

(No Model.)

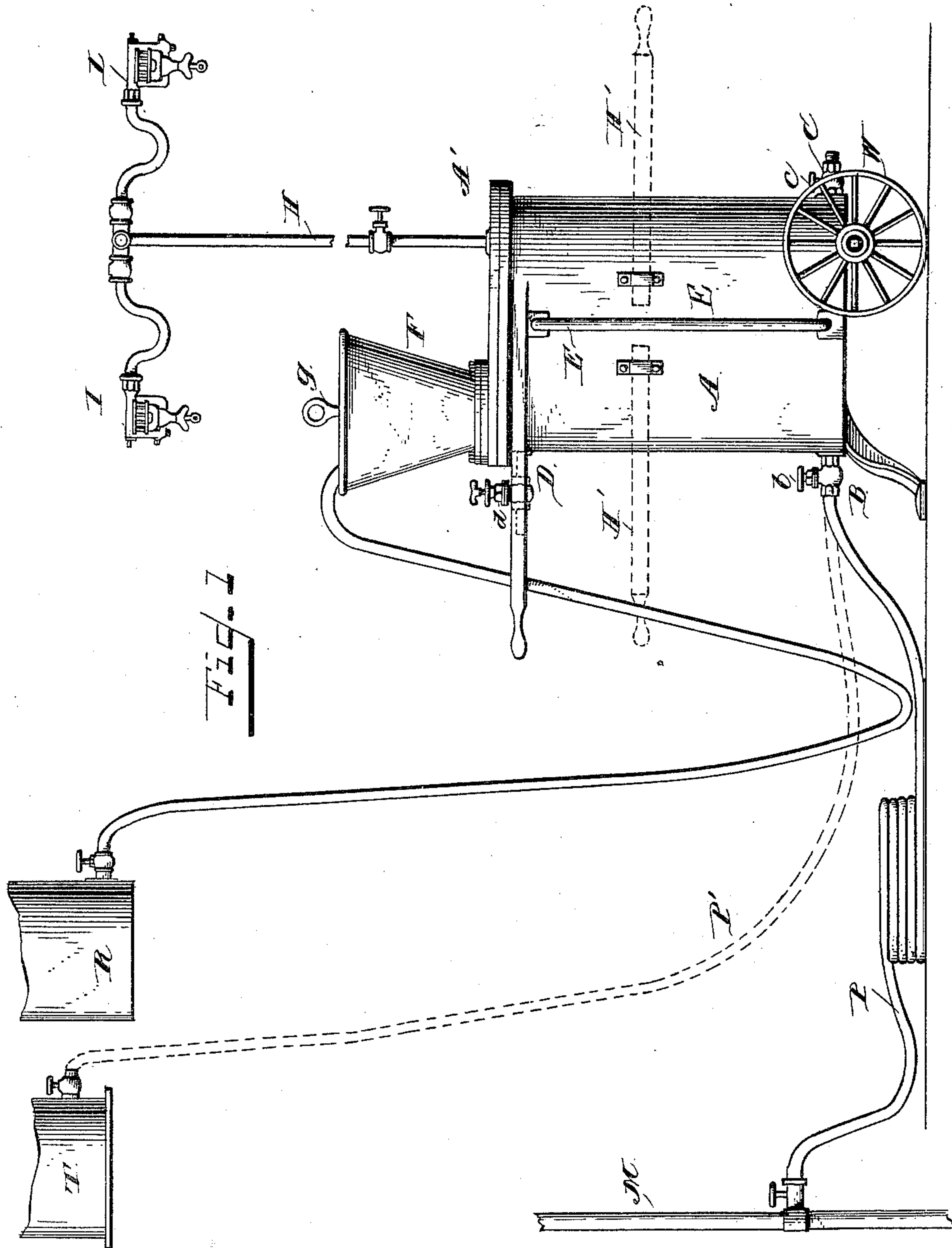
2 Sheets—Sheet 1.

