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C. RIDDERHOF & G. M. JOHNSTON.

GAS LIGHT FLASHING DEVICE.

APPLICATION FILED JUNE 18, 1904.

NO MODEL.

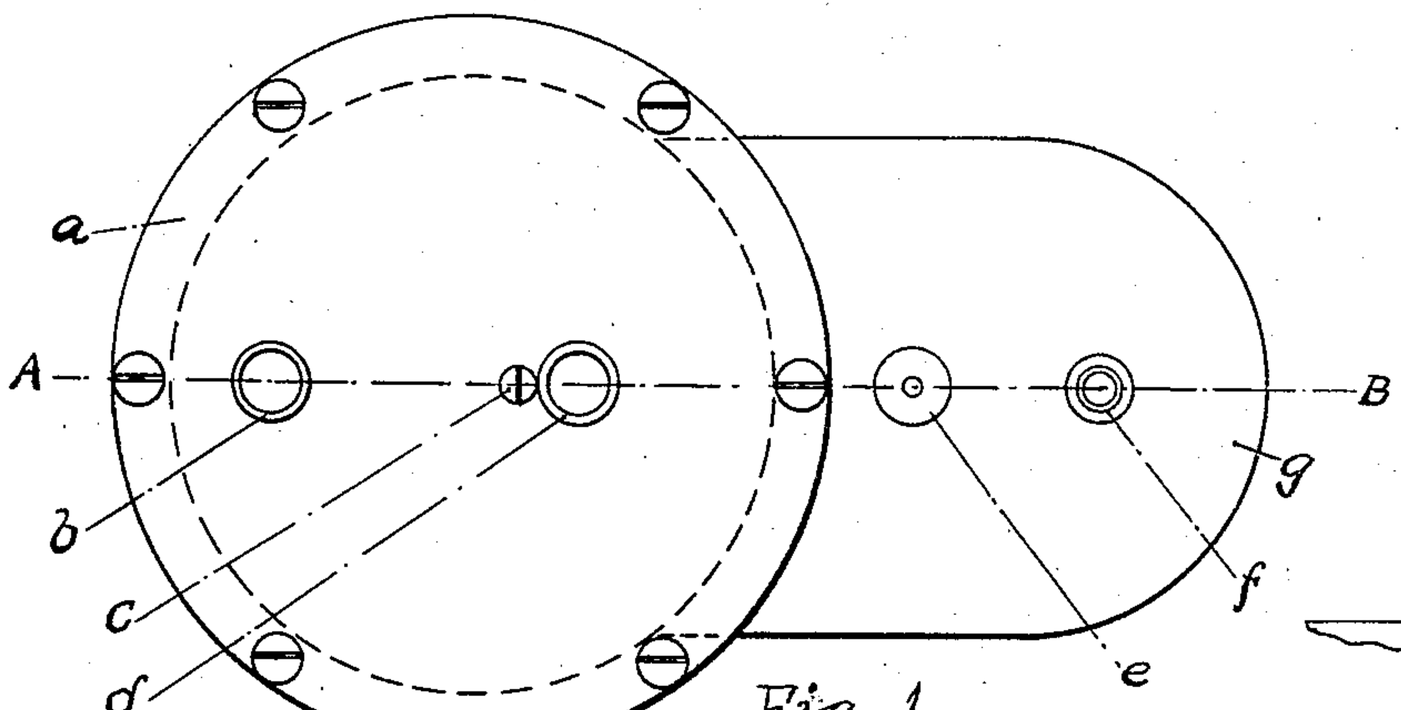

Fig. 1

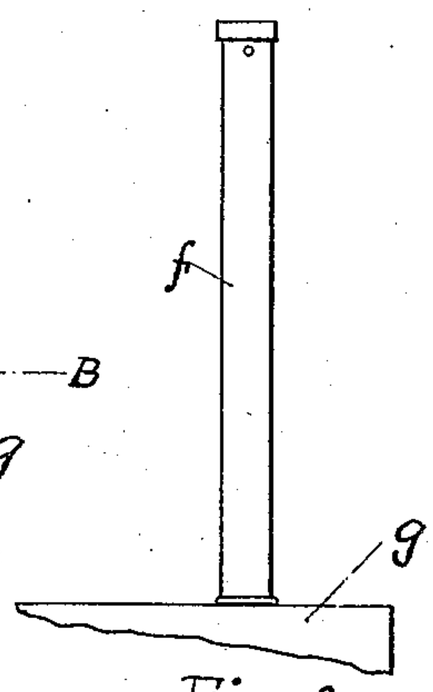

Fig. 2

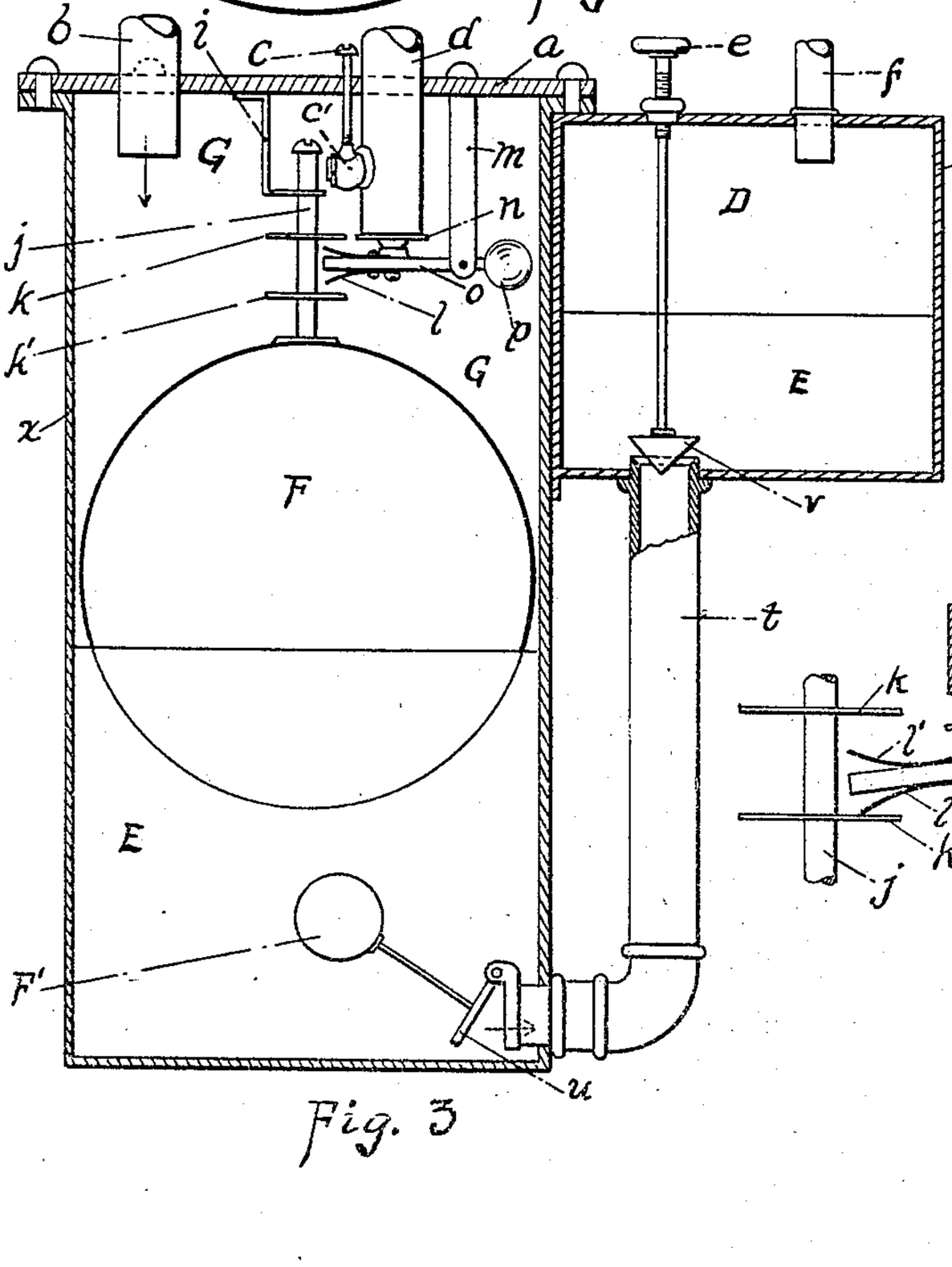

Fig. 3

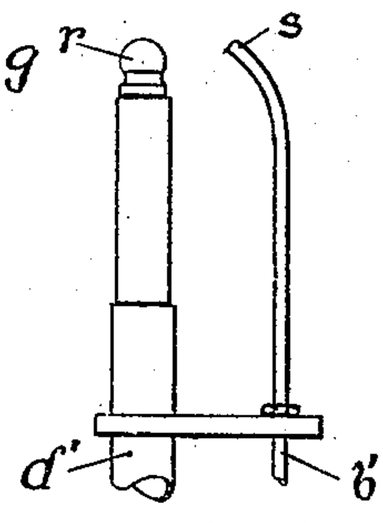

Fig. 4

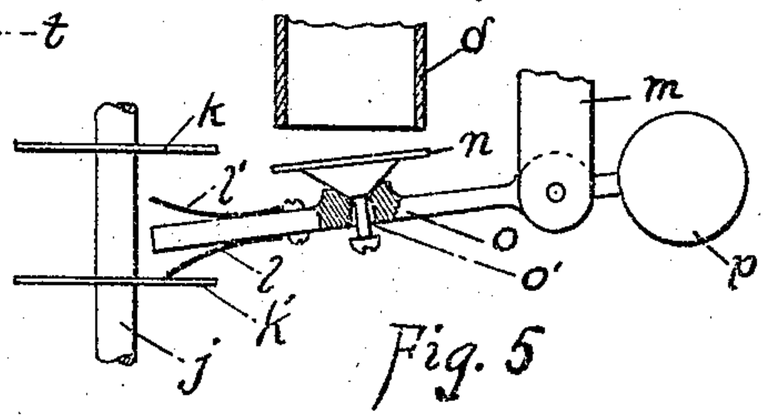

Fig. 5

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UNITED STATES PATENT OFFICE.

CORNEIL RIDDERHOF AND GEORGE MARION JOHNSTON, OF GRAND RAPIDS, MICHIGAN.

GAS-LIGHT-FLASHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 773,897, dated November 1, 1904.

Application filed June 18, 1904. Serial No. 213,118. (No model.)

To all whom it may concern:

Be it known that we, CORNEIL RIDDERHOF and GEORGE MARION JOHNSTON, citizens of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Gas-Light-Flashing Devices, of which the following is a specification.

