

Feb. 16, 1937.

J. W. RACKLYEFT

2,071,264

IRONING MACHINE

Filed July 9, 1932

7 Sheets-Sheet 1

FIG. 1.

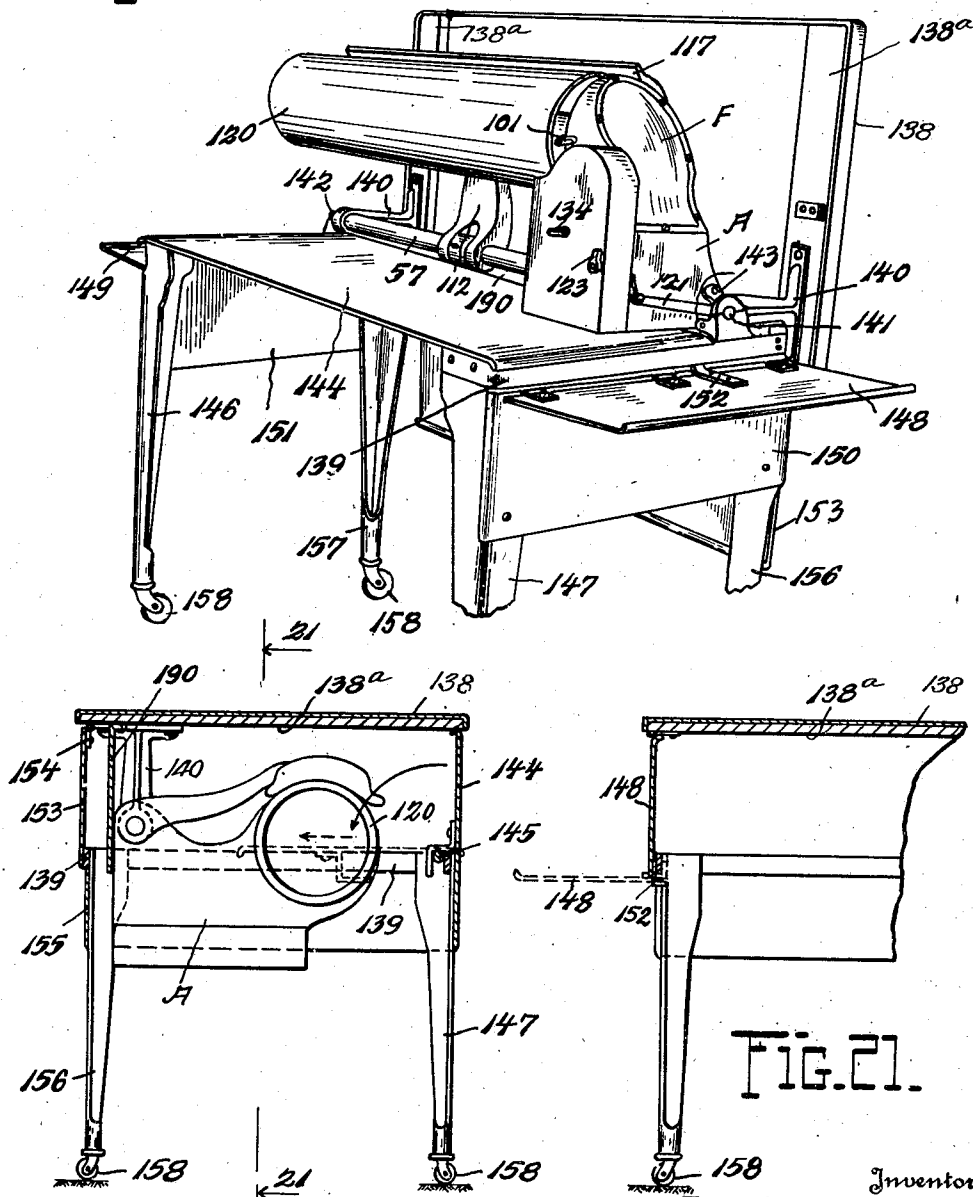


FIG. 20.

FIG. 21.

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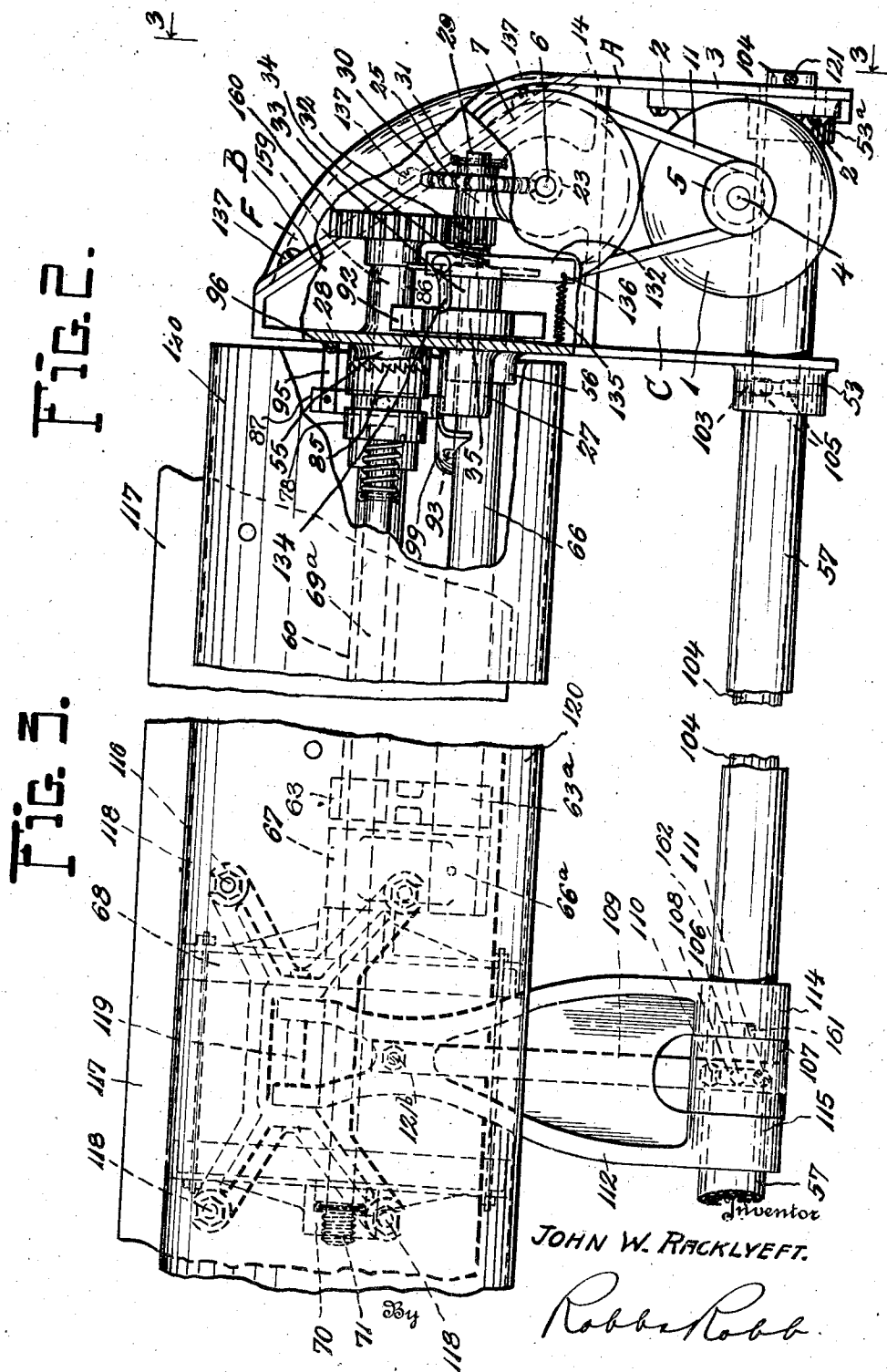
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FIG. 16.

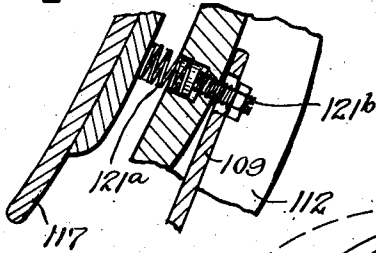


FIG. 17.

