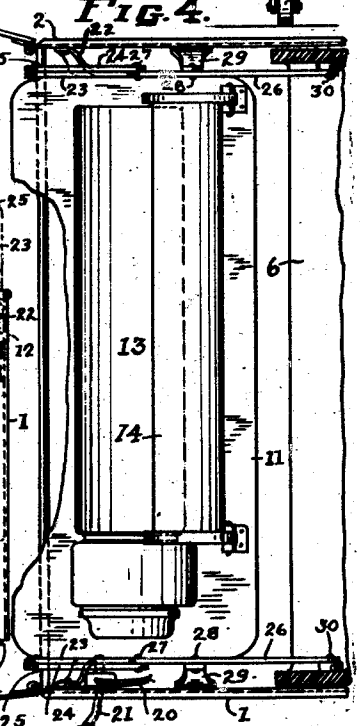


FIG. 4.



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FIG. 5.

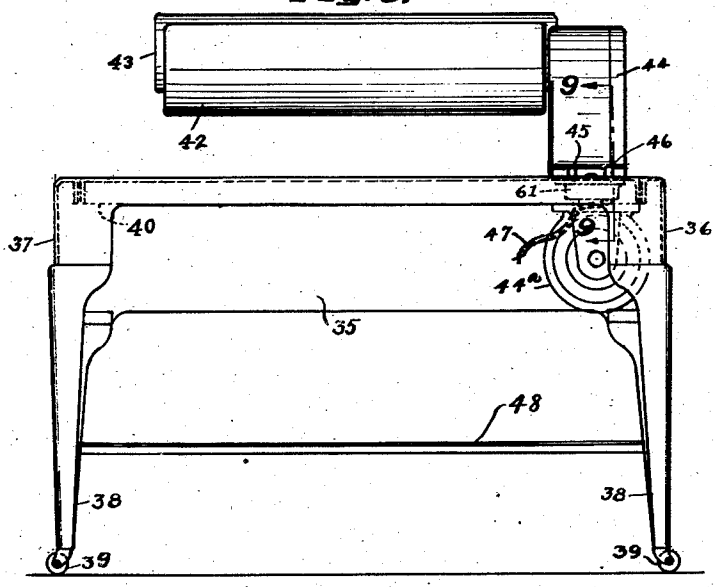


FIG. 8.

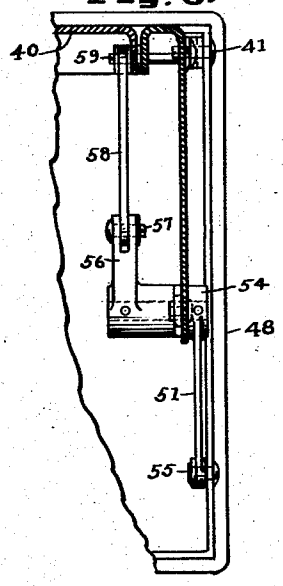


FIG. 6.

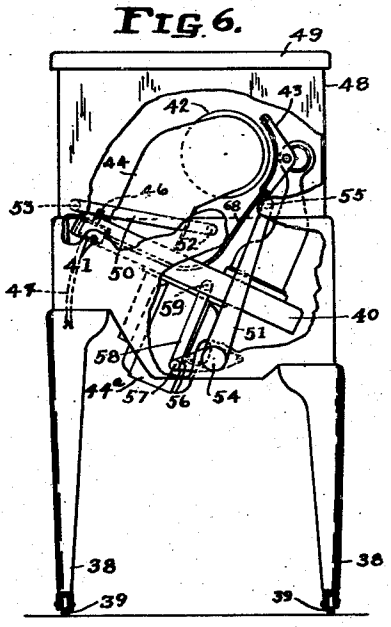


FIG. 7.

