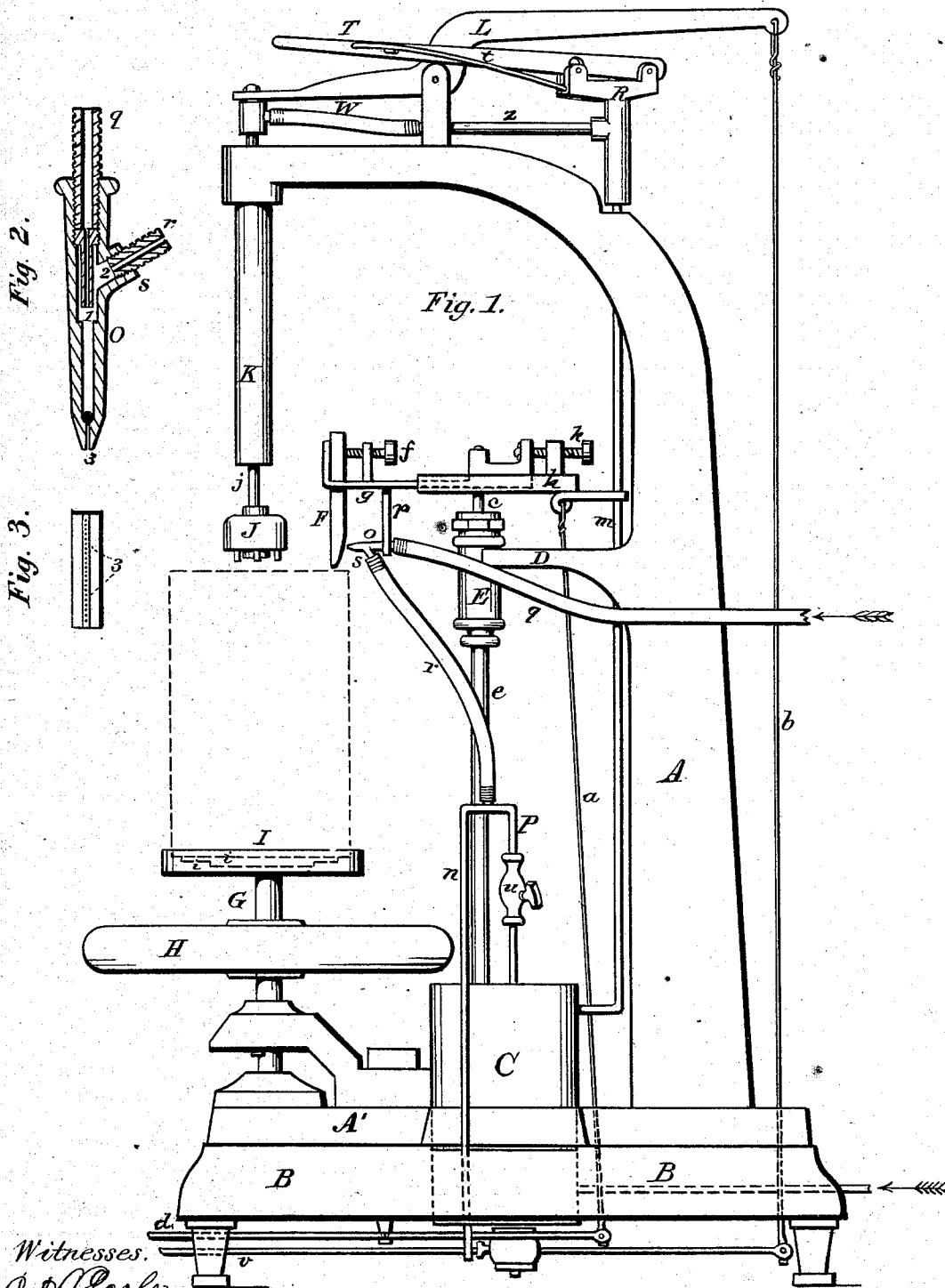


G. W. FISHER.  
Soldering Machine.

No. 159,542.

Patented Feb. 9, 1875.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

GEORGE W. FISHER, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN SOLDERING-MACHINES.

Specification forming part of Letters Patent No. **159,542**, dated February 9, 1875; application filed November 11, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE W. FISHER, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Machinery and Apparatus for Soldering and Capping Cans; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side elevation of the apparatus, showing the several parts and devices for the introduction of carbureted-hydrogen gas and steam to keep the soldering-copper heated; also, the application of steam to lift and hold the copper from the work while the cans are being put on and taken off the revolving plate; likewise, the introduction and escape of a whiff of low-pressure or partially-condensed steam, to instantly chill the solder, and admit of its speedy removal; and the device for the continuous escape of the water caused by the condensing of steam in the pipes. Fig. 2 is a sectional view of the gas-burner and steam-blower for heating the soldering-copper, on an enlarged scale. Fig. 3 is a front-end view of the burner with the numerous small jets for gas to escape and impinge against the soldering-copper, as shown in Fig. 1.

The invention relates to a machine for soldering and capping cans; and it consists in the construction and arrangement of devices more fully hereinafter described and claimed.