R. WALLWORK.

APPARATUS FOR SUPPLYING COMBUSTIBLE LIQUIDS TO BURNERS.

No. 422,101.

Patented Feb. 25, 1890.



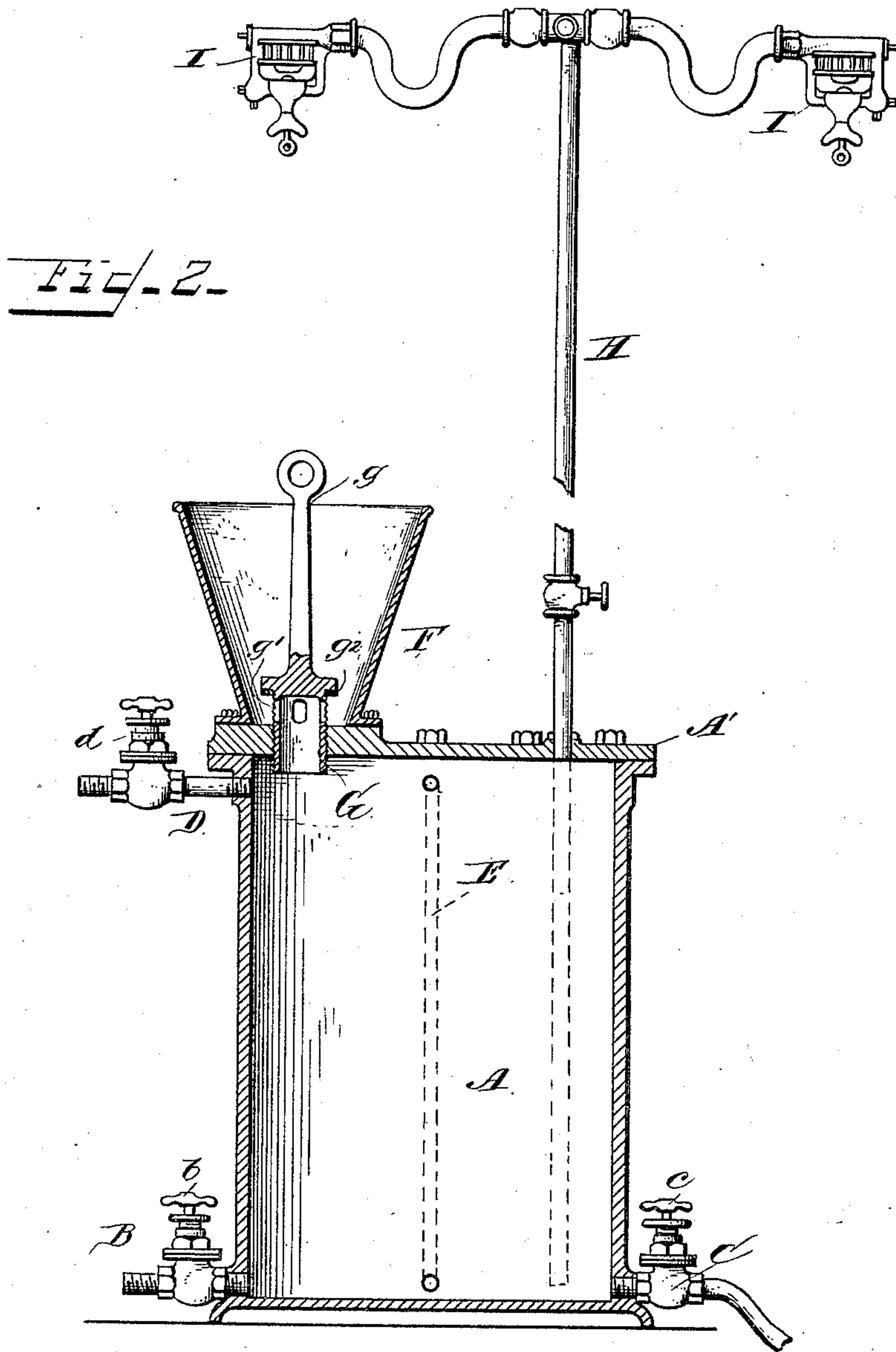
Witnesses:  
J. Thomson Cross,  
H. W. Weaver

Inventor:  
Roughsedge Wallwork,  
per Henry O. M.  
Attorney.

