

No. 859,756.

PATENTED JULY 9, 1907.

E. O. FROID.
AUTOMATIC CUT-OFF.
APPLICATION FILED APR. 13, 1907.

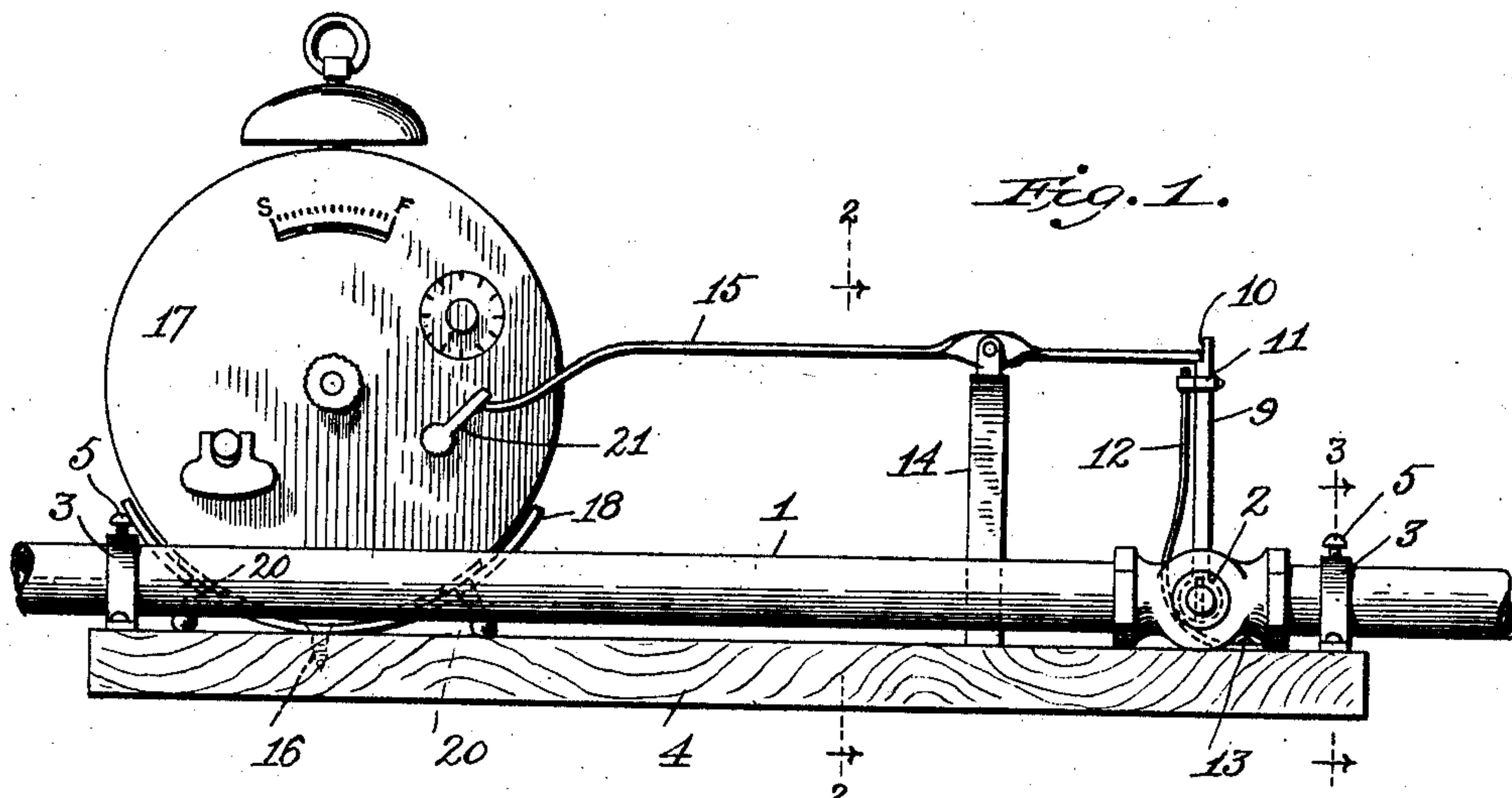


Fig. 4.

