

W. H. KRUEGER.
 AUTOMATIC CUT-OFF FOR GAS BURNERS.
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915,681.

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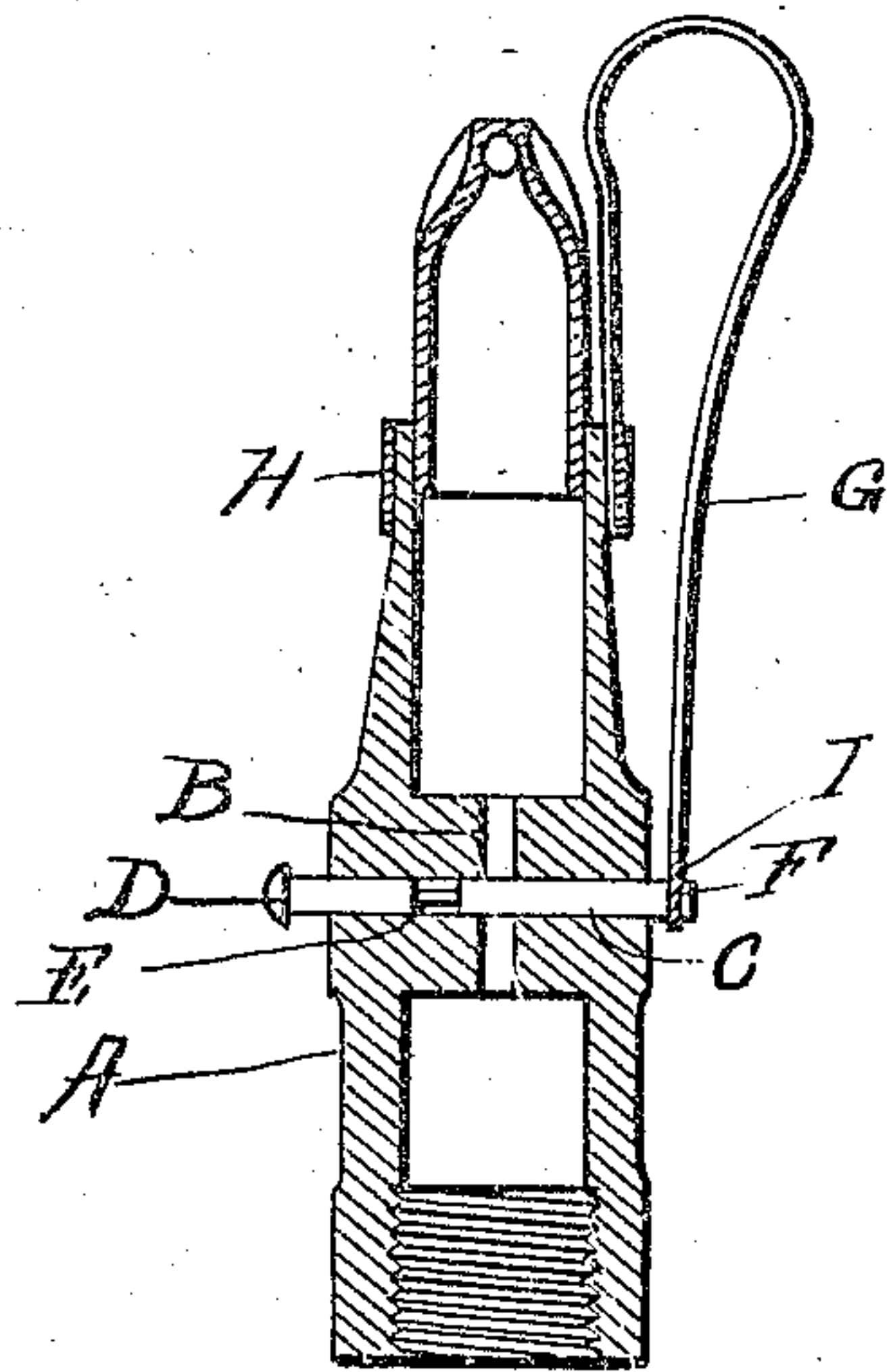