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# UNITED STATES PATENT OFFICE.

ROUGHSEGE WALLWORK, OF MANCHESTER, COUNTY OF LANCASTER,  
ENGLAND.

## APPARATUS FOR SUPPLYING COMBUSTIBLE LIQUIDS TO BURNERS.

SPECIFICATION forming part of Letters Patent No. 422,101, dated February 25, 1890.

Application filed June 24, 1889. Serial No. 315,412. (No model.) Patented in England November 22, 1884, No. 15,382.

*To all whom it may concern:*

Be it known that I, ROUGHSEGE WALLWORK, a subject of Her Majesty the Queen of Great Britain, residing at Manchester, in the county of Lancaster, Great Britain, temporarily residing in the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Supplying Combustible Liquids to Burners, (for which I have obtained Letters Patent in England, dated November 22, 1884, No. 15,382;) and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is an elevation of my improved portable apparatus for supplying liquid illuminating agents to burners. Fig. 2 is a section thereof, the apparatus being stationary.

The invention relates to apparatus for supplying illuminating-liquids to burners, and is more especially designed for use with what is termed high-power burners, or regenerative burners, though it may be equally well used with burners of different construction, and to means for forcing the illuminating-liquid to the burner or burners.

The object of the invention is to provide a simple, compact, and convenient illuminating apparatus or lamp, either stationary or portable, the reservoir or fount of which will be of such capacity as to supply one or more high-power burners with an illuminating agent for a considerable length of time, and to so construct the apparatus as that the illuminating agent will be supplied to the burner or burners under the required pressure in an economical manner.

The invention consists, essentially, in the construction of the apparatus and in the combination of the parts thereof substantially as hereinafter described, and as set forth in the claims.

In the drawings, A indicates the reservoir, which may be stationary or portable, and in the latter case it may be mounted on wheels W, as shown in Fig. 1, or provided with han-

dles H' for carrying the same from point to point, as shown in dotted lines in said Fig. 1.

The reservoir A is closed at top by a cover A', secured thereto fluid-tight in any desired manner, and in said cover or top A' is formed a screw-threaded opening, into which screws a tubular feed-plug G, closed at top and provided with a manipulating-handle *g*. The head of the plug is of greater diameter than its tubular portion, and the flange thus formed is provided with a rubber gasket *g*<sup>2</sup>, so that when the plug is screwed down on the cover of the reservoir a tight joint will be formed around the opening therein and around the plug.

As shown, the plug G is provided immediately below the head with ports *g*', and is surrounded by a feed-hopper or funnel F, bolted to the reservoir-cover A'.

As shown in Fig. 2, the plug G is in its position to allow an illuminating agent poured into or fed to funnel F from an elevated reservoir R to flow through ports *g*' into the reservoir, and when the latter is full the plug is screwed down to close the ports, as will be readily understood.

The reservoir A is provided near its bottom, and preferably on diametrically-opposite sides, with two branches B and C, having stop-cocks or valves *b* and *c*, respectively, and near its upper end with a branch D, provided also with a stop-cock or valve *d*, and E is a level-indicator of usual construction.

This apparatus may be used to distribute liquid illuminating agents of varying specific gravity, and such agents may be forced to the burners by means of a fluid under pressure—as, for instance, a non-combustible gas, such as air, or a non-combustible liquid of greater or less specific gravity than that of the illuminating agent, and that will not combine with said illuminating agent.