To enable others to make and use my invention, I will describe it more in detail, referring to the drawings, and the letters of reference marked thereon.

In order to make my improved soldering apparatus portable, and convenient for use, I mount the metal frame A' upon a bench or table, B, elevated to a sufficient height to admit of treadles to operate underneath, which connect with the vertical rods *a* and *b*, to perform certain functions hereinafter more fully described. The vertical portion of the frame A is connected with and supported on a horizontal base, A', in or near the center of which is a steam-chamber, C, to receive and retain a good supply of steam let in at any convenient place from the steam-boiler by a pipe connecting therewith. At a suitable height on the

frame or standard A is a projecting arm, D, to the end of which is secured a small steam-cylinder, E, connected with the large chamber C by the pipe *e*. The cylinder E is provided with a piston and rod, *c*, on the top of which is secured the adjustable soldering mechanism, which is lifted and held up by the pressure of steam in the cylinder, and is brought down by the foot of the operator on the treadle *d*, to which it is connected by the rod *a*, so that the heated copper F comes in contact with the top of the can to flow the solder placed upon it. The soldering-copper F is held in a vertical position in the sliding frame *g* by a set-screw, *f*, the frame *g* being fitted to slide in grooves in the frame *h*, which is supported on the piston-rod *c*, and is held from moving sidewise by connecting with the vertical steam-pipe *m*, answering the purpose of a guide-rod. The copper F is adjusted to the various sizes of the cans and proper position to operate by the thumb-screw *k* in the rear part of the frame *h*. The soldering-copper F is heated by gas-burner and steam-blower *o*, secured by a stud, *p*, to the under side of the sliding frame *g*, so that the flame is brought to impinge against the rear side of the copper, above the point that comes in contact with the work to be soldered. Ordinary carbureted-hydrogen illuminating-gas is conveyed to the burner *o* through the flexible tube *q* by connecting it with any of the pipes or gas-fixtures in the building; and live steam is conveyed to the burner through another flexible tube, *r*, connecting with a branch, *s*, on the under side of the burner, and the arch-pipe P, attached to the large steam-chamber C, the arch or bent pipe P being provided with a stop-cock, *u*, to regulate the admission of steam to the burner, in the rear of the gas conveyed by the tube *r*, so that it supplies the necessary oxygen to the flame, and a blower to intensify it. The long vertical section of the arch-pipe *n* forms an outlet for the dripping of the steam that condenses in the tube *r* below the burner F. On the front end of the base of the frame A' is a revolving vertical shaft, G, provided with a hand-wheel, H, to revolve it with. On the top is secured the plate or disk I, made concave, with ledges or offsets *i i* to fit and centralize the different

sizes of the cans. At a suitable distance above the center of the disk I is the cap-holder J, attached to a vertical tube, *j*, on a swivel, so that it can turn with the can when it rests upon the cap, the tube *j* being supported in another tube, K, attached to the end of the horizontal portion of the standard A, and at the top is connected with the lever L to raise the cap-holder J by the action of the treadle *v* and connecting-rod *b*. To the upper portion of the tube *j* is attached a piece of flexible tube, *w*, to connect it with the steam-pipe *z*, leading to the valve R on the top of the vertical pipe *m*, that connects with the steam-chamber C, the valve being held down by the lever T and spring *t*. This device is to let on a whiff of partially-condensed steam through the pipe *z*, tube *j*, and holder J to chill the solder on the can and facilitate its removal. This is instantly done by tripping the lever T.

The peculiar construction of my gas and steam burner, as seen in Figs. 2 and 3, for the purpose of keeping a soldering-copper at any required uniform heat, is that, there being a space, 1, and a small tube, 2, passing into it, through which the gas is emitted in a line with a longitudinal series of small outlets, 3, and the admission of live steam into the space 1 back of the point where the gas enters, it not only mixes the oxygen decomposed from the steam by the dry heat of the burner, but also blows the flame emitted from the outlets 3 with great force to impinge on the copper, causing intense heat.

What I claim as my invention is—

1. The adjustable sliding device for holding the soldering-copper F, consisting of the frame *h*, supported on the piston-rod *c*, the slide *g*, set-screw *f*, adjusting-screw *k*, and projecting stud *p*, for holding the gas-burner *o* in position for the flame to impinge against the copper F, for heating the same, substantially as herein set forth.

2. The steam-chamber C, pipe P, stop-cock *u*, and drain-pipe *n*, in combination with the flexible pipe *r* and burner *o*, as and for the purpose herein specified.

3. The combination of the steam-cylinder E and piston *c* with the soldering mechanism, operating as described, for the purpose of lifting and supporting said mechanism while the cans are being adjusted in and removed from the machine.

4. The vertical tube *j*, terminating in the cap-holder J, and connected by tubes *w* & *m* with the chamber C, and provided with valve R, for the purpose of causing a jet of steam to impinge on the seam to chill the solder, substantially as described.

In testimony whereof I hereunto subscribe my name.

GEO. W. FISHER.

Witnesses:

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