

No. 850,386.

PATENTED APR. 16, 1907.

R. W. MARVELL.  
SELF HEATING SOLDERING IRON.

APPLICATION FILED JULY 11, 1906.

2 SHEETS—SHEET 1.

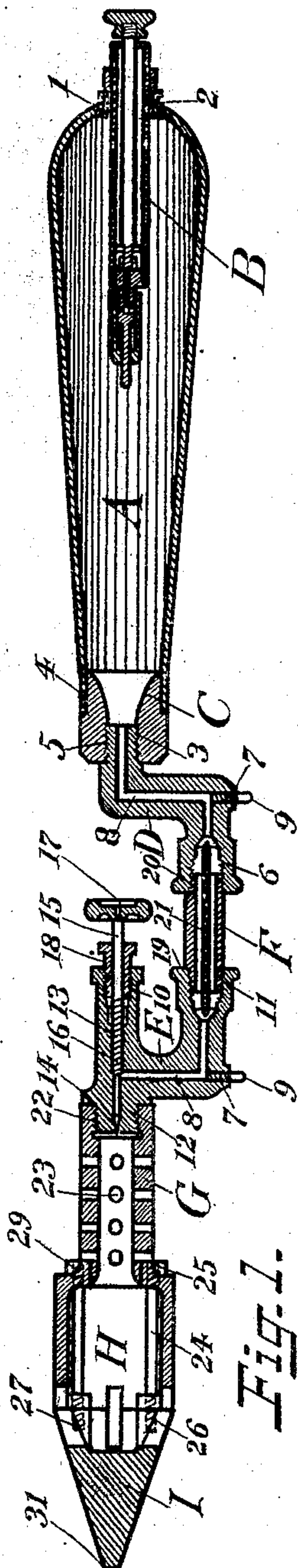


Fig. 1.

