M. FALOON & D. H. ISEMINGER.

APPARATUS FOR LIGHTING STREET-LAMPS.

No. 171,555. Patented Dec. 28, 1875.

Fig. 1.

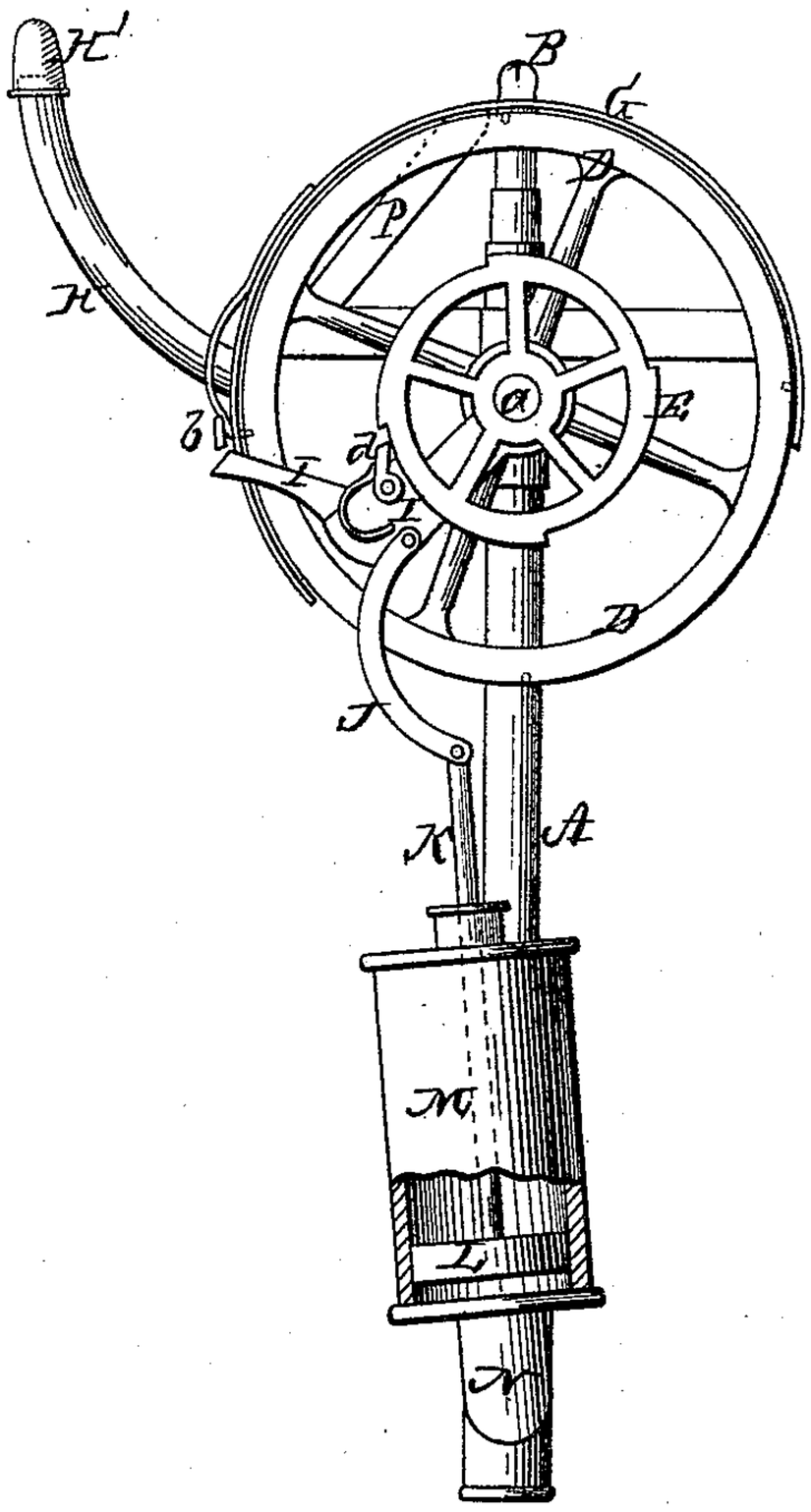
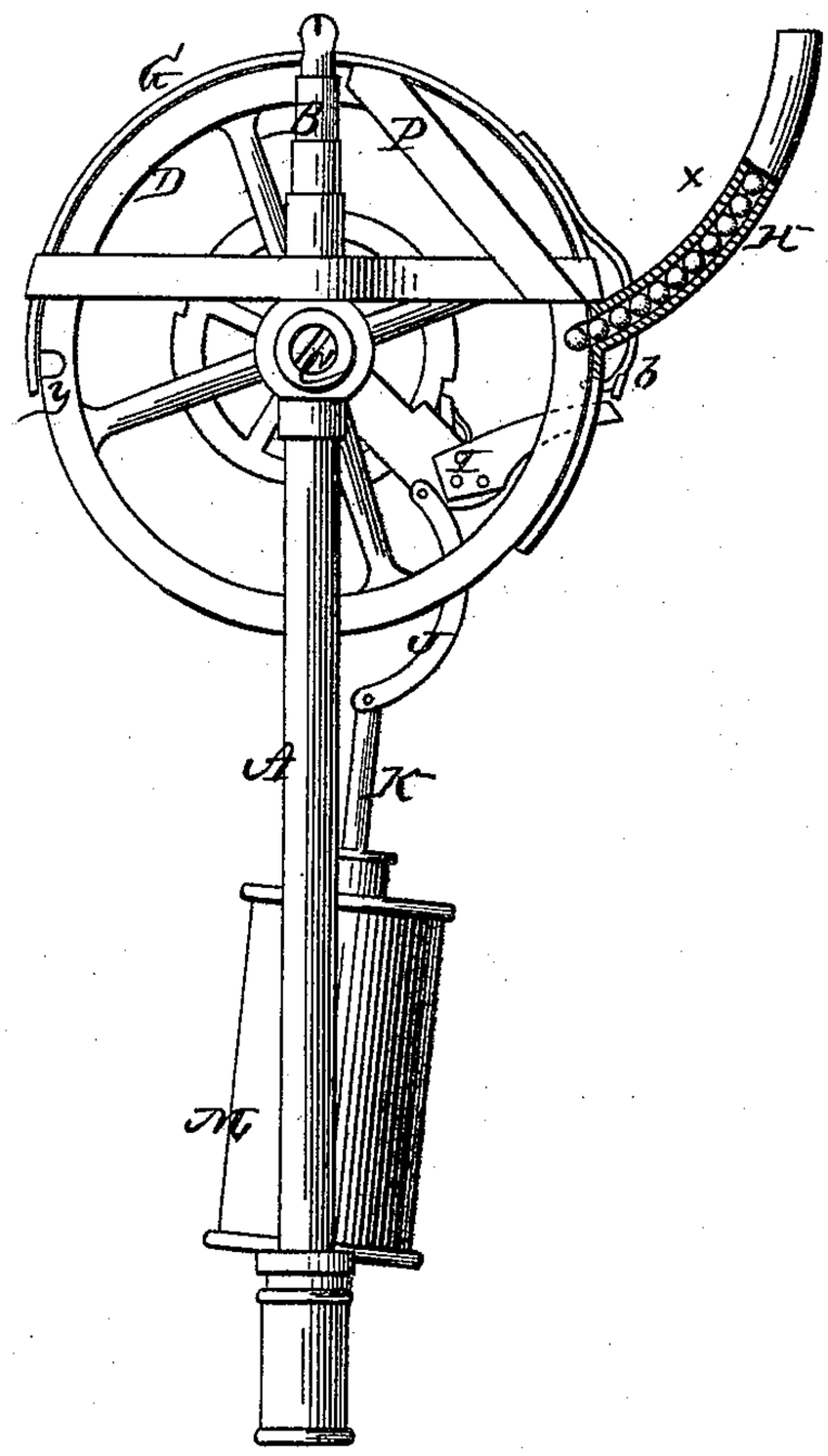


