

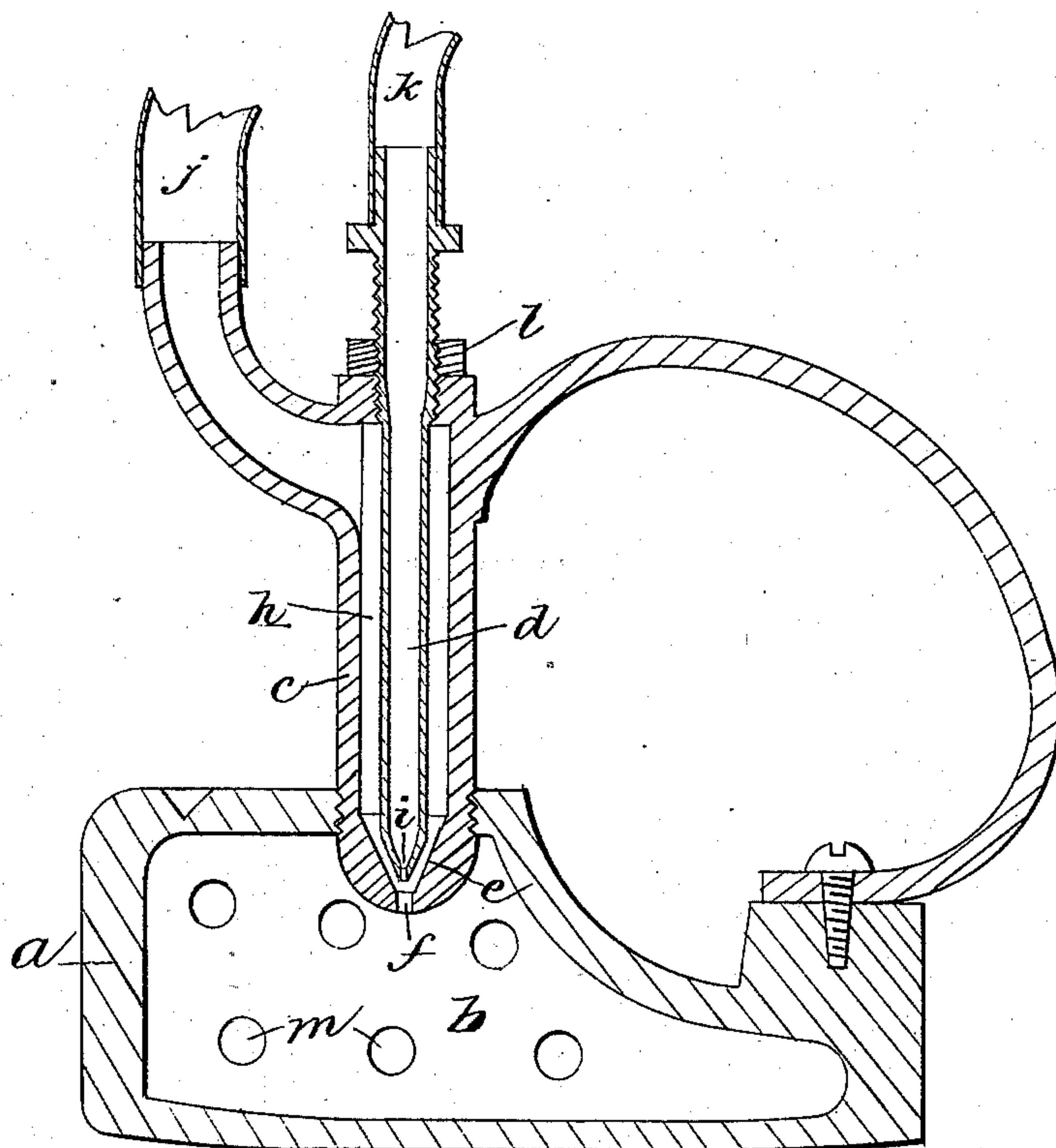
(No Model.)

A. L. F. MITCHELL & W. F. DAME.

SAD IRON.

No. 255,733.

Patented Mar. 28, 1882.



Witnesses:
J. G. Madlin.
H. B. Morrison

Inventors:
Albion L. F. Mitchell
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UNITED STATES PATENT OFFICE.

ALBION L. F. MITCHELL AND W. FRED DAME, OF LAWRENCE, MASS., ASSIGN-
ORS TO THEMSELVES AND MILTON B. TOWNSEND, OF SAME PLACE.

SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 255,733, dated March 28, 1882.

Application filed June 2, 1881. (No model.)

