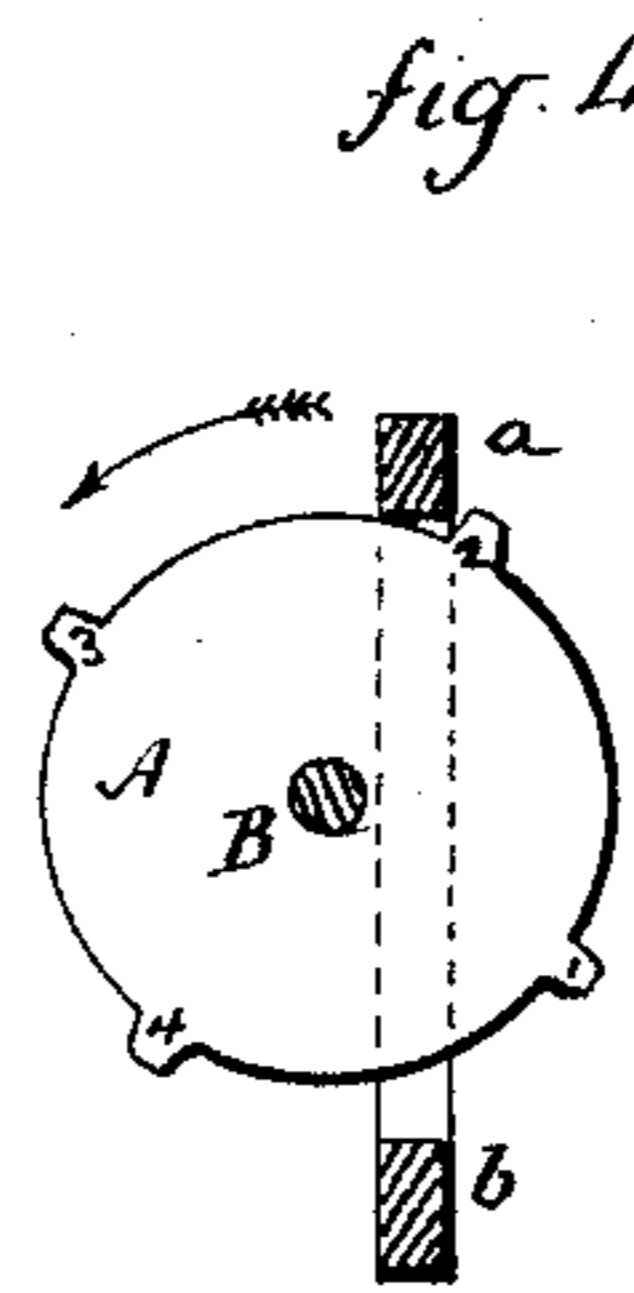
