(No Model.) 2 Sheets—Sheet 1.

A. J. HAUERBACH.

TIME GAS LIGHTER.

No. 426,808. Patented Apr. 29, 1890.

Fig: 1.

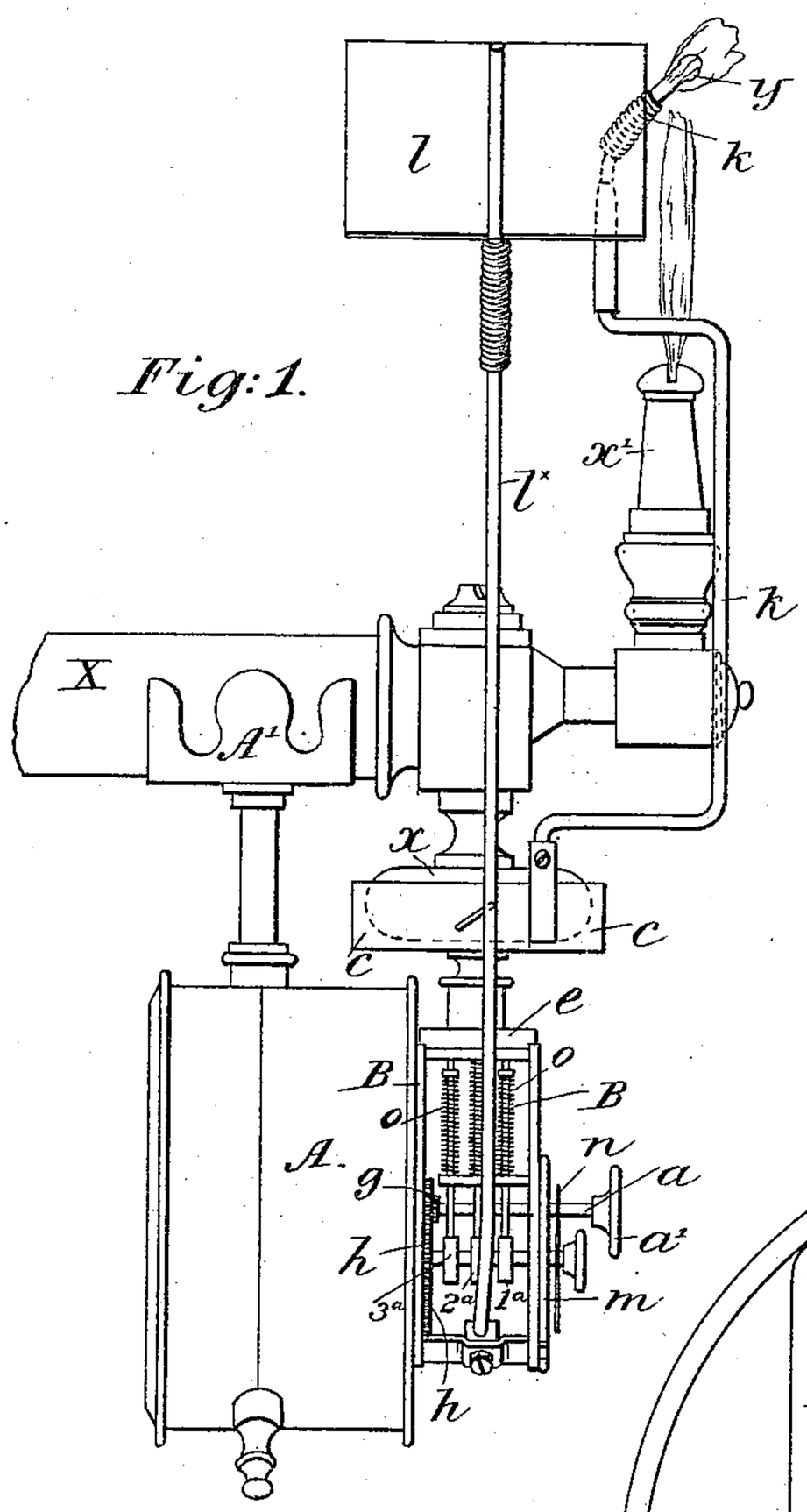


Fig: 2.

