

(No Model.)

2 Sheets—Sheet 1.

C. L. RIKER.
SOLDERING IRON HEATER.

No. 323,584.

Patented Aug. 4, 1885.

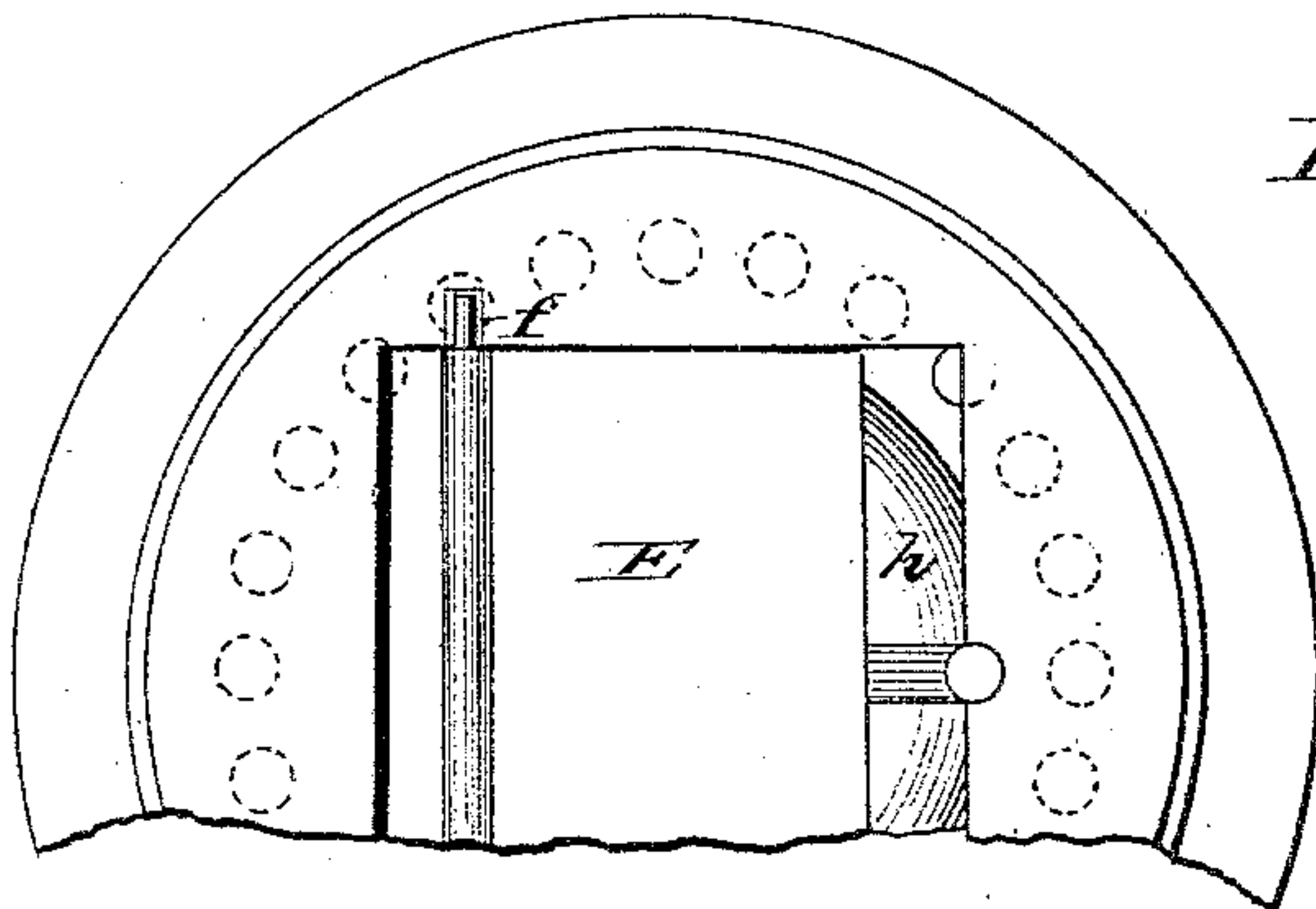


Fig. 2.

