

W. G. LANDELLS & H. J. HUCKSON.

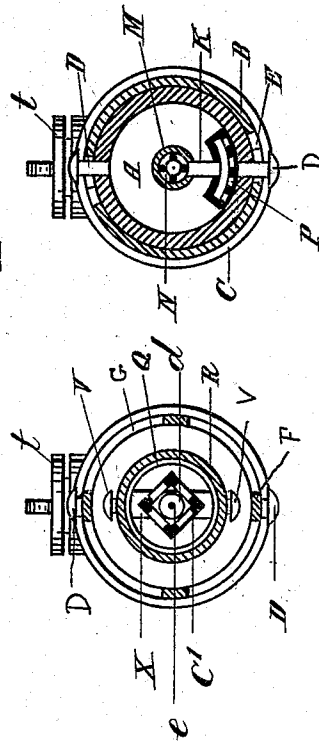
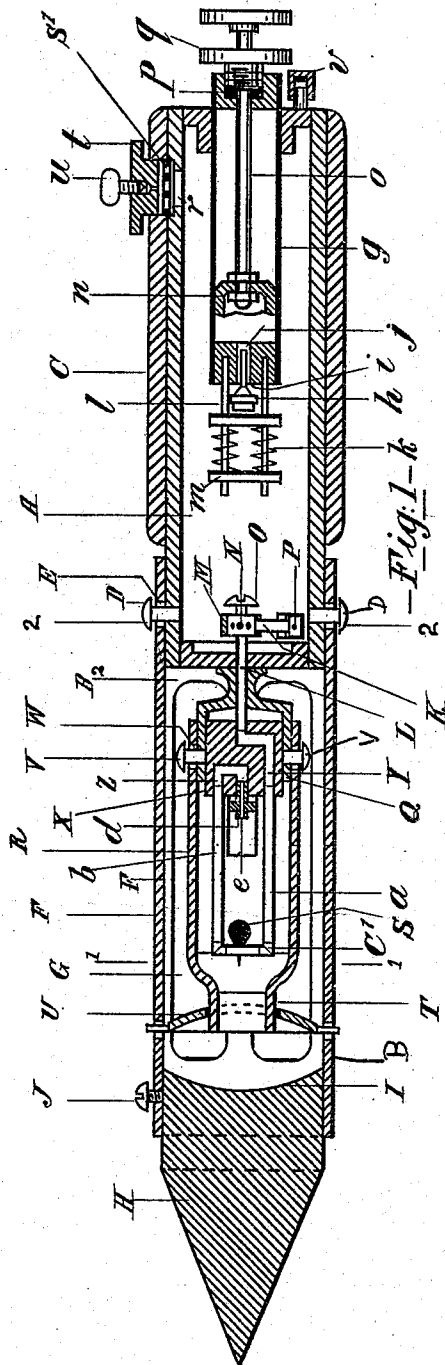
SELF HEATING SOLDERING IRON.

APPLICATION FILED MAY 1, 1907.

937,449.

Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.



WITNESSES
W. P. Burk
A. F. Heiman.

INVENTORS
William George Landells
Henry James Huckson
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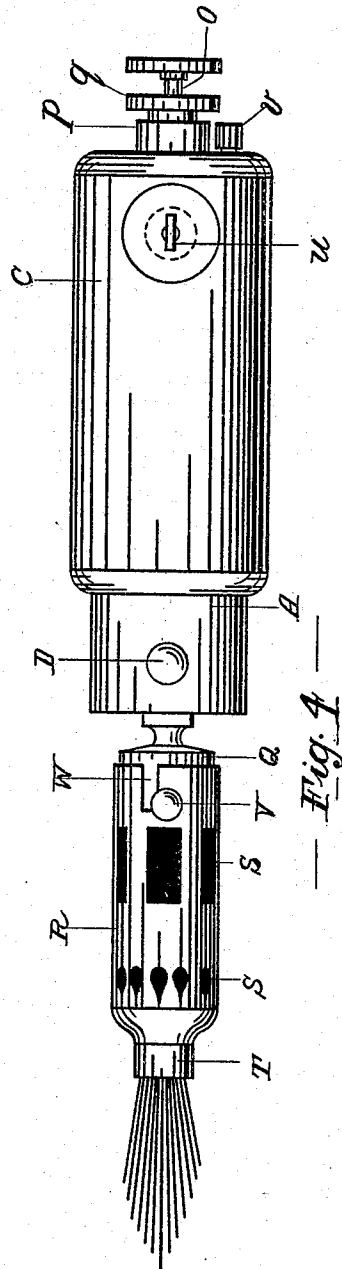


Fig. 4

WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM GEORGE LANDELLS, OF COBURG, AND HENRY JAMES HUCKSON, OF PAKENHAM, GIPPSLAND, VICTORIA, AUSTRALIA.

