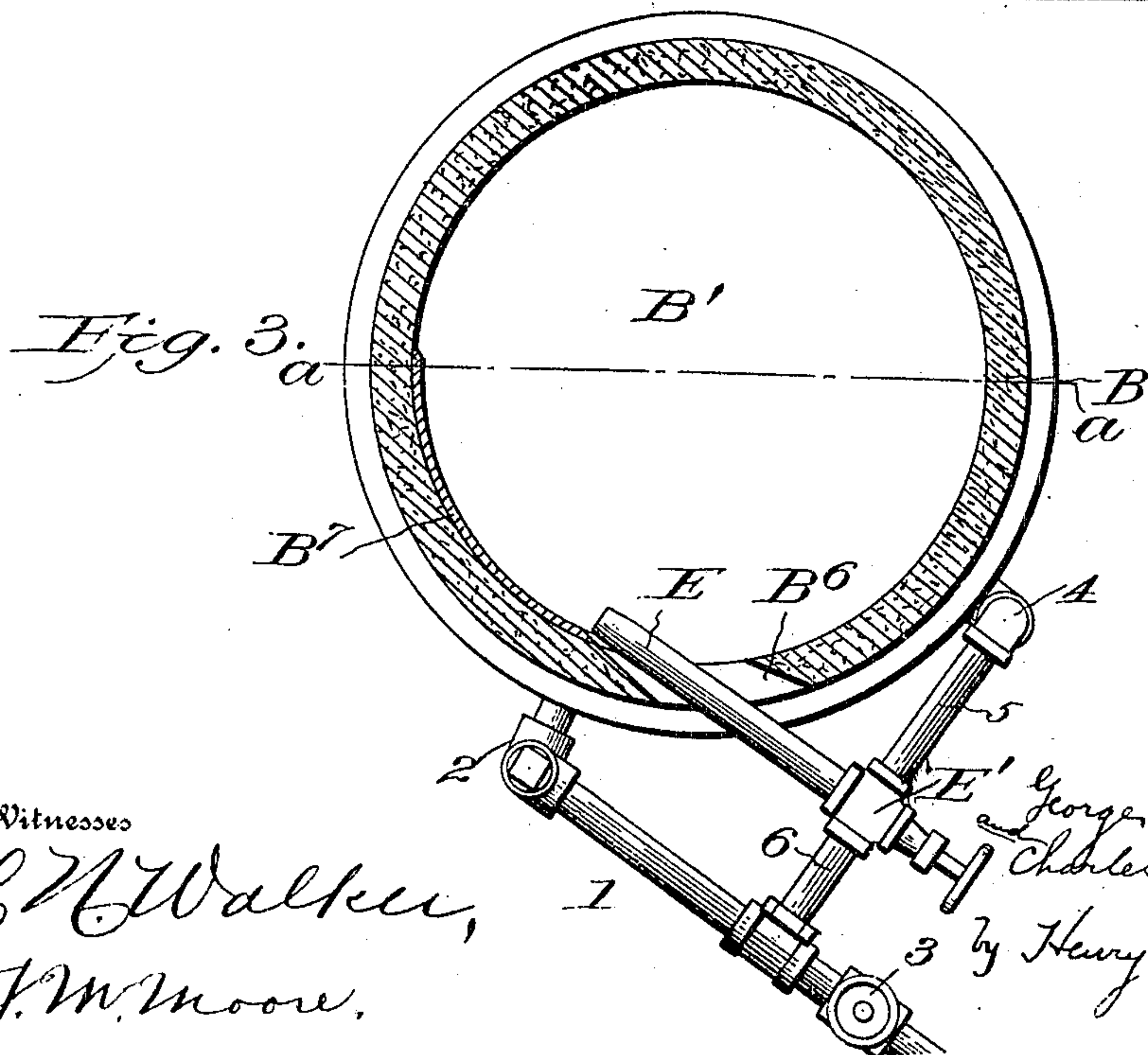
