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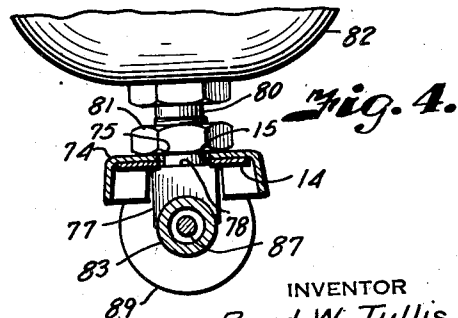
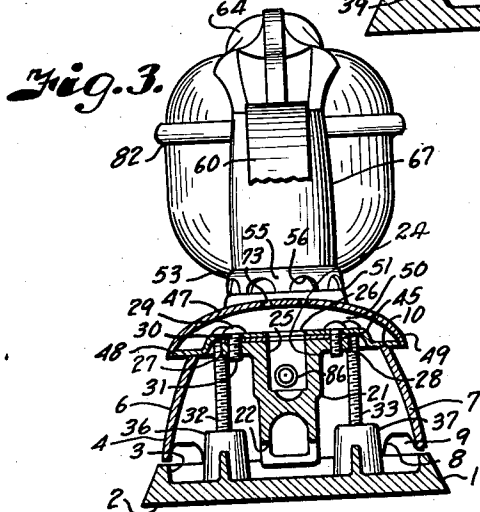
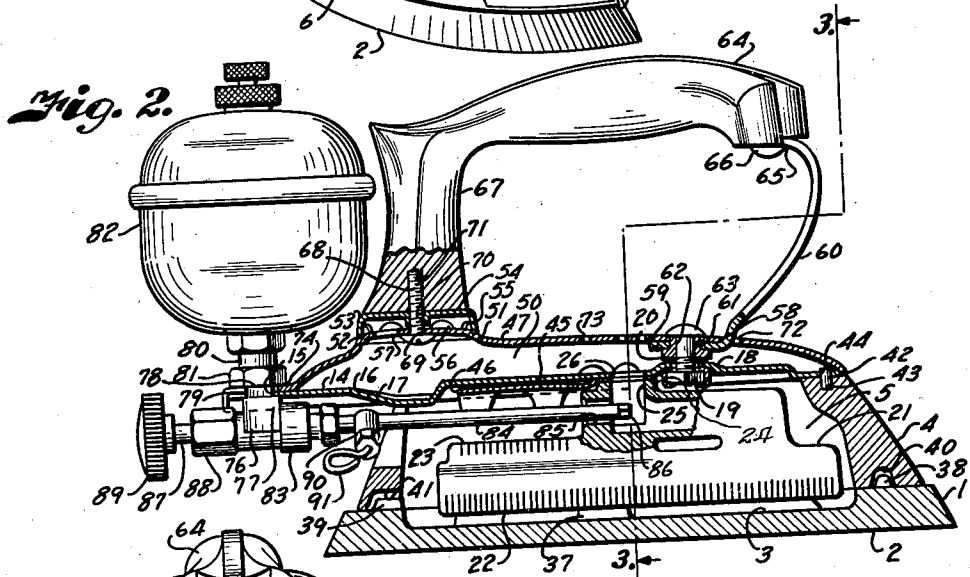
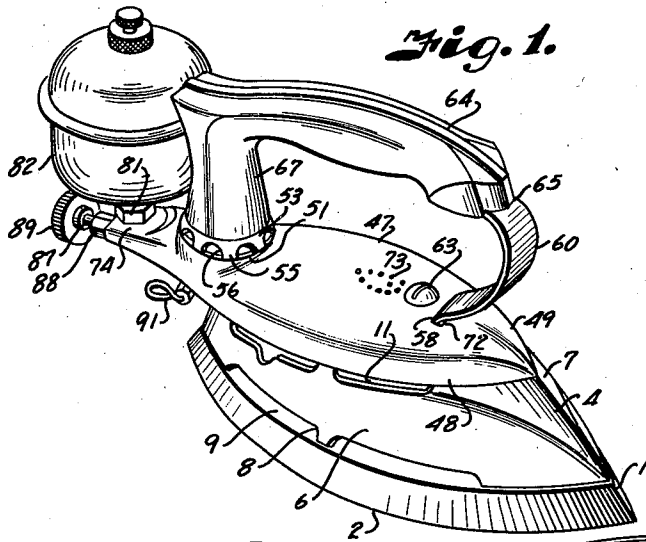
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2,294,614

