

No. 632,563.

Patented Sept. 5, 1899.

A. S. GREENWOOD.
RECEPTACLE FOR COMBUSTIBLE LIQUIDS.

(Application filed Jan. 23, 1899.)

(No Model.)

Fig. 1

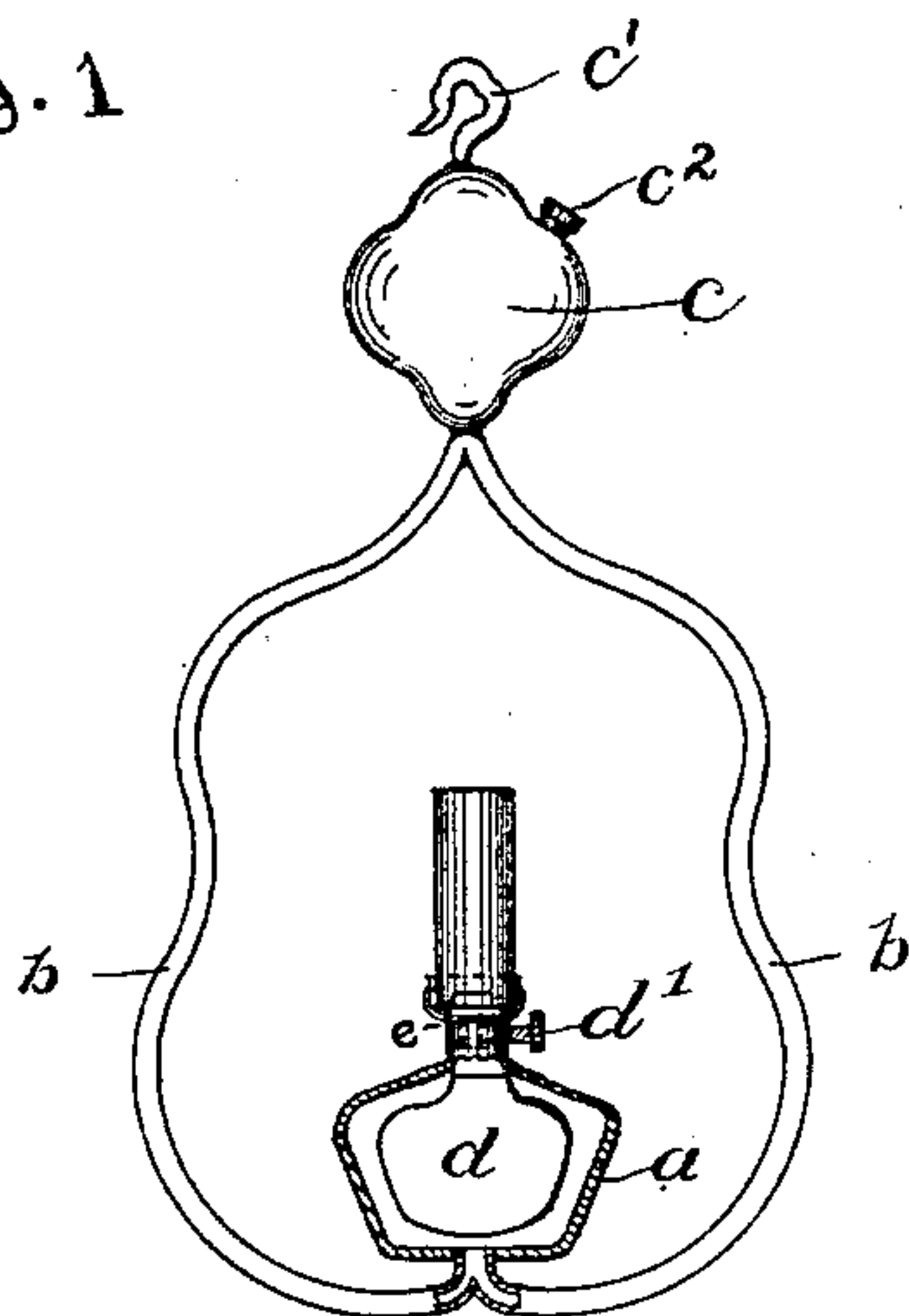


Fig. 2.