SELF-HEATING SOLDERING-IRON.

937,449.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed May 1, 1907. Serial No. 371,293.

To all whom it may concern:

Be it known that we, WILLIAM GEORGE LANDELLS, residing at Service street, Coburg, in the State of Victoria, Commonwealth of Australia, carpenter, and HENRY JAMES HUCKSON, residing at Pakenham, Gippsland, in the State of Victoria, Commonwealth of Australia, laborer, both subjects of the King of Great Britain and Ireland, have invented a certain new and useful Self-Heating Soldering-Iron, (for which we have applied for Letters Patent in the Commonwealth of Australia, numbered 7,390, bearing date the 20th day of November, 1906,) of which the following is a specification.

The objects of our invention are first to provide means whereby the initial priming and generating of the liquid fuel into vapor or gas will be readily effected and thereafter completely superheated during its course through a divided portion of the vaporizer and before its exit from the burner nipple of our soldering bolt. Second, to provide means whereby the feeding of the liquid fuel from the reservoir to the vaporizer, burner block and nipple will be continuous through a perforated "pendulous" gravity tube which follows the oil as the reservoir is revolutely moved by the operator, or used at any working angle. Third: to provide means whereby the return flame from the rear concave face of the soldering bolt will be continuously deflected back again and utilized for the further heating of the bolt. Fourth: to provide means whereby the air pressure within the reservoir can be reduced or relieved if found to be in excess of working requirements. Fifth: to provide a liquid fuel inlet that will prevent any grit from gaining access to the liquid fuel reservoir while being filled, so that clogging of the burner block passages or nipple passage with foreign matter will be entirely obviated. But in order that our invention may be better understood we will refer to the accompanying sheets of drawings in which like letters indicate like parts.

Figure 1 is a longitudinal sectional elevation of the various parts comprising our said invention. Fig. 2 is a transverse section of Fig. 1 taken upon the vertical line (1—1). Fig. 3 is also a transverse section of Fig. 1 taken upon the vertical line (2—2). Fig. 4 is a longitudinal elevation showing a part of the air pump, reservoir, priming cup and

the perforated shield with the nozzle. The adjustable tool holder or frame and soldering tool or tip being removed.

In the drawings A represents a cylindrically shaped reservoir with which is combined the adjustable tool holder or frame B. The said reservoir is made air-tight so as to contain the liquid fuel or volatile oil and is combined with an air pump hereinafter described for introducing air thereinto.

C is a non-conducting sleeve covering the reservoir A so that a workman may hold same and manipulate the bolt. The said tool holder or frame B aforesaid is firmly held in position by means of the button head studs D and D fixed diametrically opposite each other on the said cylindrical reservoir A to fit into the two L shaped grooves E made in said frame B. There are four ribs F intervening between the open tubular ends but forming part of the frame B and between said ribs are made longitudinal spaces or openings G.

H is the wedge shaped soldering bolt having a concave face I on the rear end portion, which is held in the frame B by means of the set screw J.

K is what we term a "pendulous gravity tube" arranged within the interior of said reservoir A so as to swing as a pendulum from the perforated rear portion of the pipe L relatively to the longitudinal axial line of the before mentioned reservoir. The upper end of said "gravity tube" K has a sleeve M which moves upon and around said pipe L in which N represents several perforations. The reservoir end of said pipe L is closed by means of a plug in which is tapped a hole to receive the set screw O for preventing said sleeve from coming off the pipe L. Several perforations P are also provided in the bottom curved foot of said "gravity tube" so that every drop of the liquid fuel contained in the said reservoir A may be forced therefrom into the vaporizer.

