N. W. LUNDY.

BURNER FOR FIRE POTS.

APPLICATION FILED FEB. 13, 1912.

1,056,744.

Patented Mar. 18, 1913.

3 SHEETS—SHEET 1.

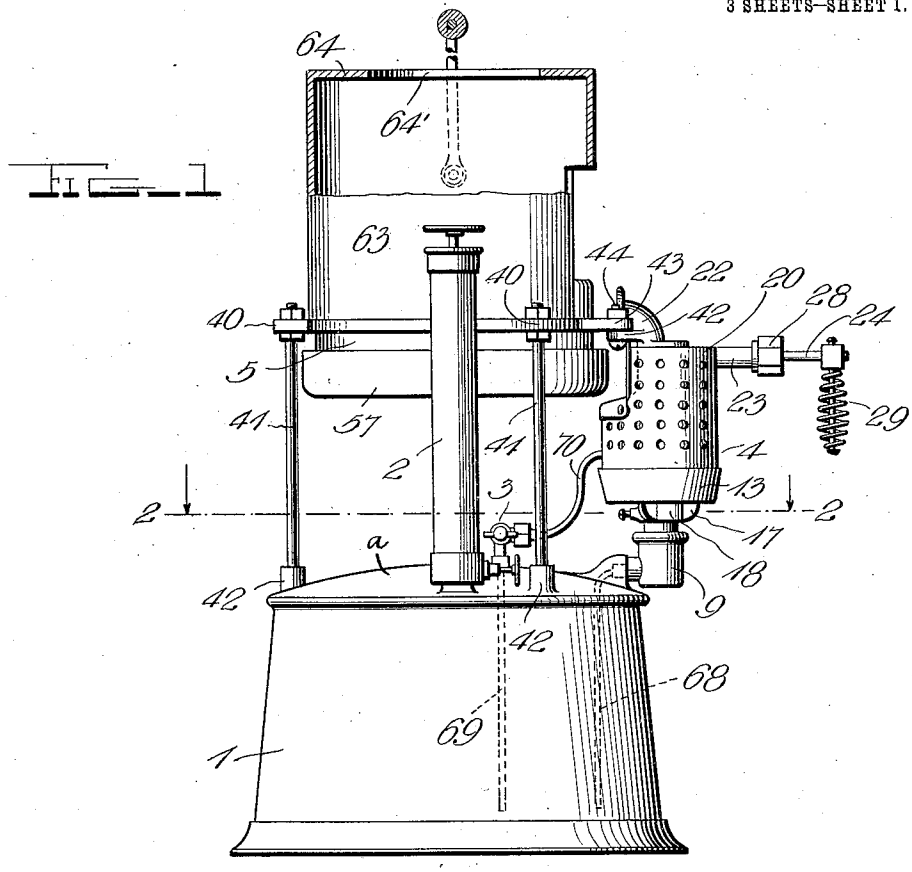