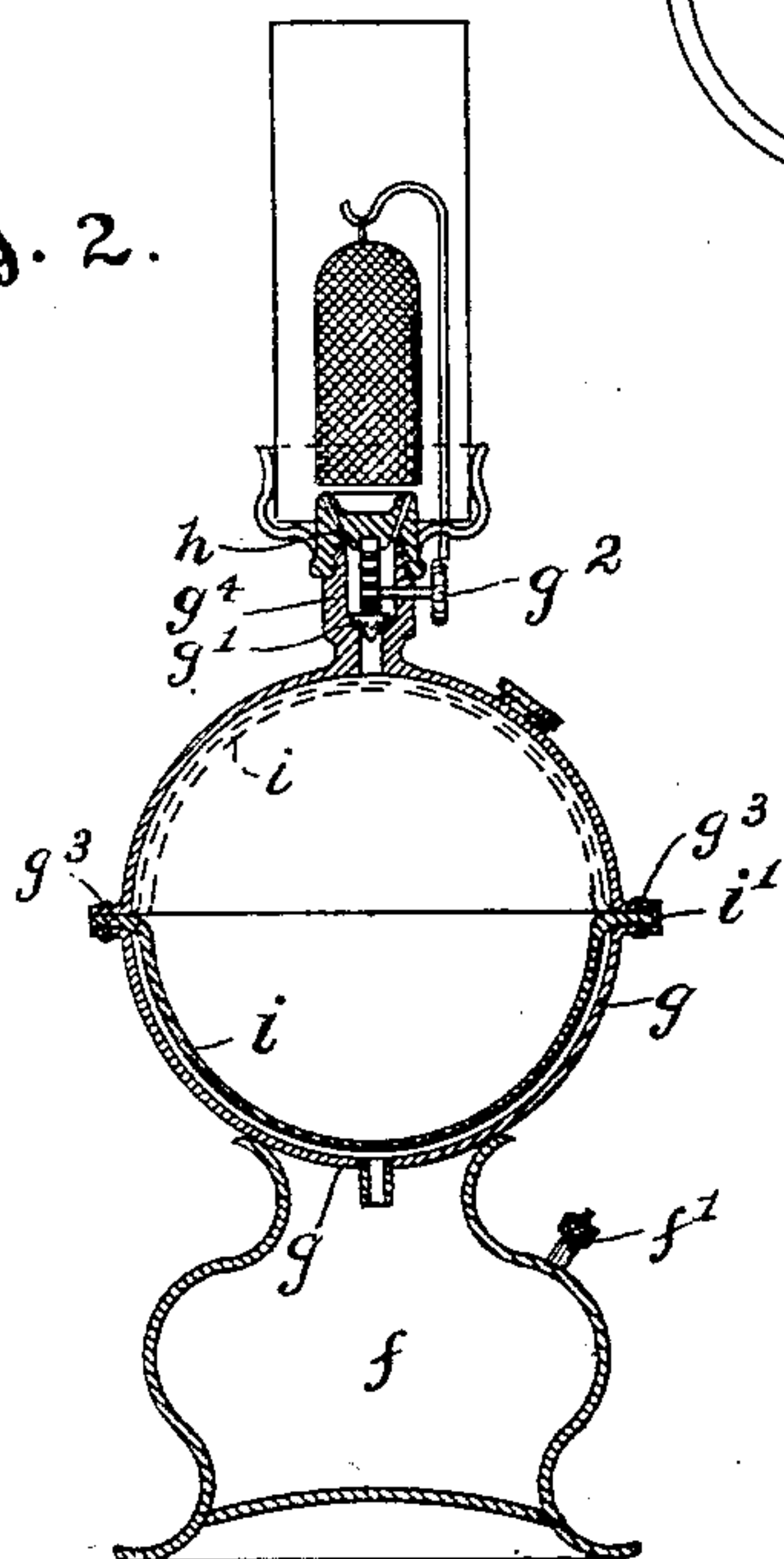
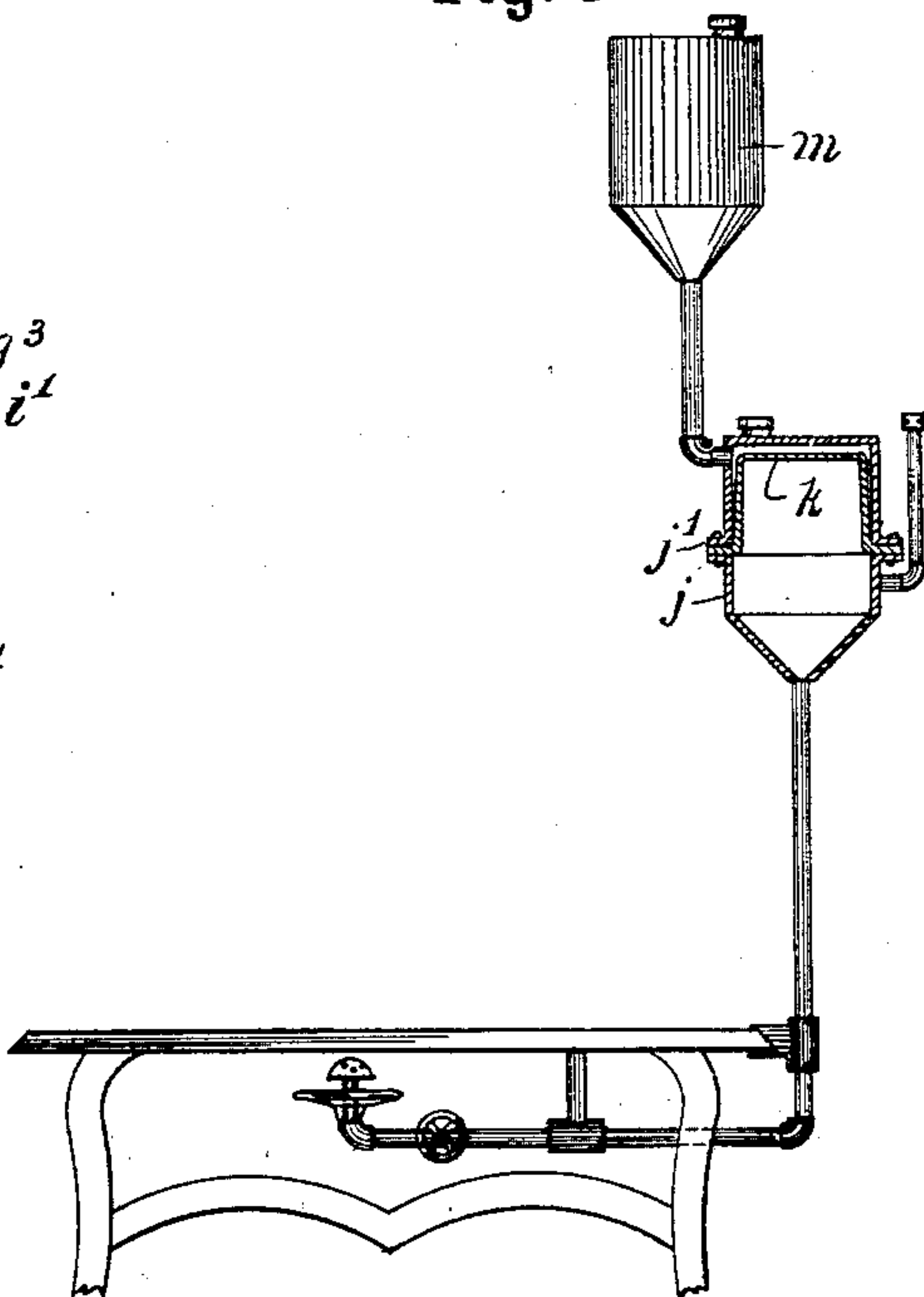


