

I. HERZBERG & A. HERZBERG.

Apparatus for Automatically Regulating the Flame of Gas Burners.

No. 125,679.

Patented April 16, 1872.

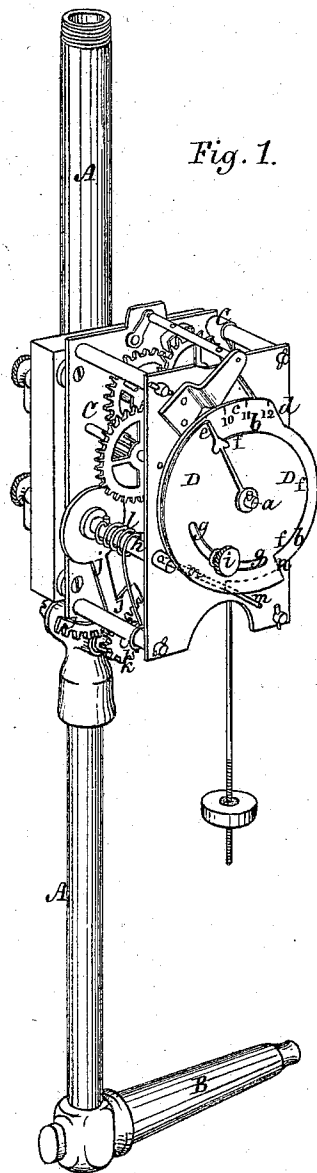


Fig. 1.

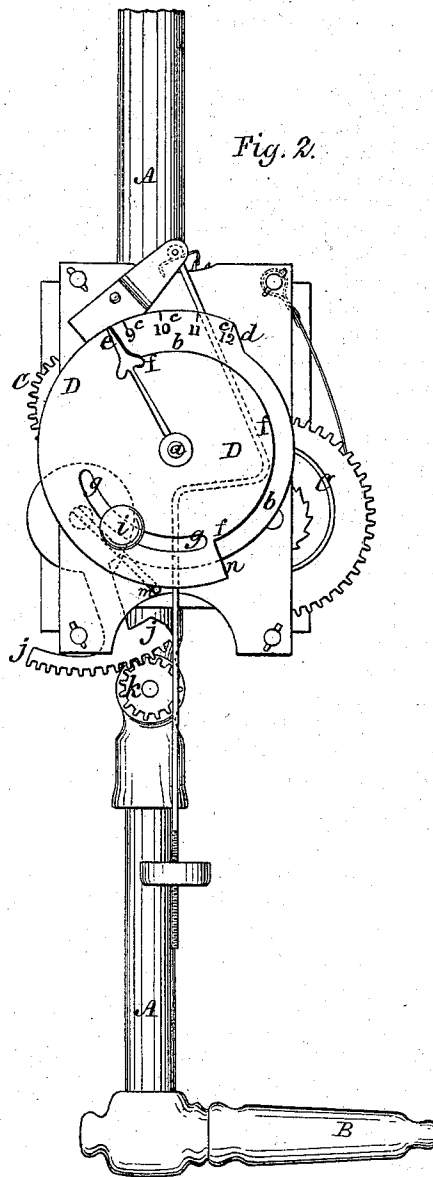


Fig. 2.

Witnesses,
Edmund Massore
 Edmund Massore

Inventors,
 Isaac Herzberg and Abram Herzberg,
 By attorney, A. B. Stoughton.

UNITED STATES PATENT OFFICE.

ISAAC HERZBERG AND ABRAM HERZBERG, OF PHILADELPHIA, PA.

IMPROVEMENT IN APPARATUS FOR AUTOMATICALLY REGULATING THE FLAME OF GAS-BURNERS.

Specification forming part of Letters Patent No. 125,679, dated April 16, 1872.

To all whom it may concern:

Be it known that we, ISAAC HERZBERG and ABRAM HERZBERG, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Machinery or Apparatus for Automatically Regulating the Flame of Gas-Burners; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 represents, in perspective, our invention as applied to a gas-burner, and Fig. 2 represents a front view of the same.

Similar letters of reference, where they occur in the separate figures, denote like parts of the apparatus in the drawing.

