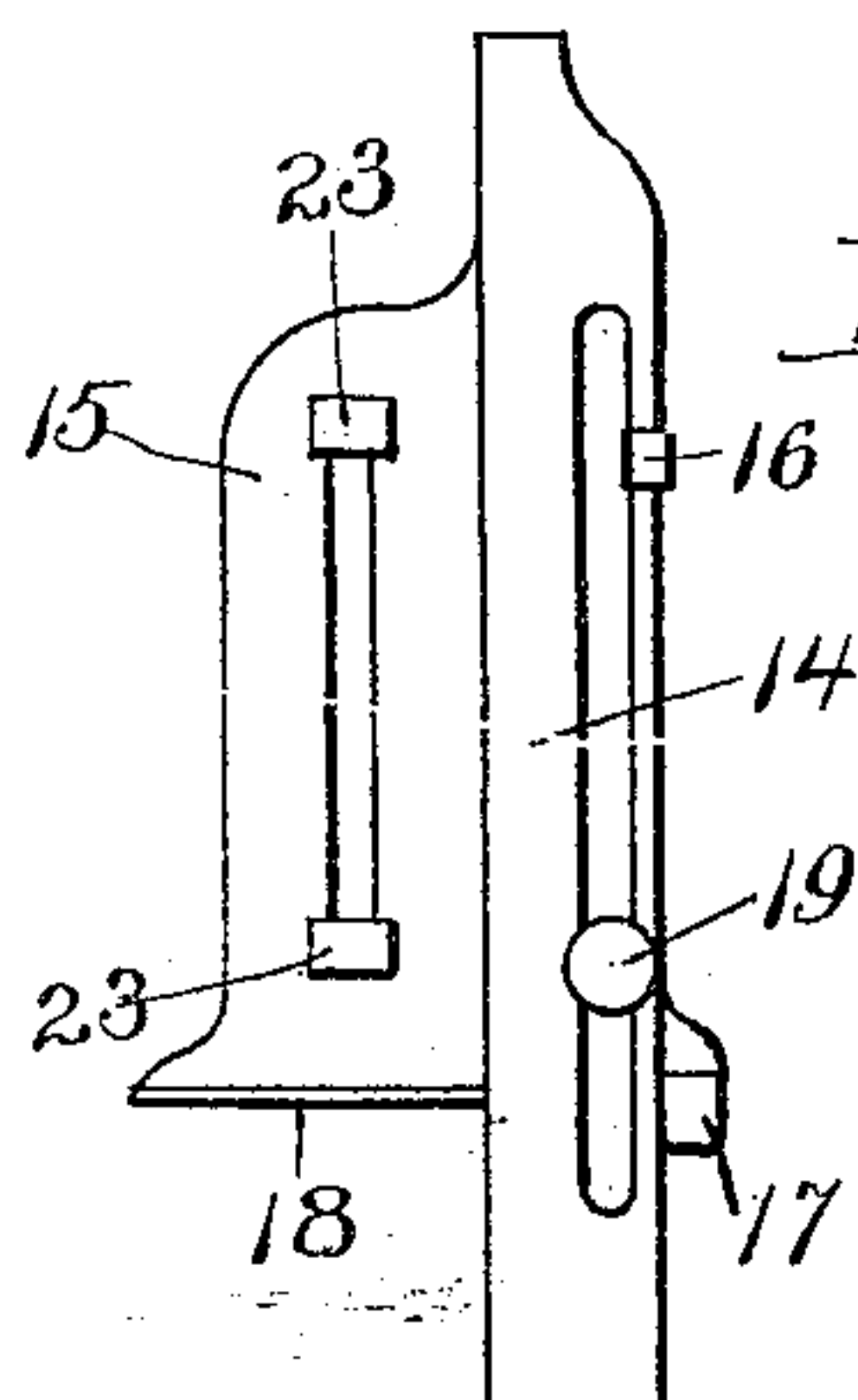
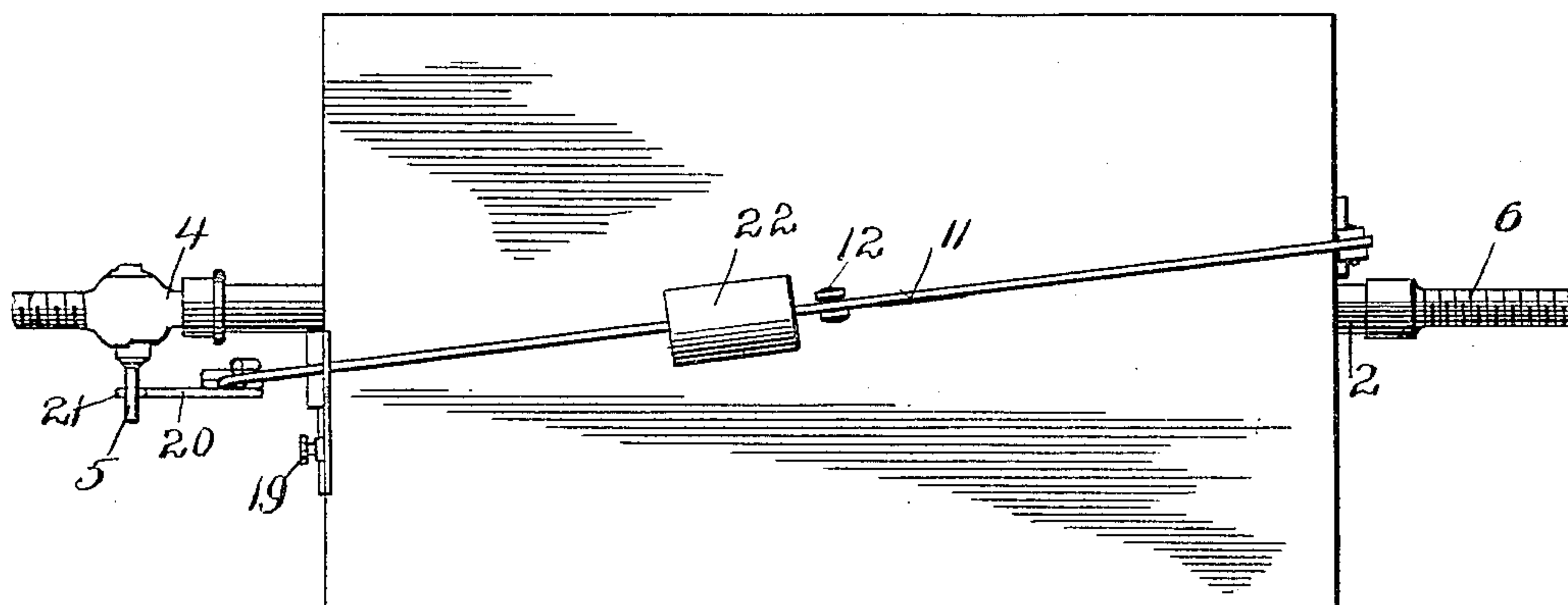