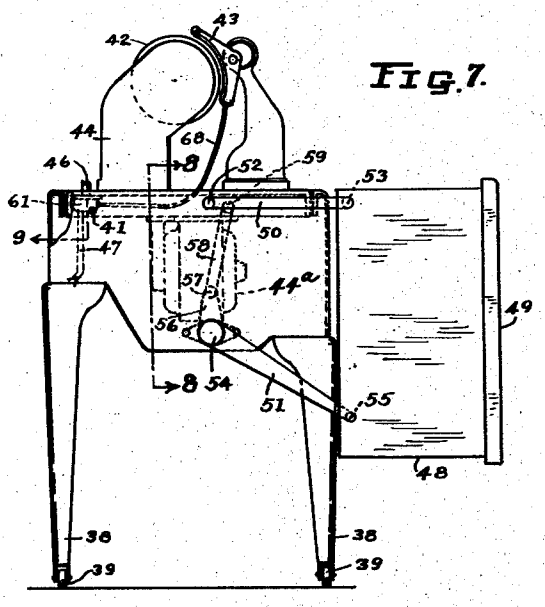
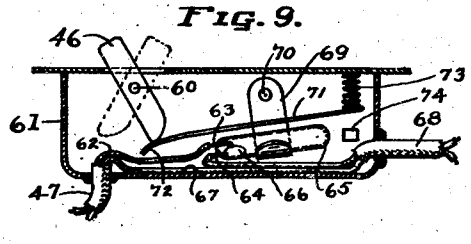


FIG. 9.



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FIG. 10.

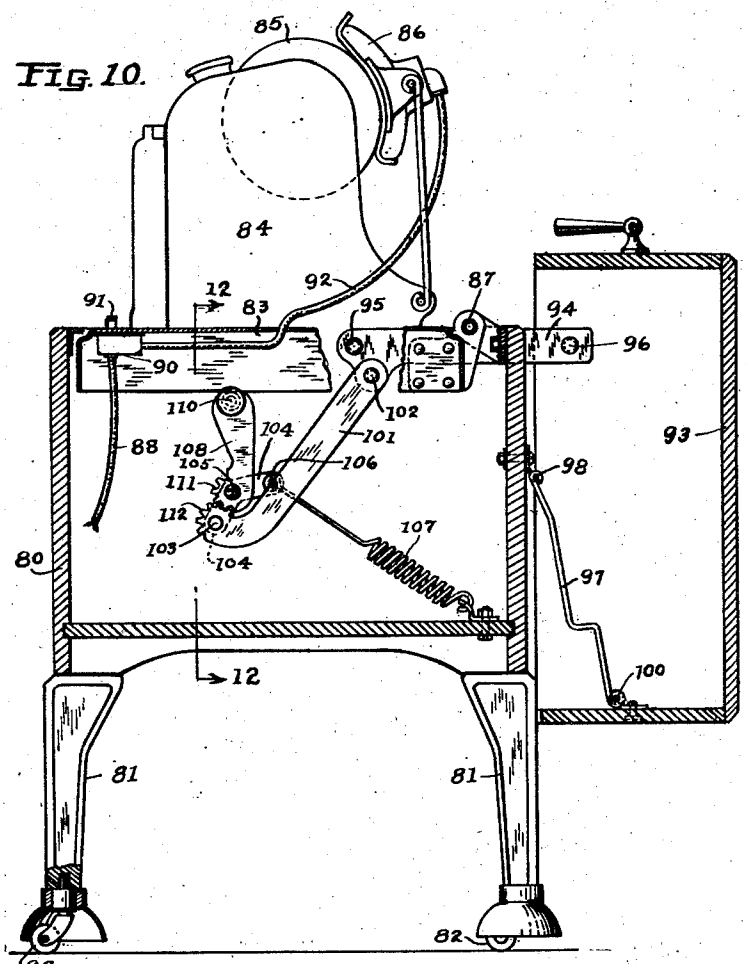


FIG. 12.