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

ALEXANDER S. GREENWOOD, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOSEPH T. KENDALL, OF SAME PLACE.

RECEPTACLE FOR COMBUSTIBLE LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 632,563, dated September 5, 1899.

Application filed January 23, 1899. Serial No. 703,083. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER S. GREENWOOD, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have made certain new and useful Improvements in Receptacles for Combustible Liquids, of which the following is a specification.

My invention relates to improvements in devices for containing combustible liquids of any character and supplying same to burners of any form for illuminating or heating purposes.

The especial objects of my invention are threefold: first, to provide means for preventing the formation of an air or an air and gas chamber between the surface of the combustible liquid and the top of its container, thus avoiding the dangers resultant from the accumulation of highly-inflammable and explosive gases in lamps, gasoline-stoves, and other like devices; second, to provide pressure on the combustible liquid in order that it may be uniformly and constantly fed to the burner or point of combustion without resort to or dependence upon the indirect, irregular, and imperfect means of capillary attraction afforded by fibrous wicks, and, third, to provide near the combustible fluid a fire-extinguishing medium in the shape of water, gas, or suitable chemicals.

In carrying out the objects above set forth I may use various forms of appliances having the same functions and embodying the same principles in operation. For instance, I may apply my invention to kerosene-lamps, to acetylene-lamps, to gasoline-stoves, and to gas-burning stoves. I also may utilize one of several media to supply the required pressure—such as water, atmospheric air, non-inflammable gases, and fire-extinguishing gases.

In the accompanying drawings, which form a part of this application, I have shown my invention in simple forms for the purpose of illustrating its principles, but without intending to indicate its mechanical limitations.

