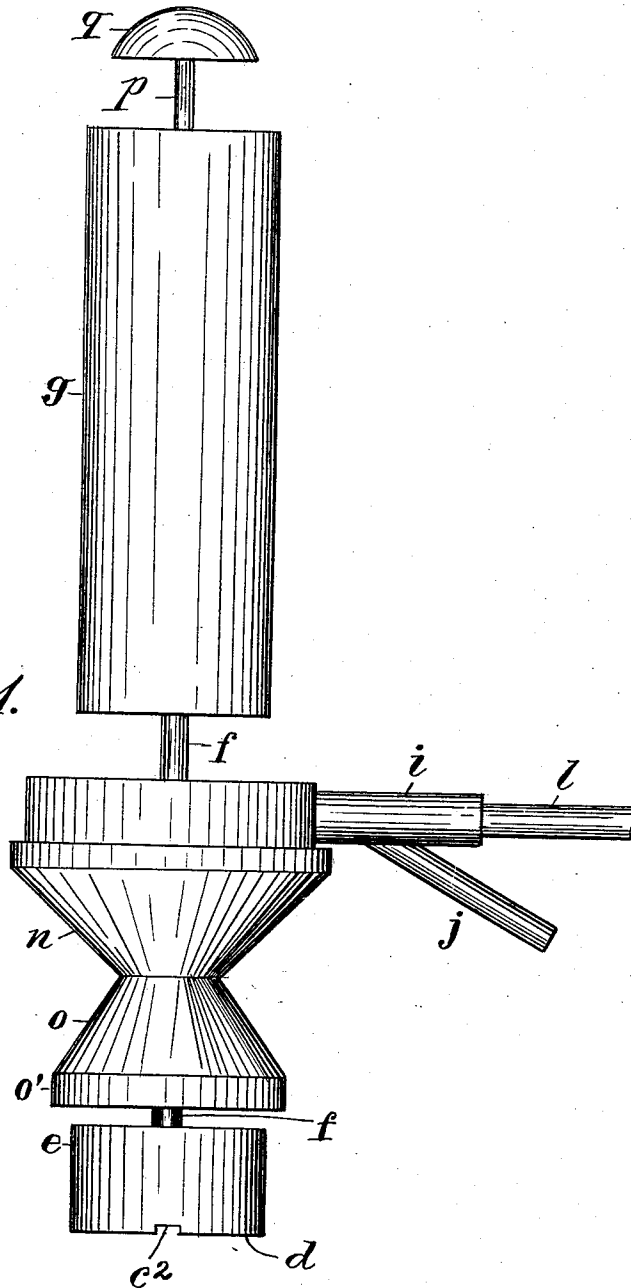


1,012,078.

Fig. 1.



Witnesses:
L. Lee.
J. H. Deenbaum.

Inventor
Robert L. Holliday, per
Thomas S. Crane, Atty

1,012,078.

Patented Dec. 19, 1911.

2 SHEETS—SHEET 2.

Fig. 6.

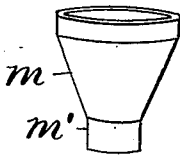


Fig. 7.

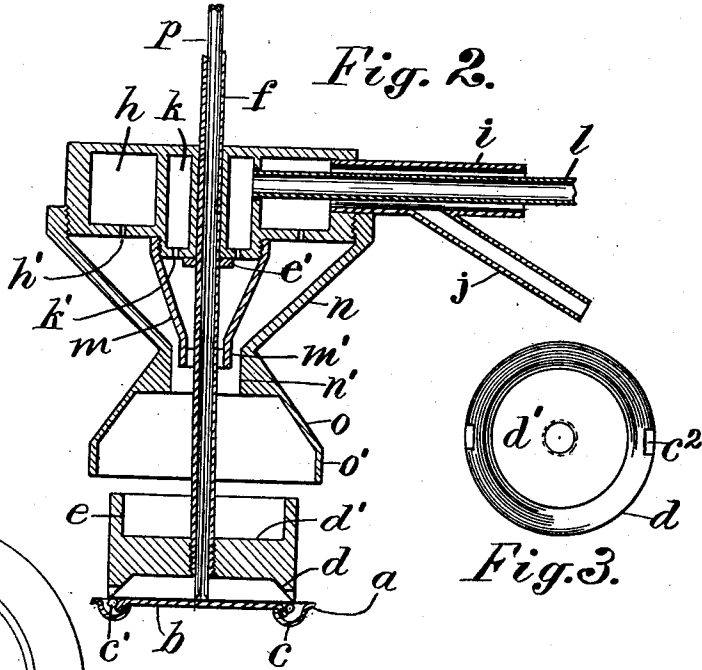
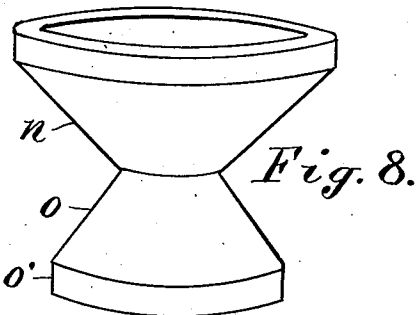
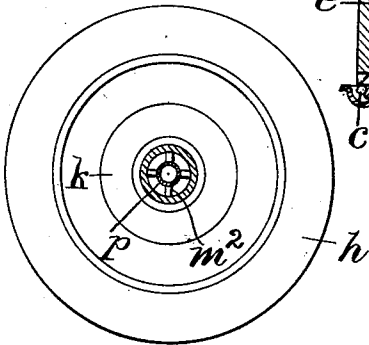


