

No. 615,331.

Patented Dec. 6, 1898.

E. P. WILLIAMS.
PUMPING APPARATUS.

(Application filed Apr. 29, 1897.)

(No Model.)

Fig. 1.

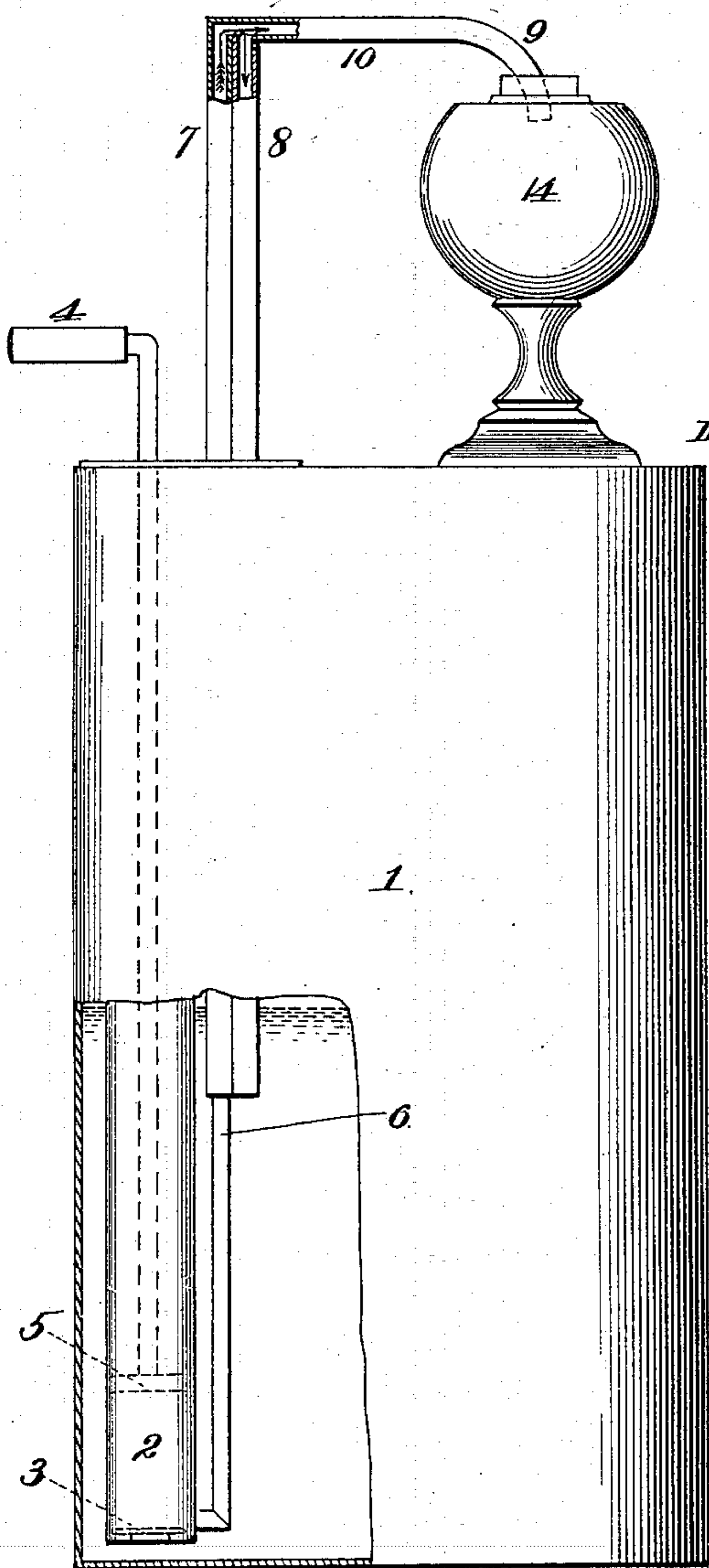


Fig. 2.

