

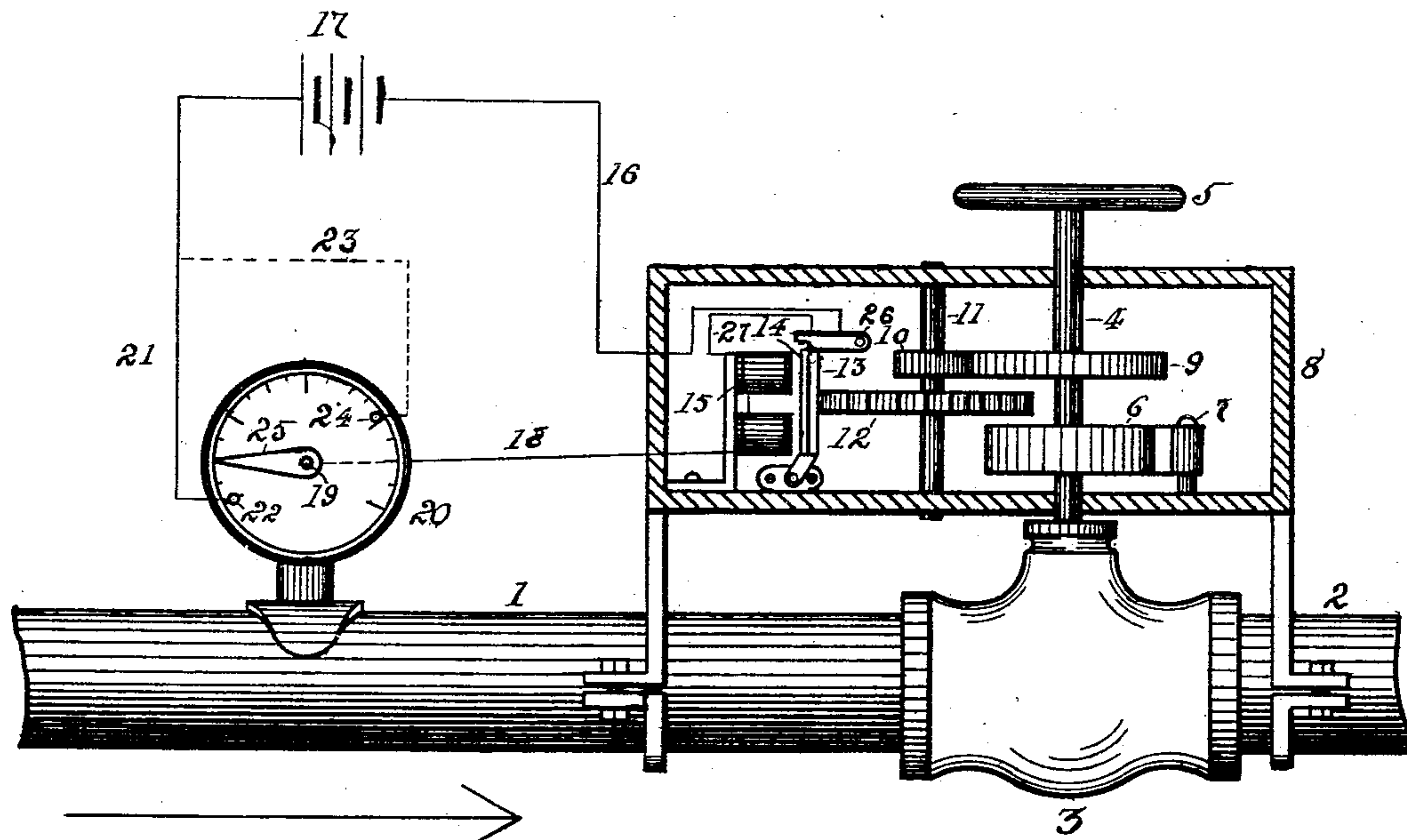
No. 684,436.

Patented Oct. 15, 1901.

I. F. KEPLER.  
AUTOMATIC CUT-OFF.

(Application filed Mar. 22, 1901.)

(No Model.)



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

IRWIN F. KEPLER, OF AKRON, OHIO.

## AUTOMATIC CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 684,436, dated October 15, 1901.

Application filed March 22, 1901. Serial No. 52,331. (No model.)

