O. SPAHR.
SELF HEATING SAD IRON.
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1,080,600.

1. SHEETS-SHEET 2.

INVENTOR

ATTORNEYS
To all whom it may concern:

Be it known that I, Otto SpaHR, a citizen of the United States, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Self-Heating Sad-Irons, of which the following is a specification.

My invention relates to self-heating sad irons and more particularly to large irons for tailors' use in which gas or a similar fuel is the heat producing medium and has for an object to improve and simplify the general construction thereof.

Another object of my improvement is to construct the iron in such a manner as to secure perfect combustion and in consequence a maximum amount of heat with a minimum expenditure of fuel.

My invention further contemplates the provision of a burner adapted when in operation to exert its heating influence directly on substantially the entire inner surface of the bottom of said iron whereby the heating of said iron is quickly accomplished and maintained.

Other objects of my improvement will appear from the description hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a longitudinal sectional view of my improved iron; Fig. 2 is a cross-section thereof on the line 2—2 of Fig. 1; Fig. 3 is a plan view of the iron with the cover removed; Fig. 4 is a side elevation of the body thereof; Fig. 5 is a horizontal section taken substantially on the line 5—5 of Fig. 4; Fig. 6 is an inverted plan view of the burner; and Figs. 7 and 8 are end views thereof looking in opposite directions.

In the drawings 10 represents the hollow body of the iron which may be of any customary shape and is provided with a projection 11 extending upwardly from the front end or apex thereof and preferably undercut to form a shoulder 12, as shown best in Fig. 1. Projections 13 also extend upwardly from the body at the corners formed by the side and rear walls thereof, while a projection 14 extends upwardly from said rear wall at a point intermediate of the projections 13. A cover 15 in the assembled condition of the iron rests upon the projections 11 and 13 and with the upper edges of the side walls of the body forms openings 16 extending lengthwise thereof for the purpose to be more fully described hereinafter. The cover 15 is shaped to correspond to the shape of the body when viewed in plan and is secured to said body preferably so as to be movable relatively thereto to uncover the same and thus expose the interior of the body when desired. As an example of how this result may be accomplished the said cover 15 may be provided at its front end or apex with a downwardly projecting hook 17 and at its rear portion may be formed with a preferably open ended slot 18. Thus in the assembled condition of the iron or in other words when the cover 15 is in its operative position to cover the body, the hook 17 extends beneath the projection 11 and engages the shoulder 12 and the slot 18 is positioned above the intermediate projection 14. This projection 14 is provided with a screw-threaded aperture 19 arranged to accommodate a locking means which may be in the nature of a screw 20 extending through the slot 18 and having preferably either a knurled head 21 as shown in Fig. 1 or a lever 22 as shown in Fig. 4, the head 21 or the lever 22 both being adapted to bear upon the cover 15 at opposite sides of the slot 18, as the screw 20 is screwed into the aperture 19, and lock the cover in position against movement relatively to the body 10. A handle 23 of any suitable kind and customary construction for manipulating the iron and moving the cover is secured to said cover 15 in any convenient manner as for instance by means of screws 24. These same screws 24 may be used for the purpose of removably supporting a weight of any convenient construction as for instance a plate 25, so that the effective weight of the iron may be increased or diminished by substituting plates of different weights or by omitting the plate entirely. In order that the handle 23 may be firmly held when no plate is used and also to securely maintain any plate in position I prefer to provide sleeves 26 and nuts 27 on each screw 24. When a plate or other weight is used these sleeves 26 will bear against the same and against the cover 15 and in the absence of a weight will engage the nuts 27 and the cover and in either case will maintain
the screws 24 rigidly in position after the nuts 27 have been screwed home. The plate 25 instead of being located as shown may be positioned against the cover 15 or in other words between said cover and the sleeves 26.

The body of the iron is provided with preferably continuous channels 28 located in the bottom thereof and extending parallel with each other lengthwise of the iron and which may have their front ends connected with each other as shown best in Fig. 5, although this latter is not absolutely necessary. Air inlet openings 29 are located along opposite sides of said body and extend through the bottom thereof so as to communicate with said channels 28 and the outside atmosphere as illustrated in Figs. 2 and 5. A rib 30 projects upwardly from the bottom of the iron and extends lengthwise thereof between the channels 28 from a point near the rear to a point near the front of said iron.