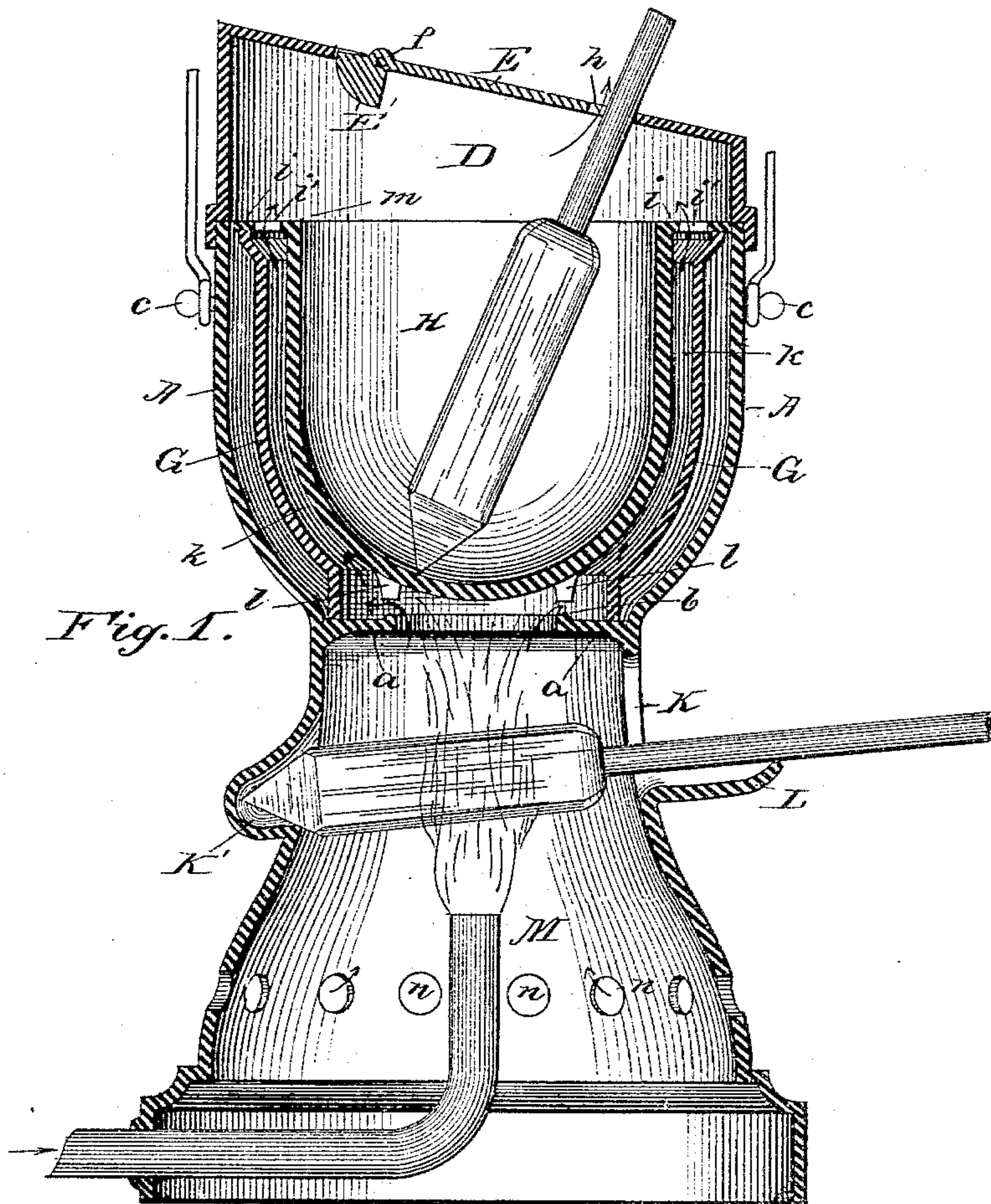


Fig. 1.

Witnesses.

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By David A. Burr

Attorney.

(No Model.)

2 Sheets—Sheet 2.

C. L. RIKER.
SOLDERING IRON HEATER.

No. 323,534.

Patented Aug. 4, 1885.

Fig. 3.

