(No Model.)

A. F. ZIMMERLING.

SOLDERING IRON.

No. 309,281. Patented Dec. 16, 1884.

Fig. 1.

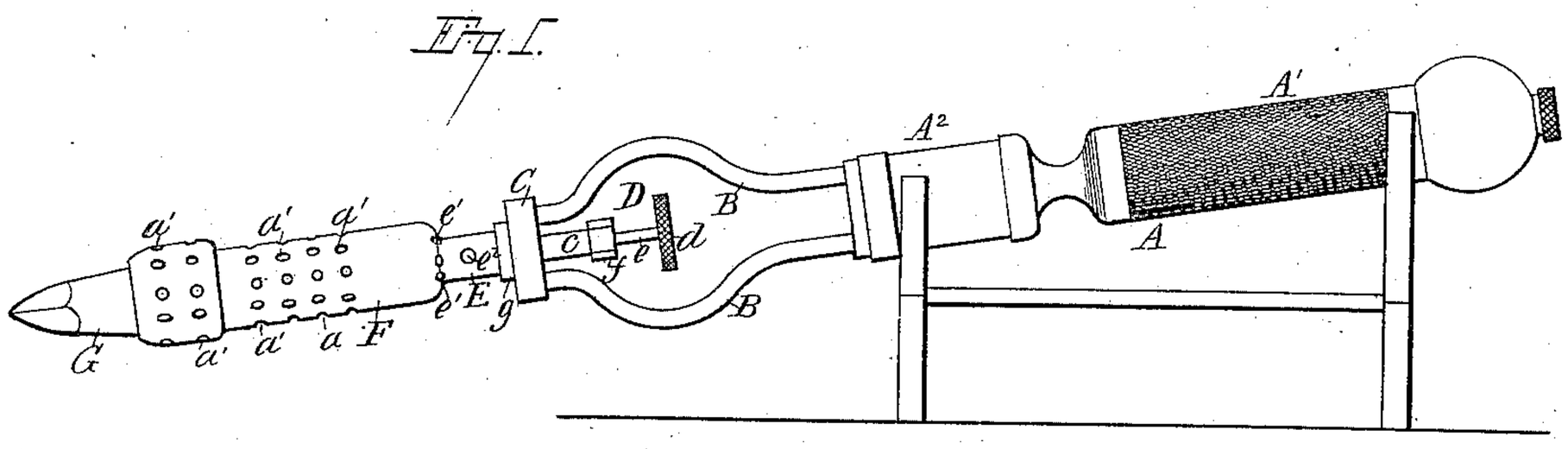
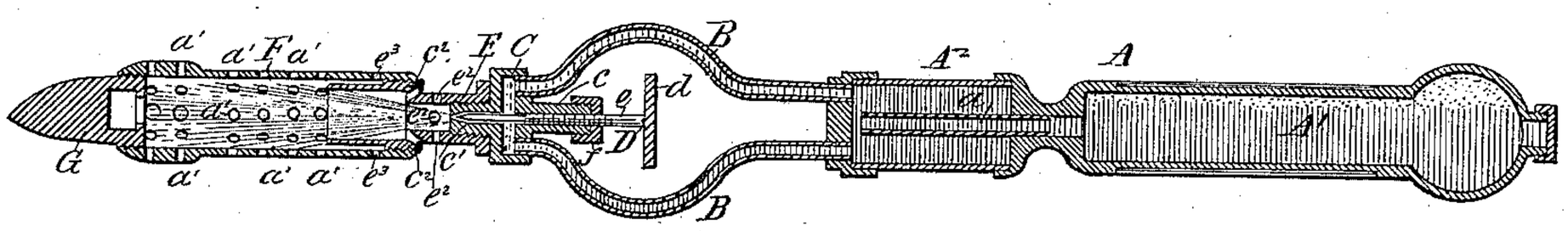


Fig. 2.



Witnesses:

E. G. Siggers

M. Baumbrinder

Inventor:

August F. Zimmerling

by Stuart & Underwood

Attorneys.

UNITED STATES PATENT OFFICE.

AUGUST F. ZIMMERLING, OF MILWAUKEE, WISCONSIN.

SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 309,281, dated December 16, 1884.

Application filed October 22, 1883. Renewed July 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, AUGUST F. ZIMMERLING, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Soldering-Irons; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to combined self-heating soldering-irons and blow-pipes, and will be fully described hereinafter.

