

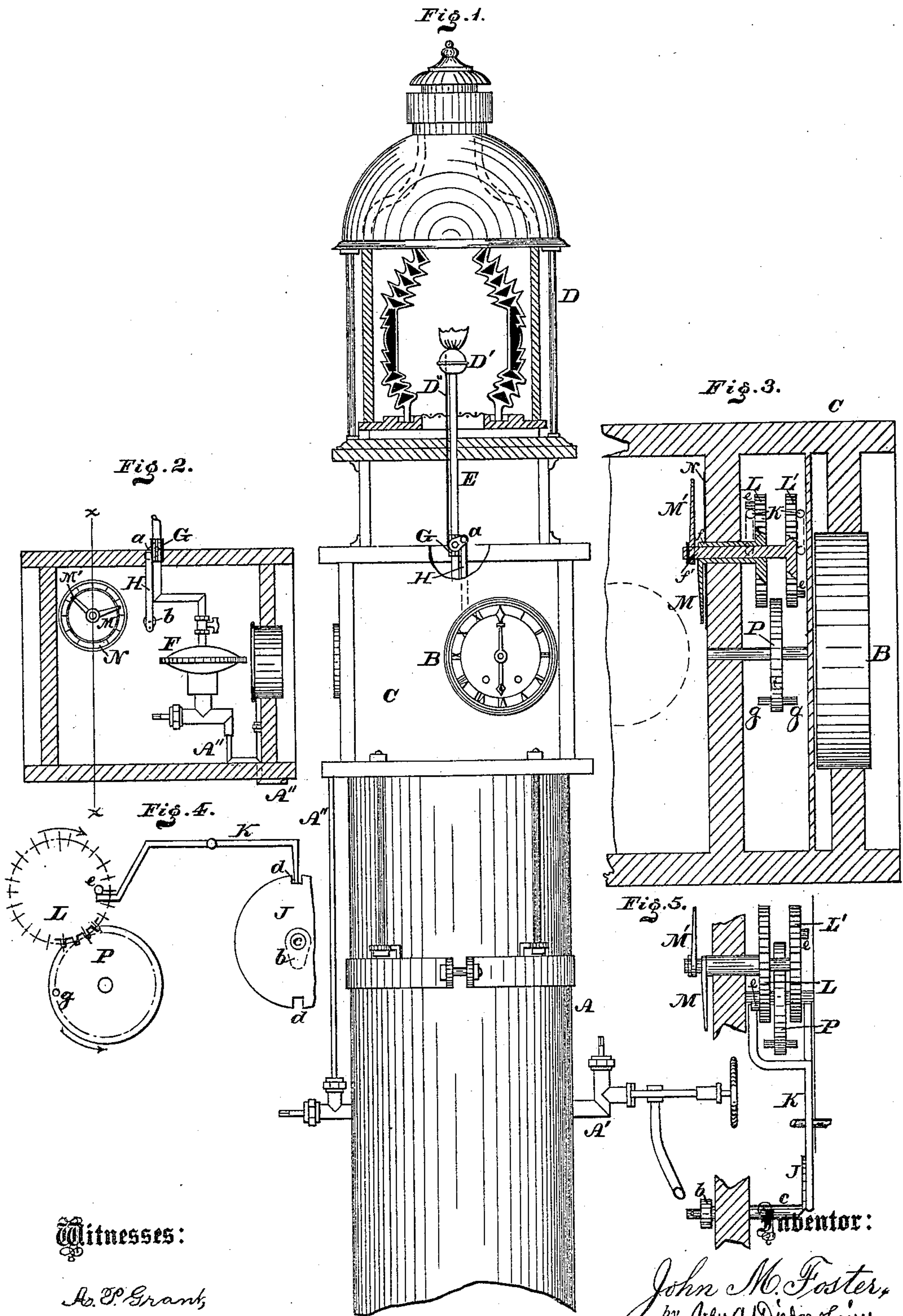
(No Model.)

J. M. FOSTER.

Automatic Gas Lighting and Extinguishing Device.

No. 238,377.

Patented March 1, 1881.



Witnesses:

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JOHN M. FOSTER, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC GAS LIGHTING AND EXTINGUISHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 238,377, dated March 1, 1881.

Application filed August 11, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FOSTER, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Beacons, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation, partly sectional and broken away, of the beacon embodying my invention. Fig. 2 is a sectional view of a detached part. Fig. 3 is a vertical section in line *xx*, Fig. 2. Figs. 4 and 5 are views of detached parts.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a beacon for a buoy, pile, caisson, light-house, or other place or article requiring illumination, automatically lighted and extinguished at any predetermined or established periods.

Referring to the drawings, A represents a cylinder, which is properly supported on a buoy, pile, caisson, light-house, or other place or article requiring illumination, and adapted to receive illuminating-gas under pressure.

B represent a clock, whose case is connected to a box or frame, C, which is supported on the top of the cylinder A and surmounted by the lantern D of the beacon, the burner D' whereof is attached to a gas-pipe, E, which communicates with the cylinder A.