Figure 1 represents, partly in elevation and partly in section, a hanging kerosene-burning lamp embodying my invention in one form. Fig. 2 represents a vertical section of a standing lamp made in accordance with my inven-

tion and having in its base a chamber containing the pressure medium. Fig. 3 shows a gasoline-burning stove having my invention applied thereto.

Referring to Fig. 1 of the drawings, *a* represents a lamp-body of common form, which is supported on the united lower ends of a tubular frame *b*, said ends having direct communication with the interior of the lamp-body. The upper ends of said frame communicate with the interior of a tank *c*, from the top of which extends a hook *c'*, by means of which the device may be suspended from a ceiling or bracket. Within the lamp-body is arranged a water-tight flexible bag *d*, preferably made of rubber, having a suitable neck and mouth, which communicate with the lamp-burner and also afford a means for supporting the bag within the lamp. The burner *e* may be of any desired construction or material which will permit the burning of the oil or other combustible material contained in the bag *d*. Within the burner may be arranged a suitable valve mechanism for controlling the admission of the oil to the point of combustion. Water or non-inflammable oil may be introduced into the tank *c* through the vent *c'*, and such fluid will run by gravity through the tubular frame and fill the space within the lamp-body not occupied by the bag *d*, which contains the combustible fluid. As this fluid is consumed the pressure of the water surrounding the bag will cause the flexible sides of the latter to collapse, thus preventing the formation of a gas-chamber within the bag and also preventing the entrance of any air from the burner. Furthermore, the constant pressure of the water on the exterior of the bag causes the oil in the latter to be constantly and steadily fed to the burner.

In Fig. 2 I have shown a modified form of my invention in which I employ a hemispherical diaphragm in lieu of the bag *d* and utilize air-pressure in place of water. Referring to said Fig. 2, *f* represents the base or stand, on which is supported the lamp-body *g*, which in this instance is made spherical in form. The base is hollow and air-tight, except at the point where it communicates with the lamp-body *g*. By means of a suitable

valve f' air is introduced into the base. Resting on the lower half of the lamp-body is a hemispherical diaphragm i , the edges of which are secured between the flanges g^3 of the two halves of the lamp-body. The upper part of the lamp-body connects with a neck g^4 , which is screw-threaded at its upper edge to receive a burner h , and in which is located a valve g' , controllable by a rack-and-pinion mechanism which is operated by a thumb-screw g^2 , the rack being formed on the valve-stem and the pinion being on the inner end of the thumb-screw shaft. While I have shown and described this mechanism for controlling the admission of the inflammable liquid to the burner, I wish it understood that same is not an essential part of my invention, and I may use any form of suitable mechanism. Oil is introduced into the lamp-body through a suitable cap-covered opening until the receptacle is full, in which condition the diaphragm i is in the lower half of the body. As the oil is consumed at the burner h the air-pressure from the chamber f on the under side of the diaphragm causes the latter to follow the oil until the latter is entirely consumed, at which time the diaphragm will occupy the position shown by dotted lines.

In Fig. 3 I have shown my invention applied to a gasoline-stove of common form. In this connection the combustible-fluid tank is formed in two sections, which are joined together by means of suitable bolts or rivets passing through flanges j' . Between the flanges is secured the edge of the flexible diaphragm k in any suitable manner to make a tight joint. Above the said tank is arranged a receptacle m for water or other fire-extinguishing fluid which falls by gravity through a pipe connection into the tank j . The operation of the device is identical with that shown in Fig. 1.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. A receptacle for combustible fluids composed of hemispherical sections joined together at their peripheries, and provided with a flexible diaphragm having its edges secured between the sections and adapted to cover one of said sections, substantially as set forth.

2. In a device for burning fluids, a container for the combustible fluid formed in hemispherical sections secured together, a flexible partition located within said container and adapted to cover one of said sections, a receptacle for a non-combustible fluid, and means for conducting said fluid to the container, substantially as described.

3. In a device for burning fluids, a container for the combustible fluid formed in hemispherical sections secured together, a flexible partition secured within said container and adapted to cover one of its sections, and a receptacle communicating with said container, said receptacle being adapted to hold a fluid under pressure, substantially as set forth.

4. In a lamp, the combination with a suitable burner, of a lamp-body formed in two hemispherical sections secured together at their peripheries, a hemispherical flexible diaphragm having approximately the same diameter as one of said sections, a lamp-base having a chamber therein adapted to hold air under pressure, said chamber communicating with the interior of the lamp-body below the flexible diaphragm, substantially as set forth.

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

ALEXANDER S. GREENWOOD.

Witnesses:

L. HANKE,
J. BUEHLER.