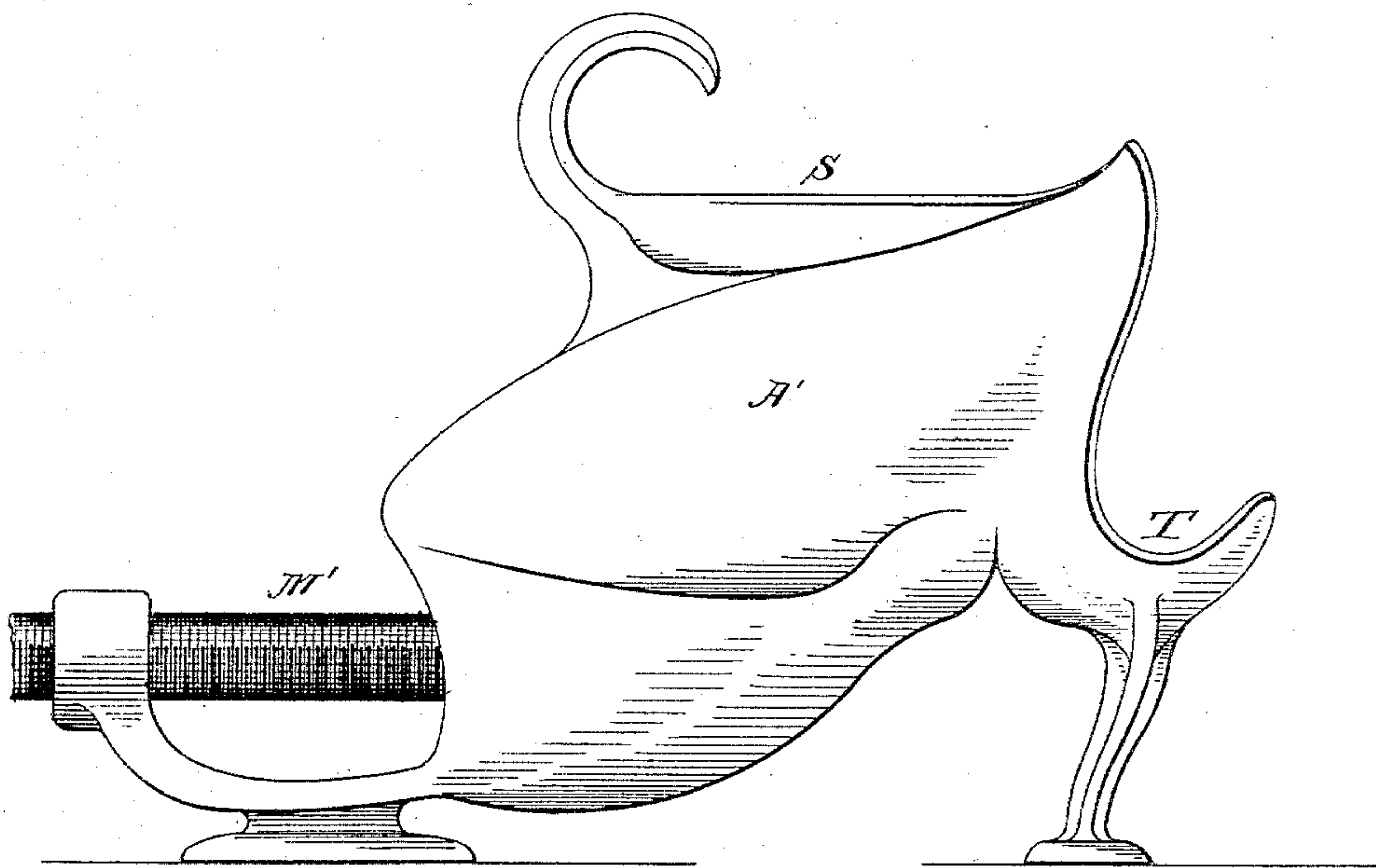
