Jan. 12, 1937. J. J. McCABE 2,067,719

IRONING MACHINE STRUCTURE

Filed April 6, 1933 6 Sheets-Sheet 1

FIG. 1.

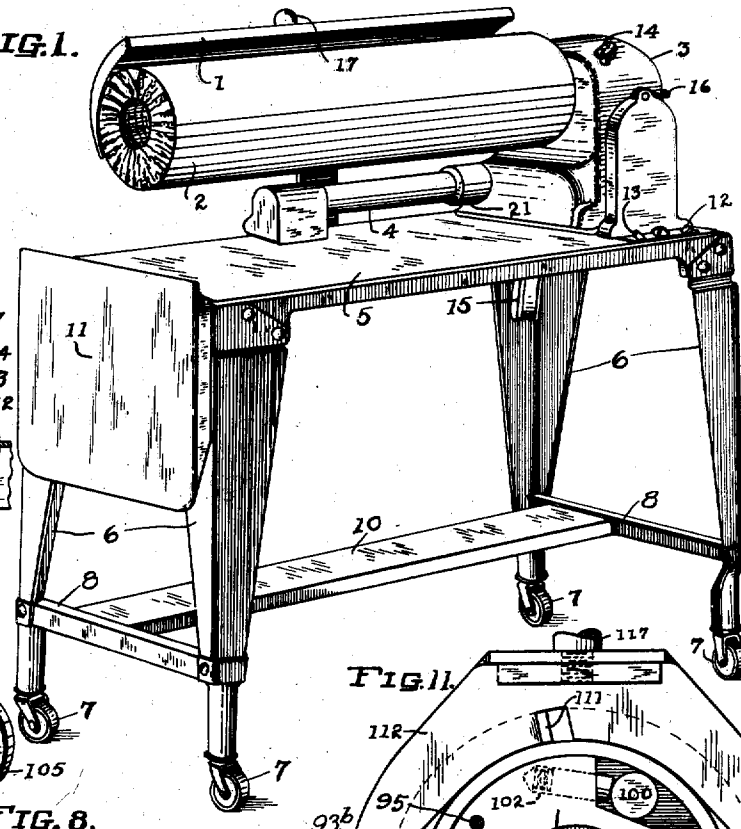


FIG. 6.

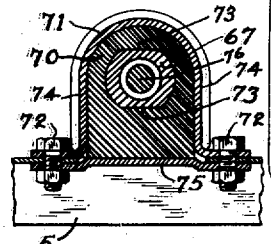


FIG. 7.

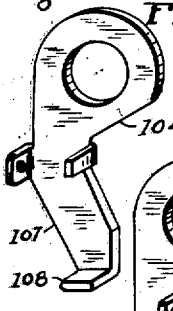


FIG. 8.

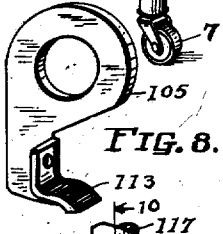


FIG. 11.

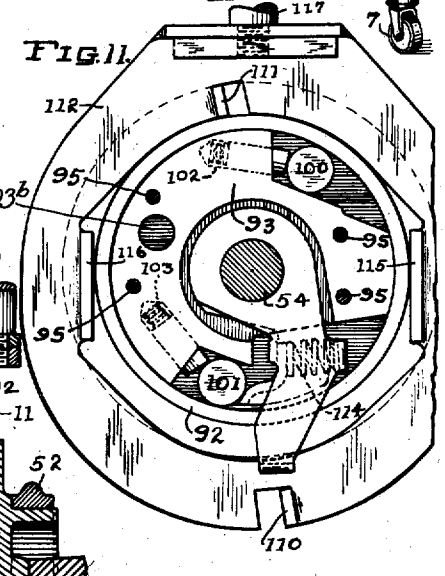


FIG. 9.

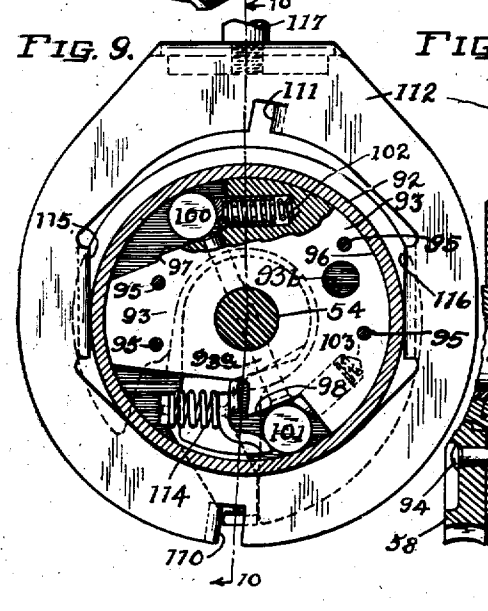
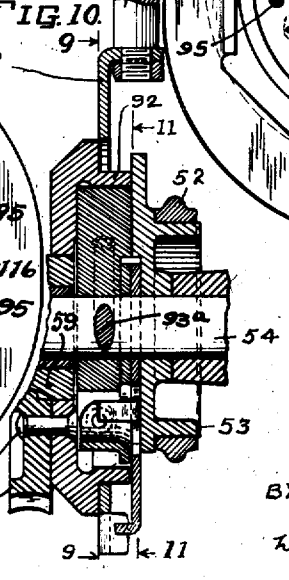


FIG. 10.



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Jan. 12, 1937. J. J. McCABE 2,067,719

