(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 999 303 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
10.05.2000 Bulletin 2000/19

(51) Int. Cl.[7]: **D06F 75/12**

(21) Application number: **99120954.5**

(22) Date of filing: **03.11.1999**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **04.11.1998 IT MO980229**
04.11.1998 IT MO980230

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(54) Professional-type steam iron

(57) A professional-type steam iron comprising a known structure composed of a handle (2) fitted above an internally hollow metal plate (3) whose lower surface (3a) is adapted to glide in contact with fabrics; in the lower surface (3a) of the plate and at least in the region (3b) thereof that is considered as being the front region there are respective first and second steam dispensing openings (4, 5) which are internally connected, by means of corresponding first and second ducts (6, 7), to at least one valve means (8) for controlling the supply of steam; the valve means (10) is accommodated in the plate (3) and can be actuated from outside.

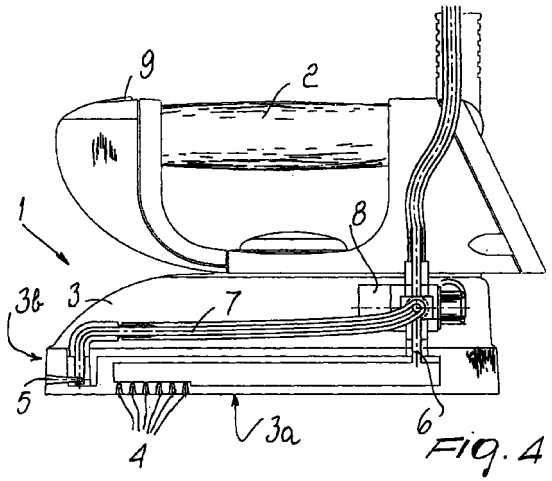

Fig. 4

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Description

[0001] The present invention relates to a professional-type steam iron.

[0002] Steam irons have long been known and used that allow perfect and easy ironing of all treated items and fabrics.

[0003] Conventional irons are provided with steam dispensing holes which are essentially located on the face of the plate of the iron that makes contact with the fabrics.

[0004] Some irons have a distribution of the holes designed specifically to improve the performance of the iron, especially as regards the possibility to reach very difficult areas, such as cuffs, in items such as for example shirts.

[0005] Despite these refinements adopted by manufacturers, the ability to penetrate difficult areas of a particular item is not entirely satisfactory.

[0006] The user attempts to compensate this shortcoming by lifting and orientating the iron with several maneuvers, but in the long run this becomes tiring and in any case has an uncertain outcome.

[0007] The supply of steam to the dispensing holes also is not entirely satisfactory as regards the possibility to have orientated and powerful jets in order to reach the regions that are less accessible with the plate.

[0008] The aim of the present invention is to solve the above-described problem of the prior art by providing an improved type of steam iron which allows to apply steam to fabrics, and therefore iron them perfectly, even in hidden regions or regions difficult to reach with conventional irons.

[0009] This aim, and other objects which will become more apparent hereinafter, are achieved by a professional-type steam iron, comprising a structure composed of a handle fitted above an internally hollow metal plate whose lower surface is adapted to glide in contact with fabrics, characterized in that in said lower surface of the plate, and at least in a region, thereof that is considered as being the front region, there are respective first and second steam dispensing openings which are internally connected, through corresponding first and second ducts, to at least one valve means for controlling the supply of steam, said valve means being accommodated in said plate and being actuatable from outside.

[0010] Advantageously, the valve means is a double-action electric valve, characterized in that it comprises a solid body inside which there is a hollow seat for the snug sliding of a flow control element, at least three ducts for connection to the outside leading into said seat, means being provided for actuating said flow control element between at least two active positions for alternately blocking said ducts, means for returning said flow control element to at least one of said positions being further provided.

[0011] Further characteristics and advantages of the present invention will become apparent from the following description of a preferred embodiment of a professional-type steam iron, illustrated only by way of nonlimitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of the steam iron according to the present invention;

Figure 2 is a sectional view of a valve means of the steam iron in a first possible operating configuration;

Figure 3 is a sectional view of the valve means of Figure 2 in a second possible operating configuration;

Figure 4 is a side view of the iron according to the invention;

Figure 5 is a plan view of the iron according to the invention.

