Nov. 12, 1935. H. S. DENISON 2,020,538

ELECTRIC LAUNDRY IRON

Filed May 18, 1934 2 Sheets-Sheet 1

Fig 1

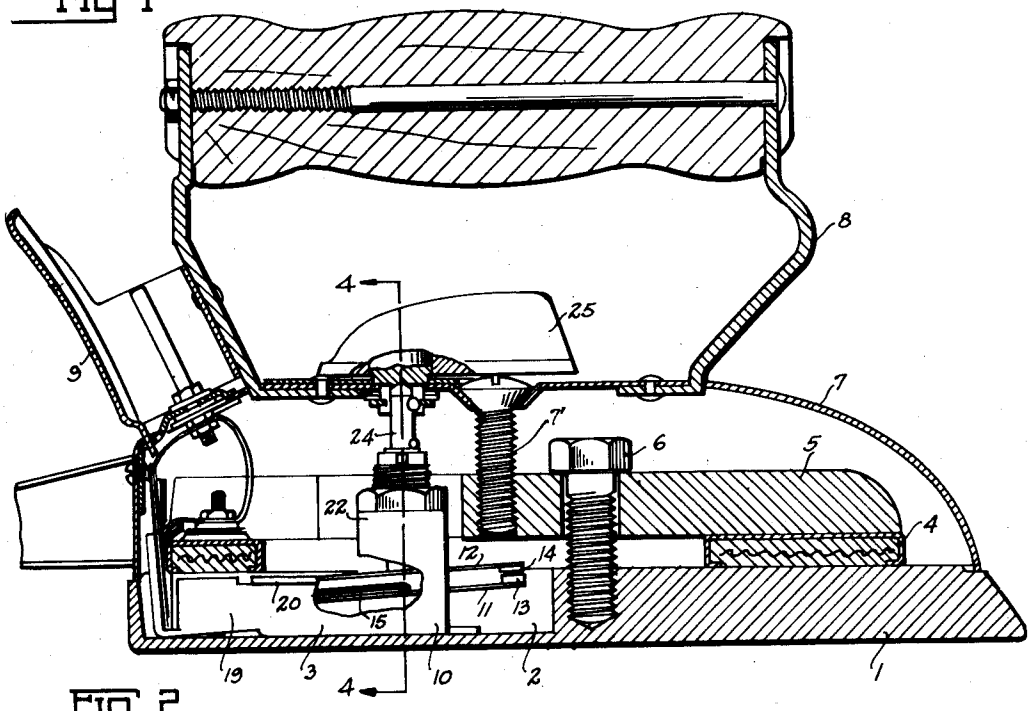

Fig 2

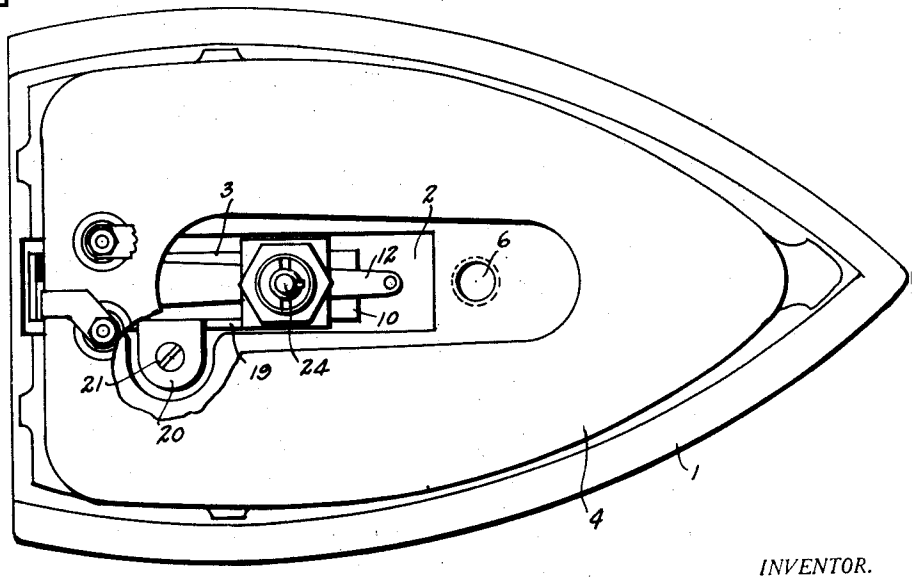

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Fig 3

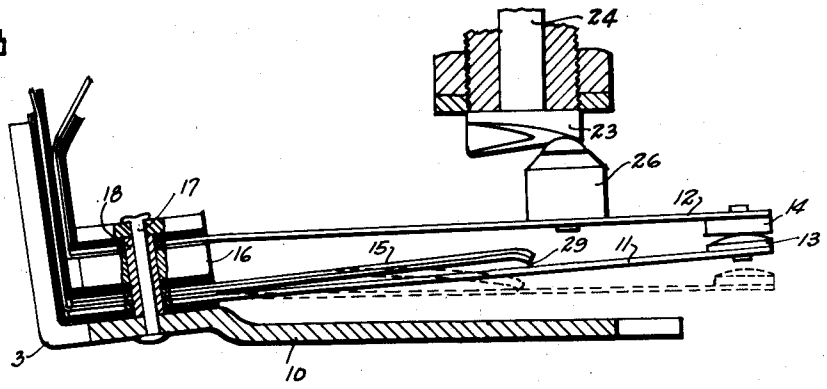


Fig 4

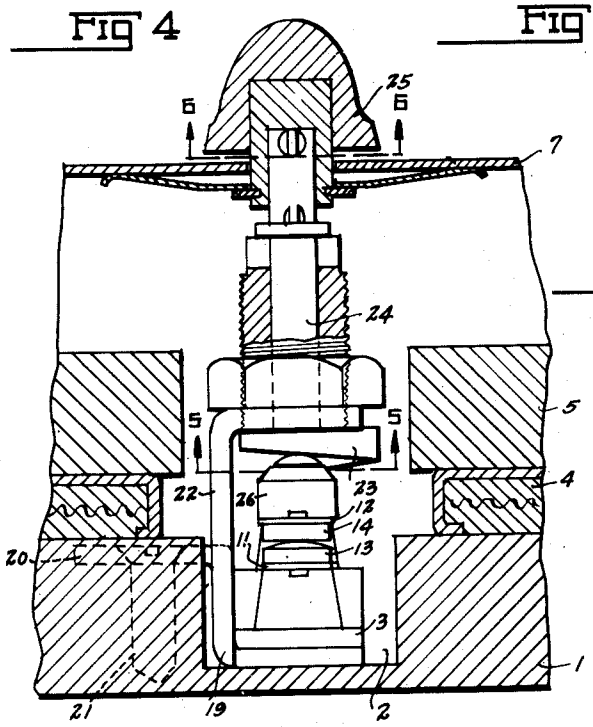


Fig 5

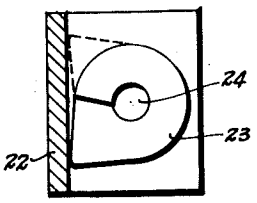


Fig 6

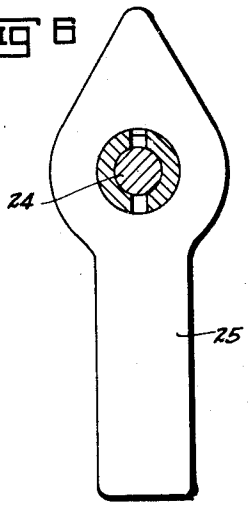
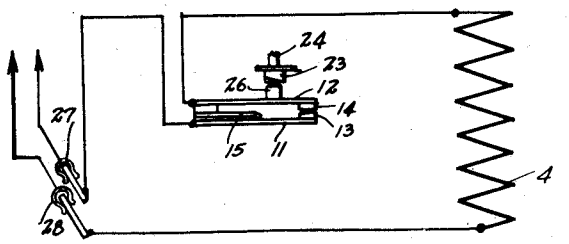


Fig 7



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Patented Nov. 12, 1935 2,020,538

UNITED STATES PATENT OFFICE

2,020,538

ELECTRIC LAUNDRY IRON

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Application May 18, 1934, Serial No. 726,277

4 Claims. (Cl. 200—138)

This invention relates to electric laundry irons in which a thermostatic switch in the circuit for the heating element regulates the heat or temperature of the iron. It is to be understood that the thermostatic switch is capable of use with devices other than irons, so I do not wish to be limited to any particular use of the invention, except in those claims which specifically include the parts of the iron as parts of the combination.

The novelty of the invention will be understood by reference to the following description in connection with the accompanying drawings in which:

Figure 1 is a longitudinal sectional view through an iron constructed in accordance with my invention,

Figure 2 is a plan view showing the cover plate removed,

Figure 3 is an enlarged view of the thermostat, parts being shown in section,

Figure 4 is a sectional view on the line 4—4 of Figure 1,

Figure 5 is a sectional view on the line 5—5 of Figure 4,

Figure 6 is a sectional view on the line 6—6 of Figure 4, and,

Figure 7 is a wiring diagram.

The reference numeral 1 designates the sole plate of the iron having a recess 2 to receive the thermostat 3. On the sole plate is a heating element 4 clamped thereon by the clamping plate 5 through the medium of the screw bolt 6.

The heating element, the clamping plate, the thermostat and its control, are all enclosed by the cover 7 to which the handle and the plug socket 9 is fastened.

The bolt 7 fastens into clamping plate 5 and holds the cover 7 to the sole plate 1.

