J. CONRAD.
Heater for Sad Irons.

No. 201,995. Patented April 2, 1878.

Fig. 1

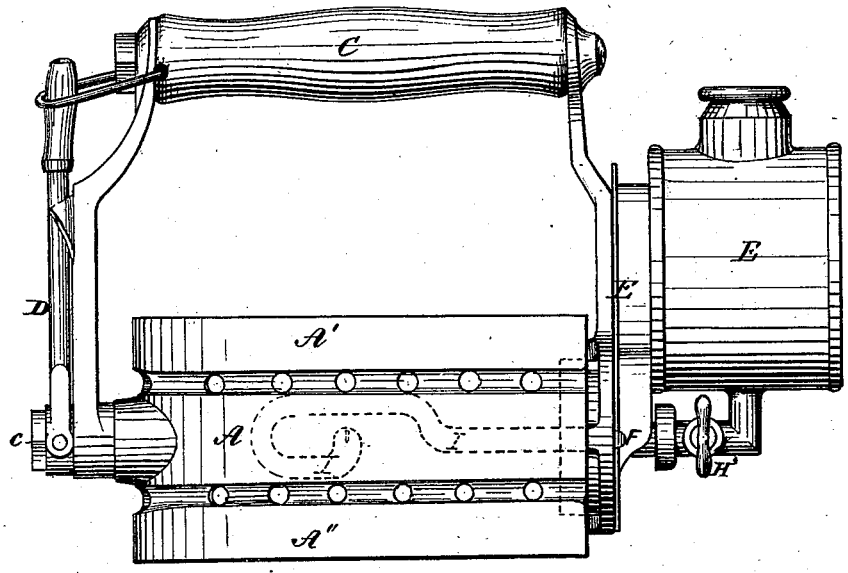
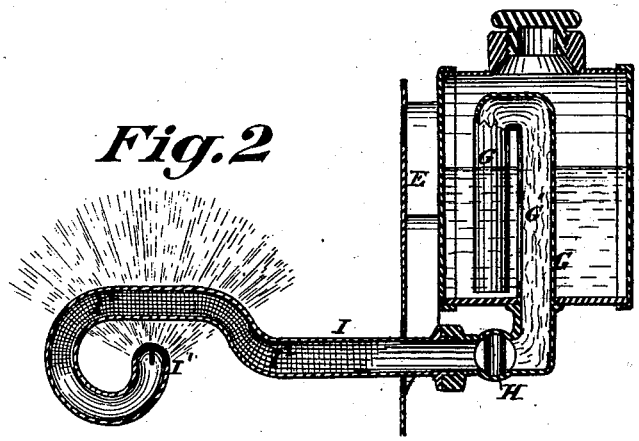


Fig. 2



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UNITED STATES PATENT OFFICE.

JOHN CONRAD, OF BURLINGTON, IOWA.

IMPROVEMENT IN HEATERS FOR SAD-IRONS.

Specification forming part of Letters Patent No. **201,995**, dated April 2, 1878; application filed December 19, 1877.

To all whom it may concern:

Be it known that I, JOHN CONRAD, of Burlington, in the county of Des Moines and State of Iowa, have invented certain new and useful Improvements in Vapor-Burners and Heaters for Sad-Irons, of which the following is a specification:

My invention relates, first, to that class of burners and heaters in which the flame of the burner is directed against a portion of itself to vaporize the oil before it reaches the burner-tip.

The object of this part of my invention is to construct the burner in such manner that the oil will be fed regularly and perfectly vaporized before it reaches the burner-tip; and the improvement consists in filling that portion of the burner immediately above the flame with wire or gauze of heat-conducting material that will completely check the flow of oil through the burner-tube before and at the same time of its being vaporized, the generating portion of the tube being arranged transversely to the heat-rays, so that an ample heating-surface is presented to the oil to completely vaporize all that can pass the heating-chamber.

The second part of my invention relates to the connection of a vapor-burner with its oil-reservoir when employed as a heater for sad-irons.

The object of the invention is to secure a safe and compact combination and arrangement of well-known parts that will effectually drain the reservoir without generating gas therein; and the improvement consists in combining an oil-reservoir, a siphon oil-tube passing up through the bottom of the reservoir, and inclosed thereby, an asbestus filling in the siphon-tube, and a gas-generating burner-tube connected immediately with the lower end of the siphon-tube, as and for the purpose hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a sad-iron with my improvements attached, and Fig. 2 a vertical longitudinal section of the heater and vapor-burner detached.

