Oct. 30, 1923. 1,472,087

V. B. PIKE

GAS HEATED SOLDERING IRON

Filed May 27, 1922

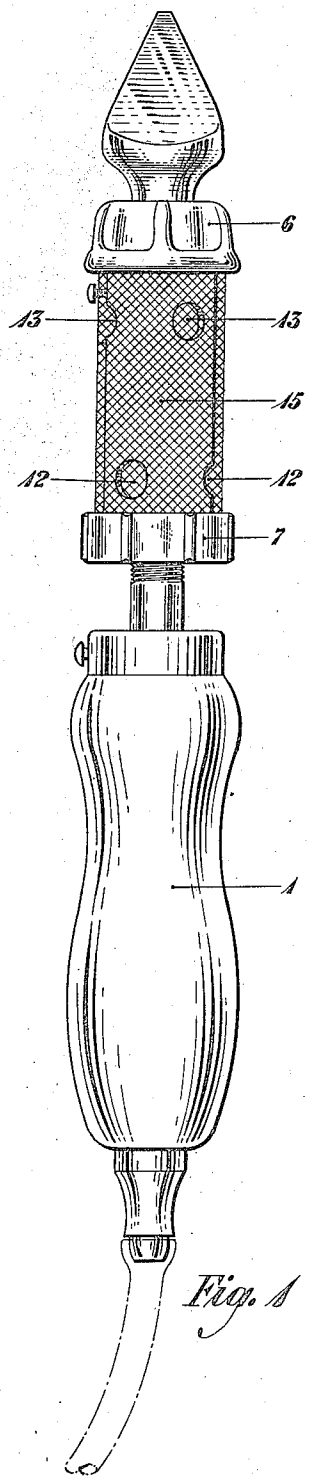


Fig. 1

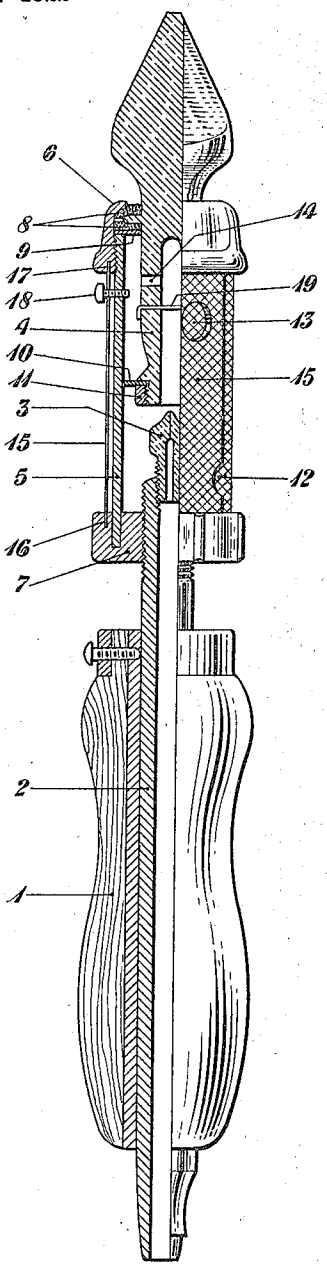


Fig. 2

INVENTOR.

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BY

ATTORNEY

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UNITED STATES PATENT OFFICE.

VERNON B. PIKE, OF CHELTENHAM, PENNSYLVANIA, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK.

GAS-HEATED SOLDERING IRON.

Application filed May 27, 1922. Serial No. 564,075.

To all whom it may concern:

Be it known that I, VERNON B. PIKE, a citizen of the United States, residing at Cheltenham, in the county of Montgomery and State of Pennsylvania, have invented certain Improvements in Gas-Heated Soldering Irons, of which the following is a specification.

This invention relates to improvements in gas heated soldering irons, and consists in certain peculiarities of the construction of such an iron and in the novel arrangement and operation of the various parts thereof, as will hereinafter be fully set forth and specifically claimed.

The principal object of the invention is to provide a gas heated soldering iron in which the flame is confined within the walls of the tool—permitting of the use of the iron in narrowly enclosed spaces. Another object of the invention is to keep the heat from being conducted back from the head of the iron toward the handle. A further object is to provide for the automatic relighting of the torch in case the flame is extinguished in the course of the work. Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In the accompanying drawing, Figure 1 represents a side elevation of the device, and Fig. 2 a side elevation partly in section. Like numerals of reference in the two figures of the drawing designate corresponding parts of the device.

With reference to the details of the drawing, the handle 1, of wood or other non-heat-conducting material, the metal tube 2, the metal block 3, which is screw-threaded to engage with the tube 2 and terminates in a nozzle, and the arrangement of these parts as here shown are recognized as old in the art.

