

No. 696,429.

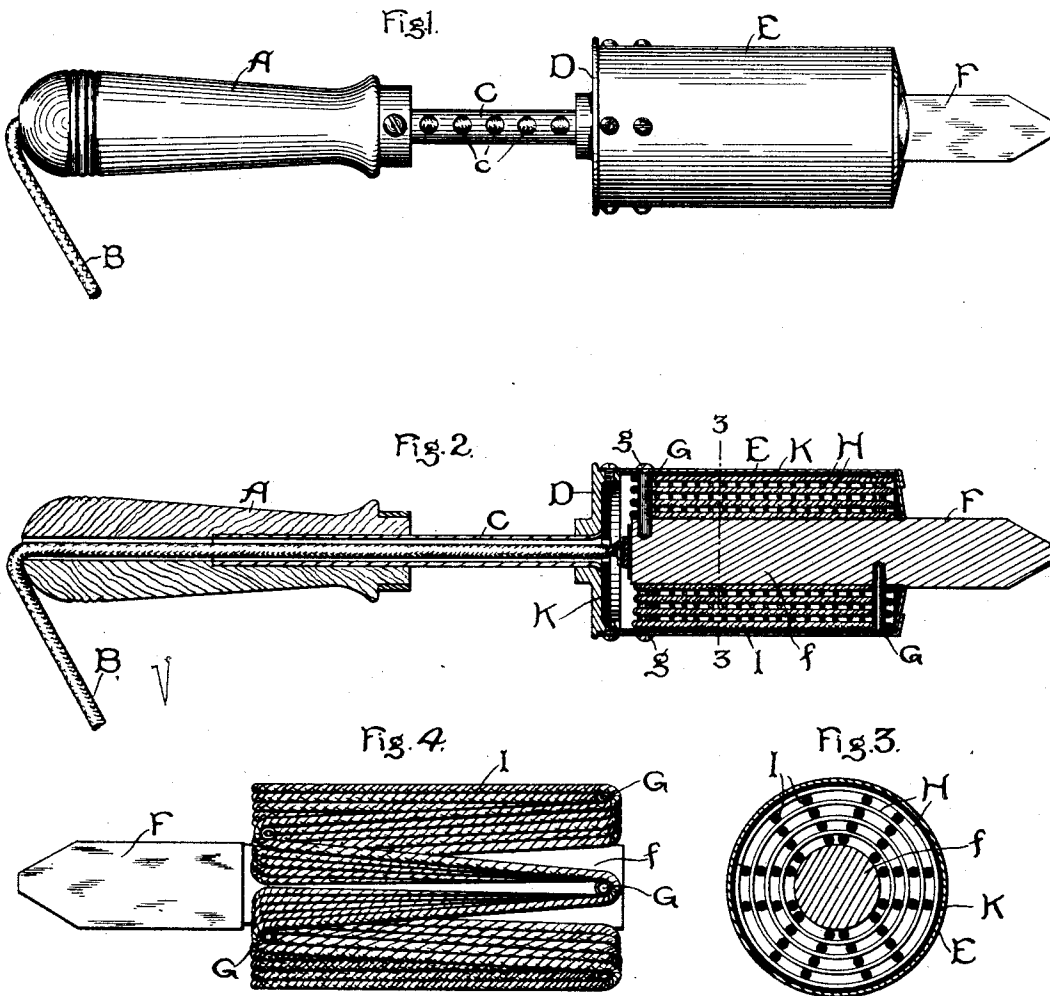
Patented Apr. 1, 1902.

H. GEISENHÖNER & T. VAN ALLER.

SOLDERING IRON.

(Application filed Nov. 21, 1900.)

(No Model.)



Witnesses.

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Inventors:

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UNITED STATES PATENT OFFICE.

HENRY GEISENHÖNER AND TYCHO VAN ALLER, OF SCHENECTADY, NEW YORK, ASSIGNORS TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SOLDERING-IRON.

SPECIFICATION forming part of Letters Patent No. 696,429, dated April 1, 1902.

Application filed November 21, 1900. Serial No. 37,250. (No model.)