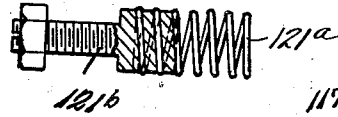
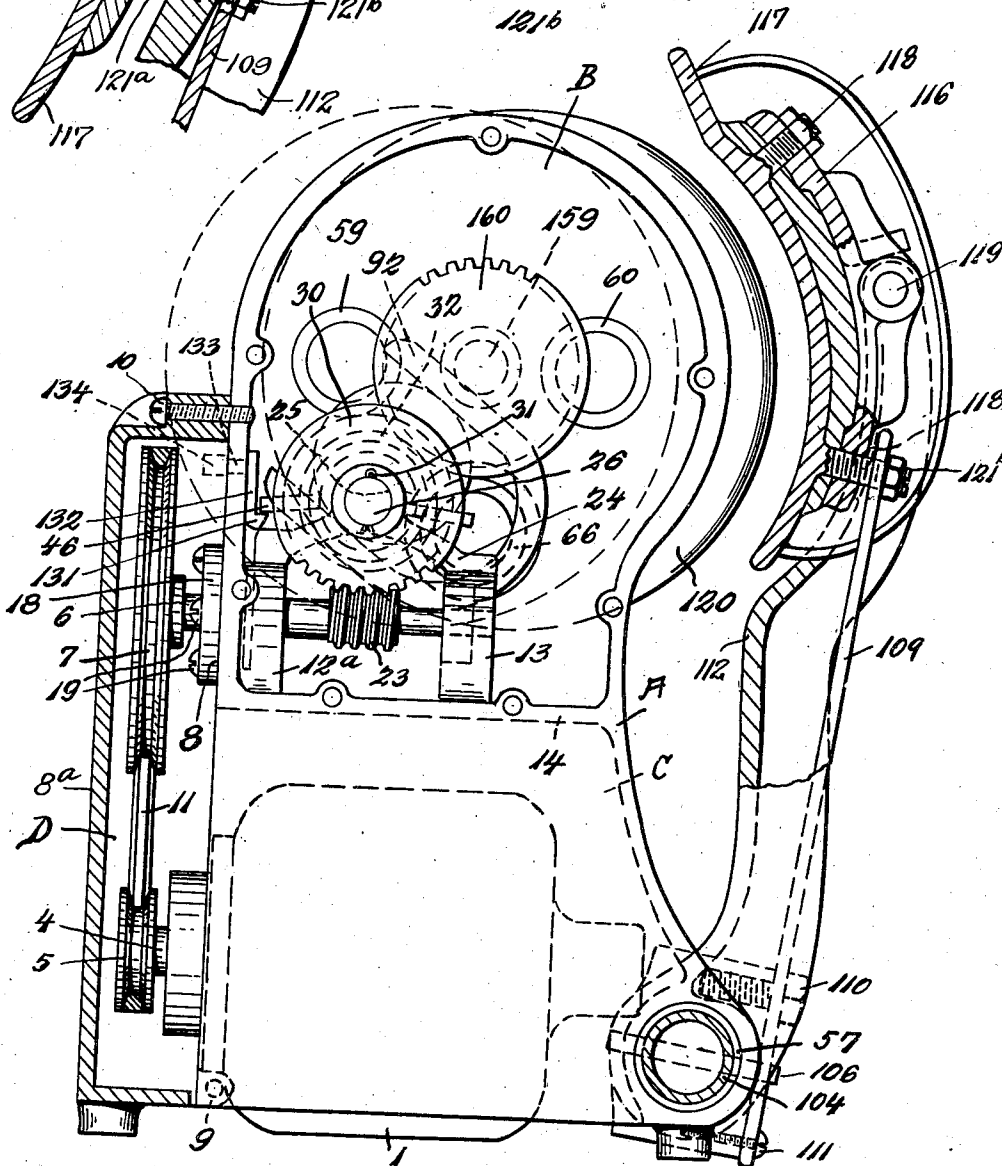


FIG. 4.