To all whom it may concern:

Be it known that we, ALBION L. F. MITCHELL and W. FRED DAME, of Lawrence, in the county of Essex and State of Massachusetts, have invented certain Improvements in Sad-Irons, of which the following is a specification.

This invention relates to smoothing or polishing irons adapted to be heated internally by gas; and it has for its object to enable an iron of the above-named class to be effectively and continuously heated by a small consumption of gas; and to this end the invention consists in a smoothing-iron provided with a burner and adapted to receive gas and air under pressure and deliver the gas upon the bottom of the iron in a current surrounded by a current of air, thereby producing upon such bottom a flame of high heat, as we will now proceed to describe and claim.

The accompanying drawing, forming part of this specification, represents a longitudinal central section of the smoothing-iron and its burner.

In carrying out our invention we provide a smoothing or sad iron, *a*, of any suitable shape, and having an internal cavity, *b*. To the iron *a* we attach a burner adapted to deliver a current of gas surrounded by a current of air under pressure and to direct the same downwardly against the bottom of the iron. This burner is composed of an air-tube, *c*, screwed into the top of the iron, and a gas-tube, *d*, located within the tube *c*. Said air-tube has a tapered portion or valve-seat, *e*, upon its lower end, and terminates below said portion or seat within the chamber *b* in a contracted opening, *f*. The gas-tube *d* is threaded externally at its upper portion and screwed into the tube *c* at a point where the latter is offset, as shown in the figure, and said gas-tube continues downwardly into the tube *c* and is separated therefrom by an annular space, *h*. The lower end of the gas-tube *d* is tapered at *i* to closely fit the portion *e* of the air-tube, so that by adjusting the tube *d* vertically the annular opening between the end *i* and the seat *e* can be increased or diminished to regulate the quantity of air passing to the opening *f*. The gas-tube *d* has a small exit-orifice in its lower end, ar-

50 ranged to discharge a stream of gas into the opening *f*. The air and gas pipes are adapted to be connected respectively to flexible tubes or pipes *j k*, the former leading from a blower or other air-forcing apparatus and the latter from an ordinary gas-pipe. The gas-tube *d* is 55 adjusted vertically to regulate the supply of air by means of its threaded portion, and is held at any desired point of adjustment by means of a jam-nut, *l*. The iron *a* is provided in its sides with orifices *m*, to enable the gas 60 to be ignited and for the escape of the products of combustion. The lower end of the gas-tube is located close to the outlet *f* of the air-tube and slightly above the same, so that the gas from the tube *d* does not come in con- 65 tact with the air until it is close to and yet above the point where combustion takes place, the discharging end of the tube *d* being surrounded by the annular air-passage, so that the gas issues in a current surrounded by a 70 current of air. We have found that by this arrangement a hotter flame is produced with a given amount of gas than if the gas were mingled with the air at a distance from the point of combustion, or if the air and gas were 75 discharged from tubes having their discharge-orifices side by side, instead of one above the other, as in sad-irons heretofore employed using gas and air. We believe such improved result to be due to the fact that the gas is sur- 80 rounded by an annular stream of air which does not thoroughly mingle with the gas, but drives it in a comparatively undiluted condition toward the bottom of the iron, forcing it against the bottom with a velocity proportioned 85 to the quantity of air and mingling thoroughly with the gas when the latter is deflected by contact with the bottom, thus making the flame hottest at the bottom, instead of at the orifice *f*, the degree of heat being proportioned 90 to the volume of the air, and being therefore capable of regulation by means of the adjustable tube *d*.

By our arrangement we are enabled to heat an iron at an expense for gas of about seven 95 cents per day.

If desired, the air may be heated before entering the burner.

Having thus described our invention, we claim—

1. The combination of the chambered iron *a* and the burner entering the upper portion
5 of said iron, said burner being composed of the air-pipe *c*, adapted to be connected to suitable air-forcing apparatus, and having the central outlet, *f*, and the gas-pipe *d*, having its end located above and close to the outlet *f*, whereby
10 a stream of gas and a surrounding stream of air under pressure are directed upon the bottom of the iron, substantially as and for the purpose set forth.

2. The combination of the chambered iron
15 *a* and the burner composed of the air-pipe *c*,

adapted to be connected to suitable air-forcing apparatus, and having the contracted outlet *f* and valve-seat *e*, and the adjustable gas-pipe *d*, having the tapered end *i*, located over the valve-seat, whereby the supply of air and the
20 heat of the flame can be regulated, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 30th day of May, A. D. 1881.

ALBION L. F. MITCHELL.
W. FRED DAME.

Witnesses:

JAMES H. EATON,
FRANK E. PRESCOTT.