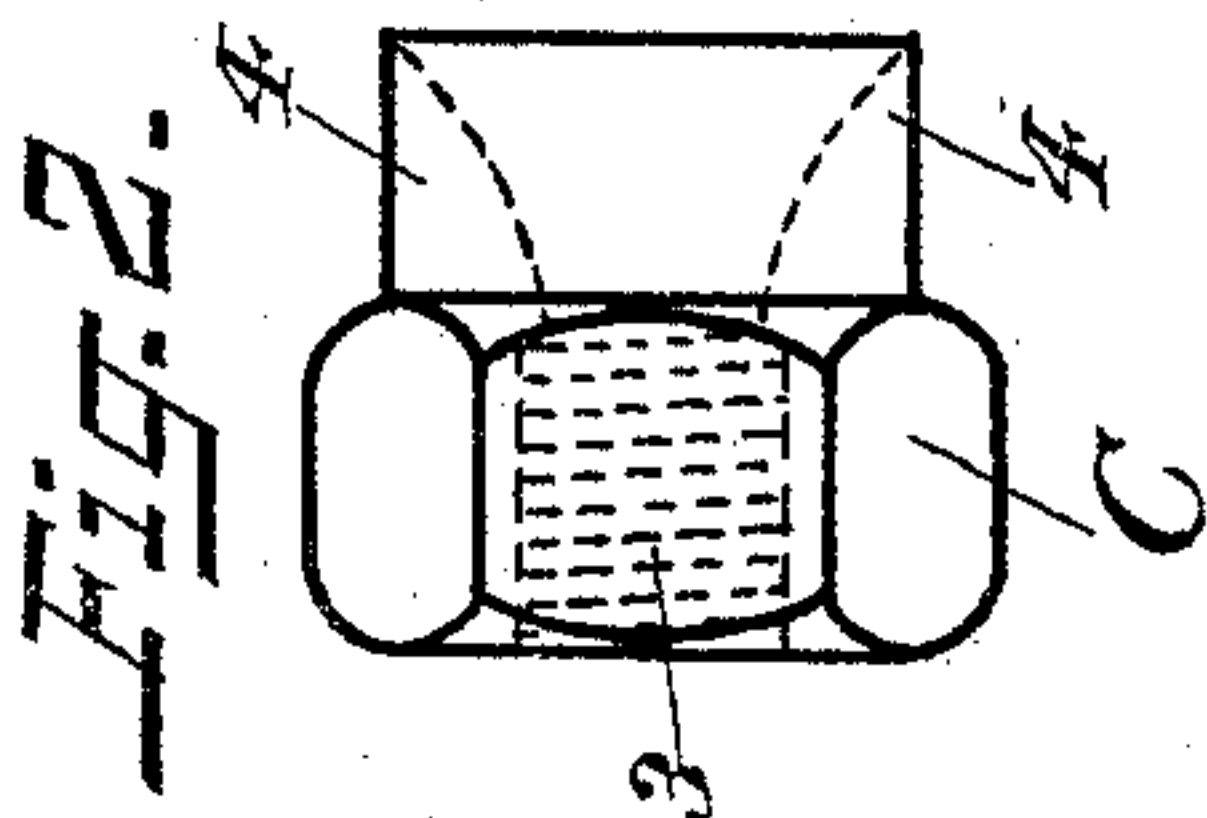


Fig. 2.

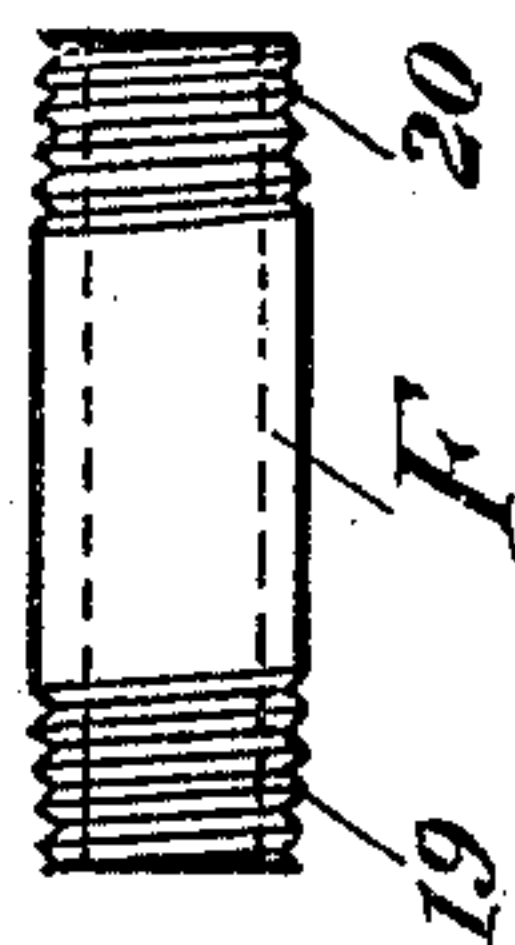


Fig. 3.

Fig. 4.