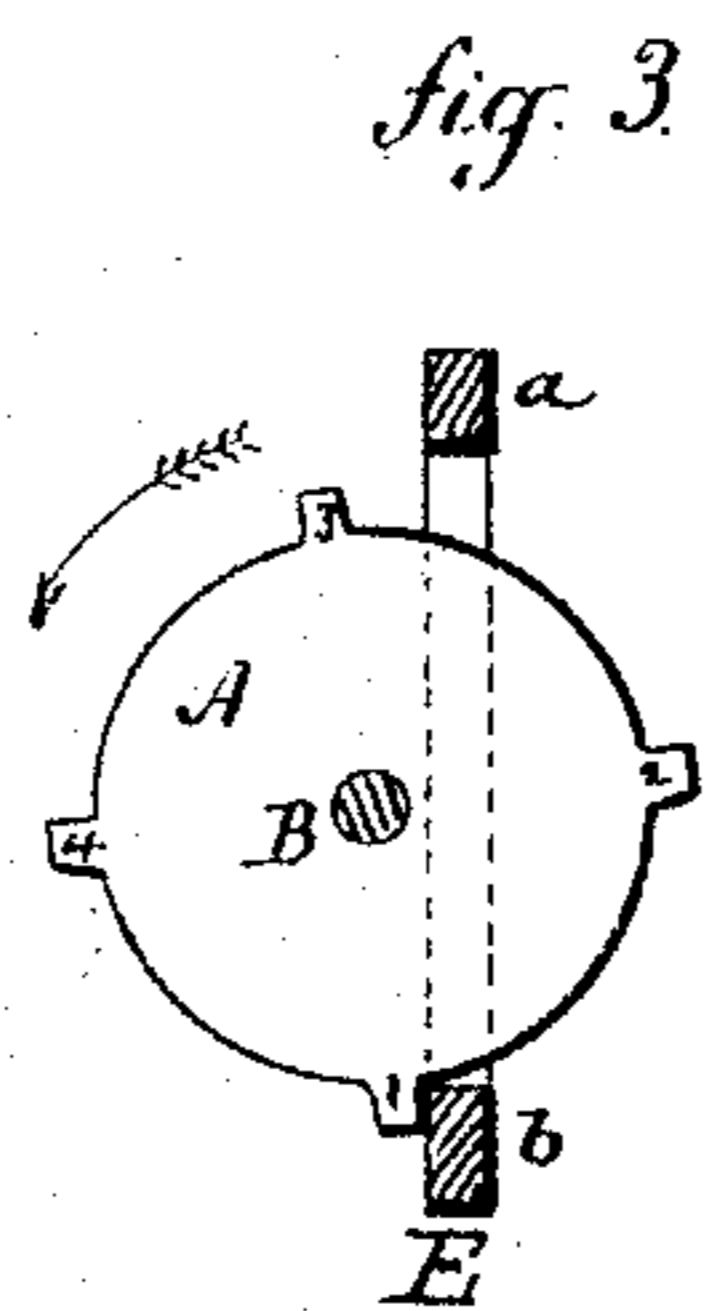
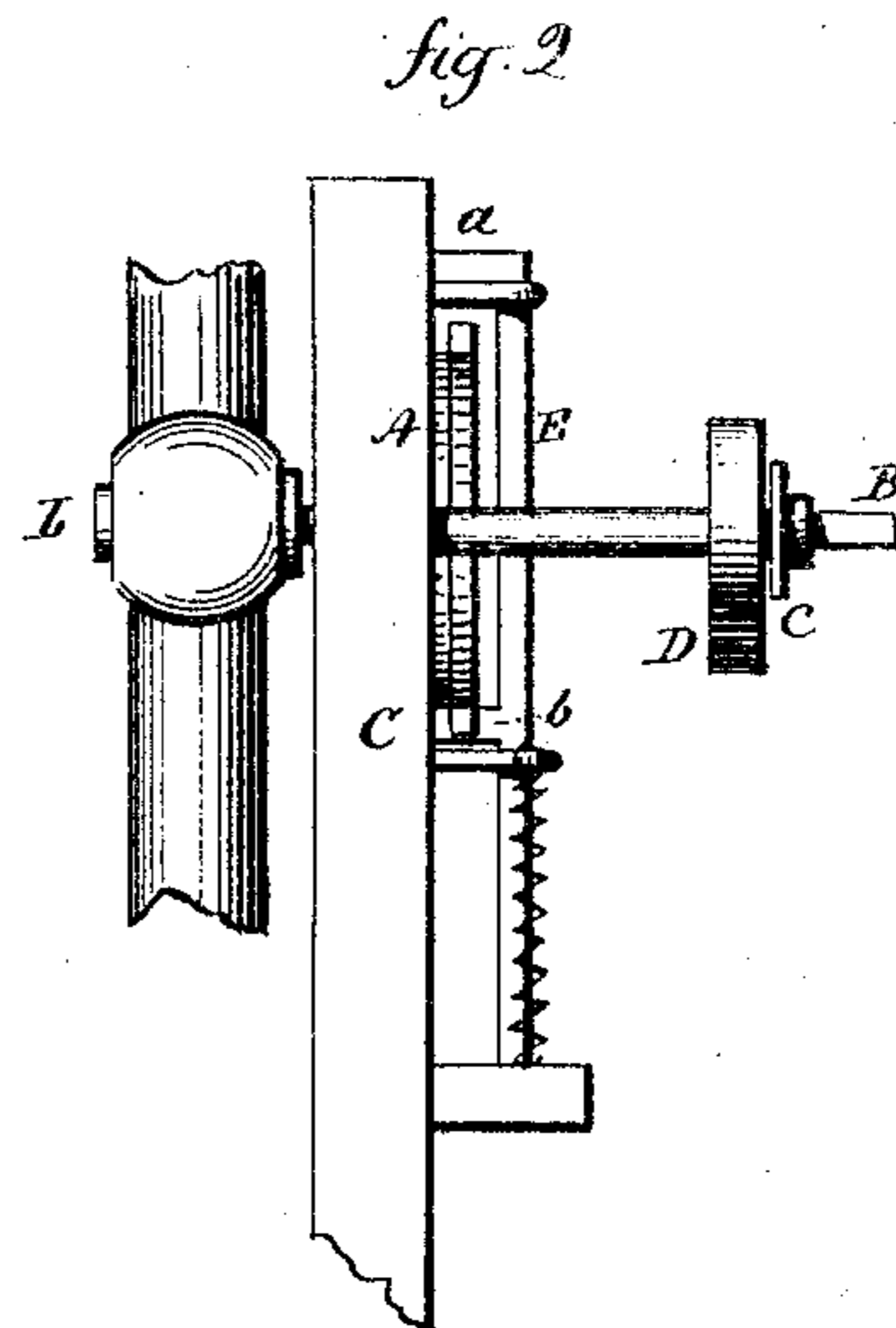