FLATIRON

Filed April 3, 1940

2 Sheets-Sheet 1



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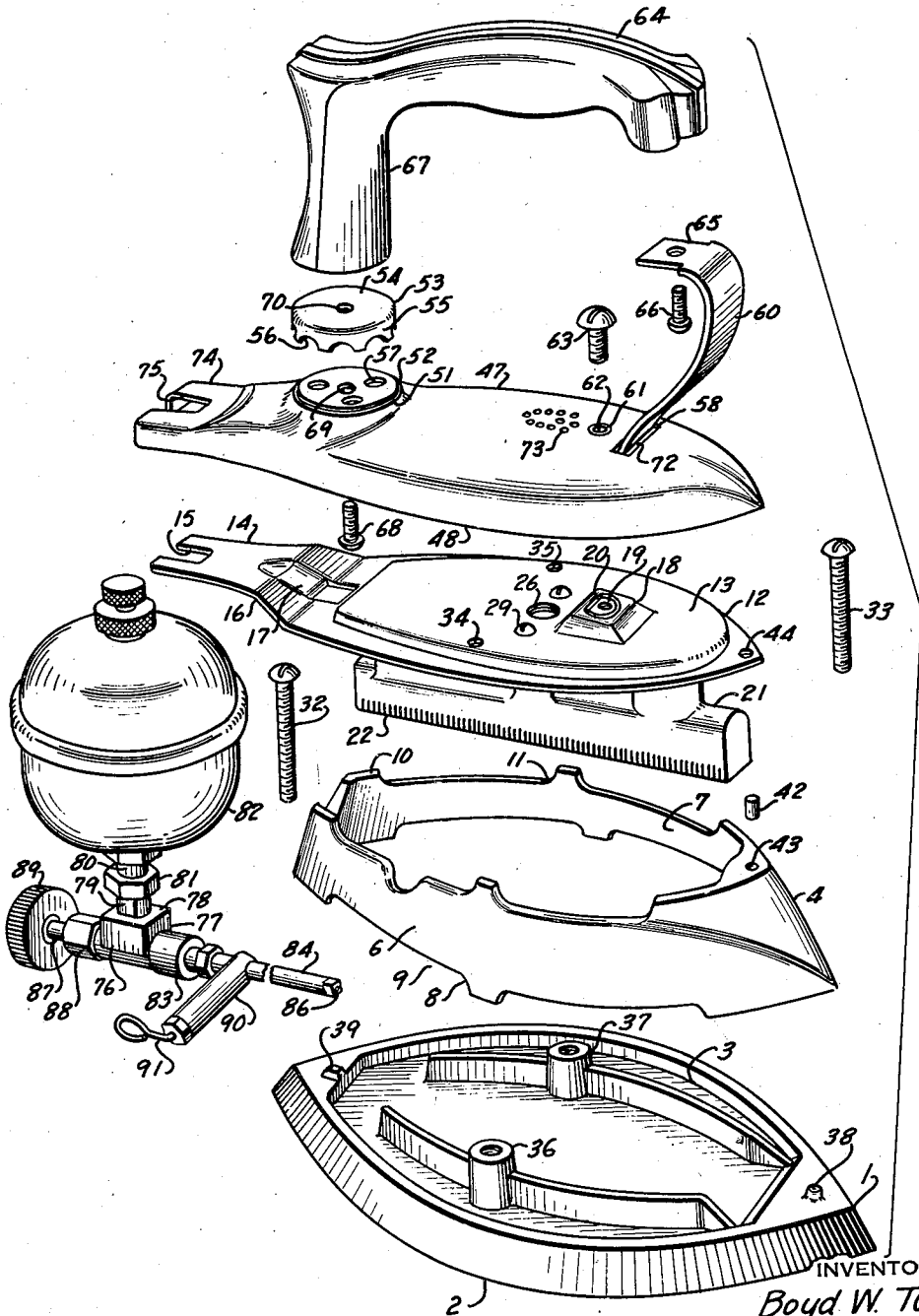
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Fig. 5.