IRONING MACHINE STRUCTURE

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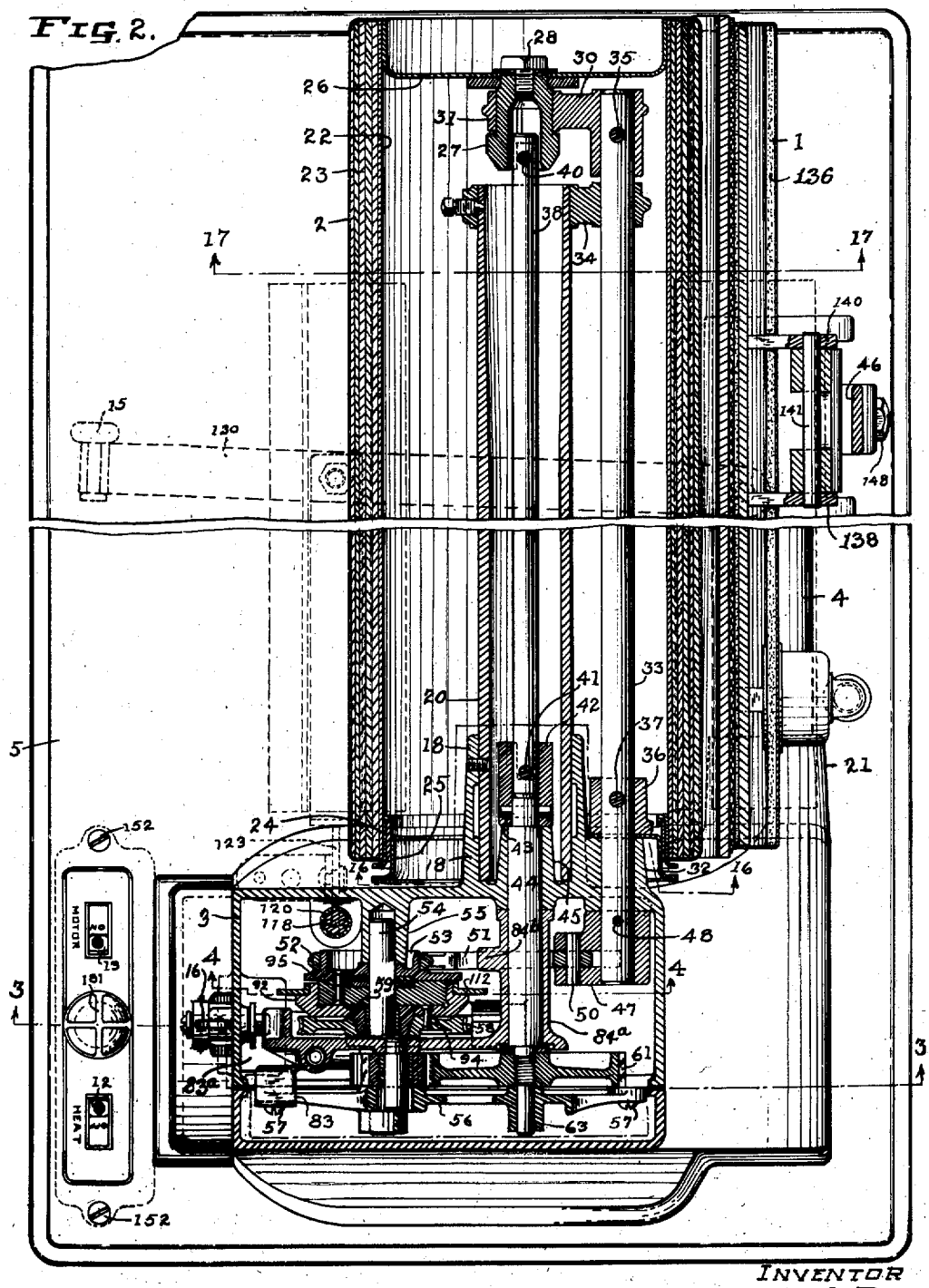
FIG. 2.



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Jan. 12, 1937. J. J. McCABE 2,067,719

IRONING MACHINE STRUCTURE

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FIG. 3.

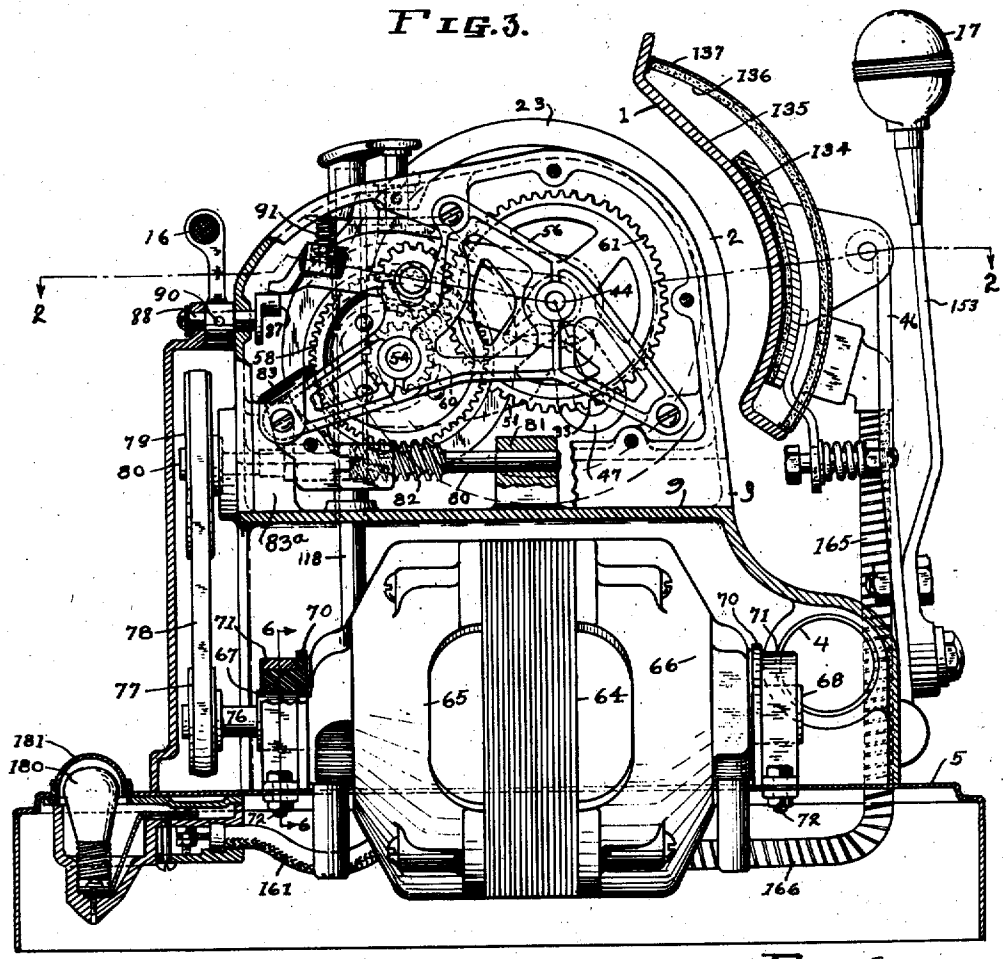


FIG. 4

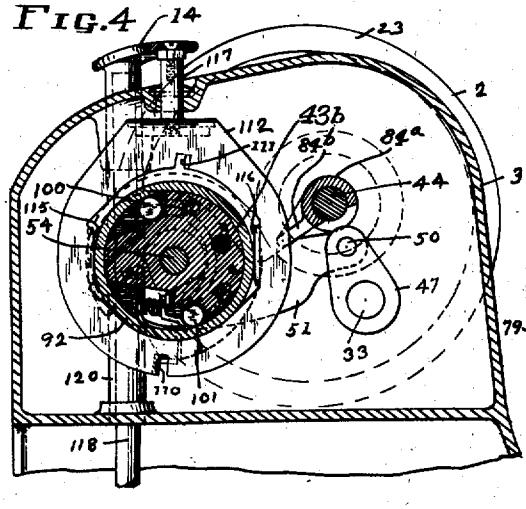
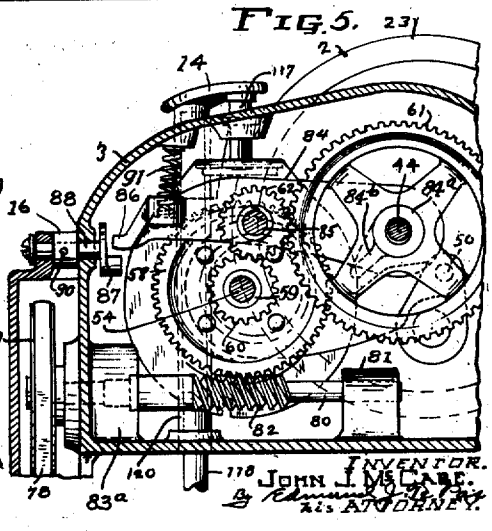


FIG. 5.



