

No. 675,193.

Patented May 28, 1901.

J. W. BYERS.  
NEEDLE VALVE FOR GAS BURNERS.

(Application filed Jan. 8, 1901.)

(No Model.)

Fig. 1.

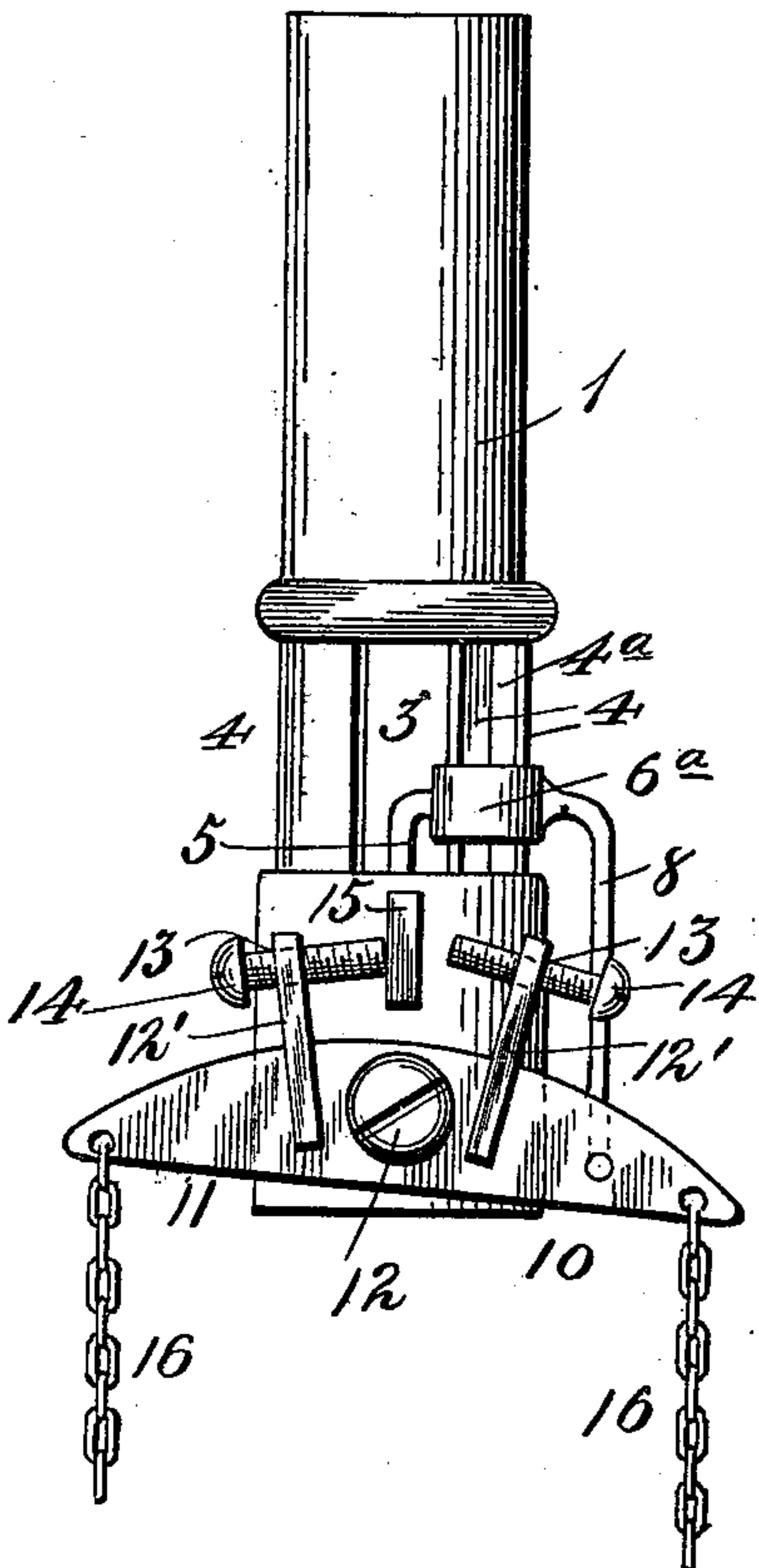
