

July 14, 1936.

R. S. HOWELL

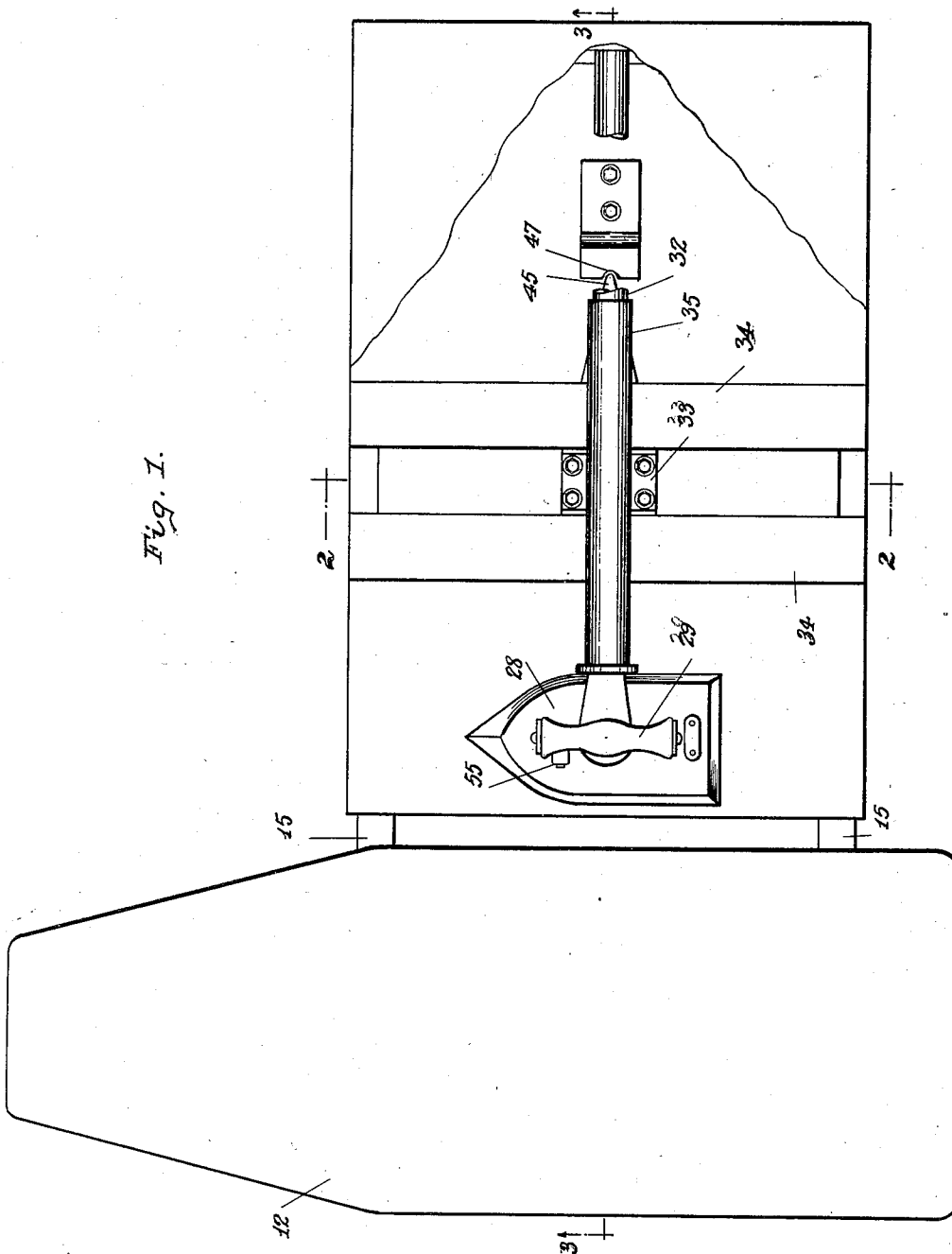
2,047,560

IRONING MACHINE

Filed Aug. 2, 1935.

3 Sheets-Sheet 1

Fig. 1.



R. S. HOWELL INVENTOR.

BY Louis L. Ansart
his ATTORNEY

July 14, 1936.