[0012] With reference to the above figures, the reference numeral 1 designates a professional-type steam iron, which is conventionally composed of a handle 2 fitted above an internally hollow metal plate 3 whose lower face 3a is adapted to keep contact with fabrics to be ironed by gliding on them.

[0013] In the lower face 3a and at least in a region 3b of the plate 3 considered as being the front region, and more specifically at the tip thereof, there are respective first and second openings, designated respectively by the reference numerals 4 and 5, through which steam V is dispensed; the openings are connected inside the plate 3, by means of a corresponding first duct and second duct, designated by the reference numerals 6 and 7 respectively, to at least one valve means 8 which is adapted to control the supply of steam V, is accommodated in the plate 3 and can be actuated from outside, for example by means of a button 9 located on the handle 2.

[0014] The valve means 8 is constituted by at least one electric valve 10 of a double-action type which controls the alternating opening and closure of the first openings 4 and of the second openings 5.

[0015] The electric valve 10 essentially comprises a solid body 11 inside which there is a hollow seat 12, inside which a flow control element 13 is fitted so that it can slide snugly.

[0016] At least three ducts for connection to the outside, respectively a first inlet duct designated by the reference numeral 14, a second outlet duct designated by the reference numeral 15 and a third outlet duct designated by the reference numeral 16, lead into the hollow seat 12.

[0017] The electric valve 10 is provided with means 17 for actuating the flow control element 13 between at least two extreme operating positions for alternately blocking the ducts 14, 15 and 16, and with means for returning the flow control element 13 into at least one of the extreme positions.

[0018] In detail, the first duct 14 and the second duct 15 are mutually coaxial and arranged transversely with respect to the flow control element 13, while the third duct 16 is coaxial to the flow control element.

[0019] A chamber 14a defined in the body 11 is further provided in the point where the first duct 14 and the hollow seat 12 meet.

[0020] The flow control element 13 is composed of a cylindrical body 13a made of magnetically reactive material and is provided, at one end, with a head 19 for blocking the third duct 16; downstream of the head there is an annular groove 13b.

[0021] The flow control element 13 is also provided with an axial cavity 20 which accommodates the return means, which are constituted by at least one helical compression spring 21 fitted in the axial cavity 20 and in which one end is in contact with the bottom of the cavity and the other end is in contact with a corresponding end wall of said hollow seat 12.

[0022] Said seat is peripherally surrounded by said means 17 for actuating the flow control element 13, which essentially consist of a magnetic winding 22 which is adapted to constitute a coil.

[0023] The operation of the invention is as follows: when the electric valve 10 is in the configuration of Figure 3, i.e. when the head 19 of the flow control element 13 blocks the second duct 15, the steam V escapes normally through the series of openings 4 formed in the lower face 3a of the plate 3.

[0024] In practice, the steam arrives from the third duct 16 and passes through the annular groove 13b of the flow control element 13 into the first duct 14, from which it is delivered through the openings 4.

[0025] When the user needs to deliver the steam V through the front openings 5, by acting on the button 9 he excites the winding 22, which returns the flow control element 13 into abutment against the end wall of the hollow seat 12, overcoming the resistance of the helical spring 21, which is compressed.

[0026] The head 19 of the flow control element 13 frees the third duct 16 and blocks the second duct 15.

[0027] The steam V that arrives from the duct 13 enters the chamber 14a and passes through it into the duct 16, from which it is dispensed through the openings 5.

[0028] When the action of the user on the button 9 ceases, the winding 22 returns to the inert state and the spring 21 elongates again, returning the flow control element 13 to the configuration for normal use of the steam iron 1.

[0029] In practice it has been observed that the above-described invention achieves the intended aim.

[0030] The invention thus conceived is susceptible of several modifications and variations, all of which are within the scope of the inventive concept.

[0031] All the details may further be replaced with other technically equivalent ones.

[0032] In practice, the materials employed, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the protective scope of the appended claims.

[0033] The disclosures in Italian Patent Applications No. M098A000229 and M098A000230 from which this application claims priority are incorporated herein by reference.

