

R. REID.
SAD IRON-HEATER.

No. 178,561.

Patented June 13, 1876.

Fig. 1.

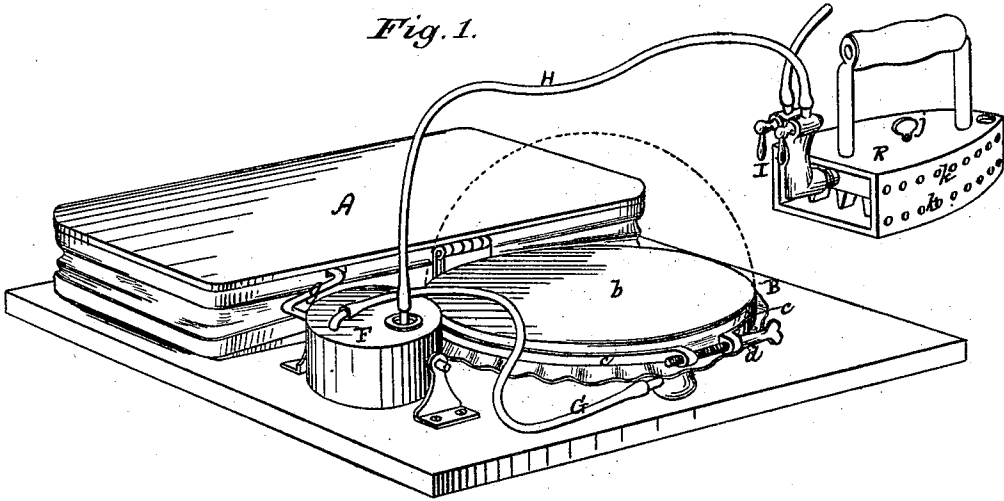


Fig. 2.

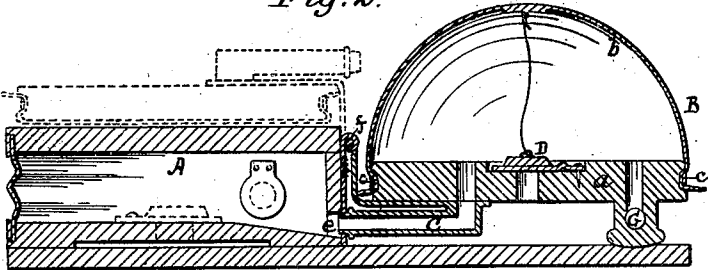


Fig. 3.

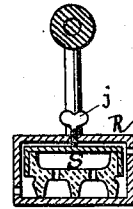
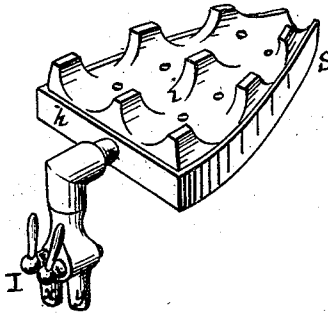


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT REID, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SAD-IRON HEATERS.

Specification forming part of Letters Patent No. 178,561, dated June 13, 1876; application filed May 11, 1876.

To all whom it may concern:

Be it known that I, ROBERT REID, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Hand or Sad Irons and apparatus for heating the same, of which the following is a specification:

This invention consists in improvements on that class of hand or sad irons which are heated by an admixture of air with gas or other inflammable vapor, said improvements having special reference to Letters Patent No. 151,160, dated May 19, 1874, granted to John Robertson, for improvements in hand and sad irons.

My improvements relate, first, to the air-forcing apparatus; second, to means for carburating the air prior to its entry into the body of the iron; third, to means for mingling ordinary coal or illuminating gas with the carburated air, prior to its entry into the body of the iron; fourth, to the construction of the iron itself.

The nature of my improvements, and the manner in which the same are or may be carried into effect, can best be explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the air-forcing and carburating apparatus and the iron. Fig. 2 is a transverse vertical section of the air-forcing apparatus. Fig. 3 is a transverse vertical section of the iron. Fig. 4 is a perspective view of the movable distributing-chamber, removed from the iron and turned bottom upward.