Fig. 2.



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IMPROVEMENT IN APPARATUS FOR LIGHTING STREET-LAMPS.

Specification forming part of Letters Patent No. **171,555**, dated December 28, 1875; application filed December 3, 1875.

To all whom it may concern:

Be it known that we, MATTHEW FALOON and DANIEL H. ISEMINGER, of Bloomington, in the county of McLean and in the State of Illinois, have jointly invented certain new and useful Improvements in Apparatus for Automatically Lighting Gas in Street and other Public Lamps; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of our invention consists in the construction and arrangement of an apparatus for automatically lighting and extinguishing gas-lights of any number simultaneously by an extraordinary pressure of gas in the pipes, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a front view of our invention. Fig. 2 is a rear view of the same.

A represents an ordinary gas-service pipe, with burner B. C is the usual stop-cock for turning on and off the gas. *a* is the stem or shank of said stop-cock, upon which are secured a plain wheel, D, and a ratchet-wheel, E, the former being located close to the burner. The rim of the wheel D is covered for a suitable distance by a guard, G, provided on one side with a tubular chamber, H, for containing explosive pills or pellets *x x*. The wheel D is intended to make only one-fourth of a revolution at a time, and is held at the four different points by a spring-pin, *b*, passing through a hole in the guard G, and entering a hole in the rim of the wheel. On the side of the wheel next to the burner, in the rim, are made two recesses or pockets, *y y*, directly opposite each other, as shown in Fig. 2. Back of the ratchet-wheel E is an arm, I, placed loosely on the stem *a*, and provided on its front side with a spring-pawl, *d*, to take into the teeth of the ratchet-wheel. The arm I is, by a link or pivoted rod, U, connected with a piston-rod, K, attached to a piston, L, which is working inside of a cylinder, M, and the lower end of said cylinder is, by an elbow, N, connected with the gas-pipe B.

