

(No Model.)

J. H. LEHMAN.

AUTOMATIC LIGHTING DEVICE FOR BICYCLE OR OTHER LAMPS.

No. 551,082.

Patented Dec. 10, 1895.

Fig. 1.

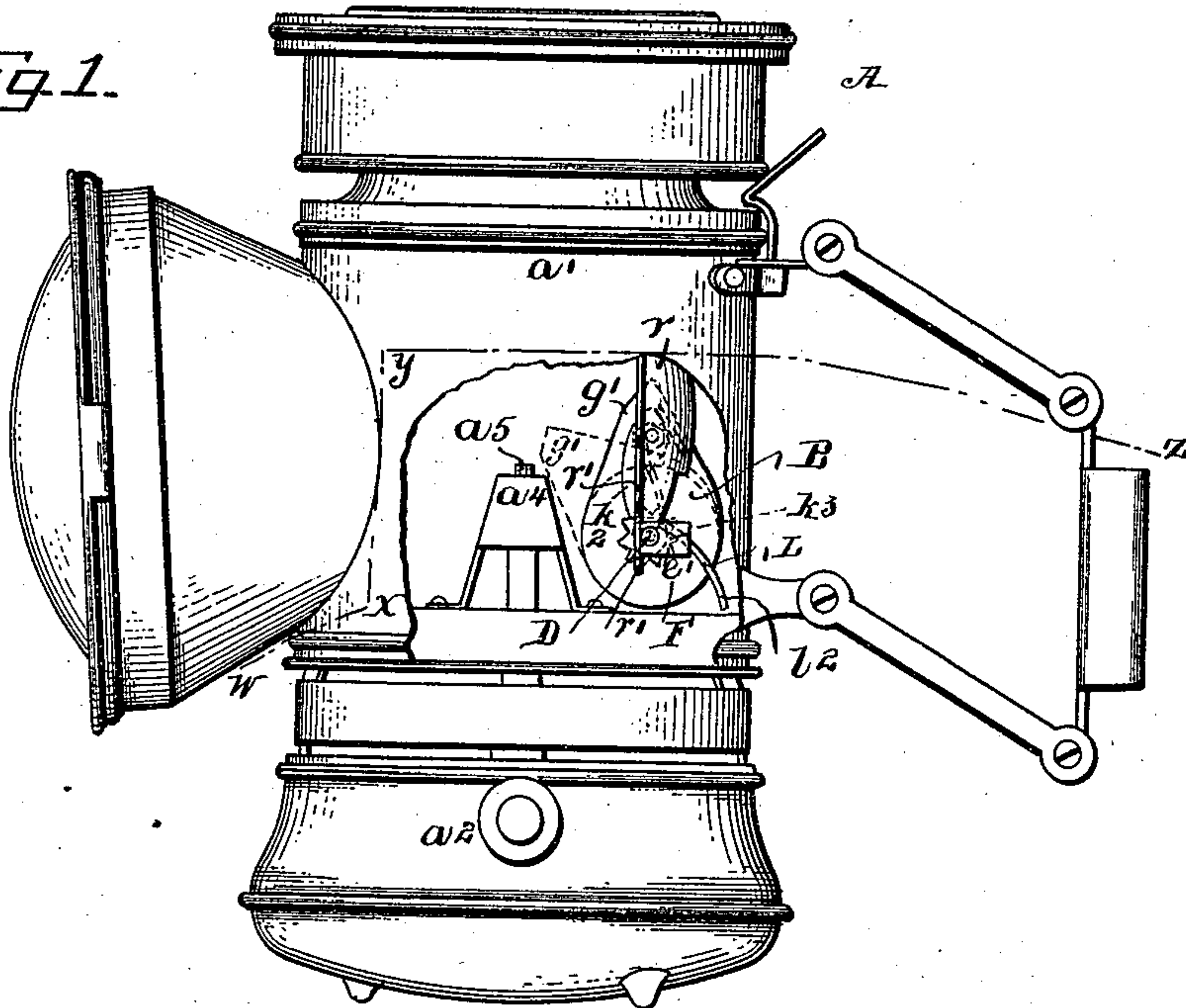


Fig. 3.

