

No. 632,088.

Patented Aug. 29, 1899.

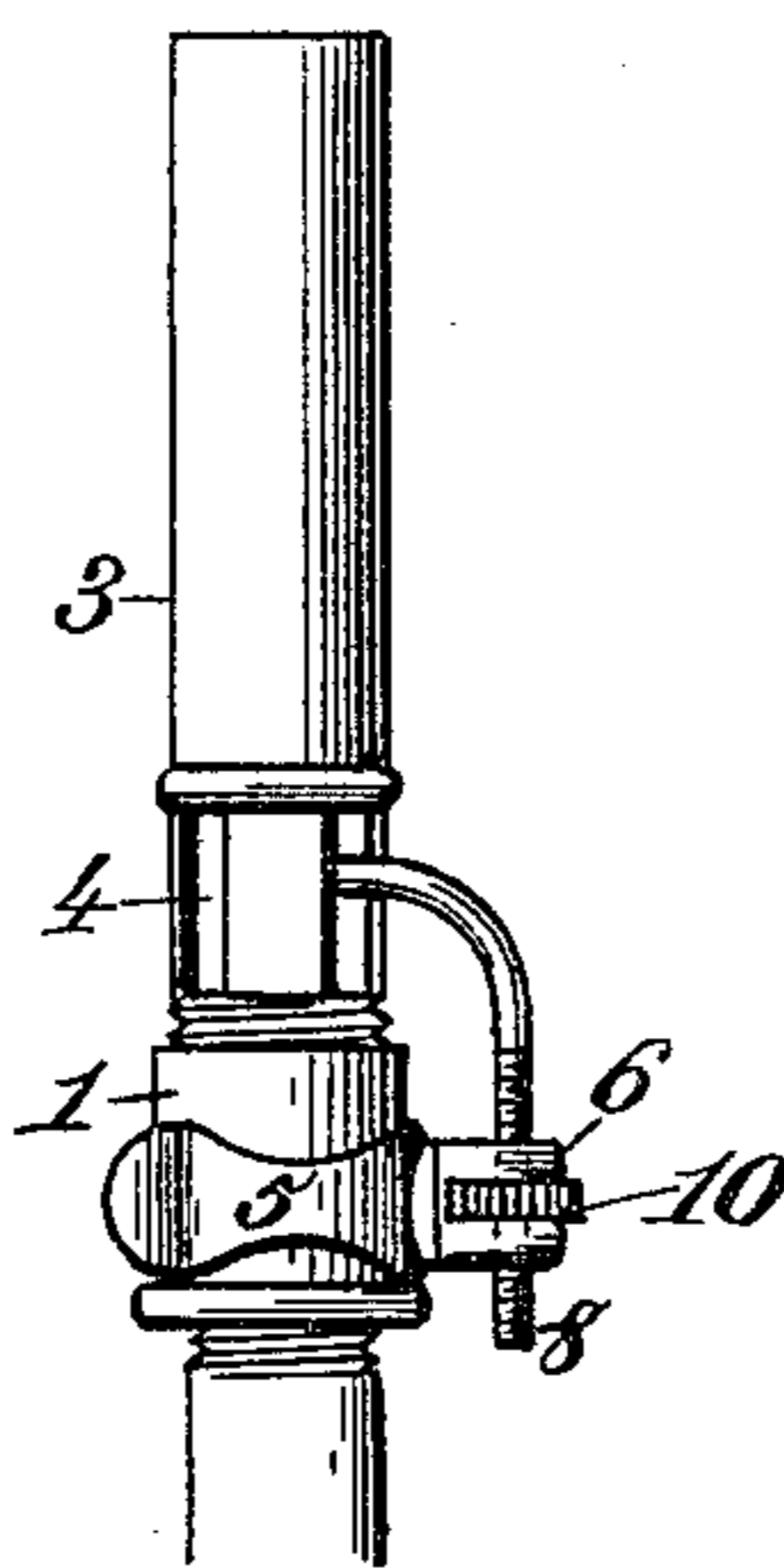
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REGULATING ATTACHMENT FOR MANTLE BURNERS.

