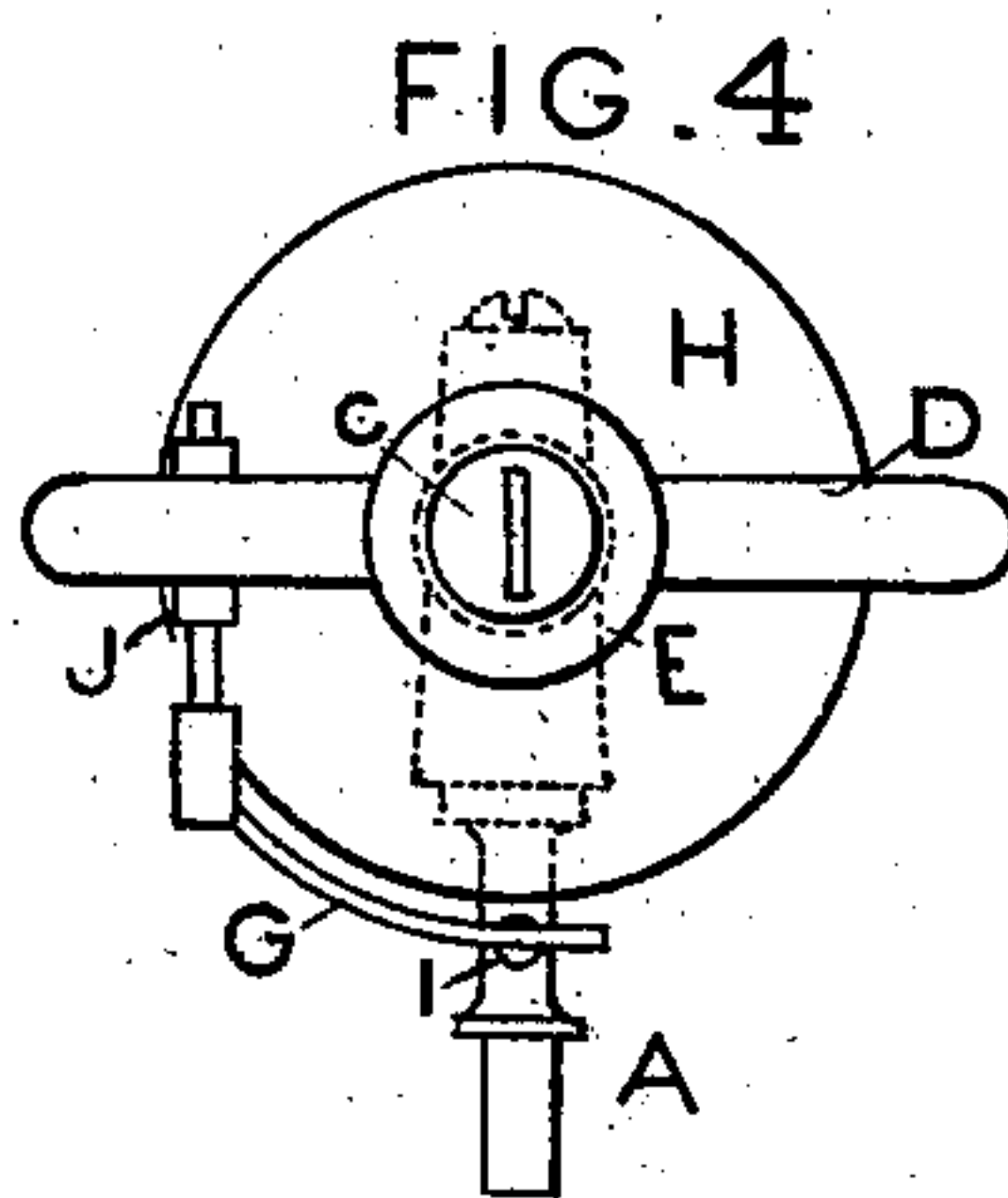