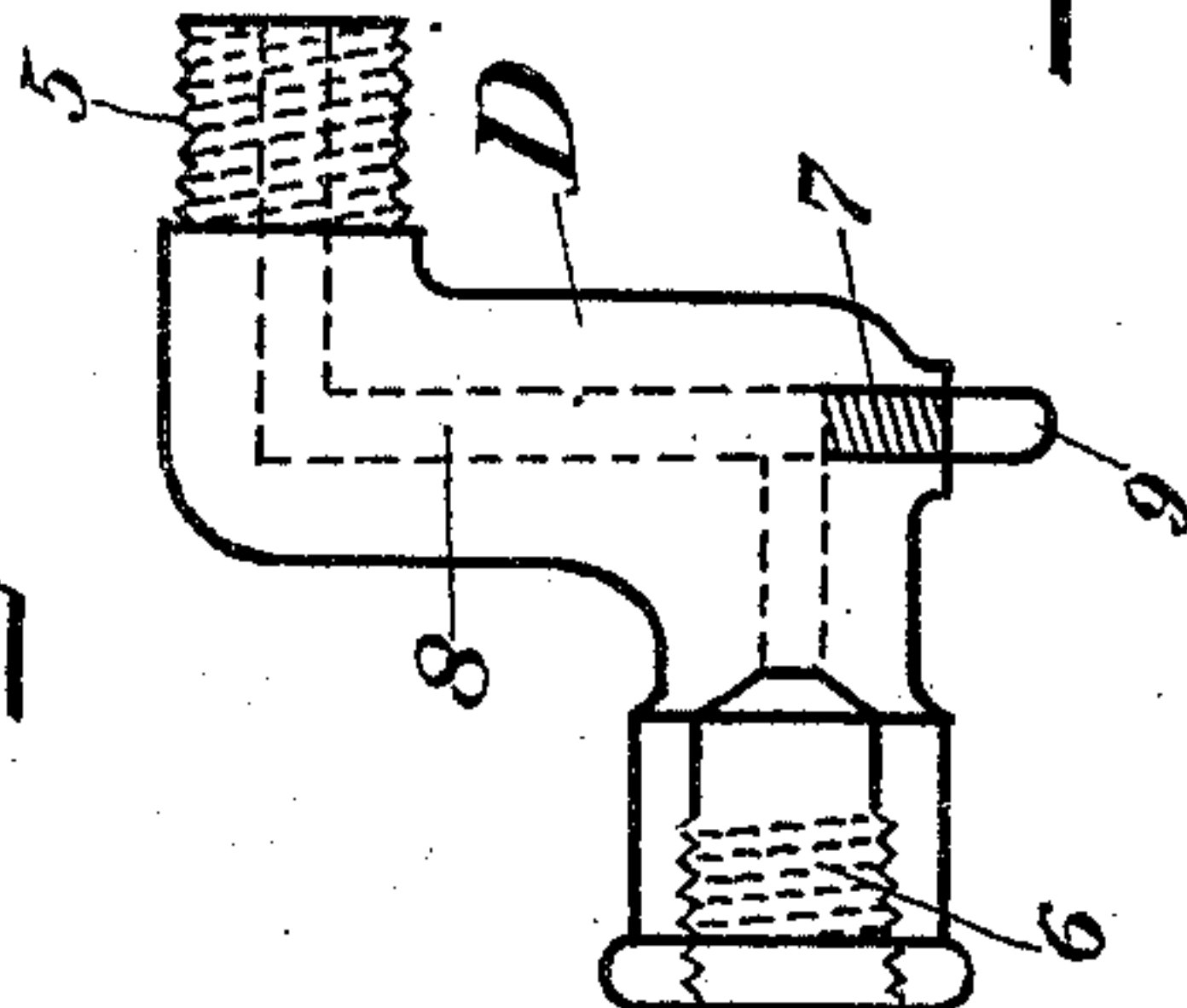
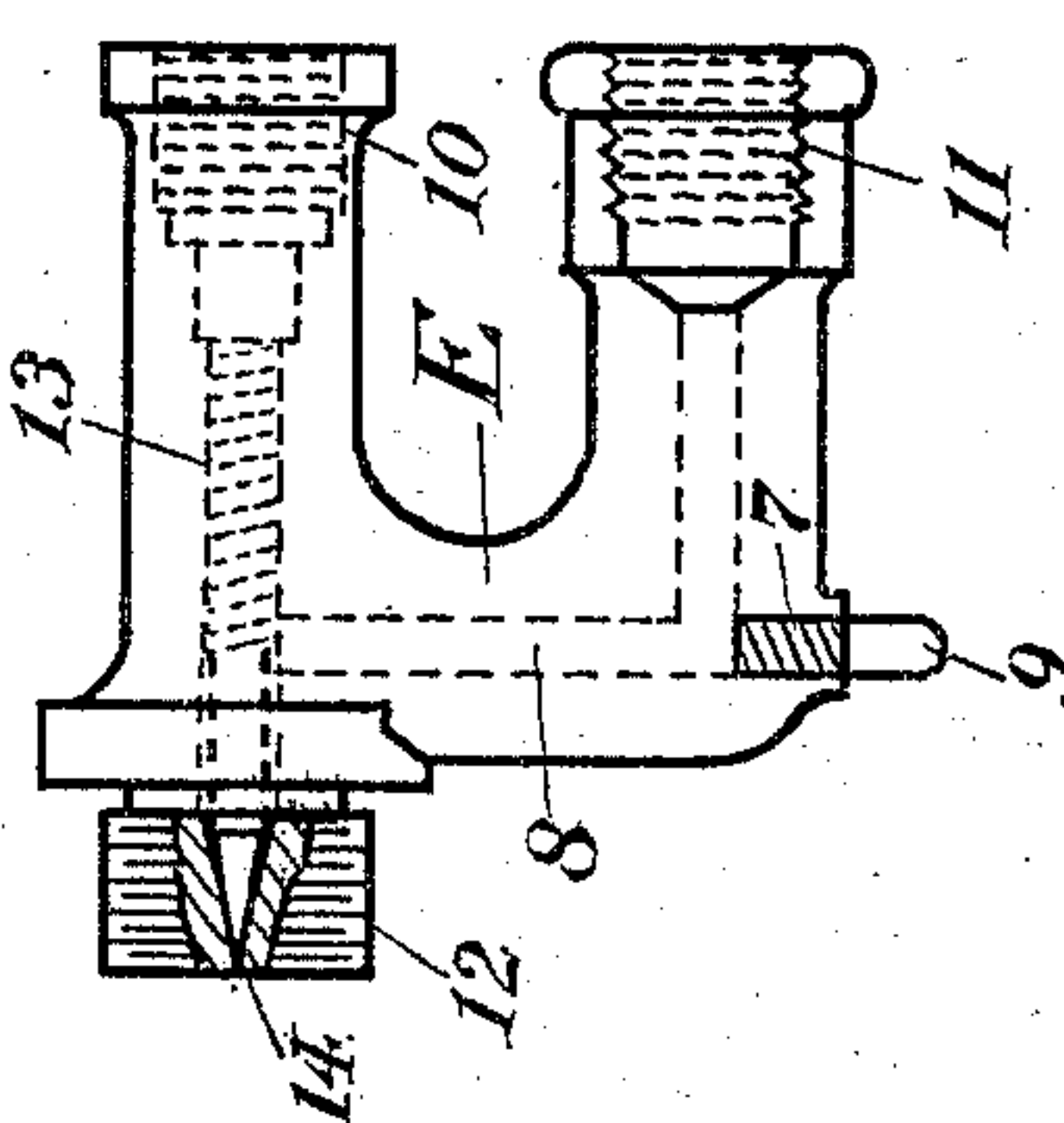


