

(No Model.)

2 Sheets—Sheet 1.

C. M. COATS & C. E. CORLETT.
SAD IRON.

No. 577,099.

Patented Feb. 16, 1897.

Fig. 1.

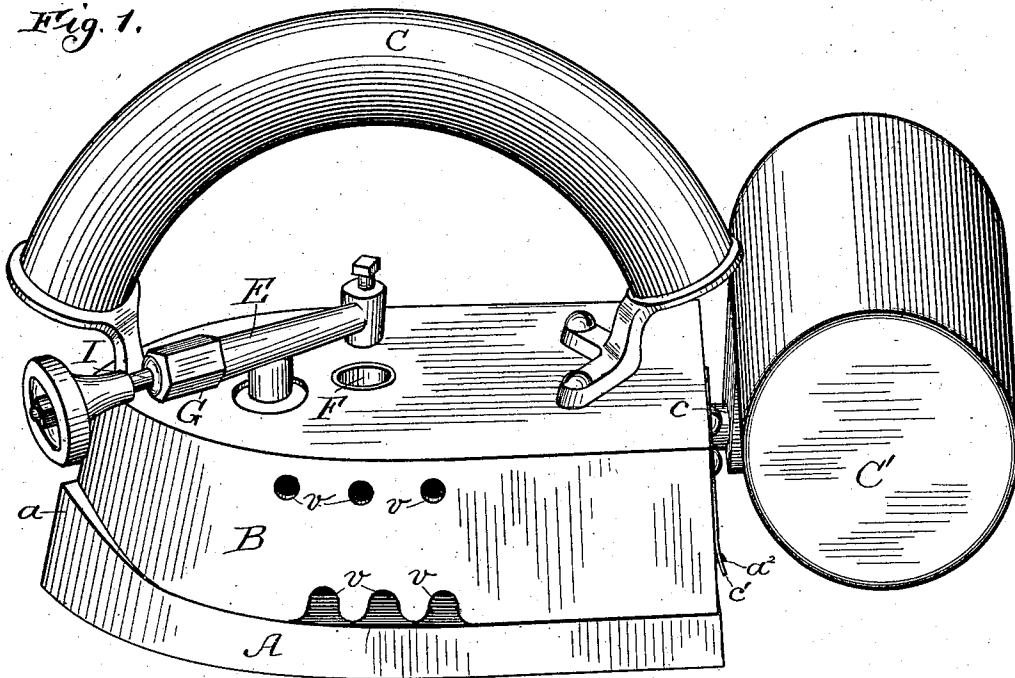
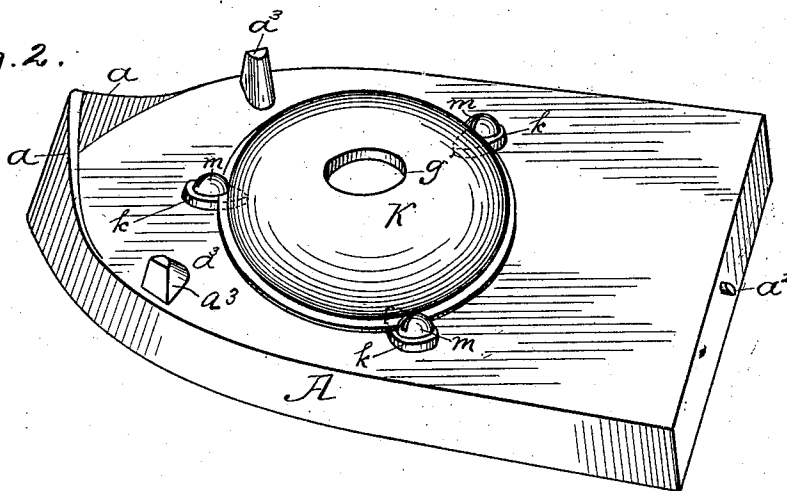


Fig. 2.



Witnesses:

W. J. Jaeger.
J. H. Thomas

Inventors:

Charles M. Coats and
Charles E. Corlett
By Frank D. Thompson,
Atty.

(No Model.)