Fig. 4.

Fig. 5.

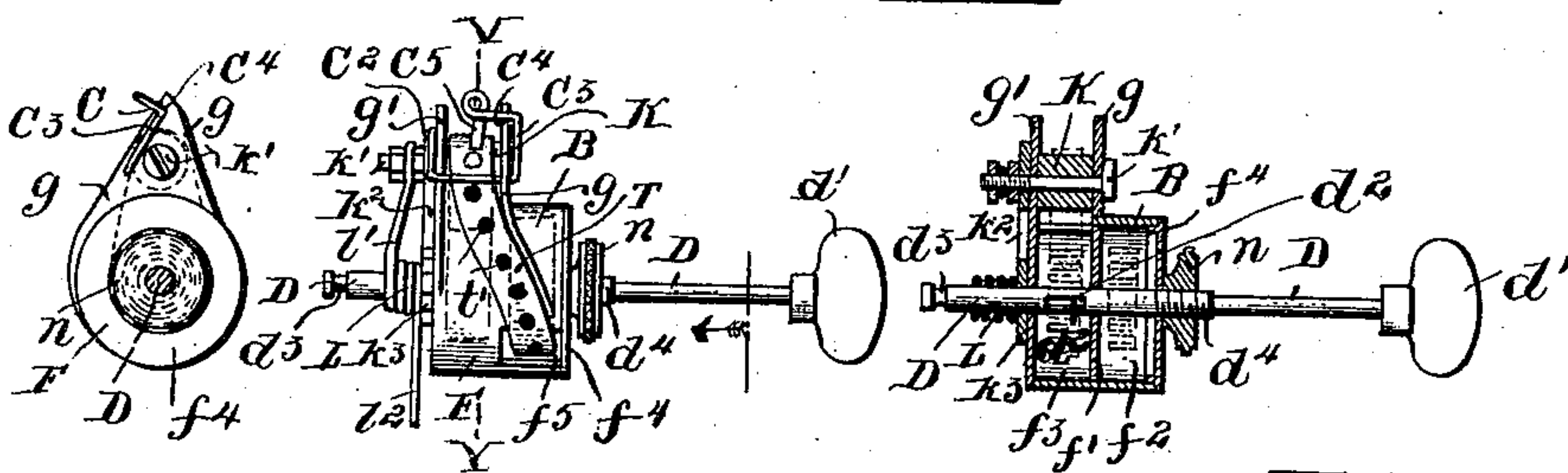


Fig. 2.