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Jan. 12, 1937. J. J. McCABE 2,067,719

IRONING MACHINE STRUCTURE

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FIG. 12.

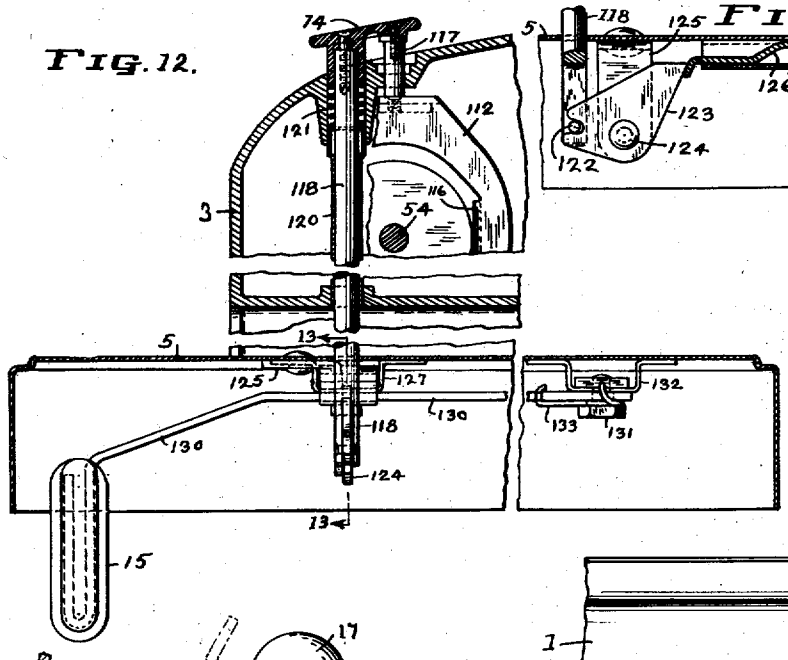


FIG. 13.

FIG. 14.

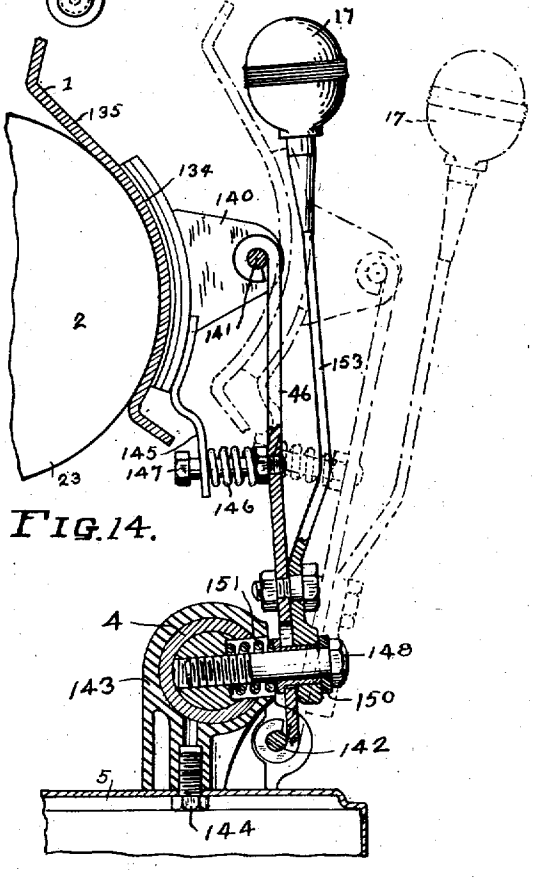
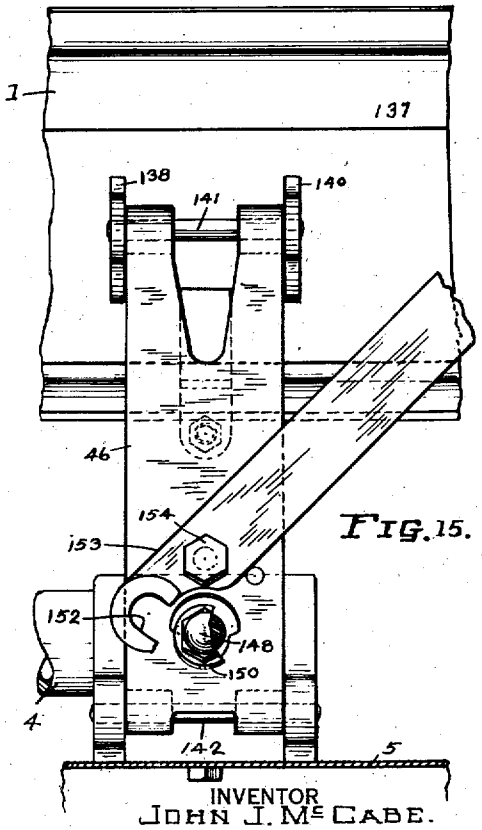


FIG. 15.



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IRONING MACHINE STRUCTURE

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FIG. 16.

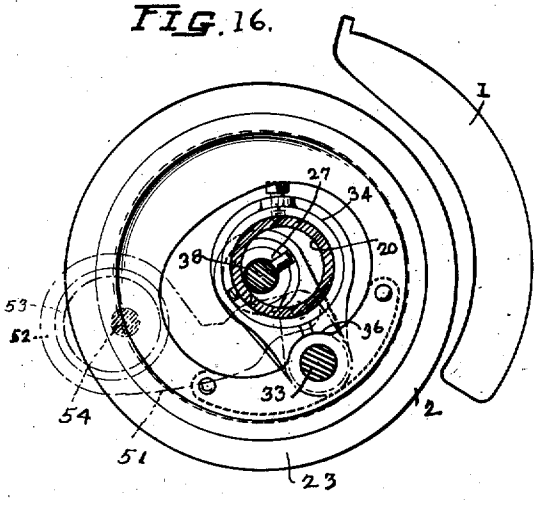


FIG. 17.

