G. PETIT.

Sad-Iron.

No. 221,935. Patented Nov. 25, 1879.

Fig. 1.

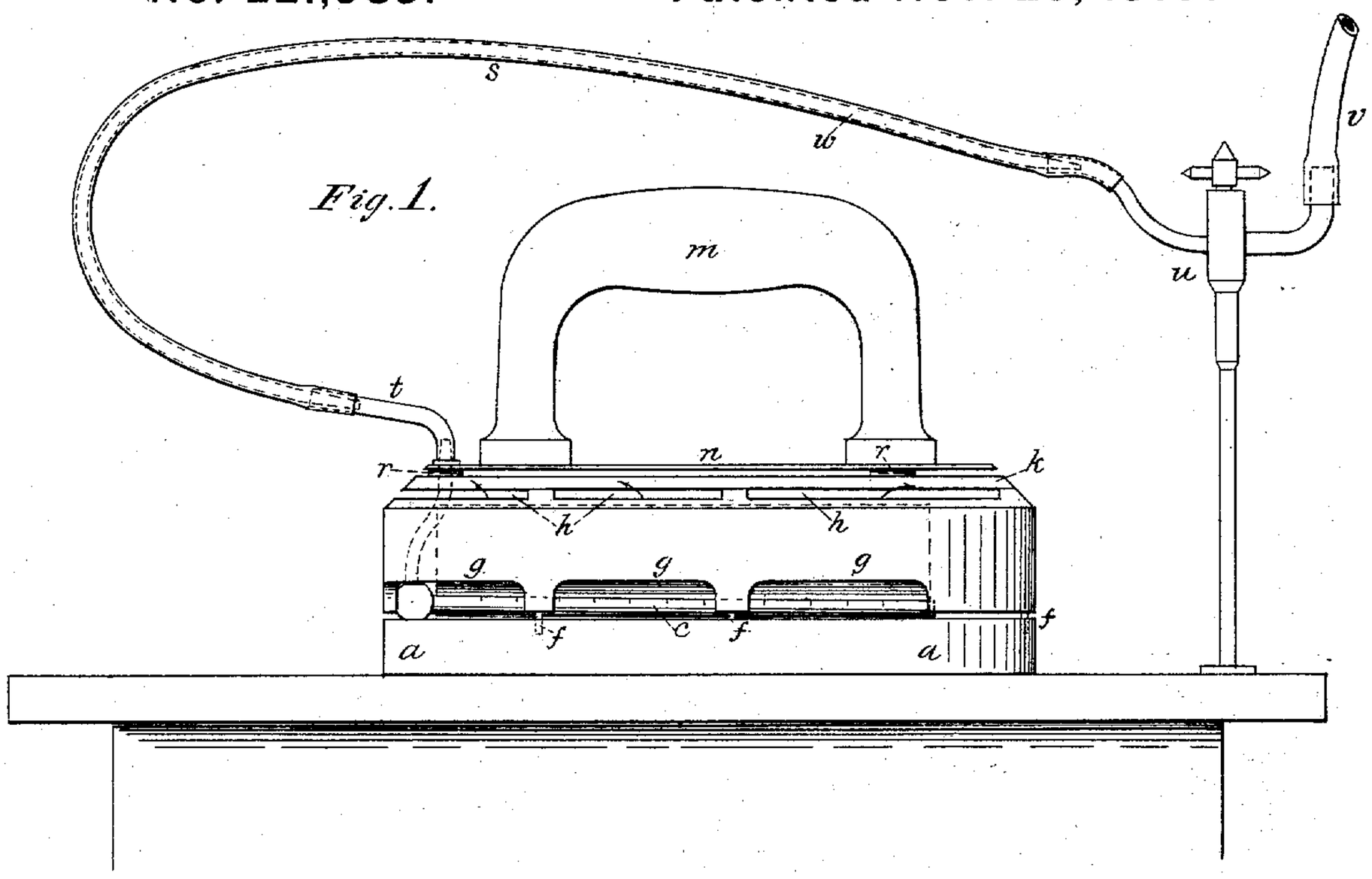

Fig. 2.