[0034] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A professional-type steam iron, comprising a known structure composed of a handle fitted above an internally hollow metal plate whose lower surface is adapted to glide in contact with fabrics, characterized in that in said lower surface of the plate, and at least in the region thereof that is considered as being the front region, there are respective first and second steam dispensing openings which are internally connected, through corresponding first and second ducts, to at least one valve means for controlling the supply of steam, said means being accommodated in said plate and being actuatable from outside.

2. The iron according to claim 1, characterized in that said valve means comprises at least one double-action electric valve for alternately opening and closing said first and second openings.

3. The iron according to claim 2, characterized in that said at least one valve means comprises a solid body inside which a hollow seat is defined for the snug sliding of a flow control element, at least a first, a second and a third valve duct for connection to the outside merging in said seat, means being provided for actuating said flow control element between at least two active positions for alternately blocking said valve ducts, means for returning said flow control element to at least one of said positions being further provided.

4. The iron according to claim 3, characterized in that at least a first one and a second one of said valve ducts are co-planar and transverse with respect to said flow control element and in that a third valve duct is coaxial to said flow control element.

5. The iron according to claim 4, characterized in that said first and second valve ducts are mutually opposite and coaxial.

6. The iron according to claim 3, characterized in that said first valve duct is an inlet duct and said second and third valve ducts are outlet ducts.

7. The iron according to claim 3, characterized in that said flow control element is composed of a cylindrical body made of magnetically reactive material and is provided, at one end, with a head for blocking said third valve duct, downstream of which there is an annular groove, said flow control element being further axially provided with a cavity for accommodating said return means.

8. The iron according to claim 7, characterized in that when the flow control element is in the position for blocking said third valve duct, said groove is co-planar and aligned with said first and second valve ducts, connecting them without discontinuities.

9. The iron according to claim 7, characterized in that in the point where said first valve duct and said axial cavity meet there is a chamber which is formed in said solid body and is larger than said head of the flow control element.

10. The iron according to claim 7, characterized in that said return means comprises at least one helical compression spring which is fitted in said cavity so that one end is in contact with the bottom of said cavity and the other end is in contact with a corresponding end wall of said hollow seat.

11. The iron according to claim 3, characterized in that said hollow seat is peripherally surrounded by said means for actuating said flow control element.

12. The iron according to claim 11, characterized in that said actuation means comprises a magnetic winding which constitutes a coil.

13. A double-action electric valve, particularly for steam irons, characterized in that it comprises a solid body inside which a hollow seat is defined for the snug sliding of a flow control element, at least three ducts for connection to the outside merging in said seat, means being provided for actuating said flow control element between at least two active positions for alternately blocking said ducts, means for returning said flow control element to at least one of said positions being further provided.

14. The electric valve according to claim 13, characterized in that at least a first one and a second one of said ducts are co-planar and transverse with respect to said flow control element and in that the third duct is coaxial to said flow control element.

15. The electric valve according to claim 14, characterized in that said first and second ducts are mutually opposite and coaxial.

16. The electric valve according to claim 13, characterized in that said first duct is an inlet duct and said second and third ducts are outlet ducts.

17. The electric valve according to claim 13, characterized in that said flow control element is composed of a cylindrical body made of magnetically reactive material and is provided, at one end, with a head for blocking said third duct, downstream of which there is an annular groove, said flow control element being further axially provided with a cavity for accommodating said return means.

18. The electric valve according to claim 17, characterized in that when the flow control element is in the position for blocking said third duct, said groove is co-planar and aligned with said first and second ducts, connecting them without discontinuities.

19. The electric valve according to claim 17, characterized in that in the point where said first inlet duct and said axial cavity meet there is a chamber which is formed in said solid body and is larger than said head of the flow control element.

20. The electric valve according to claim 17, characterized in that said return means comprises at least one helical compression spring which is fitted in said cavity so that one end is in contact with the bottom of said cavity and the other end is in contact with a corresponding end wall of said hollow seat.

21. The electric valve according to claim 13, characterized in that said hollow seat is peripherally surrounded by said means for actuating said flow control element.

22. The electric valve according to claim 21, characterized in that said actuation means are constituted by a magnetic winding which constitutes a coil.