Q is a "gas priming" or "generating cup" to which is connected the removable tubular shield R herein termed the "air inlet shield" having air inlet spaces or openings S formed in its circumference. The outer end portion of this shield is nozzle shaped as at T and is fitted into a central opening or aperture provided in the pivoted disk U arranged within the front tubular end of said tool holder or frame B. The inner end

portion of said shield is suitably connected with said priming cup Q by means of the two button headed studs V which fit into two L shaped grooves W. X is a rectangular shaped burner block securely fixed in said cup Q in which are made the two main ducts or passages Y and Z., having projected therefrom what we term the "volatilizer" consisting of the oppositely arranged side pipes *a* and *b* united to communicate with each other by means of the "diamond shaped dividing junction piece C'". This junction piece and also the side pipes *a* and *b* are made of brazing brass, the joints being suitably brazed. In said burner block X is a tapped hole to receive the screwed end of the nipple *d* made with a needle passage way *e*. Within said reservoir A before mentioned is fixed an air pump comprising the tube *g* having at its inner end the valve *h* engaging the seat *i* formed in the air duct *j* communicating with the interior of the pump tube *g* and reservoir A. Said valve is kept against its seat by means of an attachment formed by the two springs *k*, studs *l* and parallel bars *m*. *n* represents the ordinary class of plunger for said pump. *o* is the plunger rod. *p* stuffing box with screw gland *q*. *r* is the liquid fuel inlet for said reservoir A. *s'* is a wire gauze strainer fixed in said inlet which is threaded internally and provided with the threaded cap *t* in which is placed the conically shaped air reducing or relieving valve.

v represents a cap lined on its inner face with cork and is used to cover the nipple *d* in order to prevent any leakage of liquid fuel when the bolt is not in use.

The working of our invention is as follows: Volatile oil such as kerosene is first introduced into the reservoir A, then the air pump is operated so as to force air through the duct or passage way *j* thence past the valve *h* into said reservoir A. The pressure in the last named then forces liquid fuel through the perforations P in the curved foot, passage way of the gravity tube, perforations, N, and pipe L, thence into the main passage Y, pipe *a*, and junction piece C', in which the vapor or gas is divided into two streams and again united as the gas passes into the pipe *b*. In the pipes *a* and *b* and junction piece *c*, the liquid fuel is volatilized and vaporized by the direct action of the flame of the said burner. Vaporized fuel then enters the main outlet passage Z and issues forth under great pressure from the nipple *d*. For starting the burner we

ignite methylated spirits in the priming cup Q, so as to heat the block X, pipes *a* and *b* and junction piece *c*. Upon ignition of the liquid fuel at its exit from nipple *d* the flame draws inwardly air from the openings S, thereby taking the form of a Bunsen burner. This flame passes through the nozzle T and impinges upon the rear concave face I of the soldering bolt or tip and the return flame is deflected back again by said disk U by means of which the said tool or tip is continuously kept self heated.

I claim:

1. In a self heating soldering tool, the combination with an oil reservoir, of a priming cup projected from the head thereof and a burner block of rectangular cross section so disposed in the cup that spaces are left at the sides and behind the block for the purpose of enabling the same to be heated by fuel placed in the cup.

2. A self-heating soldering tool comprising a priming cup, a rectangular burner block in said cup, said block having ducts therein, a supply tube connected with one of the ducts and extending into the reservoir, a pendulous tube upon the inner end of said tube, a reservoir, and a vaporizing loop connected to the ducts of the burner block.

3. A self-heating soldering tool comprising a rectangular burner block, a nipple in said block, a shield, having an end nozzle, surrounding the block, a bit having a rear concave end, and an annular disk surrounding the nozzle and presenting a concave surface to the said concave end of the bit.

4. A self-heating soldering tool comprising a priming cup, a rectangular burner block fitted in said cup, a burner nipple carried by said block, a vaporizing coil connected with the block, and a shield having a nozzle end said shield being removably attached to the cup.

5. A self heating soldering tool having a rectangular burner block fitted with vaporizer and burner supply ducts, a threaded cap in the supply orifice in the reservoir said cap having a duct, a screw down conical valve controlling the duct in the cap and a wire gauze strainer beneath said cap.

In witness whereof we have hereunto set our hands in presence of two witnesses.

WILLIAM GEORGE LANDELLS.
HENRY JAMES HUCKSON.

Witnesses:

ALBERT EDWARD BROWN SWANSON,
HAROLD SWANSON.