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# UNITED STATES PATENT OFFICE

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## FLATIRON

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Application April 3, 1940, Serial No. 327,643

12 Claims. (Cl. 158—23.2)

This invention relates to flatirons, and particularly to those equipped with a burner for liquid fuels, and has for its principal object to provide an iron of this character having a secure and rigid handle mounting designed to provide a smooth, streamlined exterior and which avoids heating of the handle and serves as a shield to protect the hand of the operator from the heat of the iron.

Other objects of the invention are to provide an iron with a shell-like top plate which cooperates with a fixture plate in forming an air chamber and passageway for directing air to the burner; to provide concealed attachment for the handle; to provide for support of the fuel tank and generator assembly by the shell and fixture plates; and to provide for positive air circulation around the attachment points of the handle.

It is also an object of the invention to provide an iron of attractive appearance and free of external parts that ordinarily make difficult cleaning and polishing of an iron.

In accomplishing these and other objects of the invention, as hereinafter pointed out, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a flatiron embodying the features of the present invention.

Fig. 2 is a longitudinal section through the iron, the fuel tank, control valve, and generator being shown in elevation.

Fig. 3 is a cross-section on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail section particularly illustrating mounting of the fuel tank, control valve, and generator assembly.

Fig. 5 is a perspective view of the parts of the iron shown in disassembled spaced relation.

Referring more in detail to the drawings:

The iron includes a base 1 having an ironing face 2 and a recessed upper face 3 cooperating with a wall member 4 in forming an open top body having a burner chamber 5. The wall member preferably includes a unitary part having side walls 6 and 7 conforming to the contour of the base 1, the lower edges of the side walls being provided with notches 8 forming air inlet openings 9 while the upper edges 10 are similarly notched to provide outlet openings 11 for circulation of air through the burner chamber.

Seated on the edges 10 of the walls 6 and 7 is a fixture plate 12 having a raised central portion 13 to enhance the rigidity thereof and increase the capacity of the burner chamber. The rear 55

of the plate terminates in an upwardly offset extension 14 having a slot 15 in the terminal edge thereof, the offset 16 being provided with a suitable rib 17 to enhance the rigidity thereof.

Formed in the raised central portion 13 of the fixture plate is an upwardly struck boss 18 for containing a nut 19 suitably supported in registering relation with an opening 20 in the plate for a purpose later described. Suspended from the plate is a burner 21 having a plurality of downwardly facing jet openings 22 from which flames are directed against the base of the iron and a similar arrangement of upwardly directed jet openings 23 for directing flames onto the fuel generator, later described.

The burner 21 includes a bunsen 24 having an air inlet 25 in the top thereof registering with an opening 26 in the fixture plate through which primary combustion supporting air is supplied to the burner. Extending laterally from the sides of the bunsen are ears 27 and 28 secured to the fixture plate by fastening devices 29 extending through suitable openings 30 in the fixture plate and into threaded openings 31 in the ears. The fixture plate carrying the burner is secured on the body member and the body member is clamped to the base 1 by fastening devices such as screws 32 and 33 having their shanks extending through openings 34 and 35 in the fixture plate and into threaded bosses 36 and 37 formed on the upper side of the base as clearly shown in Figs. 3 and 5. The body member is centered on the base by lugs 38 and 39 located at respective ends thereof which engage in recesses 40 and 41 respectively at the corresponding ends of the body member. The fixture plate is also additionally stabilized on the wall member by a dowel 42 engaged in an opening 43 on the wall member and extending through an opening 44 in the forward end of the fixture plate. The side edges of the fixture plate preferably extend over and beyond the openings 11 to deflect the hot air which passes through the openings outwardly and away from the top of the iron. Inserted between the bunsen of the burner and fixture plate is a shield 45 which has a canopy-like portion 46 projecting over the upper jets 23 to prevent direct contact of the flames with the fixture plate.