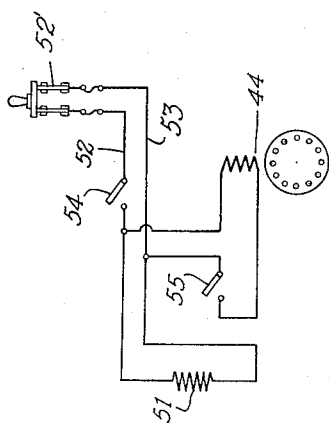
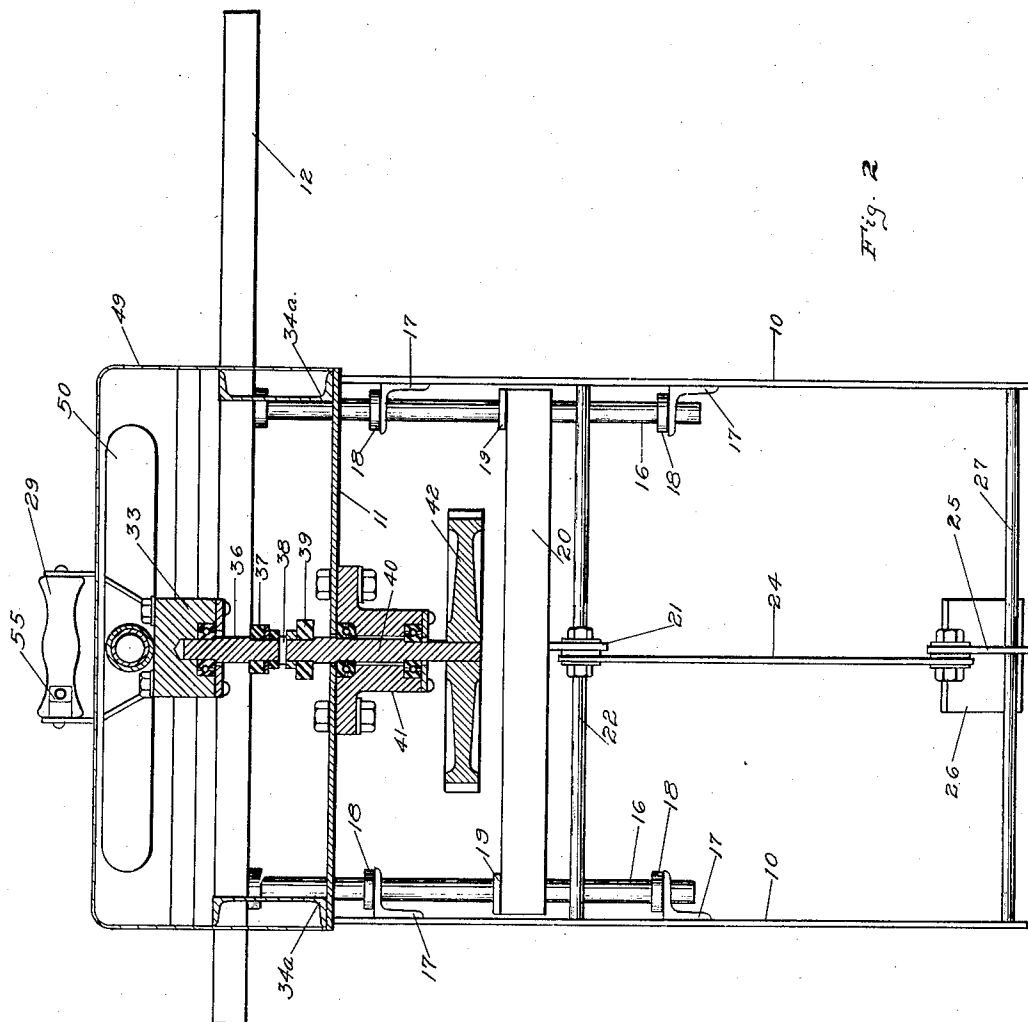
R. S. HOWELL

2,047,560

IRONING MACHINE

Filed Aug. 2, 1935

3 Sheets-Sheet 2



R. S. HOWELL INVENTOR.

BY *Louis L. Ansart*
his ATTORNEY

July 14, 1936.

