Aug. 20, 1968 V. A. MARTENS 3,398,260

CORDLESS ELECTRIC IRON

Filed Aug. 29, 1966 2 Sheets-Sheet 1

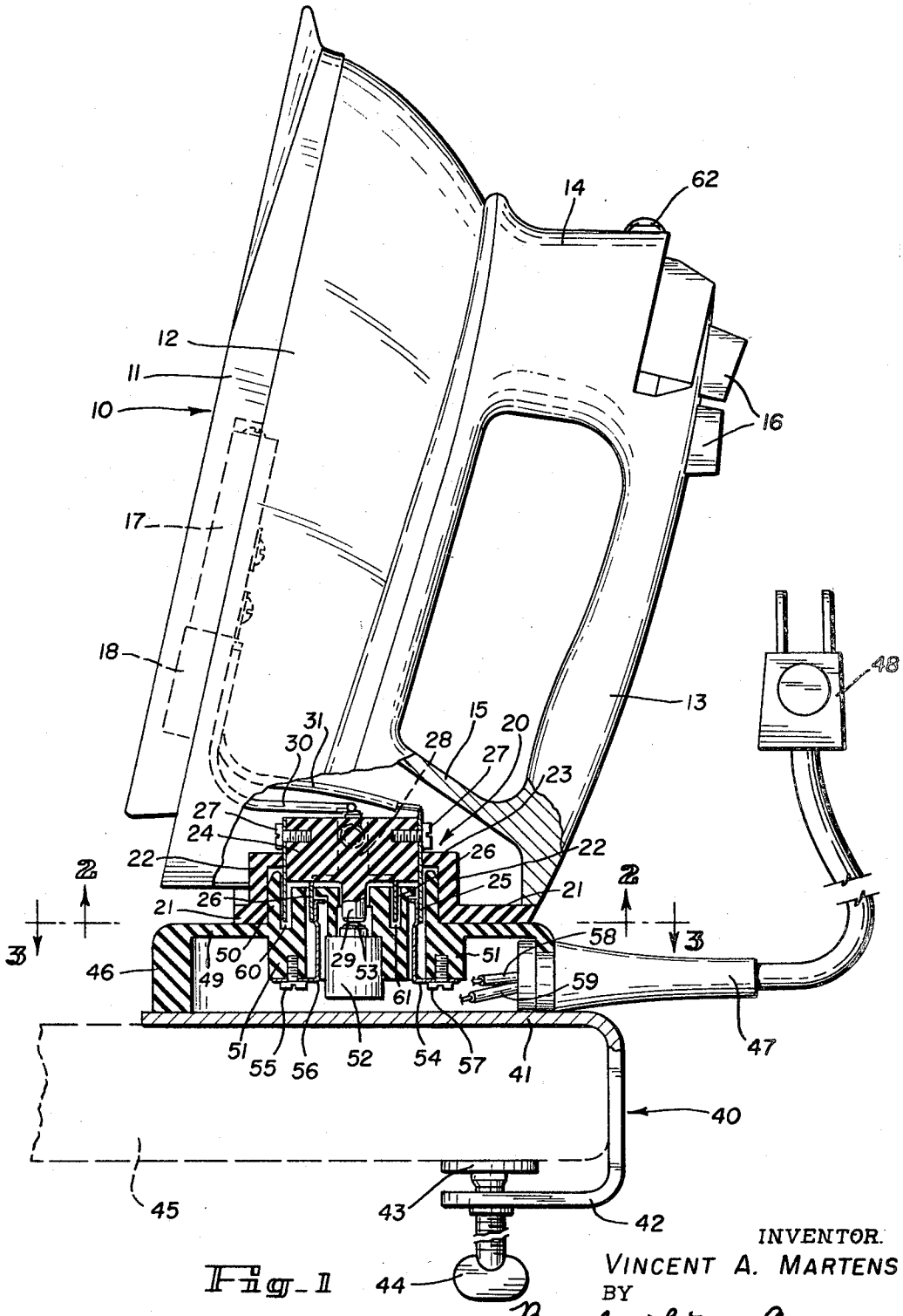


Fig. 1

INVENTOR.
VINCENT A. MARTENS
BY
Bertha L. MacGregor
ATTORNEY

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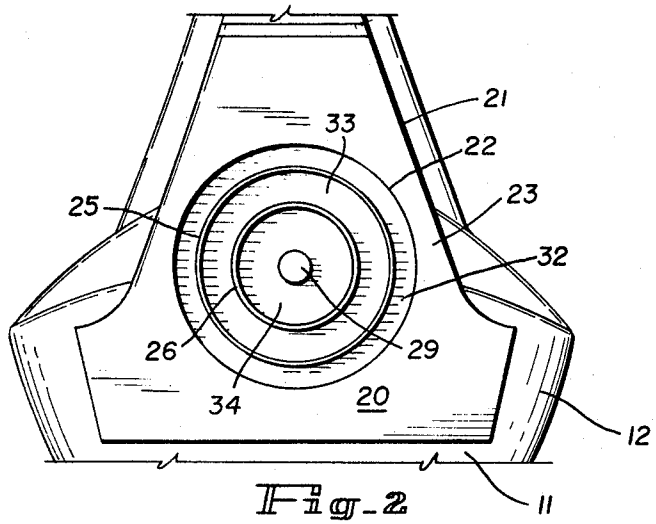


Fig. 2

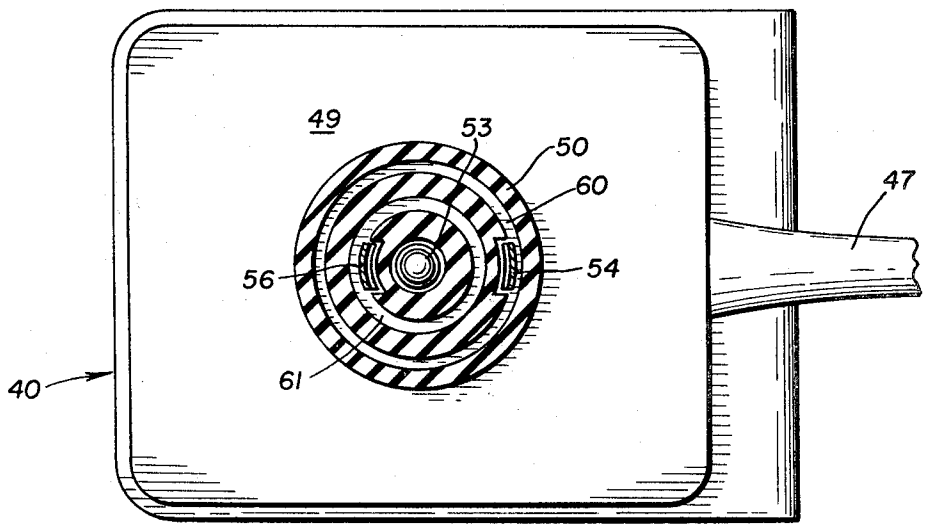


Fig. 3

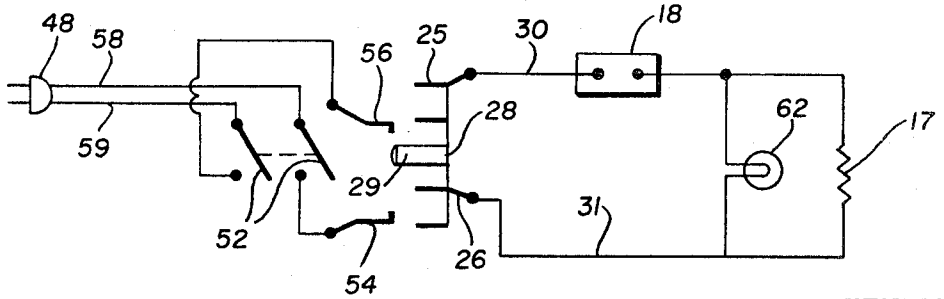


Fig. 4

INVENTOR.
VINCENT A. MARTENS
BY
Bertha L. MacGregor
ATTORNEY

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CORDLESS ELECTRIC IRON

Vincent A. Martens, Racine, Wis., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

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7 Claims. (Cl. 219—247)

This invention relates to cordless electric irons and more particularly to an electric iron and stand designed to support the iron when not in use and to conduct heating current to the iron while on the stand.