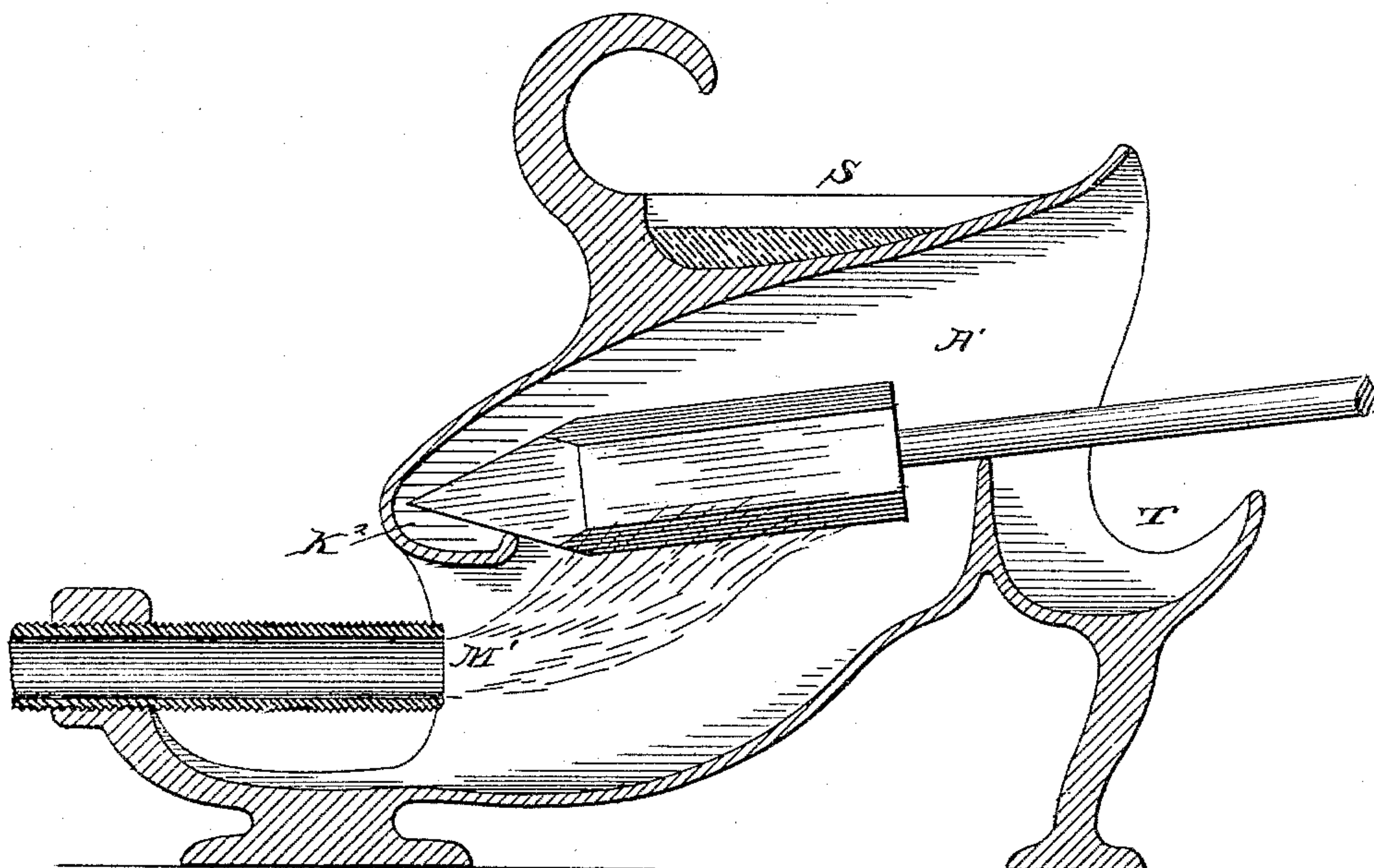