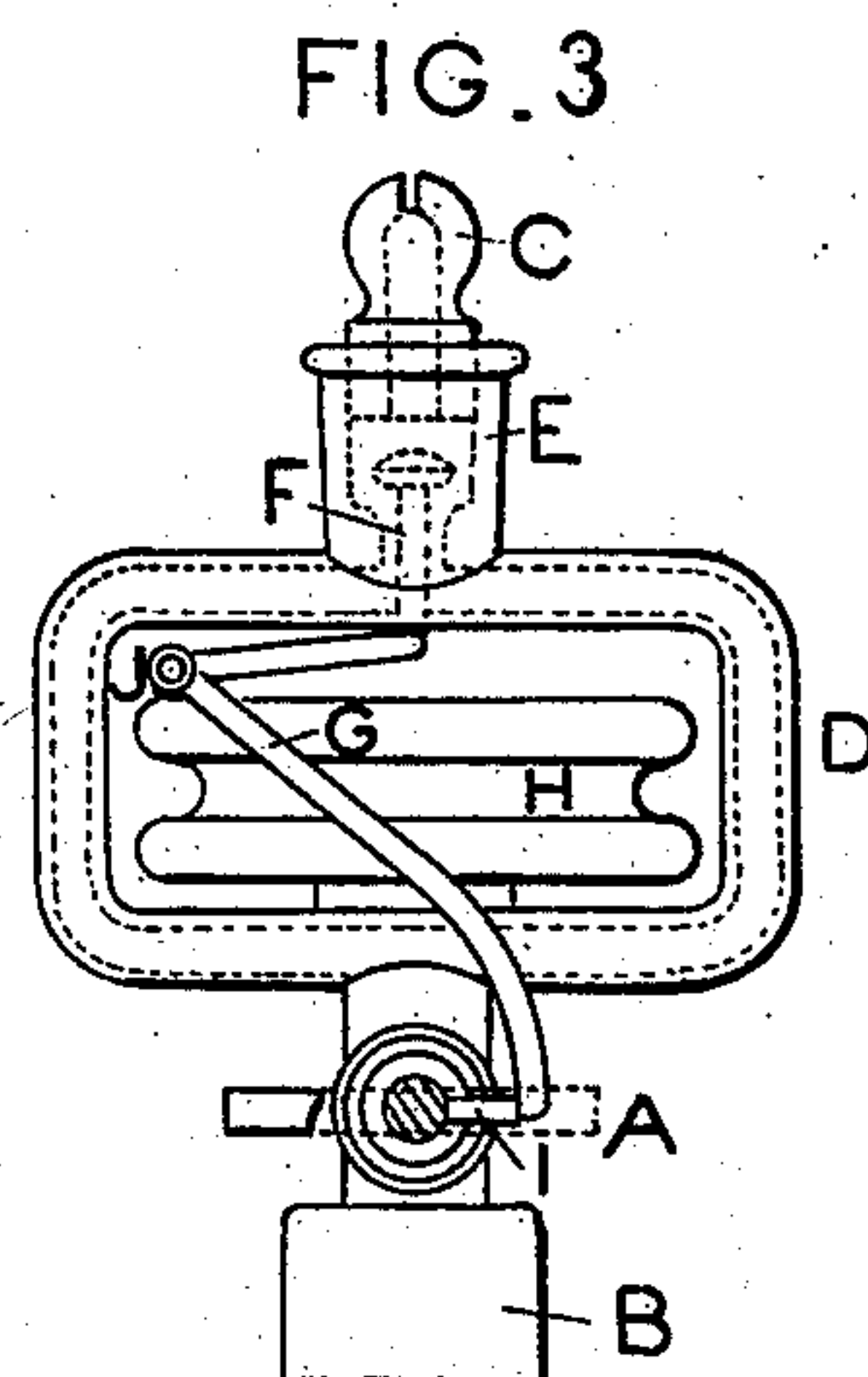