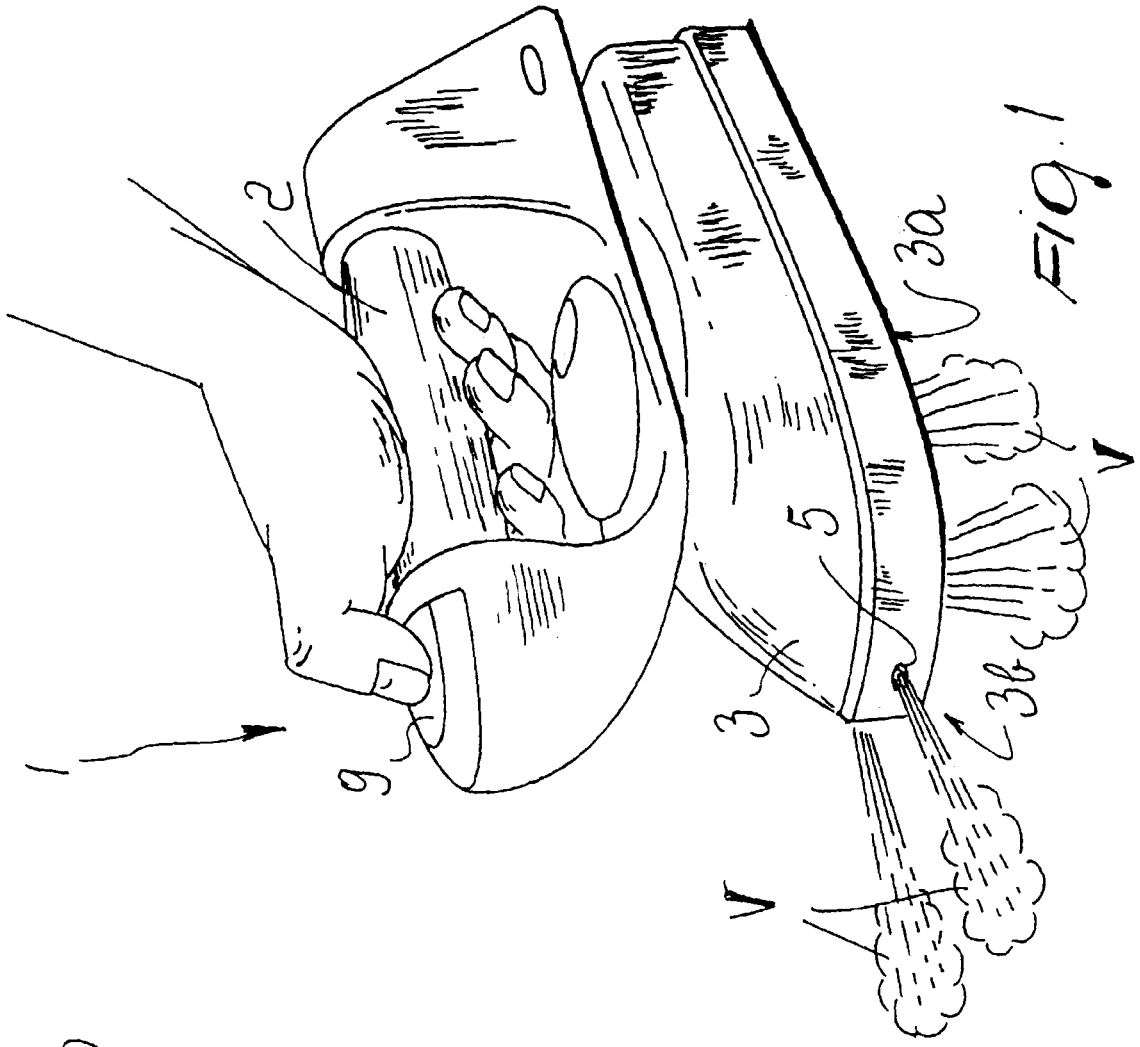

FIG. 1

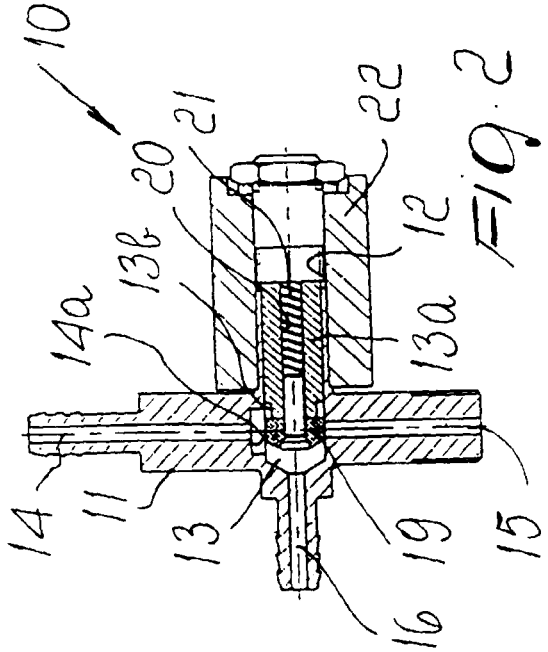

