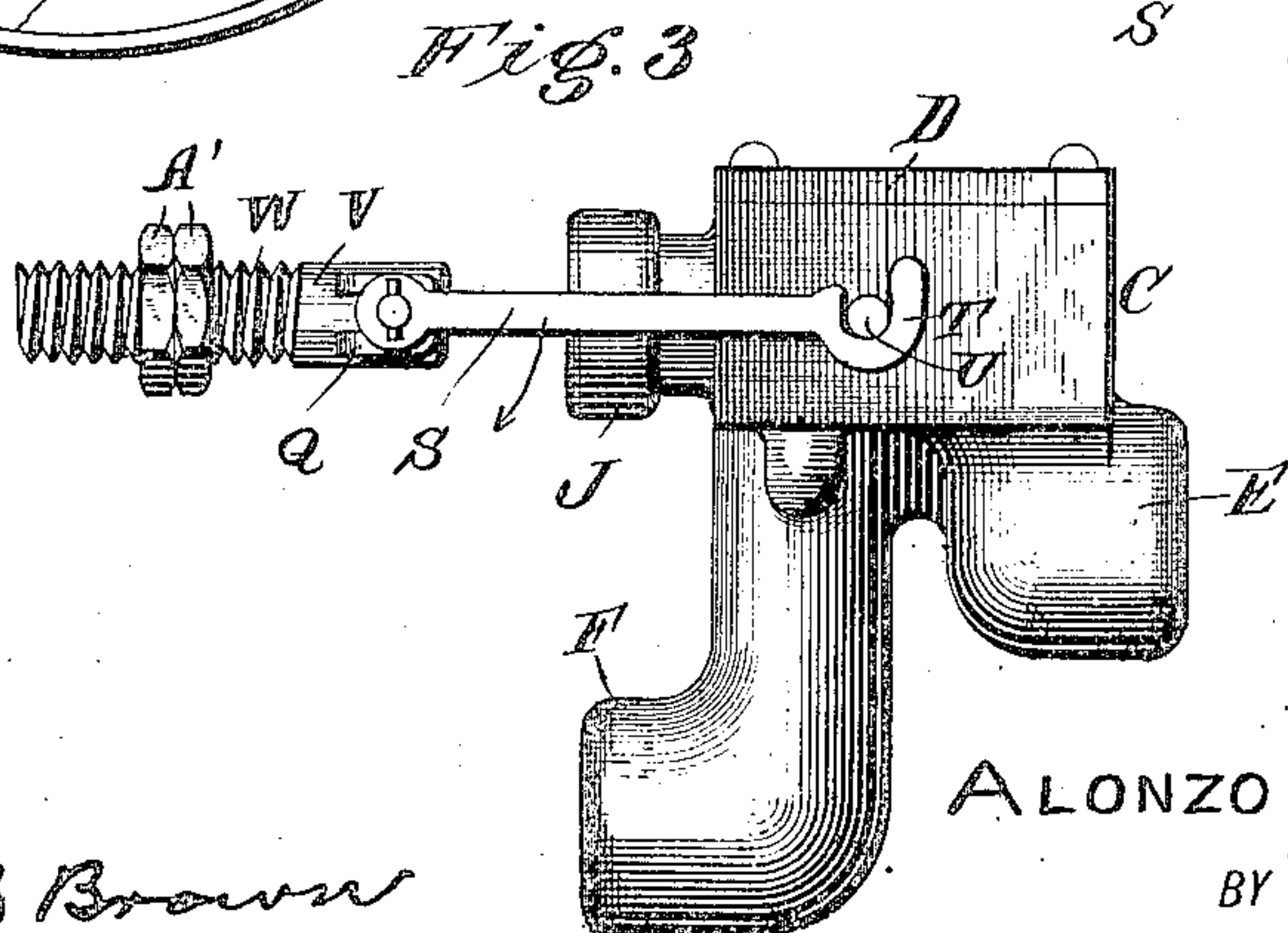
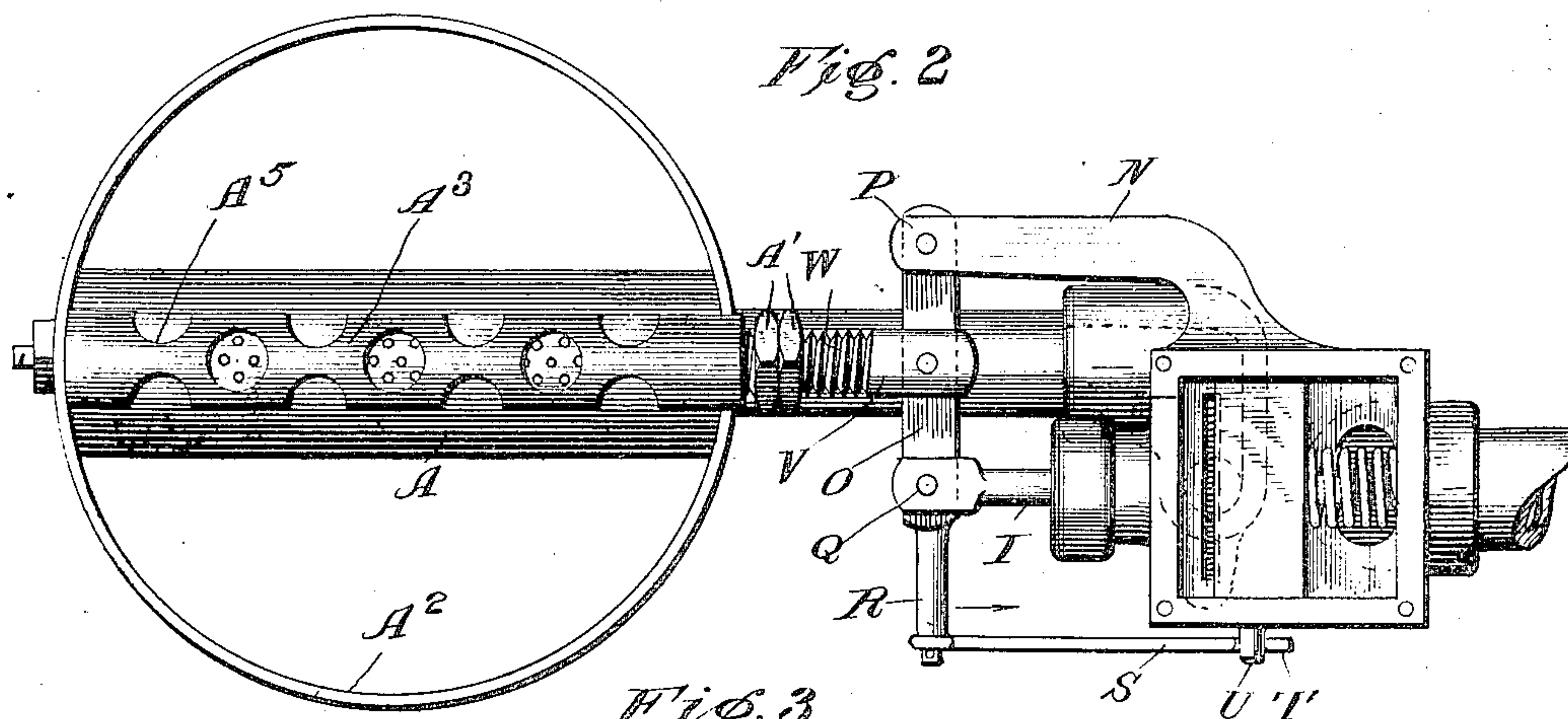