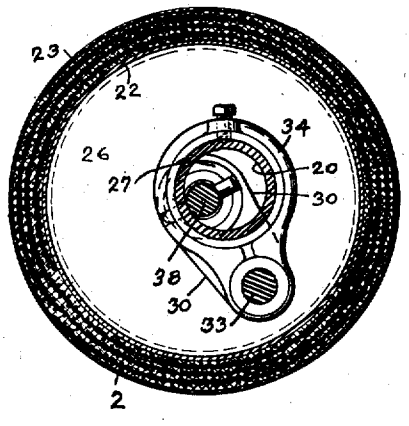


FIG. 18.

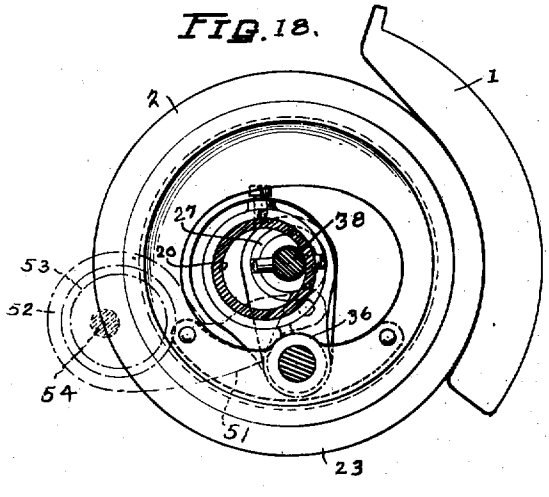
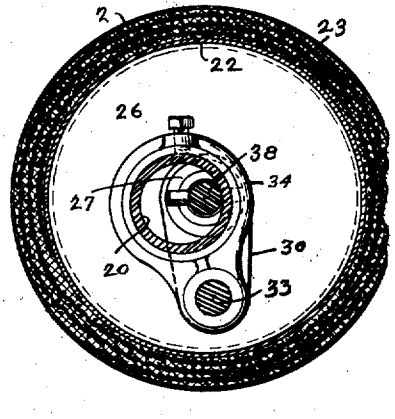


FIG. 19.



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IRONING MACHINE STRUCTURE

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FIG. 20.

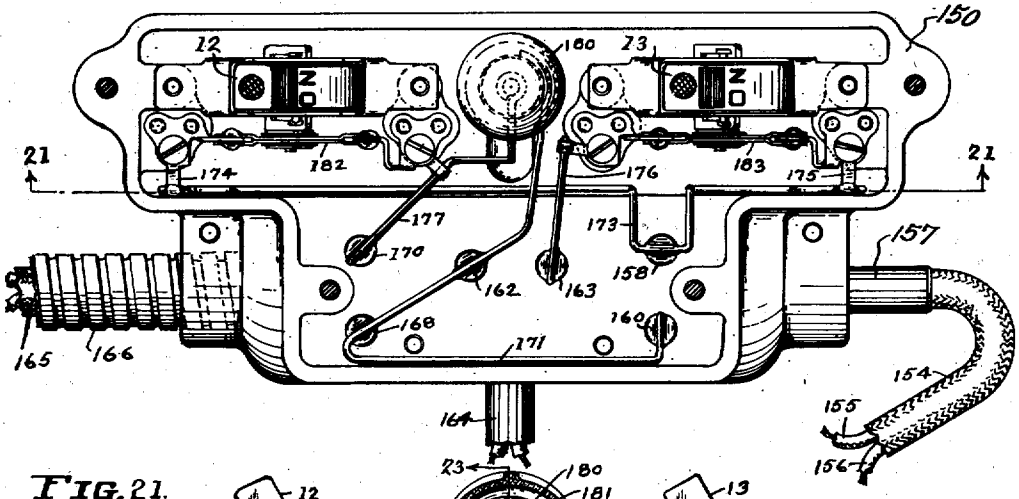


FIG. 21.

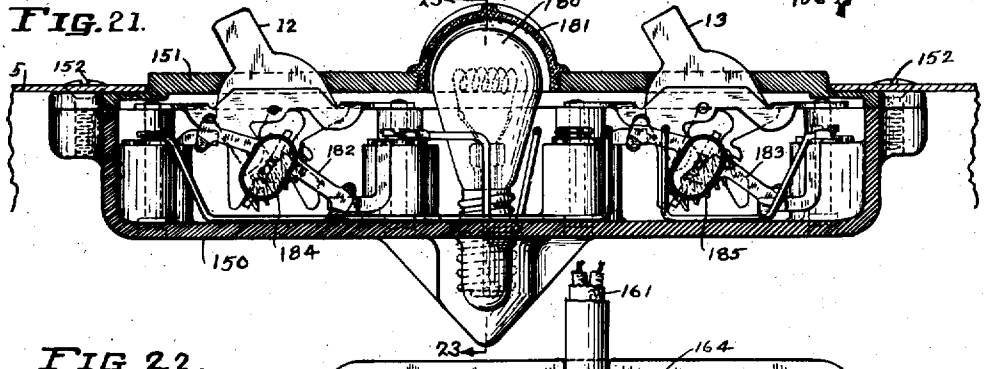


FIG. 22.

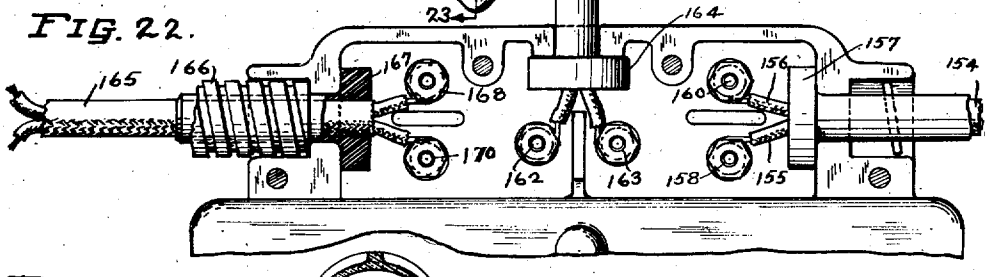
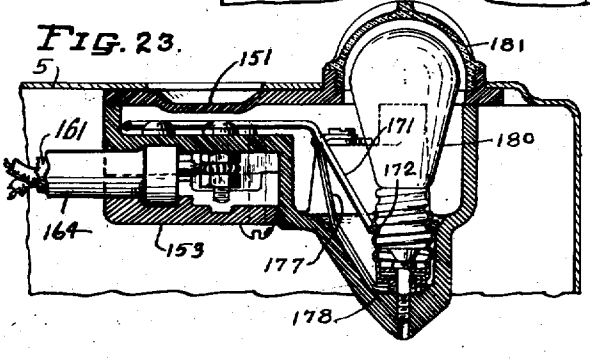


FIG. 23.



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Patented Jan. 12, 1937 2,067,719

UNITED STATES PATENT OFFICE

2,067,719

IRONING MACHINE STRUCTURE

John J. McCabe, Cleveland, Ohio, assignor to The Apex Electrical Manufacturing Company, Cleveland, Ohio, a corporation of Ohio

Application April 6, 1933, Serial No. 664,767

10 Claims. (Cl. 38—59)

This invention relates to ironing machines and in particular machines of the type employing a padded rotatable member and a heated member which cooperate to form the ironing elements of the machine, one of such elements being bodily movable with respect to the other for bringing the members into their operative and inoperative positions.

