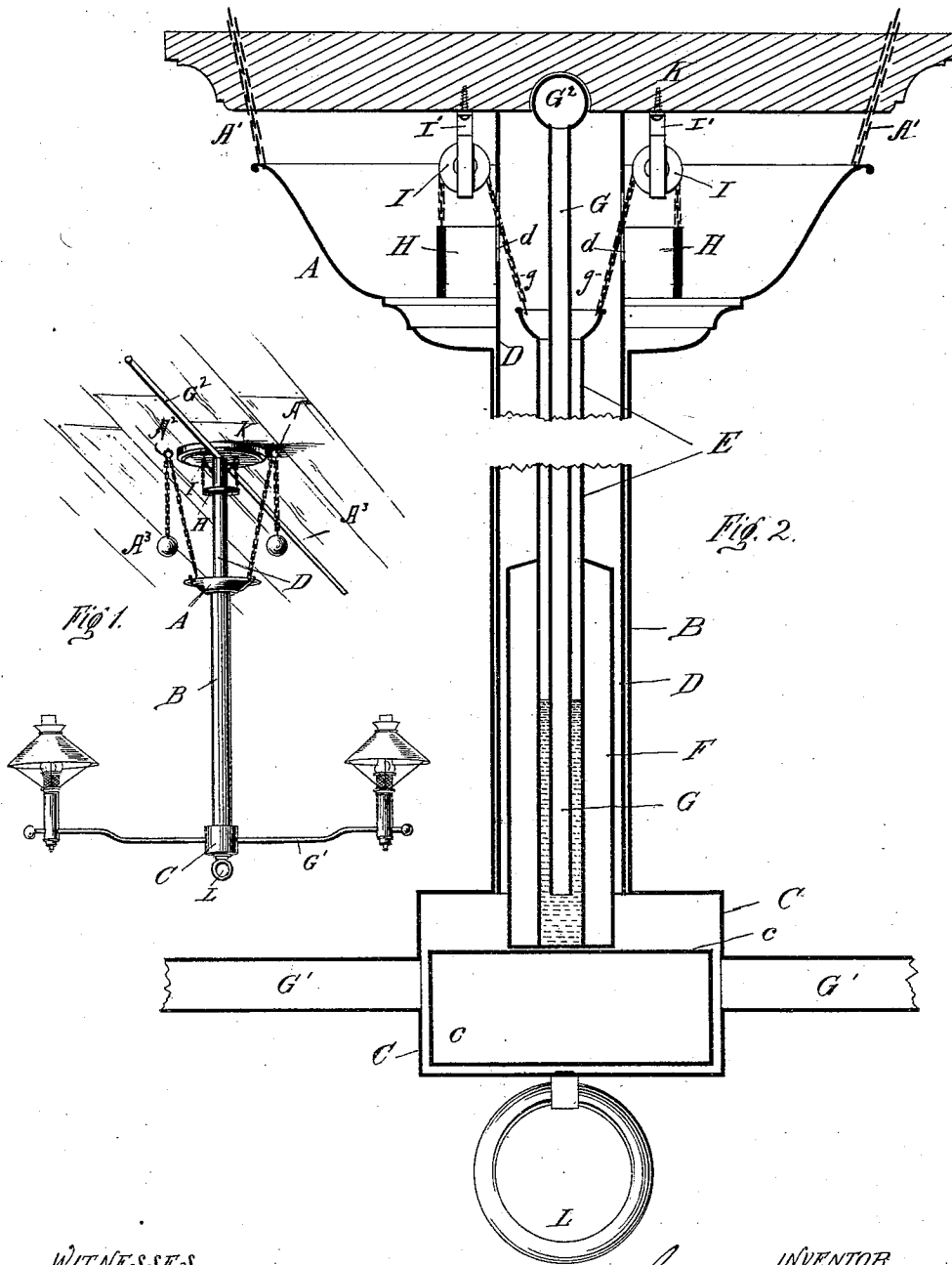


(No Model.)

S. ALEXANDER.
AUTOMATIC FLUID REGULATOR.

No. 544,079.

Patented Aug. 6, 1895.



WITNESSES.

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SAMUEL ALEXANDER, OF MERIDEN, CONNECTICUT.

AUTOMATIC FLUID-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 544,079, dated August 6, 1895.