Our invention relates to improvements in gas-light-flashing devices; and its objects are, first, to provide a device wherein the pressure from the gas-main will be the actuating power for producing the flashing; second, to provide a device which may be located in any convenient place not necessarily near the burners to be flashed; third, to provide a device wherein the rising and falling of a liquid-level closes and opens a valve leading to the burners to be flashed; fourth, to provide a device which can be easily manufactured and adjusted, and other objects which will further appear in these specifications.

The principles of our invention are clearly pointed out in the claims hereto, and a structure showing the same may be seen in the accompanying drawings, in which—

Figure 1 is a plan view of our device without the burners. Fig. 2 is a side elevation of a portion of the reservoir and the safety stand-pipe of our device. Fig. 3 is a side sectional view of the float-chamber and reservoir of our device upon line A B of Fig. 1, exposing to view the working parts of our device. Fig. 4 shows a gas-burner of ordinary pattern with its pilot-burner near by. Fig. 5 is a detail view of the valve, the opening and closing of which produces the flashing at the burner or burners.

Similar letters of reference refer to like parts throughout the several illustrations.

a is a cap which fits the float-chamber *x* and is secured thereto by means of screws or rivets, as shown. Through this cap *a* passes the gas-intake pipe *b*, the gas entering in the direction of the arrow shown at the bottom of said intake. This cap *a* also carries the outlet-pipe *d* and the pivot *m* or support for the valve-lever *o* and the support *i* for guiding the float-stem *j* of the float F.