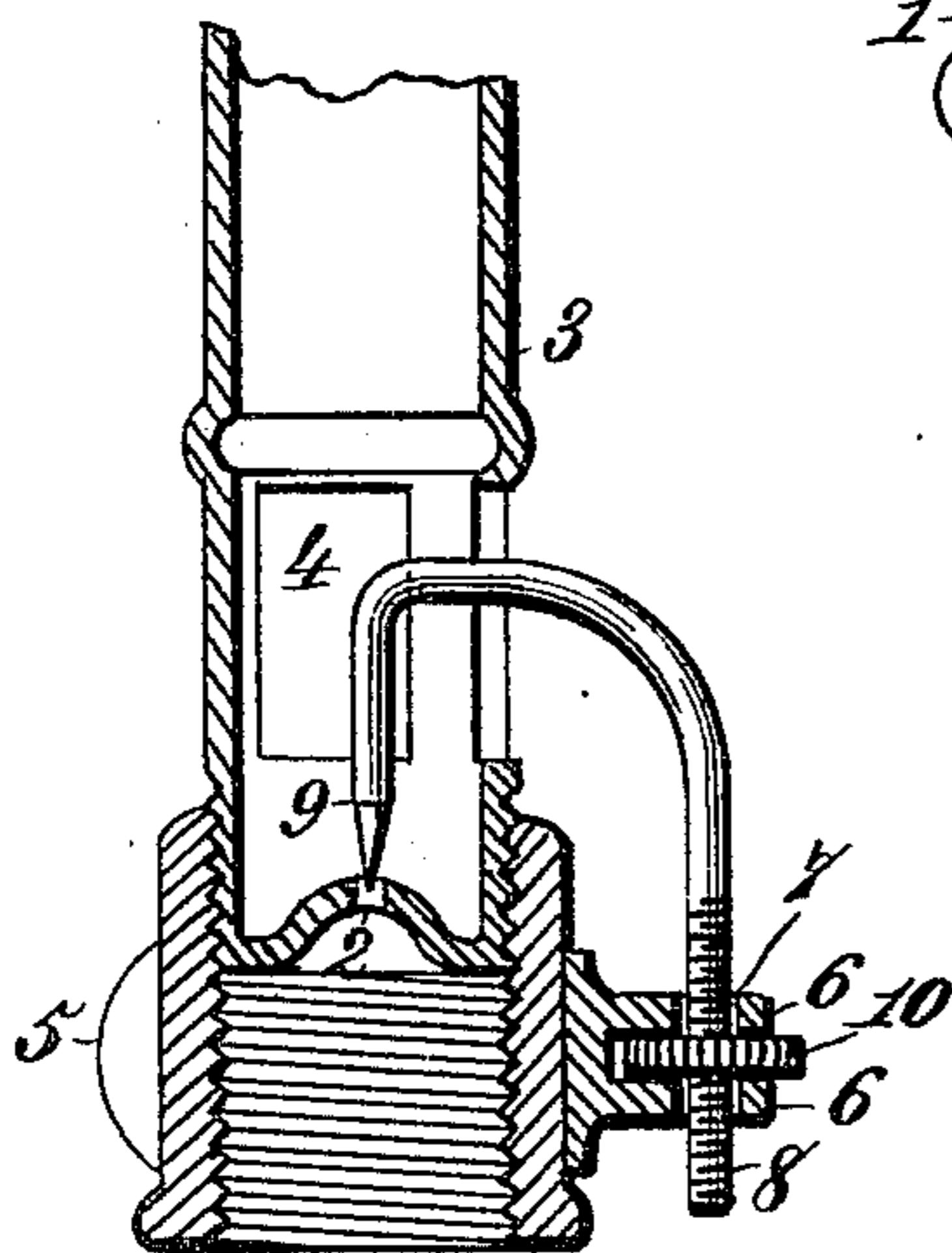
(Application filed Mar. 9, 1899.)

(No Model.)