In the construction as illustrated the burner comprises parallel tubular members 31 which are connected at their front ends as shown if the channels 28 are similarly connected, and are preferably constructed to follow the line of said channels when viewed in plan as shown best in Fig. 6. At their rear ends the said members 31 are connected by means of a transverse tubular member 32 with which a tube 33 is in communication; said tube 33 being provided with the usual air inlets 34 and nipple 35 for the accommodation of the customary preferably flexible tube adapted for connection with a source of fuel supply.

The said burner is provided with ribs 36 extending lengthwise of each member 31 and depending therefrom along a central line, which ribs 36 have their front ends spaced to form a recess 37 and are connected at their rear ends by means of a transverse rib 38 depending from the transverse member 32. The burner is further provided with a plurality of jet apertures 39 arranged in series on opposite sides of each rib 36 and similar apertures 40 located at the front of the transverse rib 38, said apertures 39 extending downwardly along lines diverging toward the bottom of the iron while the apertures 40 project at an angle toward said bottom when the burner is in operative position. If desired the burner may have similar apertures at the front end thereof particularly when the members 31 are connected at this point some of said last named apertures, as shown, being inclined toward the bottom while others extend at substantially right angles thereto. When in position in the iron the burner extends through an opening 40 in the rear wall of the body with the transverse tubular member 32 located therein and the tube 33 projecting outside of the body and preferably extending at an angle to the vertical as shown best in Figs. 1, 3, 6, 7 and 8. In this operative position of the burner the projection 41 fixed on the front end thereof is positioned in a recess 42 formed in the front portion of the iron body, as illustrated in Fig. 1, the cooperation between said projection 41 and recess 42 serving to prevent any movement of the burner in a direction transverse to its length. In order that the burner may be fixed in the body against movement in the direction of its length I prefer to have the aperture 19 extend completely through the projection 14, so that the lower end of said aperture communicates with the opening 40 and to locate a short screw 43 in said aperture 19 as shown best in Fig. 1. This short screw 43 is arranged to be screwed down upon the transverse member 32 and to exert a pressure thereon to prevent lengthwise movement of the burner relatively to the iron and is of such a length as not to interfere with the operation of the screw 30. With this arrangement when the short screw 43 is in position in said aperture 19 the short screw 43 is completely hidden from view and tampering therewith is thus prevented and guarded against. In placing the burner in position in the iron the front end thereof is first introduced through the opening 40 with the rib 30 located in the recess 37. The said burner is now moved inwardly, the recess 37 and rib 30 guiding it during this movement until the projection 41 is positioned in the recess 42 in which position the transverse tubular member 32 will be located in the opening 40 beneath the aperture 19 and the transverse rib 38 will be in close proximity to a shoulder 44 formed in the bottom of the iron. If the short screw 43 is now screwed home the lower end thereof will bear upon the said transverse member 32 and will fix the said burner against movement relatively to the iron, it being understood that the screw 20 has first been completely removed from the aperture 19 to make the screw 43 accessible. In this operative position of the burner the ribs 36 extend partly into the channels 28 and substantially divide the same lengthwise while the rib 30 extends upwardly into the free space between the tubular members 31 of the burner as shown in Fig. 2.

When it is desired to use the iron the usual flexible tube is first connected with a source of fuel supply after which the cover 15 is moved relatively to the body to expose the interior thereof and permit a match, taper or other igniting medium to be used for igniting the fuel issuing from the jet apertures 39 and 40 and any others with which the burner may be provided. The resulting flames from the jet apertures 39 will extend from the members 31 in opposite directions toward the bottom and the flames from the apertures 40 will be also directed toward
said bottom, substantially the entire inner surface of which will thus be engaged by the flames so that the bottom of the iron will become quickly heated. When the burner is in active operation air will pass through the inlets 20 to the channels 28 and beneath and through the flames. During operation the air entering the channels 28 will be divided by the ribs 30 and will be caused to pass partly through the outer series and partly through the inner series of flames as will be clearly apparent from an inspection of Fig. 2. The products of combustion from the outer series of flames will pass out directly through the openings 16, while the products of combustion from the inner series will first pass through the free space between the burner members 31 and then out through said openings, a substantially perfect combustion being secured with the above arrangement which results in a maximum amount of heat with a minimum expenditure of fuel. During the operation of the burner the rib 30 in addition to its other functions prevents the air from passing directly from one side of the iron to the other but directs it upwardly from opposite sides through the inner series of flames. The channels 28 are particularly adapted for the purpose of receiving air from the outside through the inlets 20 at points beneath the flames so that outside air is forced to pass through the said flames and promote the combustion to the highest degree.

