

(No Model.)

2 Sheets—Sheet 1.

A. F. CHABLE & E. M. ROBERTS.

SAD IRON HEATER.

No. 447,445.

Patented Mar. 3, 1891.

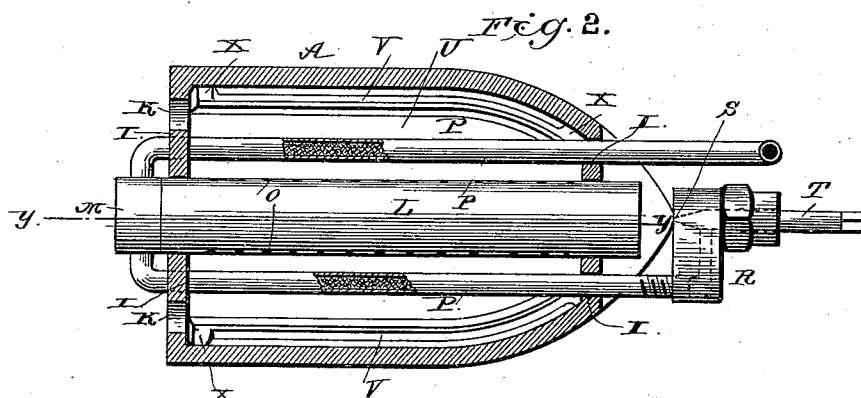
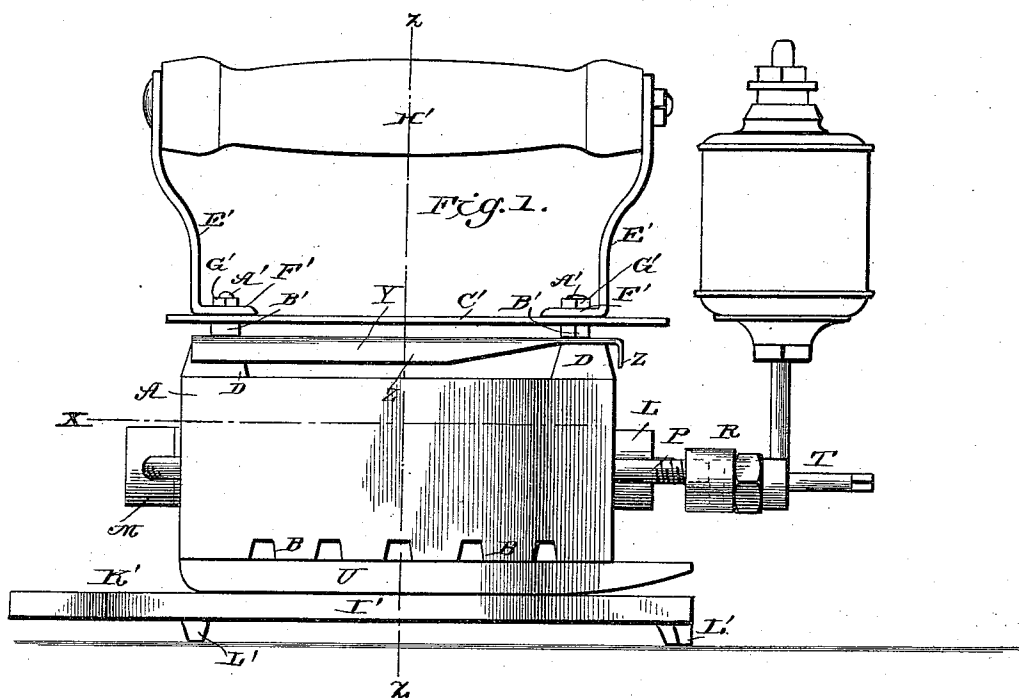
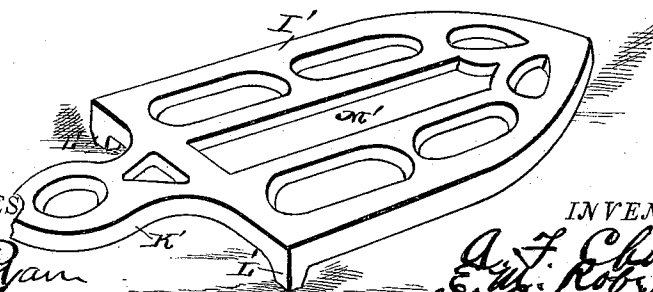


Fig. 5.