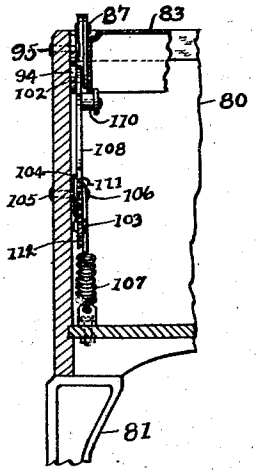
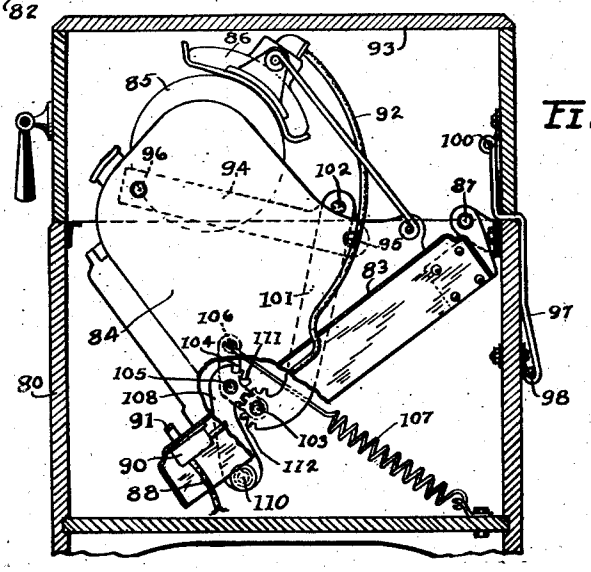


FIG. 11.



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2,258,499

IRONING MACHINE STRUCTURE

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Application March 16, 1933, Serial No. 661,022

3 Claims. (Cl. 38—59)

This invention relates to ironing machines and in particular to cabinet structures for ironing machines.

One of the objects of this invention is the provision of a cabinet and supporting structure for an ironing machine having a top part which is movable from a closed to an open position for exposing the working elements of the machine at a proper height for the performance of the ironing operations by a person seated in front of the machine, the cabinet also being arranged to provide a table top of table height when the machine is in its closed position.

Another object of this invention is to provide a cabinet type ironing machine with means for counterbalancing the weight of the cabinet cover.

Another object of this invention is a provision of an ironing machine cabinet structure wherein the cabinet top and the ironing mechanism are movably secured to a supporting structure so that the weight of the ironing mechanism and the weight of the cabinet top counterbalance each other for certain positions of the cabinet top.

A further object of this invention relates to the provision of a safety device whereby the supplying of heat to the heated member of the ironer is prevented when the machine is in its closed and inoperative position.

With these and other objects in view, the invention consists in the novel construction, arrangement and combination of parts, hereinafter illustrated and described in some of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings,

Figure 1 is a side elevational view of one end of an ironing machine cabinet shown in a closed position and illustrating the details of one form of the invention.

Figure 2 is a view similar to Figure 1 and in which the cabinet is shown in its open position.

Figure 3 is a side elevational view of the front of the machine.

Figure 4 is a plan elevational view with the cabinet cover being shown partly in a section taken on line 4—4, Figure 2.

Figure 5 is a side elevational view of the front of a modified form of ironing machine cabinet illustrative of the invention.

Figure 6 is a side elevational view of one end of the machine shown in Figure 5 with certain of the parts of the machine broken away for the sake of clearness in illustrating the details of the cover securement means, the cabinet being shown in its closed position.

Figure 7 is a view corresponding to Figure 6 with the difference however that the cabinet is shown in its open position.

Figure 8 is an enlarged fragmentary view illustrating the construction of the cabinet cover securement means, the position and view of the parts corresponding to Figure 5.

Figure 9 is an enlarged sectional view taken on line 9—9, Figure 5 illustrating the details of the safety shoe control switch mechanism.

Figure 10 is a side elevational view of one end of another form ironer cabinet illustrating the invention and in which the cabinet is shown in open position.

Figure 11 is a view corresponding to Figure 10 and in which the machine is shown in closed position, and

Figure 12 is a fragmentary sectional view of the cover securement means taken on line 12—12, Figure 10.

