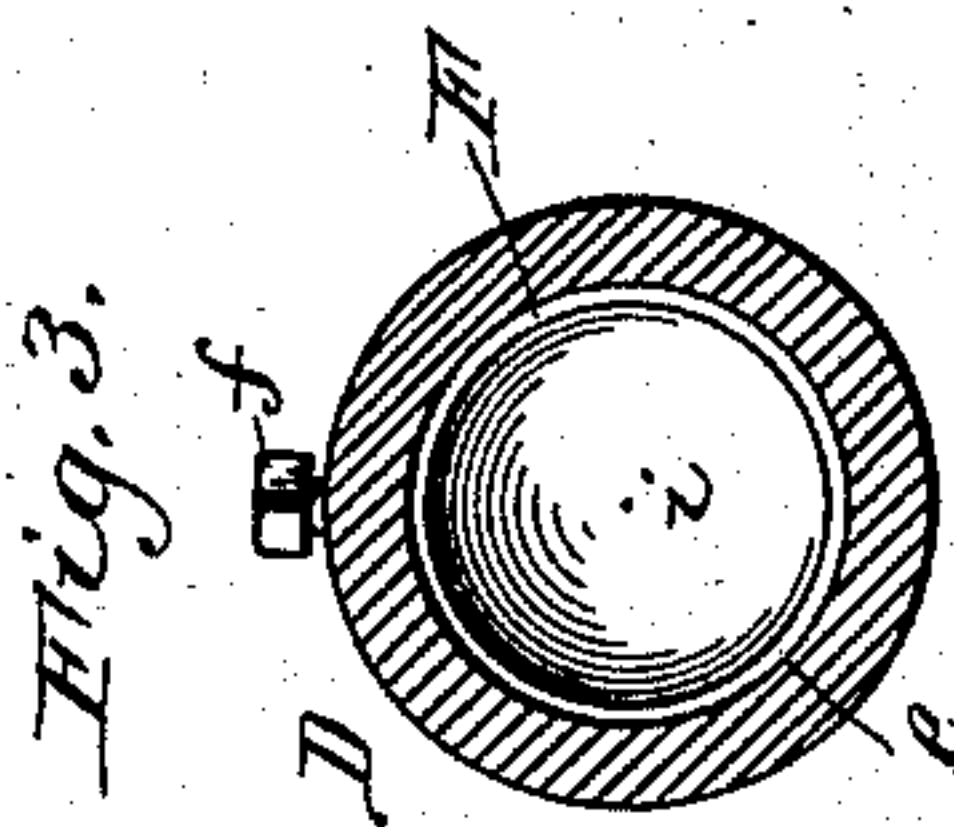
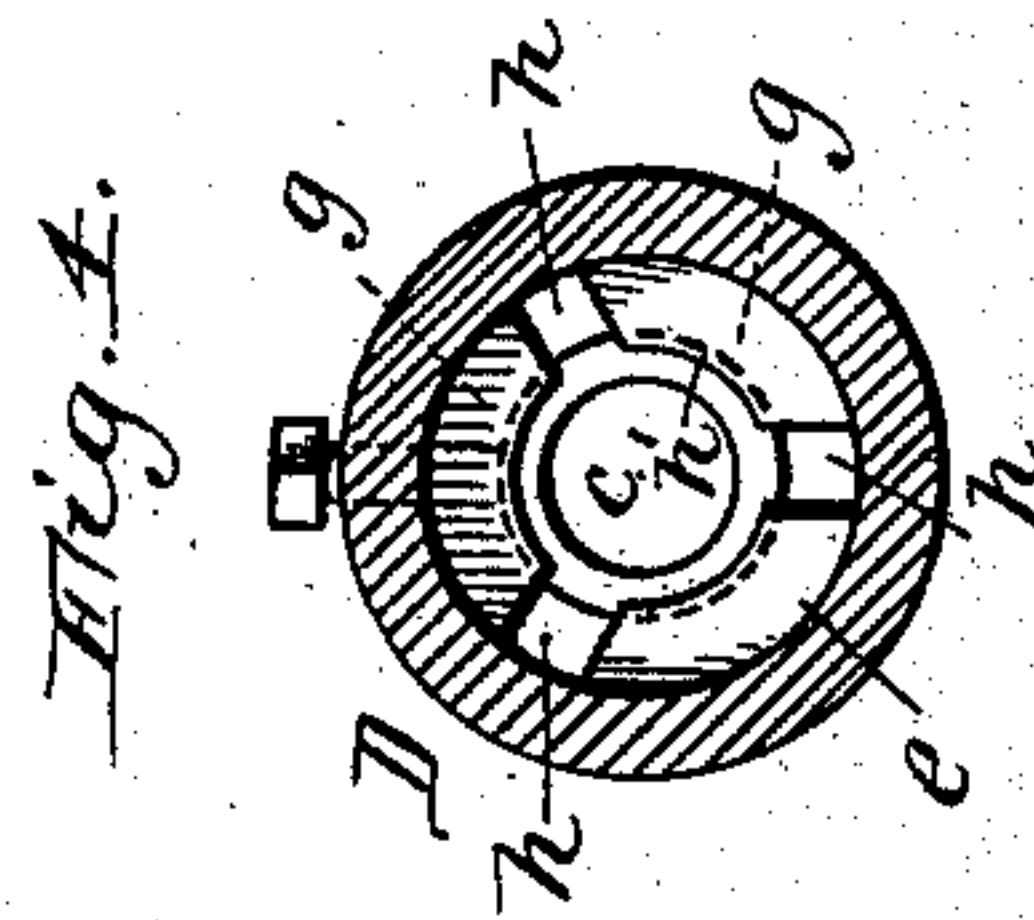