The following improvements in ironing machine constructions include some of the objects of this invention which are: the provision of a compact self-contained ironing unit which is adapted for use in connection with a cabinet type ironer, a folding ironer or a portable or table-type ironer; the provision of a highly efficient mechanism of low power consumption whereby a small motor may be used to drive the machine; the provision of laterally movable roll-type ironer with resilient means outside of the roll for providing yielding engagement between the roll and shoe; the provision of an improved pressure adjustment and safety shoe release; the provision of ironer control means which can be operated with either the hand or the knee at the option of the operator; the provision of an ironing machine having readily accessible means for instantly stopping the rotation of the roll whereby the machine may be converted from a mangle to a press for pressing and other operations; the provision of an ironing machine in which the roll is freely rotatable in either direction when not engaged by the shoe; and the provision of an equalizing shoe support which yieldingly maintains the shoe in contact with the roll.

Further objects of this invention relate to the provision of an improved switch construction in which the motor and shoe switch are located in a unitary housing which also includes a pilot light connected in the electrical circuit of the shoe; the provision of a flexible motor support to prevent the transmission of noise and to electrically insulate the motor from the rest of the machine; the provision of an improved means for allowing relative movement between the roll and the shoe from one end to the other thereof to equalize the pressure when articles of irregular thickness are passing between the roll and the shoe; the provision of an improved electrical wiring and switch arrangement; the provision of an improved control means constructed principally from stamped metal parts; the provision of an improved roll shifting mechanism; the provision of an improved lubricating system for the operating mechanism of a machine; and the provision of an improved form of ironer clutch having a minimum amount of drag or friction when in its disengaged 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 perspective view of an ironing machine selected for illustrating one mode of practicing this invention; Figure 2 is a longitudinal sectional view taken on line 2—2, of Figure 3 illustrating some of the operating parts of the machine; Figure 3 is a sectional view taken on line 3—3, Figure 2 showing the roll and shoe separated from each other; Figure 4 is a sectional view taken on line 4—4, Figure 2; Figure 5 is a detail view corresponding to Figure 3 and showing the roll shifting mechanism in ironing position; Figure 6 is a detail sectional view of the motor mounting taken on line 6—6, Figure 3; Figures 7 and 8 are enlarged perspective views of the clutch roller shifting members; Figure 9 is a detail sectional view of the clutch taken on line 9—9, Figure 10; Figure 10 is a sectional view taken on line 10—10, Figure 9; Figure 11 is a sectional view taken on line 11—11, Figure 10; Figures 12 and 13 are detail sectional views of the control members of the machine; Figure 14 is a side elevational view showing in section the details of the shoe support; Figure 15 is a detail view in elevation of the shoe support and its safety release; Figures 16 and 17 are sectional views taken respectively on line 16—16 and line 17—17, Figure 2, showing the position of the roll supports when the roll is away from the shoe; Figures 18 and 19 are sectional views corresponding to Figures 16 and 17 respectively, and showing the roll and shoe in ironing position; Figure 20 is an enlarged plan view of the switch mechanism with its top cover removed; Figure 21 is a sectional view taken on line 21—21, Figure 20; Figure 22 is a detail plan view of the underside of that part of the switch housing which is provided for receiving the terminals of the electric cables; and Figure 23 is a sectional view taken on line 23—23, Figure 21.

The machine shown herein as illustrative of one mode of practicing this invention comprises a heated shoe 1 and a padded roll 2, the latter of which is supported by a mechanism housing 3. The shoe is carried on the end of a tubular member 4 which at its other end is secured in the housing member 3. The aforesaid parts are of unitary construction and they may be conveniently

supported for use on a stand such as that illustrated in Figure 1 which comprises a rectangular top member 5 having a leg 6 positioned at each of its four corners, the legs being provided with casters 7 to facilitate the movement of the machine about from place to place. A horizontal wall 9 divides the gear case into upper and lower compartments. The upper compartment houses the gearing, and the lower compartment, which is open at its bottom, provides an enclosure for the driving motor of the machine.

Interconnected reinforcing members 8 and 10 engaging the lower parts of the legs are provided to rigidly secure these parts of the machine to each other. Pivoted to one end of the machine is a drop leaf 11 which may be raised from the position shown in Figure 1 to provide an extension for the work receiving base or top member 5 of the machine. Suitable switches are provided for controlling the supplying of electrical current to the driving member of the machine and to the heating element of the shoe, the operating member of the shoe heating element switch being indicated at 12 and the operating member of the motor switch being indicated at 13.

The shifting of the roll and the rotating of the roll are controlled by means of a manually operated member 14. This member is connected to a knee control member 15 in such a manner that the machine may be operated either by the hand or by the knee at the option of the operator. The control member 16 is provided for disconnecting or for preventing the connection of the roll rotating mechanism to the roll so that the machine may be used for pressing and other operations during which time it is desired to keep the roll stationary.

A safety release device having an operating handle 17 is provided rearwardly of the shoe to effect the disengagement of the shoe from the roll independently of the normal operation of the elements which are provided for effecting the engagement and disengagement between the roll and shoe.

The roll and shoe are both entirely supported from the gear mechanism housing 3. This housing is provided with a hollow boss 18 in which is received a tube 20 which projects into the roll 2 and extends throughout the greater part of its length. A second hollow boss 21 is formed on the housing and in this boss there is received in a fixed manner the tube 4 which is provided for carrying the shoe.

The roll of this machine may be formed from a hollow sheet metal drum 22 on which suitable padding 23 is wound. The end of the roll nearest the gear case is provided with a bearing member 24 which rotates in contact with the rim of a cup-shaped bearing and supporting member 25. The opposite end of the roll is provided with a closure cap 26, the central portion of which carries a coupling member 27. This member is secured in a fixed manner to the center of the cap 26 by means of a bolt 28. An arm 30 having a bearing 31 for receiving the coupling member 27 is provided for supporting this end of the roll.

The gear case 3 is provided with a third hollow boss 32 through which a shaft 33 projects. The remote end of this shaft is journaled in a bracket 34 fixedly carried by the end of the roll supporting tube 20. The arm 30 is pinned at 35 to this end of the shaft. At the opposite end of the shaft 33 a collar 36, rigid with the cup-shaped member 25 is secured to the shaft by means of a pin 37. From the foregoing it is apparent that when the shaft 33 is oscillated the roll is swung about the axis of this shaft and in this manner it may be moved toward and away from the shoe 1. The means for effecting such movement of the roll will be described in detail presently.