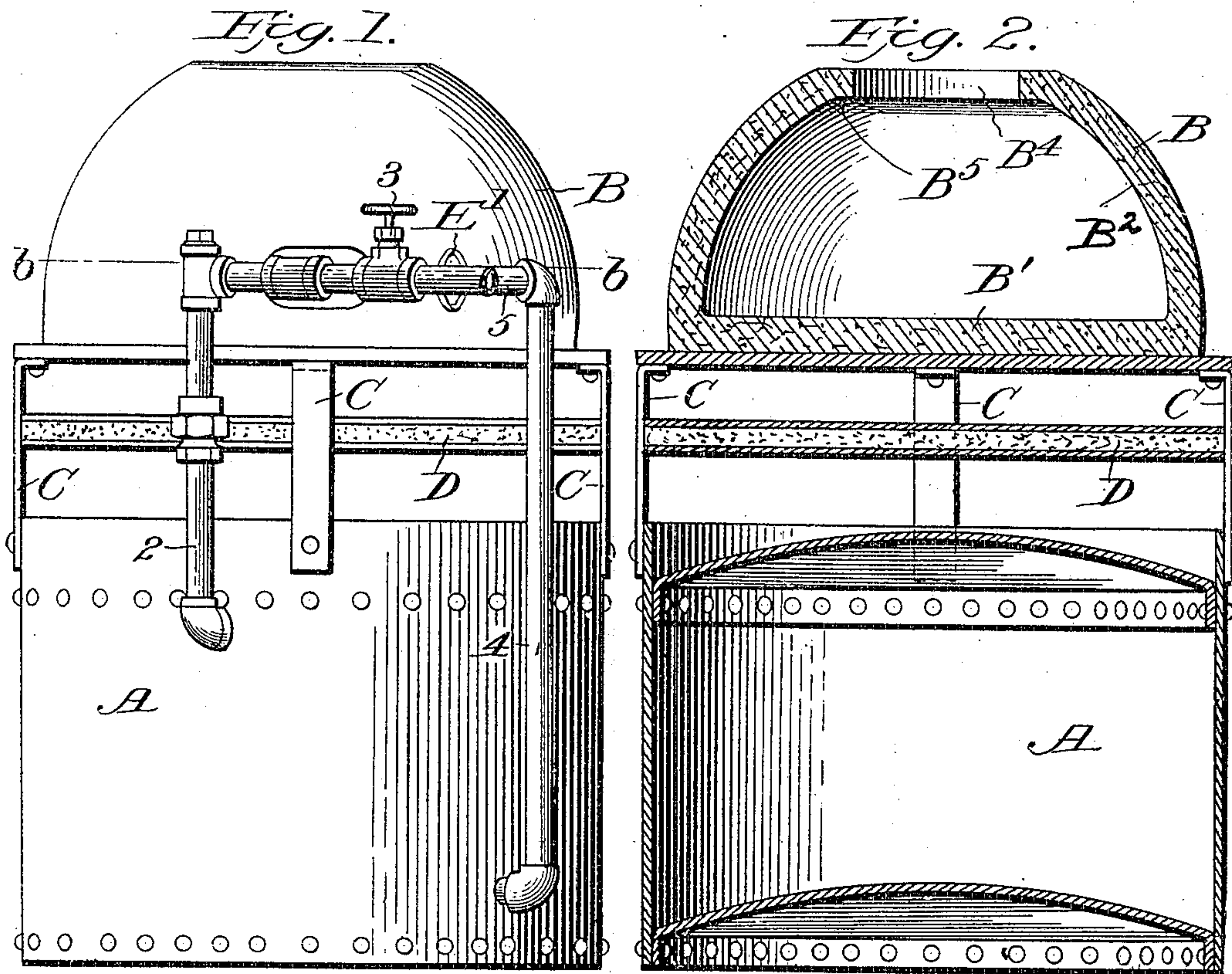