Application filed May 14, 1894. Serial No. 511,139. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ALEXANDER, of Meriden, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Automatic Fluid-Regulators; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact descrip-
10 tion of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of an oil-burning chandelier containing my invention; Fig.
15 2, an enlarged broken view in vertical section of the said chandelier.

My invention relates to an improvement in automatic regulating or controlling devices designed to be used in conjunction with that
20 class of lamps which are continuously supplied with oil, the object being to produce simple and reliable means for controlling or regulating the flow of oil into the lamps according to their demand for it.

My present invention is an improvement upon the device shown and described in my
25 pending application, Serial No. 505,235.

With these ends in view my invention consists in a device having certain details of construction and combination of parts, as will be
30 hereinafter described, and pointed out in the claims.

My invention is primarily adapted to be used in connection with extension oil-burning
35 chandeliers, and I have, therefore, chosen to show it in that relation. I would have it understood, however, that I do not limit myself to the use of my invention with such chandeliers nor to its use in connection with
40 devices for handling oil, for it is equally applicable for the control of any intermittently-fed fluid.

In carrying out my invention, as herein shown, I locate a float *c* within a fount or
45 body *C*, which is furnished with two horizontal oppositely-extending arms *G' G'*, provided at their outer ends with lamps, which are not shown. The said float *c* is made independent of but adapted to co-operate with
50 a long vertically-movable tubular cup *E*, located centrally above it, and designed to receive in its lower end a liquid of greater spe-

cific gravity than the oil or other liquid being fed. This liquid forms a seal for the lower end of the feed-pipe *G*, which extends down-
55 ward nearly to the bottom of the cup. Preferably I employ quicksilver as the sealing-liquid, although I do not limit myself to its use.

The feed-pipe *G* is connected at its upper
60 end with a horizontally-arranged main *G*², which is in turn connected with a conveniently-located tank or reservoir of oil. The lower portion of the cup *E* is encircled by a
65 guide-tube *F*, which is closed at its upper and lower ends and which maintains the cup in the center of the stationary vertical tube *D*, which opens at its lower end into the fount *C*, while its upper end is attached to a board or
70 plate *K* fastened to the ceiling of the apartment in which the chandelier is located. The said stationary tube is encircled by a movable tube *B*, which at its lower end supports the fount *C*, and which is provided at its upper
75 end with a canopy *A*, the said canopy having connected with its upper edge two chains *A' A'*, running through rings *A*² *A*² secured to the ceiling. Weights *A*³ *A*³, fastened to the outer ends of the chains, are proportioned to the weight of the canopy *A*, movable or telescoping tube *B*, and the fount *C*
80 and the attachments thereof, so that normally the weights will support the said parts in their elevated positions, which they fall a little short of in Fig. 2. The cup *E* is con-
85 structed at its upper end with a flaring mouth, which facilitates the filling of it, and which has attached to its edge two chains *g g*, which pass outward through openings *d d* formed in the stationary tube *D*, and thence over pulleys
90 I mounted in brackets *I'* depending from the board or plate *K*. A weight *H*, secured to the outer ends of the chains *g g*, is provided for raising the cup *E* when the fount is drawn
95 down, so as to immerse the lower end of the feed-pipe in the quicksilver for a sufficient distance to wholly stop the feeding of the oil from the pipe. When the canopy *A* is drawn down, the weight *H* follows it and raises the cup until the bottom of the cup strikes the
100 lower end of the feed-pipe. Then shortly before the canopy reaches its normally elevated position in raising it, it engages with the weight and lifts the same, and thus permits

the cup to drop back into its normal position. It will be understood from the foregoing that, normally, the weight H is supported by the canopy, so that it has no influence on the cup.

- 5 A ring L, secured to the bottom of the fount, provides for drawing it down—as, for instance, for the purpose of lighting the lamps.