As a means for rotating the roll there is provided a driving shaft 38 having a pin 40 in its outer end which engages in slots formed in the end of the coupling 27. The opposite end of this shaft is provided with a pin 41 which is received in slots formed in a coupling member 42. This member is pinned at 43 to a stub shaft 44 which is journaled in a hollow boss 45 formed in the gear case 3. The shoe 1 is supported at a point intermediate its length by means of a flat cantilever spring 46 carried in a fixed manner by the tube 4. This spring provides for the yielding engagement between the roll and the shoe when they are in pressing contact with each other.

The end of the roll shifting shaft 33 which projects into the gear case carries a crank member 47 which is secured thereto by means of a pin 48. The end of the crank is provided with a pin 50 on which is journaled one end of a connecting rod 51. The other end of the rod is provided with a strap 52 for receiving an eccentric 53 which is carried by a clutch mechanism mounted for rotation about the axis of the stud shaft 54. One end of the stud shaft is journaled for rotation in a hollow boss 55 carried by the gear case. The opposite end of the stud shaft is journaled in a suitable bearing formed in a bracket 56 which is removably secured to the gear case by means of screws 57.

A worm gear 58 is mounted for rotation on the shaft 54. Coaxial therewith and fixed for movement with this gear is a pinion 60 which is provided for driving the gear 61 through an idler gear 62 which may be moved into and out of engagement with the pinion 60. The pinion gear 60 has an integrally formed axially extending sleeve or collar 59 with an intermediate part of reduced diameter about which the gear 58 is cast and thus fixedly secured with respect to the pinion 60. The gear 61 is fixed to one end of the roll driving shaft 44. This shaft is journaled in a suitable bearing 63 formed in the member 56.

Suitable means which will be described in detail presently are provided for revolving the eccentric 53 about the axis of the shaft 54 one-half turn for each time either one of the control members 14 or 15 is operated. This operation of the eccentric alternately shifts the roll into and out of engagement with the shoe. When the roll is shifted against the shoe the idler gear 62 is dropped into engagement with the pinion 60 and in this manner the roll is rotated. When the eccentric is operated to shift the roll away from the shoe the idler gear 62 is automatically disengaged from the pinion 60 and the rotation of the roll is thus stopped.

An electric motor 64 provides the source of power for the operation of the machine. The motor end caps 65 and 66 are provided with annular axial extensions or bosses 67 and 68 received in flexible dielectric blocks 70 which may be conveniently formed from rubber. These blocks are secured to the base 5 of the machine by means of straps 71. The straps are held to the base of the machine by means of the bolts 72. The bosses of the motor cap are provided with flat sides 73 and the straps also have flat sides 74 arranged at right angles to the flat sides 73 of the motor cap bosses. These flat surfaces en-

gage with corresponding surfaces formed on the block and they prevent rotation of the motor in the block 10 and also prevent the rotation of the block with respect to the straps 11.

This arrangement provides an inexpensive and effective means for supporting the motor so that it is electrically insulated from the rest of the machine. The rubber blocks prevent the transmission of motor noises and vibrations to the rest of the machine and thereby serve to render this machine exceptionally quiet in operation. The base 5 is cut away so that the motor 64 may be dropped therethrough upon the removal of the bolts 72 and the cross member 15 which carries the weight of the motor. The rubber blocks 10 are of such size so that they are put under slight compression when the bolts 12 are tightened and thus firmly grip the motor.

The armature shaft 16 of the motor carries in a fixed manner a belt pulley 17. This pulley engages with a belt 18 which serves to transmit the power of the motor to a mechanism pulley 19 located thereabove. It is preferred to form the belt 18 from an electrically non-conducting material so that the motor is electrically insulated at all points from the rest of the machine.

The pulley 19 is carried on the end of a shaft 80 which projects from the gear case. The other end of the shaft is received in the bearing provided by a boss 81 formed within the gear case. A suitable anti-friction bearing not shown may be provided at the end of the shaft 80 adjacent to the pulley 19 for taking the load of the belt and the thrust of a worm 82 which is carried intermediate the length of the shaft 80. A plate 83 is carried alongside the worm 82. This plate lies closely adjacent to the worm and is disposed at an angle to the vertical with its forward edge abutting the face of the boss 83a of the gear case. The worm is submerged in lubricant and the bottom of the worm gear normally extends a slight distance below the level of lubricant so that during the rotation of the worm and gear, lubricant is piled up in the pocket formed by the plate 83 and the boss 83a and in the space between the worm gear and the plate 83 whereby it is transferred to the worm gear 58 in considerable quantities and thus carried to the gears and bearings in the upper part of the gear case.

The worm 82 meshes with the worm gear 58 which is journaled for rotation about the axis of the shaft 54. The gears 60, 61, 62, and 58, have been previously described in connection with the description of the parts shown in Figure 2. The supporting member 84 of the gear 62, is journaled for movement about the axis of the shaft 44. The gear 62 is rotatably carried by a stud 85 which is rigid with the supporting member 84. The supporting member extends for some distance beyond its gear and at its end it is provided with a foot 86 which is engageable by a cam 87 carried by a pin 88 rotatably traversing the front wall of the gear case.

At the other end of the supporting member 84 there is provided a laterally extending sleeve 84a which is rotatably carried by the shaft 44. The end of the sleeve remote from the member 84 carries a radial projection 84b adapted to be engaged by the upper edge of the connecting rod 51, as shown in Figure 4, to effect the disengagement of the gears 60 and 62 and thus to disconnect the driving connection of the roll when it is moved away from the shoe to the position shown in Figures 16 and 17. Similarly when the roll is moved into contact with the shoe as shown in Figures 18 and 19 the rod 51 moves away from the projection 84b as shown in Figure 5 and the gear 62 can then drop into mesh with the gear 60 and thus drive the roll.

Exteriorly of the gear case the control lever 16 is pinned at 90 to the bearing pin 88. When the control lever 16 is in the position shown in Figure 3, intermeshing of the gears 60 and 62 is prevented and when the control member is in the position shown in Figure 5 the gear 62 may be thrown into and out of mesh with the gear 60 by the elements which have been described. A spring 91 is carried in the outer end of the member 84 for the purpose of urging this member in a downward direction.

The starting and stopping of the rotation of the roll and the shifting of the roll about the axis of the shaft 33 is effected in a controllable manner by means of the clutch mechanism best shown in Figures 7 to 11 inclusive. This clutch comprises a driving member 92 and a driven member 93. The hole 93b in the driven member is provided for facilitating the machining of this member. The driving member 92 is fixedly secured to the worm gear 58 by means of rivets 94. The worm gear and the associated clutch part are journaled for rotation on the shaft 54. The driven clutch member 93 is fixed by means of a pin 93a for rotation with this shaft and suitable rivets such as 95 are provided for securing the eccentric 53 to the driven clutch member. The horizontal shade lines in Figures 4, 9, and 11 indicate the rear wall of the cup-shaped clutch member 92 and in Figure 11 the vertical shade lines indicate the edge of the annular recess formed in the driven clutch member 93 for the accommodation of the clutch control members illustrated in Figures 7 and 8.