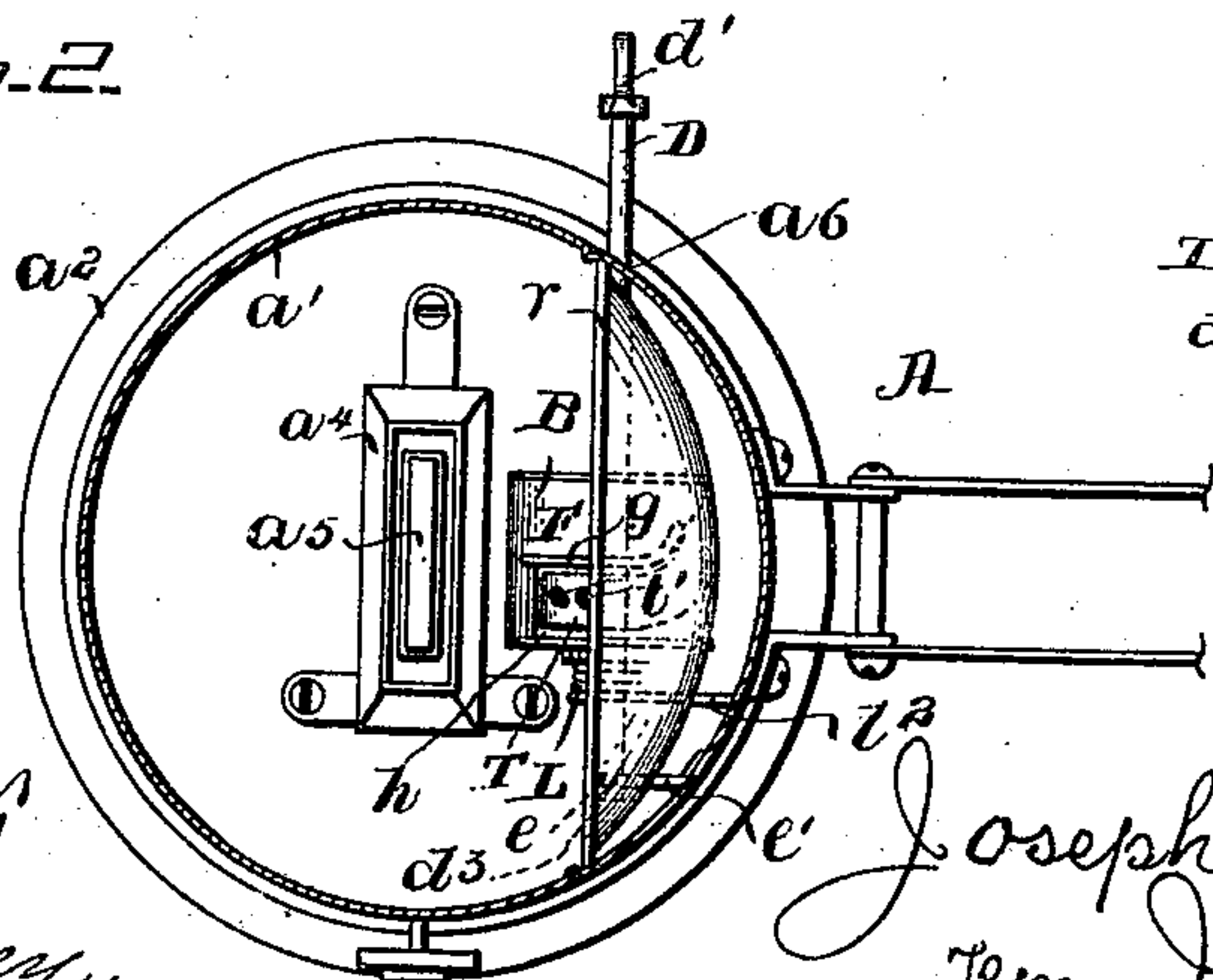
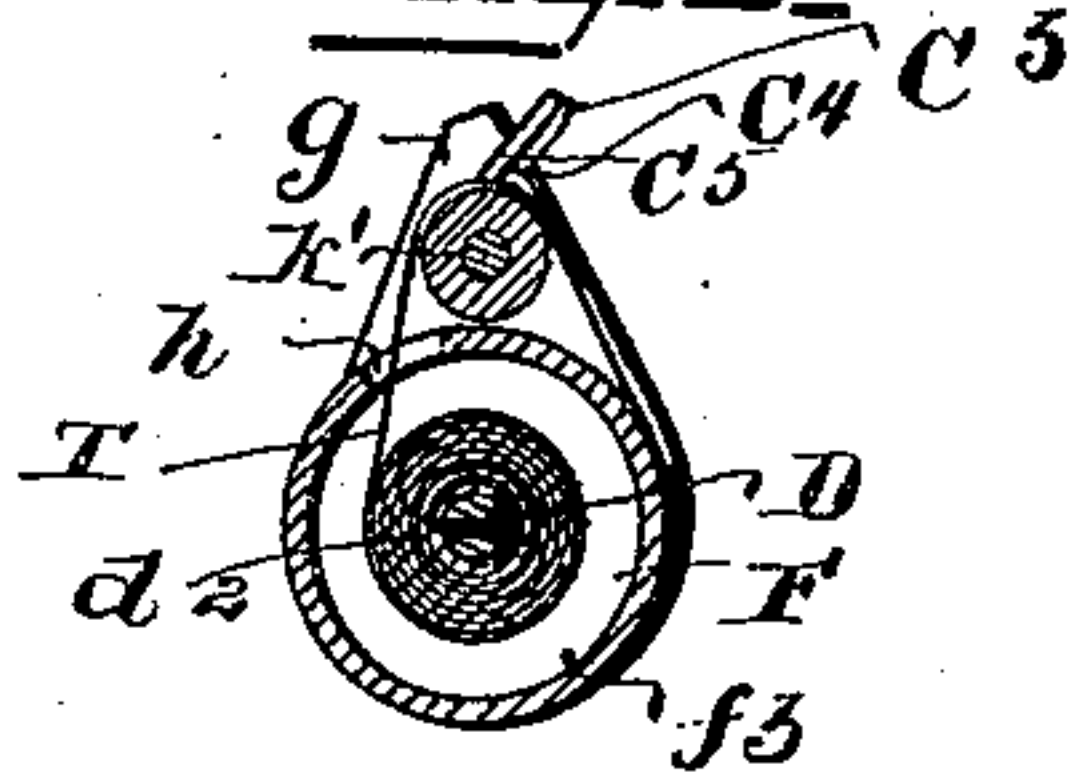