Fig. 1

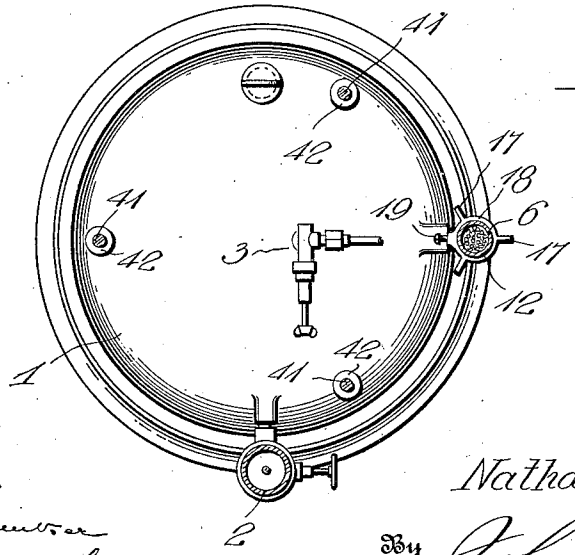

Fig. 2

Witnesses

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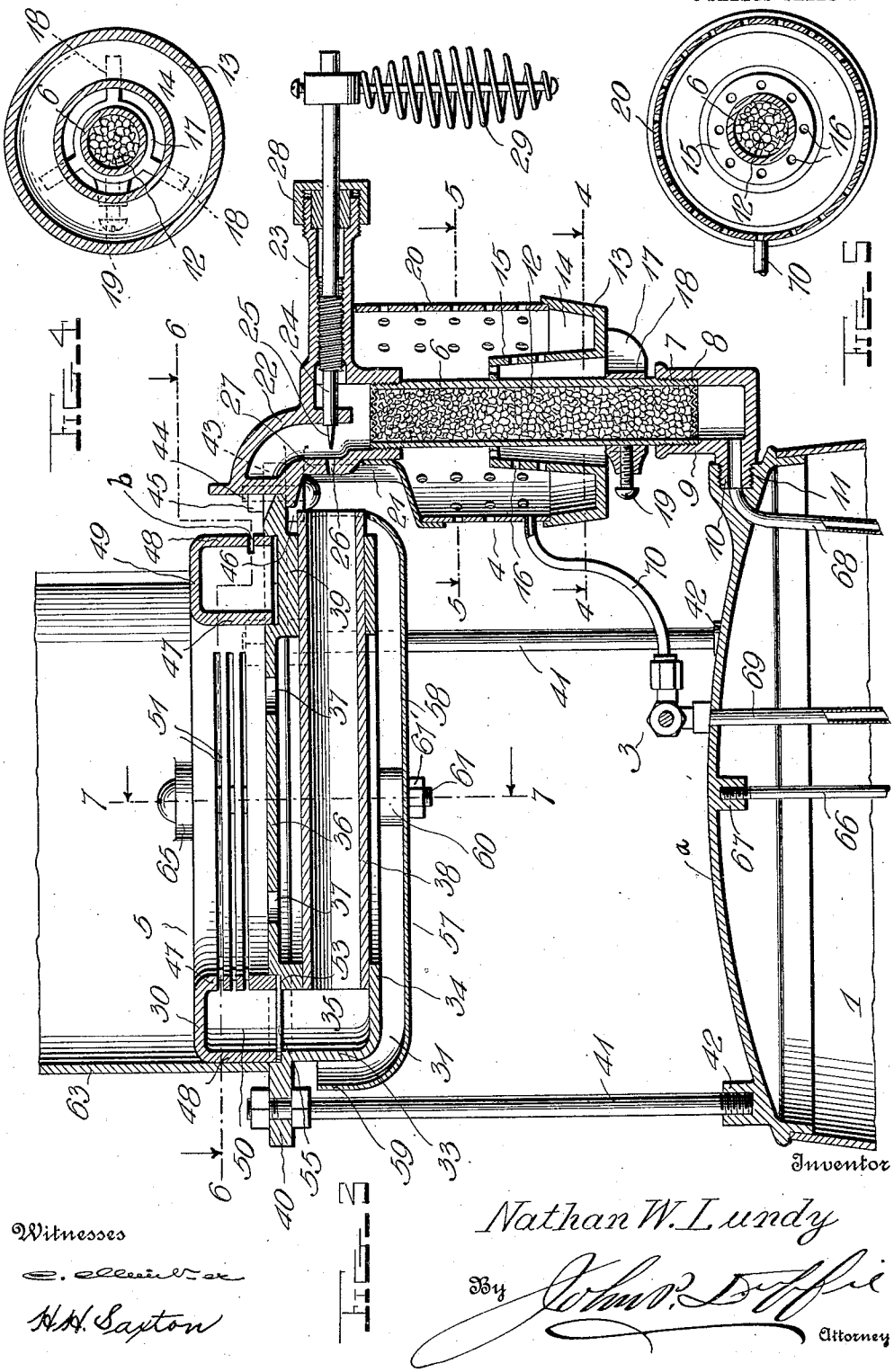

