Sept. 23, 1924.

W. MORLOK

1,509,439

COMBINATION CONNECTER PLUG AND AUTOMATIC SWITCH

Filed Dec. 4, 1922

2 Sheets-Sheet 1

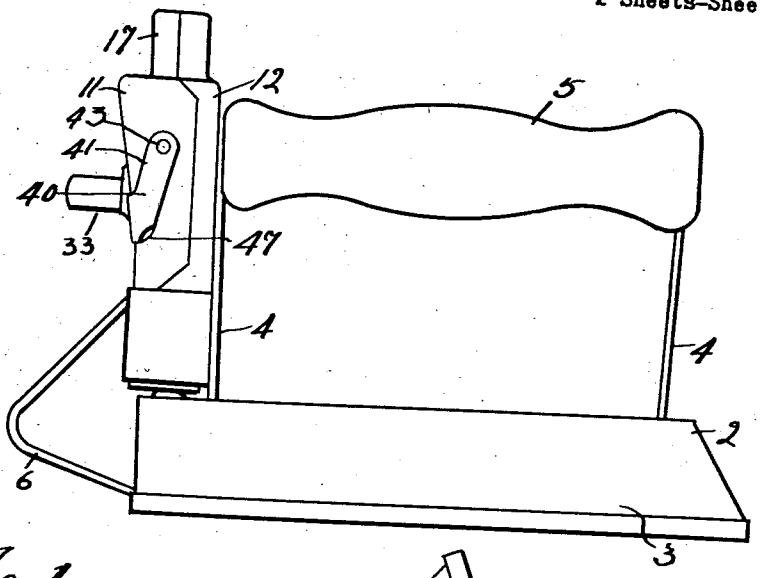


Fig. 1

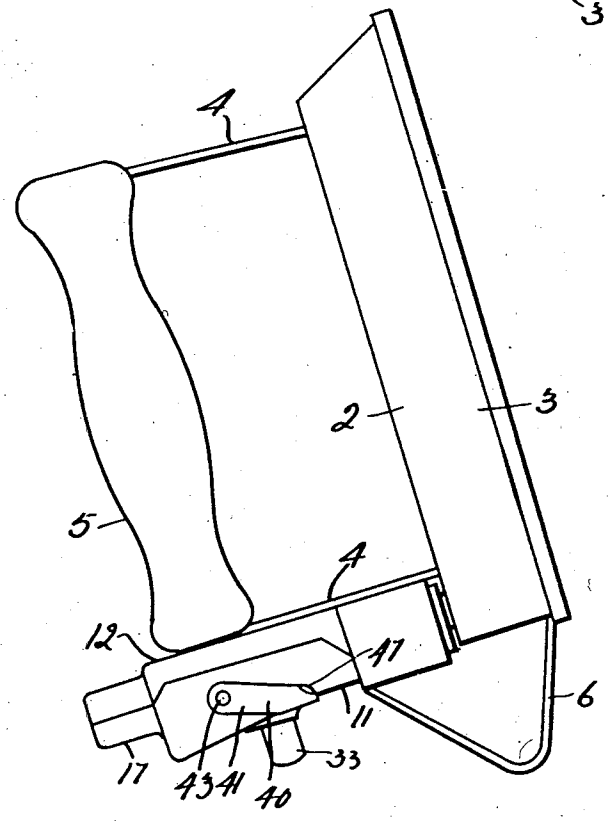


Fig. 2.

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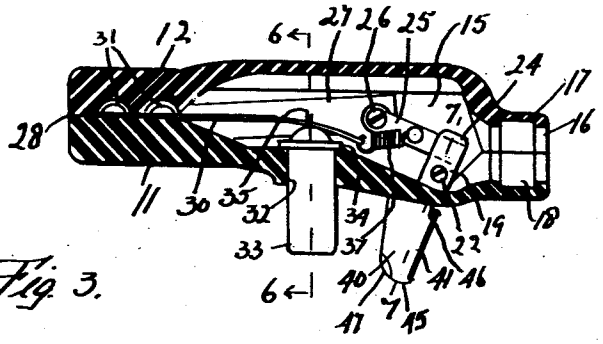


Fig. 3.

