

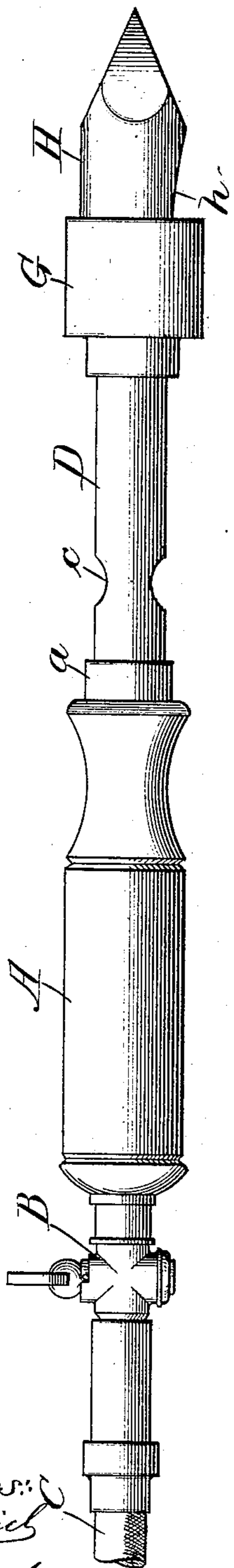
No. 843,645.

PATENTED FEB. 12, 1907.

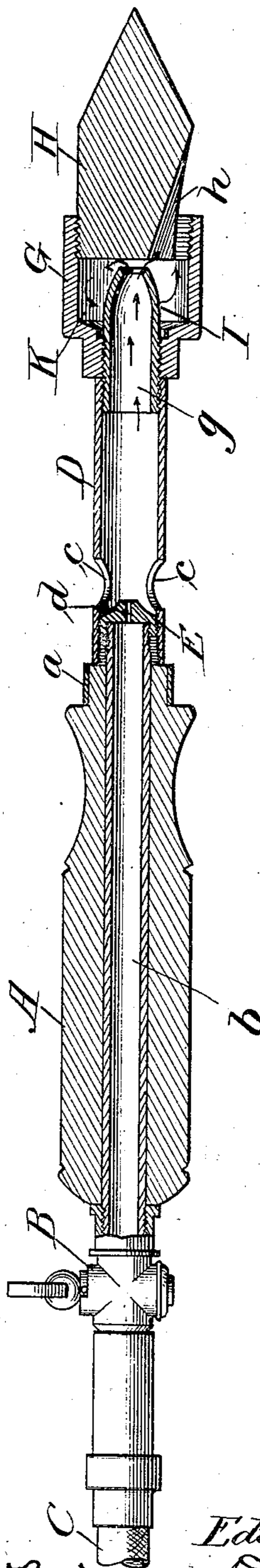
E. L. VIETH.  
SOLDERING IRON.


## SOLDERING IRON.

APPLICATION FILED APR. 9, 1906.



Witnesses:  
O. M. Hennich  
E. H. Lundy.



 *Inventor*  
*Edward I. Vieth*  
*By Frank D. Thompson*  
*Atty.*

# UNITED STATES PATENT OFFICE.

EDWARD L. VIETH, OF CHICAGO, ILLINOIS.

## SOLDERING-IRON.

No. 843,645.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed April 9, 1906. Serial No. 310,751.

*To all whom it may concern:*

Be it known that I, EDWARD L. VIETH, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Soldering-Irons, of which the following is a clear, full, and exact description.

The object of my invention is to provide a gas-heated soldering-iron which can be conveniently used both for domestic work and at the bench in machine-shops and which is cheap and simple in construction and by the substitution of any one of several bits can be used for either large or small work. This I accomplish by the means hereinafter fully described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a side view of my improved soldering-iron. Fig. 2 is a longitudinal central section.

Referring to the drawings, A represents a suitably exteriorly shaped tubular handle which is preferably made of wood or other inferior heat-conducting material and has one end reduced in diameter and reinforced by a ferrule *a*. Fitting snugly in and extending longitudinally through the bore of this handle is a metallic pipe *b*, on the screw-threaded end of which farthest from the ferruled end of the handle the female stub of an ordinary gas-cock B is secured. A flexible tube C of any desired length is secured to the opposite male stub of this gas-cock and leads to and is connected with a gas pipe or main in any suitable manner. To the screw-threaded end of pipe *b*, extending beyond the ferruled end of the handle, a tubular holder D is secured. This holder consists of a section of metal pipe which is preferably about one-half or two-thirds the length of pipe *b*, and near the handle it is provided with draft-openings *c c*, that, as shown in the drawings, are preferably located diametrically opposite each other, although they may be differently disposed, if desired. Between these openings and the adjacent end of the holder the latter has a bushing E screwed into its bore. One end of this bushing is closed with the exception of a very small orifice that forms the bore of a jet *d*; but the diameter of the bore of the remaining portion of the bushing is greater, and the holder D is secured to the handle by the pipe *b* thereof screwing into said bushing.