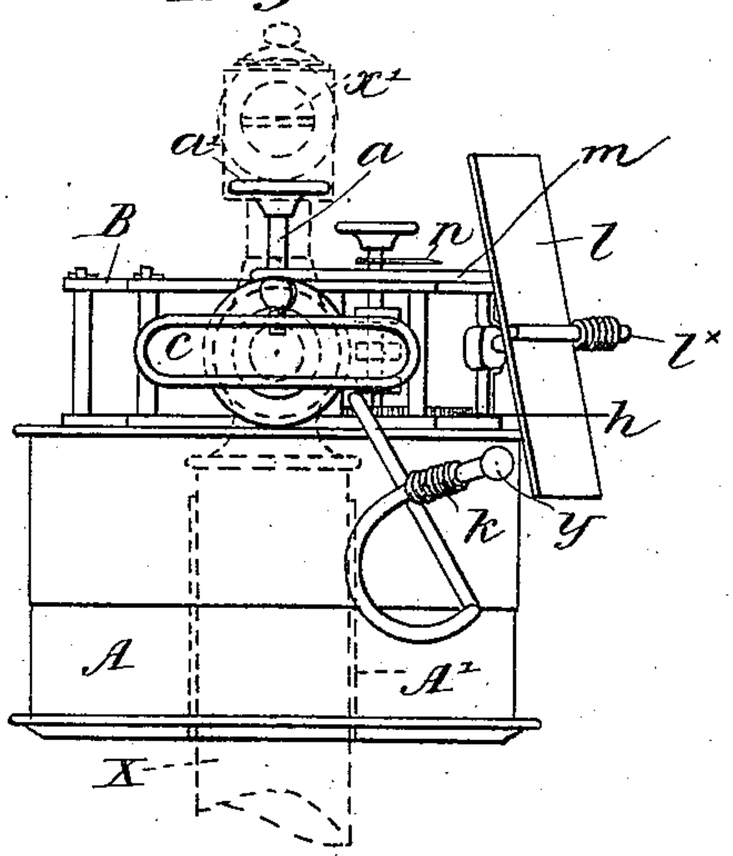
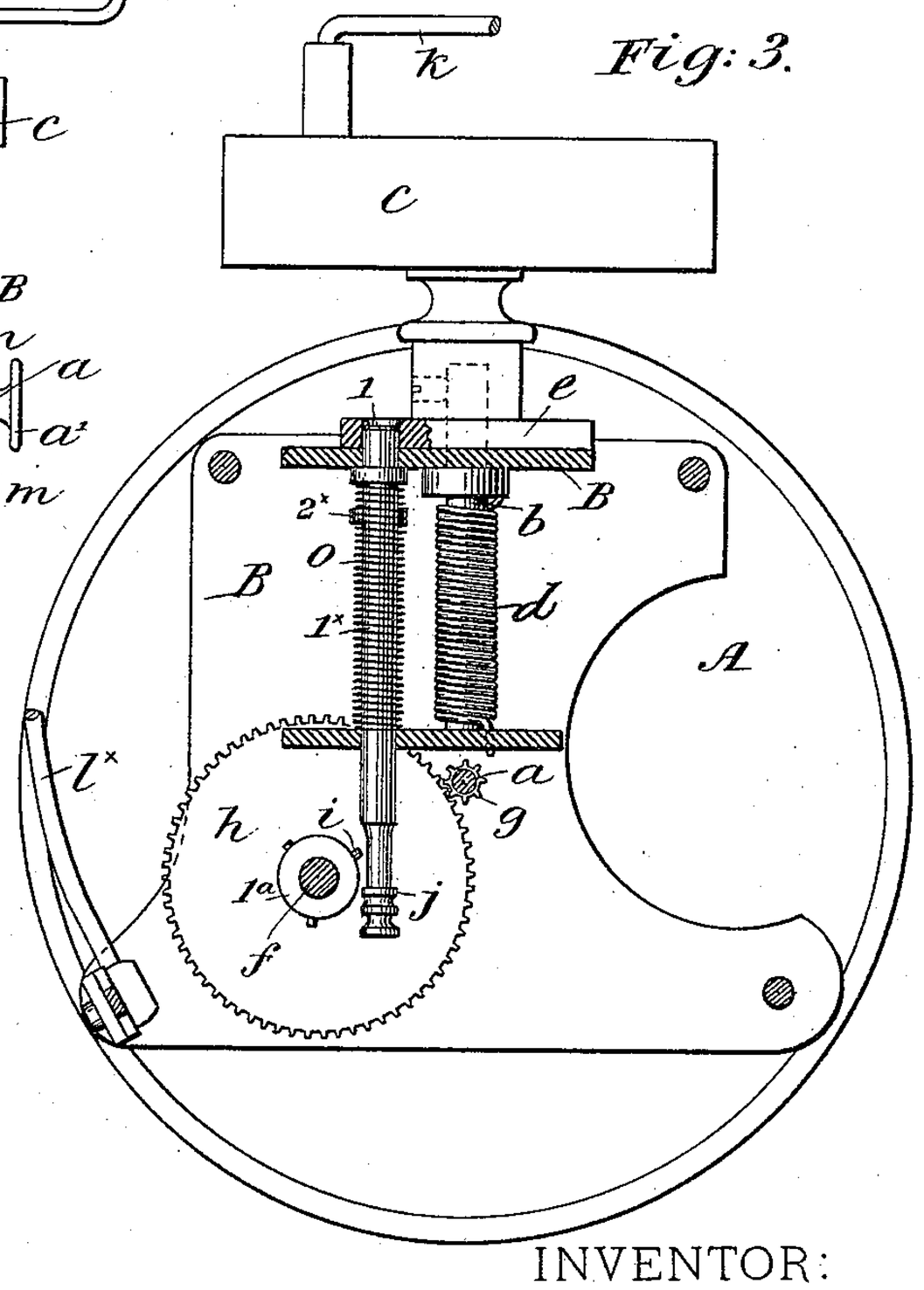