Fig. 5.



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E. Walton Bravington.

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his  
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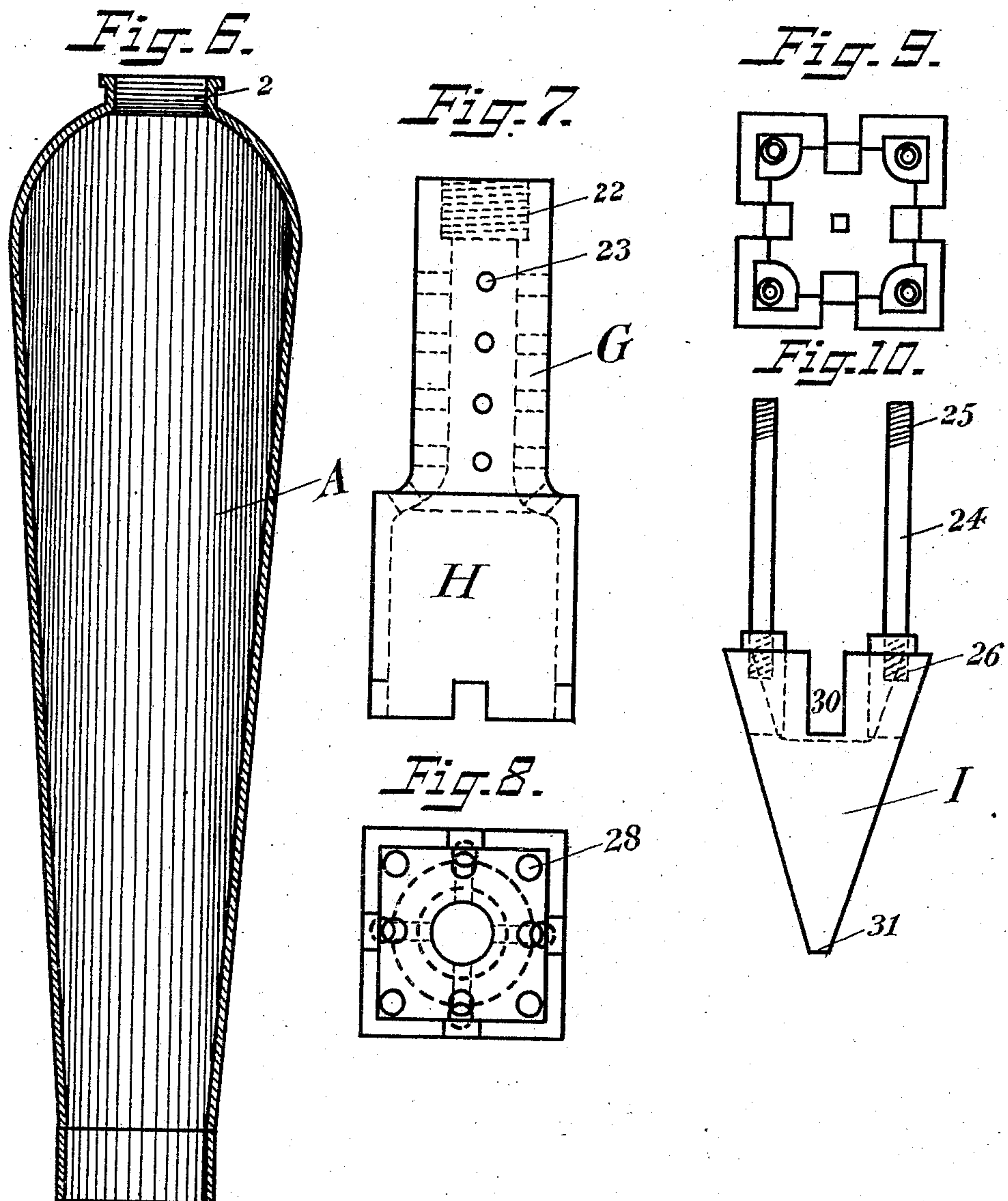
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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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TO BENNETT-MARVELL MANUFACTURING COMPANY, A CORPORATION  
OF DELAWARE.

