IRONING APPARATUS

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This invention relates to ironing apparatus, and more particularly to a self-contained apparatus for supporting a hand iron.

There have heretofore been proposed ironing apparatus of the type in which the iron is supported above an ironing board on a linkage and can be moved down onto the board for ironing. Types of apparatus of this character are disclosed and claimed, for example, in my Patent Nos. 2,661,553, 2,680,311, 2,939,229, 2,939,230 and 2,953,619.

Apparatus of this general type has presented a number of problems, including the provision of sufficient vertical movement of the iron to accommodate not only varying thicknesses of material, but variations in the ironing board surface from a true horizontal and possible variation in the iron supporting linkage, compactness of the unit for storage and availability of the unit for use with a conventional ironing board. It is also highly desirable to be able to adjust the iron supporting mechanism for use at different levels as, for example, in either a standing or sitting position.

It is accordingly one of the objects of the present invention to provide ironing apparatus which folds into an extremely compact and easily portable package for storage and which provides maximum flexibility for use.

Another object is to provide ironing apparatus in which all of the operating parts are contained in a relatively small casing braced and supported by folding legs to serve as a base support for the mechanism when in use.

According to a feature of the invention, the casing is provided with pivotally mounted legs connected through a linkage to a hinged cover to be swung to its open extended position when the cover is opened. Preferably the linkage includes a releasable link to permit the cover to be closed when the ironing supporting mechanism is extended and in use.

A further object is to provide an ironing apparatus in which the iron supporting linkage is carried by a vertically slidable support member which is adjustable vertically to support the iron at various levels to accommodate itself for use with ironing boards of different heights.

A still further object is to provide ironing apparatus in which a guide member for the supporting member is moved vertically by a motor to raise and lower the supporting member, the linkage and the iron during use.

According to a feature of the invention, the iron supporting linkage is carried by a head slidable on the supporting member to provide maximum vertical adjustment of the iron and supporting linkage and to enable collapsing thereof to a minimum size for storage.

Other features of the invention include the provision of a resilient link in the connection from the motor to the guide member to protect the motor against overload, counterbalance springs in the supporting member and guide member to facilitate raising and lowering thereof and a control system for the motor.

The above and other objects and features of the invention will be more readily apparent from the following description when read in connection with the accompanying drawings, in which:

FIGURE 1 is a perspective view of ironing apparatus embodying the invention in stored condition;

FIGURE 2 is a similar view showing the apparatus in a partially opened position;

FIGURES 3, 4 and 5 are similar views showing the apparatus in its fully opened position ready for ironing;

FIGURE 6 is a sectional view through the apparatus in its closed position;

FIGURE 7 is a perspective view of the iron supporting arm;

FIGURE 8 is a partial sectional view illustrating the inner and linkage elements associated therewith;

FIGURE 9 is a rear view of the casing illustrating the control linkage for the supporting legs;

FIGURE 10 is a section on the line 10—10 of FIGURE 6 with parts broken away;

FIGURE 11 is a wiring diagram of the control circuit;

FIGURE 12 is a section on the broken line 12—12 of FIGURE 6;

FIGURE 13 is a partial section of the linkage supporting head;

FIGURE 14 is a view similar to FIGURE 13 showing a different position of the parts;

FIGURE 15 is a section on the broken line 15—15 of FIGURE 13;

FIGURE 16 is a perspective view of the linkage for controlling the supporting legs;

FIGURE 17 is a partial perspective view of the guide member and support tube;

FIGURE 18 is a partial side elevation showing the motor operated linkage for moving the guide member.

Referring first to FIGURES 1 to 5, the entire ironing apparatus is mounted in and supported by a casing generally rectangular in cross section and closed at its bottom. The top of the casing may be closed by a cover 11 which is hinged to the casing at one side as indicated at 12 in FIGURE 6 to swing from a closed position to an open position. The casing may be held in its closed position by a latch 13 which is releasable by a button 14 extending through an opening in the front of the casing near its top. Preferably a flexible handle 15 is secured to the cover for ease in carrying the apparatus from place to place.