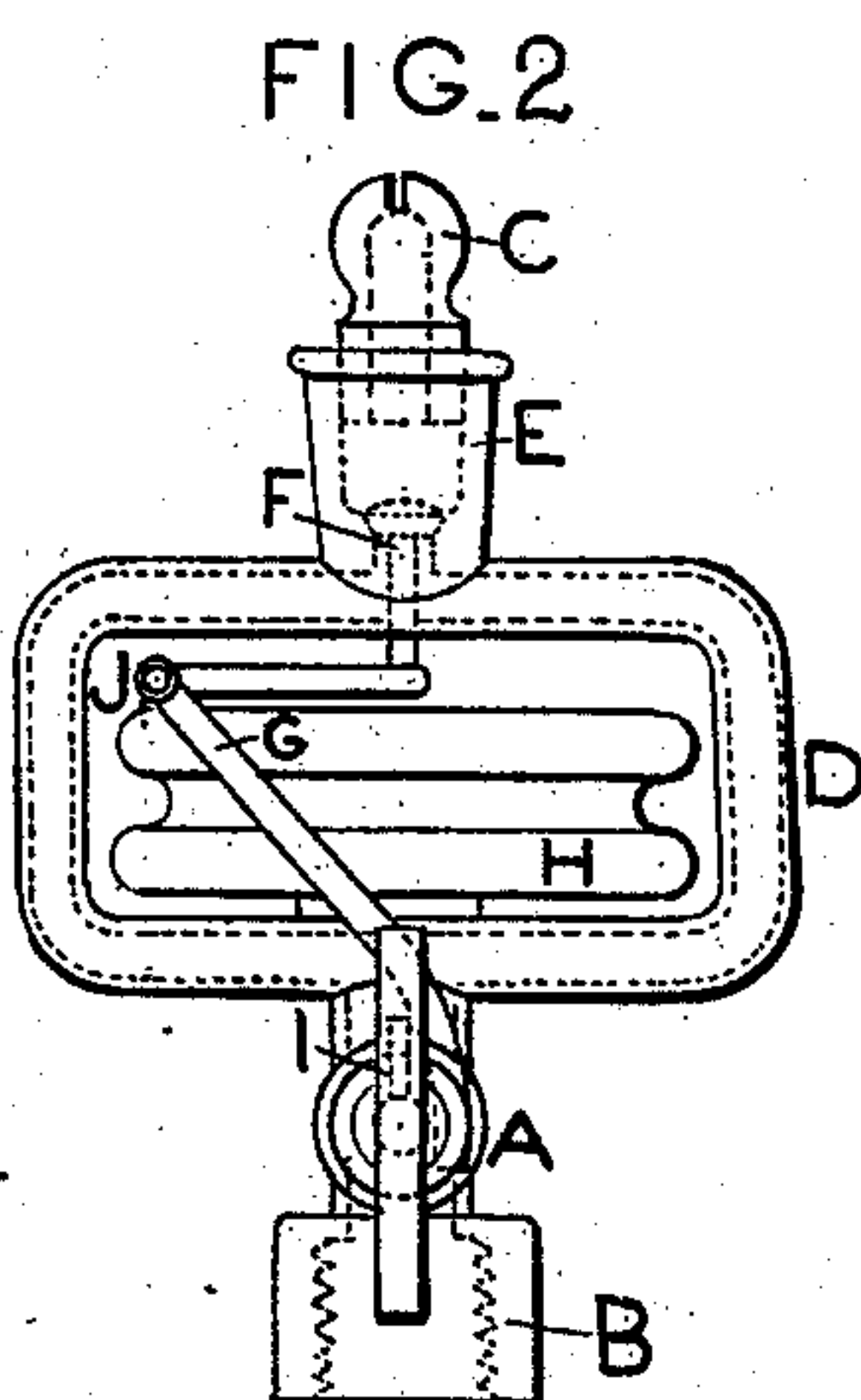
