To all whom it may concern:

Be it known that I, PERRY BLODGET, a citizen of the United States, residing at Auburn, in the county of Dekalb and State of Indiana, have invented certain new and useful Improvements in Liquid-Fuel and Air Burners; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has reference to that class of burners or heat-generating devices in which liquid fuel is vaporized and mixed with the air, the uniting and ignition of the two elements resulting in the required combustion necessary to produce the flame and heat.

The invention consists in a liquid-fuel and air burner constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a perspective view of a burner constructed in accordance with my invention, the pivoted or swiveled burner-tubes being shown in their normal position in full lines and swung around in dotted lines when found necessary to remove the superheating-chamber, one of the sliding doors being shown open; Fig. 2, a perspective view of the burner, showing one of the burner-tubes and the superheating-chamber removed; Fig. 3, a transverse central section of Fig. 1 on an enlarged scale; Fig. 4, a sectional elevation, in detail, of a portion of the burner-tube and on an enlarged scale; Fig. 5, a detail view of one of the cans for supporting the free end of the burner-tube.

In the accompanying drawings, A represents a suitable base-plate of any desirable size and shape, and to this plate is detachably connected a suitable vaporizing-chamber B, which is supplied with oil or liquid fuel through a suitable pipe C extending to the source of supply.

The chamber B is provided with outwardly-extending lugs a at its sides and base for convenience of detachably connecting it to the base-plate A through the medium of bolts b and nuts c, or any other suitable and well-known means may be employed, so long as it will admit of the chamber being removable from the base-plate when desired, this being important for repairs of the burner or for cleaning, as found necessary, the base-plate and the chamber being entirely distinct and capable of separation, the supply-pipe C being first detached from the chamber to admit of the removal thereof.

Suitable coils D are connected to the sides of the chamber B and communicate with the interior thereof, the ends of the coils extending upward and terminating in split screw-necks d, as shown in Fig. 2 of the drawings. Connected to these screw-necks are elbows e, and to these elbows are connected the burner-tubes E, having caps f at their outer ends to close the same. Unlike the burner-tubes heretofore employed, said tubes connect with the coils by a swivel-joint, and this joint in the present instance consists in the screw-neck d and the screw-threaded elbow e, as being one of the most simple means of swiveling the burner-tubes to the coils, although any suitable means may be employed so long as a swivel or pivoted connection is made between the coil and burner-tube, so that the burner-tubes can be brought around in the position shown in dotted lines in Fig. 1 of the drawings.

It will be seen that the screw-necks d of the coils are on different horizontal planes, the neck of one coil extending much higher than the neck of the opposite coil, so that the burner-tubes E will also be on different horizontal planes, which will enable the tubes to be swung around parallel with each other and also one tube directly above the other, as shown in dotted lines of Fig. 1 of the drawings. This position of the burner-tubes E will enable the superheating-chamber F to be lifted off and removed after being detached from the base-plate A.

To provide additional means for the removal of the superheating-chamber F, said chamber upon its top has an elongated opening g extending lengthwise thereof, and when the burner is in use said opening is closed by two transversely-sliding doors G H of any desirable construction found best adapted to the purpose. In the present instance these doors are provided with downwardly-extending flanges h, which abut against the sides.
of the superheating-chamber $F$ when the doors are closed, thereby providing a stop for the doors to prevent the doors from sliding too far in. If preferred, a suitable knob $i$ upon the doors may be provided to facilitate sliding them in or out to close or open said doors; but this is left discretionary and may be omitted, if desired; each door sliding in a guide-groove $j$ upon each side thereof, as shown in Figs. 1 and 3 of the drawings.

The burner-tubes $E$ are held in their normal position by means of upwardly-extending cam-supports $I$, as shown in Fig. 1 of the drawings and in detail in Fig. 5 of the drawings, one cam-support being at each end of the superheating-chamber $F$, which rigidly and firmly hold the burner-tubes in position. The cam-faces of the cam-supports $I$ incline opposite to each other, for the reason that the burner-tubes $E$ move in opposite directions, as indicated by the arrows in Fig. 1 of the drawings. The top of the superheating-chamber $F$ may be perforated, as shown at $k$, for the circulation of air, and near its ends $l$ openings $l$, through which air passes to the burner-tube $E$.