*To all whom it may concern:*

Be it known that I, IRWIN F. KEPLER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Automatic Cut-Offs, of which the following is a specification.

My invention has relation to improvements in that class of machines whose object and purpose is to shut off gas in the main or service pipes upon a decrease of pressure in either, and to thus prevent the reëtrance of gas into apartments through burners that may have been open at the time of such decrease.

The object of my invention is to provide a new and improved device of the class named in which spring-pressed mechanism arranged to close the valve is held open by a pawl or equivalent means adapted to be released by an armature of an electromagnet arranged by suitable mechanism to be energized by a decrease of the gas-pressure; a further object is to release the pawl by an increase of the gas-pressure beyond a determined limit, and a final object is to break the electrical circuit when the machine has been actuated, and thereby prevent the battery from wasting or running down.

To the accomplishment of the aforesaid objects my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described and then specifically pointed out in the claim, reference being had to the accompanying drawing, which forms a part of this specification.

In the accompanying drawing, which represents a service or main pipe provided with my invention and in which the spring-actuated mechanism is supported thereon in a case, (shown in section,) 1 is the inlet or service pipe, 2 is the house-pipe, and 3 the valve, having a stem 4, provided with a hand-wheel 5. On the stem 4 is a coiled or clock spring 6, anchored on a pin 7 in the case 8. The tendency or thrust of the spring 6 is constantly to revolve the stem to close the valve. The stem 4 bears a large gear-wheel 9, that meshes in a pinion 10 on a counter-shaft 11. On the counter-shaft 11 is a ratchet-wheel 12, arranged to be engaged by a pawl 13, which is an angular rib or blade on a rocking arma-

ture 14, pivotally suspended in the case 8 in front of the poles of an electromagnet 15, mounted on a bracket in the case 8. Mounted on and internally connected with the pipe 1 is a pressure-gage 20, having the ordinary staff 19, bearing the pointer 25 in electrical connection through a wire 18 with one terminal of the coils of the magnet 15. On the gage-dial are two contact posts or studs 22 and 24, the first whereof is connected by a wire 21 with one pole of a battery 17 and the other by a branch wire 23 with the wire 21. The other pole of the battery 17 has a wire 16, that extends above and terminates closely above a pivoted catch 26 and in close proximity thereto as to make electrical connection therewith when the catch is raised. A second wire 27, connected with the opposite terminal of the magnet 15, also extends above the catch 26, so adjusted as to make electrical contact therewith as it is raised simultaneously with its contact with the wire 16. The catch 26 is arranged to rest on the upper end of the armature 14 when the latter is rocked outward and to fall by gravitation as the armature is drawn toward the magnet and has a notch in its under movable end to engage the armature as it rocks toward the magnet and hold it against return until the catch is raised by hand.

In operation, the valve being open, the parts will remain substantially stationary until the pressure decreases so far as to permit the pointer 25 to engage the stud 22 or raise so high as to cause it to engage the stud 24. In either case the circuit will be closed through the battery and electromagnet and draw the armature away from the wheel 12, thus permitting the spring 6 to close the valve. In this operation the catch 26 will fall as the armature rocks toward the magnet and block its further return and will simultaneously open the circuit by contact with the terminals of the wire 16 and 27, and thus prevent the battery from wasting.

I claim as my invention—

In a device of the kind designated, the combination of a fluid-supply pipe, a valve located therein provided with a vertical stem, a spring attached to said stem whose normal tendency is to close said valve, an electromagnet provided with a rocking armature, a



catch adapted to retain said armature when  
rocked in one direction, a series of gears con-  
necting said valve-stem and a shaft, said  
shaft bearing a toothed wheel adapted to be  
5 engaged by said rocking armature, an electric  
battery connected with said electromagnet,  
a pressure-indicator adapted to close the elec-  
tric current through said electromagnet when  
the pressure in said supply-pipe is at a de-  
10 terminate point, and an inclosing case to re-

tain the mechanism hereinbefore described,  
substantially as shown and described.

In testimony that I claim the above I here-  
unto set my hand in the presence of two sub-  
scribing witnesses.

IRWIN F. KEPLER.

In presence of—

C. P. HUMPHREY,  
C. E. HUMPHREY.