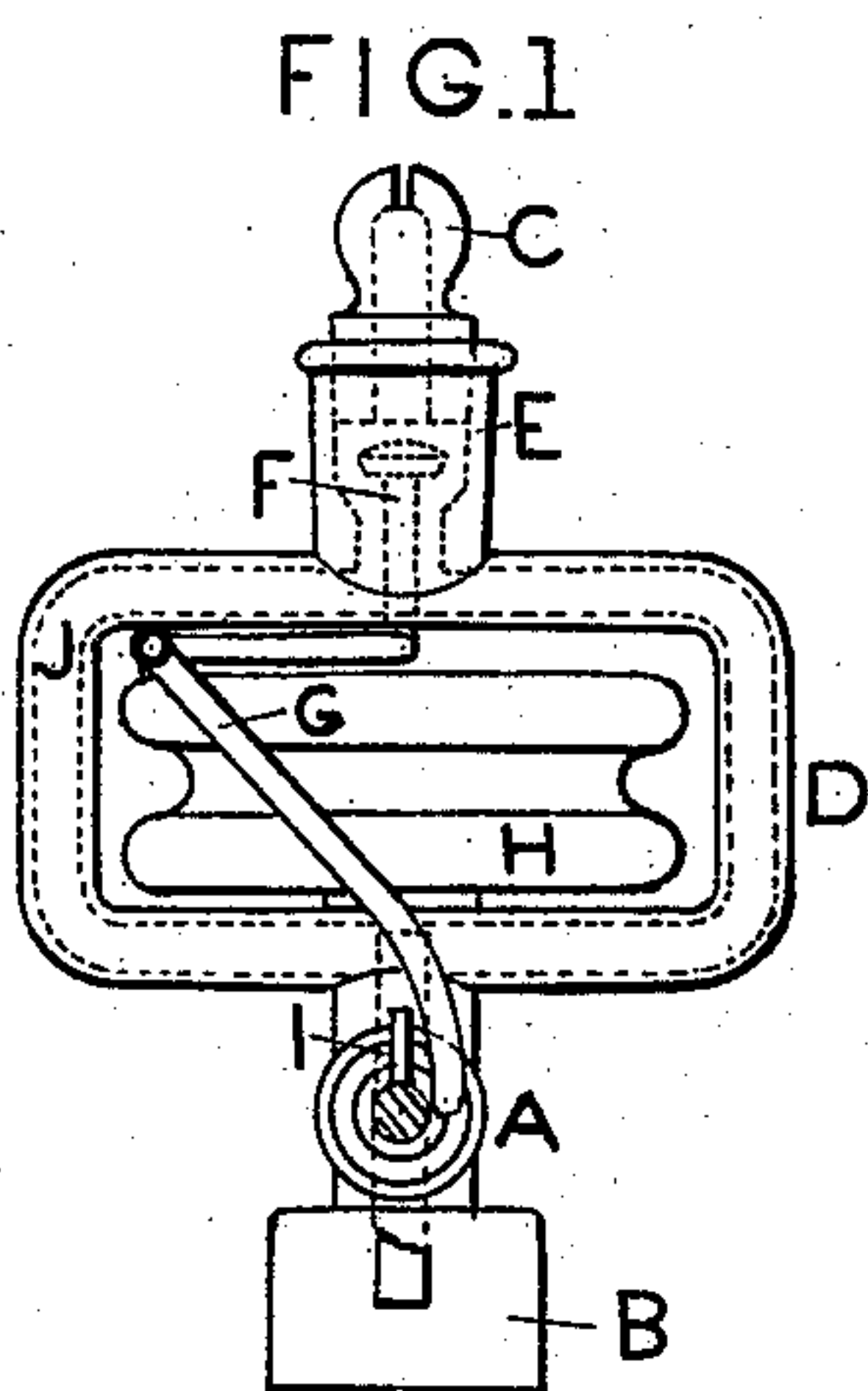