The thermostat is shown as comprising a base bracket 10 having at its rear end a support for the thermostatic blades 11 and 12 which constitute contact carriers for the contacts 13 and 14. These contact carriers together with the bimetallic thermostat blade 15 are all supported by a laminated block of insulating material and metal, held together and to member 1 by the bolt or rivet 17 having an insulating sleeve 18 around it, so the members 11, 12 and 15 will all be insulated one from the other. The member 10 is provided with an upstanding flange 19, having an ear 20 in a recess in the sole plate to which it is secured by a screw 21 and an integral bracket 22 supports a rotatable cam 23 on a vertical shaft 24, operated by the handle 25 so that the cam bearing on the cone member 26 on carrier 12 can deflect the spring member 12 to regulate the temperature of the iron. That is, the position of the contact 14 with respect to the contact 13, will determine the temperature at which the contacts will be spread by the bimetallic bar 15.

In the diagram Fig. 7, the pins 27 and 28 can be connected to a plug in the usual way, so that current will be supplied to the iron and through the thermostatic switch to the heating element 4.

One face of the movable contact carrier in the present instance the carrier is roughened and it is contacted by the end 29 of the bimetallic bar 15 when the bar 15 flexes to spread the contacts apart. It will be noted that the end 29 of the thermostatic bar 15 is at an angle (I recommend an angle of between 30 and 90 degrees), so that when the end 29 of bar 15 first contacts with the roughened face of bar 11, there will be a frictional resistance set up between the end of bar 15 and the surface of bar 11. As a result, the tendency of the end of the bar 15 to move in a rectilinear direction along the bar 11 will be resisted until enough energy accumulated in the bar 15 to overcome the fricture resistance whereupon the contacts will be sprung apart an appreciable distance beyond the arcing point and thereby make a gap greater than that necessary to break the circuit. As a result, the sole plate of the iron will have to cool the estimated amount before the thermostatic bar 15 will permit the circuit to be reestablished. As a result, the flashing off and flashing on of the switch will not be nearly so rapid as would be the case if no provision was made to build up energy in the blade 15 before the switch operates, so as to cause an appreciable lag in the re-establishment of the circuit. In actual practice, I have found that the makes and breaks in the circuit in a laundry iron are quite slow, even when on test, where the iron is merely on a stand or base, so very efficient regulation is provided and the life of the thermostat switch is actually longer than known thermostats in the same relation to an element to be heated.

The thermostat being insulated or protected by the walls of the sole plate clamping plate, etc., will be free from interference by changes in temperatures outside the recess, so the thermostatic bar 15 will respond to temperature of the sole plate and as a result, close regulation can be effected.

What I claim is:

1. A thermostat for electrically heated devices comprising two spaced contact carrying bars, one of which has opening movement with respect to the other, provided with roughened

face, a flexible bimetallic thermostatic bar between the contact carrying bars normally in a plane parallel to them, having a free end contactable with the rough face when the thermostatic bar flexes, the angle of contact between the end of the thermostatic bar and the rough face being such that the rectilinear movement of the end of the thermostatic bar is resisted to such a degree that there will be a building up of forces in the thermostatic bar preparatory to the opening movement of the movable contact carrying bar to such an extent that the contacts will be spread apart far enough beyond that required to break the circuit to cause an appreciable lag in the reestablishment of the circuit.

2. A thermostat for electrically heated devices, comprising two normally parallel spaced contact carrying bars, one of which is flexible, and a bimetallic thermostatic bar between them, said thermostatic bar having a free end at an angle to the main portion thereof to contact with the face of the flexible contact carrying bar, the flexible contact carrying bar having a roughened face to resist the movement of the end of the thermostatic bar along the contact carrying bar until a predetermined amount of energy has been built up in the thermostatic bar.

3. A thermostat for electric heating devices, comprising two space contact carrying bars, one of which has movement toward and away from the other, the movable bar having a roughened face, a flexible bi-metallic thermostat bar between the contact carrying bars normally in a plane parallel to them and having an integral free end bent at an obtuse angle to the main body of the bar, said end being contactable with the rough face when the thermostatic bar flexes so that there will be a building up of forces in the thermostatic bar preparatory to the thermostatic bar exerting force against the movable contact carrying bar to break the circuit.

4. A thermostat for electric heating devices, comprising two spaced contacts, a bar supporting one of the contacts having a free end movable to spread the contacts apart, the bar having a rough face, a flexible bimetallic thermostat bar having a free end contactable with the rough face when the thermostat bar flexes, the angle of contact between the end of the thermostat bar and the rough face being such that the rectilinear movement of the end of the thermostat bar is resisted to such a degree that there will be a building up of forces in the thermostat bar, preparatory to the thermostat bar exerting force against the contact carrying bar to break the circuit.

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