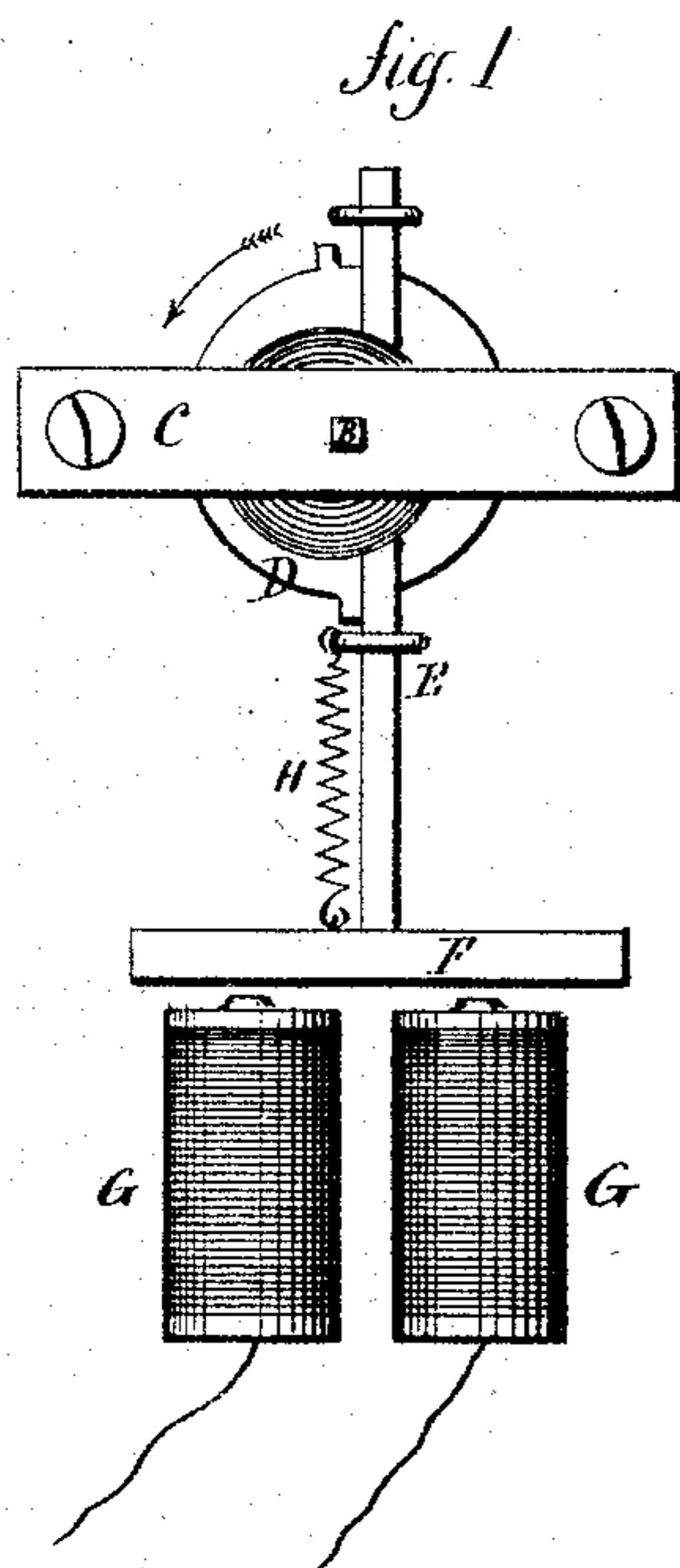