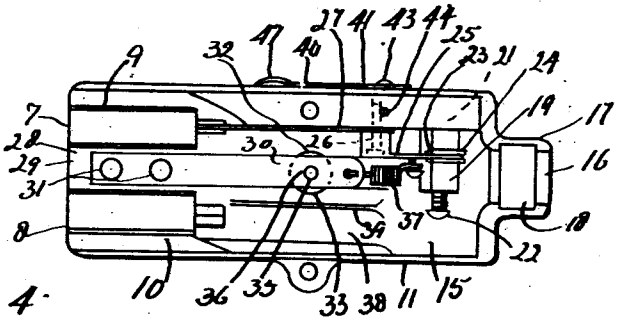


Fig. 4.

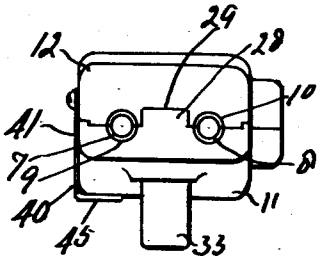


Fig. 5.

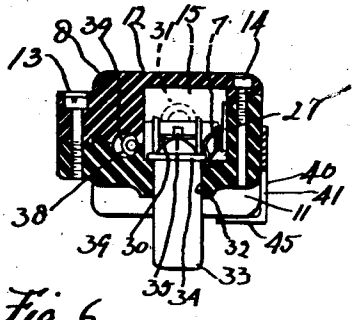


Fig. 6.

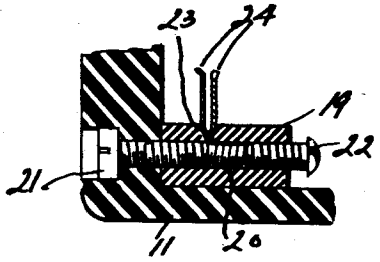


Fig 7

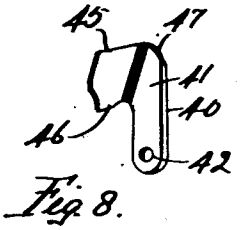


Fig. 8.

INVENTOR

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Patented Sept. 23, 1924. 1,509,439

UNITED STATES PATENT OFFICE.

WILLIAM MORLOK, OF PHILADELPHIA, PENNSYLVANIA.

COMBINATION CONNECTER PLUG AND AUTOMATIC SWITCH.

Application filed December 4, 1922. Serial No. 604,706.

To all whom it may concern:

Be it known that I, WILLIAM MORLOK, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and use Improvements in a Combination Connecter Plug and Automatic Switch, of which the following is a specification.

My invention relates to new and useful improvements in a combination connecter plug and automatic switch, which is particularly adapted for use with electrically heated flat irons or devices of a similar nature, and has for its primary object to provide improved automatic means entirely within the connecter plug for controlling the electric current dependent upon the position of the iron.

Another object of this invention is to construct a connecter plug having an automatic switch which is adapted for interchangeable use with different electric articles and devices produced by different manufacturers.

A further object of my invention is to provide an automatic spring actuated switch which will normally remain closed or will so remain during the time the iron is in an ironing position but which will be immediately opened so as to cut off the supply of current when the iron is set upon its end.

A still further object of the invention is to provide means for holding the push button out of contact with the surface on which the iron is resting when said iron is tilted upon its end in order that the switch may remain closed whereby the temperature of the iron may be raised during periods between ironing operations or during a short length of time prior to beginning such operations.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains, may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:—

Fig. 1, is a side elevation of a flat iron showing my invention applied thereto the feed wires not being shown.

Fig. 2, is a similar view showing the iron tilted or resting on its end.

Fig. 3, is an enlarged longitudinal medial view of my improved connecter plug and switch.

Fig. 4, is a plan view of the lower member of the connecter plug, as shown in Fig. 3, illustrating the relative positions of the switch mechanism elements.

Fig. 5, is an inner end view of the completed device.

Fig. 6, is a section at the line 6—6 of Fig. 3.