The driving clutch member has a smoothly finished rim portion 96. The driven clutch part 93 is provided with cam surfaces 97 and 98. Rollers 100 and 101 are carried between the cam surfaces 97 and 98 and the rim portion 96 of the driving clutch member 92. These rollers are urged into clutching engagement with the respective clutch parts by means of springs 102 and 103. As viewed in Figure 9 the driving clutch part 92 normally rotates in a clockwise direction. For such movement of the clutch part 92 the roller 101 serves to provide engagement between the driving and the driven elements of the clutch. The reversely acting roller 100 is provided to prevent the driven clutch from overriding the driving clutch part as might occur when the roll is moved away from the shoe this movement being occasioned by reason of the tension in the spring 46 which carries the shoe 1.

A clutch operating member comprising a pair of arms 104 and 105 is pivotally carried by the shaft 54. These arms are provided for throwing the roller 101 out of clutching engagement with the driving and the driven parts of the clutch. This part of the clutch is constructed in the manner shown for the purpose of preventing the partial engagement of the clutch subsequent to its release with the consequent frictional drag and the possibility of overheating and burning out of the clutch parts.

In the assembled relation of the clutch parts as shown in Figure 9, a small compression spring 114 is interposed between the operating members 104 and 105 to maintain these parts separated from each other. The roller controlling member 104 has an extension 107 with a bent over part 108 which is provided for engagement

with stops 110 and 111 carried by an annular clutch controlling member 112 surrounding the clutch parts.

From a consideration of Figure 9 it will be seen that when the control member 112 is depressed the member 104 will be released for movement and upon engagement of the clutch it will make approximately one-half turn whereupon it comes into engagement with the stop 111. When this takes place the member 104 is held stationary and the roller contacting element 113 of the member 105 is resiliently pressed against the roller 101 by means of the spring 114.

When sufficient power has been built up in the spring 114 or when the member 105 comes into positive engagement with the element 104 disengagement of the clutch takes place and after the initial disengagement of the clutch roller 101 the spring 114 snaps the roller completely out of engagement with the cooperating surfaces of the driving and driven clutch parts and holds the roller in this position until the clutch operating member is again depressed. It should be noted in this connection that the spring 114 is much stiffer than the spring 103 in contact with the roller 101 so that there is no tendency on the part of the spring 103 to move the roller into engagement with the cooperating clutch parts when the operating members 104 and 105 are held stationary against one of their stops 110 or 111.

The operating member 112 is provided with bent over portions 115 and 116 which engage the side of the clutch part 92 and serve to guide the member 112. The upper part of the member 112 is connected to a rod 117 which projects through the upper end of the gear case and is secured thereat to the manual control member 14. This member is operatively connected to a knee operated control rod 118 which projects through the gear case and it is surrounded by a tube 120 to prevent the escape of oil or grease at the point where the rod enters the gear case. The control rod 117 and the associated clutch controlling members are maintained in the position illustrated in Figure 9 by means of a spring 121.

The control rod 118 is articulated by means of a pin 122 to a cam 123 which is pivoted at 124 to a supporting member 125 secured to the underside of the base member 5. One end of an operating lever 126 engages the cam surface of the member 123. This lever is guided for movement in a channeled member 127 and at its opposite end it is pivotally secured by means of a bolt 128 to a lever 130 which is pivoted at 131 to a bracket 132 carried by the underside of the machine base. The other end of the lever is provided with the bent over portion 15 by means of which the lever may be conveniently operated by the knee of the operator for effecting the operation of the clutch members and the consequent starting and stopping of the rotation of the roll and the moving of the roll and shoe into engagement with each other. A coil spring 133 is provided to urge the lever 130 in a direction away from the cam 123.

The shoe 1 is electrically heated by means of an electrical resistance heating unit 134 which is located in position to heat the ironing face 135 of the shoe. Suitable heat insulating material 136 and a cover 137 are provided for directing the major part of the heat to the working face of the shoe and for maintaining the rear face of the shoe as cool as possible.

A pair of supporting ears 138 and 140 rigid with the shoe and projecting rearwardly therefrom are pivoted by means of the pin 141 to the upper end of the cantilever spring 46 which is pivoted at its lower end to a rod 142 carried by a bracket 143 which is fixedly secured to the shoe supporting tube 4. The bracket 143 is fixedly secured to the base of the machine by means of a bolt 144. The shoe is provided with an arm 145 engaging a small coil spring 146 carried by an adjustable bolt 147. This bolt may be adjusted to set the shoe at the proper angle with respect to the roll 2 and the cantilever spring 46.

The lower end of the cantilever spring loosely receives a bolt 148 carrying a spool 150 held against the head of the bolt by means of a spring 151. The spool is adapted for engagement with the cut-out portion 152 of a safety release lever 153 which is pivotally secured to the cantilever spring 46 by means of the bolt 154. The operating handle 17 is located at the upper end of the release lever. This arrangement is provided for quickly breaking contact between the roll and the shoe or for moving the shoe still further from its retracted position with respect to the roll for cleaning and other purposes.

The operation of this device is apparent from a consideration of Figures 14 and 15, Figure 14 showing in full lines the shoe and roll in their operative positions and in contact with each other and in the dotted line position in Figure 14 the shoe is shown in its released position which corresponds to the position occupied by the elements in Figure 15. The bolt 148 provides a means for readily adjusting the tension of the spring 46.

The electrical controlling elements of the machine are grouped together in a single structure comprising a box-like case 150 having a cover 151. The aforesaid parts are formed of a suitable dielectric material and constitute a switch housing and terminal housing for the control switches and lead wires of the machine. The case is arranged to be secured to the base member 5 by means of two screws 152, 152. A second cover 153 is provided for holding the terminal parts of the conductor cables in place and for covering the contacts to which these wires are connected.

A cable 154 having conductor strands 155 and 156 is provided for connecting the machine to a source of electrical current supply. The end of the cable remote from the machine is provided with a connector plug (not shown). A flanged rubber sleeve 157 is vulcanized to the end of the cord 154 to provide a strain relief and to also provide a means for its securement in the case 150. The ends of the supply cable strands 155 and 156 are connected to terminals 158 and 160.

A conductor cable 161 is provided for connecting the motor 64 to the source of electrical current. The conductor strands of this cable are connected to terminals 162 and 163. This cord is likewise provided with a rubber strain relief 164. The heating resistor of the shoe is connected to the current supply line by means of a cable 165 surrounded by flexible metal sheath 166. This cable is likewise provided with a strain relief 167 and its conductor strands are connected to the terminals 168 and 170.

The terminals 158 and 160 provided for connection to the current supply line are connected at their upper ends to conductor bars 171 and 173. The conductor bar 171 connects in series the terminals 160, 168, and 162, and terminates in one of the contact elements 172 of a light socket. The other terminal of the current supply line is connected to a conductor 173, one end of which is connected to one side 174 of the shoe heating

element switch, the other end of which is connected at 175 to the motor switch.