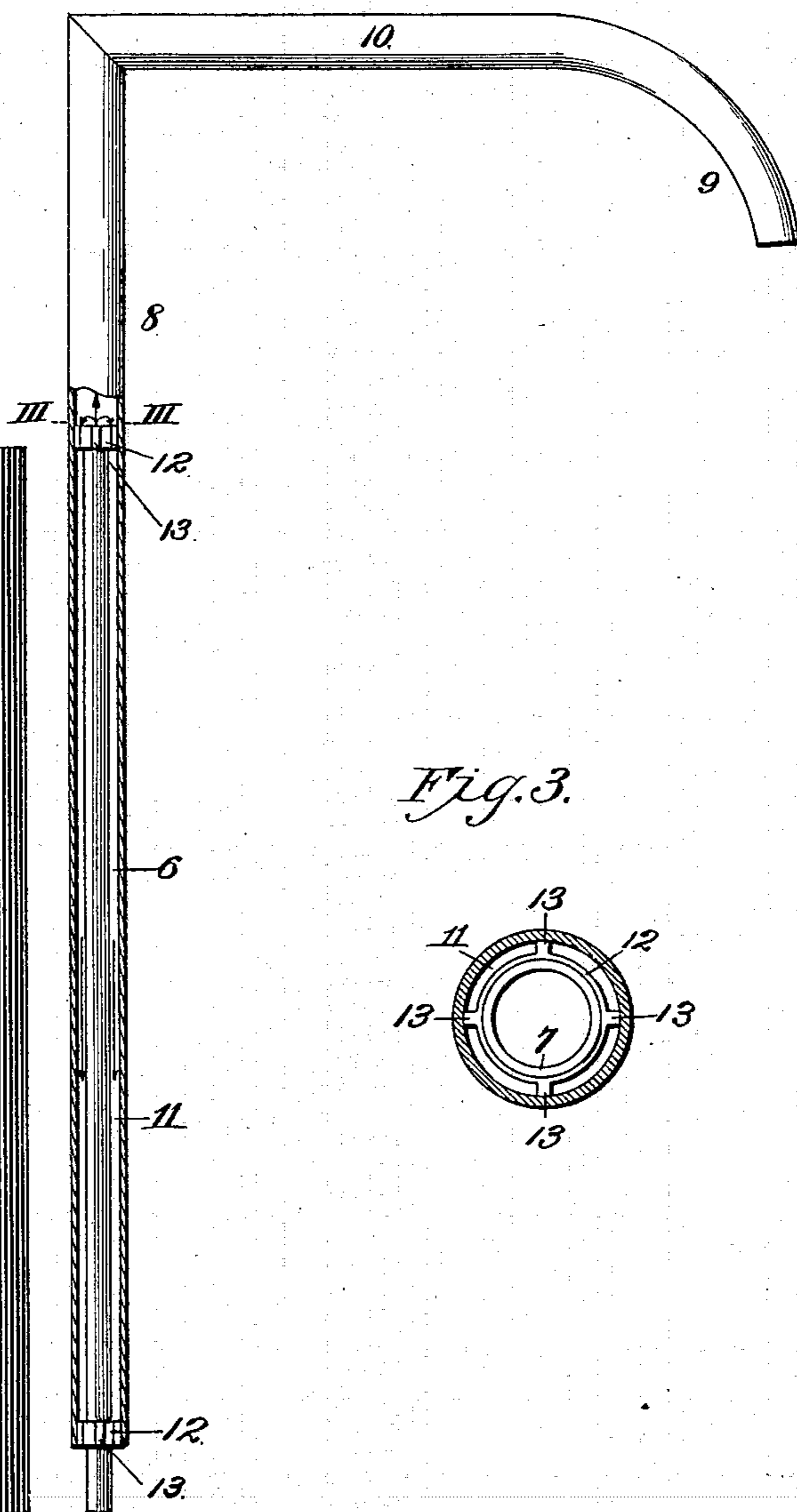
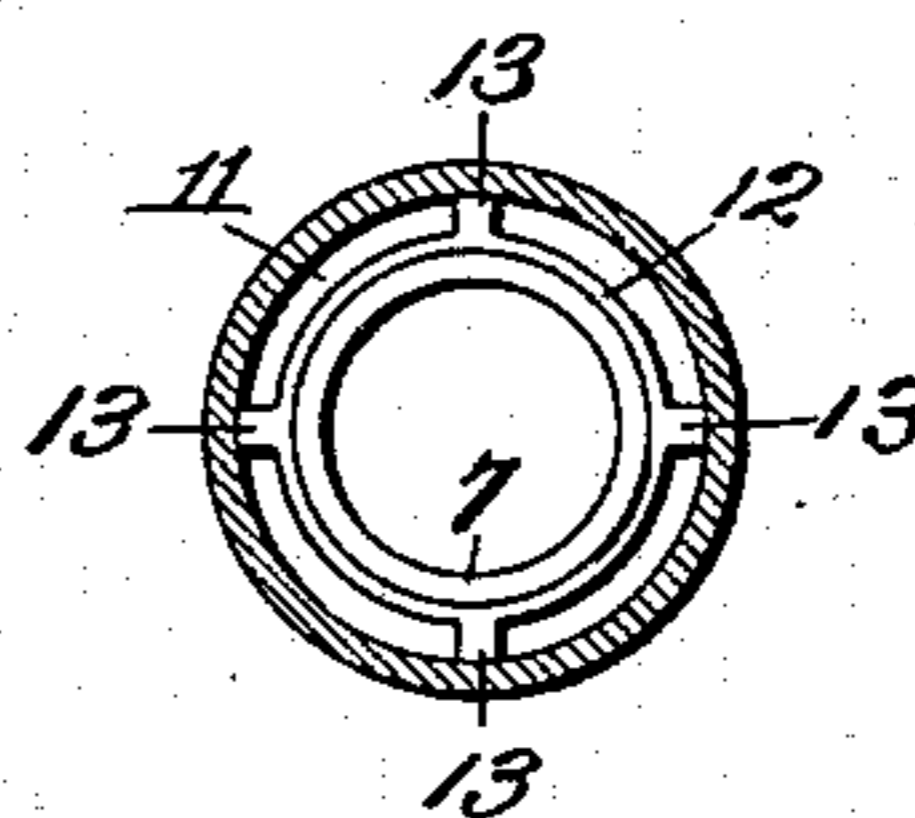