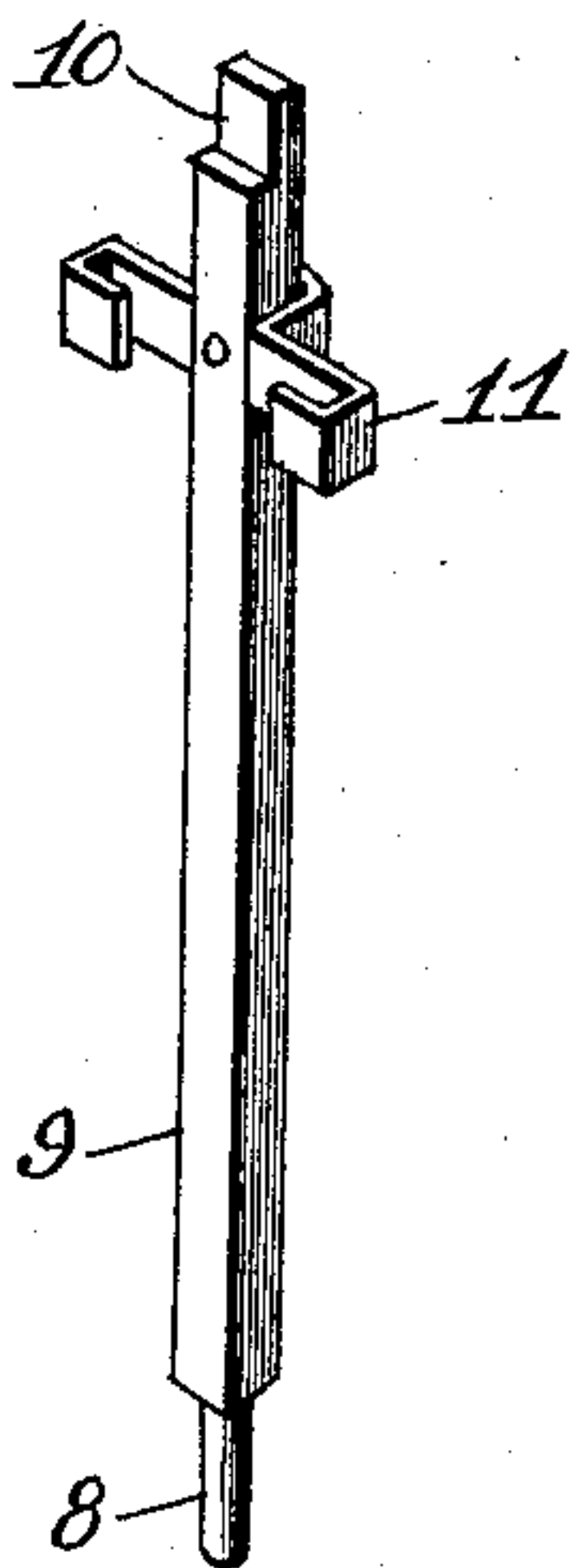


Fig. 2.