When the casing is closed, as shown in FIGURE 1, all of the mechanism is enclosed therein, including the iron as illustrated at 16. When the apparatus is in use, the casing serves as a supporting base for the apparatus and for this purpose it is braced and stabilized by legs 17, 18 and 19. The legs 17 and 18 as seen in FIGURES 10 and 12 are L-section strips pivoted on pivot rods 20 and 21 which extend parallel to opposite sides of the casing near the bottom thereof. In this way the legs 17 and 18 can be swung out from the sides of the casing in opposite directions as seen in FIGURES 3 to 5 to stabilize the casing against lateral tipping.

The leg 19 as best seen in FIGURE 12 is generally triangular in section and lies against a cutaway corner portion of the casing when it is in its upright or closed position. This leg is hinged on a pivot rod 22 at right angles to the pivot rods 20 and 21 to swing upwardly from the casing to brace it against tilting in a forward...
direction. Preferably the leg 19 carries a laterally extending foot 23 which overlies the front of the casing at the top thereof and which is formed with an opening through which the latch release button 14 extends as seen in FIGURE 6. The legs are simultaneously moved from their closed to their open positions by the opening and closing movements of the cover through an operating linkage as best seen in FIGURES 8, 9 and 16. As shown, the legs 17 and 18 are connected through links 24 to corner portions of a triangular plate 25 which is pivoted at its third corner on a shaft 26 to the back of the casing. The shaft 26 may carry a counterclockwise movement to a one end of the shaft and at its opposite end to a bracket 28 in the casing in which the shaft is journaled to balance the weight of the legs so that they may be raised and lowered more easily.

The leg 19 is moved through a link 29 pivoted at one end to the leg 19 and at its opposite end through a universal joint to the link 24 intermediate the ends thereof. It will be observed that with this connection as the leg 18 is swung from its raised inoperative position to its lowered supporting position due to turning of the plate 25 the link 29 will move away from the adjacent side of the casing and during the final lowering movement of the leg 19. Thus in the fully lowered position, the link 29 will lie flat against the side of the casing with the opening therein receiving the pin 31 so that the leg 29 is securely braced.

The plate 25 is turned by opening and closing movements of the cover 11 so that when the cover 11 is opened the legs will automatically be moved to their extended bracing positions and the device will be ready for use. For this purpose, as best seen in FIGURES 6 and 8, a link 32 is pivoted to the cover at a point spaced from its hinge and is formed in its free end with an elongated slot 33 terminating in an offset end portion. A pin 34 on one end of a bell crank lever 35 fits into the slot 33 and the opposite end of the bell crank lever 35 is connected through a link 36 to the plate 25 at a point spaced from its pivot. With this construction when the cover is closed and the legs are raised to the stored position, the parts will occupy the position shown in FIGURE 6 with the pin 34 lying in the offset end of the slot 33, with the bell crank lever 35 turned counterclockwise to raise the link 36 and with the plate 25 turned counterclockwise to pull on the links 24 and 29, thereby to raise the legs to their stored positions. When the cover 11 is swung to its open position as shown in FIGURES 8 and 9, the bell crank lever 35 will be rocked clockwise moving the link 36 downward and turning the plate 25 counterclockwise as seen in FIGURE 9 or clockwise as seen in FIGURE 16. This action will pull the links 24 and 29 downward and outward to swing the legs 17, 18 and 19 out to their horizontal bracing positions so that the ironing mechanism may be pulled upward from the casing as described hereinafter for ironing operation. It is desirable to be able to close the cover 11 after the ironing mechanism has been raised from the casing and during ironing operation. For this purpose an arm 37 is pivoted in the casing under the link 32 and is urged upward by a sprig 38. The nose of the arm 37 is shaped to guide the lower surface of the link 32, and upward movement of the arm is limited by a pin 39 carried by the bell crank and riding over the nose of the arm as seen in FIGURES 6 and 8. When the cover is closed, upward movement of the arm is restricted by the pin 39 so that it will not exert an upward force on the link 32 and the link 32 can move downward so that the pin 34 will fall into the offset end portion of the slot 33 therein. When the cover is raised as shown in FIGURE 8, the pin 39 can drop into an offset on the upper surface of the arm 37 so that it will elevate the link 32 and move the pin 34 into the straight slot portion 33 out of the offset portion thereof. At this time the cover can be swung back to its closed position without affecting the linkage or the legs with the pin 34 moved freely through the slot 33 and with the offset on the arm 37 engaging the pin 39 to latch the linkage in the leg extended position. For releasing the latch and folding the linkage back to the leg storing position, the cover may be open and the link 32 may be manually depressed to disengage the latch arm 37 from the pin 39 and to move the pin 34 back into the offset portion of the slot 33. When the cover is closed with the parts in this position, the action of the linkage as described above will be reversed to fold the legs up against the casing to their stored positions.