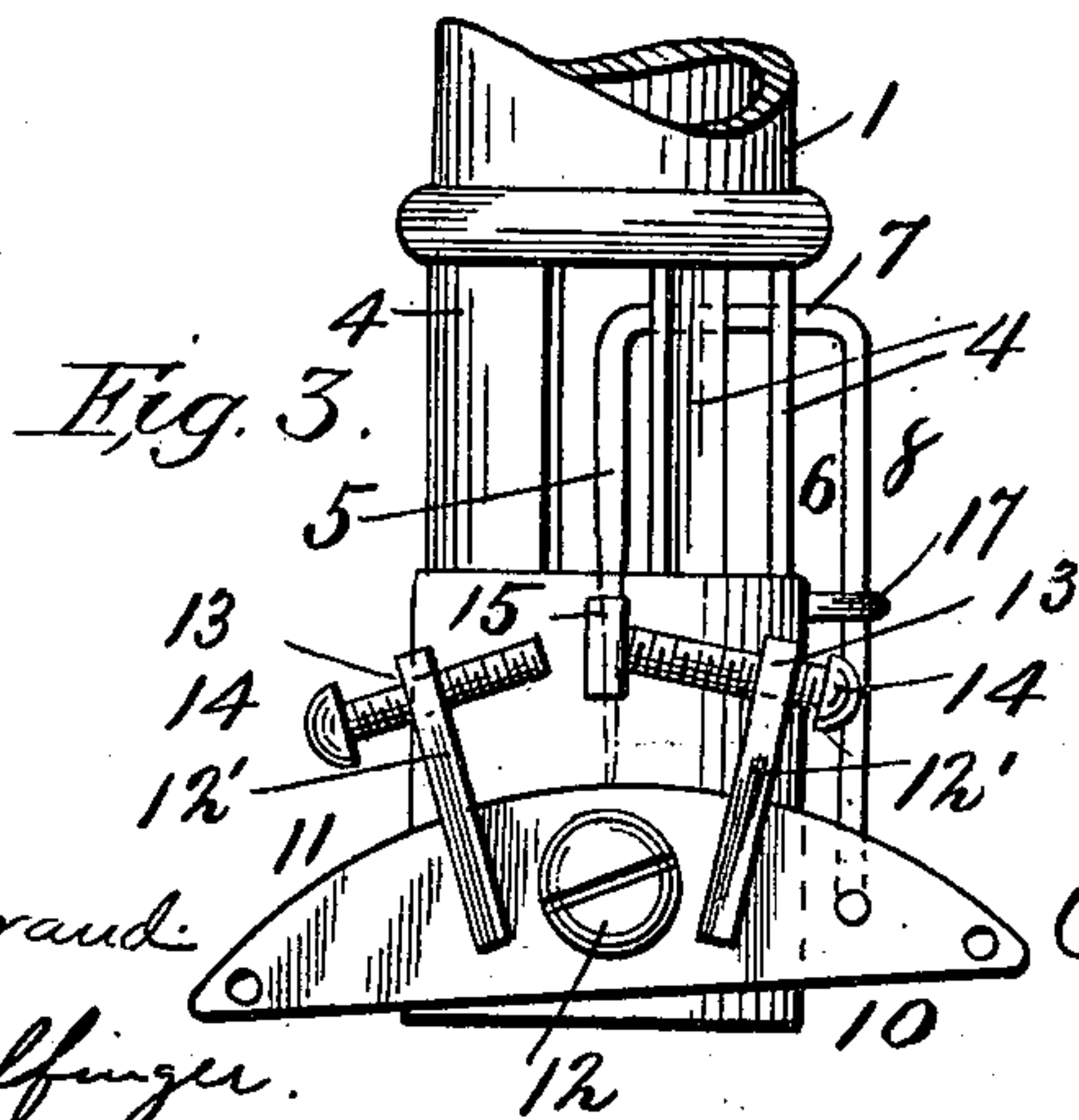
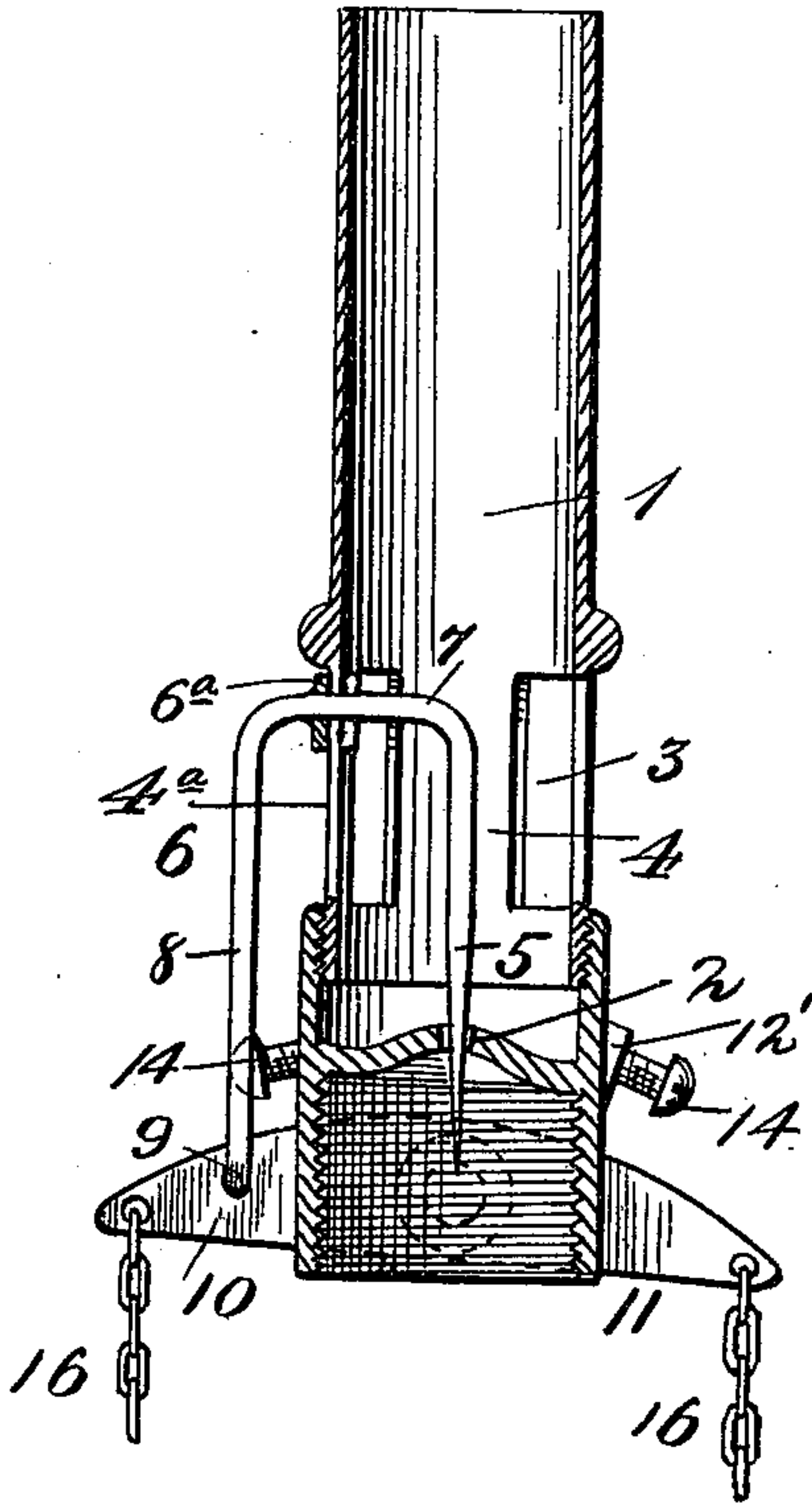