The supply of air is furnished by the bellows A, upon the upper leaf of which the operator stands. The bellows is worked by the operator, who, by shifting his weight alternately from one foot to the other, causes the upper leaf to rock first to one side and then to the other side of the central ridge or fulcrum upon which it moves. The bellows resembles that described in Robertson's patent aforesaid, save that the leaf rocks in the direction of its length instead of its width. In the inside of the bellows are two flap valves for the admission of air. B is the air reservoir and regulator, consisting of a circular bottom, a, of wood or other suitable material,

the rim being grooved. Over this bottom is laid a sheet of elastic and expansible rubber cloth, b, fixed round the edge, so as to be airtight, by cement, and a metal band, c, sunk into the groove, which band is tightened by means of a screw, d. C is a pipe attached to the reservoir and fitting into a corresponding aperture, e, in the bellows. When the bellows is operated, the air passes through pipe C, inflating the regulator, as shown in Fig. 2. D is a safety-valve in bottom of the regulator, operated by a cord attached to center of the rubber cover. The tendency of the stretched rubber cover to contract presses the air into the naphtha-tank F, through connecting-pipe G. The air reservoir or regulator may be hinged to the bellows, as shown at f, on a horizontal axis, which will permit the regulator to be turned up and over the bellows, so as to rest flat on the top leaf of the same, as indicated in Fig. 2, in dotted lines. For this purpose the pipe C is not fixed to the bellows, but fits closely against or into a packing with which the aperture or socket e should be furnished. The air-forcing apparatus thus organized is simple and may be conveniently packed for transportation. When not in use, the one part may be folded over on the other, and the whole moved to any convenient place without separating from it either the iron or the connecting-tubes.

The naphtha-tank or carburating-vessel F is constructed internally in any suitable manner to effect the impregnation of the air by the hydrocarbon contained therein. For the purpose of effecting more thorough carburation, I arrange the carbureter F so that it shall be agitated by the movement of the bellows. For this purpose the tank is hung on journals or rollers, as shown, and is connected at one side to the upper leaf of the bellows, by a crank, G, so that the vessel will oscillate or rock with the movement of the bellows. The carbureter bellows and regulator are mounted on one platform or base, so that the apparatus, as a whole, is portable and easily moved, as above stated. The carburated air is conducted through the flexible tube H to the iron R. The supply can be regulated by a cock, I.

It may be that an intense heat at times will

be required. For this purpose I provide for mingling ordinary coal-gas with the carbureter-air, using substantially the same arrangement as shown in the Robertson patent aforesaid—that is to say, the cock I is a double cock, one branch, *x*, designed to receive the carbureted air, and the other branch *y* to receive, through another flexible tube, ordinary coal-gas. The gas and carbureted air, in regulated quantity—determined by the cocks I, pass into the distributing-chamber S of the iron, and there mix, prior to ignition. The distributing-chamber may be made of iron or fire-clay, or of a composition of both, or of any other suitable material. In this instance I have represented it made with the upper part *h* of iron and the under part *i* of fire-clay. The distributing-chamber I make removable, as shown. When inserted in place it is held by a set-screw, *j*, which presses the projection or feet on the lower part of the chamber down against the bottom of the iron. The distributing-chamber is perforated on its under side with numerous fine holes, which, when a light is applied, a clear blue flame radiates down on the sole of the iron.

The perforations *k* which are around the entire bottom and top of the sides of the iron are for the purpose of promoting a current of air through the iron, thus enabling the gas to burn independently of the air-pressure and admitting of the iron being kept warm in the absence of the operator. It is not essential that this improved form of iron should be used with the particular air-forcing apparatus herein described. The inflammable material,

whether gas or carbureted air, may be supplied by means of a blower or other suitable appliance.

Having described my improvement, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the bellows and the air reservoir or regulator hinged and connected therewith, substantially as and for the purpose set forth.

2. The air reservoir or regulator, consisting of the base with apertures for ingress and egress of air and the elastic and extensible rubber cover, combined and arranged as shown and set forth.

3. The combination of the bellows and the naphtha tank or carbureter, arranged to be agitated or rocked by the movement of the bellows, substantially as set forth.

4. The combination, substantially as shown and described, of the bellows, the carbureter, the air reservoir or regulator, and the iron.

5. The combination, substantially as shown and described, of the body of the iron, the removable distributing-chamber, and the set or pressure screw, which holds the chamber in place by pressing it against the bottom of the iron, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT REID.

Witnesses:

M. BAILEY,

J. N. CAMPBELL.