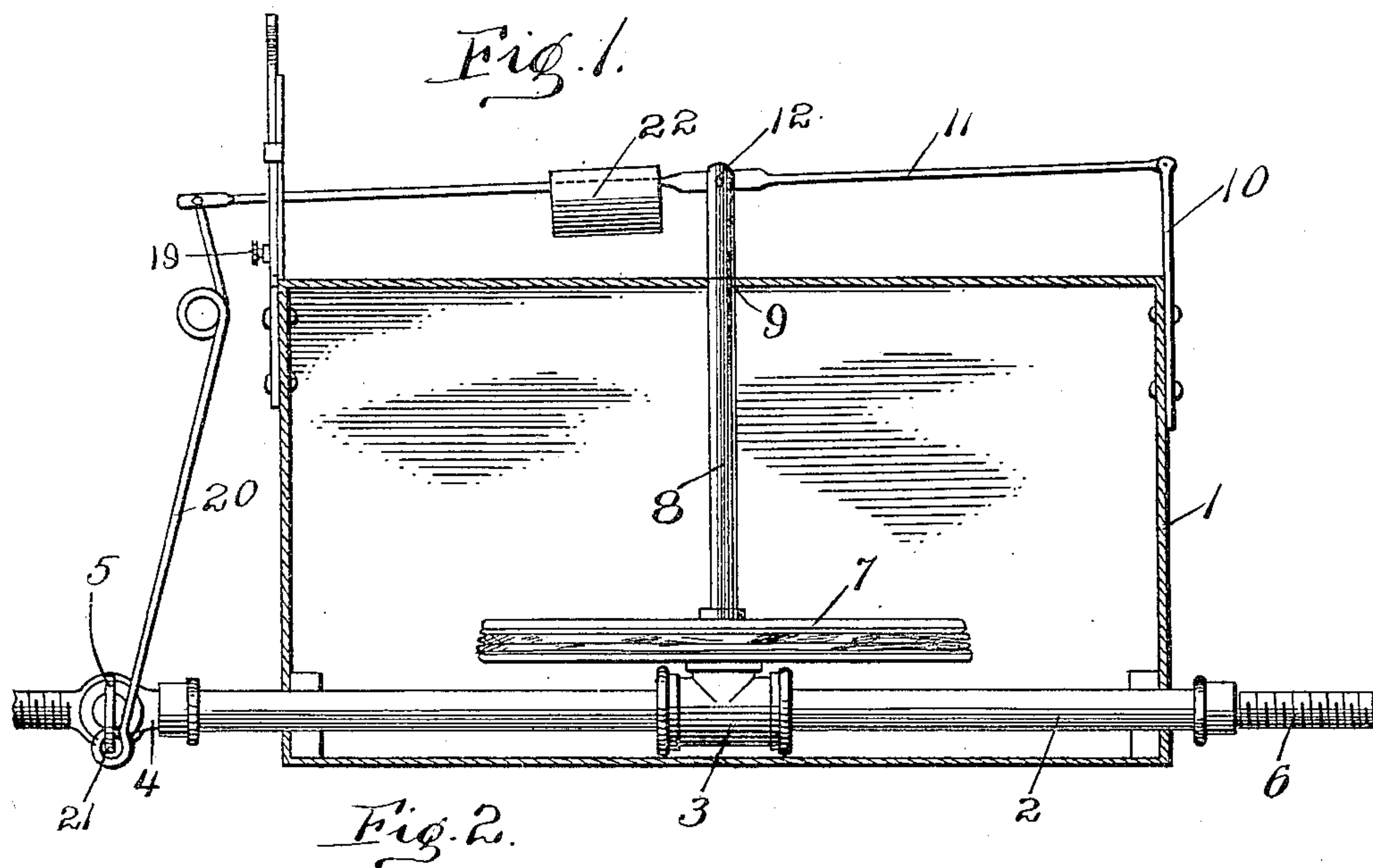