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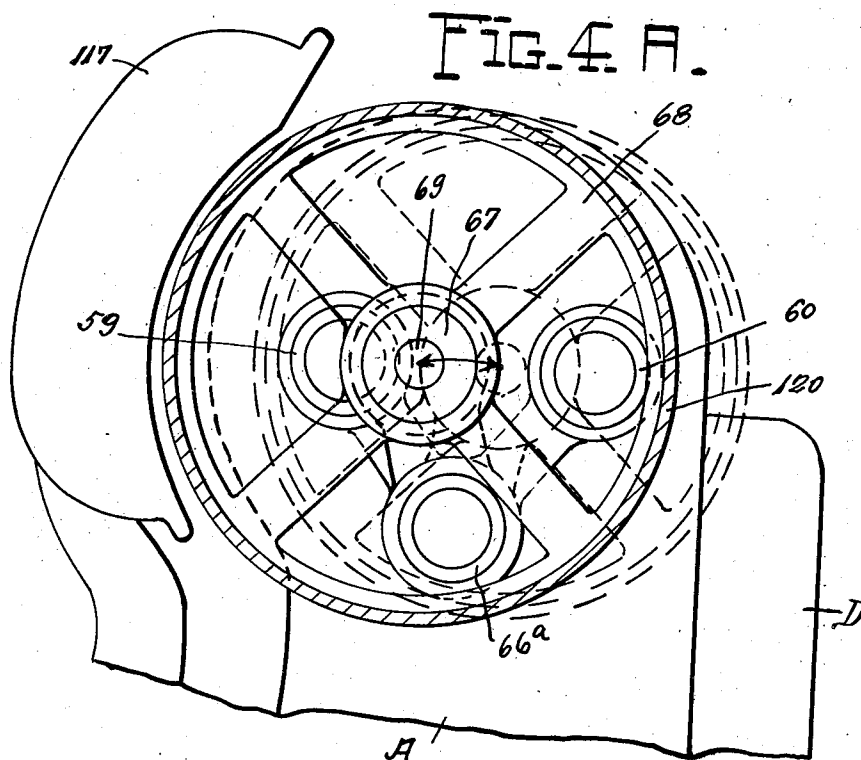
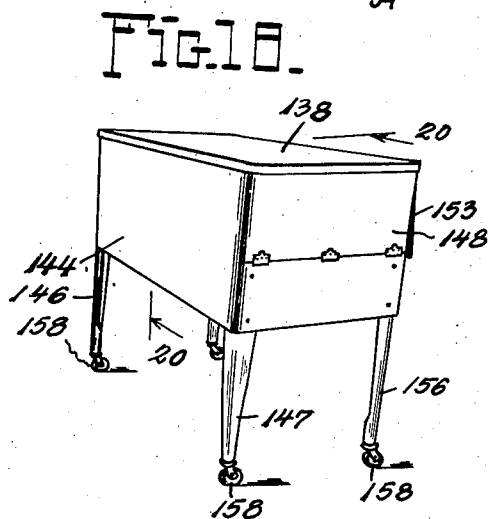
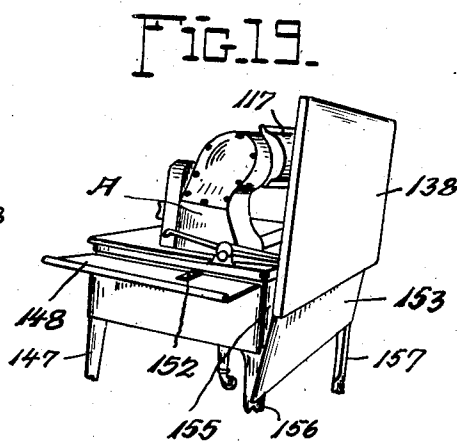
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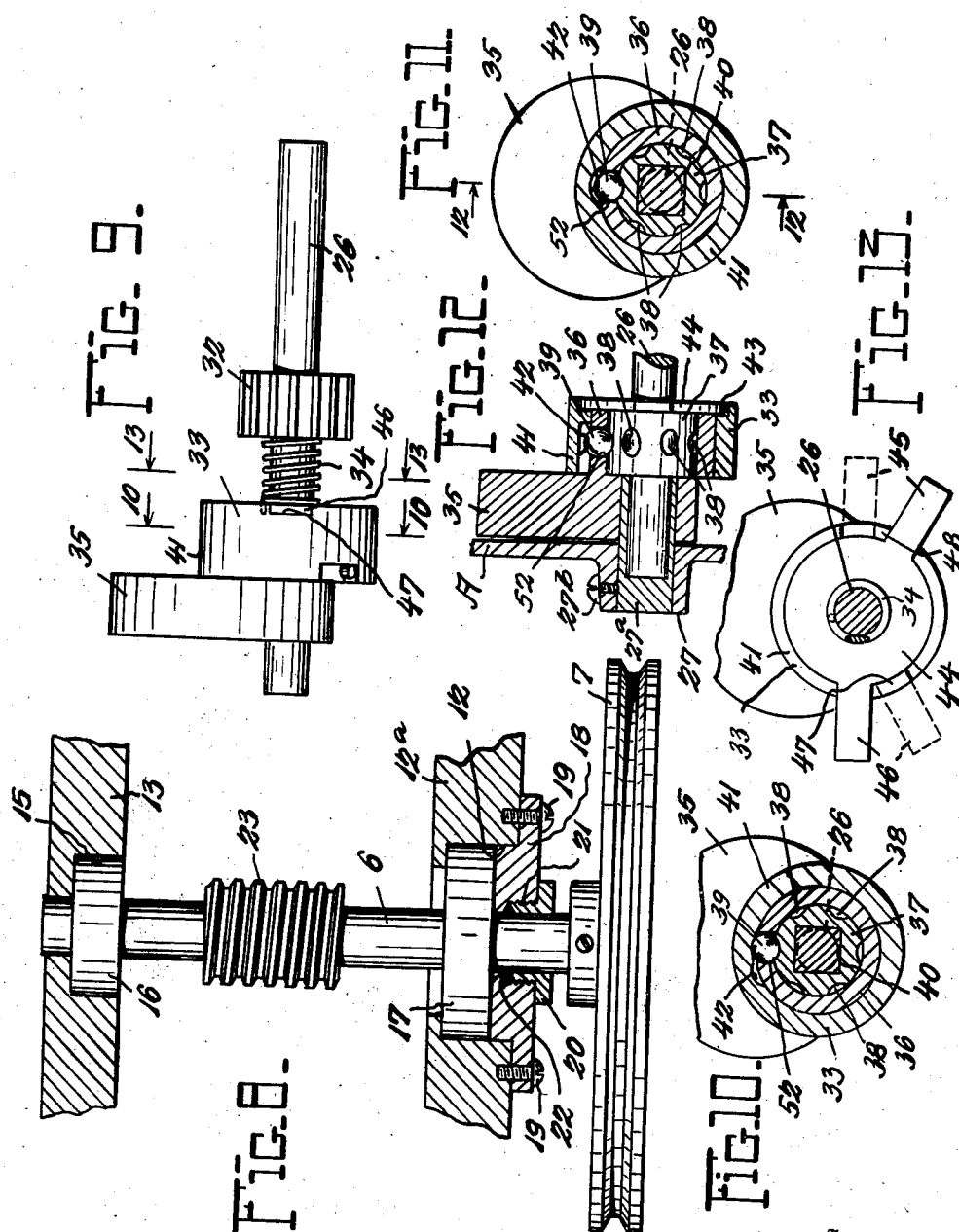
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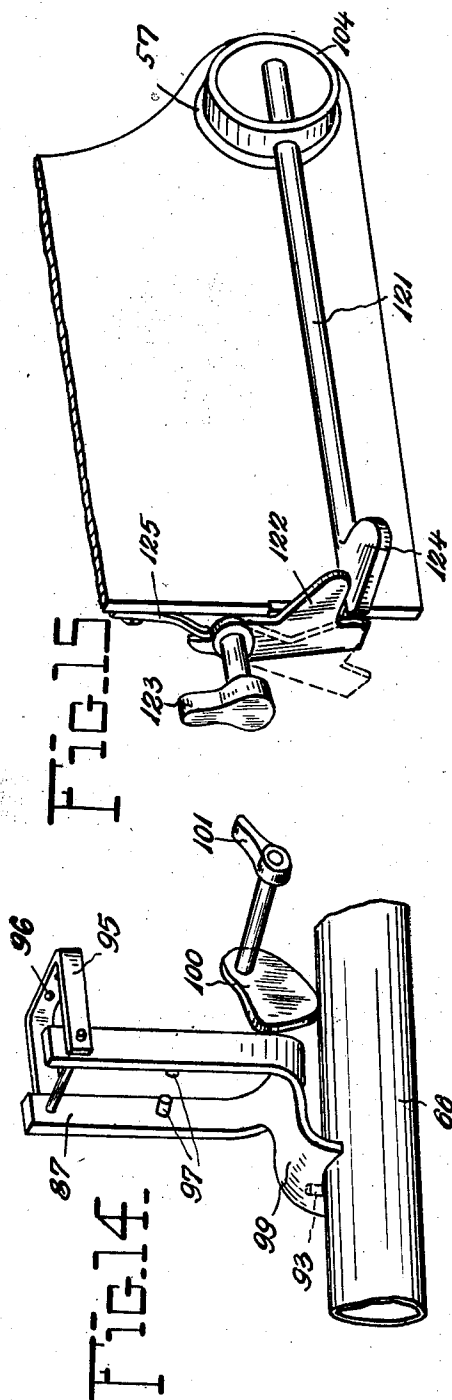
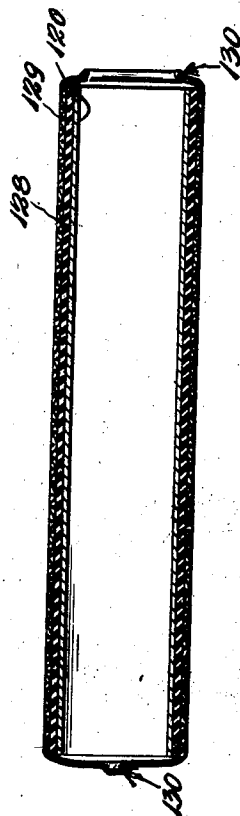
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IRONING MACHINE

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7 Sheets-Sheet 7



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UNITED STATES PATENT OFFICE

2,071,264

IRONING MACHINE

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Application July 9, 1932, Serial No. 621,658

39 Claims. (Cl. 38—59)

This invention relates to ironing machines and in particular electrically operated ironing machines for domestic use.

Power driven ironing machines are becoming widely used, but they are subject to various disadvantages, which are of material importance, especially in machines which are designed for domestic use, where a relatively low initial cost is required and where the cost of upkeep and maintenance must be low.

The present types of machines are often objectionable in that it is not possible to utilize advantageously the full length of the ironing roll and the adjusting means for the shoe is often very unsatisfactory. The operating means for the roller is ordinarily of complicated design and the clutch used in such machines is generally of a relatively expensive construction. This invention is primarily concerned with the overcoming of these and other disadvantages in the present types of machines, which handicap the operation of the same.

The present invention relates to a construction of an ironing machine for eliminating or at least minimizing the above disadvantages and having among its objects the production of a simple and inexpensive machine, both from the standpoint of initial cost and for maintenance.

The advantages of this invention are not solely for the benefit of the owner of such apparatus, but they are also very material to the manufacturer as the parts are designed and arranged so as to be very easy to assemble and to adjust. Especially the adjustment of the shoe is such that it may be properly done in a few seconds and, if necessary, it may be easily corrected by the owner if such adjustment becomes disturbed during shipment or use of the machine. As the means for adjusting the pressure between the roller and shoe is very accessible, this operation is quickly and easily accomplished.

The clutch and roll operating means are of simple and rugged construction thus assuring the satisfactory operation of the machine over extended periods of time.

The roll is mounted on the housing in such a way that both ends of the roll are free and open with respect to the shoe and roll supports and permit overhanging of the material on either end.

The roll supporting housing is designed in such a way as not to interfere with the working operations.

The cabinet is of attractive appearance, and is designed in such a way as to get the full use of the same during the operation and storing of the machine, by providing a table top when the machine is not in use and also providing in the use of the machine a carrying means for the ironed material without interfering in any way with

the manipulation of the machine itself or of the articles being ironed.

These and other more specific objects and advantages will become apparent from the following description and accompanying drawings, in which—

Figure 1 is a perspective view of my novel electric ironing machine shown in operative position.

Figure 2 is an enlarged front elevation of the driving end of the machine, certain parts being broken away for convenience of illustration.

Figure 3 is a detail side elevational view of the front intermediate portion of the ironer roll, showing the manner in which the roll and the shoe are supported.