Fig. 2.

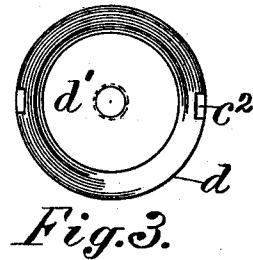


Fig. 3.

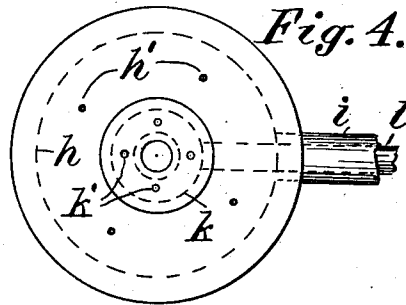


Fig. 4.

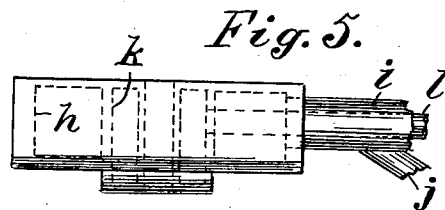


Fig. 5.

Witnesses
L. Lee.
Walter Greenbaum.

Inventor
Robert L. Holliday per
Thomas L. Crane, Atty.

UNITED STATES PATENT OFFICE.

ROBERT L. HOLLIDAY, OF NEW BRIGHTON, NEW YORK.

CAN-SOLDERING TOOL.

1,012,078.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed May 1, 1911. Serial No. 624,392.

To all whom it may concern:

Be it known that I, ROBERT L. HOLLIDAY, a citizen of the United States, residing at York avenue and The Terrace, New Brighton, Staten Island, State of New York, have invented certain new and useful Improvements in Can-Soldering Tools, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to such can soldering tools as are held in the hand and applied successively to the caps upon filled cans, to quickly solder the edge of the cap over the opening in the can.

The object of the invention is to furnish a construction with very few parts, one of which serves as a gas-heater and the other as a soldering-head having a circular bit, which head can be quickly and cheaply renewed when injured by the acid used in soldering.

The soldering-head and the handle for manipulating it, are fixed respectively upon the lower and upper ends of a central tube, and the novelty of the invention lies particularly in the construction of the gas-heater which is fitted movably to the rod just above the soldering-head. This heater is formed at the top with a casting containing two annular chambers connected respectively with gas and air inlet-pipes and having jet-holes or perforations in the bottom. The interior chamber projects below the outer chamber sufficiently to attach a conical nozzle thereto by means of a screwthread, and a corresponding nozzle is screwed upon the periphery of the outer chamber and the two nozzles are terminated just above the soldering-head with circular concentric openings from which the air and gas are discharged upon the soldering-head. The outer nozzle has a plain shield attached thereto which extends close to the periphery of the soldering-head, so as to confine the flame thereon while permitting its gradual escape.

The construction will be understood by reference to the annexed drawing, in which—

Figure 1 is a side elevation of the tool; Fig. 2 is a vertical section, where hatched, of the gas-heater and soldering-head; Fig. 3 is a bottom view of the soldering-head; Fig. 4 is a bottom view of the annular chambers; Fig. 5 is a side elevation of the annular chambers; Fig. 6 is a perspective view of the

inner nozzle; Fig. 7 is a bottom view of the gas-heater; and Fig. 8 a perspective view of the outer nozzle.

In Fig. 2, the can top *a* is shown with a cap *b* fitted to the opening in the top and its margin, as usual, resting in a circular channel *c* to which the edge of the cap is fitted. A ring of soldering-wire *c'* is shown, and the soldering-head is shown with an annular tapering bit *d* adapted to contact with the solder and melt the same in the channel.

Acid is always applied to the joint to be soldered, and such acid has a very corrosive effect upon the tapered edge of the bit *d* of the soldering-head, and the present construction affords a cheap replacement of such soldering-head. The annular bit is formed upon the edge of a circular plate *d'* from which a small flange *e* extends upwardly, forming an open chamber upon the top of the soldering-head into which the flame is projected from the gas-heater. A tube or stem *f* is screwed detachably into the center of the plate *d'* and provided upon its upper end with a wooden handle *g*.