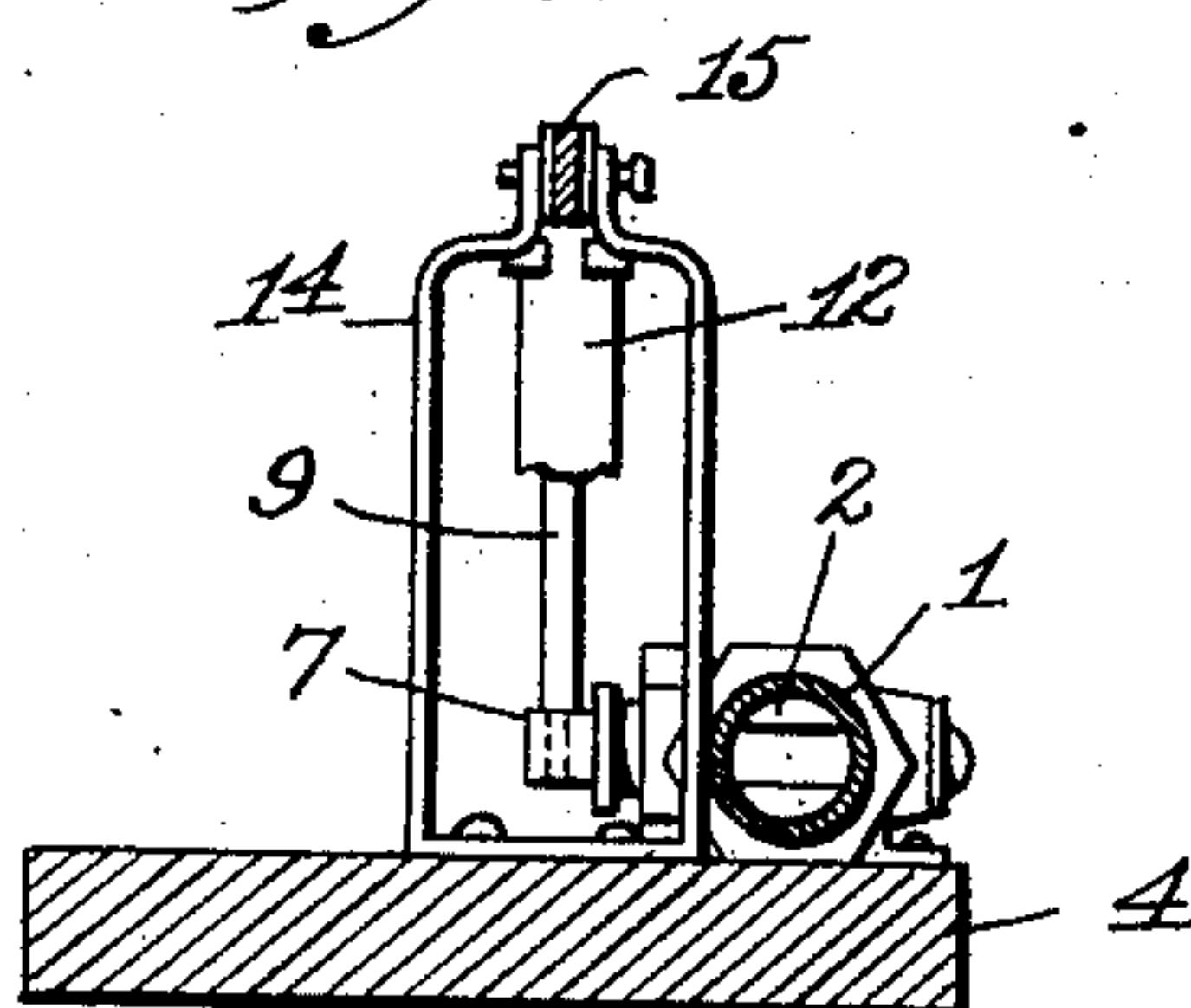


Fig. 5.

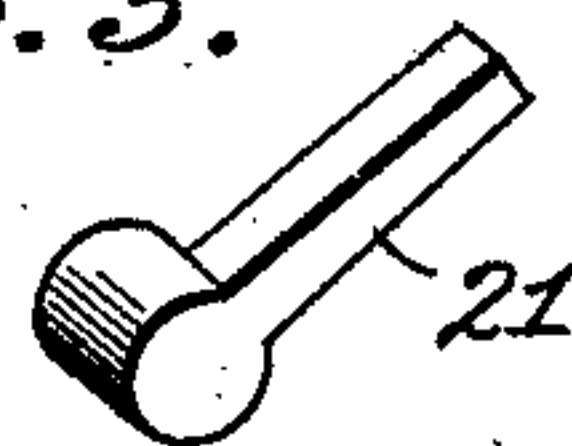


Fig. 6.