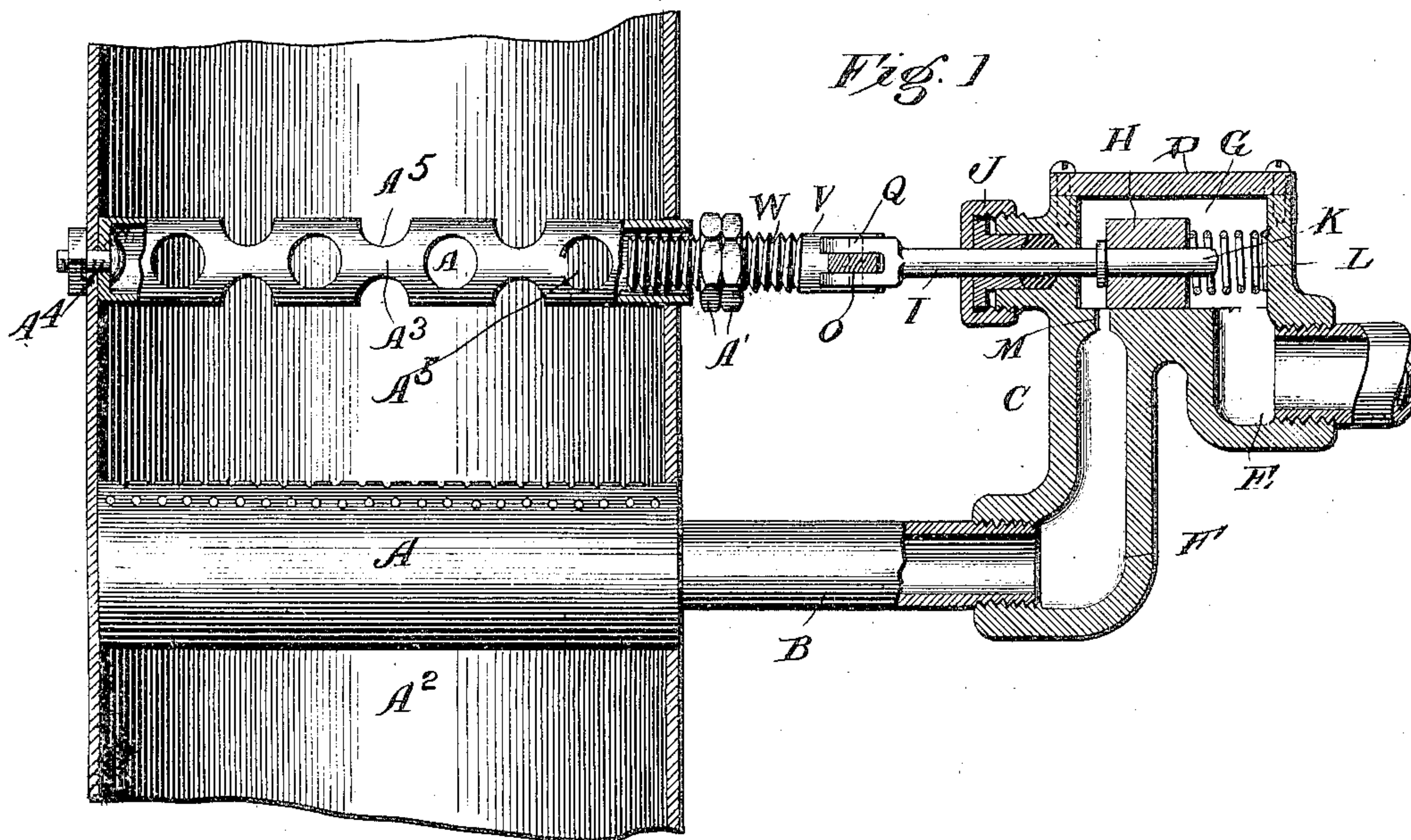