Fig. 3.



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UNITED STATES PATENT OFFICE.

ELI P. WILLIAMS, OF McPHERSON, KANSAS.

PUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 615,331, dated December 6, 1898.

Application filed April 29, 1897. Serial No. 634,419. (No model.)

To all whom it may concern:

Be it known that I, ELI P. WILLIAMS, of McPherson, McPherson county, Kansas, have invented certain new and useful Improvements in Pumping Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to liquid-pumping apparatus; and it is designed especially for use in connection with and for the purpose of pumping oil from oil-tanks to lamps.

The invention consists, essentially, in the combination, with a pump of any suitable type, of a siphon which is started with each discharge of liquid through the flow-pipe of the pump in order that the liquid pumped into the lamp or other vessel may begin to siphon back immediately its level in such vessel reaches a certain point—viz., when it submerges the nozzle of the siphon.

The object of the invention is to produce a device of this character which is positive and reliable in action and simple, cheap, and durable of construction.

To this end the invention consists in certain novel and peculiar features of construction and organization, hereinafter described and claimed.

In order that the invention may be fully understood, reference is to be had to the accompanying drawings, in which—

Figure 1 represents a view, partly in side elevation and partly in section, of an oil-can provided with a pumping apparatus embodying my invention. Such figure also illustrates the mode of filling a lamp. Fig. 2 represents, on an enlarged scale, a view, partly in elevation and partly in section, of a modified arrangement of the siphon with relation to the discharge or flow pipe of the pump.

In the said drawings, 1 designates an oil-can of the usual or any preferred type.

2 designates a pump secured therein in the customary manner.

3 designates the valve of the pump.

4 designates the handle and stem of the piston 5.

The internal construction of the pump is not disclosed, as it forms no part of my invention.

The pump illustrated is simply one form of

the customary force-pump, which takes in oil, as the piston is raised, by the opening of the valve and which discharges it, by the downward movement of the piston, through the pipe 6, the valve being closed by the pressure thereon of the liquid in the pump. Any other style of pump, however, may be employed without departing from the spirit and scope of my invention.

7 designates an extension or vertically-adjustable portion which fits telescopically upon the said pipe 6, whereby under proper manipulation the pump can be arranged to discharge into a lamp of any height. Connected to the pipe 7 in a manner to be presently explained is a siphon consisting of a long arm 8, a short arm 9, which performs the function of a nozzle for the pipe and a mouth for the siphon, and a neck portion 10, connecting said arms at their upper ends. Said neck portion may be horizontal, as shown, or arched or curved in the customary manner. The siphon communicates with the upper end of the pipe 6 or its extension 7, as shown in the figures of the drawings.

In Fig. 1, which is my preferred form of construction, the siphon at the junction of its arm and its neck portion communicates with the upper end of the extension-pipe 7.

In Figs. 2 and 3, which illustrate a modified form of the invention, it will be noticed that I dispense entirely with the extension-pipe 7 and cause the long arm 8 of the siphon to perform the function of both the pipes 7 and 8 of Fig. 1—that is to say, the pipe 8 in Fig. 2 forms an adjustable extension of the pipe 6 to convey the oil to the lamp; but it also by encircling said pipe 6 so loosely as to leave an interposed chamber or passage provides for a backflow of oil into the can with each forward flow of oil through the discharge-pipe 6 and the portion of the siphon above the upper end of said pipe 6. The direction of flow of the oil will be more minutely traced hereinafter.