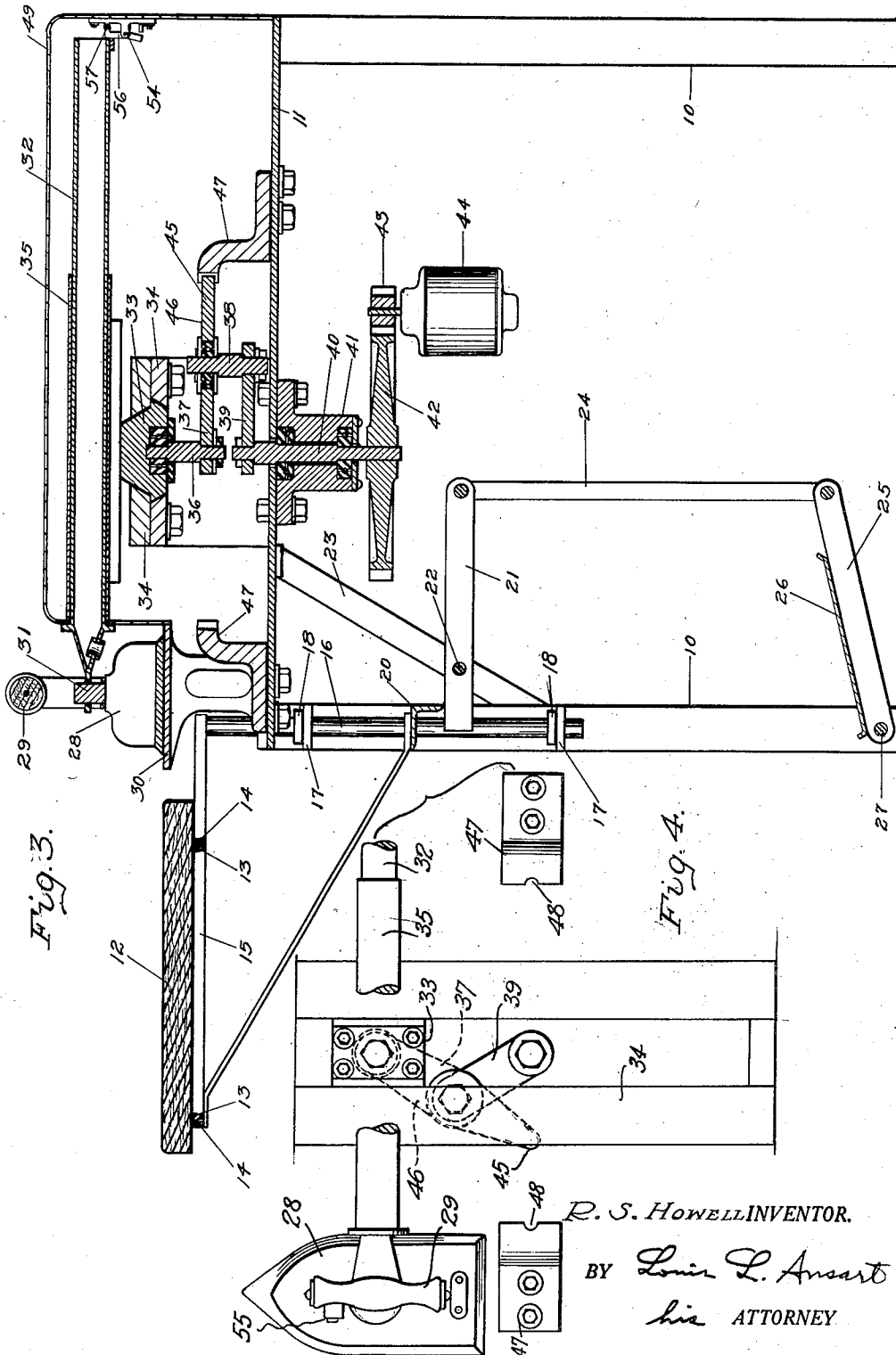
R. S. HOWELL

2,047,560

IRONING MACHINE

Filed Aug. 2, 1935

3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,047,560

IRONING MACHINE

Roger S. Howell, Atlanta, Ga.

Application August 2, 1935, Serial No. 34,404

12 Claims. (Cl. 68—9)

This invention relates to ironing machines and more particularly to machines of this kind in which irons are power operated longitudinally of corresponding ironing boards and are controlled manually as to their positions transversely of the boards.