No. 812,715.

PATENTED FEB. 13, 1906.

A. ASHCRAFT.
CUT-OFF VALVE FOR GAS OR OIL BURNERS.
APPLICATION FILED JULY 7, 1905.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALONZO ASHCRAFT, OF FORT SMITH, ARKANSAS.

CUT-OFF VALVE FOR GAS OR OIL BURNERS.

No. 812,715.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed July 7, 1905. Serial No. 268,669.

To all whom it may concern:

Be it known that I, ALONZO ASHCRAFT, a citizen of the United States, residing at Fort Smith, in the county of Sebastian and State of Arkansas, have invented a new and Improved Cut-Off Valve for Gas or Oil Burners, of which the following is a specification.

My invention relates to valves more particularly designed for cutting off the fuel or illuminating supply from gas or oil burners.

The object had in view is to provide a valve of the character stated which shall not only be simple in construction and adapted for ready attachment, but after being set or opened for supply of gas or oil to the burner operates to automatically close the valve, cutting off the fuel-supply should the gas or oil cease to burn from whatsoever cause.

The invention consists of the novel and improved cut-off valve shown by the accompanying drawings and hereinafter fully described, the novel features being pointed out in the claims.

In the drawings, Figure 1 is a view, part in section, illustrating my invention in use. Fig. 2 is a top plan view, part in section, but with the top plate of the valve-case shown removed; and Fig. 3 is an exterior or side elevation of the features illustrated in Figs. 1 and 2.

In the practice of my invention I may employ any suitable gas or oil burner A, having an extension B, adapted for application thereto and preferably to provide a support for the valve-casing C.

The valve-casing is constructed with a detachable top plate D, inlet and outlet passage-ways, respectively, E F, and a suitable valve-chamber G, with the detachable plate D forming its upper wall, as shown in Fig. 1. It will be understood that a suitable fuel-supply pipe leads to the inlet E.

In the chamber G, I arrange a valve H, adapted for sliding contact with its inner lower side, and provide the valve with a projecting stem I, suitably packed by an ordinary gland J on the casing C.