Fig: 3.



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(No Model.) 2 Sheets—Sheet 2.

A. J. HAUERBACH.

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Fig: 4.

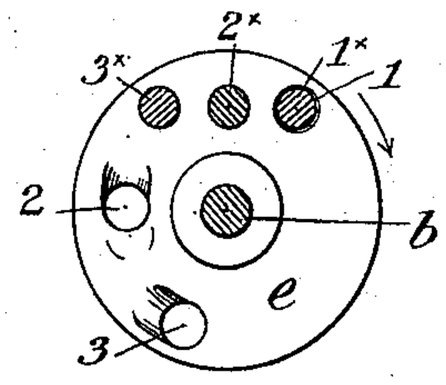


Fig: 4ª

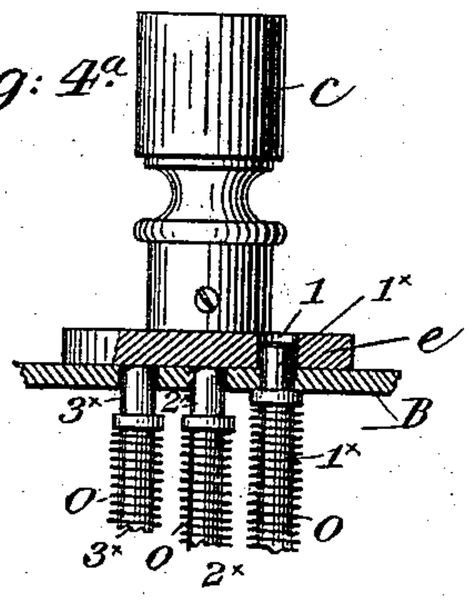
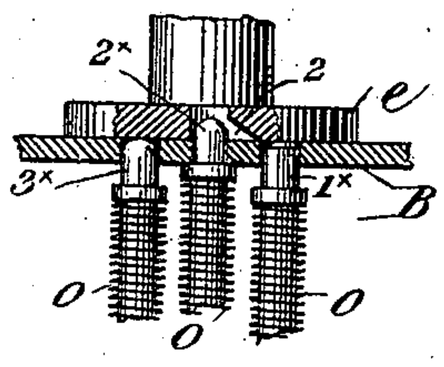


Fig: 4ᵇ



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UNITED STATES PATENT OFFICE.