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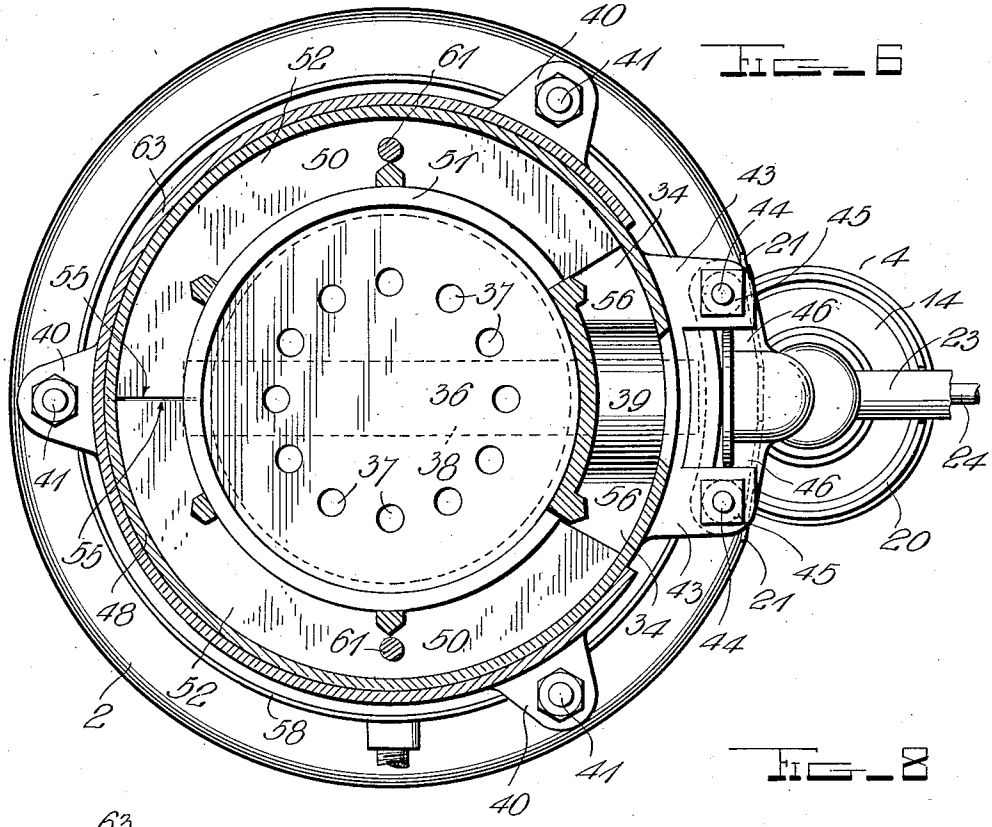


FIG. 6

FIG. 8

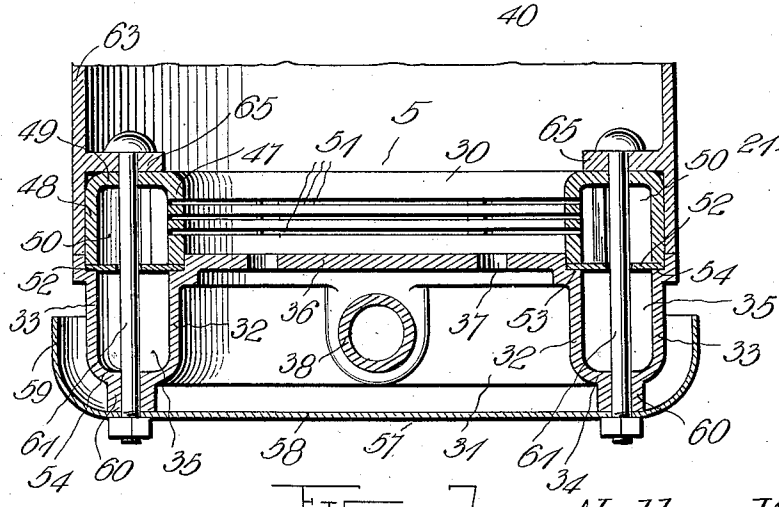
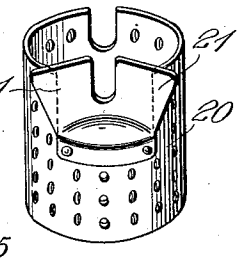


FIG. 7



Witnesses

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UNITED STATES PATENT OFFICE.