Supported on top of the fixture plate is a shell-like plate 47 having a streamline exterior surface and depending side flanges 48 and 49, the flanges overlapping the side edges of the fixture plate to form an air chamber 50 extending over the entire top area of the iron to insu-

late and retard radiation of heat from the fixture plate and provide a flow passage wherethrough air is supplied to the bunsen through the openings 25 and 26. Struck from the top of the shell plate, at a point substantially midway between the terminal on the raised portion of the fixture plate and the offset 16 thereof is a boss 51 having an annular shoulder 52 seating a cap-like spacer 53, the spacers 53 having a flat top 54 provided with a depending flange 55 seated on the shoulder 52 and provided with a plurality of notches 56 through which air is admitted for passage into the air chamber 50 through openings 57 that are formed in the boss, as shown in Fig. 5.

Formed in the forward end of the shell plate is a transverse slot 58 through which a laterally extending foot 59 on the handle strap 60 is extended. The foot of the handle strap thus underlies the shell and is secured thereto by a tubular rivet 61, the opening 62 in which registers with the threaded opening in the nut 19 so that a screw 63 may be turned therethrough into the nut to secure the forward end of the shell plate on the fixture plate as shown in Fig. 2. The handle also includes a grip portion 64 that is fixed to a laterally extending arm 65 on the strap 60 by a screw 66. The grip portion of the handle is preferably integral with a post 67 that seats on the top of the cap-like spacer 53 and is secured by a screw 68 extending upwardly through an opening 69 in the boss 51, through an opening 70 in the cap 53, and into a threaded opening 71 in the post as shown in Fig. 2. The slot 58 is preferably of larger dimensions than the cross-sectional area of the strap so as to provide for inlet of air around the strap as indicated at 72, Fig. 1. Thus air flows around both of the attaching points of the handle to keep the handle in a cool condition to prevent the accumulation of heat from the iron.

Cooperating with the openings adjacent the handle connections are a plurality of apertures 73 located substantially over the air inlet opening to the bunsen so that a portion of the air is supplied directly to the bunsen. The apertures 73 are relatively small in size and spread over a substantial portion of the top of the shell so that the air passing therethrough gives a greater cooling effect to the shell. The rear of the shell plate has a flattened extension 74 resting on the extension 14 of the fixture plate and provided with a notch 75 registering with the slot or notch 15 to mount the fuel tank control valve and generator assembly, as now to be described.

This assembly includes a valve body 76 having a substantially rectangular shaped portion 77 fitting within the side flanges of the shell and having a shouldered upper face 78 seating squarely against the under face of the extension 14. Projecting above the face 78 is a flat sided tubular neck 79 to engage the sides of the registering notches 15 and 75. Carried on the neck is a threaded head 80 mounting a jam-nut 81 that is adapted to cooperate with the shouldered face 78 to clamp the fixture plate and shell extensions therebetween as shown in Fig. 2. Carried on the head 80 is a fuel supply tank 82 located in close relation with the post portion 67 of the handle, the post of the handle preferably being concave to accommodate the side of the tank whereby the tank may be positioned close to the handle.

Carried by the horizontal branch 83 of the

valve is a generator tube 84 extending over the jet openings 23 of the burner and into an opening 85 in the rear side of the bunsen chamber. The generator tube has an orifice tip 86 extending into the bunsen chamber. The valve also includes an actuating stem 87 extending rearwardly through a packing nut 88 threaded on the valve body, the stem being manipulated by a suitable handwheel 89 to control flow of fuel from the tank 82 to the orifice tip 86 of the generator tube. Also carried by the generator tube is a tip cleaning and fuel regulating device 90 having an operating lever 91.