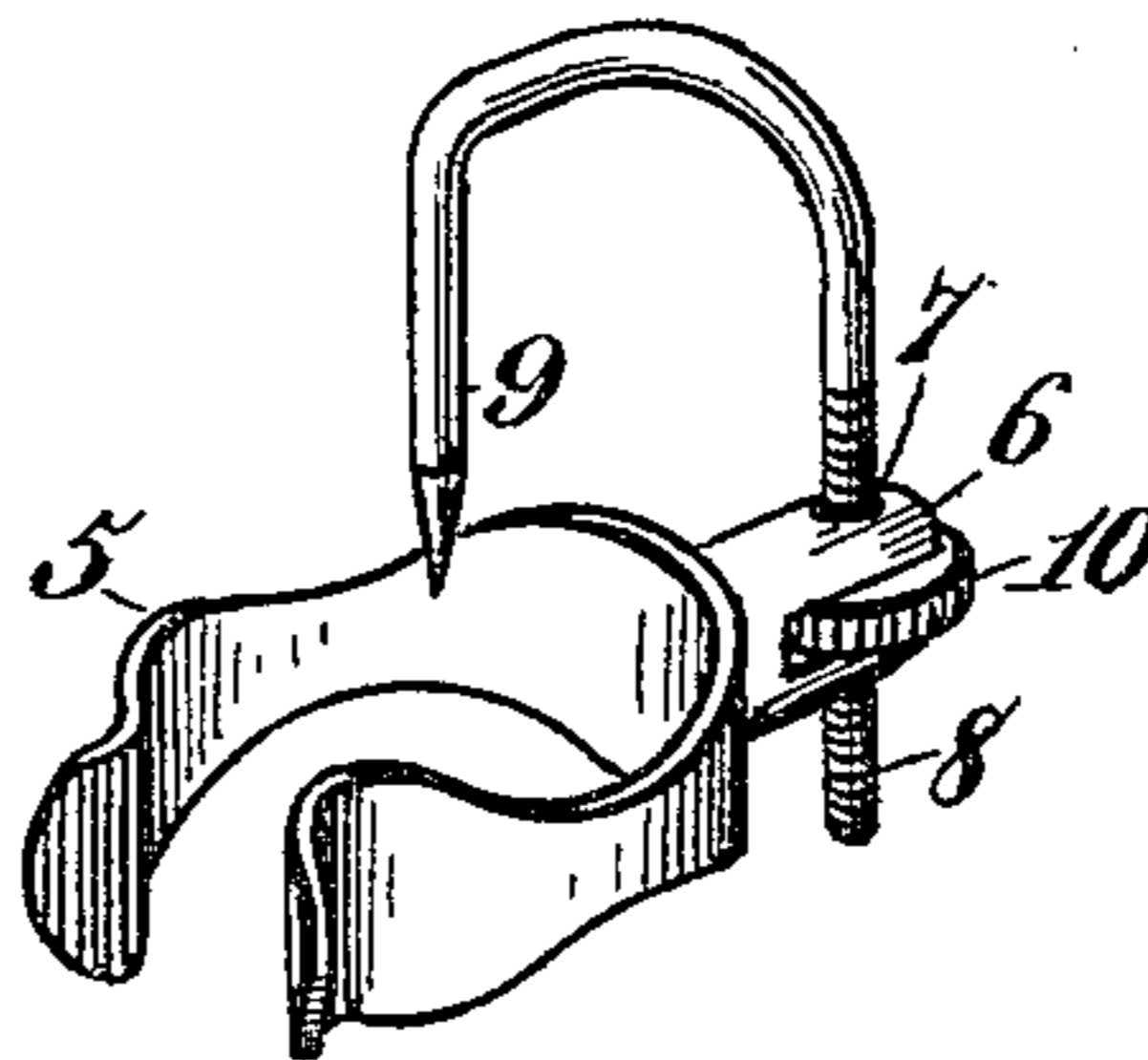
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*  
*Robert Emmett,*  
*J. B. Keegan*

*Inventor,*  
*Frank Barnhart,*  
*By James L. Norris*  
*Att'y.*

# UNITED STATES PATENT OFFICE.

FRANK BARNHART, OF WARREN, PENNSYLVANIA.

## REGULATING ATTACHMENT FOR MANTLE-BURNERS.

SPECIFICATION forming part of Letters Patent No. 632,088, dated August 29, 1899.

Application filed March 9, 1899. Serial No. 708,407. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK BARNHART, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented new and useful Improvements in Regulating Attachments for Mantle-Burners, of which the following is a specification.

This invention relates to gas-burners, particularly Bunsen burners using incombustible mantles, like the Welsbach.

The chief object of the invention is to provide novel, simple, efficient, and economical means for accurately and nicely controlling or regulating the flow of gas from the gas-supplying to the air and gas mixing portion of the burner. This object is accomplished in the manner and by the construction and combination or arrangement of parts herein-  
after described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an elevation of the mixing-tube of a gas-burner with my attachment applied thereto. Fig. 2 is a detail vertical section of the lower end of a mixing-tube with the attachment in place. Fig. 3 is a detail perspective view of the attachment.

