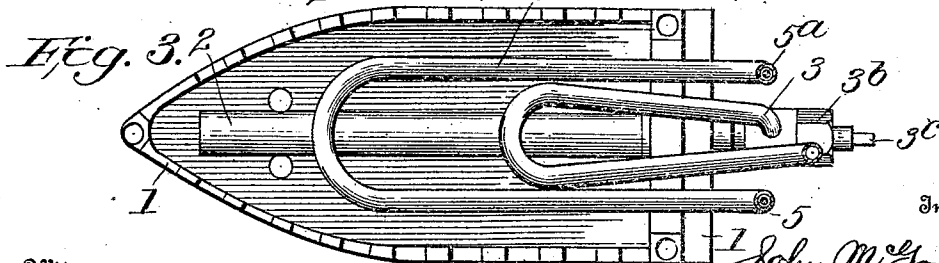
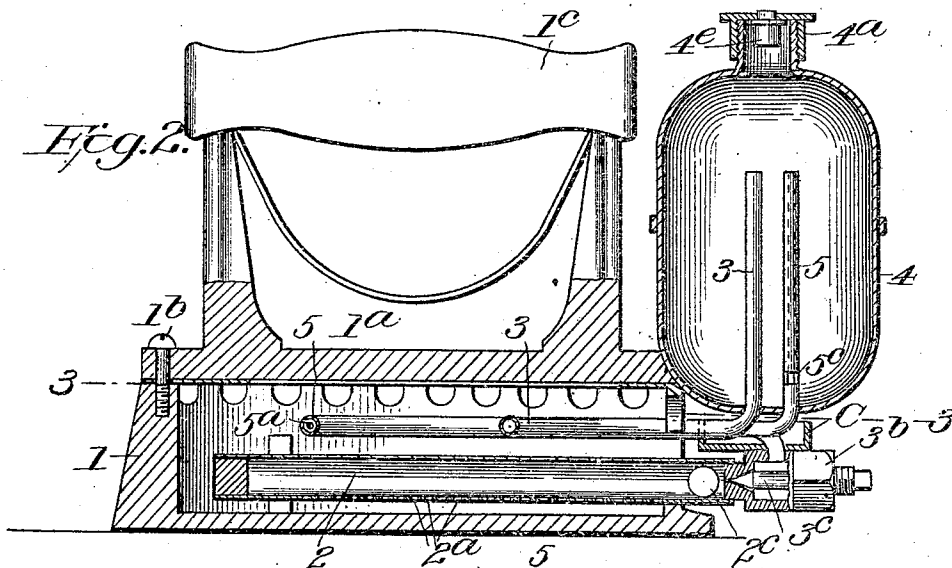
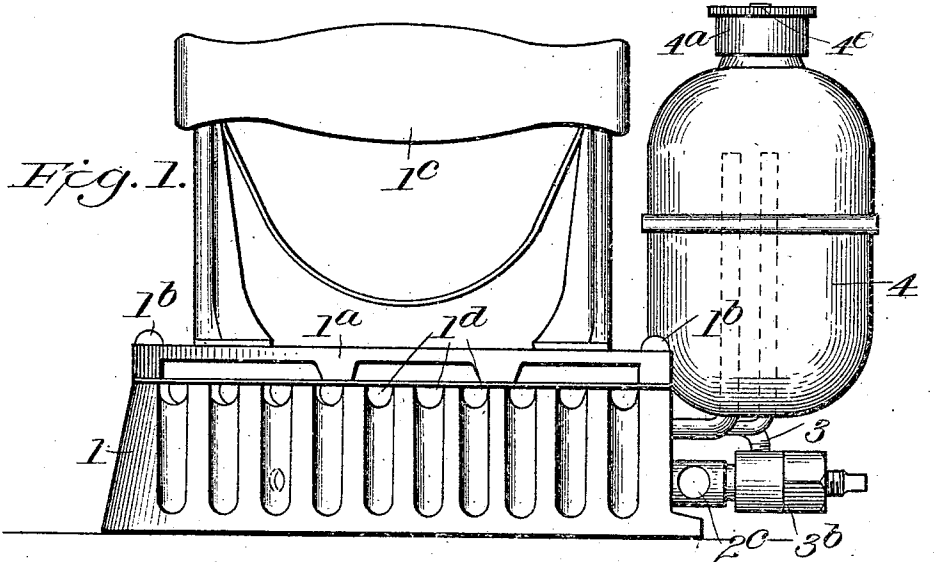


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 SELF HEATING SADD IRON.
 APPLICATION FILED JUNE 5, 1909.