Fig. 6.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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ONE-HALF TO HARRIE B. HART, OF SAME PLACE.

## AUTOMATIC LIGHTING DEVICE FOR BICYCLE OR OTHER LAMPS.

SPECIFICATION forming part of Letters Patent No. 551,082, dated December 10, 1895.

Application filed July 21, 1894. Serial No. 518,190. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH H. LEHMAN, a citizen of the United States, residing at the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Automatic Lighting Devices for Bicycle or other Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 shows a bicycle-lamp to which my invention is applied, the lamp-cylinder being cut away in order to show an end in view, on the side away from its handle, of the tinder-strip holder and igniter, and its relative position. Fig. 2 is a plan view of a section taken on lines  $w x y z$ , Fig. 1. Fig. 3 is an end elevation looking from and in the direction of the arrow in Fig. 4. Fig. 4 is a side elevation of the holder and igniter detached from the lamp. Fig. 5 is a vertical longitudinal section of Fig. 4, nearly midway thereof. Fig. 6 is a section on line  $v v$ , Fig. 4.

This invention which, although applicable to various styles of lamps and lanterns, is mainly designed for use in connection with bicycle-lamps, has for its object an improved construction and arrangement of the devices for holding and igniting the tinder strips by which the flame of the fulminate pellets upon the strips is brought into proximity with the lamp-wick; also, certain improved construction of such tinder-strip devices, whereby the manipulation and operation thereof are rendered more safe and convenient than with all other devices for the same general purpose with which I am familiar.

The invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, A is a bicycle-lamp of well-known form.  $a^1$  is the cylinder thereof;  $a^2$ , the oil-receptacle, which is detachably secured in a usual manner to the bottom of said cylinder.

$a^4$  is the burner and  $a^5$  the wick.

B is the holder, in which is contained the tinder strip T, having fulminate pellets  $t'$ , Figs. 2 and 4, at intervals thereon, and provided with a scratching-point  $c^5$ , Figs. 4 and

6, for igniting the pellets as they are brought into contact successively therewith.

I shall now proceed to describe the construction of this holding and igniting device and its adjuncts in detail, as follows:

F is a barrel divided into two chambers  $f^2$  and  $f^3$ , Fig. 5, by a vertical partition  $f'$ . This barrel is journaled on an arbor D. Chamber  $f^2$  is normally closed by a head  $f^4$ , Figs. 3, 4, and 5, that is held in place by an abutting screw-threaded nut  $n$ , the ends of which engage those of an enlargement  $d^4$  of the arbor. Two lugs  $g g'$ , the interval between which, at their upper ends, being somewhat greater than the width of the tinder strip to be used with the device, are secured to the periphery of and project upwardly beyond the barrel.