2 Sheets—Sheet 2.

C. M. COATS & C. E. CORLETT.
SAD IRON.

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Fig. 3.

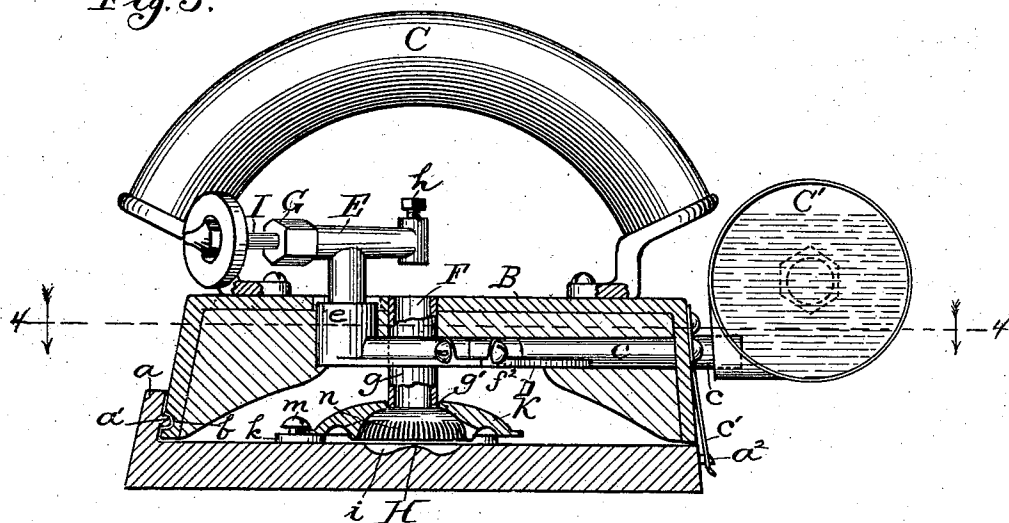


Fig. 4.

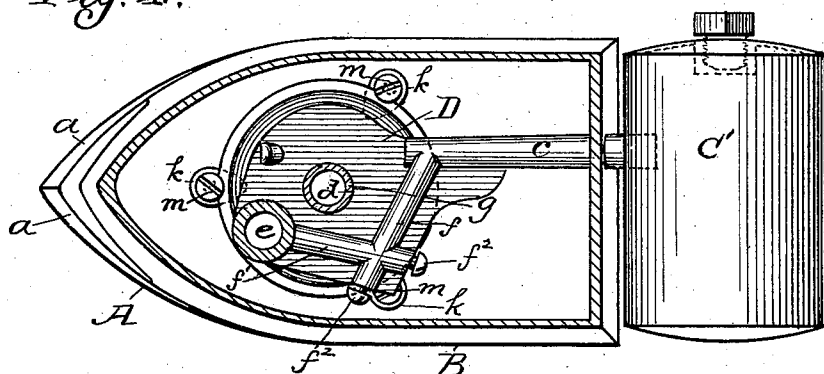
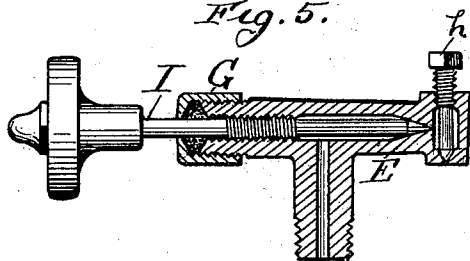


Fig. 5.



Witnesses:

W. J. Jackson,
J. E. Newman

Inventors:

Charles M. Coats and
Charles E. Corlett
By Frank D. Thompson
Atty.

UNITED STATES PATENT OFFICE.

CHARLES M. COATS AND CHARLES E. CORLETT, OF AURORA, ILLINOIS.

SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 577,099, dated February 16, 1897.

Application filed March 6, 1895. Serial No. 540,795. (No model.)

To all whom it may concern:

Be it known that we, CHARLES M. COATS and CHARLES E. CORLETT, of Aurora, Kane county, Illinois, have invented certain new and useful Improvements in Sad-Irons, of which the following is a full, clear, and exact description.