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Patented Mar. 1, 1910.



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UNITED STATES PATENT OFFICE.

JOHN MCGONEGAL AND WILLIAM J. FRANCIS, OF PITTSBURG, PENNSYLVANIA; SAID
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SELF-HEATING SAD-IRON.

951,091.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOHN MCGONEGAL and WILLIAM J. FRANCIS, citizens of the United States, residing at Pittsburg, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Self-Heating Sad-Irons; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in so-called "self-heating sad irons", and its object is to provide an iron to be heated by alcohol which will be absolutely safe in operation and will burn steadily without going out under pressure; will not waste alcohol in case it should boil over in the reservoir; will prevent loss of alcohol if for any reason the fire should go out; and in which the alcohol will be delivered from the reservoir in a gaseous condition suitable for burning. And such iron will be entirely automatic in operation and very economical.

We will describe the invention with reference to the accompanying drawings which illustrate one practical form of self-heating iron embodying the invention, and in which—

Figure 1 is a side view of the iron. Fig. 2 is a longitudinal vertical sectional view thereof. Fig. 3 is a horizontal section on line 3—3, Fig. 2.

The body 1 of the sad iron may be of any preferred construction and is preferably made of metal and hollow and has a removable top 1^a secured to the bottom part by screws 1^b, and provided with a handle 1^c. The sides of the iron may be perforated as at 1^d to admit air to the burner therein. The size and form of this iron may be varied to suit the designer.

Within the iron, and located just above the bottom thereof, is a perforated burner pipe 2 which extends longitudinally of the iron, and is provided with a series of perforations 2^a on its under side through which the inflammable gas escapes. The gas is admitted into the outer end of the pipe 2 from a reservoir 4 by means of a pipe 3, one end of which extends up through the bottom of the reservoir and terminates near the top thereof, and the body of the pipe 3 is bent horizontally above the burner pipe 2 and back upon itself in a long horizontal loop and its outer extremity is connected to the

casing of a needle valve 3^b attached to the outer end of the burner pipe 2, said valve 3^b being adapted to discharge the gas into burner pipe 2; the valve 3^b is operable by a stem 3^c which projects out of the valve casing and can be manipulated by a wrench or key, or other convenient means. When the valve is opened the alcohol vapor or gas will be conducted from the reservoir 4 through pipe 3 into burner pipe 2 and will naturally jet forwardly therein and escape through the aperture 2^a where it is ignited. Air can be mixed with the gas in burner pipe 2 before it reaches the jet apertures, being admitted through openings 2^c, in the outer end of burner pipe 2 adjacent the needle valve.

The pipe 3 is preferably made of copper so as to conduct the heat into the reservoir to vaporize the alcohol therein but the end of this pipe should be carried above the fluid level in the reservoir so as to only conduct gas therefrom. If at any time alcohol should boil or splash over into this pipe it will be vaporized in the heated portion thereof before it reaches the needle valve.

In order to insure vaporization of the alcohol in the reservoir and insure a steady supply of gas to the pipe 3, a vaporizing tube 5 is attached to the reservoir; both ends of this tube extend into the reservoir as shown, and the exterior portion of this tube extends into the body of the iron above the burner tube, as shown in the drawings, so as to be subjected to the direct heat of the flames. This tube 5 is made of copper and within it is placed a copper wire 5^a which performs the functions of dividing the liquid in the tube into a thin annular sheet and also of rapidly conducting heat into the reservoir so that the alcohol contained in the vaporizing tube will be rapidly volatilized and returned to the reservoir where it is trapped until it escapes through pipe 3. The copper tube and wire convey a large quantity of heat by conductivity into the reservoir itself and cause volatilization of the alcohol therein.