The main object of the invention is to provide the stand and the iron with current conducting members which permit the iron to be supported on end in any position on the conducting member of the stand. The conducting members are so formed that they permit swivel movement of the iron relatively to the stand when the iron is placed on end with the conducting members in current conducting engagement with each other.

Another object is to provide the conductor member on the iron in such form that the exposed surfaces are flush and the iron may be stored on its heel when not in use.

Another object of the invention is to provide current conducting members on the iron and stand which ensure self-finding engagement thereof when the iron is placed on its rear end with its conducting member facing the stand conducting member, and which have contact with each other over relatively large surface areas of the current conducting members.

Other objects and advantages of the invention will be apparent from the drawings and following description.

In the drawings:

FIG. 1 is an elevational side view partly in section of an electric iron and stand embodying my invention, showing the iron on end, with the current conducting members on the iron and stand in engagement with each other.

FIG. 2 is a rear end elevational view of the iron, as viewed from the plane of the line 2—2 of FIG. 1.

FIG. 3 is a top plan view of the stand which is part of my invention, as viewed from the plane of the line 3—3 of FIG. 1.

FIG. 4 is a diagram of the circuit employed in the stand and iron.

In that embodiment of the invention shown in the drawings, the pressing iron **10** comprises a heavy sole plate **11**, reservoir holding body **12**, and handle **13** connected to the body **12** by a hollow forward post **14** and a rearward post **15**. Conventional control members **16** and water inlet means (not shown) are located in the post **14**. Within the body **12**, above the sole plate **11**, are the heating element **17** and thermostat **18**.

A current conducting member **20** is attached to the rear end of the iron **10**. It comprises an insulating plate **21** generally triangular in form as shown in FIG. 2, having an annular inwardly extending wall **22** terminating in a radially inwardly directed portion **23** which defines a central opening designed to contain a contact carrying block **24**.

The block **24**, of insulating material, has mounted thereon two concentric annular ring-form contacts **25, 26**. The contact **25** is larger in diameter than the contact **26**. The outer contact **25** is attached to the block **24** at the opposite sides by screws **27**. The inner contact **26** is mounted in the block **24**, concentric with a central non-electrical switch actuating contact member **28** which has an exposed end **29** in substantially the same plane as the outer edges of the ring-form contacts **25, 26**. The contacts **25** and **26** are connected by leads **30, 31**, to the heating element **17** and thermostat **18** within the iron body **12**.

As viewed from the rear end of the iron, the current conducting member **20** appears as shown in FIG. 2, the exposed parts being the outer face of the insulating plate **21**, the edges of the contacts **25, 26**, and the end surface **29** of the central contact **28**. There is an annular space **32** between the wall **22** and contact **25**, an annular space **33** between the contacts **25** and **26**, and an annular space **34** between the contact **26** and the central contact **28**. These spaces accommodate the cooperating contacts which are part of the stand about to be described.

The stand **40** or power supply comprises a clamping bracket heaving an upper platform **41**, lower clamp support **42**, and clamping member **43, 44**, for mounting the stand on an ironing board **45**. A raised housing **46** on the platform **41** has connected thereto an electrical cord **47** with plug **48** for connection to a source of current. The housing **46** includes an upper wall **49** provided with upwardly and downwardly extending portions **50, 51**, respectively. A centrally located switch mechanism is designated **52**, with axially movable contact **53**. A spring contact **54** or outer contact is connected by screw **55** to one side of the depending portion **51**, and a spring contact **56** or inner contact is connected by screw **57** to the opposite side of the portion **51**. Contacts **54, 56** and switch **52** are connected to the electrical current source by leads **58, 59**.