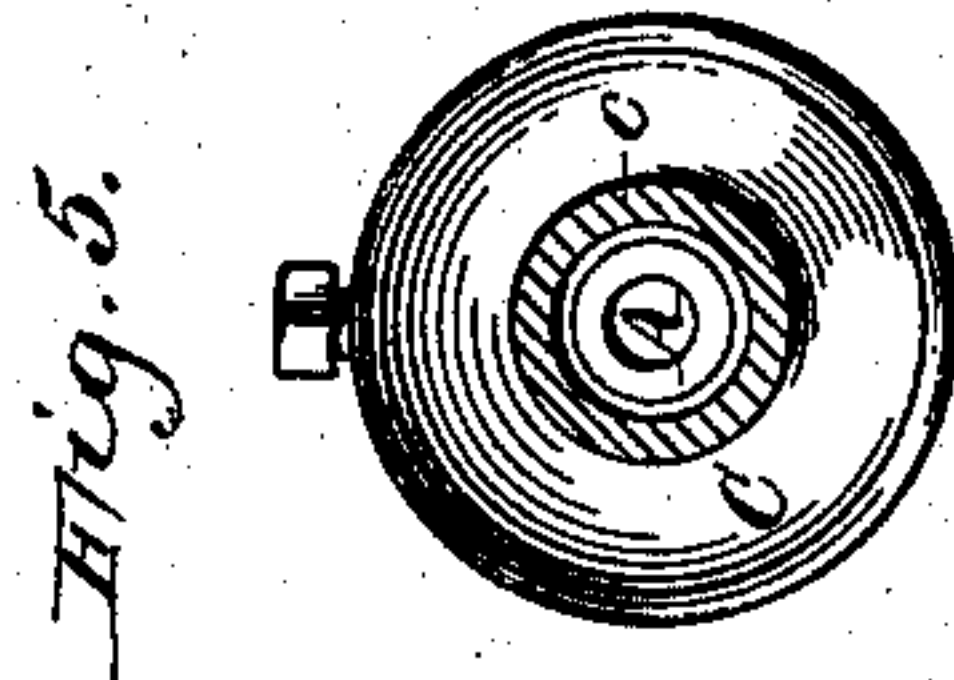