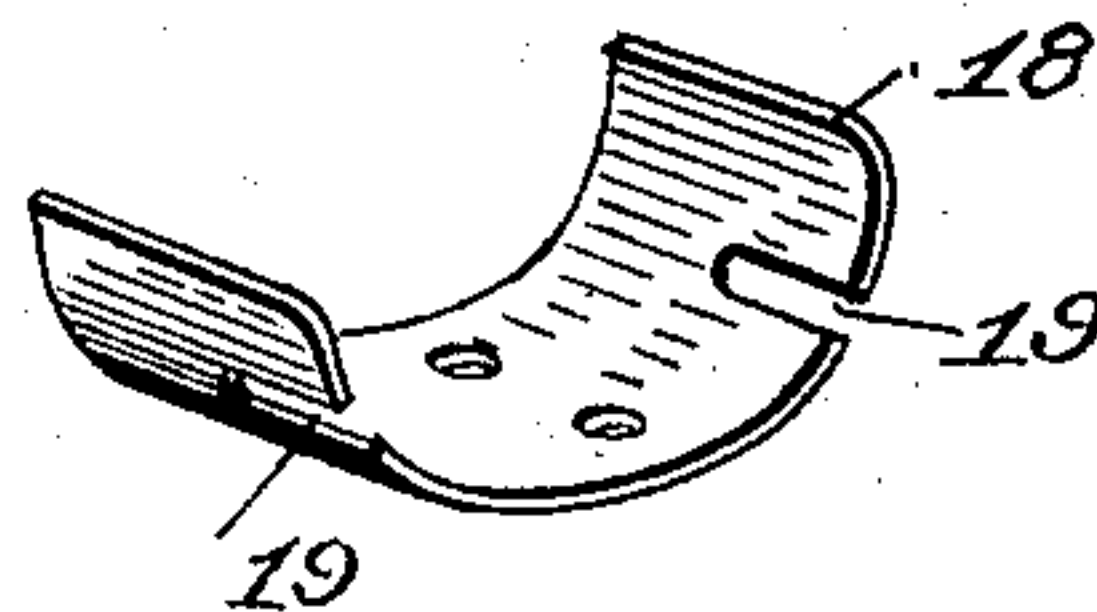
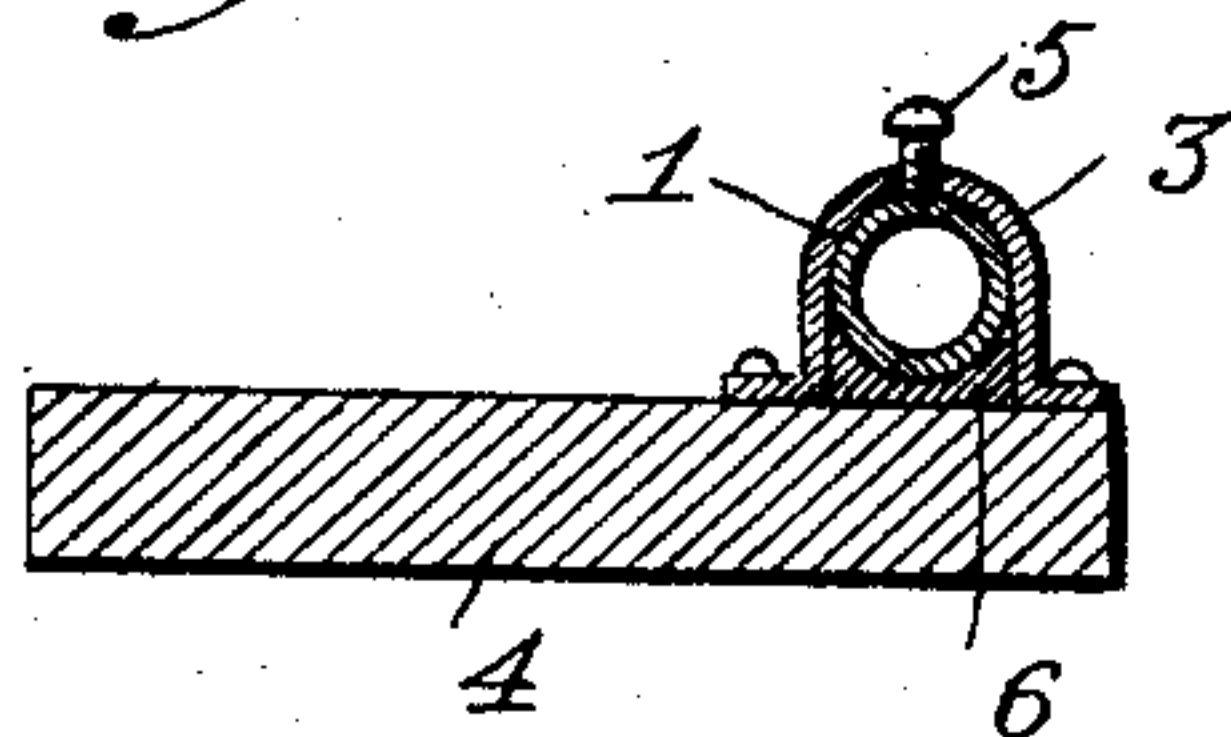