Fig. 4.



Witnesses:

John A. Ellis.
Alfred Steiger.

Inventor:

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By David A. Burr
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UNITED STATES PATENT OFFICE.

CARROLL L. RIKER, OF BROOKLYN, NEW YORK.

SOLDERING-IRON HEATER.

SPECIFICATION forming part of Letters Patent No. 323,534, dated August 4, 1885.

Application filed March 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, CARROLL L. RIKER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improvement in Heating Soldering-Irons and Apparatus Adapted thereto; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of
10 reference marked thereon, making a part of this specification.

My invention relates to furnaces for heating and tinning soldering-irons or copper-bits; and its object is to provide for the rapid heating of the tool without liability of overheating and burning it, and to facilitate the economical use of gas or coal-oil as a fuel for the purpose.

It consists in the construction of an apparatus, as hereinafter fully described, wherein the soldering-iron may be exposed directly to a heating-flame in a position which will permit the solder adhering thereto to flow to the point, and in which the heat from the products of combustion shall also serve the purpose of melting the solder.

In the accompanying drawings, Figure 1 is a central vertical section of my improved furnace for heating both the solder and the soldering-iron; Fig. 2, a top view of a portion of the cover, illustrating the pivoted lid of the furnace; and Fig. 3 is an elevation, and Fig. 4 a central longitudinal section, of a modified form of my furnace.

35 A, Fig. 1, represents the outer wall or casing of the furnace, consisting of an upper section adapted to receive and support a vessel to contain molten solder, and a lower section or base adapted to inclose the gas-jet or oil-flame for heating the apparatus. An inwardly-projecting ledge, *a*, serves to divide the upper from the lower section. This ledge is adapted to serve as a rest for the soldering-iron, so that the iron may be placed within
45 the casing and heated over the flame beneath when the solder-pot is removed therefrom, and it is provided with an upward projection, *b*, encircling its rim, to prevent the iron from slipping off of the ledge and to catch and retain any solder dripping upon the tool. Lugs
50 *c c* are cast or riveted at opposite points upon

the upper outer periphery of the casing A, by which to attach a bail or handle to the apparatus.

D is a case constituting the cover for the furnace. Its sides are adapted to overlap and rest upon the top edge of the casing A, and its top is preferably inclined, as shown in Fig. 1. An opening is formed in the top of the cover and partially closed by a swinging lid, 60 E, pivoted upon pins *f f*, projecting from each side of the upper end of the lid. This lid is left free to swing upon its pivot both inward and outward through the opening, and is so counterbalanced by a weight, *E'*, at its inner
65 pivoted end as to remain at rest when undisturbed exactly within the opening to partially close the same, as illustrated in Figs. 1 and 2. Its width is made to correspond with that of the opening, but it is much shorter in
70 length, so as to leave an open interval, *h*, through which the handle of the soldering-iron may project, and which will serve as a vent or outlet for the products of combustion from the furnace. An inner lining-piece, G, 75 is adapted to fit within the casing A and rest upon the ledge *a*, and its upper edge is outwardly flared to close against the inner side of the casing, near the top thereof, a concentric non-conducting space or air-chamber being thus formed to encircle the interior of the furnace.

H is a melting or heating pot for solder, having an outer flange, *i*, encircling its upper end, wide enough to rest upon and overlap the upper edge of the lining G and contact with the inner side of the top edge of the outer casing when inserted therein. The melting-pot H is made enough smaller than the lining-piece G, by which it is supported, as to leave a space
90 or passage, *k*, between the two, to serve as a flue or passage for the products of combustion from the flame below, a series of perforations, *i'*, being made in the flange *i*, to provide suitable vent therefor into the space over the melting-pot. The number and size of these vent-holes *i'* is so proportioned with regard to the air-supply below as to secure complete combustion within the furnace.

The bottom of the melting-pot H may be provided with lugs *l l*, to serve as feet therefor when it is removed from the furnace, and a

bail, *m*, may be pivoted upon its upper edge to serve as a handle and drop over and lie upon its flange *i* when not in use.

A lateral opening, *K*, is formed in the lower section or base of the furnace beneath the flange or ledge *a*, and opposite thereto, and at a somewhat lower level, a recess, *K'*, is formed in the casing, to admit of the insertion of one or more soldering-irons, which, inserted through the opening *K*, may rest with their points in said recess *K'*, and the points be thereby protected from the fire or flame below. A suitable bracket, *L*, is formed or secured upon the outside of the casing under said opening *K*, to support the outer end of the handle of the soldering-tool when it is inserted into the furnace through the opening.

Within the base or lower section of the furnace a jet-pipe, *M*, from a Bunsen gas-burner is so fitted that the flame shall blaze up through the contracted neck of the furnace and pass up around the melting-pot within the encircling passage *k*, and thence through the holes *i' i'* into the space over the top of the pot, and, finally, out through the contracted opening *h* in the cover, as indicated by the arrows in Fig. 1. The molten metal in the pot *H* is thus protected from the cold air, and its high temperature economically maintained by the hot currents passing over the top as well as around the sides of the pot.

A supply of air for the burner is provided by means of a series of apertures, *n n*, pierced in the base of the furnace.