The main object of the present invention is to provide novel and advantageous ironing means of the general class specified.

In carrying out the invention according to a preferred embodiment thereof, a pressing or smoothing iron is mounted on the forward end of a member or slide movable manually transversely of an ironing board by virtue of a sliding mounting on a main carriage or slide at one side of the board and movable lengthwise thereof by means of an electric motor and suitable intermediate connections. The main carriage may be positioned far enough from the ironing board to enable the iron, when not in use, to be moved off the board and placed on a suitable support.

The connection between the iron and its supporting slide may be effected by means of a pin or shaft extending upwardly from the iron and passing through a suitable bearing on the slide, some vertical play being provided to facilitate shifting of the iron from its support to the board and vice versa. With this general arrangement the iron can be pointed in any desired direction and may be moved manually across the board during its motor-actuated reciprocation lengthwise of the board. Normally the pressure between the iron and material on the board depends principally on the weight of the iron and any downward pressure which may be produced by the hand of the operator placed on the handle of the iron. When it is desired to increase this pressure, the ironing board may be raised, as by means of a foot lever and suitable connections, the iron being held down by its connection with the supporting slide.

The means for reciprocating the main carriage may include a vertical shaft driven by said motor and positioned directly beneath the middle point of path of a shaft rotatably mounted in the main carriage and extending downwardly therefrom. Fixed on the lower of these shafts is a crank arm having an upwardly projecting crank pin on which is centrally and pivotally mounted a lever on one arm of which is fixed the shaft rotatably mounted in said main carriage, the last mentioned arm being of the same length as the crank arm and serving part of the time as a link or connecting rod and part of the time as a

lever arm. Due to the arrangement of the parts, the crank-and-link connection is not sufficient to move the main carriage through the central part of its path. The desired result may however be attained by providing at opposite sides of the path of the main carriage devices which cooperate with the other end of said lever, or extension of said link, as temporary fulcrums and make it possible to move the main carriage through its central position.

Preferably the iron is electrically heated and the connections are such that when during ordinary operation the iron is moved from its support to the board the heating of the iron is begun and the motor is started and when the iron is returned to its support the heating of the iron will stop and the motor will be stopped. Provision may also be made for stopping the motor at any time without shutting off the current from the iron.

Other objects, features and advantages will appear upon consideration of the following description and of the drawings in which

Fig. 1 is a plan view of a preferred embodiment of the invention, parts being broken away to show underlying structure;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary plan view of the operating means for the main carriage; and

Fig. 5 is a diagrammatic view illustrating the electrical system.

Referring to the drawings, reference character 10 designates each of the legs of a machine frame having a top 11 which may be used to support all of the operating parts. At the front of the machine is a removable ironing board 12 provided at its lower face with lugs 13 arranged to engage lugs 14 on supporting arms 15 secured at their inner ends to the upper ends of upright rods 16 slidably and rotatably mounted in brackets 17 at inner sides of the front legs 10 and limited as to their downward movement by engagement of stops or flanges 18 on said rods with the upper faces of said brackets. Support for the outer ends of said arms 15 may be provided by braces 19 attached at their upper ends to the outer ends of arms 15, and sloping downwardly to said rods 16 where their lower ends are secured to the rods 16. When the ironing board 12 is not in use, it may be lifted from the arms 13 and the arms swung into positions close to the frame.

Just below the lower ends of the braces 19 is a cross member 20 through which the rods 16 pass. At its middle the cross member 20 is supported by one end of a lever 21 pivoted on a suitable pivot or fulcrum in the form of a rod 22 supported by two braces 23 extending from the two front legs 10 upwardly to the top 11. The other or rear end of the lever 21 is pivoted to the upper end of a link 24 of which the lower end is pivoted to a foot lever 25 provided with a plate 26 to be engaged by the foot of the operator for swinging the foot lever 25 about a pivot 27 and lift the ironing board to exert greater pressure between the board and the iron which is held down in a manner to be described hereinafter.