Our invention relates, first, to a combination of adjustable dial with a clock mechanism, by which a gas-cock may, at a fixed and definite time, be turned so as to diminish or to increase the gas-flame, as may be desired; and our invention relates further to the combination of a cogged segment, operated from or by the clock or driving mechanism, with a cogged pinion or wheel on the gas-cock, so that the latter may be operated by the former, as will be explained.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawing.

A represents any ordinary gas-tube, and B a burner connected therewith. On this gas-tube or pipe A is arranged a clock or similar mechanism, C, which is driven by the expansion of a coiled or other spring. This mechanism, being of a common and well-known construction and shown in the drawing, need not be elaborately described. The spindle *a*, however, which, in an ordinary clock, is the one upon which the hour-hand is placed, and there makes one revolution in twelve hours, in our construction is so geared as to make but one revolution in twenty-four hours. On the spindle *a* is placed so as to turn with it a dial-plate or time-table, *b*, which has upon it hour or divisions-of-an-hour marks *c*; upon the perimeter of this time-table wheel there is a cam-plane, *d*, for a purpose to be presently described. Over the spindle *a*, but so that it may be turned independent of the spindle when so desired,

there is placed an indicator plate or wheel, D, having a pointer, *e*, upon it, and a portion of its perimeter cut away, as seen at *f*. There is also a concentric slot, *g*, cut through this indicator-plate D, through which a set-screw, *i*, passes so as to admit of an adjustment of the pointer *e* to any special hour-mark on the dial-plate or time-table *b*, and then to hold the two plates together so that they shall revolve together with the clock or driving-gear or mechanism. On a shaft, *h*, there is arranged a cogged segment, *j*, which gears into a pinion, *k*, on the gas-cock; and around this shaft there is a spring, *l*, the tendency of which is to so turn said shaft as to cause it, through the cogged segment *j* and pinion *k*, to keep the gas-cock open and the supply of gas on. On the shaft *h* there is also a bent arm or lever, *m*, which the spring *l* keeps against the perimeters of the dial and indicator plates *b* D, so that the cam *d* on the time-table plate, as well as the radial shoulder *n* on the indicator-plate, shall turn or allow to be turned the shaft *h*, and through it turn or allow to be turned the gas-cock so as to shut off or let on the flow of gas to the burner.

The figures at *c* on the dial-plate represent the number of hours that it is desired to let the gas burn with a full flow or a greater flow—as, for instance, nine, ten, eleven, or twelve hours, or less or more; and when the space from *d* to *n* on the right of the time-table and indicator plates is in contact with the bent or crank arm or lever *m* the gas-cock is open; but when that portion of said plates between *n* and *d* on the left of said plates is in contact with said arm or lever *m*, then the cock is turned so as to shut off the most of the flow of gas, keeping just flame enough to prevent it from being extinguished; or, in other words, the space between *d* *n*, as shown on the right of the plates, represents the time that the gas is let on and burns brightly, and the space from *n* to *d* toward the left represents the time that the gas is shut off or reduced in volume. As this distance from *d* to *n*, and consequently from *n* to *d*, can be varied and set by the set-screw when adjusted, the apparatus itself will allow the gas to burn brightly—for instance, through the night of, say, eight, nine, ten, eleven, or twelve hours—and at the end of the time for

which it was adjusted it will turn the gas-cock and cut off the full supply, and again, at a fixed time or hour, turn it on again.

By this contrivance, in stores and other places where gas is burned all night, the gas is shut off or regulated to burn very low at any hour fixed in the morning, and so continue until turned on again in the evening—as, for instance, on Sundays, when such places of business are not visited by the owners or employes.

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

1. The combination of the plates *b D* and their shoulders *d n* for regulating and defining the periods at which a gas-cock shall be opened and closed to regulate the flow of gas and flame or light, substantially as described.

2. We also claim, in combination with the plates *b D* and their appliances, the shaft *h* with its bent arm or lever *m*, spring *l*, and cogged segment *j* for the purpose of turning or allowing to be turned the gas-cock for shutting off or letting on, and thus regulating the flow of gas to the burner, substantially as described.

3. We also claim, in combination with the plates *b D*, the stem *a*, when arranged to make one entire revolution in twenty-four hours, as and for the purpose described.

ISAAC HERZBERG.
ABRAM HERZBERG.

Witnesses:

NORMAN H. STEVENS,
WM. H. COUSLAND.