H. K. SYMMES.

Method of Extinguishing Gaslights.

No. 27,170. Patented Feb. 14, 1860.

Fig. 1

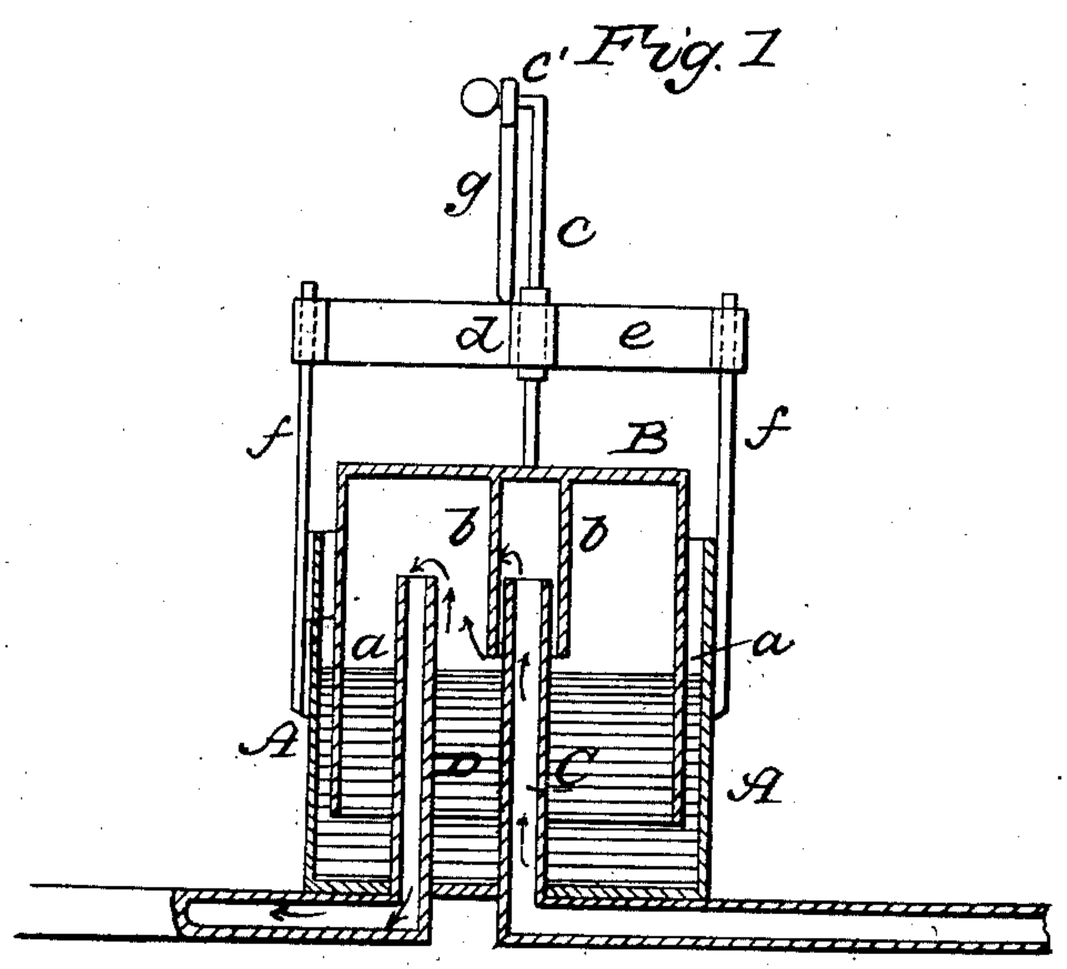
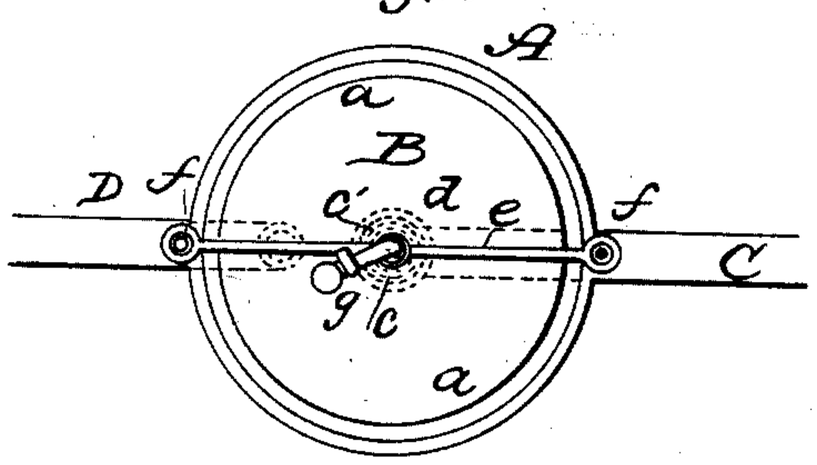
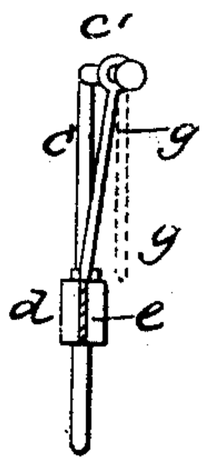