FIG. 2

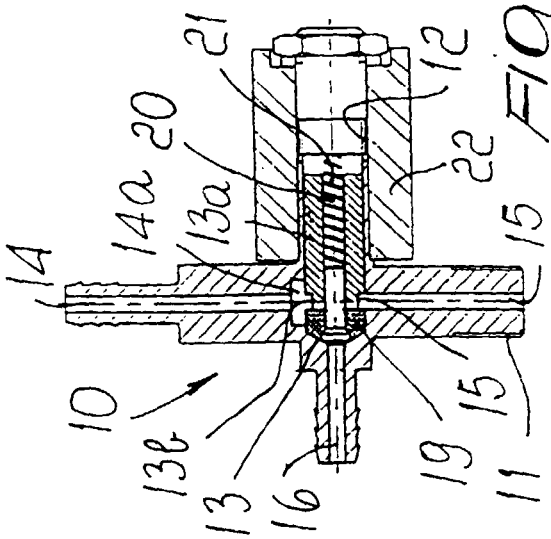

FIG. 3

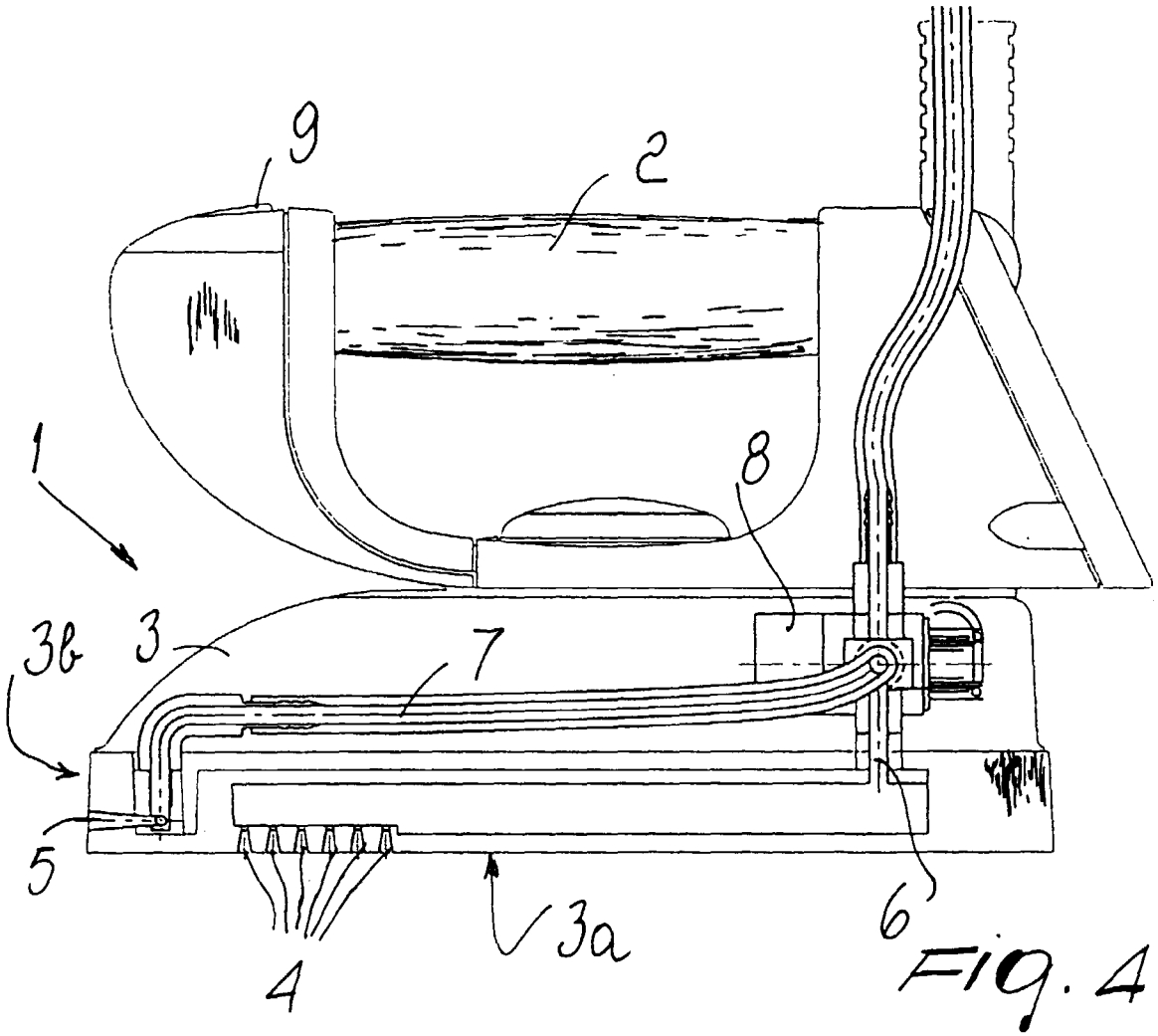

Fig. 4

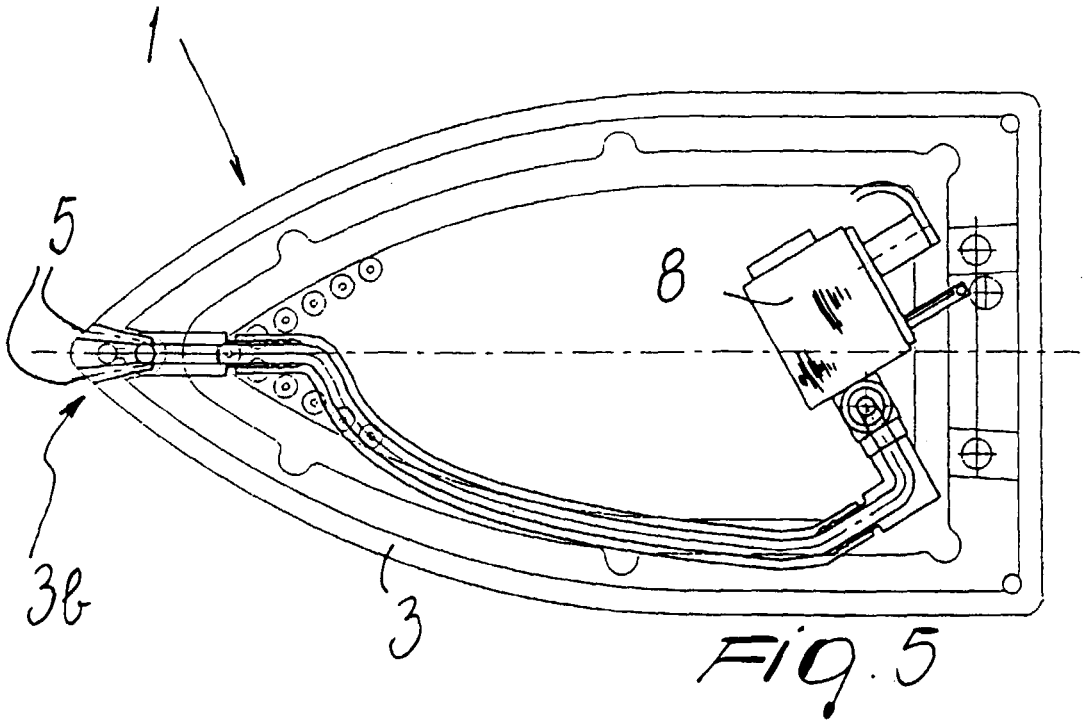

Fig. 5