The iron 16 is supported by a linkage which may be of the type more particularly disclosed in my Patents Nos. 2,648,146 and 2,834,568. This linkage as shown comprises a main supporting arm 41 connected through an elbow joint 42 to a forearm 43. The main supporting arm 41 is pivoted to a supporting head 44 and a sleeve 53 mounted with a supporting arm and the elbow and is connected to the forearm as more particularly disclosed in my patents referred to above to guide the free end of the forearm for movement in a horizontal plane as the main supporting arm and forearm are swung about their pivotal connections.

According to a feature of the present invention, the forearm is provided with a telescoping extension 46 from the free end of which the iron is supported. Outward movement of the extension is limited by a pin and slot as shown in FIGURE 6 and the extension normally lies at its extreme outward position but is capable of telescoping into the forearm when necessary to accommodate extremely thick material. The iron 16 is supported from the end of the extension 46 by a short supporting arm 47 connected through a ball and socket joint 48 to the end of the extension and a mounting pin 49 at its opposite end for connection to the iron. Preferably the pin 49 is pivoted to the iron handle as seen in FIGURES 6 and 10 so that due to the flexibility provided by this connection and by the ball and socket joint 48 the iron can be moved freely to any required position during use. For storage the iron handle carries a short pin 51 which is engaged in a hook bracket on the forearm, not shown, to hold the iron in a stored position for storage.

The supporting head 44 as best seen in FIGURES 13 to 15 is formed with a sleeve portion 52 which fits slidably on a support sleeve 53. The support sleeve 53, as best seen in FIGURE 17, is in the form of an elongated tubular having a slot 54 at one side thereof and which extends substantially the full height of the casing. The supporting head 44 which is partially disclosed in FIGURE 17 is slidable on the sleeve 52 and is formed with a registering slot at one side thereof. The sleeve 53 is slidable mounted on a guide sleeve 55 which is in turn mounted for vertical sliding movement in the casing near the upper portion thereof. The guide sleeve is formed with a pair of spaced slots 56 registering with the slot 54 and through which supporting pins 57 extend. The supporting pins 57, as best seen in FIGURE 12, extend inwardly from a corner portion of the casing through the slots in the sleeves 53 and 55 and rigidly carry a vertical guide rod 58. For supporting the sleeve 55 on the guide rod 58 sets of bearing rollers 59 which are preferably formed of a self-lubricating material, such as nylon, are arranged between the rod 58 and the sleeve 53. The rollers 59 are preferably guided and held in place by a sleeve 61. By this means the guide sleeve 55 is supported for free limited vertical movement in the casing, and the sleeve 53 is adjustably slideable on
the guide sleeve 55 to adjust the desired elevation of the supporting linkage and iron.

The head 44 of the rod position is slid down to the lower end of the supporting sleeve 53 as shown in FIGURE 10. When the iron is elevated for use, the head 44 of the rod is moved to the top of the supporting sleeve 53 as shown in FIGURE 13. To retain it in this position and to permit free rotation thereof relative to the guide sleeve, a cover 62 is provided pivoted to the head and swingable to a position overlying the upper end of the guide sleeve. The guide sleeve is closed by a plug 63 having a central pin 64 therein and a complementary pin 65 carried by the cover 62 rests on the head of the pin 64 to support the head rotatably at the upper end of the supporting sleeve. The cover is adapted to be held closed by a latch 66 pivoted thereto as best seen in FIGURE 15 and adapted to extend through an opening in the side of the head to latch the cover closed. The latch carries an operating arm 67 extending across the upper end of the plug 65 when the head is in its latched position and which is adapted to be swung upward as described hereinafter to release the latch.