The stem I is suitably extended beyond the valve H, as at K, providing support for a spring L, arranged in the chamber G and located in rear of the valve, as shown, the spring's arrangement and tension being adapted for forcing the valve to fuel-cutting-off position over the port M, leading from the chamber G.

The port M is fashioned into an elongated

opening, thereby requiring slight movement of the valve H to cover or close it against passage of the fluid fuel to the burner A.

On the outer side of the valve-case I arrange an arm N and hingedly attach one end of a transverse lever O to its free or projecting end P, substantially as illustrated in Fig. 2. The outer end of the valve-stem I has similar attachment to the lever O, as indicated at Q.

It will be further noticed that the lever O is extended at one end, forming a suitable handle R, and adapted for pivotal support of an arm S, having its free end fashioned into a suitably-upturned hook T. The hooked end of the arm S is formed, adapted for holding engagement with a lug or projecting pin U, on the outer adjacent side of the valve-case, as shown in Figs. 2 and 3.

In further carrying out my invention I affix on the lever O one end of a rod V, the same having its point of attachment suitably located between connection of the free ends of the arm N and valve-stem I with the lever, as shown in Fig. 2. The free end of the rod V is provided with screw-thread W, adapted for arrangement thereon of a suitable collar or jam-nuts A'.

The burner A may be of any suitable form and construction, and for purpose of illustrating the use of my invention in one adaptation thereof I have shown the burner arranged in a fragmentary combustion portion or flue A² of a heating or cooking stove.

In the flue or portion A² of the stove and suitably over the burner A, I arrange an expansion member A³, consisting of a tubular body open at one end and closed at its other end. The open end of the expansion-tube A³ is projected suitably through an opening in the portion A² of the stove for support and its closed end supported and secured by means of a bolt or rivet A⁴ to the opposite wall of the stove portion A², substantially as shown in Fig. 1. The expansion-tube A³ is made cellular or provided with a series of perforations A⁵ in order that it may be constructed of minimum body of metal and still retain its strength and coefficient of expansion. Obviously through means of such construction of the expansion-tube it is rendered expansively sensitive to action of heat, as from heat of the burner, and quick of contraction by cooling effect of unheated draft of air through the stove.

Upon reference to Fig. 1 it will be noticed

that the screw-threaded end of the rod V is extended into the open end of the expansion-tube A³ and that this end of the tube A³ may be permitted unimpeded movement during expansive and contractive action. It should have free action on the screw-threaded end of the rod V and likewise free from holding effect of the stove-wall portion, through which it is extended.

I would have it understood that while I prefer the construction or form of expansion member shown and described any well-known form of device or means may be employed with the same adapted through expansive and contractive action for effecting necessary operation of the valve H upon lighting the burner and when the same is extinguished or ceases to burn from whatsoever cause.

The construction of my invention will be understood from the above description. Its operation may be briefly described as follows: The valve H is moved to the open position illustrated for passage of the fluid fuel to the burner by adjusting the handle end R of the lever O, as indicated by the arrow in Fig. 2. This action compresses the spring L to increased tension against the valve H, and the latter is held at open position by turning upwardly the arm S to position with its hooked end T into engagement with the fixed stud or pin U. The jam-nuts are adjusted to position on the rod V slightly free from contact with the adjacent end of the expansion-tube, substantially as shown in Figs. 1 and 2. It is apparent that upon lighting the burner heat therefrom will cause expansion of the tube or thermal member A³ and adjustment of its free end to shoving engagement with the jam-nuts A'. The jam-nuts being located on the rod V, adapted to be engaged by the free or movable end of the thermal tube member A³, it is apparent only slight further expansion of the thermal member will operate to shove the rod V endwise, and through its connection with the lever O and the latter's attachment to the arm N pressure will be applied to the projecting end of the stem I, adjusting it endwise, and thereby imparting slight rearward adjustment from the part M of the valve H. Now such operation will remove frictional holding engagement of the hook T with the stud U, permitting the arm S to drop by gravity, as indicated by the arrow in Fig. 3, from engagement with the stud U. So long as the burner A remains lighted the parts will be held adjusted and the valve secured at its open position by the locking thereof or the expanded condition of the thermal member A³. Should the fluid fuel cease to flow, however, or the burner go out from whatsoever cause, it is apparent that the thermal member will be quickly cooled, causing contraction thereof, by drafts of air flowing through the stove member. Now upon contracting action of

the thermal member its free end will be drawn from holding engagement against the jam-nuts, and with the rod V thus set free tension of the spring L will force the valve H forward over the port M, and thus cut off supply of fuel flowing through the port M, passage-way F, and the tube B, leading to the burner A. Thus it will be seen that my novel and improved cut-off valve for gas or oil burners is made not only automatic in action to cut off the fuel-supply should the burner go out, but by reason of the peculiar construction and combination of features rendered sure of operation and made adapted to be set by slight adjustment of the jam-nuts A' for not only cutting off the supply of fuel should the burner go out, but adapted for similar automatic operation upon reduction of the fuel-supply to the burner.