The body of the sad-iron A has two faces, A′ A″, that may be alternately heated and used in a well-known manner. The handle C is secured to the toe of the iron by a stud-bolt, *c*, and to the heel of the iron by a hollow trunnion. A gudgeon-lever, D, secured to the stud-bolt *c*, serves to lock either of the faces with the handle in a well-known manner, so that they may be alternately used. The body of the iron is hollow to receive the burner-tube, which passes directly from the bottom of the oil-reservoir through the hollow trunnion above described, and is perforated on its sides and ends to ventilate the flame of the burner.

The oil-reservoir E is readily connected or disconnected with studs F on the heel of the iron-body in a simple and effectual manner, as shown in the drawings, so that it will fit closely up against the heel of the iron. The siphon-tube G for supplying oil to the burner is connected at its end outside the reservoir, by means of a stop-cock, H, with the burner-tube I. The burner-tube passes into the hollow space of the iron, and is bent under at its end in such manner that the burner-tip I^1 directs the flame immediately against a portion of the burner-tube. That part of the burner-tube immediately over the flame is filled for about two inches of its length with wire I^2, or metallic gauze packed closely in the tube, so that the oil will surround the wire in films, and be caused to percolate slowly through the wire-filling. The heating-surface thus exposed to the oil is sufficient to vaporize all of the oil that can pass through the tube, as the entire length of the tube exposed to the flame is filled with the wire heat-distributer, every portion of which is arranged transversely to the heat-rays of the flame.

The well-known flame-protector formed of wire may be applied to the burner-tip independently of the heating-wire, and other wire-filling may be employed between the generating-space and the oil-reservoir, to intercept the vapor and prevent its being forced back into the oil-reservoir; but these devices should be entirely separate from the heating-wire, and form no part of the invention claimed by me, as they should be isolated from the heat rather than subjected to it.

The siphon-tube G is filled with asbestus G′, which serves to prevent the oil from flooding the burner, and also as a non-conductor of heat from the burner, and forms an important element in the second part of my invention,

as the vapor-burner is highly heated, and connects directly with the end of the siphon-tube when it enters the oil-reservoir. The siphon-tube is thus inclosed within the reservoir, and is surrounded by the fluid, and, if allowed to become heated, would generate vapor within the reservoir.

The siphon-tube, when filled with asbestus and inclosed within the reservoir, occupies but little space, and serves to completely drain the oil-reservoir both by the capillary attraction or absorption of the asbestus and the atmospheric pressure through the siphon.

A neat, safe, and effectually-operating combination and arrangement of parts is thus obtained peculiarly adapted for attaching to sad-irons, as the whole arrangement may be made within a small compass.

Alcohol is preferably employed with the above-described burner and heater, as it is completely vaporized, and is found to give a steady flame without smoke or puffing, and of a bright blue color, making an intense heat.

Hydrocarbon and other light illuminating-oils may be employed with good effect, and may be found preferable to alcohol when the burner is used for illuminating purposes.

I am aware that wire-filling has been used in oil-tubes of lamps and in vapor-burners to check the flow of gas back into the reservoir, and also as flame-protectors, and such arrangements form no part of my invention; nor were they capable of performing the functions of the combination and arrangement described and claimed by me. I am also aware that siphon-tubes have been partly arranged within the oil-reservoir, and that oil-tubes have been filled with asbestus. I am also aware that a heating-tube filled with wire has been arranged over a vapor-generating chamber, so that its lower end is subjected to heat from a portion of the flame.

I claim as my invention and desire to secure by Letters Patent—

1. A vapor-burner tube provided with a wire-filling heat-distributer, and curved at its end, so that the tip of the burner will direct its flame against that portion of the tube which is filled with the wire heat-distributer arranged transversely with the flame, substantially as described.

2. In a sad-iron heater, the combination of an oil-reservoir, a siphon-tube passing up through the bottom of the reservoir, the asbestus filling in the siphon-tube, and the gas-generating burner-tube, these parts being combined and arranged and operating as and for the purpose described.

JOHN CONRAD.

Witnesses:
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GEO. H. LANE.