In order to counterbalance the weight of the head, the supporting linkage and the iron so that the head can be moved upwardly more easily on the supporting sleeve 53, a counterbalance spring 68 is provided. This spring, as shown, may take the form of a spring of the type more particularly disclosed and claimed in my Patent No. 2,609,193 to exert a constant lifting force on the head. The spring 68 is coiled on a drum 69 supported in the head and has its free end anchored to the plug 65 as shown in FIGURE 13. The spring therefore exerts a constant lifting force on the head sufficient approximately to counterbalance the weight of the head, the supporting linkage and the iron so that they can be easily raised and lowered with a minimum of effort.

The supporting sleeve 53 is adapted to be fastened in any desired elevated position relative to the guide sleeve 55. For this purpose, as shown in FIGURE 14, the guide sleeve is closed at its upper end by a plug 71 and a locking screw 72 is threaded into the plug and extends through the slot 54 in the supporting sleeve. When the supporting sleeve has been moved to a desired elevated position relative to the guide sleeve, the screw 72 may be tightened to clamp them in this position. It will be understood that in an ironing operation the supporting sleeve is clamped to the guide sleeve at an elevation determined by the height of the ironing board to be used and normally remains in the same position during an ironing operation. Upon completion of the ironing operation, the clamping screw 72 may be loosened and the supporting sleeve 53 may be slid downward to its maximum lowered position in the container for storage.

As the supporting sleeve is slid downward to its maximum lowered position, a pin 75 carried by the closure plug 71 of the guide sleeve will extend through an opening in the closure plug 63 of the supporting sleeve and will engage the latch operating arm 67. The latch will thus be automatically released simply by sliding the supporting sleeve down into the container to release the cover 62 so that the mounting head can be slid downward along the supporting sleeve to its lower stored position, as shown in FIGURE 10. It will be seen that this whole operation can be performed simply by releasing the clamping screw 72 and by pushing downward on the iron supporting linkage until it is completely stored in the casing.

The supporting sleeve 53 is counterbalanced for easy raising and lowering by a spring 74 which may be similar to the spring 68. The spring 74 is secured to the lower end of the supporting sleeve 53 with its free end anchored to a bracket 75 welded to the guide sleeve 55 and spaced outward therefrom so as not to interfere with movement of the supporting sleeve or the mounting head relative to the guiding sleeve. The spring 74 will substantially counterbalance the weight of the supporting sleeve, the head, the linkage and the iron so that the supporting sleeve and the parts carried thereon can be moved easily upwardly and downwardly into and out of the casing.

For moving the iron and its supporting linkage vertically during use to support the iron above the ironing board or to enable movement of the iron downwardly onto the ironing board, the guide sleeve 55 is adapted to be shifted vertically through a limited distance as determined by the length of the slots 56. For this purpose, an electric motor 76 is mounted in the lower portion of the casing and is connected to the guide sleeve 55 through a linkage best seen in FIGURE 18. This linkage includes a bracket 77 secured to the guide sleeve 55 and extending through the slot 54 in the supporting sleeve. A counterbalance spring 78 in the form of a constant compression spring, as more particularly described and claimed in my Patent Reissue 25,974, may be connected at one end to the bracket 77 and at its end to a supporting bracket 79 secured to the casing partially to counterbalance the weight of the guide sleeve, supporting sleeve linkage and iron, thereby to reduce the load on the motor 76. The gearhead motor 76 drives a crank arm 81 which is connected through a link 82 to the bracket 77. Preferably, the link 82 is in the form of a spring similar to the spring 78 so that if the iron is inadvertently held down when the motor is energized the spring will yield without imposing an excessive load on the motor which might burn it out. When the motor is turned to elevate the crank arm as shown in FIGURES 6 and 18, it will move the guide sleeve upwardly to raise the iron above the ironing board, and to hold it in this position. When the motor is energized to turn through 180° the guide sleeve and the iron will be lowered so that the iron will engage material on the ironing board with its full weight and can be used in a normal manner for an ironing operation.