In all gas-works there are certain means for creating an extraordinary pressure of gas at any desired time. Our invention depends for its working upon a sudden or extraordinary pressure of gas at a given time to compel a one-fourth revolution of the wheel D, and this one-fourth revolution causes the lighting or extinguishing of the lamps simultaneously.

The operation is substantially as follows: Suppose it is desired to light all the gas-lamps of a city. Each lamp should be provided with an apparatus like the one above described. To accomplish this it is only necessary to create in any desired manner a sudden and unusual pressure upon the gas in the pipes, connecting with the burners desired to be lighted. In ordinary gas-works they have an engine for forcing the gas into a large reservoir, and the city is supplied from this reservoir by the pressure of weights operating upon the gas in the reservoir or tank. The sudden and unusual pressure required upon the gas in the pipes can be accomplished indirectly by forcing the gas into the reservoir or tank at the desired moment, or directly by means of a direct pipe leading from the engine to the main pipe, that conveys the gas from the reservoir to the different lights, or in any other desired manner. The ordinary pressure of the gas does not affect the machine—that is, does not cause a one-fourth revolution of the wheel—a one-fourth revolution being all that can be accomplished by any one continuous pressure of gas. The ordinary pressure allows the machine to stand stationary, without motion. When the sudden and extraordinary pressure is made the gas presses the piston upward in the cylinder. When the piston rises it causes a one-fourth revolution of the wheel, and that opens the gas-cock C, said wheel being attached to the stem of the gas-cock. The revolution of the wheel D is caused through the medium of the piston-rod, connecting-link, arm with pawl, and ratchet-wheel, and the gas is thus let through the burner. As the piston-rod rises the outer end of the arm I lifts the spring-pin *b*, allowing the wheel D to turn its one-fourth revolution. This same one-fourth revolution causes an explosive or combustible pill or substance, *x*, to be car-

ried from the tubular chamber H, by means of the cavity *y*, to a point opposite the burner, and as said explosive pill or substance passes a roughened spring, P, on the side of the wheel, it explodes or iguites, and a blaze is thrown directly upon the burner through which, by the motion of the wheel, the gas is escaping. As long as this extraordinary or unusual pressure is continued the piston-rod and its attachments remain up; but as soon as this unusual pressure is diminished sufficiently, either by the escape of gas through the burners or by a withdrawal of the excessive pressure created for the express purpose of lighting the lamps, said parts fall, and are ready to be raised again, when desired; and when so raised again, the next time they cause the turning of the wheel D another one-fourth of a revolution, which causes the gas-cock C to be turned to shut off the gas, the same as is done by turning the ordinary gas in common use. The chamber *y* in the wheel allows what there is left of the combustible material to drop out as it is turned to a point below the end of the guard G, and the chamber is thus made ready to receive a fresh combustible pill when it reaches the bottom of the tubular chamber H, which chamber should be supplied with a large number of said pills, and its outer end protected with a cap, H′, to keep them dry.

The weight of the piston-rod and attachments should be such as to overcome the ordinary pressure of the gas upon the pipes and piston, and this weight can be increased or diminished, as desired, by making the piston or its attachments heavier or lighter, as required.

In place of a combustible pill, a match may be used, in which case the match may be made of wire or wood, with a combustible end, to be fed from a flat chamber, one match upon another, so that the bottom one only will fill the groove in the large wheel made to receive it. The surface of the wheel in that case will have a groove across it to receive the match, and the combustible end to be brought in contact with a roughened plate or its equivalent.

The combustible pills *x*, or the combustible ends of the matches, when such are used, are coated with beeswax to protect them from injury from dampness.

By attaching an apparatus of this kind to each burner in a city, town-hall, or other building, all the lights may be simultaneously lighted and extinguished simply by an increase of pressure on the gas in the pipes.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a mechanism for lighting and extinguishing gas-lights by an increased pressure upon the gas in the pipes, a piston operating in a cylinder into which the gas is admitted, and the piston connected with the operating mechanism, substantially as herein set forth.

2. The combination of the burner B, with gas-cock C, wheel D, with chambers *y y*, and the roughened plate P, substantially as and for the purposes herein set forth.

3. The combination of the wheel D, with chambers *y y*, guard G, tubular chamber H, spring-pin *b*, and arm I, substantially as and for the purposes herein set forth.

4. The combination, with the gas-cock C, of the wheel D, ratchet-wheel E, arm I, with spring-pawl *d*, connecting-link J, piston-rod K, and piston L, substantially as and for the purposes herein set forth.

In testimony that we jointly claim the foregoing we have hereunto set our hands this 8th day of November, 1875.

MATTHEW FALOON.
DANIEL H. ISEMINGER.

Witnesses:
THOS. SLADE,
R. F. EVANS.