To all whom it may concern:

Be it known that we, HENRY GEISENHÖNER, a citizen of the United States, and TYCHO VAN ALLER, a subject of the King of Denmark, both residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Soldering-Irons, (Case No. 1,948,) of which the following is a specification.

Our invention relates to soldering-irons; and its object is to provide a soldering-iron with improved means for heating it by means of an electric current. Electrically-heated irons have been made in a number of ways; but we believe that our invention affords a more even heat and a more efficient utilization of the current than has been attained heretofore.

We provide the point of the iron with a shank, which we surround with a coil of small wire, the turns being insulated from each other and from the shank by an interposed cord of insulating material wound back and forth between each two concentric layers of wire. This structure forms an open network of wire and insulation through which air can circulate freely, so that when the coil is heated by its resistance to a current of electricity the heat readily reaches the shank of the soldering-iron. An inclosing insulated jacket prevents undue radiation of the heat.

In the drawings, Figure 1 is a side elevation of our improved soldering-iron. Fig. 2 is a longitudinal section of the same. Fig. 3 is a cross-section on the line 3 3, Fig. 2. Fig. 4 shows the mode of winding on the insulating-cord.

The handle A is of wood or the like and preferably is tubular to permit the conducting-wires B to pass through it. A metallic tube C extends from one end of the handle, having openings *c* to admit air to keep it cool. To the end of the tube is fastened a metallic head D, provided with a flange to which the sheet-metal jacket E is attached.

The point F of the soldering-iron is preferably made of copper, as usual, and is provided with a shank *f*, preferably cylindrical, as shown. The shank is concentric with the jacket E, being maintained in this position preferably by radial studs G, inserted into

the shank near each end and secured by screws *g*, passing through the jacket into tapped holes in some or all of said studs.

A coil H of small wire, preferably bare iron wire, is wound helically on the shank *f* between the studs G. In order to insulate each turn from the next and each layer from the adjacent one, we use a cord I, of heat-resisting insulating material, preferably asbestos, which is wound back and forth along the shank around the studs, lying in a zigzag position around the shank transverse to the turns of wire. Fig. 4 clearly shows the appearance of this insulating-cord, the intervening concentric layers of iron wire being omitted in the figure for the sake of clearness. Figs. 2 and 3 show how the layers of wire alternate with the strands of cord. The wire sinks into the soft cord, and is thus securely retained in position and the adjacent turns of said wire thereby insulated one from the other.

The terminals of the bare wire coil are connected with the ends of the conductors B, which run through the handle A, tube C, and head D to a space behind the end of the shank *f*.

A heat-resisting lining K, such as asbestos paper, is placed between the coil and the jacket and head in order to diminish the radiation of heat from the iron.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. An electric soldering-iron, having its point provided with a shank, and a resistance-coil wound on said shank having its layers separated by a cord of heat-resisting and insulating material.

2. An electric soldering-iron, having its point provided with a shank, studs projecting radially from said shank near its ends, a cord of heat-resisting insulating material wound in a zigzag form on said studs, and a helical coil of bare wire wound transversely to said cord, its layers separated by the strands of said cord.

3. An electric soldering-iron, having its point provided with a shank, radial studs on said shank, a resistance-coil wound helically on said shank, a cord of heat-resisting and

insulating material wound lengthwise of the shank around the studs and lying between, and transverse to, adjacent layers of wire, and a jacket inclosing the coil and secured to
5 said studs.

4. In an electric soldering-iron, the combination with a tubular handle, of a perforated tube extending therefrom, a head secured to the tube, a jacket secured to the head, a heat-
10 resisting lining for the head and jacket, a soldering-iron point having a shank, a resistance-coil wound on the shank inside the

jacket, with open air-spaces between its turns and layers, and conducting-wires running through the handle and connected with the
15 terminals of the coil.

In witness whereof we have hereunto set our hands this 19th day of November, 1900.

HENRY GEISENHÖNER.
TYCHO VAN ALLER.

Witnesses:

BENJAMIN B. HULL,
FRED RUSS.