No. 836,663. PATENTED NOV. 27, 1906.

H. BERG.

GAS SOLDERING IRON.

APPLICATION FILED JULY 13, 1905.

Fig. 1.

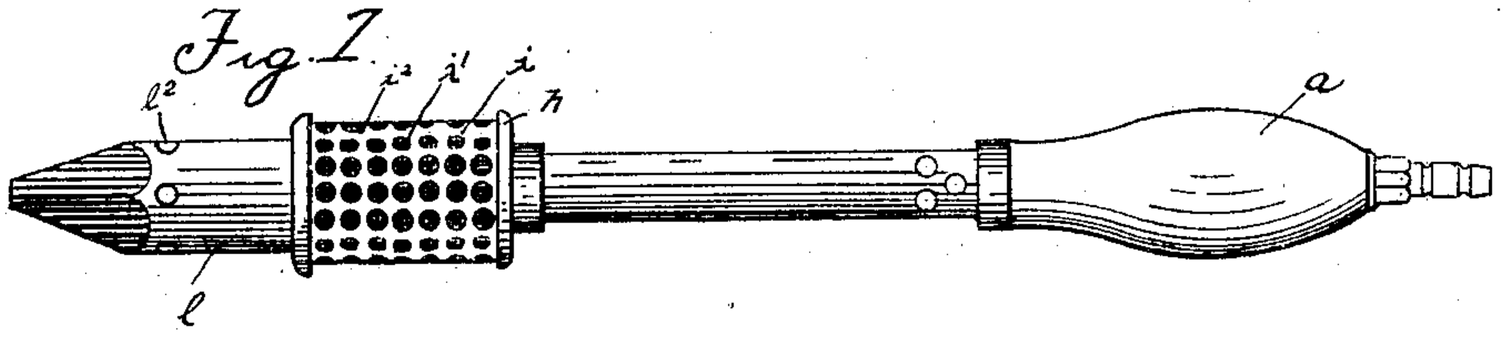


Fig. 2.

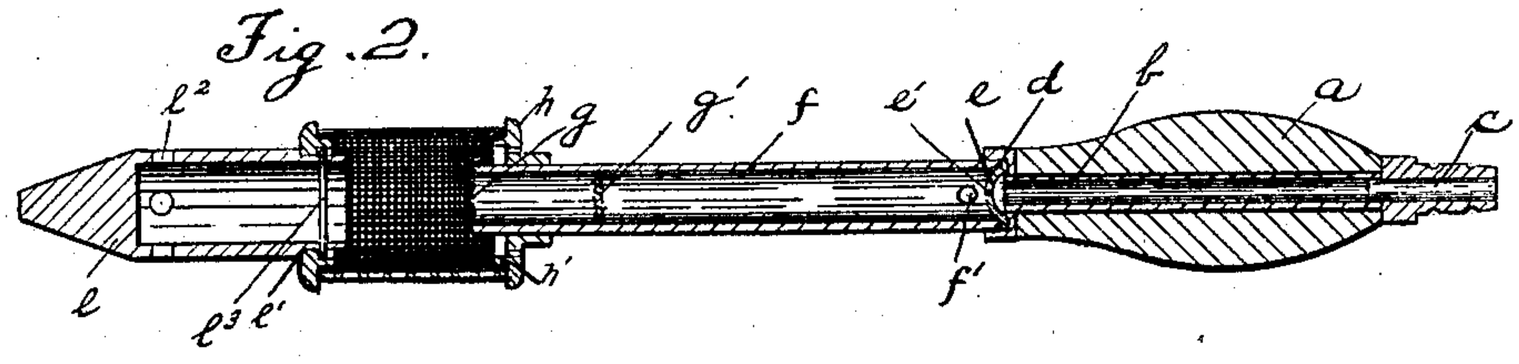


Fig. 3.