E. COE & H. W. FISKE.  
Electro-Magnetic Stop-Cocks.

No. 155,499.

Patented Sept. 29, 1874.



Witnesses.

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# UNITED STATES PATENT OFFICE

EDWARD COE AND HOMER W. FISKE, OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN ELECTRO-MAGNETIC STOP-COCKS.

Specification forming part of Letters Patent No. **155,499**, dated September 29, 1874; application filed June 4, 1874.

*To all whom it may concern:*

Be it known that we, EDWARD COE and HOMER W. FISKE, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Automatic Device for Opening and Closing Stop-Cocks; and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view; Fig. 2, a side view; and in Figs. 3 and 4, diagrams illustrating the operation.

This invention relates to a device for automatically operating a cock to open or close the passage, designed with special reference to use on street-lamps, but applicable to other uses where the automatic opening and closing of the plug is desirable, and to be actuated by electricity, so that when the circuit is closed the plug will be turned to open the cock, and stand open until the circuit is again closed when the same power will close the cock, and so continue to open and close at each alternate closing and opening of the circuit.

The invention consists in a toothed wheel actuated by a spring, combined with a reciprocating bar, the movement in one direction engaging a tooth upon one side, and the return of the bar engaging a tooth upon the opposite side, the spring, during this full movement of the bar, imparting to the wheel a one-fourth rotation, which is communicated to the plug of the cock in connection therewith.

A is a wheel attached to a shaft, B, and is provided with four teeth or arms, 1 2 3 4. The shaft B is supported in a suitable frame, C, and provided with a spring, D, similar to a common clock mechanism. The usual provision is made for winding the spring, and the tendency of the spring is to turn the wheel in the direction denoted by the arrow. E is a vertical bar, substantially parallel with the face of the wheel A, with an arm, *a*, above the wheel, and an arm, *b*, below, the distance

between these arms being a little less than the full diameter of the wheel A, including the arms. To the lower end of this bar the armature F is attached, and below this the magnet G.

The closing of the circuit will draw the bar E down, and the opening will free the bar, so that the spring H attached thereto will draw the bar up from the magnet.

The operation of the device is as follows: Starting as in Fig. 3, the tooth 1 rests against the lower arm *b* of the bar, and the wheel there held. When the circuit is closed, the bar is drawn down, as in Fig. 4, allowing the tooth 1 to escape from the arm *b*, and the wheel to revolve until the tooth 2 strikes the arm *a*, and is there arrested until the circuit is broken; then the bar will rise to its first position, and the tooth 4 comes in contact with the arm *b*, by which operation the wheel has been turned one-fourth around.

To the shaft B the plug L of the cock is attached; consequently the turning of the shaft imparts a corresponding rotation to the plug and opens the cock.

A repetition of the movement of the bar E will turn the plug one-fourth around again and close the cock.

To make the action positive, and prevent any possibility of one tooth accidentally passing the arm in its path, the two arms A B are distant from each other less than the extreme diameter of the wheel through the opposite tooth; hence, before the arm *b* shall have allowed the tooth 1 to escape, the arm *a* will have passed down into the path of the tooth 2, so that by no possibility can the tooth 2 pass beyond the arm *a* until it has been raised from its path by the return of the bar E to bring the arm *b* into the path of the tooth 4.

This construction is exceedingly simple and cheap, as compared with other known devices for the same purpose.

While designed expressly for electricity as the means of operation, other power may be substituted.

We are aware that it is not new to release a wheel operated by a spring by means of a

lever-armature of an electro-magnet, for the purpose of operating a gas-cock, and therefore we do not broadly claim such construction.

We claim as our invention—

The combination of the shaft B, connected to the plug of a cock, the spring D, the toothed wheel A, and reciprocating bar E, provided with an arm, *a*, above, and an arm, *b*, below the wheel, and armature F, the said arms arranged relatively to each other, and to the

teeth of the wheel, as described, so that one arm will come within the circumference of the teeth of the wheel before the other arm leaves it, substantially as specified.

EDWARD COE.

HOMER W. FISKE.

Witnesses:

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