The gas-heater is fitted movably upon the stem and supported thereon by a collar *e'*, which may be adjusted at any height above the soldering-head. The top of the gas-heater is formed with concentric annular chambers *h* and *h'*, disconnected from one another and having each in the bottom perforations or jet-holes *h'* and *h''*. A tube *i* supplied with gas by a pipe *j* is inserted in the periphery of the outer chamber *h* and the gas entering through such tube passes downward through the jet-holes *h'*. Through the gas-pipe *i* and chamber *h*, an air-pipe *l* is extended into the wall of the inner chamber *h'* and supplies air thereto, which passes downward through the jet-holes *h''*. The inner chamber is extended slightly below the outer chamber and its projecting end furnished with a screwthread upon which a conical nozzle *m* is screwed, and furnished at its lower end with a cylindrical mouth-piece *m'*. The mouth-piece is larger than the stem *f* and permits the passage of the air around the stem, and is centered upon the stem by lugs *m²*. The lower corner of the outer chamber is threaded, and a conical nozzle *n* is screwed thereon, and is furnished at its lower end with a mouth-piece *n'* surrounding the mouth-piece *m'* and clearing the same to permit the passage of the gas. A flame-shield *o* is projected from the lower

end of the nozzle *n* and has a cylindrical shell *o'* at the bottom a little larger than the periphery of the soldering-head.

The parts are assembled upon the stem *f* before the soldering-head is applied, by unscrewing the conical nozzle from the chambered casting, and first slipping such chambered casting upon the stem and then applying the collar *e'* and securing the same to the stem. The conical nozzles are then screwed upon the chambered casting and the soldering-head screwed at the bottom of the stem, which operation is effected by applying a spanner to notches *e''* in the edge of the annular bit.

The device is used by supplying air and gas to the pipes *i* and *l*, and applying the soldering-bit *d* successively to the covers upon the cans, which are commonly placed in a row upon a bench when they are filled. The air-pipe *l* is preferably connected with a supply of air under pressure, and the pipe provided with a cock to regulate such pressure, the gas-pipe *j*, in like manner, being connected with a supply of gas, the admission of which to the jet-holes *h'* is regulated by a cock. The air under pressure enters the central chamber *k*, and its escape from the cylindrical nozzle *m'* produces a draft in the nozzle *n'* which draws the supply of gas downward so as to mingle therewith inside the shield *o*. When ignited within the shield, the flame is projected by the momentum of the air moving under pressure into the open space or chamber upon the top of the soldering-head, thus heating the head effectively. The cylindrical shell *o'* at the bottom of the flame-shield is but little larger than the soldering-head, so as to confine the flame thereto while permitting its escape around the margin of the head.

The soldering-head is merely screwed upon the stem *f* and can thus be readily removed and renewed when the bit-portion *d* is injured by the acid, and such removability permits the convenient application of soldering-heads of various sizes adapted to operate upon caps of various diameters.

In practice, the usual presser-rod *p* having a knob *q* upon the top is inserted through the stem to hold the cap *b* in place while the soldering-head is rotated upon the cap *b* by turning the handle *g*.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a can soldering tool, the combination, with a central stem having the handle *g* at the upper end and a soldering-head secured detachably upon the lower end, of a gas-heater fitted movably to the stem above the soldering-head and provided with concentric chambers connected respectively to air and gas-pipes, with jet-holes upon the bottoms of said chambers, and conical nozzles leading the air and gas respectively downward from the said chambers and delivering the same upon the upper side of the soldering-head.

2. In a can soldering tool, the combination, with a central stem having the handle *g* at the upper end and a soldering-head secured detachably upon the lower end, of a gas-heater fitted movably to the stem above the soldering-head and provided with concentric chambers connected respectively to air and gas-pipes, with holes upon the bottoms of said chambers, conical nozzles secured detachably upon the said chambers leading the air and gas downwardly, and such nozzles terminated with cylindrical mouth-pieces, and a flame-shield attached to the outer cone for confining the flame upon the top of the soldering-head.

3. In a can soldering tool, the combination, with a central stem having the handle *g* at the upper end and a soldering-head secured detachably upon the lower end, of a gas-heater fitted movably to the stem above the soldering-head and provided with concentric chambers connected respectively to air and gas-pipes, with holes upon the bottoms of said chambers, and screwthreads upon their lower ends, conical nozzles screwed detachably upon the said threads and provided with mouth-pieces at their lower ends, and a flame-shield attached to the outer nozzle and extended close to the margin of the soldering-head to concentrate the flame thereon and permit its escape around said margin.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ROBERT L. HOLLIDAY.

Witnesses:

THOMAS S. CRANE,
J. WALTER GREENBAUM.