ADOLPH J. HAUERBACH, OF SALT LAKE CITY, UTAH TERRITORY.

TIME GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 426,808, dated April 29, 1890.

Application filed August 7, 1889. Serial No. 320,002. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH J. HAUERBACH, a citizen of the United States, and a resident of Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented certain Improvements in Gas-Controlling Apparatus, of which the following is a specification.

My invention relates to a mechanism controlled by the mechanism of a clock for turning on and lighting gas at a given hour, for turning down the gas at a given hour, and for finally extinguishing the gas at a given hour. The mechanism is primarily set so that these operations are performed successively at certain hours of the day or night, and when it is connected with a clock and the clock is properly set the several operations will be performed at the times set without further attention, except to the winding up of the spring which actuates it, once a day, as will be hereinafter described.

My invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the accompanying drawings, illustrative of my invention, Figure 1 is a side elevation of the device, and Fig. 2 is a plan of the same. Fig. 3 is a sectional front elevation on a larger scale. Figs. 4, 4^a, and 4^b are illustrative detail views on the same scale as Fig. 3, which will be described hereinafter.

X represents an ordinary gas-bracket, x the gas-cock, and x' the gas-burner. These may be of the usual or any kind.

A represents an ordinary small clock, such as the ordinary well-known desk-clock. This clock will be provided with some means of attaching it to the gas-bracket. In Fig. 1 this is effected by a clamp A′, attached to the casing of the clock. The setting stem or arbor a of the clock projects from the center of the back of the clock-case, which latter is turned to the front, as herein shown. On this stem a is fixed a milled head a', by means of which the arbor is turned in setting the hands of the clock. My improved gas-controlling mechanism is controlled by the clock through the medium of this setting stem or arbor a.

On the back of the clock-case is mounted a suitable frame B, to provide a support for the gas-controlling mechanism, which I will now describe.

Mounted in the upper plate of frame B is a stem b, on the upper end of which is secured an oblong socket c, which receives and embraces the thumb-piece of the gas-cock x. When the stem b is rotated, it turns the gas-cock with it, and thus controls the gas. On the stem b is a spiral spring d, which is fixed at one end to the frame B and at its other end to stem b. When the gas is turned off in one direction, this spring is put under tension, and it is capable of turning the cock half around, so as to cut off the gas in the other direction.

Before describing the mechanism through which the clock controls the rotation of the gas-cock by the spring d, I will say that the apparatus is so set, primarily, as to turn on and light the gas, say, at eight o'clock p. m., to turn the gas down low, say, at eleven o'clock p. m., and to extinguish it at, say, four o'clock a. m. Of course, these hours may be varied at will by the preliminary setting of the parts.

On the stem b is fixed a disk e, in which, on its under side, are three recesses 1, 2, and 3, so constructed as to form stops to receive spring-detents $1^\times$ $2^\times$ $3^\times$, mounted in bearings in the frame B side by side or abreast with their upper ends bearing on the lower face of the disk e. Fig. 4 shows the under side of the disk e and the recesses therein, and Figs. 4^a and 4^b are sectional elevations showing how the detents engage the recesses in the disk. The detents are all alike, and each is provided with a coil-spring o, which keeps it pressed upward against the disk e, but only one detent can be in engagement with its recess at a time.

In setting the apparatus to operate, the stem b is rotated in a direction to wind up or put under tension the spring d, and when the detent $1^\times$ engages the recess or aperture 1 in disk e, as seen in Fig. 4^a, the disk is locked fast and cannot be turned in either direction. The gas is now turned off, and the parts stand as in Fig. 2. The other detents $2^\times$ and $3^\times$ now bear on the lower face of the disk e.

