This invention relates to cabinet type ironing machines primarily adapted for domestic use, and more particularly to an ironing machine associated with an upright cabinet, whereby the ironing machine may be stored in vertical position within the cabinet or disposed in horizontal position for use.

Conventional cabinet type ironing machines usually comprise a table upon which the roll and shoe are mounted with an elongate box shaped cover pivoted to the rear edge of the table and adapted to encase the roll and shoe when the machine is not in use. The storage space required for ironing machines of this type is determined by the size of the table, whereas, an ironing machine stored in upright position requires substantially less storage space, since the end dimensions of the machine determine the space required. Also, the entire machine may be enclosed within an upright cabinet which may conform in height and depth to other standard units, such as sinks, washing machines and the like, affording additional working surface in a kitchen or utility room.

We are aware that it has previously been proposed to store an ironing machine in an upright cabinet, but these machines are relatively heavy and prior arrangements with which we are familiar have required considerable effort on the part of an operator to move the machine both to and from working position. Additionally, the guiding and mounting means between the ironer and cabinet have been cumbersome, requiring a relatively large number of parts and being initially expensive to assemble or subsequently repair or service.

According to the invention, an ironing machine comprising a table having a roll and shoe mounted thereon is provided with a drop leg at one end, the opposite end of the table being connected with an upright cabinet having a hinged or removable door and cover. The connecting means includes a spring counterbalance and linkage affording considerable leverage advantage to an operator, whereby the machine can be easily rocked from an upright or storage position upon opening the door and cover to be disposed horizontally and rolled outwardly from the cabinet to working position. Means are provided for preventing movement of the machine to working position until the drop leg is in supporting position to avoid injury to the operator or the machine. The ironing machine is stored with the motor lowermost, and in the event of oil leakage the oil does not contact the roll or shoe which is of consider-

able importance in preventing subsequent spotting of articles being ironed.

It is a primary object of the invention to provide an ironing machine connected to an upright cabinet through means whereby the machine may be disposed upright within the cabinet or in horizontal working position with a minimum of effort on the part of an operator.

Another object of the invention is to provide an ironing machine of the above type having a drop leg and wherein the ironing machine cannot be moved from storage position towards working position until the drop leg has been moved to supporting position.

Another object of the invention is to provide a motor driven ironing machine of the above type adapted to be compactly stored in an upright cabinet with the motor lowermost.

Another object of the invention is to provide a cabinet type ironing machine of the above type having guide and support means comprising relatively few parts.

Another object of the invention is to provide an ironing machine of the above type which can be easily assembled with the cabinet for production and easily disassembled for repair or replacement of parts.

Other objects of the invention and the invention itself will become increasingly apparent from a consideration of the following description and drawings, wherein:

Figure 1 is a perspective view of an improved cabinet type ironing machine with the machine completely enclosed within the cabinet;

Figure 2 is a view similar to Fig. 1, with the door in open position;

Figure 3 is a perspective view showing the ironing machine intermediate storage and in working position, part of the cabinet being broken away for clearness of illustration;

Figure 4 is a view of the machine illustrated in Fig. 3 with the ironing machine in working or horizontal position, the near wall of the cabinet being omitted for clearness of illustration;

Figure 5 is an elevational view showing the ironing machine in storage position within the cabinet, the near side wall and parts of the machine being omitted for clearness of illustration;

Figure 6 is a view similar to Fig. 5, showing the machine in horizontal position and in a position to be rolled outwardly from the cabinet to working position;

Figure 7 is a fragmentary section taken along the line 1—1 of Fig. 6;

Figure 8 is a fragmentary perspective view
showing a modified type of drop leg we may employ:

Figure 9 is a fragmentary sectional view taken along the line 9-9 of Fig. 8.