The head of the iron, secured to the body as shown in Fig. 2 and hereinafter explained, carries a downward tubular extension 4 reaching to points slightly above the nozzle of the block 3, which extension forms a combustion chamber. The steel tube wall 5 surrounds both the block 3 and the tubular extension 4, and bounds two air chambers, which are separated from each other as hereinafter shown. A metal band 6 is spun down over a bead on the head and serves as a means for securing the outer tube wall 5 to the head. A heavy metal tubular piece 7 is internally screw-threaded and attached to an externally screw-threaded portion of the upper end of the tube 2, and is slotted to receive the lower end of the tube wall 5. On either side of the bead of the head and between the head and the band 6 is a ring of hard asbestos packing 8, the lower ring being held in place by a metal washer 9. 10 is a washer, of mica, iron, or other suitable material, lying transversely between the tubular extension 4 and the outer tubular wall 5 and dividing the space between the wall 5 and the inner members 3 and 4 into two separate chambers. A metal nut 11 holds the washer 10 in place. Openings 12 in the wall 5, below the washer 10 and the nozzle, are provided for the admission of air, and openings 13 in the same wall, above the washer 10, serve to allow the escape of the burned gases. The communication from the combustion chamber to the upper of these two air chambers is through openings 14 in the head extension 4. These openings 14 lie approximately opposite the outlet openings 13 in the outer tube and permit the burned gases to pass from the inner combustion chamber to the outlet openings 13. Fitted over the tube 5 and covering the openings 12 and 13 is a cylindrical screen 15, of fine mesh wire, held in place by insertion into slots 16 and 17 in the tubular piece 7 and the metal band 6, respectively, or by other suitable attaching means. A square-headed screw 18 plugs a small opening in the wall 5 above the washer 10, passing through the screen 15. This screw is removed when the iron is to be fired, thus allowing the application of a flame to the combustion chamber, and is replaced after the ignition. There is thus provided a means of firing the iron that is suitable in view of applicant's improvements described above.

In the operation of the soldering iron, the gas is discharged from the supply tank through a connecting hose, the tube 2, and the passages of the block 3 into the combustion chamber. The plug 18 is removed and the iron fired, fresh air being supplied through the opening 12. The flame is confined within the iron by: (1) the tubular body 4, which to a great extent confines the flame to the combustion chamber proper, as distinguished from the air chambers into which the combustion chamber opens through narrow passages, as disclosed in the draw-

ing; (2) the washer 10, which keeps the flame from being forced back toward the air intake openings 12; and (3) the fine mesh wire screen 15 covering all the openings in the outer wall 5. The two rings 8 of hard asbestos packing located according to applicant's invention keep the heat from being conducted back from the soldering head toward the handle of the tool.

Across the combustion chamber at a point approximately midway between the nozzle and the upper extremity of the chamber, there is stretched a wire 19 of a metal or a metal alloy that will withstand high temperature. This wire passes through small holes in the walls of the extension 4 and may be secured to the extension 4 in any suitable manner—as by the simple bending of the two ends, as shown in the drawing, or by the taking of extra turns of the wire around the outside of the extension 4. This wire becomes incandescent in the flame when the torch is lighted. In case the flame is blown out in the course of the work of soldering, this incandescent wire serves automatically to relight the torch. It is evident that this feature is of especially great advantage when work is done in narrowly enclosed spaces, as it is not necessary to produce any flame outside the walls of the iron in order to relight the torch.

While applicant's improvements have been disclosed in certain specific arrangements which are deemed desirable, it is understood that they may be embodied in many and widely varied forms without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. In a gas heated soldering iron including an outer tubular wall having two series of openings therein, and a soldering head, the combination of a downward tubular extension of said soldering head having a plurality of openings therein, said tubular extension forming a combustion chamber within the outer wall, and a washer transversely placed between said tubular extension and said outer wall at a point between the two series of openings in said outer wall.

2. In a gas heated soldering iron including an outer tubular wall having two series of openings therein, and a soldering head, the combination of a downward tubular extension of said soldering head having a plurality of openings therein, said tubular extension forming a combustion chamber within the outer wall, a washer transversely placed between said tubular extension and said outer wall at a point between the two series of openings in said outer wall, and a cylindrical screen of fine mesh wire covering all of the openings in said outer wall.

3. In a gas heated soldering iron including an outer tubular wall, a soldering head, a downward tubular extension of said soldering head having a plurality of openings therein, said tubular extension forming a combustion chamber within the outer wall, and a cylindrical screen of fine mesh wire covering intake and outlet openings in said outer wall; a removable screw plugging an opening in said outer wall, which screw may be removed to allow the application of a flame to the combustion chamber, and reinserted thereafter; whereby the iron may conveniently be fired.

4. In a gas heated soldering iron including an outer tubular wall having two series of openings therein, and a soldering head, the combination of a downward tubular extension of said soldering head having a plurality of openings therein, said tubular extension forming a combustion chamber within the outer wall, a washer transversely placed between said tubular extension and said outer wall at a point between the two series of openings in said outer wall, a cylindrical screen of fine mesh wire covering all the said openings in said outer wall, and a removable screw plugging another opening in said outer wall, which screw may be removed to allow the application of a flame to the combustion chamber, and reinserted thereafter.

5. In a gas heated soldering iron including an outer tubular wall having two series of openings therein, and a soldering head, the combination of a downward tubular extension of said soldering head having a plurality of openings therein, said tubular extension forming a combustion chamber within the outer wall, a washer transversely placed between said tubular extension and said outer wall at a point between the two series of openings in said outer wall, a cylindrical screen of fine mesh wire covering all the said openings in said outer wall, a removable screw plugging another opening in said outer wall, which screw may be removed to allow the application of a flame to the combustion chamber, and reinserted thereafter, and a means for automatically relighting the torch, said means consisting of a wire stretched across the combustion chamber so as to become incandescent in the flame, said wire being of a substance capable of withstanding high temperature.

In testimony whereof, I have signed my name to this specification this 18th day of May 1922.

VERNON B. PIKE.