Fig. 7, is an enlarged fragmentary sectional view at the line 7—7 of Fig. 3 to illustrate the construction of one of the switch contact members.

Fig. 8, is a perspective view of the adjustable rest.

In carrying out my invention as here embodied, 2 represents an electrically heated flat or sad iron of any desirable or well known construction and includes a base 3, the handle straps 4, the handle 5 and the ordinary duplex contact plugs, not shown. Preferably the iron is also provided with a heel support 6 on which it rests when tilted or upended.

With the contact plugs of the iron are adapted to coact the contact sockets or clips 7 and 8 which are housed within the channels 9 and 10 formed in the two members 11 and 12 of the connecter plug casing formed of suitable insulating material, the said members being secured together by suitable means such as screws 13 and 14. The channels 9 and 10 run from the extreme inner end of the casing inwardly to form a communication with the body chamber 15 wherein is located the switch mechanism elements and in turn this body chamber communicates with the neck opening 16 formed in the neck 17 in which is also formed a circumferential groove 18 for the reception of the ordinary coil spring support which surrounds the cord carrying the feed wires and said feed wires pass through the neck opening 16 into the body chamber for connection with their proper parts.

Within the body chamber 15 is located a block 19, Fig. 7, having a hole 20 running entirely therethrough longitudinally thereof or transversely with relation to the connecter plug casing and said hole is screw threaded at each end or may be threaded its entire length, as here shown. This block is

held in place by a screw 21 threaded through one of the walls of the connecter plug casing and into the hole 20 and preferably one of the side walls of the member 11 of said casing. In the other end of the hole 20 on the block 19 is mounted the screw 22 for connecting one of the feed wires to one side of the circuit. The block 19 is provided with a notch or groove 23 in which are set the coacting stationary switch contact members 24 the same being held in place by solder or other suitable means.

With these switch contact members cooperates a movable switch member or blade 25 pivoted a one end by means of a screw 26 or its equivalent mounted in the side wall of the member 11 and with this screw is connected one end of the conductor 27 so as to contact with the movable member or blade 25 to provide suitable electrical connection. This conductor is preferably in the form of a metal strip, as shown in Fig. 3, and has its other end connected with one of the contact sockets or clips as 7.

The member 11 has a rib 28 to provide a surface 29 substantially in line with or in the same plane as the axis of the screw 26 or the pivot point of the movable switch member 25 and on this surface is mounted a flat spring 30 held in place by screws 31 or their equivalent while the free end of the spring 30 projects into the body chamber 15 and normally deflects or extends toward the bottom wall of the casing member 11 or toward the hole 32 in one of the walls of the casing in which is mounted the push button 33, said spring normally holding said push button outward, as shown in Fig. 3, while said button is held from accidental displacement by the flange or collar 34. Although not essential if found desirable the push button may be provided with a pin 35 at its inner end for registration with a hole 36 in the free end of the spring 30.

To the free end of the spring 30 is attached one end of the coil spring 37 the opposite end of said spring being attached to the movable switch member or blade 25 intermediate its length or at a point on that side of its pivot point opposite the free end of the spring 30 so that as shown in Fig. 3 when there is no pressure upon the push button 33 the blade 25 will be held in engagement with the contact members 24 through the medium of the coil spring 37 when the free end of the spring 30 is below the pivot point of the member 35 but when because of certain pressure exerted upon the push button 33 it is forced inward the free end of the spring 30 will be moved to the other side of the pivot point of the member 25 thereby changing the line of force exerted by the spring 37 above the pivot point of the member 25 which will cause said member 25 to be withdrawn from the switch contact members 24 and thereby open the switch and break the circuit. Since these movements of the member 25 do not take place until the spring 30 is moved considerably to one side of the pivot point of said member 25 the action of the member 25 is very quick thereby eliminating or reducing to a minimum the possibility of arcing.

The other feed wire passes through the neck opening 16 and then through the passageway 38 formed between the side walls of the casing members and ribs 39 parallel therewith but spaced therefrom and the inner end of said body wire is connected directly with the other contact socket or clip 8.