No. 824,413.

PATENTED JUNE 26, 1906.

G. E. CROOKSHANK.
GAS REGULATOR.

APPLICATION FILED MAR. 20, 1906.



witnesses
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UNITED STATES PATENT OFFICE.

GEORGE E. CROOKSHANK, OF INDIANA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO KATE CROOKSHANK, OF INDIANA, PENNSYLVANIA.

GAS-REGULATOR.

No. 824,413.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed March 20, 1906. Serial No. 306,956.

To all whom it may concern:

Be it known that I, GEORGE E. CROOKSHANK, a citizen of the United States of America, residing at Indiana, in the county of Indiana and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in gas-regulators; and the invention has for its primary object the provision of novel means for automatically controlling the valve of a gas-supply pipe, whereby when the gas-pressure within the pipe is reduced the valve will be automatically shut.

My invention aims to provide a gas-regulator particularly adapted to be used in residences where artificial or natural gas is used for illuminating and fuel purposes.

It is a well-known fact that the gas-pressure is often reduced in the main supply-pipe, whereby a light or fire is extinguished, and when assuming its normal pressure the gas escapes and is liable to asphyxiate the occupants of a compartment in which the gas is used. To prevent such an occurrence, I have devised a regulator which is actuated by a reduction in the pressure of gas to close a valve and prevent the gas from escaping should it be returned to its normal pressure.

In constructing my improved regulator I have aimed to use as simple and inexpensive a construction as possible, at the same time maintaining a strong and durable construction and providing an article that is particularly intended for use in residences.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described and claimed, and referring to the drawings accompanying this application like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a vertical sectional view of my improved regulator. Fig. 2 is a plan of the same, and Fig. 3 is an elevation of an adjusting device used in connection with the regulator.

To put my invention into practice, I con-

struct my improved regulator of a substantially rectangular casing 1, through which passes a gas-supply pipe 2, carrying a T connection 3 within the casing. The one end of the pipe 2 is provided with a conventional form of valve 4, having a winged plug 5. The opposite end of the pipe 2 is threaded, as at 6, whereby a pipe (not shown) may be connected thereto to lead to a suitable burner.