F is a float of ordinary pattern carrying the upwardly-projecting stem *j*, upon which are the contact-disks *k* and *k'*.

g is a reservoir for liquid of some kind attached to the float-chamber, as shown in Fig. 3, from the bottom of which extends the pipe *t*, connecting with the bottom of the float-chamber *x*. In the upper portion of this connecting-pipe *t* is the adjusting-valve *v*, suspended upon a threaded rod carrying the finger-piece *e* and passing through a bushing in the top of said reservoir, as shown in Fig. 3.

In the float-chamber is placed a non-evaporative liquid, (indicated as E, Fig. 3,) upon the surface of which rests the float F, with the upwardly-extending stem *j*. The gas entering the intake *b* under pressure forces this liquid up through the connecting-pipe *t* and into the reservoir *g*, as shown in Fig. 3.

Fig. 5 shows a detail view of our main operating-valve *m*, being the support above referred to and *o* the lever carrying the disk *n*. A sectional view of a portion of this lever *o* shows the manner in which we seat this disk *n* upon the lever *o*, the object being to give the disk *n* a certain amount of freedom when the same comes in contact with the opening in the outlet-pipe *d*. Upon one end of the lever *o* is the weight *p*, which serves to a certain extent to counterbalance the portion of the lever carrying the disk *n*. *k* and *k'* are the contact-disks upon the stem *j* above referred to and which open and close the valve shown in Fig. 5, as hereinafter described. From the outlet-pipe *d* to the burner *d'* is a pipe connection of any kind and also such pipe connection between the pilot-burner *b'* and the gas-intake pipe *b*, or the gas-main itself, if more convenient. In the outlet-pipe *d* we have placed a needle-valve *c'* of ordinary pattern, Fig. 3, with an upwardly-extending adjusting-screw *c*. In case it is not desired to use the pilot-burner *b'* a slight opening may be left by virtue of said needle-valve *c'* in said outlet-pipe *d*. Thus when the valve *n* closes the said opening in said outlet-pipe *d* the light will not be turned entirely out, but merely to a point where it cannot be readily seen.

At the bottom of Fig. 3 will be seen the safety check-valve *u*, which is operated by the small float F′. The object of this valve is to prevent the escape of gas from the float-chamber in case of a stoppage in the outlet-pipe *d* or burner *d′* for any cause, in which case the pressure in the gas-main would continue to force the liquid through the pipe *t* up into the reservoir *g*. By reason of this safety-valve *u* and its float F′ if the liquid in this float-chamber be lowered abnormally for any reason this valve *u* closes, thus preventing the gas from entering the pipe *t*. As an additional safety device we have provided the stand-pipe *f*, which extends upwardly from the reservoir. The fluid-space in the float-chamber being greater than the area in the reservoir, in case of a stoppage, as above described, after filling the reservoir the liquid would be forced upwardly into the stand-pipe, which may be of sufficient height to cause head enough when so filled to counterbalance the pressure in the gas-main, and thus prevent any further flow of gas. In the upper portion of this stand-pipe will be seen a small opening through which the air can pass as the liquid-level changes in the operation of the device.

The operation of our device is as follows: The gas entering the intake-pipe fills the space in the float-chamber *x*, (indicated as G.) By reason of its pressure this gas forces the liquid E in said float-chamber down and up through the pipe *t* and into the reservoir *g*. This allows the float F to fall with the liquid until the disk *k* contacts with the spring *l′* with sufficient force to cause the valve *n* to drop away from the opening in the outlet-pipe *d* or to position as shown in Fig. 5. When this action takes place, the gas rushes out through the outlet-pipe *d* to the burner *d′*, and the light flashes up to its full height. This relieves the pressure to a certain extent in the gas-chamber or space, (indicated as G,) and the liquid, owing to the head it has just acquired, accordingly rises in the float-chamber *x* until the valve *n* again closes the opening in the outlet-pipe *d*, and the light at the tip *r* of the burner *d′* is extinguished. The frequency with which the operation occurs depends upon the adjustment of the valve *v*, which limits the flow of liquid through the pipe *t*. The object of the springs *l* and *l′* is to produce a sudden opening and give a better action to the valve.