It will be understood that in carrying out my invention I place in the bottom of the cup
10 a sufficient amount of quicksilver to overbalance the head or pressure of the oil, which is, to say, the fall which the oil makes from the reservoir, wherever that may be, to the quicksilver. When the cup is in its fully-elevated
15 position, the lower end of the feed-pipe will be immersed in the quicksilver to such an extent that none of the oil within the pipe can work its way through the quicksilver, because the head or pressure of the oil is insufficient
20 to overcome the weight of the quicksilver. When, however, the cup descends in the fount C, by reason of the falling of the float therein owing to the exhaustion of the oil from the fount by the lamps, the immersion of the lower
25 end of the feed-tube in the quicksilver will be reduced to such an extent that the head or pressure of the oil is sufficient to force the oil slowly through the quicksilver. The oil thus escaping will rise in the cup and flow over the
30 upper end thereof and down through the stationary tube into the fount. Then as the fount fills with oil the float will rise and lift the cup, so as to again immerse the lower end of the feed-tube in the quicksilver to such an
35 extent that the head or pressure of the oil is insufficient to overcome the weight of the quicksilver, which will thus stop the flow of the oil. The movement of the cup, and hence the immersion of the lower end of the feed-
40 pipe in the quicksilver, will thus be controlled by the float, which in turn is controlled by the oil in the fount. If the demand upon the fount for oil by the lights is constant, it will operate frequently to feed the oil, but other-
45 wise not, the action of the device being purely automatic and the feeding of the oil being perfectly regulated by the demand for it.

I have already explained that when the fount is pulled down, as for lighting the lamps,
50 the cup is immediately lifted by the falling of the weight H, so as to at once cut off the feeding of the oil by the quicksilver. The float, being entirely independent of the cup, moves downward away from it with the fount.
55 In this respect my present device is different from the device shown and described in my pending application, in which the float was connected with the cup, so that a valve had to be employed to cut off the oil while the
60 chandelier was drawn down for lighting. On the other hand, I now provide for lifting the cup, so as to utilize the quicksilver in cutting off the feeding of the oil during the time that the fount is drawn downward.

- 65 It is apparent that in carrying out my invention changes may be made in the construction herein shown and described, and I would

therefore have it understood that I do not limit myself to such construction, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and
70 scope of my invention.

In view of my prior application referred to at the outset of this description, I do not broadly claim an extension-fixture in which
75 a float located within a fount is employed to lift a cup containing a sealing liquid, as that subject-matter is broadly claimed in the said prior case, in view of which I have limited this application to a construction in which
80 the float is made independent of the cup and descends with the fount independent of the same, the cup being counterbalanced for its support, while the fount, and hence the float, are drawn down.
85

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

1. In an automatic liquid controller or regulator, the combination with a stationary, vertically
90 arranged feed-pipe, of a vertically movable cup located below the lower end of the said pipe, which is extended downward into it, a sealing liquid located in the said cup and of greater specific gravity than the liquid
95 fed through the said pipe, a vertically movable fount located below the said pipe and cup, and arranged to receive the liquid fed as it is discharged from the cup, a float constructed independent of the cup and disconnected
100 therefrom, and located in the fount in position to lift the cup for the purpose of increasing the immersion of the lower end of the pipe in the sealing liquid contained in the cup, and means for supporting the cup in position
105 to maintain the immersion of the feed-pipe in its contained sealing liquid when the fount is drawn downward for the extension of the fixture, substantially as described.

2. In an automatic liquid controller or regulator, the combination with a feed-pipe, of a
110 vertically movable cup having the said pipe extended into it, a sealing liquid of greater specific gravity than the liquid fed located in the said cup, a weight connected with the cup,
115 and normally sustained in an elevated position, but operating to lift the cup on occasion, a vertically movable fount into which the feed pipe discharges, and a float located in the said fount and made independent of the
120 cup and disconnected therefrom, but arranged to engage therewith for raising it, substantially as described.

3. In an automatic liquid-controller or regulator, the combination with a feed-pipe, of a
125 vertically movable cup having the said pipe extended into it, a sealing liquid of greater specific gravity than the liquid fed located in the said cup, a weight connected with the cup, a stationary pipe encircling the feed-pipe and
130 cup, a vertically movable pipe encircling the stationary pipe, a vertically movable fount connected with the lower end of the vertically movable pipe, and receiving liquid fed into it

through the stationary pipe from the cup, a float located in the said fount, and made independent of the cup and disconnected therefrom and arranged to engage therewith for
5 raising it, and a canopy connected with the upper end of the vertically movable pipe, and arranged to normally sustain the said weight in an elevated position in which it does not draw on the cup which it lifts to stop the flow
10 of oil from the feed pipe when the fount, and

hence the canopy, are drawn downward, substantially as described.

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

SAMUEL ALEXANDER.

Witnesses:

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