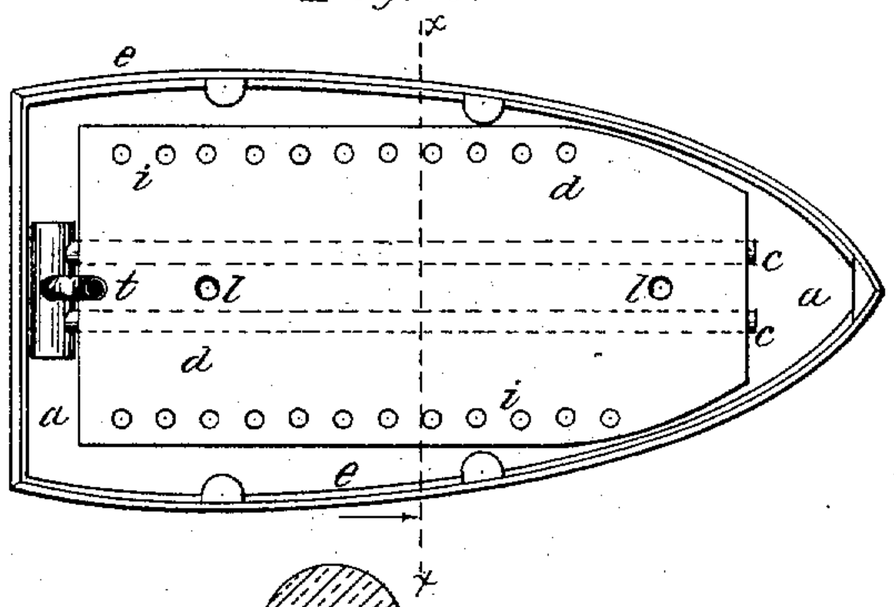

Fig. 3.

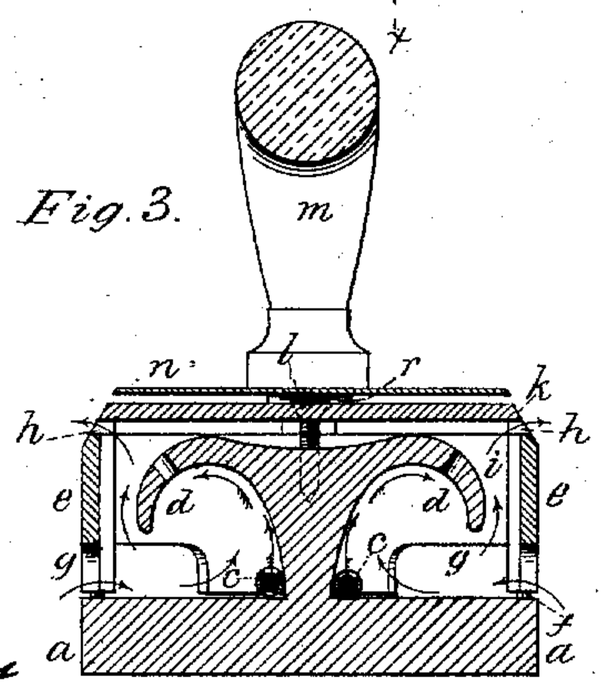

Fig. 4

Attest:

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UNITED STATES PATENT OFFICE.

GASTON PETIT, OF NEW YORK, ASSIGNOR TO NATHANIEL CHENEY, OF BROOKLYN, N. Y.

IMPROVEMENT IN SAD-IRONS.

Specification forming part of Letters Patent No. **221,935,** dated November 25, 1879; application filed November 22, 1878.

To all whom it may concern:

Be it known that I, GASTON PETIT, of the city, county, and State of New York, (assignor to NATHANIEL CHENEY, of Brooklyn, in said State,) have invented certain new and useful Improvements in Gas-Heating Sad-Irons, of which the following is a specification.

The object of my invention is to provide a self-heating iron of a neat and easily-wielded form, and it aims at such a construction as will apply the heat to the iron in a direct, rapid, and economical manner; also, furnish a free air-supply to the interior of the iron for perfect combustion and ventilation, and enable the gas-conducting tube, during the use of the iron, to remain suspended over the work, and yet readily yield to the movements of the iron in all directions without trailing on the work; and to this end my invention embodies a number of novel features, as hereinafter detailed.

Figure 1 of the annexed drawings is a side elevation of my improved iron. Fig. 2 is a plan view with the top plates removed. Fig. 3 is a cross-section on line *x x*, and Fig. 4 is an enlarged transverse section of the gas-conducting tube.

In the drawings, *a* represents the base-plate of the iron, which is of the usual curved triangular shape, as shown. The body of the iron is hollow, the sides and top being formed quite thin, so as to absorb and retain but little heat. The base-plate is polished, as usual, on its under or working surface, while from the middle of its upper surface a longitudinal projection extends upwardly into the hollow body, branching off into lateral flukes or lugs, as shown, and thus forming arches or hoods *d d*, beneath which the gas is burned from the pipes *c c*, arranged one on each side of the projection.

The hood or hoods extend nearly from end to end of the iron, as shown in Fig. 2, and are formed solid with the base and droop at their outer edges, so as to not only confine the heat of the flame as much as possible to the under side of the hoods, but direct the ends of the flames toward the base, so as to use the heat to the best advantage, and to bring any unconsumed gas in contact with fresh air entering through the lower apertures, the base and hoods being made of a substantial thickness, as shown, to contain a massive amount of metal for necessary weight and to absorb and retain a large quantity of heat. The hoods may also be formed of copper cast to the base to obtain better heat-conducting power.

The heat is applied directly to the base-plate and hoods, as shown, the gas-pipes *c c* being placed in direct contact along their whole length with the base-plate and hoods, or just at the angle where the central stem of the hoods springs from the base-plate, as shown in Fig. 3, the pipes being so arranged that the jets impinge upwardly directly against the hoods.