No. 819,906.

PATENTED MAY 8, 1906.

G. W. MEYER & C. G. CHEVALIER.
PORTABLE LIQUID FUEL FURNACE.

APPLICATION FILED FEB. 18, 1904.



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POINT, MARYLAND.

PORTABLE LIQUID-FUEL FURNACE.

No. 819,906.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed February 18, 1904. Serial No. 194,133.

To all whom it may concern:

Be it known that we, GEORGE W. MEYER and CHARLES G. CHEVALIER, citizens of the United States, residing at Sparrows Point, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Portable Liquid-Fuel Furnaces, of which the following is a specification.

Our invention relates to portable furnaces in which a liquid fuel is employed, and is especially adapted for heating rivets and the like in steel construction.

The object of the invention is to provide a furnace employing liquid fuel wherein the escape of the heated gases to the atmosphere will be reduced to a minimum, thereby obtaining great economy in the consumption of fuel and a highly-efficient utilization of the heat produced and at the same time providing a construction wherein the articles being heated are in plain sight of the operator and readily reached by him for distribution to various gangs of workmen.

A further object of the invention is to produce a furnace of the character mentioned which will be extremely light in weight, cheap of construction, and easy of operation.

With these and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described, and pointed out in the claims.

In describing the invention in detail reference will be had to the accompanying drawings, wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a view of our invention in elevation; Fig. 2, a vertical section on the line *a a* of Fig. 3, and Fig. 3 a horizontal section on the line *b b* of Fig. 1.

Referring to the drawings, A indicates a tank in which the liquid fuel is stored. The tank A supports the furnace-body B in vertical sequence therewith by means of the uprights C, which are secured to the tank and furnace-body at their terminals. Interposed between the top of the tank A and the bottom of the furnace-body B is a horizontal plate D, supported by the uprights C. Said plate is formed of two pieces of sheet-iron carrying therebetween a layer of asbestos. The peculiar construction of the plate D ren-

ders it especially efficient in shielding the tank A and its contents from the influence of the heat arising in the furnace-body during use. The interior chamber of the furnace-body B has a circular base B' and a wall B², formed of a surface of revolution constantly narrowing as it extends upwardly and terminating at the top of the chamber a short distance from the mouth B⁴ in the horizontal surface B⁵.

B⁶ indicates an opening through the side wall of the furnace, entering horizontally at or slightly above the level of the base B' tangentially of the wall of the furnace-chamber.

E is an injector-burner for hydrocarbon fuel, the nozzle of which is placed so as to enter the opening B⁶ and lie tangentially of the wall of the furnace-chamber, said wall being provided with a suitable lining B⁷ adjacent to said nozzle and extending a short distance forward of same, whereby the wear on the wall occasioned by the force with which the burning gases are ejected from the nozzle is relieved.

Air-pressure is conveyed to tank A from a suitable source by the horizontal pipe 1 and the vertical pipe 2, said air-pressure supply being controlled by the valve 3. Fuel is conveyed from the tank A to the burner E by means of the vertical pipe 4 and the horizontal pipe 5, while air is conveyed to said burner by the horizontal pipe 6, which connects with the air-pressure-supply pipe 1. The valve E' serves to control both the supply of air and fuel to the burner E.

The operation of our improved liquid-fuel furnace will be apparent. Gases injected through the burner E ignite and are caused by the wall of the furnace-chamber to partake of a rotary motion. The tendency of these gases to escape through the opening in the furnace-chamber is strongly resisted by the rotary motion imparted to the gases and by the constantly-narrowing space between the wall of the furnace-chamber and the terminating horizontal surface B⁵ of said wall, thus causing said gases to back up in the furnace-chamber and producing a great intensity of heat and a slow escape of the gases to the atmosphere.

We claim—

1. In a portable forging apparatus, a furnace-body provided with an opening at its top leading from its chamber to the atmos-

phere and having the base of its chamber
formed of an uninterrupted horizontal sur-
face and the wall of its chamber of an unin-
interrupted surface of revolution continually
5 narrowing upwardly and terminating at its
top in a horizontal surface, a flame-passage
penetrating the furnace-body tangentially of
the wall of its chamber, a burner adapted to
project a flame through the flame-passage
10 and means for conveying fuel to the burner.
2. In a portable forging apparatus, a fur-
nace-body provided with an opening at its
top leading from its chamber to the atmos-
phere and having the base of its chamber
15 formed of an uninterrupted horizontal sur-

face and the wall of its chamber of an unin-
interrupted surface of revolution continually
narrowing upwardly, a flame-passage pene-
trating the furnace-body tangentially of the
wall of its chamber, a burner adapted to pro-
ject a flame through the flame-passage and
means for conveying fuel to the burner.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

GEORGE W. MEYER.

CHARLES G. CHEVALIER.

Witnesses:

HARRY L. ROBINSON,
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