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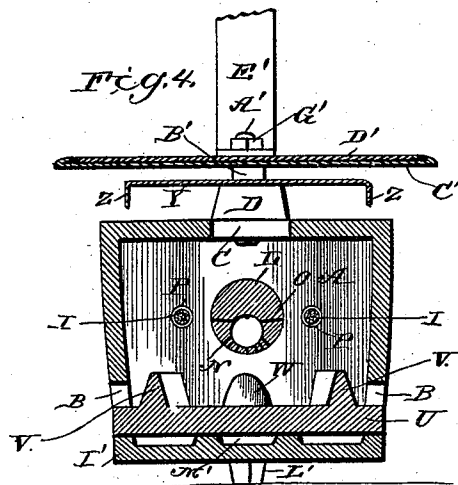
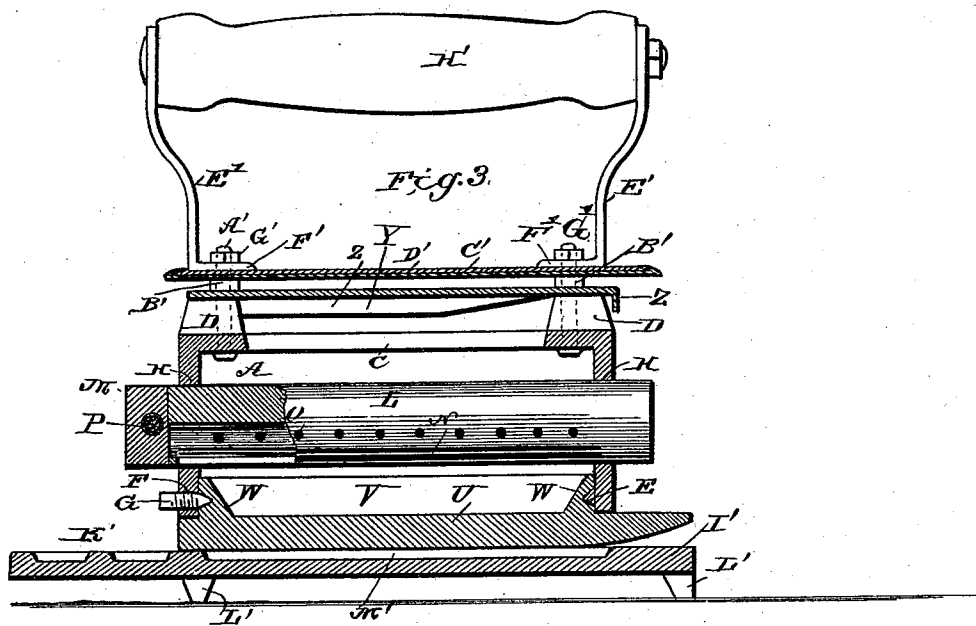
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UNITED STATES PATENT OFFICE.

AUGUST F. CHABLE AND EDWARD M. ROBERTS, OF MARION, KANSAS,
ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO SAID CHABLE,
AND JOSEPH C. PRICE, OF EVANSVILLE, INDIANA.

SAD-IRON HEATER.

SPECIFICATION forming part of Letters Patent No. 447,445, dated March 3, 1891.

Application filed March 31, 1888. Serial No. 269,090. (No model.)

To all whom it may concern:

Be it known that we, AUGUST F. CHABLE and EDWARD M. ROBERTS, citizens of the United States, residing at Marion, in the county of Marion and State of Kansas, have invented a new and useful Improvement in Sad-Iron Heaters, of which the following is a specification.

Our invention relates to an improvement in sad-irons and vapor-burners for heating the same; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a sad-iron embodying our improvements. Fig. 2 is a horizontal longitudinal sectional view of the same, taken on the line *x* of Fig. 1. Fig. 3 is a vertical longitudinal sectional view of the same, taken on the line *y y* of Fig. 2. Fig. 4 is a vertical transverse sectional view of the same, taken on the line *z z* of Fig. 1. Fig. 5 is a detail view of the holder.