In practice when the device is in use and the iron is in an ironing or operative position, as shown in Fig. 1, the flat spring 30 will be in the position shown in Fig. 3 thereby causing the switch to be closed as hereinbefore stated so that the current will pass through the feed wire connected with the screw 22 then through the block 19, the stationary switch contact members 24 the movable switch member or blade 25, conductor 27, contact socket or clip 7, the heating element of the iron contact socket or clip 8 to the other feed wire which is connected to the last named socket.

As soon as the iron is tilted or upended so as to rest upon the heel support 6 and a portion of the connecter plug as shown in Fig. 2, then the push button 33 will engage the surface on which the iron is resting and the weight of said iron will force said push button inward thereby moving the flat spring 30 to the other side of the pivot point of the movable switch member 25 causing said movable switch member or blade to be disengaged from the stationary switch elements 24 thereby opening the switch and breaking the circuit so that no current will pass to the heating element of the rim and therefore no damage can be done to the object on which the iron is resting nor can the same become over heated while not in use. Since as here shown a portion of the weight of the iron is supported by the connecter plug when the iron is resting upon its end it is desirable that said connecter plug lie in close proximity to one of the handle strips 4 so as to assist in bracing the connecter plug so as to reduce the possibility of breaking said connecter plug.

When it is desired to maintain the switch in a closed position although the iron is standing upon its end in order that said iron may be heated preparatory to ironing or during the time between ironing periods I provide an adjustable rest 40 comprising an arm 41 with a hole 42 at its inner end whereby it may be secured to the outside of the connecter plug casing by means of a screw 43 the latter being held in place

by a set screw 44 threaded into the edge of the side wall of one of the casing members, as 11, the inner end of the set screw impinging against the screw 43. From the free end of the arm 41 projects a foot 45 at right angles to said arm and this foot lies flat against the outer face of the connecter plug casing when not in use while the edge 46 thereof engages said outer face of the casing when in an operative position, as shown in Fig. 3, thereby forming a support of greater length than the push button 33 to prevent contact of the latter with the surface on which the iron is resting. A portion of the arm is cupped up or bent outward to form a finger hold 47 in order that the rest may be readily moved to its operative position.

Of course I do not wish to be limited to the exact details of construction as herein shown as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:—

1. The combination with an electric iron comprising a base, a handle and a support, of a connecter plug for detachable connection with said iron, a switch in said connecter plug, means to normally hold said switch in a closed position, and means for contact with the surface on which the iron is resting when in a tilted position to actuate the first named means to cause the switch to be opened.

2. The combination with an electric iron comprising a base, a handle and a support, of a connecter plug for detachable connection with said iron, a switch in said connecter plug, means to normally hold said switch in a closed position, means for contact with the surface on which the iron is resting when in a tilted position to actuate the first named means to cause the switch to be opened, and adjustable means carried by the connecter plug which when in an operative position will prevent the actuation of the switch when the iron is tilted.

3. The combination with an electric iron comprising a base, a handle and a support, of a connecter plug for detachable connection with said iron, a switch in said connecter plug, means to normally hold said switch in a closed position, means for contact with the surface on which the iron is resting when in a tilted position to actuate the first named means to cause the switch to be opened, and a rest pivoted to the outside of the connecter plug and which when in operative position will prevent contact of the last named means with the surface on which the iron is resting in a tilted position.

4. The combination with an electric iron comprising a base, a handle and a support, of a connecter plug for detachable connection with said iron, contact sockets in said connecter plug to which is adapted to be connected with a feed wire a switch in said connecter plug, the movable element of which is adapted to be connected with the other contact socket and the stationary element connected with another feed wire, a push button projecting through one of the walls of the connecter plug, a flat spring within the connecter plug, the free end of which coacts with the push button to normally force it outward and resilient means connected with the free end of the flat spring and the movable switch element to normally hold said movable switch element in contact with the stationary switch element when the push button is forced outward and to be so positioned when the push button is forced inward as to cause the movable switch element to be disengaged from the stationary switch element said push button being actuated upon contact with the surface on which the iron is resting when the latter is in a tilted position.

In testimony whereof, I have hereunto affixed my signature.

WILLIAM MORLOK.