Fig. 2





Witnesses
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MODE OF EXTINGUISHING GAS-LIGHTS.

Specification of Letters Patent No. 27,170, dated February 14, 1860.

To all whom it may concern:

Be it known that I, H. K. SYMMES, of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Method of Extinguishing Gas-Lights; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a vertical section of the apparatus which I employ for shutting off the gas from a single burner or from a number of burners at once. Fig. 2, is a top view of the same. Fig. 3, is a side view of the upper part of the same.

Similar letters of reference indicate corresponding parts in both figures.

The object of my invention is to provide for the extinguishment of all the street lights or out-door public lights of a city, town, village, or district by simply effecting such a temporary increase or reduction of the pressure on the main as will not materially interfere with the lights in dwellings and other places, by the agency of a cock or valve at the gas works; also to provide for the extinguishment of the lights of any series of burners by a temporary increase or reduction of pressure that will not materially affect the lights of other burners supplied by the same main or service pipe.

My invention consists in producing the above results by means of a floating inverted cup or other expanding chamber, and an inlet valve, applied as hereinafter described in combination with a burner or supply pipe.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A, is a basin containing quicksilver or other liquid *a*, *a*.

B, is an inverted cup whose edges dip into the liquid *a*, *a*, in the basin A. This cup has attached to its crown, a tube *b*, with an open bottom but no other opening, said tube being of much less depth than the cup so that the edges of the cup B, may be submerged while the lower edges of the tube may be some distance above the surface of the quicksilver in the cup A.

C, is an inlet pipe entering the basin A, through the bottom, and passing upward some distance above the surface of the liquid *a*, *a*, into the tube *b*, which is so much larger than the said pipe as to allow the gas to pass freely between them.

D, is an outlet pipe passing from the interior of the cup B, outside the tube *b*, down through the bottom of the reservoir A.

c, is an upright guide rod attached to the head of the cup B, and working through a guide *d*, in a cross head *e*, which is supported by two upright rods *f*, *f*, which are secured to opposite sides of the reservoir A. The upper part of the guide rod *c*, is bent to a horizontal position as shown at *c'*, in Figs. 1 and 2, to serve as a journal upon which to hang a rod *g*, which has a pawl like character and which when its lower extremity rests upon the top of the cross head *e*, supports the cup *e*, at such a height that while its own lower edges are submerged in the liquid *a*, *a*, in the reservoir the lower edges of the tube *b*, are elevated above the surface of the said liquid as shown in Fig. 1.

The weight of the cup B, with its attachments consisting of the tube *b*, the rod *c*, and pawl *g*, should be sufficient to overcome the action upon the head of the cup B, of the highest pressure of gas that will ever occur in the mains or else the cup should be furnished with one or more movable weights to load it down to the required weight.