Referring now to the drawings, and particularly Figs. 1 to 4 inclusive, a cabinet generally indicated at 10 comprises a base 11, sidewalls 12 and 13, and a back 14 rigidly interconnected. A front panel 16 is preferably fixed to the cabinet beneath a partial length door 17 hinged to side-

walls 12, but a full length door may be provided if desired. A cover 18 is hinged to back 14 and is maintained in open or elevated position by a conventional self-locking brace 19, preferably of the type which will permit the brace to fold and the cover to close by an upwardly directed pull on the cover. Although we preferably provide a hinged door and cover, it is understood that these parts may be removable from the cabinet if desired. The cover is preferably provided with guide dowel pins 21 adapted to be received in holes 22 in the sidewalls when the cover is closed.

The manner of righting the ironing machine which is generally indicated at 24 will now be described. The machine comprises a table 26, a roll 27 supported from a gear case 28, a motor 29 supported beneath the table, a shoe 31, and shoe support and emergency release means 32. The shoe support and emergency release means consti-
tutes no essential part of the present invention, but is preferably of a type wherein the shoe may be rocked away from the roll by manual thrust on a bar or handle accessible above the shoe. The outer end of table 26 is supported in working position by a panel type drop leg 33 hinged thereto and having rollers 34 mounted on the lower end of the drop leg, the drop leg preferably supporting a collapsible shelf 35. The drop leg may be held in supporting position in any suitable manner, but we preferably provide a rod 37 pivoted as indicated at 39 to the drop leg 33 which telescopes within a tube 38 pivoted to table 26 as indicated at 45. A spring latch 48 inter-
locks rod 37 and tube 38 when the drop leg is in the position illustrated in Fig. 4 and finger pressure on the latch permits the drop leg to fold beneath table 26.

The inner end of table 26 is mounted in the following manner. The table has down-turned front and rear flanges 39 to which headed pins 40 are secured preferably by welding as more fully illustrated in Fig. 7 to extend laterally outwardly from the table. A pair of arms 41 are pivotally mounted, one on each pin 40, the outer end of the arms being pivoted to links 42. The links 42 have ears 43 which support pins 44 slideable in elongate slots 45 formed in a second pair of arms 47. The opposite end of arms 47 are pivoted to table flanges 39 as indicated at 46 at points spaced from pins 40. A shaft 49 is fixed to links 42, the shaft being rotatably supported by the upstanding arms of a U-shaped bracket 51 fixed to cabinet 10, preferably by spot welding the bracket to the base and sidewalls of the cabinet. Shaft 49 has a rock-
arm 57 fixed to the central portion thereof, which is pivotally connected to a turnbuckle 53. The turnbuckle is also connected to one end of a cable 54 which passes around a guide sheave 56 rotat-
ably mounted on bracket 51, the other end of the cable being connected to a tension spring 57 fixed to the cabinet back 14.

A pair of opposite hand track-ways generally indicated at 58 are secured one to each cabinet sidewalk, preferably by spot welding. The track-
ways each comprise a channel section arcuate

portion 59 and an L-section horizontal portion 61. Pins 60 also support rollers 62 adapted to ride in or on the track-ways 58, the rollers preferably being formed of a hard rubber core and a soft rubber tire as shown in Fig. 7.

The manner of moving the ironing machine from storage to working position will now be explained. Assuming the cabinet has the door and cover closed, as illustrated in Fig. 1, the door 17 will first be opened to the position in Fig. 2 by grasping handle 64, the cover 18 will be elevated to the position in Fig. 3 and maintained elevated by the self-locking brace 19. In order to insure that the drop leg 33 is extended to supporting position before pulling the ironing machine into working position and to avoid possible injury to an operator or the machine, curved guard mem-
ers 65 of L-section are welded to sidewalls 12 and 13, whereby pins 66 extending from the drop leg will prevent outward movement of the machine, unless the drop leg is extended at right angles to table 26 to permit pins 66 to clear the guard mem-
ers 65. After the drop leg is raised to supporting position it will be maintained by the spring latch 48 interlocking the rod 37 and tube 38 as previously explained. An outward pull on the machine can then be effected by grasping handle 67 and the machine will be rocked to a position such as shown in Fig. 3 and subse-
quentlly moved to a horizontal position as shown in Fig. 6. It will be noted by reference to Fig. 5 that in storage position spring 51 is under tension due to elevation of rock arm 52 and the spring loading assists the outward rocking movement of the machine. By means of the turnbuckle 53 a desired amount of spring loading can be effected. Although the heaviest or motor end of the ma-
chine is lowest in storage position the ad-