(No Model.)

A. C. AUSTIN.  
CUT-OFF GAS BURNER.

No. 298,052.

Patented May 6, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ALVAH C. AUSTIN, OF SAN FRANCISCO, CALIFORNIA.

## CUT-OFF GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 298,052, dated May 6, 1884.

Application filed June 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ALVAH C. AUSTIN, a citizen of the United States, and a resident of San Francisco, State of California, have invented a new and Improved Automatic Cut-Off Gas-Burner, of which the following is a specification.

My invention relates to all gas-burners which are liable to be left with the gas, unburned, full flowing therethrough, thus causing waste and incurring great danger to life and property.

The object of the invention is to shut off the flow of gas when, through accident, ignorance, or mistake, the gas is blown out or, having been properly turned off, is afterward inadvertently turned on again.

In the accompanying drawings, making part of this specification, Figures 1, 2, and 3 are side elevations of my burner, illustrating my cut-off in three different positions. Fig. 4 is a plan.

The same letters of reference represent the same parts in all the figures.

A is the ordinary tap or turn cock, which shuts off and turns on the gas.

B is the bell-mouth, which screws upon the pipe which conveys the gas to the tap.

C is the ordinary lava-tip.

D is the pipe, formed in the shape of an oblong frame which connects between the tap and the bell-mouth E, into which the lava-tip is inserted.

F (shown in dotted lines) is my auxiliary shut-off valve, which has its appropriate seat within the bell-mouth E, as shown. G is my bell-crank, which operates this auxiliary shut-off valve.

H is my expanding disk or drum, which may be made of finely-spun brass and have a corrugated periphery; or it may be made of fine steel, somewhat as the expanding coil of the ordinary steam-gage is made.

I is the trip-pin projecting from the shank of the tap A, and which throws out the lower end of the bell-crank to lift the auxiliary valve whenever the tap is turned off. The bearing J for the shaft or spindle of the bell-crank G is soldered on the top of the disk. The bell-crank may have one or both limbs made of

spring-steel, so as to yield slightly to permit the tap to be turned off when the bell-crank is in the position as shown in Fig. 1. It must, however, be stiff enough to raise the auxiliary valve when moved to position, as shown in Fig. 3.

The operation of my device is as follows: Let us say the gas has just been blown out and the tap not turned off. The position of the parts will be, at the moment of extinguishing the flame, as shown in Fig. 1, because the heat of the flame has previously caused the expansion of the drum, and having raised the fulcrum and brought the horizontal limb of the bell-crank against the upper part of the frame, this limb has been forced down to its true horizontal position, and the other limb forced in against the shank of the tap-plug. When, in this position, the surrounding atmosphere begins to cool and the drum contracts, the horizontal limb of the bell-crank recedes and the stem of the valve F follows down until the valve itself rests upon its seat and shuts off the flow of gas, the position of the parts at this time being as shown in Fig. 2. Subsequently, when it is required to relight the gas, the valve F is first reopened by shutting off the tap A, as in Fig. 3, afterward turning it on to let the gas flow.

The bell-crank must be properly proportioned and rather tight in its bearings to insure its remaining in any position it may be left in. It must not be so loose as to fall in and drop the valve F. When being in position as shown in Fig. 3, the key of the tap is turned vertically.

The expansion-drum should be filled with ether or some other sensitive element.

The stem of the valve F may have a stuffing-box, if found necessary; but if so, then the stem of the valve and the end of the limb of the bell-crank must be connected with each other; otherwise the valve might not drop.

The expansion-drum should be as near as possible to the flame to insure quick expansion. Generally, if the gas be burning but half a minute, the expansion will be complete. Expansion is of course necessary to give the bell-crank its proper position to insure operation; but there is seldom a case where the flame is



blown out before it has burned thirty seconds.

Various forms of the parts may be easily devised, the shapes and arrangements here shown being, however, fully illustrative of the principle of my invention.

What I claim to be my invention is as follows:

The automatic gas cut-off herein described, consisting of the valve F, bell-crank G, ex-

pansion-drum H, and trip-pin I, arranged and operating in connection with the ordinary parts of a gas-burner, substantially as and for the purpose herein described.

ALVAH C. AUSTIN.

Witnesses:

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