In the drawings, Figure 1 is a side elevation of my improved soldering-iron, and Fig. 2 is a vertical section through center of same.

A is the handle, which is made hollow to contain any of the gaseous liquids generally used for heating purposes. The reservoir thus formed is preferably divided in two parts—A′, the supply-reservoir, and A^2, the feed-reservoir, the connection being made between them by the supply-pipe *a*, which empties in said feed-reservoir A^2, near the front end of same. From said reservoir A^2 two feed-pipes, B B, opening in same through perforations formed on the same diametrical line near the rim of said front end, connect the handle A to a cross-shaped pipe-coupling, C, the hollow stem *c* of which forms the seat of the feed-valve D. Said valve D has the milled head *d*, and a thread is cut around the middle part of its stem *e*, to work in the threaded rear end of said pipe-coupling stem *c*, which is also threaded on its outside for the stuffing screw-box *f*. A suitable curve is given to said feed-pipes B B to allow of the space requisite to conveniently turn the milled head *d* of said feed-valve D, whereby the conical point of said valve may be brought close against the similarly-formed inside of the front coupling-stem, *c′*, to shut off the gas-supply, or kept at a more or less minute distance from it to allow said gas to supply the flame. Said front stem, *c′*, of coupling C is threaded on the outside to fasten the vent-pipe E, which screws on the same, to rest its flanged base *g* against the arms of said pipe-coupling C. From about the middle of its length forward said vent-pipe E is slightly enlarged, and in the shoulder c^2 thus formed in it a series of inclined holes, *e′ e′ e′*, are drilled, to serve as vents through which air-currents are induced by the flow of gas toward the front end of said pipe E. For the same purpose other holes, e^2 e^2, through said pipe E are drilled, so that their center is just opposite the end stem, *c′*, of the pipe-coupling C. The enlarged part of said vent-pipe E is threaded just above the shoulder *e*, and thereon is screwed the rear end of the heating-pipe F, an air-space equal to the depth of the thread being left between the two connecting-pipes. This is used in connection with the holes e^3 e^3 e^3, drilled just above the thread formed on the inside of heating-pipe base, to serve as additional vents for the air-supply. The heating-pipe F, of suitable length and diameter, has a series of perforations, *a′ a′ a′ a′*, the rear ones of which are drilled, so that their center is just opposite the front end of the vent-pipe E, which projects into said heating-pipe F. Its front end is somewhat enlarged, in order to expose more of the metal to the flame close to the soldering-tip G. This forms a separate part, and is provided on its base with a thread, which screws inside of the heating-pipe F. Without said tip G my self-heating soldering-iron becomes a blow-pipe, the manipulation of which in both cases is absolutely the same as in ordinary soldering-irons and blow-pipes, except as to the heating of the same.

As to that part which constitutes my improvement, the operation is reduced to the filling of the reservoirs with the desired liquid. This done, as soon as the feed-valve is screwed upward for a proper feed, the vent-pipe E is exposed to the light, and in a few seconds enough of heat is produced to convert the fluid into dry gas, which takes fire as it blows out in the vent-pipe E from the valve-opening; the ignited jet shoots forward into the heating-pipe F, inducing through the vent-holes e' e' e^2 e^2 e^3 e^3 the air-currents to supply the oxygen needed for its flame.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a soldering-iron, the heating-pipe F, having jet-holes *a′ a′* and vent-holes e^3 e^3, in combination with pipe E, having vent-holes *e′* and e^2, with feed-valve D on pipe-coupling C, feed-pipes B B, and handle A, having res-

ervoirs A′ and A², and connections, substantially as shown and described, and for the purpose set forth.

2. In a soldering-iron, the soldering-tip G, in combination with the heating-pipe F, vent-pipe E, valve D, feed-pipes B B, and handle A and connections, substantially as shown and described, and for the purpose set forth.

3. In a soldering-iron, the combination, with the handle A, having supply-reservoir and feed-reservoir, heating-pipe F, and coupling C, with feed-valve D, and two feed-pipes extending from the feed-reservoir to the pipe-coupling, and straddling or inclosing the feed-valve, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

AUGUST F. ZIMMERLING.

Witnesses:
EMILE DUMAIS,
MAURICE KAUMHEIMER.