The motor is controlled through a circuit as best seen in FIGURE 11 which includes switches 83 and 84 alternately opened and closed by a cam 85 connected directly to the motor shaft and having a single depression therein. A double pole switch having one pole 86 and a second pole 87 is mounted on the iron and is controlled by a lever 88 extending over the iron handle and engaged by the hand of the operator when the iron is in use. The lever 88 is normally biased by a light spring to its upper position as shown in FIGURES 6 and 11 to complete a circuit with the switch contact 87 and interrupt the circuit to the switch contact 86. The iron heating element is diagrammatically shown at 89 with its temperature control switch at 92. The motor and iron are adapted to be energized from a conventional source of power, such as the usual household supply through a conventional type of cord plugged into the usual receptacle. As seen in FIGURES 2 and 10, the cord may be contained in a spool 93 stored in the cover 11 and which may be removed therefrom so that the cord can be unreeled to the desired extent and plugged into a suitable receptacle. When the cord is plugged in one side of the motor 76 it is connected to one side of the line as seen in FIGURE 11, while the other side is connected to the two switches 83 and 84. The iron heating element is connected across the line through its switch 92 and heating control device 91. The switch 84 is connected to the switch contact 86, the switch 83 is connected to the switch contact 87 and the blade of the double throw switch 88 is connected to the other side of the line. When the motor is turned to the iron raising position as shown in FIGURES 6 and 18, the operating lever for the switch 83 will register with the depression in the cam 85 so that the switch 83 will be open and the switch 84 will be closed. If the handle 88 is released it will swing to the position shown in FIGURE 11 to engage the switch contact 87. In this position the motor will be de-energized and will remain in that position until some further...
action occurs. If now the operator grasps the iron and depresses the handle 88 to make contact with the switch contact 85, a circuit will be completed through the motor switch 84, switch contact 86 and back to the other side of the line so that the motor will be energized and will rotate the iron 180° until the opening lever of switch 84 registers with the depression in the cam 85. At this time the motor will stop and will remain in that position until the handle 88 is released. Upon releasing the handle 88, it will re-establish contact with the switch contact 87 to complete a circuit through this switch contact and switch 83 to turn the motor through an additional 180° so that the linkage and the iron, one of the legs when the legs are in their upright position and the cover is closed.

It will be seen that the present invention provides an extremely compact mechanism which can be stored in a minimum amount of space and which can easily be erected for use without any additional supporting mechanism other than its own casing. The height of the iron to accommodate different types of ironing boards can easily be adjusted simply by releasing the latching screw 72 and moving the supporting sleeve 53 vertically until the iron is at the desired elevation. The mechanism is therefore capable of substantially universal use for ironing in a standing position with the board at the elevation shown in FIGURE 4 or in a sitting position with the board at the elevation shown in FIGURE 5.

While one embodiment of the invention has been shown and described in detail, it will be understood that this is illustrative only and is not to be taken as a definition of the scope of the Invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. Ironing apparatus comprising an upright hollow casing, means in the casing movable through the top thereof for supporting an iron, a plurality of legs hinged to the casing near its bottom on horizontal axes one of which is transverse to at least one other so that the legs can swing from upright positions adjacent to the casing to horizontal positions projecting outward therefrom, linkage interconnecting the legs for simultaneous movement, and latch means to latch the linkage when the legs are in their horizontal positions.

2. Ironing apparatus comprising an upright hollow casing, means in the casing movable through the top thereof for supporting an iron, a plurality of legs hinged to the casing near its bottom on horizontal axes one of which is transverse to at least one other so that the legs can swing from upright positions adjacent to the casing to horizontal positions projecting outward therefrom, linkage interconnecting the legs for simultaneous movement, a hinged cover for the casing, a connection between the hinged cover and the linkage to move the legs to their horizontal position when the cover is swung open, and latch means cooperating with the linkage to latch the legs in their horizontal positions.