Fig. 3.



Inventor

Elmer O. Froid

Witnesses

Percy B. Hiltz

Edwin F. Frey

By

Edwin L. Yewell

His Attorney

UNITED STATES PATENT OFFICE.

ELMER OSCAR FROID, OF BOULDER, COLORADO.

AUTOMATIC CUT-OFF.

No. 859,756.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed April 13, 1907. Serial No. 367,983.

To all whom it may concern:

Be it known that I, ELMER OSCAR FROID, a citizen of the United States, residing at Boulder, in the county of Boulder and State of Colorado, have invented new and useful Improvements in Automatic Cut-Offs, of which the following is a specification.

My invention relates to devices for cutting off gas, and has for its object certain improvements in devices of this character controlled by time mechanism, said improvements consisting, first, in novel means for controlling and actuating the cut-off, and, secondly, in novel means for removably securing the device to a gas pipe or main. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a section of gas pipe or main with my improved cut-off applied thereto. Fig. 2 is a vertical sectional view taken on the line 2—2, Fig. 1. Fig. 3 is a similar view, taken on the line 3—3, Fig. 1. Fig. 4 is an enlarged detail perspective view of the cut-off arm. Fig. 5 is a similar view of the combined winding and tripping key of the alarm clock. Fig. 6 is a detail perspective view of the holder or seat for the alarm clock.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference numeral 1 denotes a gas pipe or main in which is located a cut-off valve 2 of any suitable construction, adapted to cut off the flow of gas by a quarter turn thereof. Removably attached to the under side of said pipe or main 1, by means of A-shaped clips or collars 3, is a base-board or support 4, said clips or collars 3 encircling said main or pipe 1, and being provided with set-screws 5 adapted to engage said main or pipe to retain said support 4 in fixed relation thereto. If necessary, filling blocks 6 may be employed in conjunction with said clips or collars 4 to more firmly position the parts.

The operating end of valve stem 7 of cut-off valve 2 is apertured to removably receive the reduced lower end 8 of an arm 9, that is notched on one side at its upper end at 10, for a purpose hereinafter to be described, and has fixed thereto near its upper end a clip 11 adapted to be slidably engaged by the free end of a flat spring 12, whose other end is fixed at 13 to the support 4.

Bolted to the support 4 to one side of the cut-off valve 2 is a bifurcated pivot support 14, in the upper end of which is pivoted intermediate its length a lever 15, while further along said support 4 is attached, by screws 16, a holder or seat for an ordinary alarm clock 17, said holder or seat consisting of a curved piece of metal 18 of a configuration to fit the underside of the clock body, said holder or seat being slotted at 19 to removably receive the legs 20 of said clock. Said

alarm clock 17 is provided with a finger 21 attached to the winding shaft of its alarm mechanism.