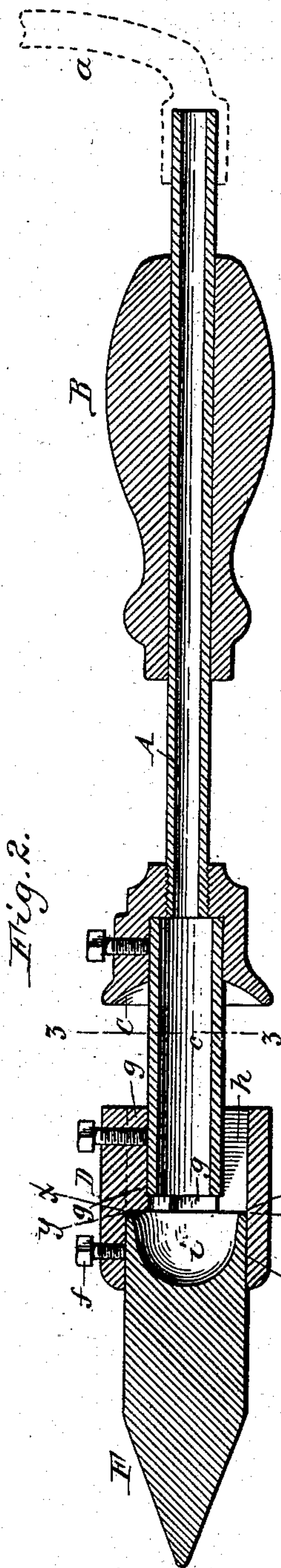
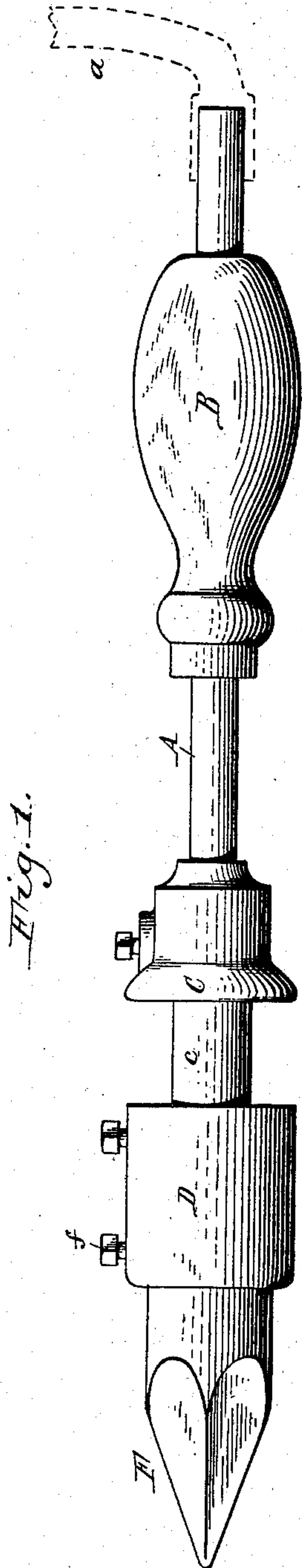