The machine illustrated in Figure 1 comprises a supporting structure which may be fabricated from sheet metal to form the side walls 1 and 2 and the rear wall 3 of a paneled cabinet having legs 4 formed therewith, the latter having casters 5 carried in the lower ends thereof. The rear of the cabinet is folded over at 6 to form a part of the cabinet top, the remainder of the cabinet top is formed from a box-like cover 7 which in the closed position of the machine is flush with the top part of the cabinet formed by the bent-over portion 6 of the rear wall 3.

The front of the machine is provided with two doors 8 having knobs 9 and catches 10, the knobs and catches being provided for facilitating the swinging of the doors to an open position when it is desired to operate the machine and for maintaining the doors in closed position when the machine is not in use.

A bed-plate or base member 11 is secured to the cabinet by means of a pivotal mounting 12. The base member supports an ironing roll 13 and an electrically heated shoe 14, the roll being operated by means of an electric motor 15. The current supply of the heating element of the shoe and the current supply of the motor is controlled by means of switches having operating members 16 and 17. A third switch 18 is placed in the electrical supply line ahead of the aforementioned switches and is carried on the side of the cabinet. This switch has an operating member 19 for controlling the current supply of both the operating motor 15 and the heated shoe 14, which are connected to the switch by means of the cable 20, the switch also having a cable 21 for

connection to the electrical supply line feed wires (not shown).

When the cabinet is moved to its closed position an element 22 secured to the base member contacts the switch member 19 moves it to its closed switch position. This feature is of considerable importance in cabinet type ironers for in the absence of a safety device for accomplishing this object it is possible for a person to close the machine when the shoe is connected to the source of electrical current supply and the continued heating of the shoe under such conditions will eventually set the padding of the roll 13 on fire causing considerable damage to the machine as well as giving rise to the possibility of setting fire to the building in which the machine is located.

The element is fixed to and forms a part of the base member 11 and it has an upstanding part 23 secured to one end of a link 24 by means of a pivotal connection 25. One end of a second link 26 is articulated at 27 to the other end of the link 24 and it is pivoted at 28 to a supporting member 29 of the cabinet structure. The other end of the link 26 is pivoted at 30 to the cabinet top. Another link 31 has its ends pivoted at 32 and 33 to the side wall of the cabinet frame to the rear portion of the cabinet cover respectively. A complementary set of links and levers are provided for the opposite end of the machine to that shown in Figures 1 and 2 and like reference numerals are used to indicate the corresponding elements of these parts of the machine.

When the machine is in the position shown in Figure 1, the cabinet can be opened up by moving the cabinet top 7 upwardly, and then rearwardly and downwardly. The articulated links 24 and 26 serve to raise the ironing mechanism to its upper and operative position as shown in Figure 2, while at the same time the cabinet top is shifted to a position behind and below the ironing mechanism where it is out of the way of the operator. After the machine has been shifted to the position shown in Figure 2 the doors 8 may be opened to the position shown in Figure 4 and the machine is then in position for use. In starting the machine the switch operating members 19 and 16 are first closed to connect the shoe 14 to the source of electrical current supply. The shoe will then become heated within a short time whereupon the machine is ready for use.

By reason of the arrangement shown, the cabinet top and ironer mechanism counterbalance each other so that very little effort is required in moving the machine from its closed to its open position or vice versa. The cabinet top in its open position is located within the supporting base of the machine and there is no tendency for the machine to tip over as there might be if the cabinet top occupied a position to one side of the base of the machine as is customary practice in the construction and design of machines of this sort.

The form of cabinet structure shown in Figures 5 to 9 inclusive, comprises a support formed with a paneled rear member 35 and paneled end members 36 and 37 which may be conveniently formed from sheet metal with legs 38 depending therefrom. These legs are provided with casters 39 at their lower ends to facilitate the moving of the machine about from place to place.

A base member 40 is pivoted at 41 to the upper part of the support structure. The base member carries a padded roll 42, a heated shoe 43 and a gear case 44 in which suitable mechanism is housed for effecting the operation of the machine, such mechanism being driven by the motor 44a. The machine is electrically operated and is controlled by means of a motor switch and a shoe switch, the operating members of which are shown at 45 and 46 respectively. A cable 47 is provided for connecting the machine to a source of electrical current supply (not shown).