From the above description the operation of my improved device will be understood as follows: The arm 9 when engaged in the aperture in the cut-off valve stem 7 and turned to the vertical position, shown in Fig. 1, turns the cut-off valve to the open position, but said position of said arm 9 is maintained against the tension of spring 12, which tends to force said arm 9 to a horizontal position whereby the flow of gas will be cut off. Now with the base-board or support 4 properly located on main or pipe 1, the pivot support 14 will be so positioned with respect to the cut-off valve that the lever 15 carried thereby will, when turned to the horizontal position, be adapted to engage the notch 10 in arm 9 to retain the latter in the vertical position against the tension of spring 12, said parts thereby forming a trigger. At the same time the other end of lever 15 will lie in the path of rotation of the finger 18 of alarm clock 17 when said clock is positioned in the seat or holder 18, and as said finger, which also serves as a means for winding the alarm mechanism, will rotate reversely when said alarm mechanism is set off, it will be seen by reference to Fig. 1 that said rotation of the alarm mechanism will cause finger 18 to trip that end of lever 15 downward, thus raising its other end that engages the notch in arm 9, thus releasing said arm and permitting the spring 12 to force it to a horizontal position, thus cutting off the flow of gas through pipe or main 1. It will thus be seen that with the alarm mechanism of clock 17 set for a particular time, and the apparatus arranged as shown in Fig. 1, the sounding of the alarm at the predetermined time will instantly cause finger 18 to trip lever 15, thus releasing arm 9 and permitting spring 12 to throw the same to the horizontal or cut-off position. I have bifurcated the pivot support 12 in order to permit the arm to drop there-between, thus permitting the pivot point of lever 15 to be located close to the arm 9 without interference.

It will be seen that with my improved construction the operative mechanism may be readily assembled on or removed from a gas pipe or main, and the apparatus only requires an aperture in the cut-off valve stem 7 to receive the lower end 8 of arm 9. In fact, any other suitable means for detachably engaging said arm with the valve stem without change in said valve stem may be employed, such, for instance, as a suitable clamp.

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

1. In a gas cut-off, the combination with a gas main, a cut-off valve therein, an arm controlling said valve, a spring connected directly with said arm for throwing said arm to the closing position, and a pivoted lever engaging said arm for retaining it in open position, of an alarm clock, and an alarm winding finger on the exterior of said clock adapted when said alarm is sounded to tilt said lever to release said valve controlling arm.

2. In a gas cut-off, the combination with a gas main, and a cut-off valve therein, of a base plate or support removably attached to said main, and time controlled mechanism carried by said base plate and detachably connected
5 with said cut-off valve for controlling the position of said cut-off valve.

3. In a gas cut-off, the combination with a gas main, and a cut-off valve therein, of a base plate or support removably attached to said main, a controlling arm detach-
10 ably connected with said valve, a spring mounted on said base plate for normally throwing said arm valve to the closed position, a lever pivoted on said base plate for retaining said arm and valve in the open position, and an
15 alarm clock mounted on said base plate and adapted when said alarm is sounded to tilt said lever to disengage it from said valve controlling arm.

4. In a gas cut-off, the combination with a gas main, and a cut-off valve therein, of a base plate or support removably attached to said main, a curved slotted holder or seat fixed to said base plate or support, an alarm clock
20 removably mounted in said holder or seat and having its legs engaged in the slots therein, and mechanism carried by said base plate or support intermediate said clock and cut-off valve and controlled by the alarm mechanism of said clock for controlling the position of said cut-off valve.
25 In testimony whereof I affix my signature, in presence of two subscribing witnesses.

ELMER OSCAR FROID.

Witnesses:

ROY YOUNGBLOOD,
FRANK DE BARKER.