(No Model.)

J. H. FERUS.
SOLDERING IRON.

No. 410,084.

Patented Aug. 27 1889.



Witnesses:
Theo. L. Popp.
Chester D. Howe

J. H. Ferus Inventor.
By Edward Wilhelm
Attorney.

UNITED STATES PATENT OFFICE.

JAMES H. FERNS, OF MONTREAL, QUEBEC, CANADA.

SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 410,084, dated August 27, 1889.

Application filed June 5, 1889. Serial No. 313,171. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. FERNS, a citizen of the Dominion of Canada, residing at Montreal, in the Province of Quebec, Canada, have invented a new and useful Improvement in Soldering-Irons, of which the following is a specification.

This invention relates to that class of soldering-irons which are provided with a tube through which gas and air are supplied to a heating-chamber formed in the copper, which latter is provided with passages opening rearwardly, and from which the flame issues against a deflector or shield which surrounds the tube and throws the flame forwardly, so as to envelope the copper. In these soldering-irons the copper is made detachable from the tube, so that it can be renewed when worn out; but in removing these coppers the heating-chamber and flame-passages which are formed in the copper are removed also, rendering the construction of the copper and the cost of renewal unnecessarily expensive.

The object of my invention is to simplify and cheapen the construction of the copper in this class of soldering-irons, so as to reduce the cost of renewals; and my invention consists in the novel construction of the soldering-iron, which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a soldering-iron provided with my improvements. Fig. 2 is a longitudinal section thereof. Figs. 3, 4, and 5 are cross-sections in lines *y y*, *x x*, and *z z*, Fig. 2, respectively.

Like letters of reference refer to like parts in the several figures.

A represents the pipe to which the mixture of gas and air is supplied from a hose *a*, (shown in dotted lines,) and B is the wooden handle through which the pipe A passes, and which is secured to the pipe A.

C represents the annular deflector or shield, secured to the front end of the pipe A and projecting beyond the same, so as to form a socket in which a larger pipe *c* is secured by

a set-screw or other suitable means. The front end of the socket surrounding the pipe *c* is made concave.

D represents the heating-chamber, secured to the front end of the pipe *c* by a set-screw or otherwise and projecting forwardly beyond said pipe, so as to form a socket *e*, in which the soldering copper or point F is secured by a set-screw *f* or other suitable means. The heating-chamber D is provided on the inner side of its rear portion with longitudinal ribs *g*, which rest against the outer side of the pipe *c* and form between them flame-passages *h*, which open at the rear end of the chamber. The ribs *g* are provided at their front ends with inwardly-projecting lips *h'*, which hold the rear end of the copper at a suitable distance from the front end of the pipe *c*, so as to permit of the free escape of the gas and air from the pipe into the heating-chamber, and thence into the flame-passages *h*. The rear end of the copper is preferably provided with a recess *i*, to enlarge the flame-space and increase the internal heating-surface of the copper. The flame issuing rearwardly from the passages *h* impinges against the deflector C, which throws the flame forwardly and causes it to envelop the heating-chamber and copper. The latter can be removed when worn out without removing the heating-chamber, and can be replaced by a new copper, which, being a solid copper without flame-passages, can be made smaller and can be produced at much less cost than those heretofore used.

The heating-chamber can be constructed of iron, and is therefore less expensive and more durable than those heretofore formed integral with the copper.

It is obvious that the tube *c* may be made in one piece with the tube A, if desired.

I claim as my invention—

1. The combination, with the gas-tube, of a heating-chamber attached to said tube and provided on the inner side of its rear portion with ribs forming flame-passages between them and with a socket in its front portion,

and a soldering copper or point detachably secured in said socket of the heating-chamber, substantially as set forth.

2. The combination, with the gas-tube, of
5 a heating-chamber surrounding the end of said tube and provided with internal flame-passages extending rearwardly on the outer side of said tube, a soldering-point detachably secured in the front portion of the heat-

ing-chamber and closing the same, and a de- 10 flector surrounding the gas-tube in rear of the heating-chamber, substantially as set forth.

Witness my hand this 13th day of May, 1889.

JAMES H. FERNS.

Witnesses:

JNO. C. PICK,
P. GORMAN.

It is hereby certified that Letters Patent No. 410,084, granted August 27, 1889, upon the application of James H. Ferns, of Montreal, Canada, for an improvement in "Soldering-Irons," were erroneously issued to said Ferns as owner of the entire interest in said invention; that said Letters Patent should have been issued to the *Dominion Tubular Lamp Company, of Syracuse, New York*, said Dominion Tubular Lamp Company being assignee of the entire interest in said invention as shown by assignments of record in this office; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 10th day of September, A. D. 1889.

[SEAL.]

CYRUS BUSSEY,

Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,

Commissioner of Patents.