If from any cause the burner should become defective the same may be easily removed by first removing the screw 20 and then releasing the screw 43 to relieve the pressure on the transverse member 32. It is to be understood that in the form of my invention as illustrated, which is only one example, the cover may be moved relatively to the body by simply releasing the screw 20 and then moving the cover to the rear to release the hook 17 from the shoulder 12 and that in the illustrated example it is unnecessary to completely remove the screw 20 when it is intended to uncover the body. By providing the free space between the burner members 31 all flames are subjected directly to the influence of the incoming outside air and a perfect circulation of air within all parts of the body is secured. By having the tube 33 arranged at an angle to the vertical and the flexible tube connecting it with a source of fuel supply is maintained out of the way of the user when the iron is in operation.

The shape of the channels 28 may be changed to meet specific requirements and as found necessary. It is preferable that the outlet ends of the air passages 20 be located beneath the flames and any structure securing this result may be substituted for the one shown.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. In a self-heating sad iron, a hollow body having air inlets and a burner located in said body above the bottom thereof and comprising spaced substantially parallel members adapted for connection with a source of fuel supply and provided with jet apertures directed toward said bottom, said air inlets extending through said bottom from opposite sides of said body and having their exit ends located substantially beneath said burner members.

2. In a self-heating sad iron, a hollow body provided with parallel channels in its bottom and having air inlets extending through said bottom from opposite sides of the body and communicating with said channels, and a burner located in said body and adapted for connection with a source of fuel supply, said burner comprising spaced substantially parallel members having jet apertures directed toward said bottom, each of said burner members being located above and in registry with a channel.

3. In a self-heating sad iron, a hollow body provided with parallel channels in its bottom and air inlets communicating therewith, and a burner comprising spaced parallel members connected with a source of fuel supply and located in said body and having jet apertures directed toward said bottom and ribs depending from each of said burner members and extending into said channels whereby the incoming air is divided.

4. In a self-heating sad iron, a hollow body provided with parallel channels in its bottom and having air inlets extending transversely through said bottom and communicating with said channels, a burner located in said body and adapted for connection with a source of fuel supply, said burner comprising spaced substantially parallel members having jet apertures directed toward said bottom, each of said burner members being located above and in registry with a channel and each of said burner members extending into said channels and intermediate of said burner members.

5. In a self-heating sad iron, a hollow body provided with parallel channels in its bottom and air inlets communicating therewith, and a burner comprising spaced parallel members connected with a source of fuel supply and located in said body and having jet apertures directed toward said bottom, each of said burner members extending into said channels and a single rib extending upwardly from said bottom intermediate of said parallel members.
6. In a self heating sad iron, a hollow body provided with parallel channels in its bottom and air inlets communicating therewith and having a recess at its front end, a rib projecting upwardly from said bottom intermediate of said channels, a burner comprising spaced parallel members connected with a source of fuel supply and located in said body above and in registry with said channels and having jet apertures directed toward said body, a projection on said burner arranged to enter said recess to support said burner, ribs depending from each of said burner members and extending into said channels and means for removably securing said burner in said body.

7. In a self heating sad iron, a hollow body, a burner located therein adapted for connection with a source of fuel supply and provided with parallel series of jet apertures directed toward the bottom of said body and a rib depending from said burner and extending lengthwise thereof between said parallel series of jet openings.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

OTTO SPAHR.

Witnesses:

JOHN A. KEHLENBECK,
M. H. LOCKWOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."