Although I do not desire to limit myself to the agent employed for forcing the illuminant to the burner or burners, I would state that I prefer to use a non-combustible liquid that will not combine with the said agent, and the cheapest and most available of such is water, which may be supplied to the reservoir by connecting the latter to any suitable source of supply that will produce the necessary



pressure. This may be a tank T at a proper elevation, or a connection with a service-main M of a town or city water-supply where such is available.

5 The use of gas under pressure requires generating or compressing devices and storage-tanks, and these are not only expensive and require care and attention, but are fraught with more or less danger, the gas becoming  
10 gradually saturated with the vapors of the illuminating agent and form explosive gases that are always dangerous, and for these reasons I prefer to employ water. When, however, means are already at hand to supply a  
15 gas to the reservoir A, then the branch D may be connected therewith and the illuminating agent supplied, as above described, or forced into the reservoir through branch B or C either by pump or from an elevated  
20 tank, in which case the feed-plug may be used as a vent for the escape of the gas contained in the reservoir, the stop-cock *d* having of course been closed before opening the stop-cock *b* or *c* to admit the liquid illuminating  
25 agent. In this case the burner-pipe will extend to near the bottom of the reservoir, as shown in dotted lines in Fig. 2.

When a liquid illuminating agent—as, for instance, a hydrocarbon oil—of less specific  
30 gravity than water is employed and said agent forced to the burner or burners by means of water, then the branch D is employed as a vent to allow the air in reservoir A to escape when the hydrocarbon is fed thereto through  
35 feed-plug G. The branch B is connected with the water-supply either by rigid or flexible pipe P or P', as shown. The branch C serves as waste to draw off the water before again admitting the hydrocarbon to the reservoir  
40 A. When, on the contrary, an illuminating agent of greater specific gravity than water—as, for instance, a heavy hydrocarbon oil, such as certain so-called “tar-oils”—is employed, then the feed-plug is or may again  
45 be used as a vent and the oil supplied through branch B or C and the water through branch D. In this case the burner-pipe H also extends to near the bottom of the reservoir, as shown in dotted lines in Fig. 2. In all cases  
50 the level of the contents of the reservoir will be indicated by the level-indicator E, whether the water is above or below the oil.

When the apparatus is used for outdoor purposes, and it becomes necessary or desira-

ble to shift its position from time to time—as, 55 for instance, in night-work on streets or buildings—the connections with the water-supply are flexible and may then be of any desired length, so that the apparatus may be carried or wheeled some distance from its source of 60 water-supply. In this case one or more burners I may be carried by the burner-pipe H and form a part of the apparatus, as shown in Fig. 1.

I claim—

1. The herein-described illuminating apparatus, comprising a portable lamp, a stationary conduit for a fluid under pressure, and a flexible connection between the oil-fount of the lamp and the stationary conduit, substantially as and for the purposes specified. 65 70

2. The herein-described illuminating apparatus, comprising a lamp mounted on wheels, a stationary conduit for a fluid under pressure, and a flexible connection between the 75 oil-fount of the lamp and the stationary conduit, substantially as and for the purposes specified.

3. The herein-described illuminating apparatus comprising a portable reservoir for the 80 liquid illuminating agent, said reservoir being mounted on wheels, a pipe connected with the reservoir and carrying one or more burners, a conduit for a fluid under pressure, a storage-tank for the liquid illuminating agent, 85 and flexible connections between said conduit and storage-tank and the wheeled reservoir, as described, for the purposes specified.

4. The reservoir A, provided with the valved branches B C D, and the feed-plug G, constructed as described, in combination with the burner-pipe H, substantially as and for the purposes specified. 90

5. In a system of open-air illumination with liquid illuminants, the combination, with a 95 portable or movable illuminant-reservoir, the illuminant-distributing pipe or pipes, and the burner or burners of a conduit, of a system of water-distribution and a flexible connection between said conduit and the illuminant- 100 reservoir, substantially as and for the purposes specified.

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

ROUGHSEGE WALLWORK.

Witnesses:

GEO. H. JACOB,  
MORRIS W. BURCHARD.