3. The ironing apparatus of claim 2 in which the connection between the cover and linkage is releasable whereby the cover can be closed when the legs are in their horizontal positions.

4. Ironing apparatus comprising an upright hollow casing, means in the casing movable through the top thereof for supporting an iron, three legs hinged to the casing near its bottom on horizontal axes two of which are substantially parallel and the other of which is transverse to said two, the legs being swingable from upright positions against the casing to extended positions projecting outward from the casing, a plate pivoted to the casing on an axis parallel to said two axes, two links connecting the plate to the two legs pivot on said two axes respectively to move the legs simultaneously as the plate turns, and a third link connecting the third leg to a point on one of said two links intermediate its ends.

5. The ironing apparatus of claim 4 in which the third link moves laterally toward and away from the side of the casing as the legs are moved between their upright and extended positions to lie against the side of the casing when the legs are in either extreme position, and a part on the side of the casing engages and braces the third link when the legs are in their extended positions.

6. The ironing apparatus of claim 4 including a hinged cover on the casing, one linkage connecting the cover to the plate to swing the legs to their extended positions when the cover is swung open, and latch means cooperating with the linkage to latch the legs in their extended positions.

7. The ironing apparatus of claim 6 in which the cover includes a downwardly turned flange overlying the upper end of the linkage and the iron, one of the legs when the legs are in their upright position and the cover is closed.

8. Ironing apparatus comprising an upright hollow casing, legs pivoted to the casing and swingable outward therefrom to support the casing in an upright position, a hinged cover for the casing, linkage connecting the cover to the legs to swing the legs outward when the cover is opened, a vertically elongated guide member mounted in the container for limited vertical movement, a vertically elongated support slidably mounted on the guide member for vertically sliding into and out of the top of the container, means for securing the support to the guide member in different adjusted positions relative thereto, linkage carried by the support and adapted to carry an iron for movement in a horizontal plane, and power means to move the guide member vertically through said limited distance whereby to elevate the iron above a board or to lower it onto material on the board.

9. Ironing apparatus comprising an upright hollow casing, legs pivoted to the casing and swingable outward therefrom to support the casing in an upright position, a hinged cover for the casing, linkage connecting the cover to the legs to swing the legs outward when the cover is opened, a vertically elongated guide member mounted in the container for limited vertical movement, a vertically elongated support slidably mounted on the guide member for vertically sliding into and out of the top of the container, means for securing the support to the guide member in different adjusted positions relative thereto, a head slidable vertically on the support, means to latch the head at the upper end of the support, linkage carried by the head and adapted to carry an iron for movement in a horizontal plane and power means to move the guide member vertically through said limited distance.

10. The ironing apparatus of claim 8 in which the power means includes a rotatable crank, a motor connected to the crank to turn it, and means including a yieldable spring connecting the crank to the guide member to move it vertically.

11. Ironing apparatus comprising an upright hollow casing, legs pivoted to the casing and swingable outward therefrom to support the casing in an upright position, a hinged cover for the casing, linkage connecting the cover to the legs to swing the legs outward when the cover is opened, a vertically elongated guide member mounted in the container for limited vertical movement, a vertically elongated support slidably mounted on the guide member for vertically sliding into and out of the top of the container, means for securing the supporting sleeve to the guide member in different adjusted positions relative thereto, power means to move the guide member vertically, a head slidable vertically on the supporting sleeve, means to latch the head at the upper end of the supporting sleeve, an arm pivoted on the head on a horizontal axis, a forearm pivoted to the free end of said arm on a horizontal axis, means connecting the arm, the forearm and head to cause the free end of the forearm to move in a horizontal plane and the arm and the forearm swing about their pivots, and means at the free end of the forearm to support an iron thereon, the forearm comprising two elongated sections telescopically interfitting with each other.

