A. H. & C. P. WAAGE.

SAD IRON.

APPLICATION FILED JULY 28, 1911.

1,030,036.

Patented June 18, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

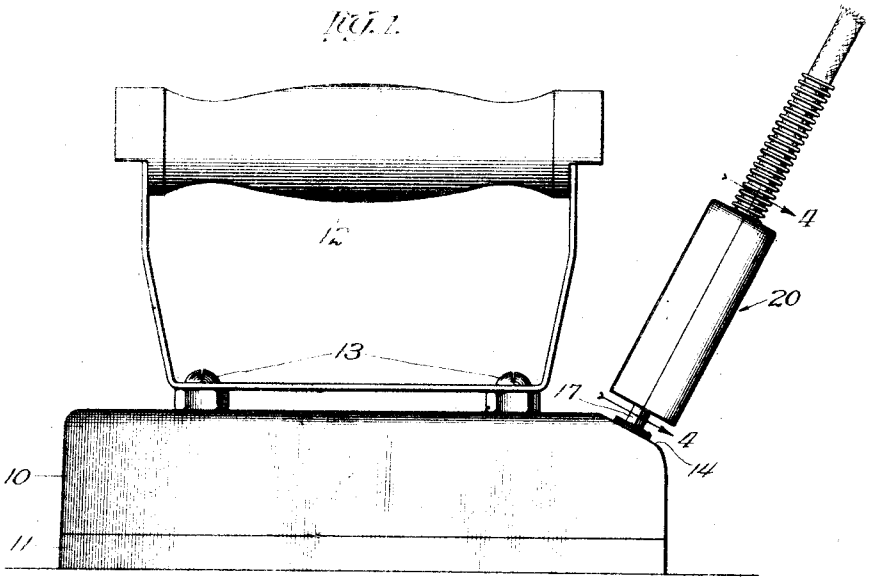



Fig. 2.

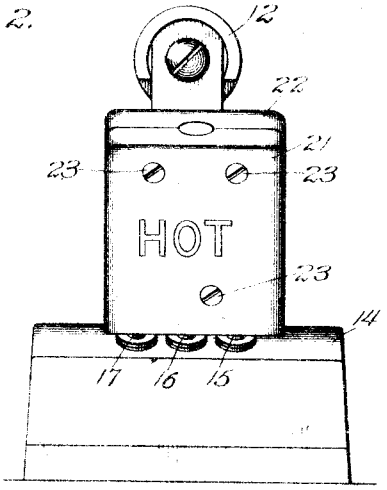



Fig. 3.

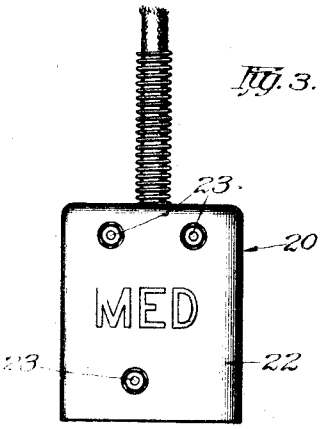
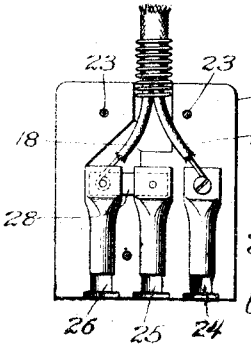



Fig. 4.




Witnesses:
Robert H. Mee
J. N. Dagger.

Inventors.
Alvin H. Waage
and Clarence P. Waage.
by Foster Freeman & May
Attys.

A. H. & C. P. WAAGE.

SAD IRON.

APPLICATION FILED JULY 28, 1911.

**1,030,036.**

Patented June 18, 1912

2 SHEETS—SHEET 2.

Fig. 5.

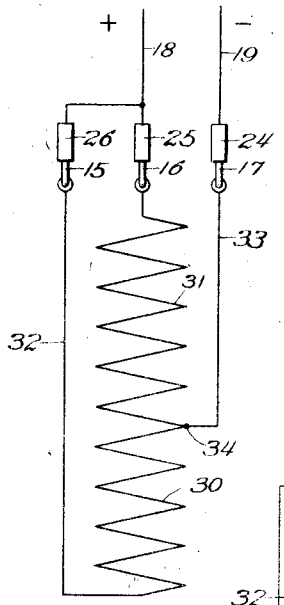



Fig. 6.