Figure 4 is a side elevational view, partially in section of the machine, looking in the direction 3—3 of Figure 2. The cover of the gear casing is removed to show the operating parts therein.

Figure 4A is a side elevational view, partially in section, looking in the direction opposite to Figure 3, and illustrating the lateral motion of the ironing roller in a somewhat diagrammatical manner.

Figure 5 is a top plan view, partially in section of the machine as shown in Figure 2, wherein the shoe has been removed and certain parts are broken away for convenience of illustration.

Figure 6 is an axial sectional view of the ironing roll and the supporting means therefor, showing the details of said supporting means and the driving shaft coupling.

Figure 7 is a detail view of the other end of the driving shaft, as shown in Figure 6, and its mounting within the jaw clutch.

Figure 8 is an enlarged sectional view of the worm drive shaft and its mounting within the housing of the machine.

Figure 9 is an elevational view of the ball clutch employed in this machine.

Figure 10 is a sectional view taken on the line 10—10 of Figure 9, showing the clutch parts in engaged position.

Figure 11 is a sectional view taken on the line 10—10 of Figure 9, showing the clutch parts in dis-engagement.

Figure 12 is a sectional view of the ball clutch, taken on the line 12—12 of Figure 11.

Figure 13 is a sectional view taken on the line 13—13 of Figure 9, illustrating the different positions of the clutch actuating arm.

Figure 14 is a perspective view of the yoke employed for the operation of the jaw clutch.

Figure 15 is a perspective view of the locking instrumentalities of the shoe.

Figure 16 is an enlarged detail sectional view of the vertical shoe tensioning means.

Figure 17 is a detail view showing the mounting of the tension spring shown in Figure 16.

Figure 18 is a perspective view of the cabinet of the ironing machine in a closed position.

Figure 19 is a perspective view showing the cabinet open and the machine ready for use.

Figure 20 is a sectional view of the cabinet shown in Figure 18, on the line 20—20 of Figure 18.

Figure 21 is a sectional view of the cabinet taken on the line 21—21 of Figure 20, the ironing mechanism having been omitted.

Figure 22 is a sectional view of the ironing roll.

Referring now to Figure 2, A indicates the housing of the driving instrumentalities comprising an upper compartment B and a lower compartment C. Mounted within the lower compartment C is an electric motor 1 receiving current from a source of electric energy. Said motor is mounted within the said housing in a convenient manner as by means of screws 2, received in suitably threaded holes formed in the outer wall 3 of the casing A. Mounted on the shaft 4 of the motor 1 is a pulley 5.

A shaft 6 is positioned in the upper compartment B and carries a pulley 7 on one end. The shaft 6 extends through the front wall 8 of the housing A and leads into another compartment D in front of the housing A. Said compartment D is formed in part by a cover plate 8a which is hinged to the housing B as shown at 9, and is firmly held in closed position by means of a screw 10 fastening the same to the housing A. Removal of the screw 10 will allow opening of the compartment D to give easy access to the instrumentalities mounted therein. A belt 11 connects pulley 5 and pulley 7 for power transmission.

As stated before, the shaft 6 is mounted within the upper compartment B. This is clearly illustrated in Figures 4 and 8. The outer wall 8 of the casing A comprises a reinforced portion 12a having a flanged bore 12. An upwardly extending portion 13 is carried by the wall portion 14, which separates compartments B and C, and it has a bore 15 for the reception of a ball bearing 16 mounted on one end of the shaft 6. A ball bearing 17 is mounted on the other end of the shaft 16 and is arranged to fit properly in the bore 12. A retaining member 18 is employed to hold the bearing member 17 properly in place and to prevent motion of the shaft 6 in a longitudinal direction. Said retaining member 18 is secured to the reinforced portion 12a of the wall 8 by means of screws 19.

A stuffing nut 20 screws into a threaded portion 21 of the retaining member 18, holding a compressible gasket 22 in proper pressure against the shaft 6 to prevent any oil leakage about the shaft 6 toward pulley 7, which would cause slipping of the belt 11, resulting in improper transmission of power from the motor 1. Intermediate the ball bearings 16 and 17 is a worm 23 mounted on shaft 6 in any suitable manner.

The reinforced portion 12a of the casing A is connected with the upwardly extending portion 13 by means of a bridge 24 having a bearing portion as shown at 25 in Figure 4. A shaft 26 is mounted within said bearing 25 and extends into a bearing 27a mounted in the centrally bored boss of the housing A and secured thereto by means of a set screw 27b.

The free end 29 of the shaft 26 extends outwardly from the bearing 25 and carries a worm gear 30 keyed thereto and held properly in place by means of a locking member 31. Said worm gear 30 is in suitable engagement with the worm

23 to transmit rotation from the worm to the shaft 26. A gear 32 and a ball clutch 33 are mounted between the bearings 25 and 27a and a coil spring 34 is placed therebetween for purposes to be hereinafter set forth. The ball clutch 33, details of which are shown in Figures 9, 10, 11, 12, and 13, comprises an eccentric cam 35 having rigidly connected therewith a ring like intermediate clutch portion 36 provided with a bore 52 for the reception of a clutch ball. An inner clutch member 37 of sleeve-like formation, having cavities 38 for the reception of a clutch ball 39, is mounted within the member 36 and is secured to the square portion 40 of the shaft 26, as clearly shown in Figure 10. An outer clutch member 41 of ring-like configuration, having a longitudinal groove 42, is adapted to cause in different positions of the ring 41 with respect to the member 36 engagement or dis-engagement of the clutch.

An annular shoulder 43 is provided on the member 41 for the reception of a circular plate 44 having arms 45 and 46 extending through slots 47 and 48 formed in the shouldered end of the outer clutch member 41. The helical spring 34 is mounted on the shaft 26 between the spur gear 32 and clutch 33. Said spring grips the shaft under slight tension so that rotation of the shaft will tend to cause a corresponding rotation of the spring. One end of the spring is free and its other end secured to the plate 44 by insertion of the same into a hole in said plate 44. The frictional engagement between the shaft 26 and the spring 34 will tend to urge the plate 44 and outer clutch member 41 to the dotted line position of Figure 13 and the position shown in Figure 10, thus causing the engagement of the clutch members for transmission of rotation from the shafts 6 and 26 to the intermediate clutch member 36 and cam 35. If the ball clutch 33 is in the disengaged position shown in Figure 11 and the full line position of Figure 13, the clutch ball will oscillate in a radial direction as there is nothing to restrain its motion, but if the clutch is engaged, as shown in Figure 10, the ball will not be permitted to move out of its respective cavity 38 as the surface of the ring 41 bearing against said ball will not permit such oscillatory movement of the same. The clutch actuating arms 45 and 46 and the spring 34 are for the purpose of controlling engagement and disengagement of the clutch and the operation of the same will be later described.

The housing A is provided with several sockets or bearings 53, 53a, 54, 55, and 56. A standard or tubular member 57 tightly fits within the sockets 53 and 53a. Another tubular member 104 is rotatably mounted within the standard 57 for purposes which will hereinafter become apparent. Two standards 59 and 60 are mounted within the sockets 54 and 55 and are secured therein against rotation by means of pins 61 and 62. The free ends of the standards 59 and 60 opposite their sockets 54 and 55 carry a supporting member 63 and are secured thereto by means of pins 64 and 65. A tubular shaft 66 is journaled within the socket 56 and extends through the lower portion 63a of the supporting member 63. The free end of said shaft 66, designated at 66a, carries a supporting member or crank arm 67.

A roll supporting cage 68 is mounted on a shaft 69 by means of a threaded portion 70 screwed on the threaded end 71 of the shaft 69. The shaft 69 and a shaft 69a rotate in a bushing 73 received within the upper portion of the supporting mem-

ber or crank arm 67. At the point where the shaft 69 enters the bushing 73, there is a flexible joint connection between the shafts 69 and 69a. This flexible joint connection is illustrated in Figure 6 and consists of a pin 74 mounted on the end of the shaft 69a and a sleeve 75 secured by means of a pin 76 to the shaft portion 69. Said sleeve has a slot 77 for the reception of the pin 74 so that when said pin is inserted in the slot of the sleeve member, a flexible driving connection will be obtained.