A box-like cover 48 having a table-top 49 is movably connected to the base member and to the supporting structure by means of a pair of links 50—51 which are provided at each end of the machine. One end of the link 50 is pivotally secured at 52 to the supporting structure and its opposite end is pivoted at 53 to the front lower part of the cover 48. The links 51 are pivotally secured at 54 to the supporting structure and at their opposite ends they are pivoted at 55 to the lower rear part of the cover. The links 51 have crank arms 56 pivotally connected at 57 to one end of a link 58 which at its opposite end is pivoted at 59 to the base member 40 of the machine. The crank arm and last named link are provided for raising and lowering the base member.

When the machine is in its closed position as shown in Figure 6 the cover can be easily moved to the position shown in Figure 7 whereby the ironing mechanism is raised to its operative position and the cover assumes a position to the rear of the machine and below the level of the ironing mechanism. By having the cabinet cover swing downwardly to the position shown there is less tendency for the machine to tip over than there would be if the cover were merely pivoted at its lower rear edge to the supporting structure and shifted to its open position by swinging it ninety degrees about such pivot as is a customary form of construction in machines of this type.

The shoe control switch is of the mercury type and it is illustrated in detail in Figure 9. The control member 46 of this switch is pivoted at 60 to a switch box 61 having an opening for the electrical supply cable 47. One of the conductors 62 of the cable is connected across the switch terminals 63 and 64 of a mercury switch 65 having a globule of mercury 66 for connecting and disconnecting the terminals with respect to each other. The current carrying conductors 62 and 67 are connected to a cable 68 leading to the heating element of the shoe 43.

When the switch is in the position shown in Figure 9 it is in position for connecting the shoe to the source of electrical current supply. The switch tube 65 is carried by a clip 69 which is pivoted at 70 to the switch box. A plate 71 is fixedly secured to the clip for movement therewith. This plate has a curved end 72 for contact with the lower end of the switch operating member 46. The opposite end of the plate 71 is urged in a downward direction by means of a spring 73. A stop 74 carried by the switch box is provided below the plate 71 to limit its movement.

When the switch operating member 46 is moved to the dotted line position shown in Figure 9 the switch is tilted by the spring 73 to a position where the drop of mercury runs to the other end of the tube, thus disconnecting the terminals of this switch. With the switch in the position shown in Figure 9 when the cabinet is moved to its closed position the globule of mercury will run to the opposite end of the tube and thus serve to automatically break the electrical con-

nection between the source of current supply and the heating element of the shoe.

This form of switch provides an important safety device for preventing the burning of the padding of the machine by reason of the failure of the operator to disconnect the electrical current supply to such shoe when the cabinet is closed up, as often occurs and sometimes with disastrous results to both the machine itself and to the building wherein such machine is located. Under such conditions it is not only possible but also quite probable that the shoe will set the roll padding on fire and such burning padding can drop on to the floor beneath the machine and set fire to the building in which the machine is located.

The form of ironing machine shown in Figures 10 to 12 as illustrative of this invention, comprises a supporting structure 80 carried on legs 81 which are fitted at their lower ends with casters 82. A bed-plate or base member 83 is provided for supporting a gear case 84 and a cooperating roll and shoe 85 and 86 respectively. Suitable mechanism for operating the machine is housed within the gear case 84. The base member 83 is pivotally secured to the framework at 87 for movement about a horizontal axis.

The machine is electrically operated and a cable 88 is provided for connecting the operating parts of the machine to a source of electrical current supply (not shown). The cable 88 is connected through a switch 90 having an operating member 91, to a cable 92 which is connected to the heating element of the shoe 86. The construction of the switch 90 is similar to the form of construction of the switch 61 shown in connection with the form of machine illustrated in Figures 5 and 9 inclusive.

The switch 90 serves to automatically disconnect the shoe from the source of current supply when the machine is tipped to its closed position as illustrated in Figure 11. It is of course understood that certain of the switch parts will be reversed from the position they occupy in the form of the device illustrated in Figure 5 by reason of the fact that the base member 83 is pivoted at its rear part instead of at its front part as in the case in the machine shown in Figure 5.