The soldering-bit H is screwed into the end of the holder farthest from the jet. It con-

sists of a point of the usual shape having a sharpened or pyramidal-shaped soldering end and a cylindrical body, the end of which farthest from the engaging point is threaded and screwed into the adjacent end of the holder farthest from the gas-jet and has a longitudinal groove or channel *h* therein extending from its butt-end to mediate its ends, said channel being deepest at the butt-end and gradually decreasing in depth as it extends forward. The screw-threaded rear end of this bit is screwed into a cup-shaped socket G, the opposite end of which is reduced in diameter and is provided with a nipple *g*, that is screwed into the bore of its reduced portion and is removably secured in the end of the holder D by screwing the nipple into the bore thereof. The end of the nipple *g* screwed into the socket G preferably extends a distance into the hollow portion or chamber K to near the soldering-bit H and has its end reduced in diameter to form a reduced exit I for the products of combustion as they flow forward against the rear of said bit. When in use, the gases will be so regulated that a portion thereof will pass directly out through the channel in the soldering-point, while the remainder will be diverted around the hollow chamber in the socket and then out, as indicated by the arrows, thus preventing any "back pressure" in the pipe due to extraordinary accumulation and compression of gas in said chamber.

In operation when the valve B is opened to permit the gas to flow into the pipe *b* a jet of gas is forced into the holder D and draws sufficient air with the same through the openings *c c*, so that when ignited perfect combustion may take place in the holder. The heated products of combustion coming in contact with the rear end of the bit H will soon heat the same sufficient to enable it to do effective work, while the products of combustion will to a greater or less extent be held in the chamber K between the bit and the shoulder made by reducing said socket in diameter and will impart considerable of its heat to the point H before it escapes through the channel *h*.

What I claim as new is—

1. A soldering-iron comprising a tubular holder; means for projecting a jet of gas through the same; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter, a removable bit inserted in the enlarged end of said socket

provided with a groove extending longitudinally from its retained end toward its sharpened extremity; and a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter.

2. A soldering-iron comprising a tubular holder, a gas-jet consisting of a bushing inserted in one end of said holder; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter, a removable bit inserted in the enlarged end of said socket provided with a groove extending longitudinally from its retained end toward its sharpened extremity, and a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter.

3. A soldering-iron comprising a tubular holder having air-inlets therein near one end; a gas-jet consisting of a bushing inserted in said holder between said inlets and the contiguous end thereof; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter; a removable bit inserted in the enlarged end of said socket provided with a groove extending longitudinally from its retained end toward its sharpened extremity; and a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter.

4. A soldering-iron comprising a tubular holder; means for projecting a jet of gas through the same; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter; a removable bit inserted in the enlarged end of said socket provided with a groove extending longitudinally from its retained end and gradually decreasing in depth as it extends toward its sharpened extremity; and a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter.

5. A soldering-iron comprising a tubular

holder having air-inlets therein near one end; a gas-jet consisting of a bushing inserted in said holder between said inlets and the contiguous end thereof; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter; a removable bit inserted in the enlarged end of said socket provided with a groove extending longitudinally from its retained end toward its sharpened extremity; a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter; a handle, and a tube extending longitudinally through said handle the extended end of which is screw-threaded and tapped into the portion of the gas-jet having an enlarged bore.

6. A soldering-iron comprising a tubular holder having air-inlets therein near one end; a gas-jet consisting of a bushing inserted in said holder between said inlets and the contiguous end thereof; a socket fitting the end of said holder opposite said jet having its outer end increased in diameter; a removable bit inserted in the enlarged end of said socket provided with a groove extending longitudinally from its retained end and gradually increasing in depth as it extends toward its sharpened extremity; a nipple connecting the end of said holder and socket and projecting into the enlarged portion of the latter; a handle, and a tube extending longitudinally through said handle the extended end of which is screw-threaded and tapped into the portion of the gas-jet having an enlarged bore.

In testimony whereof I have hereunto set my hand and seal this 24th day of March, A. D. 1906.

EDWARD L. VIETH. [L. s.]

Witnesses:

M. G. STOLL,

E. K. LUNDY.