Intermediate the pipe E and cylinder A is a governor, F, for regulating and equalizing the pressure of gas, said pipe E and governor F being supported on the box or frame C; and while the lantern is shown as resting on said box or frame C it may be otherwise properly supported in position.

A' represents the induction-pipe of the cylinder A, and A'' the eduction-pipe thereof. The governor F is connected to said eduction-pipe A'' and burner-pipe E, and the several pipes are provided with suitable cocks for cutting off and letting on the gas, as is evident. The pipe E of the burner is provided with a three-way cock, G, to the arm *a* of which is connected a rod or arm, H, whose lower end is fitted to a crank, *b*, on the end of the shaft *c* of the locking-wheel J of the clock, said wheel having at two opposite places a notch, *d*, each

notch being adapted to receive the toothed or bent end of a tripping-lever, K, whose axis is on the box or frame, said lever being duplicated or bifurcated, in order to be engaged by pins or studs *e*, which project from the sides of the setting-wheels L L'. The wheel L is connected to a supporting-sleeve, *f*, mounted on the box or frame C, and carrying an index, M. The post or shaft *f'* of the wheel L' is passed through the sleeve *f*, and carries an index, M', the two indexes M M' sweeping over a graduated dial, N, secured to the box or frame C, and the two wheels L L', movable independently of each other, being located adjacent to the hour-wheel P of the clock B. Each side of said hour-wheel P is provided with a pin or stud, *g*, one of which engages with the serrated or toothed periphery of the wheel L, and the other engages with the serrated or toothed periphery of the wheel L'.

Near the burner D' is a small gas-jet, D'', whose pipe is connected to the cock G, so arranged that when the gas is admitted to the burner D' it is cut off from the jet D, and vice versa; consequently when the burner D' is supplied with gas the jet D'' is deprived of the same; but when the gas to the burner is cut off that to the jet is let on prior thereto in such quantities that it ignites from the flame of the burner, the daily consumption of gas at the jet being scarcely perceptible. When the gas is again admitted to the burner D' the flame of the jet D'' reaches and ignites it, and the gas of said jet is then cut off.

The operation is as follows: The tank or cylinder is properly filled with gas under pressure, the cock of the eduction-pipe A'' opened, the jet D'' lighted, and the clock B wound and set in motion. The indexes M M' are turned until one of them points on the dial N the hour, say, in the evening when the beacon is to be lighted, and the other points on said dial the hour, say, in the morning when the beacon is to be extinguished, the wheels L L' rotating with the indexes. As the hour-wheel P of the clock rotates, the pins or studs *g* thereof each engage with one of the teeth of the setting-wheels L L', and said wheels rotate each hour the distance of one of the twenty-four teeth thereof. The pins or studs *e* of the setting-wheels are carried around with said wheels L L', and when the

pin or stud of the wheel which is connected to the index set for lighting the beacon reaches one of the bifurcations of the tripping-lever K and presses against the same, the toothed or bent end of said lever is lifted clear of the notch of the wheel J. A train of clock-work, or other suitable actuating mechanism, immediately sets in motion the wheel J, rotates, and with it its shaft *c* and the crank *b*, until, by the rotation of the wheel J, the other notch is brought around, and the tripping-lever drops thereinto, thus stopping the train. The motion of the crank *b* raises the arm H and operates the cock G, so that gas is admitted to the burner D', where it is quickly ignited from the flame of the jet D'', the gas to the latter then being cut off by the cock G. The burner is thus lighted and the beacon illuminated, the object whereof is evident. The clock continues its motion, and when the pin or stud of the wheel which is connected to the index set for extinguishing the beacon reaches the other bifurcation of the tripping-lever K and presses against it, said lever is again raised clear of the notch of the wheel J. The train of clock-gearing immediately sets in motion and causes the wheel J to rotate. The crank *b* rotates, or returns to its first position, and the other notch of the wheel J is again engaged by the lever K, thus stopping said wheel and train.

The arm H is lowered by the crank *b* and the cock G thereby turned, so that gas is admitted in such volume to the jet D'' that it

ignites from the flame of the burner D', and the gas to said burner D' is completely cut off, thus extinguishing the beacon.

As the jet D'' continues to burn, when the hour for lighting the beacon returns, the burner D' may again be lighted, and when the extinguishing hour arrives the gas will be shut off from said burner, as before described, it being necessary to keep the cylinder or tank A supplied with gas, the clock B wound, and the wheels L L' properly set by means of the indexes M M', to repeat the automatic lighting and extinguishing operations.

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

1. The improvement in beacons which are automatically lighted and extinguished, consisting of the cock G, in combination with the connected rod H, the locking-wheel J, and tripping-lever K of a clock or time-piece, and the setting-wheels L L', having pins thereon, and the wheel P, having pins *g g*, substantially as set forth.

2. In combination, with a supply-tank and a gas-jet, the cock G, the connected rod H, the locking-wheel J and tripping-lever K of a clock or time-piece, and the setting-wheels L L', having pins thereon, and the wheel P, having pins *g g*, substantially as set forth.

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Witnesses:

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