When the iron **10** is placed on end on the stand **40**, the ring contact **25** slides downwardly into the space **60** adjacent the upwardly extending part **50** of the housing **46**, into contact with the spring contact **54**, and the ring contact **26** slides into the space **61** into contact with the spring contact **56**. Simultaneously, the central contact **28, 29**, on the iron, comes into depressing contact with the contact **53** of the switch mechanism **52** of the stand, and thereby closes the normally open switch, the closing being indicated by the glow of the lamp **62**. The lamp continues to glow as long as the line cord is connected to the source of power and the iron is positioned on the stand with the contacts **25, 26** and **28** on the iron in contact with the stand contacts **54, 56** and **53**, respectively.

The iron may be placed on the stand to engage the conductor members with each other, with its sole facing in any direction, and the iron as a whole may be swiveled about the axis of the conductor member while so placed without interrupting the passage of current to the heating element **17**. The sole plate **11** is thick enough to hold heat for a long time, and the heating element is a "Calrod" of sufficient capacity to heat the sole plate quickly. Due to the annular form of the contacts **25, 26** concentric about the swivel axis, dependable contact is made with the spring contacts **54, 56**, without restriction as to the direction in which the iron faces when so positioned.

Changes may be made in the construction and arrangement of parts without departing from the scope of the invention as defined by the appended claims.

I claim:

1. An electric iron assembly which comprises

(a) a stand having means for connecting it to a source of electrical current,

(b) a cordless iron having a heating element therein,

(c) a conductor member on one of said iron and stand including an insulating plate, a pair of concentric different-diameter ring-form contacts, and a switch contact concentric with the ring-form contacts mounted in said insulating plate, and

(d) a conductor member on the other of said iron and stand including an insulating plate, a pair of contacts each mounted in the insulating plate to engage one of the ring-form contacts, a switch, and a switch closing contact for engagement with the switch contact of the first conductor member when the iron is

placed on end with its conductor member resting on the conductor member of the stand,

(e) the iron and its conductor member being pivotable about the axis of the conductor members when said conductor members are in current conducting engagement with each other.

2. An electric iron assembly which comprises

(a) a stand having means for connecting it to a source of electrical current,

(b) a cordless iron having a heating element therein,

(c) a conductor member on the rear end of the iron including an insulating plate, a pair of concentric different-diameter ring-form contacts, and a switch contact concentric with the ring-form contacts mounted in said insulating plate, said pair of concentric different-diameter ring-form contacts being connected to the heating element, and

(d) a conductor member on the stand including an insulating housing, a pair of contacts each mounted in the housing to engage one of the ring-form contacts on the iron, a switch, and a switch closing contact for engagement with the switch contact on the iron when the iron is placed on end with its conductor member resting on the conductor member of the stand,

(e) the iron and its conductor member being pivotable about the axis of the member when the two conducting members are in current conducting engagement with each other without interrupting the flow of current to the heating element.

3. The electric iron assembly defined by claim 2, in which the pair of contacts mounted in the housing of the conductor member on the stand are spring metal segmental contacts which yieldingly engage side surfaces of the ring-form contacts of the conductor member on the iron.

4. The electric iron assembly defined by claim 2, in which the exposed surfaces of the conductor member on the iron are the face of the insulating plate, the edges of the ring-form contacts and the end surface on the switch contact, said exposed surfaces being substantially flush with each other and serving to support the iron on its heel when not in use.

5. The electric iron assembly defined by claim 2, in which the insulating housing of the stand is provided with an upper wall which has annular recesses therein in which the conductor member contacts are mounted and for reception of the ring-form contacts of the conductor member of the iron.

6. In combination, an electric iron having a heating element and a power supply, said iron being removably supportable in upright rest position on said power supply to swivel about a substantially vertical axis, each of said iron and power supply having an inner and an outer electric contact, the contacts on said iron being connected to the heating element, means for connecting the contacts on said power supply to a current source, the two inner contacts engaging each other and the two outer contacts engaging each other when the iron is in such rest position, one of said outer contacts being a ring disposed concentrically about the axis.

7. The combination defined by claim 6, in which the power supply is provided with switch means adapted to be actuated by the weight of the iron when the iron is in its upright rest position on said power supply.

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RICHARD M. WOOD, *Primary Examiner.*

C. L. ALBRITTON, *Assistant Examiner.*