The members of tube 5 within the reservoir are perforated near the bottom of the reservoir, as shown at 5^c to permit the alcohol to freely circulate through the portion of the pipe above the fire at all times, and until the alcohol is entirely exhausted, the ends of the tube and wire being extended

to near the top of the reservoir as shown, so as to obtain as large an amount of surface therein heated by conductivity as is practical.

- 5 The reservoir 4 may be tightly closed by a removable stopple 4^a of any suitable construction, and as a precautionary measure it may be provided with a safety-valve 4^c of any suitable construction to prevent excessive pressure therein if the needle valve should be closed when the iron is very hot.

Operation: When it is desired to use the iron the needle valve 3^b is slightly opened; and a small quantity of alcohol is placed in a cup indicated at C in the drawings beneath the reservoir and ignited. This external application of heat will shortly vaporize enough alcohol in the reservoir to start the gas blowing through the valve 3^b into burner pipe 2, and this gas is then ignited by applying a match to the perforations at the side of the iron, and then the cup is removed and the burning gas will continue to vaporize the oil in the reservoir by heating the pipe 3 and tube 5 and the alcohol will be vaporized continuously so long as the burner remains ignited; and the iron can be used until the alcohol in the reservoir is exhausted.

- 30 Having described our invention what we claim as new and desire to secure by Letters Patent thereon is:

1. In an alcohol burning heating iron the combination of a hollow iron body, a burner within said body, an alcohol reservoir, a pipe for conducting vapors from said reservoir to said burner, and a valve for regulating the admission of vapors to the burner; with a copper tube having both ends extending into the reservoir and having a return bend projecting into the iron above the burner to be heated thereby.

2. In combination, a hollow iron body, a burner within said body, a reservoir, a pipe for conducting vapors from said reservoir to said burner, a valve for regulating the admission of vapors to the burner; with a tube having both ends extending into the reservoir and having a bend projecting into the iron above the burner to be heated thereby, the ends of said tube extending to near the top of the reservoir, but perforated near the bottom of the reservoir to permit continuous passage of fluid to the tube.

55 3. In combination, a hollow iron body, a burner within said body, a liquid reservoir, a pipe for conducting vapors from said res-

ervoir to said burner, and a valve for regulating the admission of vapors to the burner; with a bent copper tube having both ends extending into the reservoir and its bend projecting into the iron above the burner to be heated thereby, and a copper wire within the said tube, for the purpose described.

4. In an alcohol burning heating iron, the combination of a hollow iron body, a burner within said body, an alcohol reservoir, a pipe for conducting vapors from said reservoir to said burner, and a valve for regulating the admission of vapors to the burner; with a bent copper tube having both ends extended into the reservoir, its bend projecting into the iron above the burner to be heated thereby, the parts of said tube in the reservoir being perforated near the bottom thereof to permit continuous passage of fluid to the tube, and a copper wire within the said tube, for the purpose described.

5. In a self-heating sad-iron, the combination of a hollow iron, a burner therein, a fluid reservoir attached to the iron, a pipe for conducting vapors from the upper part of said reservoir to the said burner, said pipe extending through and above the base chamber in the iron or burner within the iron, and a needle valve controlling the admission of gas from the reservoir to said burner; with a vaporizing tube having both ends communicating with the reservoir and its exterior portion extending into the iron above the burner.

6. In combination, a hollow iron, a perforated burner pipe therein, an alcohol reservoir attached to the iron, a pipe for conducting vapors from the upper part of said reservoir to the said burner pipe, said pipe extending above the burner within the iron, and a valve controlling the admission of gas from the reservoir to said burner pipe; with a vaporizer having both ends communicating with the reservoir and its exterior portion extending into the iron above the burner, said vaporizer being formed of copper tube, and a copper wire inserted within said tube, substantially as described.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

JOHN MCGONEGAL.
WILLIAM J. FRANCIS.

In presence of—
PAUL O. SPENCER,
W. M. McMILLIN.