Our invention will admit of many variations; but

What we claim as new, and for which we ask that Letters Patent be granted, is—

1. In a gas-lamp-flashing device, the combination of a float-chamber *x*, the reservoir *g*, the pipe *t* connecting the same, the adjusting-valve *v* in one end of said connecting-pipe, the float F adapted to be borne by a liquid in said float-chamber *x*, the stem *j* extending upwardly from said float F, the contact-plates *k* and *k′* on said stem, the gas-intake pipe *b* entering said float-chamber *x*, the outlet-pipe *d*, the valve *n* carried by the pivoted lever *o*, the springs *l* and *l′* on said lever *o*, and adapted to contact with said plates *k* and *k′* respectively, the needle-valve *c′* in said outlet-pipe *d* and means for adjusting the same, the check-valve *u*, the float F′ extending from said check-valve and adapted to hold said check-valve open while said liquid remains at its operative levels, the stand-pipe *f* extending upwardly from the reservoir *g*, the burner *d′* and connections between the same and the outlet-pipe *d*, the pilot-light *b′* and connections between the same and the gas-intake pipe *b*, the parts coacting for the purpose specified and substantially as described.

2. In a gas-lamp-flashing device, the combination of a float-chamber and a reservoir, a conduit between the same, means for regulating the opening in said conduit, a gas-intake pipe entering said float-chamber, an outlet-pipe extending from said float-chamber, a valve adapted to open and close said outlet-pipe, a float suspended in said float-chamber and adapted to move vertically in the same, an upwardly-extending stem from said float, contact-plates upon said stem adapted to contact with, and open and close said valve on said outlet-pipe, the needle-valve *c′* attached to said outlet-pipe in said float-chamber and means for adjusting said needle-valve, gas-burners connected with said outlet-pipe, the check-valve *u*, the float F′ attached to said check-valve and adapted to hold said check-valve open while said liquid remains at its operative levels, and the stand-pipe *f* extending upwardly from said reservoir, substantially as described.

3. In a gas-lamp-flashing device, the combination of a float-chamber and a reservoir, a conduit between the same, means for regulating the opening in said conduit, a gas-intake pipe entering said float-chamber, an outlet-pipe extending from said float-chamber, a valve adapted to open and close said outlet-pipe, a float suspended in said float-chamber and adapted to move vertically therein, an upwardly-extending stem from said float, contact-plates upon said stem adapted to contact with, and open and close said valve on said outlet-pipe, gas-burners connected with said outlet-pipe and means for lighting the same when the gas passes through them, substantially as described.

4. In a gas-lamp-flashing device, the combination of a float-chamber and a reservoir, a conduit extending from said float-chamber to said reservoir, means for regulating the size of the opening in said conduit, a gas-intake pipe entering said float-chamber, an outlet-pipe extending from said float-chamber, a valve adapted to open and close said outlet-pipe, a float suspended in said float-chamber and adapted to move vertically in the same, a pro-

jection from said float adapted to contact with said valve and to open and close the same, gas-burners connected with said outlet-pipe and means for lighting the same when the gas passes through them, and means for preventing the passage of gas from the float-chamber to the reservoir, substantially as described.

5. In a gas-lamp-flashing device, means for producing an intermittent flow of gas to gas-burners, consisting of a valve in said burners, or a conduit connected therewith, a float carried upon a liquid and adapted to rise and fall with the same, and to contact with said valve causing the same to open and close, substantially as described.

6. In a gas-lamp-flashing device, means for producing an intermittent flow of gas to gas-burners, consisting of a valve in the conduit to said burners, a member actuated by a changing liquid-level, and adapted to contact with said valve causing the same to open and close, substantially as described.

7. In a gas-lamp-flashing device, means for producing an intermittent flow of gas to gas-burners, consisting of a valve in the conduit to said burners, a float carried upon a liquid and adapted to rise and fall with the same, and to contact with said valve causing the same to open and close, and means for regulating the speed with which said float rises and falls, substantially as described.

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