## SELF-HEATING SOLDERING-IRON.

No. 850,386.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed July 11, 1906. Serial No. 325,559.

*To all whom it may concern:*

Be it known that I, ROY WILLIAMS MARVELL, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Self-Heating Soldering-Irons, of which the following is a specification.

My invention relates to an improvement in self-heating soldering-irons, the object of which is to provide a soldering-iron with the self-heating features, that the heating stove or "pot," as it is usually termed, used for the purpose of heating the iron may be dispensed with, and to provide an iron whereby the fuel used in heating it can be more conveniently carried; also, to provide an iron of such simple construction that the several parts may be easily and quickly disconnected for the purpose of being cleansed, and also that the iron can be rendered so compact that it can be conveniently carried and easily assembled and ready for use when desired.

In the construction of this iron many features are improved upon those as shown in my pending application for Letters Patent, Serial No. 306,637, filed March 17, 1906, the main features of improvement being that the needle-valve is so constructed that to a certain extent the extended part is to a certain degree protected from the possibility of accidental injury of bending the stem by being brought into contact with some object while using the iron. Again, it is found advantageous to have the air-pump secured to the iron, and by securing it within the handle it is found that it is more preferable than carrying it as a separate article, inasmuch as it is out of the way and not liable to become damaged in the use of the iron, as would be if exteriorly secured thereto.

Other features by way of improvement will be described in the detailed description hereof.

With the foregoing object in view my invention consists in certain novel features of construction and combination of parts, which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of an iron constructed in accordance with my invention. Fig. 2 is a side view of the nut which forms the smaller end of the handle, showing the

threaded inner portion and the exterior 55  
nuttetted portion. Fig. 3 is a side view of a short section of pipe; Fig. 4, a side view of an S-shaped connection. Fig. 5 is a side view of a U-shaped connection. Fig. 6 is a sectional view of the handle. Fig. 7 is a side 60  
view of the head, and Fig. 8 is an end view. Fig. 9 is an end view of the point, and Fig. 10 is a side view of said point.

A is a hollow metallic handle adapted to be filled with gasoline or other similar fuel and 65  
termed the "fuel-chamber."

B is an air-pump which is removably secured within the handle by means of the threaded portion 1 of the pump being screwed within the inwardly-threaded end portion 2 70  
of the handle. The character of the pump is well known and is of the kind in universal use, and the construction of the same is so well known and understood that no description of same is necessary here. 75

C is a hexagon nut provided with the threaded portion and the extension 4, which is adapted to be fitted within the smaller end of the handle A.

D is an S or twice-right-angled fitting, one 80  
end of which is exteriorly threaded at 5 and adapted to be screwed within the inwardly-threaded portion 3 of the nut C, which, as has been stated, is fitted within the smaller end of the handle A and is driven fitted 85  
therein to insure a tight closure. The opposite end of the S-fitting is inwardly threaded at 6. The fitting is drilled and threaded therein at 7, leading into the opening 8 within the fitting and provided with a screw-plug 9 for 90  
the purpose of permitting the fitting to be cleaned.

E is a U-shaped or second twice-right-angled fitting, being inwardly threaded at 10 and 11 and provided with an exteriorly- 95  
threaded extension 12. This fitting is also provided with a similar means for the purpose of permitting it to be cleaned as described in reference to the fitting E, as is designated by similar figures for the similar 100  
parts. The U-shaped fitting is drilled and inwardly threaded at 13 and tapered to a needle-pointed opening 14.