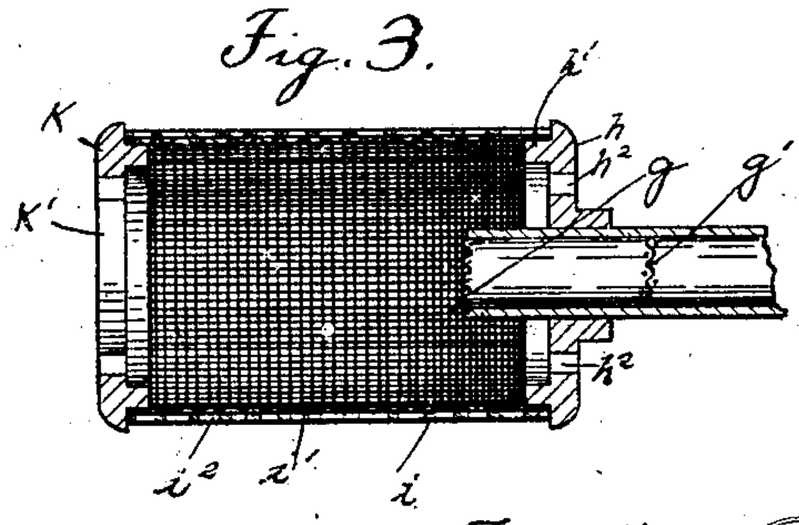


Fig. 4.

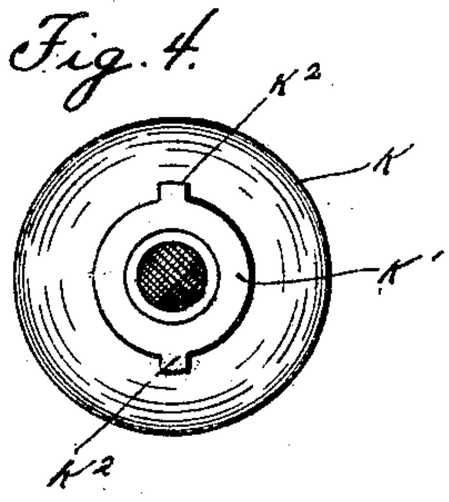


Fig. 5.

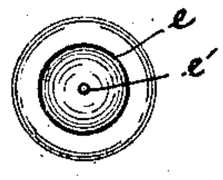


Fig. 6.

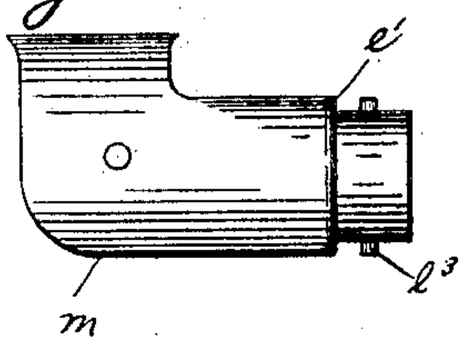
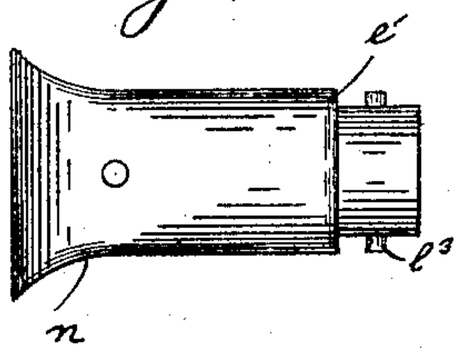


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY BERG, OF ORANGE, NEW JERSEY.

GAS SOLDERING-IRON.

No. 836,663. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed July 13, 1905. Serial No. 269,450.

To all whom it may concern:

Be it known that I, HENRY BERG, a citizen of the United States, residing in the city of Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Gas Soldering-Irons; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the device. Fig. 2 is a longitudinal section of the same. Fig. 3 is an enlarged section of the combustion-cage. Fig. 4 is an end elevation of the cage. Fig. 5 is a plan view of the nipple. Figs. 6 and 7 are alternative forms of bits.

The object of my invention is to provide a soldering-iron wherein ordinary illuminating-gas may be used as a heating medium, thereby dispensing with the ordinary fire-pot in common use among tinners.

The device is simple in construction, easy of manipulation, and very effective in operation. The form of the "iron" is along the lines of those in present use.

In carrying out my invention I provide the handle *a* with a longitudinal perforation, through which passes the metallic tube *b*, having the nipple *c* at its outer end for connection with flexible hose leading from a gas-fixture.