Fig 1

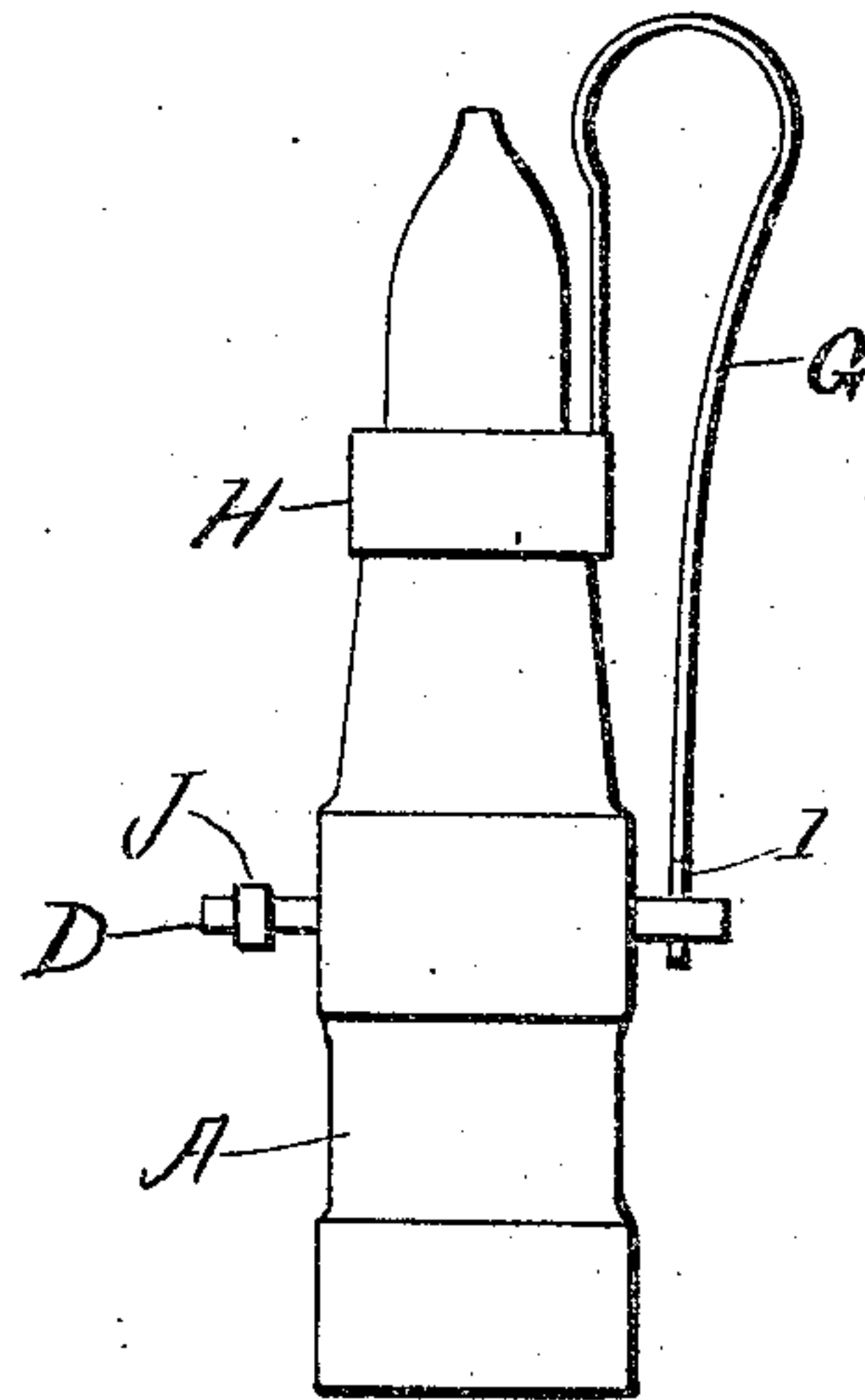


Fig 2

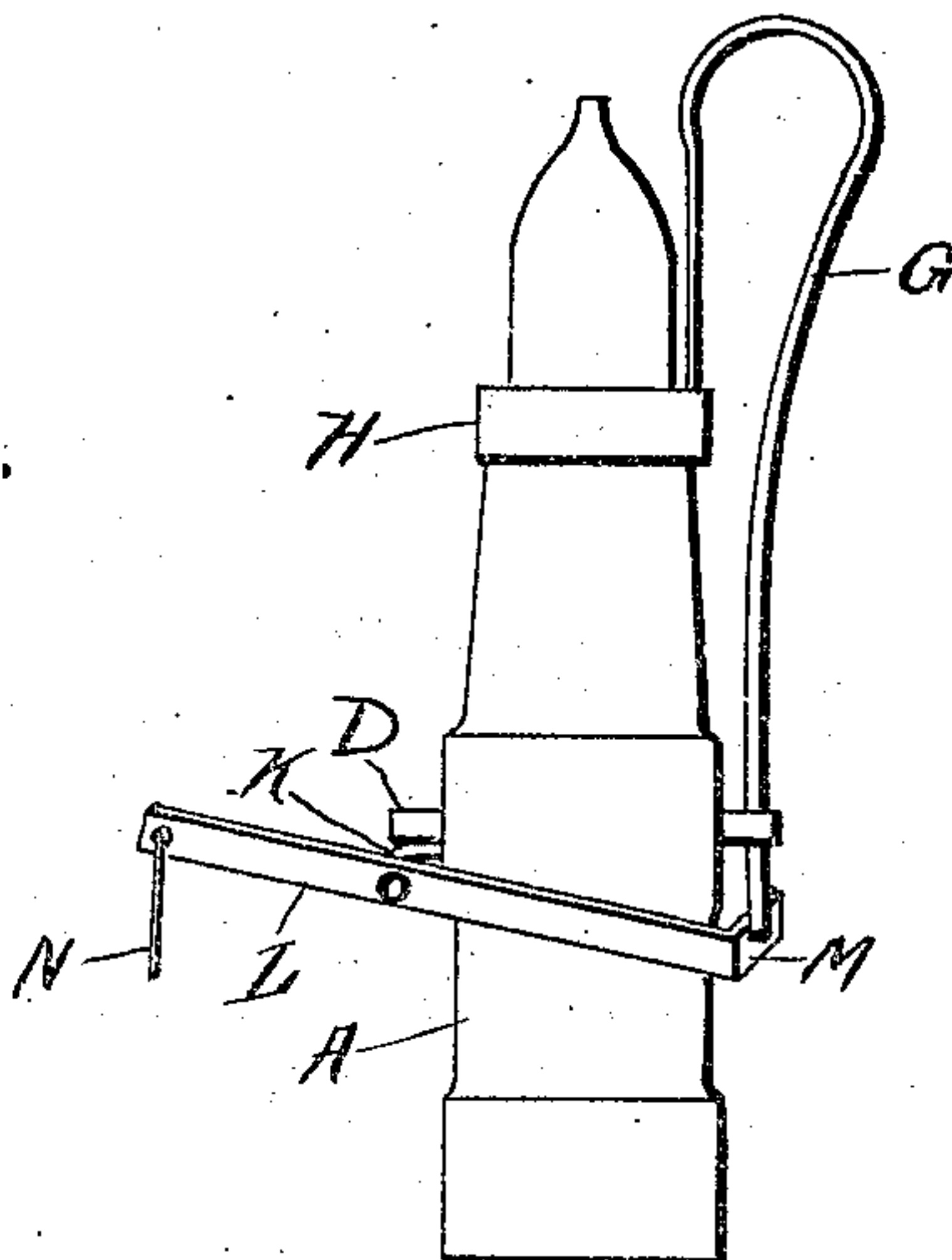


Fig 3

WITNESSES

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AUTOMATIC CUT-OFF FOR GAS-BURNERS.

No. 915,681.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. KRUEGER, a citizen of the United States, residing at Wilkes-Barre, county of Luzerne, and State of Pennsylvania, have invented a certain new and useful Improvement in Automatic Cut-Offs for Gas-Burners, of which the following is a specification.

My invention relates to a new and useful improvement in automatic cut offs for gas burners, and has for its object to provide an exceedingly simple and effective device of this character by means of which the gas may be automatically turned off should the light by any means be extinguished.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a longitudinal sectional view of my improved automatic cut off. Fig. 2 is a side elevation of a slightly modified form of my improvement, and, Fig. 3 is a side elevation of a still further modified form of my improvement.

In carrying out my invention as here embodied, A represents a gas burner so formed as to produce a central longitudinal opening B through which the gas passes from the supply pipe to the tip to be lighted.

C indicates a horizontal opening passing through that portion of the burner in which is formed the opening B, and in this horizontal opening is placed the valve rod D, having the groove E formed thereon, which when in alinement with the opening B will allow the gas to pass through said opening B.