It may be well to add in further description of the adaptabilities of my invention that the valve-cutting-off action may be regulated by simple adjustment of the jam-nuts, so that it will be permitted to act, cutting off the supply of fuel upon reduction of its supply or due to the burner going out from whatsoever cause.

I have hereinbefore stated that the thermal member A³ may be in the form of any suitable thermal means. In further explanation of such statement I desire to say that in the appended claims the generic term "thermal member" wherever appearing is intended to comprehend any form or type of thermal means adapted through suitable intermediate devices for causing action of the lever O, substantially as hereinbefore fully described, for effecting adjustment of the valve H to cutting-off position of the flow of the fluid fuel.

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

1. The combination with a fluid-fuel burner, of a reciprocating valve, a tubular thermal member, means connecting the thermal member with the valve, and means whereby the thermal member and valve connecting means may be secured, said securing means being adapted to release the valve upon expansive action of the thermal member, substantially as described.

2. The combination with a fluid-fuel burner, of a reciprocating valve, a tubular thermal member, means connecting the valve with the thermal member, means whereby the valve is released, means whereby the valve is adjusted to cutting-off position, and means adapted to be set gaging operative action of the expansive member, substantially as described.

3. The combination with a fluid-fuel burner, of a tubular thermal member, a casing having a chamber and passage-ways leading to the burner, a reciprocating valve in

the casing-chamber, having adjustment to open and cutting-off position, a stem extending from the valve, means extending from the valve-stem to the thermal member, means whereby the valve may be secured to open adjustment, the valve-securing means being adapted to be automatically released, upon expansive action of the thermal member, and means operating to adjust the valve to cutting-off position upon release of its securing means, substantially as described.

4. The combination with a fluid-fuel burner, of a thermal member, a casing having a chamber and passage-ways leading to the burner, a valve in said chamber, having a projecting stem, a spring adapted for forcing the valve to cutting-off position, a lever having suitable pivotal support at one end, and attachment to the valve-stem, a rod having connection with the lever, at a point between its pivotal support and the point of the valve-stem connection, the rod being extended suitable for operative connection with the thermal member, and an arm supported on the free end of the lever, having an upturned hooked end, with the latter adapted for connection with a fixed device on the valve-casing, whereby the valve may be secured at open adjustment, and the hooked end of the arm be automatically disengaged, upon expansive action of the thermal member and operation of the intermediate devices, substantially as described.

5. The combination with a fluid-fuel burner, and a cut-off valve in its fluid-fuel-supply passage-way, having a suitable stem, the valve being yieldingly retained at cutting-off position, of a tubular thermal member supported to receive heat from the burner, a lever having pivotal support at one end, and

near the other end, attachment with the valve-stem, a reciprocal rod having one end attached to the lever, between the points of its pivotal support and connection therewith of said valve-stem, and a collar on the reciprocal rod, the free end of said rod being extended into the adjacent open end of the tubular thermal member, substantially as described.

6. The combination with a fluid-fuel burner, and a cut-off valve in its fluid-fuel-supply passage-way, having a suitable stem, the valve being yieldingly retained at cutting-off position, of a tubular thermal member supported adapted for receiving heat from the burner, and having its body suitably perforated, a lever having pivotal support at one end, and near the other end, attachment with the valve-stem, a reciprocal rod having one end attached to the lever, between the points of its pivotal support and connection therewith of said valve-stem, and jam-nuts on the reciprocal rod, the free end of said rod being extended into the adjacent open end of the tubular thermal member, substantially as described.

7. The combination with a fluid-fuel burner and a yielding valve in the fuel-supply passage-way, of a thermal member, consisting of a tubular body, means connecting the thermal member with the valve, means for holding the valve open, adapted for automatic release thereof, and an adjustable device interposed between the thermal member and valve devices, whereby to time and gage action of the valve, substantially as described.

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Witnesses:

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