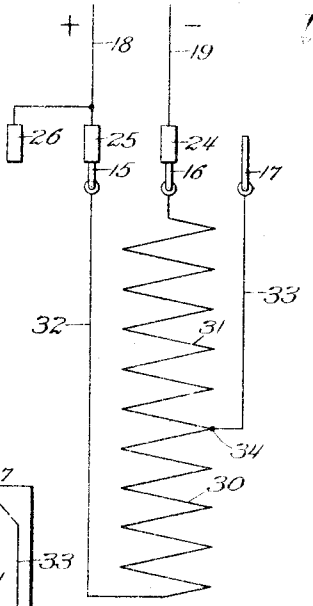



Fig. 9.

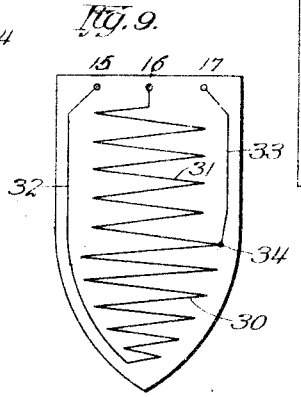



Fig. 7.

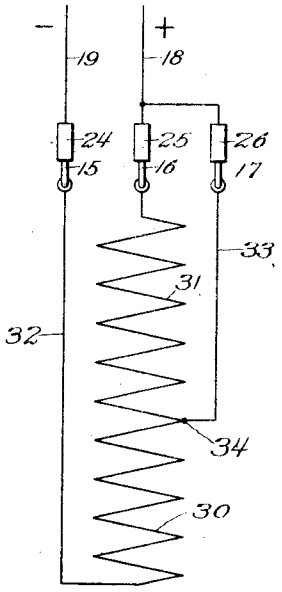
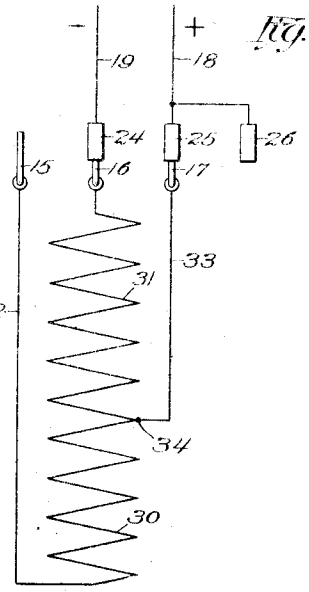



Fig. 8.




Witnesses:
Robert H. Ellis
J. N. Daggett

Inventors.
Alvin H. Waage.
and Clarence P. Waage.
by Foulé Baird & May
Attys.

# UNITED STATES PATENT OFFICE.

ALVIN H. WAAGE AND CLARENCE P. WAAGE, OF CHICAGO, ILLINOIS.

## SAD-IRON.

1,030,036. Specification of Letters Patent. Patented June 18, 1912.

Application filed July 28, 1911. Serial No. 641,113.

*To all whom it may concern:*

Be it known that we, ALVIN H. WAAGE and CLARENCE P. WAAGE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sad-Irons, of which the following is a specification.

Our invention relates to improvements in sad irons, and has especial reference to irons of this character that are adapted to be heated by electricity.

One of the objects of our invention is to provide a simple, convenient, and efficient means whereby the intensity of heat applied to the iron may be varied and whereby the localization of intensity of heat of the fore and aft, or toe and heel, of the iron may be also varied.

Another object of our invention is to generally improve structures of this character.

Other and further objects of our invention will become readily apparent to persons skilled in the art from a consideration of the description taken in conjunction with the drawings, wherein—

Figure 1 is a side elevation of our sad iron, showing the circuit-changing connecting-block attached; Fig. 2 is a rear elevation of same; Fig. 3 is a side elevation of the connecting block; Fig. 4 shows one half of the connecting block, the view being taken on line 4—4 of Fig. 3; Figs. 5, 6, 7, 8, and 9, are electric circuit diagrams.