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BURNER FOR FIRE-POTS.

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Application filed February 13, 1912. Serial No. 677,403.

To all whom it may concern:

Be it known that I, NATHAN W. LUNDY, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Burners for Fire-Pots, of which the following is a specification.

This invention relates to new and useful improvements in fire pots, and the primary objects thereof are, first, to provide a device of this character capable of heating soldering irons and melting lead more quickly and with a less consumption of gasolene than any of the fire pots now in use. Second to provide an improved construction or form of generator which cannot clog and will always produce a blue flame. Third, to provide a burner in which the flame is forced from the outside to the center, in order that the heat will be at all times forced upon or concentrated on the melting pot or the soldering iron in the fire, thus insuring a very rapid heat with the minimum of fuel consumption.

The many other advantages afforded through the use of my improved burner will be understood from the following specification and accompanying drawings, in which:—

Figure 1 is a side elevation, partly in section, of a fire pot embodying my improvements. Fig. 2 is a horizontal section, taken on the plane indicated by the dotted line 2—2 of Fig. 1. Fig. 3 is a central longitudinal section of the fire pot, with the parts represented on an enlarged scale. Fig. 4 is a horizontal section, taken on line 4—4 of Fig. 3. Fig. 5 is a similar view, taken on line 5—5 of Fig. 3. Fig. 6 is a horizontal section, taken on the plane indicated by the dotted lines 6—6 of Fig. 3. Fig. 7 is a vertical transverse sectional view, taken on the plane indicated by the dotted lines 7—7 of Fig. 3 and Fig. 8 is a detail perspective view of the generator casing.

Referring to the drawings for a more particular description of the device, and which drawings are for illustrative purposes only and are therefore not drawn to scale, 1 indicates the gasolene tank, 2 the air pump suitably mounted on the top of the tank, 3 the priming valve, 4 the generator and 5 the burner.

The generator comprises a centrally disposed hollow cylindrical tube 6, the lower end of which is exteriorly threaded, as at 7, and screws in a corresponding socket, as 8, of the stand pipe 9, provided with a lateral exteriorly threaded extension 10 which screws in a screw threaded opening 11 in the top of the tank. The tube 6 is filled with suitable granular filtering or cleansing material 12 for removing any foreign matter from the gasolene before it reaches the burner.

The generator further comprises a hollow cylindrical drip cup 13 which surrounds the tube, said cup being provided with the annular trough 14 for the reception of a quantity of gasolene used to start or prime the generator and a central vertical cone shaped extension 15, the upper end of which is suitably perforated, as at 16 and surrounds and embraces the tube 6. The bottom of the drip cup is supported by the radial wings 17 of the collar 18, which surrounds the lower end of tube 6 and is held in removable position by the screw 19.

A hollow cylindrical perforated casing or shield 20, is arranged with its bottom edge resting on an annular shoulder formed at the upper edge of the outer wall of the trough of the drip cup. Said shield or casing extends above the upper end of the tube 6 and surrounds or incases the latter. The shield is provided at its upper end and inner side with a pair of horizontal outwardly inclined wings 21, the purpose of which will be hereinafter disclosed.