The other end of the shaft portion 69a is connected in a similar manner to a jaw clutch member 78 by a pin 79 which is rather loosely received in the slot 80 in said clutch member 78. A compression coil spring 81 of substantially the same diameter of shaft 69a is slid upon this end of said shaft with the end of the spring remote from the clutch in tight engagement with the shaft. A cotter pin 82 is inserted through a hole in shaft 69a to hold said spring in the desired engagement with the clutch member 78. One end 83 of said spring is mounted within a hole 84 in said jaw member 78.

The result accomplished by this peculiar connection may be briefly described as follows:—

If the jaw clutch formed by the clutch members 78 and 85, is disengaged and the yoke 87 is released so as to permit engagement of the clutch members, it will be obvious that at the same time if the jaw teeth 88 and 89 engage, there will be a large amount of friction between them at the surfaces of their teeth indicated by numeral 90, thus preventing proper engagement of the same and causing unnecessary wear on such surfaces. Therefore, this novel construction permits the clutch member 78 to be rotated against the slight tension of the spring 81 until the pin 79 engages the side surface 91 of the slot 80. The small amount of play provided by the slot 80 and controlled by the slight tension of the said spring will give both the jaw clutch members 78 and 85 sufficient time to engage properly before application of the load and any destructive friction on the driving surfaces of the teeth of said jaw clutch members will be substantially eliminated.

As previously described, the tubular member 66 is mounted for rotation in the socket 56, and extends through the same into the compartment B and carries a yoke 92. The other end of said tube 66 is guided through the bearing portion 63a and rigidly carries on its free end, as previously described, the member 67. A pin 93 is mounted on said tube to contact with a cam shaped lip 99 formed on the yoke member 87 and it is adapted to control the engagement and disengagement of the jaw clutch member 78. A detail of this yoke is shown in Figure 14. Said yoke is mounted by means of a bracket 95 to the housing A as shown at 96 in Figure 2. Said bracket 95 carries the yoke member 87 to which are secured two pins 97 adapted for the purpose of engaging with an annular slot 98 in the jaw clutch member 78. The downwardly extending cam portion 99 of the yoke 87 contacts with the tube 66 and pin 93 of said tube is for the purpose of engaging member 99 to shift the yoke and the member 78 in one direction, causing disengagement of the clutch. Coil spring 81, which was mentioned before in connection with the mounting of the shaft 69, serves also for the purpose of shifting the clutch member 78 to effect the engagement of the clutch when the pin 93 is

not in contact with the yoke cam portion 99. The effect of this operation will be later set forth.

A cam 100 is mounted in close proximity to yoke member 87 as shown in Figure 14 and said cam may be operated by a lever 101 to hold the yoke 87 in such a position as to perform a disengagement of the jaw clutch. This manual control for said clutch is desirable when the operator wants to stop the motion of the ironing roller while the same is pressed against the shoe for pressing operations, and the very desirable feature of this arrangement will be brought out later in this description. The tubular standard 57 is mounted, as previously mentioned, within the sockets 53 and 53a and a pin 103 passing through the socket 53 and tube 57 holds the tube stationary against rotation. Another tube 104 is rotatably mounted within said tube 57 and two slots in the tube 104, which are indicated at 105, allow a certain motion of said inner tube without interference by the pin 103. A pin 106 is secured to the inner tube 104, holding a sleeve 107 in proper fixed relation with said inner tube. A slot 108 is provided in the outer tube member 57 to allow a certain amount of angular motion of pin 106 and sleeve 107. Said sleeve member 107 carries a cantilever tension spring 109 secured thereto by means of screws 110 and 111. The other end of said tension spring bears against the upper portion of the shoe arm 112. Said shoe arm 112 comprises two bearing members 114 and 115 surrounding tube 57 and being rotatable thereon. A spider 116 carrying the shoe 117 and secured thereto by means of screws 118, is hinged to said arm by a pin 119.

It will be obvious that if the inner tube 104 is locked in a certain position, a pressure will be created in the spring 109, tending to force the arm 112 and shoe 117 against the padded ironing roll 120, said ironing roll 120 being carried by the supporting member 68, as previously mentioned herein. The member 67 and the roll 120 may be swung toward or away from the shoe, as illustrated in full and dotted lines in Figure 4A, and such motion is caused by the movement of the shaft 66 and its associated yoke 92.

The shoe 117 may be easily detached from its supporting arm by removing bolt 119 and it can be very easily cleaned by releasing the lever 121 whereupon the shoe can be moved away from the roll to permit it to be swung about the bolt 119 to present its ironing surface in accessible position.

The sleeve 107 has an extension 161 adapted to move within a slot 162 on the bearing member 115 of the shoe supporting arm. This will limit the motion of the arm 112 so that when the roll is moved away from the shoe as shown in dotted lines in Figure 4A the spring 109 does not cause the shoe to follow the roll as would occur if such means were not provided and when the lever 121 is released the shoe can be tilted back only a limited distance.

The jaw clutch member 85 is mounted on a shaft 159, journaled in a boss 86 which extends into the compartment B of the housing A. A spur gear 160, in mesh with a spur gear 32 on the shaft 26 is secured to the free end of shaft 159 within the compartment B and serves for the purpose of transmitting power from the gear 32 to the clutch members 85 and 78 and thence to the shaft 69.

The ironing roll 120 is held in such a position with respect to the housing A that the end of the ironing roll toward said housing may be used for

ironing purposes in the same manner as the opposite open or free end of said ironing roll. Sharp edges on said housing are eliminated. The outer configuration of the same is such as not to interfere with the ironing operation of the machine and the portion of the housing below the roll has its rearmost wall located forwardly of a vertical plane through the lowermost line of contact between the ironer roll and shoe whereby ample space is provided for the passage of goods being ironed at the end of the roll adjacent to such housing.

It should be noted that the tensioning means for regulating the pressure between the shoe and the ironing roll is mounted on the supporting arm of said shoe and no tensioning means within the roller is necessary, thus simplifying very much the construction of the supporting means for the roll.

As previously stated, the tubular member 66 carries a yoke 92; the said yoke 92 contacts with the outer circumference of cam member 35 on the clutch 33 so that if the clutch is engaged, the cam member 35 normally will rotate one hundred and eighty degrees, causing a certain motion of the yoke 92 which is transferred to the tubular member 66 and pin 93 actuating the jaw clutch, and rotating member 67 a slight amount as previously mentioned.

An emergency shoe release lever 121, is secured to the inner tube 104 and held by a locking means 122 in position so as to allow the contacting of the shoe with the ironing roll. The lock member 122 is provided with a trip lever 123 so that the locking means 122 may be swung out of the way of the free end of arm 121 as indicated at 124, to the dotted line position shown in Figure 15. This releases the shoe 117 from the roll for cleaning and safety purposes. To lock the shoe 117 again in its original position, it is only necessary to press the free end 124 of arm 121 downwardly until the locking member 122 which is under the influence of spring 125 engages said portion 124. The ironing roll 120 is formed with an inwardly projecting longitudinal rib 126 adapted to engage with the slot 127 of the cage 68 to hold said roll against rotation on this supporting member and to allow transmission of power from the same to the roll. A tubular pad 128 made preferably from sponge rubber, see Figure 22, is mounted upon the roll 120 and is enclosed by a cover 129 overlapping the end of the roll where it is drawn together by a string 130.

The ball clutch actuating arms 45 and 46 which control the engagement of the ball clutch, abut against the extension 131 of an arm 132 mounted upon a shaft 133 having a trip lever 134 to cause disengagement of the clutch 33. Actuation of the trip lever 134 will swing the extension 131 on the arm 132 out of the path of the clutch actuating arms 45 and 46 and spring 34 will cause engagement of the said clutch. The arm 132 upon release of the lever 134 will then be returned to its normal position by the power of a coil spring 135 mounted with one end secured to the housing A while the other end is secured to the arm 132 as at 136. A removable cover F is provided, permitting easy access to the compartment B and is secured thereto by means of screws 137.

The machine is mounted within the cabinet as shown in Figures 1, 18, 19, 20, and 21. Said cabinet includes a table-top portion 138. The table-top is connected with a frame 139 of the cabinet by means of brackets 140 secured to

the top supporting members 138a. Said brackets are rotatably secured by means of stud shafts 141 and 142 to the frame 139, said stud shafts being a part of brackets 140 and having their axes coinciding with the axis of the tube 57. One of the brackets 140 is fixed to the outer tubular member 57 while the other bracket 140 is secured to the housing A of the machine by means of extensions 143 of said bracket.