Secured to the T connection 3 within the casing 1 is a bellows 7 of a conventional form, said bellows being provided with a central post or standard 8, which protrudes through an opening 9, formed in the top of the casing 1. The one end of the casing 1 is provided with a bracket 10, in which is pivotally mounted or hinged the one end of a rod 11, said rod being pivotally connected, as at 12, to the post or standard 8 of the bellows 7. The opposite end of the casing 1 is provided with an upwardly-extending slotted arm 14, to which is slidably connected a slotted plate 15, said plate being provided with a lug 16 to engage the arm 14 and with a depending lug 17, which is adapted to support the plate upon the top of the casing 1. The plate 15 has its lower edge bent outwardly, as at 18, to assist in supporting said plate upon the top of the casing 1. The plate 15 is provided with a set-screw 19, whereby it can be adjusted and locked in engagement with the arm 14.

The forward end of the rod 11 is adapted to pass through the slotted plate 15 and is connected to one edge of the winged plug 5 by a resilient rod 20, the lower end of said rod being connected to the one edge of the winged plug 5, as at 21. The rod 11 is provided with an adjustable weight 22, whereby the operation of my improved regulator may be varied according to the normal pressure of gas within the pipe 2.

The slotted plate 15 can be provided with cushions 23 23 to relieve any jarring of the regulator by the rod being suddenly elevated or lowered.

In operation the normal pressure of the gas within the pipe 2 is adapted to maintain the bellows 7 in an expanded position, whereby the one end of the rod 11 will be normally elevated, maintaining the valve 4 in an open position and permitting gas to pass through the pipe 2. Should, for any unforeseen reason, the pressure of gas within the

pipe 2 be reduced, the bellows is adapted to close according to the reduction of the gas-pressure and through the medium of the standard 8 lower the rod 11, which, through
 5 the medium of the resilient arm 20, partially closes the valve 4. Should the pressure within the pipe 2 be entirely shut off, the collapse of the bellows will immediately close the valve 4 through the medium of the rod 11
 10 and the resilient arm 20. The adjustable weight 22, carried by the rod 11, is adjusted according to the pressure of gas within the pipe 2 and is adapted to facilitate the collapse of the bellows 7 in case the pressure
 15 within the pipe 2 is reduced. Should the bellows 7 suddenly collapse and the forward end of the rod 11 descend, the resiliency of the arm 20 prevents said arm from being broken, while the lowermost cushion 23 of the slotted
 20 plate 15 is adapted to prevent the rod 11 from jarring the regulator. The downward movement of the rod 11 can be easily limited by adjusting the slotted plate 15 upon the arm 14, and in this manner the closing of the
 25 valve 4 can be easily regulated.

The comparatively few parts used in connection with my improved regulator, together with the simplicity of the same, prevents the parts thereof from becoming disordered or
 30 broken by constant use.

I preferably construct the regulator of strong and durable metal, while the bellows is of the ordinary construction, generally constructed of some flexible material connecting
 35 two heads.

Such changes in the construction and operation of my improved regulator as are permissible by the appended claims may be re-

sorted to without departing from the spirit and scope of the invention. 40

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

1. In a gas-regulator, the combination with a gas-supply pipe, and a valve carried by said pipe, of a casing surrounding a portion of said
 45 pipe in close proximity to said valve, a bellows mounted within said casing and connecting with said pipe, a standard carried by said bellows and protruding through the top of
 said casing, a rod pivotally mounted upon
 50 the top of said casing and connecting with said standard, a resilient rod connecting the end of the first-named rod with the plug of
 said valve to partially rotate said plug when
 said rod is raised and lowered by said bellows,
 55 means to regulate the movement of said bellows, and means to limit the movement of the first-mentioned rod, substantially as described.

2. In a gas-regulator, the combination with
 60 a gas-supply pipe and a valve carried by said pipe, of a casing surrounding a portion of said pipe, and a bellows mounted within said casing and connecting with said pipe, a rod
 65 mounted upon the top of said casing and connecting with said bellows, a resilient rod connecting the first-mentioned rod with said valve, to operate said valve when the first-mentioned rod is raised and lowered by said
 bellows, substantially as described. 70

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

GEORGE E. CROOKSHANK.

Witnesses:

JAMES W. MACK,
 A. M. WONDER.