The generator further comprises the needle valve casing 22, provided with the outwardly extending horizontally disposed interiorly threaded portion or member 23, in which screws the needle valve 24. The inner end of the needle valve is provided with a straight tapered point 25 adapted to close or partially close a corresponding orifice 26 in the wall 27 of the valve casing. The outer end of the needle valve, which is preferably of cylindrical form, passes through a cap 28, closing the outer end of the threaded portion 23 of the valve casing and is provided with a handle 29 of any desired form.

The burner consists of the top and bottom sections 30 and 31, respectively. The bottom section 31 is made in a single casting and consists of the inner and outer cylindrical rims 32 and 33, respectively, connected by the horizontal bottom wall 34, forming an annular space 35 between the rims 32

and 33. The central space inclosed by the inner rim is closed at the top of the casting by the horizontal wall 36 provided with an annular series of perforations 37. A hollow cylindrical mixing tube 38 is arranged transversely of the casting with one end extending through the inner rim and communicating with the annular space 35 and its opposite or outer end extending through the outer rim at the opposite side of the casting, said outer end of the mixing tube being disposed in alinement with the orifice 26 of the needle valve casing, the purpose of which will be understood.

It will be observed that the bottom wall of the bottom section 31 of the burner is bent up on a curve, as at 39, over the outer end of the mixing tube, the purpose of which will be hereinafter disclosed. The bottom section of the burner is further provided at three or more points around its edge with the outwardly extending radial lugs 40 whereby said section and the burner as a whole may be detachably supported on the upper ends of the vertical supporting rods 41, the lower ends of which screw in interiorly threaded sockets 42 formed on the top of the gasolene tank.

A pair of horizontal outwardly projecting circumferentially spaced attaching lugs 43, are formed at the edge of the bottom section of the burner opposite the inner end of the needle valve casing to which are fastened, by means of the screws and nuts 44 and 45, or other equivalent means, the lateral horizontally disposed attaching ears 46 of the valve casing.

The top section, as 30, of the burner consists of the inner and outer rims 47 and 48, respectively, connected at their upper edges by the horizontal top wall 49, leaving a continuous uninterrupted annular space 50 between the inner and outer rims.

The inner rim of the top section of the burner is provided with three or more horizontally disposed vertically spaced slots 51 which extend nearly but not entirely around the circumference thereof.

The outer rim of wall 48 of the burner is provided with a horizontal arcuate slot *b* for projecting a heating flame against the valve casing.

A pair of arc shaped cover plates 52 rest on shoulders 53 and 54 formed at the upper edges of the inner and outer rims of the burner and cover the annular space formed by said rims at the top of bottom section. The cover plates are arranged with their ends 55 in engaged relation, the opposite ends thereof terminating at points adjacent the upwardly bent portion of the bottom wall of the bottom section, leaving the openings 56 at opposite sides of said upwardly bent portion, the purpose of which will presently appear. The top section is mounted on the cover plates and the bottom section with the unslotted portion of its inner rim directly over the upwardly bent portion of the bottom section above mentioned.

A bowl shaped air deflector 57 is disposed beneath the bottom section of the burner with its bottom 58 and rim 59 spaced approximately one inch from the bottom wall and outer rim thereof, the purpose of which will be set forth. Said deflector in held in the proper spaced relation by the spacing lugs 60 cast on the bottom wall of the bottom section at diametrically opposite points.

The burner sections, cover plates and air deflector are held in proper place by the bolts 61 extending through corresponding apertures in the former and the spacing lugs 60 in connection with the nuts 61′ screwing on the lower threaded ends of the bolts.

The fire pot is further provided with the hollow cylindrical cover 63, the purpose of which is apparent. The cover is provided in its top 64 with a central opening 64′ and its bottom edge rests on the upper edge of the bottom section of the burner and surrounds the top section.

The inner wall of the cover may be provided with the inwardly extending lugs 65 affording a means of connecting the cover with the burner. It is obvious, however, that any other suitable fastening means may be employed.

The top *a* of the tank is held securely in place by the vertical fastening rod 66, the upper end of which screws in a threaded socket 67 cast with the cover and the lower end of which may be connected with the bottom of the tank in any suitable manner.