The opposite end of the motor switch is connected to the terminal 163 by a conductor 176 and the other end of the shoe heating element switch is connected to the terminal 170 by a conductor 177 the last named conductor being also connected to the other contact 178 of the light bulb socket. This socket is adapted for reception of a pilot lamp 180 and it is connected in parallel with the circuit of the heating resistor of the shoe so that when current is supplied to the shoe heating element the electric light burns and indicates that this element is in operation. A red glass cover 181 is carried by the cover plate 151 over the lamp 180 so that the operation of the lamp may be readily observed.

The shoe heating element and motor switches are of conventional design, having conductor bars 182 and 183 and associated snap-over mechanisms 184 and 185 by means of which the switches may be shifted with a snap motion to open or closed position by means of the switch operating members 12 and 13. By use of a unitary construction of the type disclosed it is possible to collect in one housing most of the electrical parts of the machine thus simplifying the initial assembling cost of the machine, greatly simplifying servicing problems, and at the same time providing a compact and neat arrangement for such elements of the machine.

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 the invention as described in the appended claims.

Having thus described my invention what I claim is:

1. In an ironing machine, in combination, ironing members comprising a base member, a padded rotatable roll and a heated member located thereabove, means for supporting said heated member from said base member, means for supporting said roll from said base member comprising a hollow gear case having a closed and an open compartment, gearing in said closed compartment operatively connected to said rotatable roll, a motor carried by said base in the open compartment of said gear case, a disconnectible driving connection between said motor and said gearing, and detachable motor securement means associated with said base for permitting the unitary installation or removal of the motor without disturbing the rest of the machine.

2. In an ironing machine, in combination, ironing members comprising a base member, a padded rotatable roll and a heated member located thereabove, means for supporting said heated member from said base member, means for supporting said roll from said base member comprising a hollow gear case having upper and lower compartments, gearing in the upper of said compartments operatively connected to said rotatable roll, a horizontally disposed motor in the lower of said compartments, a belt drive connecting said motor to said gearing, and means carried by said base detachably engaging the ends of said motor for supporting it in its operative position.

3. In an ironing machine, in combination, ironing members comprising a base member, a padded rotatable roll and a heated member located thereabove, means for supporting said heated member from said base member, means for supporting said roll from said base member comprising a hollow gear case having upper and lower compartments, gearing in the upper of said compartments operatively connected to said rotatable roll, a horizontally disposed motor in the lower of said compartments, a belt drive connecting said motor to said gearing, said lower compartment being open on its bottom side whereby air may be supplied to said motor for cooling the same, and detachable fastening means carried by said base and located adjacent to the margin of the bottom opening of said gear case for permitting the removal of said motor by way of such opening.

4. An ironing machine comprising, a supporting base having an opening in its top face at a point adjacent to one end thereof, and ironing mechanism comprising a padded roll and a heated shoe carried by said supporting base, said mechanism including a hollow gear case having an upper compartment, gearing in said upper compartment operatively connected to said roll, said gear case having a second compartment located below said upper compartment with an open bottom registering with the opening in said supporting base, a horizontally disposed motor for driving said gearing carried in the lower compartment of said gear case and operably connected to said gearing, and means accessible by way of the opening of said base for detachably securing said motor to the top of the base in the second compartment of said gear case.

5. An ironing machine comprising, a supporting base having an opening in its top face at a point adjacent to one end thereof, and ironing mechanism comprising a padded roll and a heated shoe carried by said supporting base, said mechanism including a hollow gear case having an upper compartment operatively connected to said roll, said gear case also having a second compartment located below said upper compartment with an open bottom registering with the opening in said supporting base, a motor in the lower compartment of said gear case, a disconnectible driving connection between said motor and gearing and detachable motor mounting means on top of said base whereby the motor may be removed by way of the opening in said supporting base without disturbing the attachment of said gear case to said base.

6. In an ironing machine, ironing members comprising a padded rotatable roll and a heated shoe one of which is movable into and out of pressing engagement with the other, means for supporting said members, and power means for driving the roll and for shifting the movable ironing member, said shoe supporting means including a safety release having an operating lever extending above the shoe and pivoted for movement about an axis at right angles to the axis of said roll.

7. In an ironing machine, ironing members comprising a padded roll and a heated shoe, a supporting structure for said members, an upright cantilever spring secured at its lower end to said structure and carrying said shoe at its upper end solely from a point intermediate the ends of the shoe, means for bodily moving the roll towards and away from the shoe for effecting pressing engagement between said ironing members, means anchored to said supporting structure and engaging said spring for adjusting the tension exerted by said spring when said ironing members are in engagement with each

other, and manually operable means detachably engaging said last named means for disconnecting said spring from such adjusting means, said manually operable means including an operating handle movable bodily with said spring and shoe.

8. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, an arm having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said arm, and means including a part fixed to said supporting structure and an operating member carried by said arm for releasably locking the lower end of said arm against pivotal movement.

9. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, a cantilever spring having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said cantilever spring, and means including detachably interlocking parts carried by said spring and said supporting structure including an operating member carried by the spring for releasably locking the lower end against pivotal movement.

10. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, a cantilever spring having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said cantilever spring, and a pivoted lever movable bodily with said shoe and spring having a handle accessible from a point above and rearwardly of the roll and a part fixed to said supporting structure cooperating with said lever for releasably locking the lower end of said cantilever spring against pivotal movement.

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DISCLAIMER

2,067,719.—*John J. McCabe*, Cleveland, Ohio. IRONING MACHINE STRUCTURE. Patent dated January 12, 1937. Disclaimer filed March 28, 1938, by the assignee, *The Apex Electrical Manufacturing Company*.

Hereby disclaims claim 6 from the specification of said patent.

[*Official Gazette April 19, 1938.*]

other, and manually operable means detachably engaging said last named means for disconnecting said spring from such adjusting means, said manually operable means including an operating handle movable bodily with said spring and shoe.

8. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, an arm having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said arm, and means including a part fixed to said supporting structure and an operating member carried by said arm for releasably locking the lower end of said arm against pivotal movement.

9. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, a cantilever spring having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said cantilever spring, and means including detachably interlocking parts carried by said spring and said supporting structure including an operating member carried by the spring for releasably locking the lower end against pivotal movement.

10. An ironing machine comprising, a padded roll and a heated shoe, a supporting structure therefor, means for effecting relative movement between said roll and shoe whereby they may be brought into or out of pressing contact with each other, a cantilever spring having an upper end attached to said shoe in supporting relation, a pivotal mounting for the lower end of said cantilever spring, and a pivoted lever movable bodily with said shoe and spring having a handle accessible from a point above and rearwardly of the roll and a part fixed to said supporting structure cooperating with said lever for releasably locking the lower end of said cantilever spring against pivotal movement.

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