15 is a needle-pointed valve-stem threaded at 16 and adapted to be screwed within the 105  
fitting and engaged by the threads 13 therein and provided with a thumb-nut 17.

18 is a cap-nut fitted around the valve-



stem and adapted to be screwed within the fitting and becomes engaged by means of the thread 10.

F is a short straight section of pipe threaded on each end, as indicated by 19 and 20, and adapted to connect the U-fitting with the S-fitting by screwing the threaded end 19 within the inwardly-threaded portion 11 of the U-fitting and the threaded end 20 within the inwardly-threaded portion 6 of the S-fitting. Within this pipe connection F is secured the wick 21, which feeds the fuel.

Secured on the threaded extension 12 of the U-shaped connection E is the cylinder G, which is an extension of the head H and which is inwardly threaded at 22 for the said purpose. The head H is hollow, and the cylinder G is cast to it, the head and cylinder being composed of but a single casting. 23 are perforations for affording an adequate draft that the flame may be extended within the head and against the point I. The point of the iron is secured to the head H by means of the bolts 24, which are threaded on each end 25 and 26. The point I is drilled and threaded in the square end thereof at 27 to receive said bolts, which are extended through the head H, which is drilled for said purpose, as indicated by 28 of the end view of the head, as shown in Fig. 8, and secured by means of the nuts 29. The point I is hollow at 30 to allow the flame to extend therein, that the iron may be more readily heated at the point 31. These points I of the iron are removably secured in this manner, that a number of sizes and different styles of points suitable for special kinds of work may be used on the same iron, thereby combining in a single tool all that which could but otherwise be accomplished by the use of several tools of various styles and sizes.

My device is operative as follows: The pump is removed from the handle, and the handle is filled with fuel, preferably gasoline. The pump is then screwed within the handle, and by the use of the pump air is forced into the handle, which forces the fuel through the several connections and fittings to the point of the needle-valve. The point is withdrawn from the opening, so as to allow the fuel to enter the cylinder of the iron head. The fuel is lighted through the perforations in the cylinder, and the flame is regulated by controlling the fuel-supply by means of the thumb-nut on the valve-stem, by which the valve is opened and closed. Within a few moments after lighting the fuel the iron will become heated and ready for use. By the closing of the needle-valve the supply of fuel is cut off and the flame extinguished.

The iron is made of any suitable material, but preferably of copper or brass.

Slight changes might be resorted to in the form and arrangement of the several parts

described without departing from the spirit and scope of my invention, and hence I do not desire to limit myself to the exact construction as herein set forth; but,

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

1. In a self-heating soldering-iron, the combination of a hollow handle constituting a fuel-reservoir, a hollow fitting secured at its rear end portion to the forward end of said handle and twice right-angled to carry its forward end portion parallel to and offset from said handle, a second hollow twice-right-angled fitting offset in the opposite direction, a pipe-section connecting the opposed ends of said fittings, a needle-valve extending longitudinally forward into the forward end portion of the second fitting, and a burner-head connected with the forward end portion of the second fitting and carrying a soldering-point, said fittings and pipe-section constituting the fuel-duct and being the sole support for said head and soldering-point.

2. In a self-heating soldering-iron, the combination of a hollow handle constituting a fuel-reservoir, a fitting secured at its rear end portion to the forward end of said handle and comprising a casting cored out to provide passage for the fuel and twice right-angled to carry its forward end portion parallel to and offset from said handle, a second twice-right-angled cored-out casting having its rear end portion and its forward end portion in alinement with the forward end portion and the rear end portion respectively of said other casting, a short straight pipe-section screwed into the opposed ends of said castings and containing a wick, a needle-valve disposed in substantial alinement with the handle and extending longitudinally forward into the forward end portion of the second casting, and a burner-head and soldering-point connected with the forward end portion of the second casting, said castings and pipe-section constituting the sole support for said head and soldering-point.

3. In a self-heating soldering-iron, the combination of a fuel-reservoir, a fuel-duct leading therefrom, a burner-head having a tubular portion connected to said duct and having also an enlarged combustion-chamber at the outer end of said tubular portion, a soldering-point, and connecting devices extending from such point longitudinally of the combustion-chamber and having enlarged heads bearing against the outside of the rear wall thereof.

In testimony whereof I affix my signature in presence of two witnesses.

ROY WILLIAMS MARVELL.

Witnesses:

W. T. STEEL,

LEWIS WOODLAND.