At the opposite end of the handle is the ferrule *d*, secured to the end of the tube *b* in any convenient manner. This ferrule *d* is cup-shaped, and in the bottom of it is located the gas-nipple *e* of concavo-convex form, as shown, and provided with a small aperture *e'*. The nipple is held in position within the cup-shaped ferrule *d* by the end of the mixing tube or chamber *f*, which is secured to the ferrule *d* in any convenient manner, as by screwing the same therein.

By use of the gas-nipple *e* in the position indicated I am enabled to provide for a more thorough mixing of the gas with any outside supply of air, as through the openings *f'*, hereinafter referred to.

The chamber *f* is provided with a series of air-openings *f'* adjacent to the gas-nipple *e* at one end and the metallic-gauze screen *g* secured to its opposite open end. A short distance to the rear of said screen I secure a second screen *g'*.

To the forward end of the chamber *f* I secure in any convenient manner, as shown, the head *h*, which head is provided with a flange *h'* and the series of apertures h^2. Extending forwardly from this head *h* is the combustion-chamber *i*. The body of this chamber is composed of the inner tubular gauze-screen member *i'* and the outer perforated member i^2. The chamber *i* is secured in any convenient manner to the flange *h'*.

The forward head *k* is secured to the combustion-chamber *i*, as shown, and is provided with opening *k'*, from which extend diametrically-located notches k^2, which notches are utilized for holding the soldering-bit *l* in position for use. This bit is hollow, as shown, and cylindrical in cross-section and provided with the reduced portion, as shown in Figs. 6 and 7, forming the shoulder *l'*. Apertures l^2 communicate with the interior of the hollow bit.

The pin l^3 passes diametrically through the reduced portion of the bit and terminates a short distance from the outside of the same, thereby forming a convenient means for securing the bit in position, as shown in Fig. 2. The ends of the pin l^3 are inserted through the notches k^2 and the bit is given a slight turn to bring the pins against the solid portion of the head. The different forms of the bit shown, *m* and *n*, in Figs. 6 and 7, for different classes of work, may be readily substituted for that illustrated in Fig. 1.

In operation it is only necessary to connect the nipple *c* by means of flexible tubing with a gas-fixture and turn on the gas. The tool is then held upright until the gas begins to pass out of the holes l^2, when it is lighted. It is then found that the flame will recede within the chamber *i* and hollow bit, the products of combustion passing out of the apertures l^2. The flame ordinarily plays about the screen *g* and rarely, except by accident, recedes to the screen *g'*.

I find in practice the use of the screen *g'* results in a steadier flow of gas and produces a more thorough mixture of gas with the air coming in through the apertures *f'* than when I dispense with it. The double combustion-chamber gives better results than when the perforated member is omitted, for the reason that the mesh of the gauze-screen i^2, however fine, appears to permit a too free access of air, and thereby contract the flame, whereas by the addition of the outside member the proper influx of air is obtained, while the whole structure is materially strengthened.

By removing the bit and permitting the

flame to pass out of the aperture k' the device may be used as a torch or for any other use for which it is adapted.

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

1. In a soldering-iron, the combination of a tubular handle, a tubular mixing-chamber connected with said handle, a nipple interposed between said handle and the mixing-chamber, said nipple extending within said mixing-chamber, said chamber being provided with apertures for the admission of air adjacent to the extended nipple, a gauze-screen separating said mixing-chamber into two separate compartments, a second gauze-screen secured to the outer end of said chamber, an enlarged perforated combustion-chamber provided with a supplemental gauze-lining and having an apertured head by which it is secured to the forward end of the mixing-chamber and a soldering-bit projecting within and removably secured to the forward end of said combustion-chamber.

2. In a soldering-iron, the combination of a tubular mixing-chamber, provided with a series of air-holes near one end thereof, a nipple secured to and projecting within said chamber to a point adjacent to said air-holes, a gauze-screen covering the opposite end of said chamber, a second gauze-screen located between the ends of said chamber, an enlarged combustion-chamber composed of forward and rear heads and a perforated metallic cylinder and a supplemental gauze-lining, said combustion-chamber inclosing the forward end of the mixing-chamber, and a soldering-bit projecting within and removably secured in the forward head of said combustion-chamber.

This specification signed and witnessed this 7th day of June, 1905.

HENRY BERG.

Witnesses:
LOUIS M. SANDERS,
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