Our invention relates to self-heating sad-irons, the top part whereof, to which the handle is secured and which carries the gasolene-tank and generating and regulating devices, being detachable from the base or smoothing plate, which latter is provided with a peculiar heat-deflector which receives and distributes the products of combustion, so as to equally diffuse the heat and make the iron of an equal temperature throughout, substantially as hereinafter fully described, and as illustrated in the drawings, in which--

Figure 1 is a perspective view of our invention. Fig. 2 is a perspective view of the base or smoothing plate with the cover or top part removed. Fig. 3 is a vertical central longitudinal section therethrough. Fig. 4 is a horizontal longitudinal section therethrough, taken on dotted lines 4 4, Fig. 3. Fig. 5 is a vertical longitudinal section of the burner and valves used in connection therewith.

In the drawings, A represents a base or smoothing plate, preferably pointed at its forward end and square at its rear end, like the ordinary flat-iron. The sides of its pointed end are made higher than the rest thereof by the converging walls *a a*, which are comparatively thin and have a transverse underent bridge or shoulder *a'* connecting their rear surfaces, as shown. Projecting from the rear edge of plate A, about its center of width, is a pin *a*².

The cover or upper part B of our improved iron, while slightly less in length than the base-plate, conforms generally to the lateral dimensions of the same. This part B is practically a hollow shell, the sides of which are several times the height of the sides of the plate A, and it has suitably secured to its top surface the handle C, as shown. When it is desired to place this part B upon plate A, its pointed forward end, which is provided with

a recess *b* near its lower edge, is pushed behind the walls *a a*, so that the bridge or underent shoulder *a'* enters the recess *b*. When this is done, the rear edge of part B will rest upon and be in the same vertical plane as the rear edge of plate A, to which it is fastened by a flat snap-spring *c'*, which latter is fastened to and extends down from the rear edge of the top part and has a hole in its lower extremity that snaps over the pin *a*². The cover or upper part B is thus secured both in front and at the rear to the plate A and securely held thereon. If desired, the possibility of any side movement of the part B can be avoided by providing the base-plate with upwardly-projecting lugs *a*³ *a*³, which are correspondingly located a given distance back from the point of said plate and so that the side walls of said upper part come just outside of and in contact with the same.

The upper part B when fitted upon the base-plate forms an interior chamber within which the heat generating and diffusing mechanism is housed. The gasolene-tank C', which is preferably cylindrical, is located just to the rear of the upper part, to which it is connected by means of a longitudinal pipe *c*. Pipe *c* enters part B and terminates in a plate D, cast in one piece therewith. This plate has an opening *d* in it, and has arising therefrom a stub *e*, the top of which extends up into an opening in the upper surface of part B. This stub *e* is connected to the pipe *c* by two tubes *f* and *f'*, opening into and arranged at an angle to each other about as shown. These two tubes are originally cast solid with plate D and are then bored out longitudinally. This requires the tubes to cross each other, and their crossed ends are stopped up or plugged by screws *f*². We much prefer the use of the pipe *c*, plate D, and tubes *f* and *f'*, as described and shown, because of the economy of construction and because of the increased area of heating-surface provided, whereby the volatilization of the gasolene is better accomplished, (as will hereinafter more fully appear,) but a sinuous pipe conforming to the direction pursued by pipe *c*, tubes *f* and *f'*, and stub *e* would answer.

Screwed tightly down into the upper end of stub *e* is the burner, consisting principally of a T-shaped tube *E*, one end of which extends to and terminates centrally over an opening *F* in the top of part *B*, down from which extends a flue *g*. The end of the tube *E* over opening *F* is provided with a vertical head, the bore of which is directly over said opening *F*, and is provided with a screw-valve *h*, screwed vertically downward into it, so as to control the output from the restricted lower output-orifice thereof. The other end of the horizontal portion of tube *E* has, preferably, a screw-valve *I* entering it longitudinally, the outer end of which is provided with a wooden-rimmed finger-wheel with which to manipulate the valve and regulate the flow of the gasolene-vapor from the vertical portion of the tube *E*.