Fig. 2.



Witnesses:  
Frank L. Ouraud.  
H. G. Radelfinger.

Inventor:  
James W. Byers,  
By Louis P. Papp & Co.,  
Attorneys.

# UNITED STATES PATENT OFFICE.

JAMES W. BYERS, OF MERCER, PENNSYLVANIA.

## NEEDLE-VALVE FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 675,193, dated May 28, 1901.

Application filed January 3, 1901. Serial No. 41,974. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. BYERS, a citizen of the United States, residing at Mercer, in the county of Mercer and State of Pennsylvania, have invented new and useful Improvements in Needle-Valves for Gas-Burners, of which the following is a specification.

My invention relates to needle-valves for gas-burners; and the object of the same is to provide a device of this character which can be used in place of the old and complicated by-pass to regulate the flow of gas and light. With this object in view I have designed the simple and novel construction which is fully described in this specification and claimed, and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a side elevation of a burner-tube with my device mounted thereon. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a modified form of my device.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates a Bunsen tube which is provided with the usual small gas-inlet 2, of a somewhat larger size, and air-passages 3, separated by partitions 4. A conical needle 5, which forms the valve, is one arm of a yoke-shaped member 6. To permit the insertion of the needle 5 and to provide guides for the yoke, one of the partitions 4 is slotted at 4<sup>a</sup>. Curved rigid arms 6<sup>a</sup>, which are secured to the cross-bar 7 of the yoke and embrace the slotted partition 4, form guides and permit the yoke to be reciprocated vertically. The outer arm 8 of the yoke 6 extends down, is bent at right angles at 9, and is connected to an arm 10 of a lever 11. This lever 11 is fulcrumed centrally on a screw 12, seated in the base of the Bunsen tube 1. By the combination of sliding yoke 6, connected to one arm of the lever 11, the needle 5 can be reciprocated, and thus inserted or wholly withdrawn from the gas-inlet 2.

In order to limit the movement of the needle 5 and regulate the flow of gas at the two extremes, and thereby the light, stops are supplied. With this end in view ears 12' are formed on the arms 10 of the lever 11, which

ears are pierced by threaded apertures 13. Fitting the apertures 13 are screws 14, which are positioned to contact with an integral lug 15 on the base of the Bunsen tube. It is evident from the above that by varying the distances each of the screws 14 projects beyond the ears 12' a large range of adjustment is obtained. For convenience in operating the lever 11 chains 16 are attached to the outer ends of the arms 10, as is usual in the old by-pass.

In the modified form shown in Fig. 3 a different form of guide is employed, which consists of an apertured arm 17, secured to the side of the burner-tube 1.

I do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of my invention.

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

1. In a burner, the combination, with a burner-tube provided with a small aperture for the admission of gas, of a yoke-shaped member having a needle-pointed inner arm mounted to slide in said aperture, a guide mounted on the cross-bar of said yoke-shaped member, a lever fulcrumed intermediate its ends and having one arm pivoted to the outer arm of said yoke-shaped member, and stops to limit the movement of said needle-pointed arm, substantially as described.

2. The combination, substantially as described, with a Bunsen tube provided with a small aperture for the admission of gas, of a yoke-shaped member having a needle-pointed arm mounted to slide in said aperture, a lever fulcrumed intermediate its ends, and connected to the outer arm of said yoke-shaped member, ears on said lever, screws mounted in said ears, and a lug positioned to limit the movement of said screws.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES W. BYERS.

Witnesses:

CHARLES CLAWSON,  
M. J. NICKUM.