In applying my invention to street lamps or other public out-door lamps it will be generally necessary to employ an apparatus like that above described in connection with each lamp, the inlet pipe C, being connected with the street main and the pipe D, with the burner; but in some cases where two or more lamps or burners may be supplied by one pipe from the main it will be sufficient to use a single apparatus for the several lamps or burners, the pipe C, receiving the gas from the main and the pipe D, supplying the several burners. Before lighting the lamps the cup B, belonging to each one has to be raised by hand to elevate the tube *b*, above the liquid *a*, *a*, and the lower extremity of the pawl *g*, placed upon the top of the cross head *e*, to keep the cup thus elevated, care being taken to arrange the cup with the part *c'*, of the stem *c*, so far out of line with the cross head as to make the pawl assume such an oblique position, as shown in bold outline in Fig. 3, that if it were allowed to drop into a vertical position as shown in dotted outline in the same figure, it would pass clear of the cross head in the descent of

the cup. In this condition of the parts the gas takes the course indicated by arrows in Fig. 1, viz. through the pipe C, down the tube *b*, and under the edges thereof, through the cup B, and pipe D, to the burner.

When it is desired to shut off the gas from the lamps the pressure in the pipes is increased, by opening wider the cock or valve provided in the main, sufficiently to lift up the cup B, and liberate the pawl *g*, from the cross-head *e*, and then reduced to the same point as before to let the cup descend. In this descent of the cup, the pawl *g*, having dropped into a vertical position passes clear of the cross head *e*, and the cup goes right to the bottom of the basin or at least deep enough for the lower edges of the tube *b*, to dip into the liquid *a*, *a*, which is thus made to constitute a valve for the exclusion of the gas from the cup B. The above described temporary increase of pressure need not be of more than a moment's duration and hence need not cause any inconvenience in dwelling houses and other places where gas lights are used. When the edges of the tube *b*, dip in the liquid *a*, *a*, no increase of pressure can raise the cup, as the pressure only acts upon the small area of the head of the tube.

By making the cup B, and its attachments so light that the gas at the ordinary working pressure acting on its interior will keep it floating, the same apparatus may be made to shut off the gas by a temporarily reduced pressure. In this case the cup when raised will be held up against the cross head *e*, by the pressure and the gas will take the course indicated by the arrows as hereinbefore described, until it is desired to shut it off, when by a temporary reduction of the pressure the cup is caused to drop low enough for the bottom of the tube *b*, to dip into the liquid. On the pressure being increased to its original or proper working degree, the cup will not be raised as only the head of the tube *b*, will be acted upon by the gas. In this system of operation it is obvious the pawl *g*, is unnecessary.

A single apparatus of a similar kind operating on either of the plans herein above described, may be employed in any service or branch pipe to extinguish at once all the lights in any building or part of a building supplied by such pipe, or any number of the burners in any building or place may be furnished each with a separate apparatus of this kind that their lights may be extinguished by a cock in the service pipe while the lights of the other burners in the same place are left burning.

Instead of the liquid packing *a*, *a*, some packing of solid material that will work with very little friction may be connected by some thin flexible material, and in such case a valve will have to be used between the pipe C, and the tube *b*, that will be opened by the ascent of the cup and closed by its descent.

Instead of the arrangement of the parts as described with a pipe D, leading to the burner, the burner may be combined with the extinguishing apparatus so that the latter may constitute a portion or portions of the burner, and may be operated by hand when applied to the ordinary uses of burners thus rendering a stop-cock to turn on the gas at the burner unnecessary.

I do not claim any portion of the apparatus herein described so far as it may have been used in gas regulators in which it performs entirely different functions, but

What I claim as my invention and desire to secure by Letters Patent, is

The extinguishing of gas lights by means of an inverted cup B, or equivalent expanding chamber, provided with an inlet valve *a*, *b*, so applied, substantially as herein described, in combination with the burner, or supply pipe, that, though it will be caused to effect the shutting off of the gas by a temporary increase or diminution of pressure, it will not permit the renewal of the supply to the burners to be effected by a subsequent diminution or increase of the pressure.

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Witnesses:
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