In assembling the iron, the body member 4 is placed on the base 1 with the recesses 40 and 41 receiving the lugs 38 and 39. The burner is then attached to the under side of the fixture plate by the fastening devices 29. The fixture plate is secured by the fastening devices 32 and 33. The shell plate carrying the handle is then applied over the fixture plate and secured thereby by insertion of the screw 63. The tank, control valve, and generator assembly is then moved into position with the generator tube 84 passing over the jet openings 23 and into the bunsen chamber and with the flattened neck of the valve passing into the notches 15 and 75. The jam-nut 84 is then tightened to draw the extension portions of the shell and fixture plate into clamping contact with each other to secure the rear end of the shell plate to the rear extension of the fixture plate and the generator and tank assembly thereon.

When the iron is in operation, air is drawn through the notches 56 and openings 57 at the rear portion of the shell to cool the connecting point of the handle and to supply air for flow through the passage 50 in keeping the shell plate in cool condition. Simultaneously air is drawn through the slot 58 and apertures 73 into the openings 25 and 26 to the bunsen for supplementing the combustion supporting air supply to the burner. This movement of air in and around the connections of the handle keep the handle comfortably cool so that the temperature is not disagreeable to the operator. The combination shell and fixture plate also forms a rigid structure for attachment of the handle and support of the generator assembly so that the generator will not get out of alignment with its bunsen. It is also obvious that the concealed handle connections provide a smooth shell exterior so that the iron may be readily cleaned and kept in polished condition.

What I claim and desire to secure by Letters Patent is:

1. An iron of the character described, including a body having a burner chamber, a fixture plate covering the burner chamber, a shell plate covering the fixture plate, means securing the fixture plate to said body, said shell plate having a slot and a shouldered boss spaced therefrom provided with an air inlet opening, a cap having a flange seated on the shouldered boss and provided with an air inlet opening, a handle supporting member extended through said slot in the shell plate and having a foot portion attached to the shell plate on the under side thereof, a handle member having a post portion seated on said cap, means extending through the shell plate and cap to secure the post portion of the handle member, and means connecting said handle member to its supporting member.

2. An iron of the character to be described, including a body having a burner chamber, a fix-

ture plate covering the burner chamber, a burner supported in the burner chamber and having a bunsen provided with an air inlet opening connected with an air inlet opening in the fixture plate, a shell plate mounted on the fixture plate and cooperating therewith to form an air passage, and means on the shell plate for attaching a handle, said shell plate having a plurality of air inlet openings adjacent said attaching points for the handle.

3. An iron of the character described, including a body having a burner chamber, a burner supported within the burner chamber and having a bunsen provided with an air inlet opening, a shell plate mounted on said body to form an air passage to said air inlet of the bunsen, and means on the shell plate for attaching a handle, said shell plate having a plurality of air inlet openings adjacent said attaching points for the handle to admit air to said passage.

4. An iron of the character described, including a fixture plate covering a burner chamber in said iron and having an upwardly offset extension, a shell plate covering the fixture plate and having a slot and a shouldered boss spaced therefrom provided with an air inlet opening, a cap having a flange seated on the shouldered boss and provided with an air inlet opening, a handle member extended through said slot and having a foot portion attached to the shell plate on the under side thereof, a handle member having a post portion seated on said cap, means extending through the shell plate and cap to secure the post portion of the handle member, and means connecting said handle to its supporting member.

5. An iron of the character described including, an open top body forming a burner chamber, a burner in the burner chamber, a fixture plate covering the open top of the body, a streamlined shell plate mounted on the fixture plate, one of said plates having side flanges cooperating with the other plate to form an air passageway therebetween and which is separated from the burner chamber by said fixture plate, means securing said plates in assembly on said body, one of said plates having an opening to admit air into the passageway, and an air inlet connection for the burner having connection with the passageway at a point in spaced relation with said opening whereby operation of the burner induces flow of air through said passageway.

6. An iron of the character described including, an open top body forming a burner chamber, a burner in the chamber having a bunsen, a fixture plate covering the open top of the body, a shell plate mounted on the fixture plate and cooperating therewith to form an air passageway separated from the burner chamber by said fixture plate, means securing said plates in assembly on said body of the iron, said shell plate having an air inlet opening, and a fixture plate having an outlet opening to the bunsen of the burner, said outlet opening being spaced from the air inlet opening of the shell to effect movement of air through said passageway incidental to operation of the burner.