From the foregoing it will be obvious that the table-top 138 and the ironing machine may be rotated around the stud shafts 141 and 142, thus permitting the machine and top portion 138 of the cabinet to be swung from the position shown in Figure 1 to the position shown in Figure 20.

A front plate 144 is hinged to a cross bar 145 mounted between the front legs 146 and 147. The front plate 144 may be swung in the direction shown by an arrow in Figure 20 until the lower surface of the same contacts with the frame 139 of the cabinet and it may then be shifted inwardly and underneath the housing A of the ironing machine as shown in Figure 1. The frame 139 and the casing A will hold said front plate 144 in place, preventing the tilting action of the same.

Two side plates 148 and 149 are hinged to plates 150 and 151 and may be swung outwardly as shown in Figure 1 and Figure 19 to provide sufficient supporting surface for the ironed material. Stop members 152 are secured to said side plates to abut against the frame 139 and to hold said side plates 148 and 149 in a horizontal position. A rear member 153 is hinged as shown at 154 to the top supporting member 138a and will slide downwardly from the position shown in Figure 20 to the position indicated in Figure 19 when the cabinet is open. Another rear plate 155 is provided to close the lower portion of the cabinet at the rear. The cabinet is supported by legs 146, 147, 156, and 157, having rollers 158 for easy movement. The height of the cabinet is the same as that of a regular table so that it may be utilized for such purpose when not in use as an ironer.

A plate 190 is connected to the top plate support 138a to form a table-like surface in co-operation with the front plate 144 when the cabinet is opened.

A tension spring 121a carried by the adjustable screw 121b, as shown in Figures 16 and 17, is secured between the shoe supporting arm 112 and the shoe to adjustably and flexibly control the vertical alignment between the shoe and the roll.

It has to be noted that the shoe and roll are supported at their respective centers by means of their respective supporting devices. This will permit a certain amount of yielding of both the shoe and roll in a horizontal plane to compensate for different thickness of the material to be ironed. The centrally located roll bearing also prevents binding of the roll bearings due to bending of roll supports as would occur if the roll bearings were in the ends of the roll and carried on a tube supported at one end only by the housing A.

The operation of the machine is as follows:

The cabinet is opened, electric current is supplied to the motor 1, and the same is started. Rotation of said motor is transmitted from pulley 5 to pulley 7 by means of the belt 11, causing rotation of shaft 6, worm 23, worm gear 30, spur gears 32 and 160, and clutch member 65. The clutch actuating arm 46 is in the posi-

tion shown in Figure 4, abutting against the extension 131 of the arm 132, and the clutch 33 is now in a disengaged position, so that the shaft 26 will be permitted to freely rotate. The yoke 92 contacting with the cam 35 of the ball clutch is in such a position as to cause disengagement of the jaw clutch 78 by means of pin 93 and yoke 87. The shoe 117 is provided with an electric heater (not shown) and this heater is connected by any suitable means with a source of electric current and has to become sufficiently hot before ironing operations can be started. The emergency shoe released lever 121 is in a position as shown in Figure 15, holding the shoe in proper relation to the ironing roll. The material to be ironed is now placed upon the ironing roll 120 and the trip lever 134 is operated. This will cause release of the clutch actuating arm 46 and the coil spring 34 of the ball clutch 33 will rotate the member 41 from the position shown in Figure 11 to the position shown in Figure 10 to cause engagement of said clutch, and rotational motion will now be transmitted from the clutch shaft 26 to the cam 35, shifting the yoke 92 which will cause such rotation of the tube 66 as will disengage pin 93 from the cam portion 99 of the yoke 87. The coil spring 81 will now force the clutch member 78 to the right to engage with the other clutch member 85, and the shafts 69 and 69a start to rotate, turning with them the roll supporting member 68 and the ironing roll 120. At the same time, the rotation of the tubular member 66 will also cause a motion of the member 67 from the dotted line to the full line position of Figure 4A, moving the roll 120 toward the ironing shoe 117 so that the material which has been placed upon said roll will be forced between the roll and the shoe, the latter pressing against the roll under a certain tension created by the spring 109 and the ironing operation may then be performed, as the material is fed through the machine. If the operator should, by accident, place his hand between the shoe and roller, the shoe may be immediately released by tripping the lever 123.

As previously mentioned, the clutch actuating arm 46 has been released and the clutch engaged by means of the spring 34. The releasing arm 132 moves back to its original position by means of the coil spring 135 and thereafter the clutch actuating arm 45 moves into position where it will abut against the extension 131, and the ball clutch will disengage automatically after one half of a revolution. During this time of engagement and disengagement of the clutch, the yoke 92 has been shifted sufficiently to cause the required rotation of member 67 necessary for moving the roll against the shoe and upon disengagement of the clutch the ironing roll will be held in this position until the trip lever 134 is actuated again, causing clutch actuating arm 45 to be free to cause engagement of the clutch and to return the ironing roll to its original position away from the shoe. After this action takes place the clutch is again disengaged by the arm 46 engaging the lever 134. At the same time the pin 93 on the tube 66 will engage the portion 99 of the jaw clutch yoke 87 moving said yoke to the left, causing disengagement between the clutch members 85 and 78. This will stop the rotation of the roll 120 and another piece of material to be ironed may be now placed upon said roll, or the operation of such ironing machine may be continued without releasing the roll from the shoe. If it is desired to stop the rotation of the

ironing roll while the same is in engagement with the shoe 117, it is only necessary to trip the lever 101. This will cause immediate disengagement of the jaw clutch member 78 so that the operator is in a position to apply more heat to a certain portion of the material to be ironed than the regular operation of the machine will allow and the now non-rotatable roll can be shifted toward and from the shoe for pressing operation. It is of course understood that the roll is free to be turned by hand during the pressing operations at such times as when it is not in engagement with the shoe. If the tension between the shoe and the ironing roll needs readjustment, this can be accomplished by turning the screws 110 and 111. The screw 121b in cooperation with the tension spring connected thereto controls the vertical alignment of the shoe.

When the machine is out of operation, the electric current to the motor 1 and the current supply of the shoe 117 should be turned off and the cabinet may be closed.

The present application discloses a novel form of ironer mechanism or gearing including a disconnectible driving connection inside the roll and a second disconnectible driving connection inside the gear case. These connections are illustrated herein as a pair of clutches, one of which controls the operation of the other. The aforesaid mechanism of gearing constitutes a part of my application Serial No. 120,959, filed January 16, 1937 for Ironing machine and is not being specifically claimed herein.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is—

1. A power driven ironing machine comprising the combination with a supporting structure, of an ironer shoe and a power actuated ironing roll mounted upon said structure, said roll being adapted to move toward and away from the said shoe, the shoe being provided with tensioning means from producing yielding pressure when said shoe and roll are in engagement with each other, and means for moving said shoe away from said roll.

2. A power driven ironing machine comprising, in combination, a power actuated ironing roll, a shoe mounted adjacent the roll, and a combined cabinet and supporting structure for the roll and shoe comprising relatively movable cooperating members one of which is movable about a horizontal axis located a substantial distance below the top of the machine when in its inoperative position whereby it is adapted to assume horizontal and vertical positions in adjusting the machine to its respective inoperative and operative positions, the roll and shoe being carried by the vertically assuming member, the said last named member being adapted to form a horizontal table top for the cabinet of the machine when the machine is moved to inoperative position.

3. A power driven ironing machine comprising the combination with a supporting structure, of an ironing roll and driving means therefor carried by the supporting structure, a shoe mounted adjacent to the roll, a supporting arm carrying the shoe, and means permitting yielding movement of the shoe toward and away from the roll, the said means comprising an outer tube carrying the supporting arm, an inner tube within the outer tube, a spring interconnected with the inner tube and normally holding the supporting arm and shoe in position closely adjacent the roll, and releasable locking instrumentalities in-

terconnected with the inner tube to permit turning of the said inner tube upon release of the locking instrumentalities to adapt the shoe for movement away from the roll when desired.

4. An ironing machine comprising, in combination, ironing instrumentalities, and a supporting structure comprising a cabinet having a horizontal top plate rigidly connected with the ironing instrumentalities, and adapted to assume a vertical position, a frame carrying said top plate, a bar within said frame, a front plate adapted to assume vertical and horizontal positions and carried by said bar and frame respectively in the respective positions of the said front plate, side plates hinged on the frame and adapted to swing from a vertical into a horizontal position, stop members to hold the side plates in a horizontal position, locking means between the top plate and the side plates, and a rear plate movably connected with the top plate, the rear plate being adapted to remain in a vertical position when the top plate is in its vertical or horizontal position.