Detachably connected to the under side of the burner-tubes $E$ are air-supply chambers $K$, which supply air to the burner-tubes to mix with the liquid fuel therein, said chambers having screw-nipples $m$ to engage screw-holes in the tubes, and the chambers are concave upon their under side, as shown at $n$ in Fig. 4 of the drawings, so as to suck the air through the perforation $o$ into the chamber, the air-supply chambers being directly over the openings $l$ to receive the air therefrom and deliver it to the burner-tubes. The under side of the air-supply chamber $K$, being concave adds greatly to the suction action to draw the air into the chamber, the addition of the chamber to the usual screw-nipple or perforation used to supply air to the burner-tube rendering a more uniform supply of air. These air-supply chambers $K$ may be of any form and construction, as I do not wish to confine my invention to the construction herein shown and described, as any suitable chamber may be substituted that will conduct the air to the burner-tubes.

The burner-tubes $E$ may have one or more flaring perforations $p$, so that the flame will spread out and render it more effective in producing the heat required.

The screw-nuts $d$ are split, as shown in Fig. 2 of the drawings, so that when the elbows are first engaged therewith the neck will be compressed and its natural tendency to expand will form a tight joint and still provide a swivel connection between the burner-tube and coil.

The base-plate $A$ is cast or otherwise provided with an upwardly-extended brace $q$, one upon each side of the plate, for the vaporizing-chamber $B$ to abut against to assist in holding the chamber in position. The upwardly-extending flanges $q$ terminate in outwardly and horizontally extending lugs $r$ to receive similar lugs $s$ upon the superheating-chamber $F$, said lugs being fastened together by bolts $t$ and nuts $u$, or any other suitable and well-known means may be employed for securing together the vaporizing-chamber and the superheating-chamber.

I do not wish to be understood as limiting my invention to the precise construction as shown in the drawings and herein described, as many changes or modification in the several details of construction may be resorted to and still come within the scope of the invention.

As an example of the many changes that could be made, it is evident that any form of vaporizing-chamber may be used, any means employed for connecting the coils thereto, also any swivel pivoted connection made between the coils and the burner-tubes that will admit of the burner-tubes being swung around to the position hereinbefore described, such features of the invention being open to various modifications without departing from the principle of the invention.

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

1. A liquid-fuel and air burner, comprising a base-plate, a vaporizing-chamber detachably connected thereto, means for connecting the chamber with the source of supply, coils communicating with the vaporizing-chamber, a superheating-chamber connecting with the base-plate, and burner-tubes connecting with the coils by a swivel-joint, said tubes being on different horizontal planes so that when swung around parallel with each other one of said tubes will be above the other on the same vertical plane to enable the superheating-chamber to be removed, substantially as and for the purpose set forth.

2. In a liquid-fuel and air burner, a base-plate, a vaporizing-chamber communicating with the source of supply, coils communicating with said chamber, burner-tubes pivotally connected to the coils, a superheating-chamber detachably connected to the base-plate and having an elongated opening, and slide doors for closing or opening said elongated openings, substantially as and for the purpose described.

3. In a liquid-fuel and air burner, a base-plate, a vaporizing-chamber communicating with the source of supply, coils communicating with said chamber, pivoted burner-tubes connecting with the coils, a detachable superheating-chamber having supporting-cams upon its ends to sustain the burner-tubes in their normal position, substantially as and for the purpose set forth.

4. In a liquid-fuel and air burner, a base-plate, a vaporizing-chamber connected thereto and communicating with the source of supply, coils communicating with the vaporizing-chamber, pivoted burner-tubes connecting with the coils, and a superheating-chamber.
detachably connected to the base-plate and having supporting-cams and a longitudinal opening and slidable doors for closing the same, substantially as and for the purpose described.

5. In a liquid-fuel and air burner, a base-plate, a vaporizing-chamber communicating with the source of supply, coils communicating with said chamber, pivoted burner-tubes connecting with the coils and provided with perforations for the flame and having upon its under side an air-supplying chamber with screw-threaded nipple to engage the tube and a concavity upon its under side with perforations for the air to pass into the chamber, and a superheating-chamber having openings through its upper side, cam-supporting devices at its ends, and slidable doors to close the opening through which the ends of the coils extend, substantially as and for the purpose specified.

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

PERRY BLODGET.

Witnesses:

EDWARD M. BISHOP,

JOHN W. BAXTER.