12. In ironing apparatus, iron supporting means com-
prising a supporting base, a vertically elongated supporting rod fixed on the base, an elongated guide sleeve slidably mounted on the rod for vertical movement thereon, an elongated supporting sleeve slidably mounted on the guide sleeve for vertical movement thereon, latching means for latching the supporting sleeve to the guide sleeve in any one of a plurality of adjusted positions, linkage carried by the supporting sleeve having a free end movable in a horizontal plane, an iron carried by the free end of the linkage, and power means to move the supporting sleeve vertically thereby to raise and lower the supporting sleeve, linkage and iron.

13. In ironing apparatus, iron supporting means comprising a supporting base, a vertically elongated supporting rod fixed on the base, an elongated guide sleeve slidably mounted on the rod for vertical movement thereon, an elongated supporting sleeve slidably mounted on the guide sleeve for vertical movement thereon, latching means for latching the supporting sleeve to the guide sleeve in any one of a plurality of adjusted positions, linkage carried by the supporting sleeve having a free end movable in a horizontal plane, an iron carried by the free end of the linkage, a motor carried by the base, means connecting the motor to the guide sleeve to move it vertically as the motor is operated, a cam driven by the motor, and control switches for the motor including a manually operable switch on the iron, and switches on the base operated by the cam.

14. In ironing apparatus, iron supporting means comprising a supporting base, a vertically elongated supporting rod fixed on the base, an elongated guide sleeve slidably mounted on the rod for vertical movement thereon, an elongated supporting sleeve slidably mounted on the guide sleeve for vertical movement thereon, latching means for latching the supporting sleeve to the guide sleeve in any one of a plurality of adjusted positions, a head slidably mounted on the supporting sleeve, latch means to latch the head at the upper end of the supporting sleeve, linkage pivotally connected to the head and constructed for movement of its free end in a horizontal plane, an iron carried by the free end of the linkage, and power means connected to the guide sleeve to move it vertically.

15. In ironing apparatus, iron supporting means comprising a supporting base, a vertically elongated supporting rod fixed on the base, an elongated guide sleeve slidably mounted on the rod for vertical movement thereon, an elongated supporting sleeve slidably mounted on the guide sleeve for vertical movement thereon, latching means for latching the supporting sleeve to the guide sleeve in any one of a plurality of adjusted positions, a head slidably mounted on the supporting sleeve, latch means to latch the head at the upper end of the supporting sleeve, an arm pivoted to the head on a horizontal axis, a forearm pivoted to the free end of said arm on a horizontal axis and normally projecting upward therefrom, a forearm pivot about said axes, an iron carried by the free end of the forearm, and motor means to move the guide sleeve vertically.

16. The apparatus of claim 12 including a counterbalance spring connected to the supporting sleeve urging it upward relative to the guide sleeve, and a second counterbalance spring connected to the head and connected to the supporting sleeve urging the head upward relative to the supporting sleeve.

17. In ironing apparatus, iron supporting means comprising a supporting base, a vertically elongated supporting rod fixed on the base, an elongated guide sleeve slidably mounted on the rod for vertical movement thereon, an elongated supporting sleeve slidably mounted on the guide sleeve for vertical movement thereon, latching means for latching the supporting sleeve to the guide sleeve in any one of a plurality of adjusted positions, a head slidably mounted on the supporting sleeve, latch means to latch the head at the upper end of the supporting sleeve, an arm pivoted to the head on a horizontal axis, a forearm pivoted to the free end of said arm on a horizontal axis and normally projecting downward therefrom, a forearm pivot about said axes, an iron carried by the free end of the forearm, and motor means to move the guide sleeve vertically.
praising a supporting base, a supporting member mounted on the base for vertical movement, linkage carried by the supporting member having a free end movable in a horizontal plane, an iron attached to said free end, an electric motor in the base, means connecting the motor to the supporting member to move it vertically up and down as the motor is operated, and control switches for the motor including a manually operable switch on the iron and a pair of switches selectively controlled by operation of the motor to stop the motor when the supporting number is in its extreme upper and its extreme lower positions.

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