5. An ironing machine comprising, in combination, ironing instrumentalities and a supporting structure to which the ironing instrumentalities are connected and comprising a plurality of cooperating members adapted to permit swinging movement of the ironing instrumentalities about a horizontal axis through an arc of substantially ninety degrees from a housed inoperative position to an exposed operative position, and contrarily, the said members forming a flat-topped housing of table height when the ironing instrumentalities are dropped to inoperative position, and forming a work supporting surface and a guard for the ironing instrumentalities, respectively, when the said instrumentalities are swung into operative position, the axis of such swinging movement being located a substantial distance below the housing top when in its closed position.

6. In an apparatus of the class described, a structure adapted to carry a machine element and comprising means for moving the machine element from an inoperative to an operative position, and contrarily, the said means being formed of a flat surfaced member to which the said machine element is connected, the structure also comprising a frame carrying the said flat surfaced member, end members connecting said machine element to said flat surfaced member and hinged to the frame, and a member carried by the frame adapted to serve as a work supporting member when the said machine element is in operative position and being vertically disposable on the frame when the machine element assumes its inoperative position, the members of said structure cooperating to form a cabinet-like housing covering and concealing the said machine element when the element is in its inoperative position.

7. In an apparatus of the character described, a frame, a flat surfaced member hingedly connected to the frame and adapted to have a machine element secured thereto for movement from an inoperative to an operative position and contrarily as the flat surfaced member is moved upon its hinged connections, and a second member movably carried by the frame, the said second member being adapted to be carried by the frame in a horizontal plane to provide a work table when the said machine element is in its operative position, the said second member being adapted to be carried by the frame in a vertical position at the front of said apparatus when the

said machine element is moved to its inoperative position, thereby cooperating with the said flat-surfaced member to form therewith a cabinet-like housing for the said machine element.

8. A power driven ironing machine comprising a supporting structure, an ironing roll, a shoe, a supporting arm connected to the shoe, a tubular member carrying the supporting arm, a second member within the tubular member, a sleeve operatively connected with the second member and movable therewith, a spring engaging said arm adjustably mounted upon said sleeve whereby the ironing pressure between the roll and the shoe may be adjusted, and means for moving said second member to force the said shoe against said roll.

9. An ironing machine comprising the combination with a supporting structure, an ironing roll supported from a point intermediate its ends upon said structure, a shoe supporting arm carried by the supporting structure, a shoe secured to said arm at a point intermediate the ends of the shoe, tensioning means between said shoe and roll, the shoe and roll being adapted to yield in a horizontal plane to compensate for different thicknesses of material placed between said shoe and roll.

10. An ironing machine comprising, a supporting structure, cooperating ironing elements comprising a roll and a shoe mounted thereon, means for effecting relative movement between said elements so as to bring them into engagement and disengagement with each other, means for resiliently supporting said shoe from a point intermediate its ends, and means for supporting said roll solely from one end thereof comprising a mechanism housing carried by said structure and having an upper end coinciding substantially to the peripheral outline of the upper half of said roll and shaped so as to smoothly blend into the end of the roll, the portion of said housing below said roll having its rearmost wall positioned forwardly of the vertical plane including the line of contact between lowermost part of said shoe and said roll whereby ample space is provided for goods ironed at the end of the roll adjacent to the housing.

11. An ironing machine comprising, a supporting structure, cooperating ironing elements mounted thereon, means for effecting relative movement between said elements so as to bring them into engagement and disengagement with each other, means for supporting one of said elements solely from one end thereof comprising a mechanism housing carried by said structure and having an upper end shaped so as to smoothly blend into the end of such element, and means carried by said structure for supporting the other ironing element from a point intermediate its ends, the portion of said housing below said end-supported ironing element having its rear-most wall positioned forwardly of the vertical plane including the lowermost line of contact between said ironing elements whereby ample space is provided for the goods ironed at the mechanism housing end of the machine.

12. An ironing machine comprising, a supporting structure, a cooperating roll and shoe mounted thereon, means for effecting relative movement between said roll and shoe so as to bring them into engagement and disengagement with each other, means for supporting said roll solely from one end thereof comprising a mechanism housing carried by said structure and having an upper end shaped so as to smoothly blend

into the end of said roll, and means carried by said structure for supporting said shoe from a point intermediate its ends, the portion of said housing below said end-supported ironing element having its rearmost wall positioned forwardly of the vertical plane including the lowermost line of contact between said ironing elements whereby ample space is provided for the goods ironed at the mechanism housing end of the machine.

13. An ironing machine comprising, a supporting structure, cooperating ironing elements mounted thereon, means for effecting relative movement between said elements so as to bring them into engagement and disengagement with each other, and means carried by said structure for supporting said elements solely from points intermediate their ends.

14. An ironing machine comprising, a supporting structure, cooperating ironing elements mounted thereon, means for effecting relative movement between said elements so as to bring them into engagement and disengagement with each other, and means carried by said structure for supporting said elements solely from points which are intermediate their ends and opposite to each other.

15. An ironing machine comprising, in combination, ironing instrumentalities, and a supporting structure comprising a cabinet having a horizontal top plate rigidly connected with the ironing instrumentalities, and adapted to assume a vertical position, a frame carrying said top plate, a bar within said frame, a front plate adapted to assume vertical and horizontal positions and carried by said bar and frame respectively in the respective positions of the said front plate, and a rear plate movably connected with the top plate, the rear plate being adapted to remain in a vertical position when the top plate is in its vertical or horizontal position.

16. An ironing machine comprising, in combination, ironing instrumentalities, and a supporting structure comprising a cabinet having a horizontal top plate rigidly connected with the ironing instrumentalities and adapted to assume a vertical position, a frame carrying said top plate, a bar within said frame, and a front plate adapted to assume vertical and horizontal positions and carried in such position by said bar and frame respectively.

17. An ironing machine comprising, in combination, ironing instrumentalities, and a supporting structure comprising a cabinet having a horizontal top plate rigidly connected with the ironing instrumentalities, and adapted to assume a vertical position, a frame carrying said top plate, a bar within said frame, a front plate adapted to assume vertical and horizontal positions and carried in such positions by said bar and frame respectively, side plates hinged on the frame and adapted to swing from a vertical into a horizontal position, stop members to hold the side plates in a horizontal position and locking means between the top plate and the side plates.

18. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a member providing a work receiving surface beneath said ironer mechanism and movable independently thereof from its operative position beneath

the ironer mechanism to a position elsewhere on the device where it forms an outer wall of the cabinet structure, and a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

19. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a front wall member movable from a vertical position to a horizontal position providing in such latter position a work receiving surface beneath said ironer mechanism, and a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

20. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a member providing a work receiving surface beneath said ironer mechanism and movable independently thereof from its operative position beneath the ironer mechanism to a position elsewhere on the device where it forms an outer wall of the cabinet structure, an end wall movable from a vertical to a horizontal position, and a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

21. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a member providing a work receiving surface beneath said ironer mechanism, a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, and a vertically movable rear wall associated with said top wall and movable from a position behind said mechanism to a position therebelow, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

22. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a member providing a work receiving surface beneath said ironer mechanism, a top wall of table height movable with said ironer mechanism

from a horizontal position above the same to a substantially vertical position rearwardly thereof, and a rear wall pivotally secured at its upper edge to the rear edge of said top wall and movable from a position behind said mechanism to a position therebelow, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

23. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, a front wall member movable from a vertical position to a horizontal position providing in such latter position a work receiving surface beneath said ironer mechanism, a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, and a vertically movable rear wall associated with said top wall and movable from a position behind said mechanism to a position therebelow, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

24. In a device of the class described, the combination with an ironer mechanism of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for movement about a horizontal axis from a concealed position to an operative exposed position, an end wall movable from a vertical to a horizontal position on about the same level as that of the work receiving surface, a front wall member movable from a vertical position to a horizontal position providing in such latter position a work receiving surface beneath said ironer mechanism, a top wall of table height movable with said ironer mechanism from a horizontal position above the same to a substantially vertical position rearwardly thereof, and a vertically movable rear wall associated with said top wall and movable from a position behind said mechanism to a position therebelow, the work receiving surface of said member being disposed at a substantial distance below the horizontal level of said top wall.