The machine is provided with a cabinet top 93 secured for pivotal and bodily movement with respect to the supporting structure 80 of the machine. The cover securement means comprises a lever 94, one end of which is pivoted at 95 to the supporting structure of the machine, while the other end of such lever is pivoted at 96 to the lower front portion of the cover 93. A second lever 97 is pivotally secured at 98 to the rear wall of the supporting structure while its other end is pivoted at 100 to the rear wall of the cover. A third lever 101 is pivotally connected at 102 to a portion of the lever 94 located slightly below the pivot 95 of such lever.

The opposite end of the lever 101 is pivoted at 103 to a crank member 104 which is pivoted at 105 at a point intermediate its length to the end wall of the supporting structure. The crank member 104 is provided at the end opposite the pivot 103, with a pin 106 to which is secured a spring 107, the opposite end of which is secured to the rear part of the supporting frame 80. A lever 108 is also pivoted at 105 to the supporting structure and at its opposite or upper end it has a roller 110 engaging the base member 83 for raising and lowering the same. The lower ends of the members 101 and 108 are provided with intermeshing gear segments 112 and 111, respectively. A set of levers corresponding to those illustrated in the drawings are provided at each end of the cabinet.

When the machine is in its closed position as illustrated in Figure 11, it may be readily opened by raising the cover and then moving it rearwardly and downwardly, the downward and angular movement of the lever 101 being transferred to the lever 108 by the joint action of the connecting member 104 and the gears 111 and 112, the movement of the lever 108 serving to swing the base member 83 to its elevated position. During this step in the operation of the machine, the spring 107 assists the operator in raising the mechanism to its open position.

In closing the machine the cover is moved in a manner reverse to that just described and during the closing operation the weight of the mechanism carried by the base member 83 serves to counterbalance the weight of the cover so that the closing operation is performed with a very slight effort on the part of the operator. The spring 107 operates to check the member 83 during the latter part of its downward movement, and to counterbalance its weight. With the arrangement shown the cover and the mechanical parts of the machine are substantially counterbalanced at their various positions, the spring 107 assisting the operator in the manual effort required initially to move the cover from its closed position, and when the cover is moved in a reverse direction, the weight of the ironer mechanism serves to assist the operator in initially moving the cover from its open position. The tension of the spring also acts to restrain the closing movement and the weight of the ironer mechanism acts to restrain the opening movement of the cover.

Furthermore it is to be understood that the particular forms of apparatus shown and described, and the particular procedure set forth are presented for purposes of explanation and that various modifications of said apparatus and procedure can be made without departure from this invention as described in the appended claims.

Having thus described our invention what we claim is:

1. In combination with an electrically heated ironer mechanism, a source of electrical current supply therefor, a cabinet having a base member hinged for movement about a horizontal axis for supporting said mechanism in two different positions, one position corresponding to its operative position and the other corresponding to its inoperative position, a cover for inclosing said machine when in its inoperative position, and means comprising a liquid-contact switch pivotally mounted on the front part of said base member having an operating member for manually controlling the current supply of the ironer when said cover is in the position it occupies when said mechanism is in its operative position and for automatically disconnecting the heated part of said mechanism from the source of electrical current supply upon the tilting of said switch when said mechanism is moved to its covered and inoperative position.

2. In an ironing machine, ironing means comprising a heated member, a cover for said ironing means, means for electrically heating said member, means for tilting and shifting said

ironing means and cover from an operative to an inoperative position, and a control device including a liquid-contact switch with a manual controller located forwardly of said heated member and movable therewith for automatically rendering said heating means inoperative when said cover and ironing means are shifted to their inoperative position.

3. In an ironing machine, ironing means comprising a padded element and a cooperating pressing member, means for electrically heating said member, means for tilting said ironing means from an operative to an inoperative position, a gravity-operated switch for automatically rendering said heating means inoperative when said ironing means are moved to their inoperative position, and manual means for working said switch when said ironing means are in their operating position.

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