ciable leverage advantage is afforded the operator, since the table 26 is grasped at the upper end and a pull in the direction of the arrow (Fig. 5) rocks the table around pin connections 66 as fulcrum or pivot points, pins 44 fixed to links 42 preventing movement of arms 47 to the left and acting as abutments for arms 47. This movement of the table in a counterclockwise direction is aided by the tension of spring 57 acting on rock arm 52 and tending to exert a thrust on the lower end of the table through arms 41.

In the ironing machine disclosed, the center of gravity (Fig. 5) is to the right and somewhat above pivot point 68, but when the drop leg is raised to supporting position, the center of gravity of the machine is shifted somewhat towards the table, thereby aiding the withdrawal movement. As the machine is rocked, the lower end of the table 26 rolls upwardly along the track-way portion 59 and the machine's center of gravity moves progressively around the pivot points 68 so that the effort required by the operator decreases until the rollers 62 ride on the horizontal portions 61 of the track-ways and the rollers 34 of the drop leg ride on the supporting surface as illustrated in Fig. 6. The machine is then rolled outwardly to working position. The machine is then operated in a conventional manner through control switches on gear case 28 and a knee control 69 if desired.

In storing the machine, it is rolled inwardly to the position of Fig. 6, then tilted as in Fig. 3, and the tilting motion is continued until the table is upright, the drop leg is then folded, the cover and door of the cabinet closed. Due to the lever-
age afforded the operator by the distance be-
tween the pivot pins 66 and the handle 67 at the
outer end of the table, and the fact that the center of gravity of the machine is only slightly to the left (Fig. 6) of the pins 58, relatively little effort is required on the part of the operator to lift or rock the machine towards storage position and as the center of gravity of the machine moves around the pins 58, this effort is decreased and spring 57 is tensioned which assists in retarding movement of the machine to vertical position. We preferably provide cushioning stops to further lessen any noise or impact when the machine reaches storage position and these stops may comprise a pair of L-shaped brackets 71 welded to the cabinet sidewalls and having rubber discs 72 for engaging the upper top surface of the table as best illustrated in Fig. 5. Also, we preferably provide cushioning rubber discs 73 on the under side of the table for engaging the top surface of the drop leg 33 when raised to supporting position.

Although we have illustrated an ironing machine having the motor beneath the table, it is understood that the particular type of ironing machine constitutes no essential part of the invention other than being provided with a drop leg and a table to which the linkage described may be connected.

Referring now to Fig. 8, we have shown a modified form of drop leg comprising a U-shaped tube 75 having rollers 84 mounted on the lower portion of the drop leg. The ends of tube 75 are slidable mounted in a box form cross member 77 which is hinged to the table as indicated at 78. Holes 82 provided in the table are adapted to receive the tube ends which are maintained therein by compression springs 81 when the drop leg is in supporting position. In folding the drop leg the tube ends are manually withdrawn from holes 82.

We wish it to be understood that we do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

What we claim is:

1. In a cabinet type ironing machine, the combination of an upright cabinet having a movable door and cover, an ironing machine, and means connecting the cabinet and machine whereby the machine may be disposed vertically within the cabinet for storage or supported horizontally outwardly of the cabinet for ironing operations, said means comprising a track-way adapted to guide the lower end of the ironing machine during movement from a vertical to a horizontal position, movable means connected to the cabinet and said lower end of the ironing machine, fulcrum means engaging the movable means and pivoted to the ironing machine adjacent said lower end whereby a pull directed outwardly from the cabinet on the upper end of the machine when in vertical position will rock the machine around the pivotal connection of the fulcrum means with the machine under substantial leverage and cause the lower end of the machine to move along the track-way from vertical to horizontal position.