25. A power driven ironing machine comprising the combination with a supporting structure, of an ironer shoe and a power actuated ironing roll mounted upon said structure, said roll being adapted to move toward and away from the said shoe, the shoe being provided with tensioning means for producing yielding pressure when said shoe and roll are in engagement with each other, and a manually operable safety release for moving said shoe away from said roll.

26. A power driven ironing machine comprising the combination with a supporting structure, of an ironer shoe and a power actuated ironing roll mounted upon said structure, said roll being adapted to move toward and away from the said shoe, the shoe being provided with tensioning means for producing yielding pressure when said shoe and roll are in engagement with each other, and a manually operable locking device for releasing said shoe for movement away from said roll.

27. In a device of the class described, the combination of an ironer mechanism, of a cabinet and supporting structure therefor comprising, a

supporting frame, means for pivotally securing said ironer mechanism to said frame for a movement of substantially ninety degrees about a horizontal axis from an inoperative to an operative position, and a table top fixed to said ironer mechanism and movable therewith from a horizontal position thereabove to a vertical position behind the ironer mechanism, the axis of movement of said ironer mechanism and table top being located a substantial distance below said table top when in its horizontal position.

28. An ironing machine mechanism comprising, a heated shoe and a padded rotatable roll, and a supporting structure therefor comprising a rigid member extending part way into said roll, a rotatable roll supporting member displaceably carried by said rigid member engaging said roll at a point intermediate the ends thereof which are otherwise unsupported, and means for effecting the lateral displacement of said roll supporting member for moving said roll into and out of pressing engagement with said shoe.

29. An ironing machine mechanism comprising, a heated shoe and a padded rotatable roll, and a supporting structure therefor comprising a rigid member extending into said roll, a roll carrying, rotatable member engaging the intermediate portion of said roll and means associated with said rigid member for supporting said rotatable member for movement about an axis parallel to and to one side of the roll axis.

30. An ironing machine mechanism comprising, a heated shoe and a padded rotatable roll, a supporting structure therefor comprising a rigid member extending into said roll, a roll carrying, rotatable member engaging the intermediate portion of said roll and means provided by said rigid member for supporting said rotatable member for movement about an axis parallel to and to one side of the roll axis, and power means for oscillating and rotating said rotatable member.

31. A power driven ironing machine comprising, in combination, a power actuated ironing roll, a shoe mounted adjacent the roll, and a combined cabinet and supporting structure for the roll and shoe comprising relatively movable cooperating members one of which is movable about a horizontal axis located a substantial distance below the top of the machine when in its inoperative position whereby it is adapted to assume horizontal and vertical positions in adjusting the machine to its respective inoperative and operative positions, the roll and shoe being connected to the vertically assuming member and movable therewith, the said last-named member being adapted to form a horizontal table top for the cabinet of the machine when the machine is moved to inoperative position.

32. In a device of the class described, the combination of an ironer mechanism, of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for a movement of substantially ninety degrees about a horizontal axis from an inoperative to an operative position, a table top fixed to said ironer mechanism and movable therewith from a horizontal position thereabove to a vertical position behind the ironer mechanism, the axis of movement of said ironer mechanism and table top being located a substantial distance below said table top when in its horizontal position, and a sidewall member pivotally suspended from said table top in a substantially vertical position for both positions of the table top.

33. In a device of the class described, the combination of an ironer mechanism, of a cabinet and supporting structure therefor comprising, a supporting frame, means for pivotally securing said ironer mechanism to said frame for a movement of substantially ninety degrees about a horizontal axis from an inoperative to an operative position, a table top fixed to said ironer mechanism and movable therewith from a horizontal position thereabove to a vertical position behind the ironer mechanism, the axis of movement of said ironer mechanism and table top being located a substantial distance below said table top when in its horizontal position, and a member pivotally attached to said frame and movable from a vertical to a horizontal position in which latter position such member provides a work supporting surface when the ironer mechanism is in its operative position.

34. In a device of the class described, the combination with an ironer mechanism, of an enclosing and supporting structure therefor comprising a supporting framework, means for pivotally securing said ironer mechanism with respect to said framework for movement through an arc of substantially ninety degrees in adjusting the mechanism from an inoperative housed position to an operative open position, and contrarily, said structure including displaceable sections one of which is bodily movable, said sections defining in part at least the enclosure for the ironer mechanism when in its housed position, one of said sections being operably connected with said ironer mechanism and movable therewith, and means provided by said structure for supporting said bodily movable section in two different positions whereby when the ironer mechanism is in its inoperative position such section constitutes a part of the enclosure for the ironer mechanism as aforesaid and when said ironer mechanism is in its operative position such section may be located so as to constitute a work supporting surface.

35. In a device of the class described, the combination with an ironer mechanism, of an enclosing and supporting structure therefor comprising a supporting framework, means for pivotally securing said ironer mechanism with respect to said framework for movement through an arc of substantially ninety degrees in adjusting the mechanism from an inoperative housed position to an operative open position, and contrarily, said structure including a pivotally and slidably mounted section which normally occupies an upright position when the ironer mechanism is in its housed position and which section occupies a horizontal position beneath the ironer mechanism when the mechanism is in its operative position, said section providing a work receiving surface beneath the ironer mechanism when in its latter position.

36. In a device of the class described, the combination with an ironer mechanism, of an enclosing and supporting structure therefor comprising a supporting framework, means for pivotally securing said ironer mechanism with respect to said framework for movement through an arc of substantially ninety degrees in adjusting the mechanism from an inoperative housed position to an operative open position, and contrarily, said structure including a pivotally and slidably mounted section which normally occupies an upright position alongside of said ironer mechanism when the ironer mechanism is in its

housed position and which section occupies a horizontal position beneath the ironer mechanism when the mechanism is in its operative position, said section providing a work receiving surface beneath the ironer mechanism when in its latter position.

37. In a device of the class described, the combination with an ironer mechanism of an enclosing and supporting structure therefor comprising a supporting framework, a supporting element for said ironer mechanism, and pivotal connections for securing said supporting element with respect to said framework whereby said ironer mechanism may be raised from a lower inoperative level to an upper operative level and contrarily, the enclosing part of said structure including displaceable sections for permitting access to said ironer mechanism, one of said sections being pivoted to said framework for movement of substantially ninety degrees about a horizontal axis and another of said sections being pivotally and slidably mounted on the framework for bodily movement to a position on the framework where it may be used as a work supporting surface when the ironer mechanism is moved to its operative position, said enclosing and supporting structure constituting a table of conventional height when the ironer mechanism is in its closed and inoperative position, the top of such table being at a substantially lower level than the top of the ironer mechanism when the ironer mechanism is in its operative position.

38. In a device of the class described, the combination with an ironer mechanism, of an enclosing and supporting structure therefor comprising a supporting framework, a supporting element for said ironer mechanism, and pivotal connections for securing said supporting element with respect to said framework whereby said ironer mechanism may be raised from a lower inoperative level to an upper operative level and contrarily, the enclosing part of said structure including displaceable sections for permitting access to said ironer mechanism, one of said sections being pivotally and slidably mounted on said framework for bodily displacement to a position where it may be used as a work supporting surface and another of said sections being operatively connected to said supporting element and movable about a horizontal axis for raising and lowering the ironer mechanism between its operative and inoperative levels.

39. In a device of the class described, the combination with an ironer mechanism, of an enclosing and supporting structure therefor comprising a supporting framework, a supporting element for said ironer mechanism, and pivotal connections for securing said supporting element with respect to said framework whereby said ironer mechanism may be raised from a lower inoperative level to an upper operative level and contrarily, the enclosing part of said structure including displaceable sections for permitting access to said ironer mechanism, one of said sections being movable through an arc of substantially ninety degrees from a vertical position to a horizontal position and contrarily and another of said sections being pivotally and slidably mounted on the framework for bodily displacement to a position where it may be used as a work supporting surface.

JOHN W. RACKLYEFT.

CERTIFICATE OF CORRECTION.

Patent No. 2,071,264.

February 16, 1937.

JOHN W. RACKLYEFT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, first column, line 13, for the word "released" read release; and second column, line 30, for "of" before "gearing" read or; line 43, claim 1, for "from" read for; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of May, A. D. 1937.

(Seal)

Henry Van Arsdale
Acting Commissioner of Patents.