F indicates an opening in one end of the valve rod D, for the purpose hereinafter described.

One end of the thermo spring G is secured to the upper end of the burner A by passing the band H over the end of the burner and the thermo spring. On the opposite end of the thermo is secured a short piece of wire I, which is adapted to slide up and down within the opening F when the valve rod D is moved backward or forward.

The operation of this burner is as follows: By holding a taper or match against the thermo spring G in proximity to the burner, this thermo spring G will quickly expand, which will move the valve rod D until a portion of the groove E comes in alinement with opening B, when the gas will flow through said opening and ignite it and as the thermo spring G expands, the opening B will be opened wider allowing the gas to flow more freely, thus producing a larger and brighter flame. When the gas is turned off to extinguish the flame, or a flame is otherwise extinguished while the gas is turned on, the cooling of the thermo-spring causes said thermo spring G to contract, thereby closing the opening B and preventing the escape of gas. In practice I find that the closing of the valve is almost instantaneous and that the difference between the high temperature of the flame and the normal temperature of the room is so great, that on extinguishing the flame the thermo spring contracts instantly.

In the device shown in Fig. 2, I have placed on the end of the valve rod, opposite to that one to which is secured the thermo spring, a tight fitting ring J which will allow the opening B to be partially opened, or opened all the way, depending upon how far the ring J is placed upon the valve rod D, because as the thermo spring G expands, it will move the valve rod D, thus bringing the ring J toward the burner until it comes in contact therewith, and should the ring have been placed close to the end of the valve rod it will allow the burner to be opened full, but should it be placed far enough on the valve stem so that when it comes in contact with the burner it will only partially open the opening B, then only a small flame would be given, such as is often left burning through the night, and should this flame in any way become extinguished, the gas would be shut off.

The device as shown in Fig. 3 is to be used when the gas burner is out of the reach of a man. In this one I provide an arm K secured to the burner, and to the outward end of this arm is pivoted the lever L, having the extension M formed on one end thereof, to the opposite end is secured a chain, a rod, or any other suitable appliance. When it is desired to light a burner the chain N is pulled downward, which will pull that end of the lever to which it is secured downward, thus

moving the opposite end upward, which will cause the extension M to push the wire I, secured to the thermo spring, outward, thus moving the valve rod, which will open the burner so that it may be lighted, and when this is done the thermo spring will expand, holding the burner open, allowing the lever L to return to its original position again because that end on which is formed the extension is longer and heavier than the opposite end, and should the flame be extinguished the thermo spring will instantly close the valve, thus cutting off the flow of gas.

Of course I do not wish to be limited to the exact details here shown as these may be verified within certain limits without departing from the spirit of my invention.

Having thus fully described my invention what I claim is new and useful is—

1. In combination with a gas burner having a pair of intersecting passages, a valve rod sliding in one of said passages, and having each of its ends projecting beyond opposite sides of the burner, an abutment to engage said burner on one end of said rod, said rod on its opposite end having a transverse opening therethrough and being formed at an intermediate point along its length with an annular groove, a spring of inverted J-shape located entirely on one side of said burner and having the end of its longer leg extending freely through said transverse opening of the valve rod, the end of the shorter leg of said spring abutting said burner, and a band frictionally engaged about the exterior of said burner and on the

outer face of said end of the shorter leg of the spring.

2. In combination with a gas burner having a pair of intersecting passages, a valve rod sliding in one of said passages, and having each of its ends projecting beyond opposite sides of the burner, an abutment to engage said burner on one end of said rod, said rod on its opposite end having a transverse opening therethrough and being formed at an intermediate point along its length with an annular groove, a spring of inverted J-shape located entirely on one side of said burner and having the end of its longer leg extending freely through said transverse opening of the valve rod, the end of the shorter leg of said spring abutting said burner, and a band frictionally engaged about the exterior of said burner, and on the outer face of said end of the shorter leg of the spring, an outwardly projecting arm adjacent the lower end of said burner, an L-shaped lever pivoted to said arm at a point remote from the center of its longer leg, said spring at the free end of its longer leg engaging the outer face of the shorter leg of the lever, said lever normally occupying an inclined position with respect to said burner.

In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

WILLIAM H. KRUEGER.

Witnesses:

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LEWIS M. LARNED.