G. H. PERKINS.

LIQUID FUEL-BURNER.

No. 169,372. Patented Nov. 2, 1875.

FIG. 1.

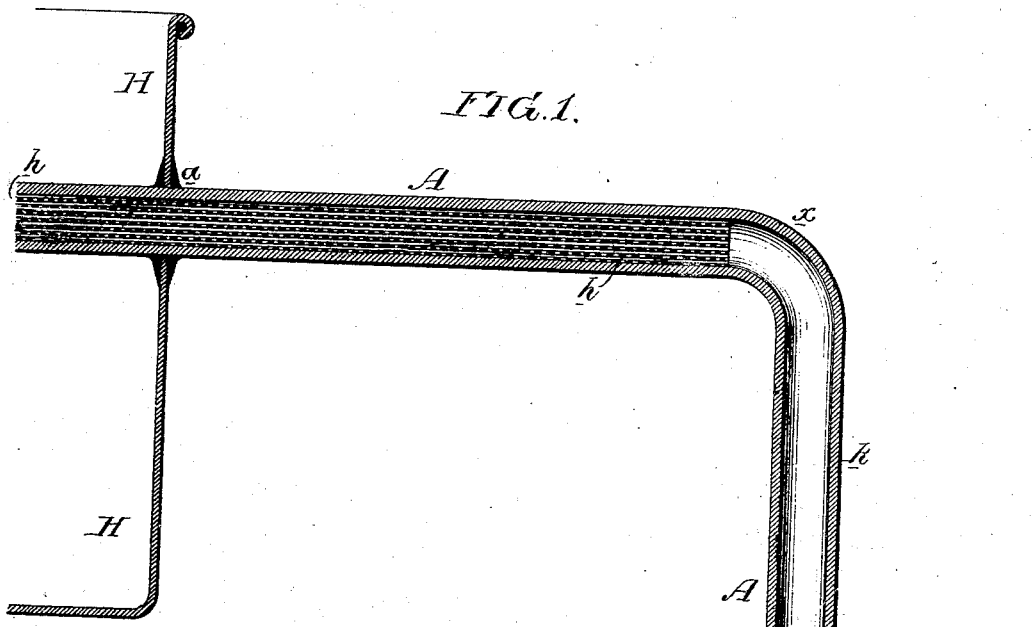
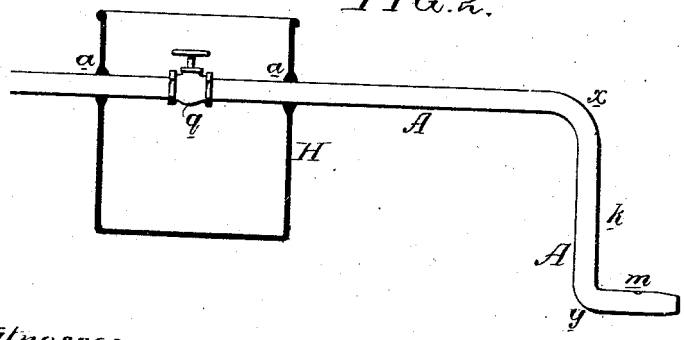


FIG. 2.



Witnesses,

Harry Smith

Hubert Howson

George H. Perkins

by his Attys.

Houston and Son.

UNITED STATES PATENT OFFICE.

GEORGE H. PERKINS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, JOSEPH LE COMTE, AND ATLANTIC REFINING COMPANY.

IMPROVEMENT IN LIQUID-FUEL BURNERS.

Specification forming part of Letters Patent No. **169,372**, dated November 2, 1875; application filed July 27, 1874.

CASE Q.

To all whom it may concern:

Be it known that I, GEORGE H. PERKINS, of Philadelphia, Pennsylvania, have invented an Improvement in Liquid-Fuel Burners, and in appliances therefor, of which the following is a specification:

The object of my invention is to apply benzine or light spirits of petroleum as a safe and economical fuel for heating, soldering, and other furnaces; and I attain this object, first, by the use of a burner consisting of a single jointless tube, A, bent abruptly at two points, plugged at the end, and having an outlet-aperture adjacent to the said plugged end; and, second, by combining the burner supply-pipe and its regulating-cock *q* with a vessel, H, through which the said pipe extends, and to which it is soldered at opposite sides of the cock, all as fully described hereafter, and as illustrated by the enlarged sectional view, Fig. 1, and exterior view, Fig. 2, of the accompanying drawing.

The jointless tube A, of which the burner is composed—preferably a gas-pipe of small diameter—is bent abruptly at *x*, whence it is continued vertically downward, and is again bent abruptly at *y*, from which point the pipe extends horizontally outward to a short distance, its extreme end being plugged and welded, and an orifice, *m*, being made in the upper side of the pipe at a point adjacent to the said plugged end, through which orifice the ignited vapor of benzine escapes in the condition of a flame of intense heat. The reservoir from which the burner is supplied is elevated about five feet above the orifice *m*, and the flame from the burner is prevented from gaining access to the said reservoir by wire-gauze *h*, rolled up to a suitable form and packed within the pipe adjacent to the upper bend *x*, as shown in the drawing. The object of bending the pipe abruptly at the two points *x* and *y* in the manner shown and described is to subject the liquid in the vertical portion K of the said pipe to the heat of the flame, so that it may be vaporized before escaping, and this without preventing access to the orifice *m*, which is apt to become clogged, and has to be frequently reamed or picked out with a sharp-pointed instrument. It is essential to the production of a clear and steady flame that the orifice *m* shall be as close as possible to the plugged end of the pipe.

As the jointless pipe itself constitutes the burner, it will be evident that the latter will resist the effects of intense heat much better than ordinary burners of sheet metal, and that it will be especially available, therefore, for the burning of liquid fuel in the furnaces of steam-boilers, soldering-iron heaters, &c.

The flow of benzine to the burner is regulated by a cock, *q*, on the latter, or more properly on the supply-pipe of the said burner. However carefully these regulating-cocks may be made they are apt to leak, owing to the penetrating and subtle character of the fluid, which will either drop directly from the cock or else flow along the supply-pipe and burners, and in case of its accidental ignition endanger the building in which the apparatus is contained. I entirely avoid this danger by arranging the cock within a vessel, H, through which the supply-pipe passes and to which it is soldered at the points *a a*, at opposite sides of the cock, the said vessel not only catching the drippings, but effectually preventing the fluid from spreading along the pipe. The said vessel may, if desired, be provided with a lid.

It is common in vapor-burners to attach to the pipes communicating with reservoirs metallic projections for the flames to play upon, and thus vaporize the fluid. This I do not claim, nor do I claim, broadly, vaporizing the fluid by heat derived from the burner; but—

I claim—

1. The within-described burner, consisting of a jointless tube, A, plugged and welded at the end, having an outlet-aperture, *m*, near said plugged end, and bent at two points, *x y*, so that the flame at the aperture will act on the bent portion of said endless tube, all as set forth.

2. The combination of the burner supply-pipe, its regulating-cock *q*, and the vessel H, through which the said pipe extends, and to which it is soldered at opposite sides of the cock, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE H. PERKINS.

Witnesses:

WM. A. STEEL,

HARRY SMITH.