A represents the body of the sad-iron, which is hollow, has its lower side open, is provided on its lower side edges with notches B, and is provided in its upper side in the center of the same with a longitudinal opening C. The front end of the case or body is truncated, as shown. Formed integrally with the case or body, on the upper side thereof and at the ends of the same, are vertical projecting studs D.

In the front side of the sad-iron, near the lower edge thereof and in the center of the same, is an inwardly-projecting stud E, and in the rear side of the sad-iron in line with the stud E is a threaded opening F, in which is inserted a screw-stud G. In the front and rear sides of the iron are aligned openings H of suitable diameter. On opposite sides of the openings H are openings I, and at suitable distances above and beyond the openings I on the rear end of the iron are somewhat larger openings K.

L represents a burner-tube of suitable length and diameter, which extends through the openings H, has its end projecting beyond the front and rear sides of the iron, and has

its rear end closed by a plug M and its front end open, as shown. Said burner-tube is provided on its lower side with a series of longitudinal slits N. The said burner-tube is further provided on one side with a series of apertures O.

P represents a tube which is passed through a transverse opening in the plug M, and has its extremities bent forward and arranged parallel with the burner-tube L, the said tube P being thereby arranged substantially in form of the letter U, as shown in Fig. 2. The arms of the tube P are passed through the openings I in the front and rear ends of the iron, and one of them is screw-threaded at its front end, as shown. The bore of the tube P is filled with wire-cloth or other material, which is adapted to break up the fluid into small globules as it passes through the tube. To the front end of one arm of the tube is screwed a valve-case R, which has a minute orifice S in one end arranged directly opposite the open end of the burner-tube and at a suitable distance from the same. In the said case R is screwed a needle-valve T, the point of which is adapted to open or close the orifice S to any desired extent, so as to regulate the supply of vapor to the burner. To the opposite end of the tube P is screwed a suitable reservoir, such as described in Letters Patent of the United States No. 354,685, granted to A. F. Chable, December 21, 1886, and No. 377,351, granted to the said Chable, January 31, 1888. If preferred, the end of the tube P, to which the reservoir is attached, may be extended from the rear end of the iron.

U represents a removable bottom plate, which is adapted to be secured to the lower side of the iron and to be removed therefrom. Said bottom plate is provided on its upper side with longitudinal side flanges V, the opposite sides of which are inclined, as shown, and is provided at its ends with upwardly-projecting lugs or ears W. The side flanges V are about parallel to and at a distance from the inner sides of the iron at the lower edges thereof, and the lugs or ears W are adapted to bear against the front and rear sides of the iron. Said lugs are provided in their outer sides with recesses to receive the stud E and

the pointed screw G, and by turning the latter the removable bottom plate may be firmly secured to the lower side of the iron or released therefrom, as will be readily understood.

At the ends of the side flanges V, on the outer sides of the same, are formed offsets X, which bear against the inner sides of the iron, and thereby form spaces between the flanges V and the sides of the iron, as shown in Fig. 2.

Y represents a deflecting-shield, which is made of sheet metal and is arranged on the upper sides of the studs D, and is supported by the said studs at a suitable distance above the upper side of the iron and over the opening C. The sides and front end of said shield are bent downward to form flanges Z of suitable depth.

A' represents a pair of bolts which extend upward through vertical openings in the studs D and in the shield Y. Washers B' of suitable thickness are placed on the said bolts and bear upon the upper side of the shield, and a shield C', which is broader and longer than the shield Y and is also made of sheet metal, is secured on the bolts and bears upon the washers, and is thereby supported at a suitable distance above the shield Y. On the upper side of the shield C' is a sheet D', of asbestos or other suitable non-conducting material. Said non-conducting sheet is secured to the said shield by doubling the edges of the latter over the edges of the sheet, as shown.