This arrangement, as will be seen, economizes the gas and conveys the full heating effect of its combustion by direct metallic conduction to the base-plate, where the heat is utilized, the source of heat being thus brought as near as possible to its point of consumption.

The outer ends of the hoods closely approach the sides of the casing or body *e*, leaving a space for the air to ascend between, while the pendent ends of the hoods may be extended down into actual contact with the base-plate; but they preferably terminate on a near approach thereto, as shown in Fig. 3. The sides or body-casing *e* of the iron is formed as a thin shell in the shape of a triangular ring of similar outline to the base, as seen in Figs. 2 and 3, and its lower edge is isolated from the base by complete separation all around the iron, except at a few small points or pins, *f f*, some of which fit into small holes in the base-plate, and serve to keep the parts in proper position and connection, without causing any serious conduction of heat from the base-plate, so that by means of this insulation the body remains cooler and the base hotter than would otherwise be the case. The lower and upper edges of the casing *e* are notched or indented with a series of lateral openings, *g h*, extending all around the iron, as shown in Figs. 1 and 3, which afford a free inlet and outlet to the air on all sides of the iron. The air enters at the lower lateral openings *g* over the top edge of the base-plate, flows along the heated surface thereof, and strikes in a hot current against the gas-jets, which are im-

pinged thereby in an ascending curve over the under arched surface of the hoods, the air, &c., thence ascending up the sides of the iron and escaping therefrom through the upper lateral openings, *h*, as indicated by the arrows. A line of perforations, *i*, extends through the crest of the hoods, as seen in Figs. 2 and 3, through which the consumed gases and air from the flames find more direct passage, and any gas that may pass through the same in an imperfectly-consumed state is met by a hot-air current ascending up the sides of the iron, which will cause its perfect combustion to at once take place.

It will thus be seen that by this construction an abundant supply of air is furnished to the gas-jets, and is so directed in hot impinging currents against the flames that perfect combustion is insured and its full heating effect obtained, waste of gas or the production of any odor therefrom being avoided.

Another advantage of the use of the upper row of perforations is, that should there be too much pressure of gas the flame will appear above the top of the hoods, and will thus be seen through the upper perforations, which serves as a signal to show that too much gas is burning.

The top plate *k* is preferably attached by two small screws, *l l*, to the top of the hoods, which serve to connect the three-sections of the iron securely together, as will be understood from Fig. 3, the top plate, similar to the base-plate, being separated from the side casing *e*, except at a few small points, as shown in Figs. 1 and 2, which prevent any marked conduction of heat from one to the other. The handle *m* is attached to the handle-plate *n*, which surmounts the iron, and is separated from the plate *k* sufficiently to permit a circulation of air between them, the plate *n* being attached to the plate *k* by small screws, non-conducting washers *r* being interposed between the plates, as shown. By this construction little heat is conducted to the top plates or handle of the iron, but is thus confined to the base, the heat being thus economized and the handle preserved in a cool condition for continued use.

s is the tube by which the supply of gas is conducted to the iron, and which is attached to a small metal pipe, *t*, which projects from the back of the iron, and connects with the jet-tubes *c c* within the same, as shown. The other end of the pipe may be attached directly to the gas-fixture from the wall or ceiling; but it is preferably connected to a small adjustable bracket, *u*, attached centrally to the work-table at the side opposite to the operator, and which connects with the gas-fixtures by an ordinary rubber pipe, *v*. The conducting-pipe *s* is preferably formed of an ordinary rubber tube, which is sustained from end to end on a straight elastic and sufficiently stiff wire, *w*, arranged preferably within the pipe with each end fixed in the mouths of the pipes, over which the ends of the rubber tube fit, as indicated in Fig. 1. The wire *w* is a thin broad flat one of spring-steel arranged with its width vertical, as shown in section in Fig. 4. This form of wire serves to keep the tube extended to allow of a free passage of the gas nearly as well as the coiled wire heretofore used for the same purpose, at the same time sustaining the tube in a suspensory position over the work, which the ordinary round spiral wire will not do, and yet its flexibility enables it to readily yield to the lateral or vertical movements of the iron, thus obviating any trailing of the tube on the work, which is a serious objection to ordinary conducting-tubes.

To keep the wire in the proper position to sustain the tube, the ends of the flattened wire are fitted into slots or grooves in the tube connecting it with the sad-iron and the supply-pipe, which are so arranged that the wire is always held as shown in Fig. 4.

I make no claim in this case, broadly, to supporting a flexible tube by flat wire, as I design making a separate application for this feature.

What I claim is—

1. The combination of a sad-iron having a socket, substantially as described, with a gas-conducting tube supported by an internal flat wire, as and for the purposes specified.

2. The gas-heating sad-iron herein described, consisting of a base, *a*, from which rises a central longitudinal projection having cast therewith, so as to form part thereof, overhanging drooping hoods, with spaces between the hoods and sides of the iron to admit of the currents of air and the burned gases readily passing, and curved to direct the gas flames down toward the base, all arranged and constructed as herein shown and described.

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Witnesses:
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EDWARD H. WALES.