In order to maintain the relative positions of the pipes 6 and 8, they are provided with separating-collars 12, having arms or legs projecting outwardly, so as to provide large passages through which the oil may freely and uninterruptedly flow. These collars or spiders properly maintain the passage 11 and at

the same time permit of the free vertical adjustment of the pipe 8 upon the pipe 6.

Referring first to Fig. 1, it will be noticed that with each downstroke of the piston a quantity of oil will be forced up through the pipes 6 and 7 and through the neck portion and short arm of the siphon into the lamp or other receptacle to be filled and that a quantity of oil will pass downwardly through the pipe 8, so as to produce a suction of air at this time through the neck portion and short arm of the siphon. When the piston is elevated, the pump is again supplied with oil, and upon its next downstroke a second quantity of oil is discharged from the short arm 9 into the lamp and also through the pipe 8 back into the can, as before explained. These operations take place with each downstroke of the pump, until finally the level of the oil within the lamp submerges the end of the arm 9, and immediately this takes place the suction created, or rather the exhaustion of the air from the siphon, by the passage of oil down through the pipe 8 causes a backflow of oil through the siphon and down into the can, and this will continue as long as the end of the arm 9 is submerged in the oil, as will be readily understood. It will therefore be clear that it will be impossible to cause the lamp to overflow, provided, of course, the pipes are properly proportioned, and that one or a dozen additional strokes of the pump after the lamp is filled will not cause it to overflow, but will simply be useless labor, as the oil is discharged back into the can as fast as it is pumped from it. Because of this fact it is obvious that a metal lamp may be filled as easily as a glass lamp and with no more danger of being filled to overflowing, as the operator after once properly positioning the lamp and the siphon need take no further notice of it. It is also clear, therefore, that a lamp may be filled at night or in the dark about as easily as it can in daytime. It might seem that an inspection of the lamp would be necessary to know just when it is filled in order to save time and useless manipulation of the pump. Otherwise without some signal a person might pump all night without knowing whether the lamp was filled or not. The necessity of such inspection, however, is obviated owing to the fact that immediately the lamp is filled and the siphon begins to withdraw oil from it a gurgling or suction noise occurs, which may be clearly heard some distance. This is the signal by which the operator is notified that the lamp or other receptacle is full.

Referring now to Fig. 2, it will be noticed that the oil passing up through the pipe 6 from the pump will take the direction indicated by the arrows in said figure—that is to say, the major portion of it will pass up and through the upper end of the siphon, while the quantity overflowing the upper end of

said pipe 6 will pass downward through the chamber or passage 11 and thereby exhaust the air from the siphon with each powerstroke of the pump. This operation, as before explained, continues until the end of the arm 9 is submerged in the oil, and immediately this takes place the siphonic action of the oil begins at once, and it flows back into the can by way of said passage or chamber 11.

From the above description it will be apparent that I have produced means for automatically preventing a lamp or other receptacle from being filled to overflowing with a liquid, and it will also be clear that this device or attachment (as it may be attached to any ordinary pump) is positive and reliable in action and simple, cheap, and durable of construction, therefore embodying the features of advantage enumerated in the statement of invention.

It is to be understood, of course, that various changes in the detail construction, arrangement, or proportion of the parts may be made and that mechanical equivalents may be employed without departing from the spirit and scope or sacrificing any of the advantages of my invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the discharge-pipe of a pump, of a siphon-pipe communicating therewith and set in operation by a flow of liquid from the discharge-pipe of the pump, for the purpose set forth.
2. The combination, with a liquid-pumping apparatus, of a pipe communicating with the flow or discharge pipe of the pump, and having its discharge end lower than the discharge end or nozzle of the pump, so as to constitute a siphon, substantially as described.
3. The combination with the flow or discharge pipe of a pump, of a siphon-pipe communicating at the junction of its long arm and its neck portion with said flow-pipe, substantially as described.
4. The combination with the discharge-pipe of a pump, of a siphon-pipe loosely surrounding and adjustably mounted upon and communicating with such discharge-pipe, and set in operation by the flow of liquid from the said discharge-pipe of the pump, substantially as set forth.
5. The combination with the discharge-pipe of a pump and an extension telescopically mounted thereon, of a siphon-pipe communicating with said extension at the junction of its neck portion and long arm, substantially as described.

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

ELI P. WILLIAMS.

Witnesses:

W. S. BUKSY,

W. S. MCGIFFERT.