E' represents a pair of standards, the lower ends of which are bent horizontally at right angles to form feet F', that bear upon the upper side of the asbestos or non-conducting sheet. Said feet are provided with openings, through which the upper ends of the bolts extend, and on the bolts are screwed clamping-nuts G', which secure the standards firmly to the upper side of shield C', the asbestos sheet being, as before stated, interposed between the said standards and the metallic portion of said shield.

H' represents a handle, which is made of wood or suitable material and connects the upper ends of the standards, said handle being secured to said standards by a bolt which passes longitudinally through the handle and through openings in the upper ends of the standards, as shown.

In Fig. 5 we illustrate a holder I' for the iron, which holder is made of cast metal, corresponds in size and contour with the face of the iron, is provided with a rearward projecting handle K', and has depending supporting-studs L' at its corners to support the holder at a slight distance above the table or ironing-board, on which it is placed. The said holder is provided in its upper side with a central longitudinal trough, depression, or groove M', which is adapted to retain a small quantity of fluid.

The operation of our invention is as follows:

A suitable quantity of fluid is placed in the reservoir of the iron. The bottom plate of the iron is removed therefrom and a small quantity of fluid is poured into the groove or depression in the upper side of the holder and is ignited. The iron is then immediately set upon the said holder and the burning fluid heats the burner-tube L and the vapor-tube P of the burner to such a degree that the fluid will be converted into vapor as it passes through the tube P. As soon as the flame from the fluid in the holder subsides, the bottom plate is secured to the iron and a lighted match is passed through one of the openings K in the end of the iron and ignites the vapor, which escapes through the perforations or slits in the burner-tube. The vapor as it is forced through the tube P is directed by the needle-valve into the perforated burner-tube, and a suitable quantity of atmospheric air is drawn into said vapor-tube with the vapor to cause the latter to be rendered combustible. When this commingled air and vapor is ignited, as before described, it burns in jets of flame, which descend from the perforations or slits in the lower side of the burner-tube to the bottom plate and impinge against the latter and thoroughly heat the same, strike against the inner sides of the flanges V, and are deflected upward by said flanges on the inner sides of the iron and prevented from passing through the openings or notches B to the outer side of the iron. The heat and products of combustion pass upward through the opening C in the top of the iron, strike against the lower side of the shield Y, and are deflected outward by the said shield, so as to prevent the heat and flames from burning the hand of the operator who manipulates the iron.

Inasmuch as the shield C' is supported at a distance above the lower shield Y, a current of air is kept in constant circulation between the said shields, which prevents the upper shield from becoming too intensely heated by radiation. Said upper shield and the asbestos covering thereon intercepts the heat reflected upward from the iron and deflects the same from the hand of the operator, and the asbestos covering being interposed between the upper shield and the lower ends of the standards prevents the heat from being conducted through the standards to the handle.

The openings B in the lower edges of the sides of the iron admit atmospheric air to the interior of the iron in sufficient quantities to support active and almost perfect combustion of the vapor. The jets of flame which escape through the side opening in the burner-tube impinge against the tube P and serve to maintain the latter at such a degree of heat that the fluid passing through said tube is entirely converted into vapor.

Having thus described our invention, we claim—

1. The combination of the hollow iron hav-

ing the opening in its upper side, the vapor-burner secured in the iron, the latter being provided at its lower edges with openings B, and the detachable bottom plate having the side flanges V projecting from its upper side and arranged within and out of contact with the inner side of the iron when said plate is secured to the latter, for the purpose set forth, substantially as described.

2. The combination of the sad-iron body having notches in its lower edges, the bottom plate having flanges extending along and at a short distance from its edges parallel to the notched sides of said body, and a vapor-burner extending longitudinally through the casing and arranged to project the flame downwardly and against the deflectors formed by the

flanges upon the bottom plate, substantially as and for the purpose set forth.

3. The combination of the sad-iron body, the vapor-burner extending longitudinally through said body and arranged to project flame downwardly, and the supply-tubes extending through the body parallel to the vapor-burner and attached to the latter at one end, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

AUGUST F. CHABLE.

EDWARD M. ROBERTS.

Witnesses:

J. HENRY MORRISON,
THOS. O. KELLEY.