2. In a cabinet type ironing machine, the combination of an upright cabinet having a movable door and cover, an ironing machine having a manually operable drop leg adapted to support one end of the machine, and means connecting the opposite end of the machine and cabinet whereby the machine may be disposed vertically within the cabinet for storage or supported outwardly of the cabinet for ironing operations, said means comprising a track-way within the cabinet adapted to guide the said opposite end of the machine during movement from a vertical to a horizontal position, movable means connected to the cabinet and said opposite end of the machine, fulcrum means engaging the movable means and pivoted to the machine adjacent said opposite end, and guard means associated with the cabinet preventing movement of the machine from vertical position until the drop leg is moved to supporting position.

3. In a cabinet type ironing machine, the combination of an upright cabinet having a movable door and cover, an ironing machine, and means connecting the cabinet and machine whereby the machine may be disposed vertically within the cabinet for storage or supported horizontally outwardly of the machine for ironing operations, said means comprising a track-way within the cabinet adapted to guide the lower end of the machine during movement from a vertical to a horizontal position, movable means connected to the cabinet and said lower end of the machine, fulcrum means engaging the movable means and pivoted to the machine adjacent said lower end whereby the machine may be rocked around said pivotal connection, and spring means fixed to the cabinet and operatively connected to the machine adapted to assist movement of the machine from a vertical to a horizontal position by an outwardly directed pull on the upper end of the machine.

4. In a cabinet type ironing machine, the combination of an upright cabinet having a movable door and cover, an ironing machine, and means connecting the cabinet and machine whereby the machine may be disposed vertically within the cabinet for storage or supported horizontally outwardly of the machine for ironing operations, said means comprising a track-way within the cabinet having an arcuate portion and a horizontally extending portion, a first means pivotally connected to the inner end of the machine, a second means pivotally connected to the intermediate end of the machine, link means rotatably mounted in the cabinet and pivotally connected to the first means, the second means being supportable by the link means whereby the machine may be rocked around said intermediate connection on the cabinet from a vertical to a horizontal position, and rollers on the inner end of the machine adapted to ride along the track-way.

5. In a cabinet type ironing machine, the combination of an upright cabinet having a movable door and cover, an ironing machine, and means connecting the cabinet and machine whereby the machine may be disposed vertically within the cabinet for storage or supported horizontally outwardly of the machine for ironing operations, said means comprising a pair of track-ways disposed one at each sidewall of the cabinet and each having a lower arcuate portion and an upper horizontal portion, roller means fixed to the inner end of the machine and movable along the track-ways, a first pair of arms pivoted to the inner end of the machine, a pair of links to said arms and rotatably mounted in the cabinet whereby said links will be moved with the machine, a second pair of arms pivoted to the machine at points between the inner end of the machine and the center thereof, the opposite ends of said second pair of arms being supportable by the links whereby the machine may be rocked around said second pair of arms from a vertical to a horizontal position with the inner end of
the machine moving along the track-ways, and spring means fixed to the cabinet and operatively secured to said links for assisting movement to horizontal position.

6. The combination of an upright cabinet having a hinged door and cover, a table, connecting means between the inner end of the table and the cabinet whereby the table may be stored vertically within the cabinet or supported horizontally substantially externally of the cabinet, a drop leg hinged to the outer end of the table, means for locking the drop leg in a supporting position substantially at right angles to the table, a pair of track-ways disposed one at each sidewall of the cabinet, rollers at the inner end of the table movable along the track-ways, said connecting means comprising link means rotatably supported in the cabinet and connected to the inner end of the table, and means pivotally connected to the table at points spaced from said inner end and engageable with the link means as an abutment whereby the table may be rocked around said points as a fulcrum and moved from a vertical to a horizontal position by an outwardly directed pull at the upper end of the table.

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