Now when the plate *D* is heated the liquid gasolene, passing through tubes *f* and *f'*, becomes volatilized, and, expanding, issues with considerable force downward from the head of the tube *E* into the flue *g*. This current of volatilized gasolene or vapor is ignited, and were not some means provided to equally spread the flame thus created said flame when it struck the base-plate would be affected by every draft and flicker erratically to one side or the other and not heat the said base-plate equally on all sides nor as quickly as desirable. We accomplish the equal distribution of the flame and heat generated thereby by providing said base-plate with a conical-shaped protuberance *H*, which is surrounded by a circular gutter *i* and which is in alinement with the center of the flue *g*. The lower end of the flue *g* terminates a short distance above the base-plate, and between the said lower end and said base-plate is an inverted-saucer-shaped deflector *K*.

Deflector *K* is concentric with flue *g* and has a central opening *g'* in it, into which the lower end of flue *g* enters when the top part of the iron is secured to the base-plate. This deflector rests upon and is secured to slightly-raised platforms *k* by means of screws *m*, so that its lower edge is raised above the base-plate in order that the products of combustion can pass outward from under the same. Now when the flame from flue *g* strikes the protuberance *H* it is divided and spread equally in all directions therefrom. It then passes through the spaces between a circular row of teeth or a circular comb *n*, depending down from the under side of said deflector between its central opening and its outer circumferential edge, under which, when properly started, it is confined in an annulus of flame. The outer circumferential edge of deflector *K* is unbroken, and the outer portion of said deflector beyond the comb is curved downward, so that the flame passing through the comb is deflected downward toward the base-plate.

The operation of our invention is substan-

tially as follows: The tank being filled with gasolene, the top is thoroughly heated over a stove or otherwise until the gasolene in pipe *c*, tubes *f* and *f'*, and stub *e* is volatilized. The valves *I* and *h* are then regulated so as to control the output from the head of tube *E*, and then said top part is secured, as explained, to the base-plate. The gas so generated blows in a strong stream down through flue *g* and is ignited at the lower end thereof and forms a flame under the deflector, which, by reason of its peculiar construction, spreads the flame so as to accomplish the most good. After once started the gasolene continues to burn as a gas as long as desired and until one of the valves in tube *E* is closed. Now in order to provide sufficient oxygen for the proper combustion of the volatile products of the gasolene we have provided the sides of the upper part *B* of the iron with several openings *v v* on each side of the iron, preferably in the locality of the deflector. The number and location of these air-openings *v* is unimportant, however, so long as they perform the office of supplying the requisite amount of air.

In order to insulate the handle as far as possible from the heat of the body of the iron, we prefer to fill the upper part of the hollow top part *B* of the iron with asbestos or other suitable non-combustible insulating material, substantially as shown in Fig. 3, and so as to protect the pipe *c* and prevent the products of combustion passing out of the opening in the rear of the upper part *B*, through which it enters, and so as to close the opening up into which the stub *e* extends.

What we claim as new is—

1. The combination with a base-plate and a deflector having a central opening therein and having a circular comb depending downward from its under side between its central opening and its outer unbroken downwardly-curved circumferential edge, and secured to and raised slightly above said base-plate, of a hollow detachable top part or cover *B* the under part of which is open and fits upon said base-plate with openings next the lower edges thereof, and has a suitable handle, an independent gasolene-tank located contiguous to said top part, a burner, a sinuous conduit traversing the interior of said part *B* and connecting said tank and burner, said part *B* having a vertical flue extending downward from the upper surface thereof in alinement with said burner, and said flue discharging the volatilized gasolene into said deflector, which spreads the flame therein created directly against said base-plate so that after leaving said deflector the heat generated thereby comes in direct contact with said sinuous conduit.

2. The combination with a base-plate having a protuberance *H*, and a deflector having a central opening therein and having a circular comb depending downward from its un-

der side between its central opening and its outer circumferential edge, and the outer portion of the deflector beyond the comb being unbroken and curved downward, and said deflector being secured to and slightly raised above said base-plate, of a detachable hollow cover or top part B fitting upon said base-plate having recesses in the lower edges thereof, and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, and a sinuous conduit connecting said tank and burner all as described, said part B having a flue extending down from its top surface in alinement with said burner, said flue discharging the volatilized gasolene into said deflector which spreads the flame directly against said base-plate so that after leaving said deflector the heat generated thereby has an unobstructed course to and comes in direct contact with said sinuous conduit.