In all of the views, the same reference characters indicate similar parts.

We have shown a conventional type of iron to which our invention may be applied, without illustrating the details of construction, as the specific arrangements and forms of the parts are immaterial except as hereinafter more particularly pointed out.

To the iron body 10, is secured a face plate 11 between which parts the heating conductors are contained, as usual in such structures. To the body 10, a handle 12 is secured, as by screws 13. The heating conductors are preferably arranged substantially as shown in Fig. 9, the wires being wound in flat coils or convolutions and placed in as approximate relation with the inner surface of the flat plate, as may be. The coil or coils should also extend into the toe of the iron. Immediately above the heel of the iron, we provide a transversely flat surface, as at 14, through which project three insulated electric terminal studs 15, 16, and 17, to which, or a selected number of which, the flexible electric cords 18 and 19 may be connected, through the instrumentality of the connecting block 20. The wires 18 and 19 are connected with the source of electric current supply and terminate in the block 20, as shown in Fig. 4. The block, for purposes of ease of manufacture and connection with the terminal wires is preferably made in two pieces 21 and 22, made of molded insulating material, such as asbestos, or the like, held together, normally, as by screws 23. It contains three metallic socket terminals 24, 25, and 26 adapted for engagement with the terminal plugs 15, 16 and 17 of the iron in any selected relation to be hereinafter explained. It will be observed that the sockets 25 and 26 are electrically connected together as by a bar 28, and therefore from an electrical standpoint, they are one, or in other words, the wire 18 is always connected to both.

The heating medium, located in the body of the iron, is composed of two coils. The coil 30 is located in the toe of the iron, and coil 31 is located in the body and heel of the iron. The coil 30 is of less resistance than coil 31 and when it is alone in circuit, more current will pass through it than will pass through coil 31 under similar conditions. One terminal of the heating unit, including both coils, is connected permanently to plug 16, and the other termin is connected similarly by wire 32 to plug 15. A tap wire 33 connects an intermediate point of the heating unit, as at 34, with the plug 17, thus dividing the unit into two coils 30 and 31. When the switching block 20 is placed on the iron, so that the word "Hot" faces rearwardly, the circuit will be as shown in Fig. 5, with both coils, 30 and 31, in parallel circuit, and the greatest heat will be developed by the heating unit. Now when the block is moved to the left so that only sockets 24 and 25 contact plugs 16 and 15 only, then current will pass through both coils 20 and 21 in series and the circuit being of higher resistance, less current will flow and less heat be developed, but all parts of the face plate 11 will be heated equally. If now, the block 20 be reversed so that the word "Med." (for medium) is visible from the rear, current will flow only through coil 30 in the toe of the

iron, as shown in Fig. 7. Then, by shifting the block to the right so that only sockets 24 and 25 make electrical contact with the terminal plugs 16 and 17, respectively, the current will flow only through coil 31 in the body of the iron, as shown in Fig. 8. It will thus be seen that the intensity of the heat developed and its localization in the iron may readily be varied and shifted by the very simple expedient of changing the position of the switch block 20, with reference to the terminals carried by the iron. Other legends than those we have shown on the block may be used to indicate the degree and localization of heat and any relative division of heat between the coils may be made, but we prefer so to arrange and proportion the coils that the toe of the iron may be heated hotter than the body and heel of the iron.

In the operation of the iron, the toe thereof comes in contact with the cold damp fabric and is therefore subject to greater dispersion of heat than that part that follows over the dried and heated fabric.

While we have herein described a single embodiment of our invention, what we claim is:

In an electric flat iron, a heating unit having provision for division into a plurality of sections, one section, of lower resistance, in the toe of the iron, and another section, of higher resistance, in the heel of the iron, insulated terminals for said sections fixed to said iron, a separable switching block having terminals for engaging said iron terminals and for connection to a source of electric supply, and means associated with said block terminals for varying the circuit relations of said heating sections by reversing the block thereby changing the contact relation of said iron and said block terminals.

In testimony whereof we hereunto set our hands.

ALVIN H. WAAGE.
CLARENCE P. WAAGE.

In the presence of—
MARY F. ALLEN,
W. LINN ALLEN.