The supply tube 68 extends from the stand pipe of the generator into the gasolene tank, terminating at a point near the bottom of the latter. The starting or priming valve is also provided with the vertical supply pipe 69 and the discharge tube 70, the outer end of which is received by an opening in the generator shield or casing at a point immediately above the trough of the drip cup.

In practice, the starting or priming valve 3 is opened to permit a quantity of gasolene to flow into the drip cup sufficient to start the operation of the device, when said valve is again closed, but may be opened again to supply more gasolene to the drip cup if required.

In operation, the gasolene flows through the supply tube 68 to the stand pipe 9 and through the latter and the filtering material in the tube 6 to the valve casing, and the vaporized gasolene passing through the orifice 26 of the valve casing into the mixing tube 38, mixes in the latter with the air. The air and gasolene mixture passes through the inner end of the mixing tube into the annular space 35 formed by the inner and outer rims of the lower burner section, and

circulates in said space until it reaches the openings or spaces 56 formed at opposite sides of the upwardly bent wall 39 of the bottom burner section, through which spaces it passes into the annular continuous space 50 of the top burner section. As heretofore stated, the top section is arranged with its unslotted portion directly over the upwardly bent portion 39 of the bottom wall of the bottom section and hence, the air and gas mixture is forced to circulate in the space 50, passing out through the annular slots 51 in the form of a flame which is used to heat soldering irons and for melting lead. A continuous supply of air is drawn through the space between the rim of the deflector 57 and outer edge of the bottom burner section, which after passing upwardly in the space inclosed by the inner rim of the latter passes through the perforations 37 in top wall 36 where it is properly distributed and caused to mix with the flame, thereby greatly intensifying the latter and concentrating the flame on the soldering iron.

While I have referred throughout the specification to "gasolene" as a fuel, it is obvious that naphtha, alcohol, or any other suitable fuel may be utilized.

From the foregoing description taken in connection with the drawings, it is thought that the construction and advantages of this invention will be understood without requiring a more extended explanation.

Various changes in the form, proportions and minor details of construction may be resorted to without departing from the principles or sacrificing any of the advantages of this invention as defined in the appended claims.

Having described my invention, what I claim as new is:—

1. In a fire pot of the class specified, a gasolene tank, a burner superposed above the tank and comprising top and bottom sections, the former consisting of inner and outer rims connected by a top wall, leaving an annular continuous space between said rims, the inner rim provided with a series of horizontally vertically spaced slots extending nearly but not entirely around the circumference thereof, and the bottom section consisting of inner and outer rims and a bottom wall connecting said rims, said bottom wall provided with an upwardly bent portion disposed beneath the unslotted portion of the top section, a pair of cover plates separating the top and bottom sections, adjacent ends of the plates terminating near opposite ends of the upwardly bent portion of the bottom wall of the bottom section, leaving vertical spaces forming passages between the top and bottom sections, a horizontal mixing tube arranged with its inner end communicating with the annular space formed by the rims of the bottom section and the outer end extending through and beyond said rims, and a generator mounted on the tank and provided with a horizontal needle valve opening disposed in alinement with the outer end of the mixing tube.

2. In a fire pot of the class specified, a gasolene tank, a vertically disposed generator and a burner superposed above the tank, said burner comprising detachably connected top and bottom sections, the top section comprising inner and outer rims connected by a horizontal top wall, leaving a continuous annular space between the rims, and the inner rim of the top section formed with a series of horizontal vertically spaced slots or flame openings, a horizontal wall provided with an annular series of perforations or air openings, forming a part of the bottom section and disposed directly beneath the space inclosed by the inner rim of the top section, and an air deflector disposed beneath and in spaced relation with the bottom section and having a rim surrounding the latter, whereby the air is conveyed to the center of the burner to mix with the flame after passing through the air openings above specified.

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

NATHAN W. LUNDY.

Witnesses:
J. B. STEPHENS,
L. E. WILKEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."