Like reference-numerals indicate like parts in the different views.

The internally-threaded nipple or thimble 1 is secured to the lower end of the mixing-tube 3, which has a central orifice 2 therein and is provided with lateral slots or openings 4, which serve to admit air and one of which also serves for the entrance of the gas-regulator stem 8, hereinafter described.

My attachment is made up of the spring-clip 5, having parallel lugs 6 6 extending outwardly from one side thereof, said lugs being provided with registering openings 7 7, through which passes the lower threaded end of a regulator-stem 8, composed of a wire or similar rod, as clearly shown. The said rod or wire is bent inwardly from its point of connection with said lugs, passes through one of the slots or openings 4 to the interior of the mixing-tube 3, and is then bent downwardly, forming a vertical portion 9, which is in line with the central orifice 2 in the mixing-tube. The lower end of the vertical portion 9 of said rod is pointed and constitutes a needle-valve

which coöperates with the orifice in the nipple, so that by moving said valve in one direction or the other the flow of gas through the orifice 2 may be accurately controlled. The means for imparting this vertical movement to the valve consists of a nut or screw 10, which is located between the lugs 6 6 and receives the threaded portion of the rod or wire 8, the outer periphery of said nut or screw being milled or nurlled, so as to provide means whereby it may be readily turned by hand.

To apply my attachment to a burner already manufactured or in use, it is merely necessary to slip the clip 5 upon the nipple 1, when the spring arms or branches of said clip will tightly embrace said nipple and hold the attachment firmly and securely in place. When in place, the needle-valve assumes the position shown in Figs. 1 and 2 of the drawings—that is, with the pointed end thereof directly over or lying partly within the orifice 2 in the mixing-tube. By turning the nut or screw 10 the said valve may be readily raised or lowered for the purpose of regulating the size of the orifice 2, and thereby controlling the passage of the gas to the burner proper.

It is a well-known fact that mantle-burners will operate successfully only when the gas-supply to them is at low pressure. Most of the burners now in use are constructed without any means whereby the flow of gas may be controlled, except by the cock on the fixture itself. By my invention I am enabled to supply this deficiency in burners actually on the market by providing a regulating attachment which may be readily and quickly applied and which will serve to effectually control the passage of gas to the burner.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. In a gas-burner, the combination with a laterally-slotted air and gas mixing tube having a base portion and an internal gas-orifice, a gas-regulator stem having a vertical part, a bent part extending through the slotted portion of the mixing-tube to the interior thereof, and a pendent part constituting a needle-valve for said gas-orifice, a device detachably mounted on the exterior of said base portion and connected with the said vertical part of the regulator-stem, and means for raising and

lowering the stem in the laterally-slotted portion of the mixing-tube, substantially as and for the purposes described.

2. The combination with a gas-burner having a laterally-slotted air and gas mixing tube, and an internal gas-orifice, of a gas-regulator stem extending through the slotted part of the tube to the interior thereof and having a pendent extremity located over the said gas-orifice, and a spring-clip clasp-  
 10 ing the burner and in which said gas-regulator stem is vertically adjustable, substantially as described.

3. The combination with a gas-burner having a laterally-slotted air and gas mixing tube, and an internal gas-orifice, of a gas-regulator stem extending through the slotted part of the tube to the interior thereof and having a pendent extremity located over said  
 20 gas-orifice, a spring-clip clasp-  
 ing the burner and having lugs through which the stem passes, and a thumb-nut arranged between the lugs and engaging the stem, substantially as described.

4. The combination with a gas-burner having a lateral opening and an internal con-

tracted gas-orifice, of a gas-regulator stem extending through the lateral opening to the interior of the burner and having a pendent extremity located over said contracted gas-orifice, and a spring-clip clasp-  
 30 ing the burner and in which the gas-regulator stem is vertically adjustable, substantially as described.

5. A gas-regulator for a gas-burner, consisting of a spring-clip constructed to clasp  
 35 the burner and having lateral lugs, a screw-threaded gas-regulator stem passing through said lugs and bent to provide a pendent upper end portion the lower extremity of which is pointed and constitutes a needle-valve to  
 40 regulate the flow of gas through the burner, and a thumb-nut located between said lugs and engaging the screw-threaded part of the stem, substantially as described.

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

FRANK BARNHART.

Witnesses:

GEO. B. IRVINE,

CHAS. T. THURSTON.