In the use of the apparatus the solder-pot is filled with an alloy of lead containing as large a proportion of copper as may be readily dissolved by the heat of the furnace, so as to prevent the molten bath from seriously attacking the copper of the soldering-iron when immersed therein, the proportions, where a gas-flame is employed, being about four parts of lead, four of tin, and two of copper. This metal in the pot is first melted by the flame from the burner beneath, which is made to surround the pot and pass over the top thereof.

While the alloy in the pot is thus being melted the soldering-iron may be simultaneously heated by its insertion over the flame through the lateral opening *K* in the base, as shown in Fig. 1. After the alloy in the pot is melted the iron may be heated or kept hot by its insertion through the cover into the molten bath, the swinging lid *E* permitting the ready introduction and removal of the tool.

By using a bath of fine solder, and employing such a heat in the furnace as will simply keep the solder molten, no other solder need be used with the tool, as sufficient will adhere to the copper-bit for all practical purposes; but a molten bath containing an excess of copper—that is to say, the largest proportion of copper which will admit of being melted and kept in a molten condition by such a degree of heat as may be generated and readily maintained in the furnace—will serve admirably for rapidly heating the tool for use in soldering

in the ordinary way, without the possibility of burning or overheating it, while the tool thus heated will always be bright and in good condition. My improved covered furnace permits the generation of this heat by a gas-flame, and thus renders possible the use of the copper bath.

By removing the melting-pot the furnace may be used for heating the irons by their direct exposure to the flame, the irons being inserted for the purpose through the lid and allowed to rest for support over the flame upon the ledge *a*, and the latter will serve to protect fully the point of the iron from the direct blistering heat, and will also catch any particles of solder which may run down off of the tool, so that the burner will not be clogged thereby.

In the modification of my furnace illustrated in Figs. 3 and 4 the casing *A'* is constructed to admit of the insertion of the soldering-iron therein horizontally, the end of the copper-bit being made to rest in a recess, *K'*, (see Fig. 4,) which protects it from the flame. The flame is introduced from the end of a horizontal tube or jet-pipe, *M'*, and is drawn through the furnace over the copper-bit of the soldering-iron, as indicated by the arrows in Fig. 4.

A receptacle, *S*, for solder is formed in the top of the casing *A'*, so as to be heated by the flame which heats the iron, and thereby be kept in constant readiness for use; and a second recess, *T*, is formed in the outside of the casing at its front end, to serve as a receptacle for the acid or flux.

I claim as my invention—

1. In an apparatus for heating soldering-irons, the combination, with a furnace or burner, and with a support to facilitate the subjection of the copper-bit of the soldering-iron to the direct heat of said furnace or burner, of a receptacle in which the solder is to be melted and retained in its molten condition by the same flame which heats the iron, substantially in the manner and for the purpose herein set forth.

2. In an apparatus for heating soldering-irons and melting a solder alloy, the combination, with the heating device, the vessel to contain the molten alloy, and an outer casing to inclose the heating device and melting-pot, of a close-fitting cover upon the casing, under which the products of combustion are made to pass over the top of the melting-pot and its contents, substantially in the manner and for the purpose herein set forth.

3. The furnace for heating soldering-irons and other purposes, constructed, substantially as herein described, of an outer casing adapted to inclose within its base a heating device and within its upper section a melting-pot to be encircled by the flame and products of combustion from the heating device, and a cover fitting closely upon said casing, having a lid swinging within said opening, and adapted to provide, when closed, a contracted vent or outlet in the cover for the heat and products of

combustion, which are made thereby to sweep over the melting-pot.

4. In a furnace for heating soldering-irons and other purposes, the combination, with its
5 outer casing, A, cover D, detachable melting-pot H, and heating device M, of an inner partition-plate, G, interposed between the melting-pot and casing to produce an encircling non-conducting air-space, k, within the casing,
10 substantially in the manner and for the purpose herein set forth.

5. In a furnace for heating soldering-irons and other purposes, the combination, with its heating device M, and with its inclosing-casing A, provided with a lateral opening for the
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insertion of a soldering-iron into direct contact with the heat and flame, of a supporting-recess formed in the casing opposite said opening, and adapted to receive and protect the point of the copper-bit from the heat and
20 flame playing upon the body thereof, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of
25 two subscribing witnesses.

CARROLL L. RIKER.

Witnesses:

J. F. ACKER, Jr.,

THOS. W. FOLSOM.