The actual ironing is done by a suitable smoothing iron 28 having a handle 29 and preferably being of the electric type with a thermostat control. When not in use, the iron 28 rests on a support 30 carried by the top or table 11, the upper surface of the support 30 being at substantially the same level as the upper surface of the ironing board 12. For mechanical operation the iron may be provided with an upwardly projecting pin 31 passing through a bearing opening in the forward end of an elongated member 32 extending horizontally in a direction transverse with respect to the ironing board 12 and slidably mounted on a main carriage or slide 33 slidable in guides 34 in a direction perpendicular to that in which said elongated member 32 moves. The guides 34 are suitably supported on the table or top 11, as by means of channels 34a resting on the table.

Said elongated member 32, which is manually operable, is preferably tubular and is guided in an open tube 35 fixed on the main carriage or slide 33.

The main carriage 33 is provided at its lower side with a bearing for the upper end of a pin 36 carried by one end of a link 37 pivotally mounted on a crank pin 38 projecting upwardly from a crank arm 39 of the same effective length as link 37. The crank arm 39 is fixed to the upper end of a shaft 40 extending through the table or top 11 and journaled in and supported by a member 41 secured to the table 11 at its under side. Mounted on the lower end of the shaft 40 is a gear 42 meshing with a pinion 43 on the shaft of an electric motor 44 supported in any suitable manner (not shown).

With the structure thus far recited the slide or carriage 33 could be brought from either end of its path to a position in which the pin 36 is immediately above the shaft 40. Then the link 37 and the crank arm would revolve together without moving the carriage 33. To move the carriage 33 past such dead point the link 37 may be provided with an extension or arm 45 forming with the link 37 a lever 46 and adapted to cooperate with temporary fulcrum members 47, so that the leverage produced by movement of the crank pin 38 will effect movement of the carriage through its central position. As illustrated suitable cooperation between the end of the extension or arm 45 and the fulcrum members 47 may be obtained by providing the fulcrum members with notches or recesses 48 and forming the extension with a pointed end adapted to enter the notches.

Referring to Figs. 3 and 4, rotation of the crank arm 39 will move the carriage from one end of its path to the middle of its path by the pull exerted through the link 37. As the carriage approaches the middle of its path the pointed end of the extension will approach and enter the

recess 48 on the corresponding fulcrum member 47 and the sidewise pressure produced by the crank pin 38 will, through actuation of the lever 46 carry the carriage 33 past the dead point so that the carriage may be pushed to the other end of its path. On the return stroke, the extension or arm 45 will cooperate with the other temporary fulcrum member 47.

Preferably the part of the machine above the top or table is, except for the smoothing iron 10 support 30, enclosed by a casing or cover 49 preferably of sheet metal. To accommodate the tubular member 32 connected with the iron 29 and enable movement of the carriage 33, the front wall of the casing is provided with a suitable slot 50 (Fig. 2).

By use of a suitable electrical system such as that illustrated in Fig. 5, movement of the iron 29 from its support 30 to the ironing board may effect closing of the circuit for motor 44 and of the heating circuit for the iron 29. As illustrated in Fig. 5, the motor 44 and a heater 51 are connected in parallel between two conductors 52 and 53 to which current may be supplied from a suitable source under control of the switch 52'. Another switch 54 controlled automatically by the position of the iron may shut off the current from the motor and the heating device or restore it. Another switch 55 serves to control the motor 44 without affecting the flow of current through the 30 heating device 51.

As illustrated in Fig. 3, the switch 54 is mounted on the inside surface of the rear wall of the casing 49 and includes a centrally pivoted lever 56 urged by a spring 57 toward circuit-closing position and so arranged as to be swung to open position by the tubular member 32 when the iron 29 is placed on its support. As illustrated in Figs. 1 and 4, the switch 55 is carried on the iron 23. Obviously, the wires connected with the switch 55 may conveniently be passed through the tubular member 32 by which the iron reciprocated longitudinally of the ironing board.

It will be evident that the apparatus of the present invention eliminates much of the physical exertion of hand ironing, and that the movement of the iron can readily be controlled so that the operator is able to meet satisfactorily any special requirements due, for example, to the materials or construction of the articles to be ironed. The motor 44 imparts to the iron 28 a substantially simple harmonic reciprocating motion lengthwise of the ironing board and any motion transverse to the board is effected manually. Also the heating of the iron and the operation of 55 the motor are readily controlled.

It should be understood that various changes may be made in the machine and that certain parts may be used without others without departing from the true scope and spirit of the invention.