I will now describe the mechanism whereby

the clock is caused at the proper hour to retract the detent $1^{\times}$ and allow the spring d to turn on and light the gas. Mounted in the frame A, parallel with the setting stem or arbor a, is a shaft f, on which is fixed a toothed wheel g in gear with a pinion h on the setting-arbor a. Thus the arbor a imparts a rotary motion at the proper speed to the shaft f. On the shaft are fixed three disks 1^{a} 2^{a} 3^{a}, and in the periphery of each of these disks is set a stud or pin i. The disks 1^{a}, 2^{a}, and 3^{a} are set, respectively, opposite to the detents $1^{\times}$, $2^{\times}$, and $3^{\times}$, and each of these detents is provided at its lower end with a button or flange j. As the shaft f revolves, the stud i on the disk 1^{a} engages the button j on the detent $1^{\times}$ and draws down said detent far enough to free the disk e and permit the spring d to rotate the latter. This rotation is limited to a quarter-revolution, or thereabout, as the detent $2^{\times}$ will at this point in the rotation engage its recess 2, as seen in Fig. 4^{b}, and stop the disk at that point. The effect of this quarter-revolution of the stem b is twofold. It turns the gas on by rotating the gas-cock through a quarter-revolution and it ignites the gas.

The means employed for igniting the gas consists of a match-holder k, attached to the socket c. This holder may be formed of wire with a socket at one end to receive an ordinary match y. Fig. 2 shows the parts in position as they are set. When the gas is turned on, the igniting end of the match y is drawn across a rough friction-plate 1, mounted on a stem $1^{\times}$, secured to the frame B or other fixed part of the apparatus. The plate 1 may be of metal coated with emery on the face over which the match is drawn.

When the hour is reached at which the apparatus is set for turning down the gas—eleven p. m., for example—the stud i in the disk 2^{a} will engage the button j on detent $2^{\times}$ and draw down said detent far enough to free the disk e, when the latter will make a partial revolution and cause the gas-cock to cut off the gas partially. The extent of this movement will be limited by the engagement of the detent $3^{\times}$ with its recess 3 in disk e. When the hour set for extinguishing the gas arrives—four a. m., for example—the stud i on the disk 3^{a} will engage the button j on the detent $3^{\times}$ and retract said detent, thus freeing the disk e and allowing the spring d to act and turn off the gas by rotating the gas-cock up to the stop thereon. The recesses 2 and 3 in the disk e are beveled at one side in the manner of a ratchet, so as to allow the disk to be turned in one direction, as in setting the apparatus. Otherwise the detents would catch in the recesses and lock the disk fast. The detents and their respective recesses are so arranged that each detent will engage its own recess and no other.

There is a dial m, mounted on the frame B, concentric with the shaft f, and a pointer n on said shaft traverses this dial. This dial is not, however, essential to my apparatus.

By simply omitting the spring-detent $3^{\times}$ the apparatus may be employed for turning on and lighting the gas at a given hour and turning it entirely off at a given hour, thus omitting the turning down of the gas. So, also, the turning out of the gas may be omitted by simply removing the retractor for detent $2^{\times}$. The apparatus will then simply turn on and light the gas.

Having thus described my invention, I claim—

1. In an apparatus for igniting and extinguishing gas, the combination, with a clock having a hand-setting arbor, a shaft f, driven from said arbor, the stem b and its driving-spring, the socket or holder for the gas-cock carried by said stem, the disk e on said stem, provided with detent recesses or shoulders, two or more spring-detents adapted to engage their respective recesses or shoulders on disk e, detent-retractors carried by the shaft f and adapted to retract the spring-detents at the proper hours, the friction-plate 1, and the match-holder carried by and moving with the stem b, all arranged to operate substantially as set forth.

2. In an apparatus for lighting and extinguishing gas, the combination, with the gas-cock-controlling stem b and its driving-spring, and the disk or plate e thereon, provided with recesses or detent-shoulders 1 2 3, of the spring-detents, detent-retractors actuated by a clock for retracting said detents at the proper hours, the controlling-clock, and the gas-igniting mechanism, all arranged to operate substantially as set forth.

3. A mechanism for turning on and lighting gas at a certain hour, consisting of a gas-cock-controlling stem and its driving-spring, a spring-detent arranged to hold said stem from rotating when the gas is turned off, a detent-retractor actuated by a clock, the said clock, and the gas-igniting mechanism, said mechanism comprising a friction-plate and a match-holder carried by and moving with the stem b, all combined and arranged to operate substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ADOLPH J. HAUERBACH.

Witnesses:
JOHN F. CORKER,
PHILIP BRIGGS.