7. An iron of the character described including, an open top body forming a burner chamber, a burner in said chamber, a fixture plate covering the open top of the body, a shell plate mounted on the fixture plate and cooperating therewith to form an air passageway extending over the burner chamber and separated therefrom by said fixture plate, means securing said plates in assembly on said body, and means on the shell

plate for securing a handle, said shell plate having air inlet openings adjacent said handle attaching means and said fixture plate having an outlet opening spaced from the air inlet openings whereby operation of the burner induces air flow through said air passageway to the burner.

8. An iron of the character described including, an open top body forming a burner chamber, a fixture plate covering the burner chamber and closing the open top of said body, a burner suspended within the burner chamber from the fixture plate and having a bunsen provided with an air inlet opening directly connected with an air inlet opening in the fixture plate, and a shell plate mounted on the fixture plate and cooperating therewith to form an air passageway between said plates separate from the burner chamber, said shell plate having an air inlet opening spaced from the air inlet of the bunsen for admission of air to the air passageway for supplying the bunsen of the burner, whereby operation of the burner effects positive movement of air through said passageway to cool the shell plate.

9. An iron of the character described including, an open top body forming a burner chamber, a burner supported in the burner chamber and having a bunsen provided with an air inlet opening and spaced superimposed plates closing the open top of the body, the space between said plates forming an air passageway over the burner separate from said burner chamber and having connection with the air inlet to the bunsen, said upper plate having an air inlet opening spaced from the air inlet to the bunsen to supply air to the bunsen from said passageway, whereby operation of the burner effects positive movement of air through said passageway to cool the upper plate.

10. An iron of the character described including an open top body forming a burner chamber, a burner in the chamber, a fixture plate closing the open top of said body and covering the burner chamber, a shell plate mounted on the fixture plate and cooperating therewith to form an air passageway over the burner chamber, means securing said plates in assembly on said body, and means on the shell plate for securing a handle, said shell plate having air inlet openings adjacent said handle attaching means and said fixture plate having an outlet opening to the burner in the burner chamber.

11. An iron of the character described including a sole member, a wall member on the sole member and cooperating therewith to form an open top burner chamber having air inlets and air outlets adjacent the lower and upper edges of the wall member for circulation of air through the burner chamber, a fixture plate having support on the upper edge of the wall member, fastening devices extending through the fixture plate and engaging the sole member to retain the wall member therebetween, a burner suspended within the burner chamber from said fixture plate and having a bunsen provided with an air inlet registering with an opening in the fixture plate, a shell plate superimposed over the fixture plate and cooperating therewith to form an air passageway over the burner chamber for admitting air to the bunsen through the opening in the fixture plate, said shell plate having openings spaced from the air inlet of the bunsen for admitting said air for travel through the air passageway to said opening in the fixture plate, and means interconnecting said plates.

12. An iron of the character described including a sole member, a wall member on the sole member and cooperating therewith to form an open top burner chamber having air inlets and air outlets adjacent the lower and upper edges of the wall member for circulation of air through the burner chamber, a fixture plate having support on the upper edge of the wall member, fastening devices extending through the fixture plate and engaging the sole member to retain the wall member therebetween, a burner suspended within the burner chamber from said fixture plate and having a bunsen provided with an air inlet registering with an opening in the fixture plate, a shell plate cooperating with the fixture plate to form an air passageway therebe-

tween and extending over the burner chamber for admitting air to the bunsen through the opening in the fixture plate, said shell plate having openings spaced from the air inlet of the bunsen for admitting said air for flow through the passageway to the opening in the fixture plate so that operation of the burner induces air flow through the passageway to cool the shell plate; means interconnecting said plates, said plates having extensions on the rear ends thereof, and a generator and tank assembly supported by said extensions, said generator extending into the burner chamber and having a nozzle discharging into the bunsen.

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