Having thus described my invention, I claim:

1. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, means for actuating said iron and limiting its upward movement, arms on which the board rests, connections between the arms and the board to prevent horizontal displacement of the board while permitting vertical displacement and removal thereof, supporting means for said arms whereby the arms may be swung out of the way when the board is removed, and means acting through said supporting means for raising said board and increasing the pressure between the board and the iron.

2. In a machine of the class described, the com-

combination of a smoothing iron, a reciprocating carriage connected with said iron to actuate the same, a rotating shaft, a crank arm on said shaft, a crank pin on said arm, a connecting rod of the same effective length as said crank arm connecting said crank pin and said carriage whereby the crank pin can draw the carriage inwardly from either end of the path toward the middle point thereof or push it outwardly from said middle point but will tend to rotate said connecting rod with said crank arm when the carriage is at said middle point, and means for moving said carriage past the middle point of its path.

3. In a machine of the class described, the combination of a smoothing iron, a reciprocating carriage connected with said iron to actuate the same, a rotating shaft, a crank arm on said shaft, a crank pin on said arm, a connecting rod of the same effective length as said crank arm connecting said crank pin and said carriage whereby the crank pin can draw the carriage inwardly from either end of its path toward the middle point thereof or push it outwardly from said middle point but will tend to rotate said connecting rod with said crank arm when the carriage is at said middle point, and means operated by said crank pin for moving said carriage past said middle point of its path.

4. In a machine of the class described, the combination of a smoothing iron, a reciprocating carriage connected with said iron to actuate the same, a rotating shaft, a crank arm on said shaft, a crank pin on said arm, a connecting rod of the said effective length as said crank arm connecting said crank pin and said carriage whereby the crank pin can draw the carriage inwardly from either end of its path toward the middle point thereof or push it outwardly from said middle point but will tend to rotate said connecting rod with said crank arm when the carriage is at said middle point, and means operated by said crank pin for moving the carriage past said middle point of its path.

5. In a machine of the class described, the combination of a smoothing iron, a reciprocating carriage connected with said iron to actuate the same, a rotating shaft, a crank arm on said shaft, a crank pin on said arm, a connecting rod of the same effective length as said crank arm connecting said crank pin and said carriage whereby the crank pin can draw the carriage inwardly from either end of its path toward the middle point thereof or push it outwardly from said middle point but will tend to rotate said connecting rod with said crank arm when the carriage is at said middle point, and means for moving said carriage past the middle point of its path including fulcrum devices at opposite sides of the path of said carriage and an extension of said connecting rod past the crank pin so as to engage one fulcrum device as the carriage approaches said middle point in one direction and to engage the other fulcrum device as the carriage moves in the other direction, the connecting rod and its extension constituting a lever.

6. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, means for actuating said iron to act on articles on said board, a fixed support for said iron, and means whereby movement of the iron from the support to the board will start the iron-actuating means.

7. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, means for operating said iron along said board, a fixed support for said iron, and means whereby movement of the iron from the board to the support will stop the iron-operating means.

8. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, means for operating said iron along said board, a stationary support for said iron while not in use, and means whereby movement of the iron from the support to the board will start the iron-operating means and movement of the iron from the board to the support will stop the iron-operating means.

9. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, an electric heating unit in said iron, an electric motor, means operated by said motor for operating said iron along said board, a stationary support for said iron, and means whereby movement of the iron from the support to the board will cause the heating unit to heat the iron and will start the motor.

10. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, an electric heating unit in said iron, an electric motor, means operated by said motor for operating said iron along said board, a stationary support for said iron, and means whereby movement of the iron from the board to the support will shut off the heating unit and the motor.

11. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, an electric heating unit in said iron, an electric motor, means operated by said motor for operating said iron along said board, a stationary support for said iron, and means whereby movement of the iron from the support to the board will render the heating unit effective and start the motor and movement of the iron from the board to the support will have the opposite effect.

12. In a machine of the class described, the combination of an ironing board, a smoothing iron to cooperate therewith, an electric heating unit in said iron, an electric motor, means operated by said motor for operating said iron along said board, a stationary support for said iron, means whereby movement of the iron from the support to the board will start the heating unit and the motor and movement from the board to the support will have the opposite effect, and means including a control member on the iron for stopping or starting the motor without affecting the action of the heating unit.

ROGER S. HOWELL.