3. The combination with a base-plate having a protuberance H and a gutter surrounding the base of the same, and a deflector having a central opening therein and secured to and raised slightly above said base-plate, of a detachable hollow cover or top part B fitting upon said base-plate having recesses in the lower edges thereof and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, a sinuous conduit connecting said tank and the burner all as described, said part B having a flue extending down from its top surface in alinement with said burner, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate, so that after leaving said deflector the heat generated thereby has an unobstructed course to and comes in direct contact with said sinuous conduit.

4. The combination with a base-plate having a protuberance H and a gutter surrounding the base of the same, and a deflector secured to and raised slightly above said plate, having a central opening therein and provided with a concentric circular comb depending from its under surface, of a detachable hollow top part or cover B fitting upon said base-plate having recesses in the lower edges thereof and having a suitable handle, an independent gasolene-tank located contiguous thereto, a burner, a sinuous conduit connecting said tank and the burner all as described, said part B having a flue extending down from its top in alinement with said burner, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate so that after leaving said deflector, the heat generated thereby has an unobstructed course to and comes in direct contact with the sinuous conduit.

5. The combination with a base-plate, and a deflector secured to and raised slightly above the same, of a hollow cover or top part B removably secured to said base-plate having

openings in the sides thereof and provided with a suitable handle, a gasolene-tank located contiguous to said cover, a burner, a pipe *c* plate D having an opening *d* therein and tubes *f*, *f'*, and stub *e* all cast in one piece as described, and forming the connection between said tank and the burner, and a flue *g* projecting down from the top surface of said cover and extending down through the opening in said plate D and discharging into said deflector.

6. The combination with a base-plate having a protuberance H, and a deflector secured to and raised slightly above said plate, having a central opening therein and provided with a concentric circular comb depending from its under surface, of a hollow cover or top part removably secured to said base-plate having openings in the side thereof and provided with a suitable handle, a gasolene-tank located contiguous to said cover, a burner, a pipe *c* plate D having an opening *d* therein and tubes *f*, *f'*, and stub *e* all cast in one piece as described, and forming the connection between said tank and burner, and a flue *g* projecting down from the top of said cover and extending down through said plate D, said flue discharging the volatilized gasolene into said deflector, which spreads the flame directly against said base-plate so that after leaving said deflector, the heat generated thereby has an unobstructed course to and comes in direct contact with plate D.

7. The combination in a self-heating sad-iron, of a base-plate, and an inverted-saucer-shaped deflector having a circular comb depending downward from the under side between its central opening and its outer circumferential edge, and the outer portion of the deflector beyond the comb being curved downward, with a hollow cover fitting over and removably secured to said base-plate having openings in its sides, a gasolene-tank supported by and having pipes extending therefrom into said cover and terminating in a valve-controlled head which directs the volatilized gasolene downward, and a flue in said cover extending vertically down to and discharging the said volatilized gasolene down into said deflector in which it ignites and by which it is spread directly against said base-plate.

8. The combination in a self-heating sad-iron, of a base-plate, and an inverted-saucer-shaped deflector having an opening in its top and having a circular comb depending downward from its under side between its central opening and its outer circumferential edge, and the outer portion of said deflector beyond the comb being curved downward, said deflector being secured directly to but elevated slightly above the base-plate, with a hollow cover fitting over and removably secured to said base-plate, having openings in its sides and having its upper interior surface protected by a suitable insulating ma-

terial, a gasoline-tank supported by and having pipes extending therefrom into said cover and passing up therethrough to and terminating in a valve-controlled head which directs the volatilized gasoline downward, and
5 a flue in said cover extending vertically down to and discharging the said volatilized gasoline down into said deflector in which it ig-

nites and by which it is spread directly against said base-plate.

CHARLES M. COATS.
CHARLES E. CORLETT.

Witnesses:

WM. JONES,
FRANK D. THOMASON.