A horizontal slot  $f^5$ , Fig. 4, is made in the periphery of the barrel, the width of which slot is not less than the width of the tinder strip. The lug  $g$  extends in an inclined direction upwardly from the outer edge of the slot, as seen more clearly in Fig. 4, in order to form a guide for the tinder strip, as will hereinafter appear in the explanation of the mode of operation of the device. Between the free projecting ends of the said two lugs is secured a transverse bearing K, which in the present instance is a roller journaled on a pin  $k'$ . One end of this pin extends beyond the outer lug  $g'$ , and has pivoted thereon a pawl  $k^2$ , that engages the teeth of a ratchet-wheel  $k^3$ , fixed to the arbor D on the side of the barrel. The pawl and ratchet prevent the arbor from being turned in the wrong direction. The projecting end of pin  $k'$  serves also as a point of attachment for one limb  $l'$  of a spring L, circling around the arbor, the other or free limb  $l^2$  of which projects back and downwardly, so that it will, when the holder is in place within the lamp, impinge forcibly against the side of the cylinder, as seen in Fig. 1 and as indicated by partly full and partly dotted lines in Fig. 2, for a purpose hereinafter explained.

C is a wire passed through opposite holes in the lugs  $g g'$  and bent upwardly on each side to form two limbs  $c^2$  and  $c^3$ , one of which,  $c^3$ , is sprung over into and so retained in place by an L-shaped slot at  $c^4$ , Figs. 3, 4, and 6,



in the edge of the lug  $g$ . The other limb  $c^2$  bears against the flattened side of the upper part of the pawl  $k^2$ , acting as a spring to keep the said pawl against the said ratchet-wheel.

5 The limb  $c^3$  is bent laterally so as to come over the bearing  $K$ , and its extremity is extended down about vertically and ends in a scratching-point  $c^5$ , that projects in the path of the fulminate pellets  $t'$  on the tinder strip, as  
10 they are caused to pass in succession over the summit or bearing  $K$ .

That part of arbor  $D$  within chamber  $f^3$  of the barrel is provided with a narrow longitudinal slot  $d^2$  (seen in Fig. 5) for the recep-  
15 tion of the free end of the tinder strip and for a purpose as hereinafter described. There is an opening  $h$  in the top of the barrel, back of lugs  $g g'$ , which serves as a passage-way for the strip into said chamber  $f^3$ , as seen in  
20 Figs. 2 and 6. On the end of arbor  $D$  that extends outside the lamp-cylinder is a convenient handle or thumb-nut  $d'$ , which is screwed or otherwise detachably fastened to the arbor.

25 Having thus described in detail the construction of one form of my invention which I have practiced, and which I believe to be most desirable, I shall now describe the operation of the device.

30 The same having been detached from the lamp, the nut  $n$  is unscrewed and it and the barrel-head  $f^4$  are slid off the arbor, the thumb-nut  $d'$  having been, of course, previously taken off. The tinder strip wound into a coil  
35 of suitable diameter with the fulminate pellets on the outer side thereof is slipped onto the arbor  $D$  into chamber  $f^2$  and its free end drawn through and allowed to project from the slot  $f^5$ . This end of the strip is then car-  
40 ried up between lugs  $g g'$  over roller  $K$  and under the scratching-point  $c^5$ , thence into passage-way  $h$ , and is inserted through the slot  $d^2$  of the arbor. The latter is then given a turn or more in order to tighten the end of  
45 the strip around it. The device thus charged is now ready to be put into its place within the lamp as follows: The bottom or oil-receptacle  $a^2$  being detached, the handle end of the arbor is thrust through, from the inside, an  
50 aperture at  $a^6$ , Fig. 2, in that side of the cylinder. The other end of the arbor, which has a circumferential groove  $d^3$ , Figs. 4 and 5, is passed into a slot  $e$  in the end of a lug  $e'$ , that is secured to and projects a suitable distance  
55 from the side of the cylinder, as seen in Figs. 1 and 2. It is maintained in place by means of a downwardly-extending limb  $r'$ , Fig. 1, of the usual reflector  $r$ , which limb projects over the front of the arbor adjacent to its slot bearing. (Seen in Fig. 1.) The free end  $l^2$  of the  
60 spring  $L$  bears against the inner side of the lamp-cylinder. The handle  $d'$  is now screwed onto the end of the arbor, and the oil-receptacle and burner being replaced the device is  
65 ready for use in the following manner: The wick being first turned up to the required height, the arbor is rotated toward the burner,

whereupon that part of the tinder strip that has been wound upon the arbor is drawn upon, and the strip unwinding from the coil is ad- 70  
vanced between the guide-lugs  $g g'$  until a pellet comes into contact with the scratching-point. The friction of the latter against the pellet or the strip for the moment stops the movement of the strip, whereupon, the turn- 75  
ing of the handle and arbor being continued, the barrel, with its adjuncts, rotates inwardly against the stress of the spring until arrested by striking against the side of the burner, as indicated by the dotted lines in Fig. 1. The 80  
strip must now advance, the continued turning of the arbor enabling it to overcome the resistance of the scratching-point, which then causes the ignition of the pellet, while it is in position close to the wick. This done and 85  
the wick being lighted, the handle is released and the spring returns the barrel, &c., to the normal or safe position, carrying the exposed part of the tinder strip away from the flame of the lamp. As the strip is gradually used 90  
up it uncoils from chamber  $f^2$  and the ignited or waste portion is finally wound around the part of the arbor occupying the chamber  $f^3$ , whence it may be removed when it is desired to recharge the holder with another tinder- 95  
strip coil.

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

1. The combination with a bicycle, or other 100  
lamp, of an arbor journaled in said lamp and having means whereby it can be actuated from the outside of the lamp, and a tinder strip holding and igniting device loosely 105  
mounted on said arbor, and normally held away from the burner, the said igniting device being arranged to engage a pellet of the tinder strip in such a manner as to check said strip and thereby form a temporary connec- 110  
tion between the igniting and holding device and the said arbor, whereby said parts are rotated together at the proper time, substantially as specified.

2. In an igniting device for bicycle and 115  
other lamps, the combination of a tinder strip holding device rotatably mounted on an arbor which is journaled within the lamp, said device having a fixed scratching point against which the tinder is drawn to ignite it, and a spring coiled around the said arbor, one arm 120  
of said spring being fixed to the holding device, and its other or free arm arranged to take a bearing against a fixed part of the lamp, whereby as the unwinding of the tinder strip from the arbor is checked by its con- 125  
tact with the scratching point, the holder is moved to bring said point into proximity to the burner, and when the arbor is released said device will be moved away from said burner, substantially as specified. 130

3. In an igniting device for bicycle and other lamps, the combination of a rotatable arbor, a tinder strip holding barrel mounted to rotate on said arbor and having guide lugs



at its upper portion, a bearing for the tinder strip between said lugs, a spring coiled around said arbor and having a bearing against a fixed part of the lamp, a ratchet wheel on said  
5 arbor, a pawl in engagement therewith and a wire passed through the said lugs, and bent to form two limbs, one of which bears upon the said pawl and the other of which is bent to form a scratching point which projects over  
10 the said bearing, substantially as specified.

4. The combination with the lamp, the arbor journaled in the lamp, the barrel mounted to rotate on said arbor, the tinder-strip coil within the barrel, the relatively fixed scratch-  
15 ing point on the upper part of the barrel for igniting the pellets upon said strip, the bearing beneath said point, over which the strip

passes, the spring adapted to normally hold the barrel in such position that the igniting point and the adjacent exposed portion of the  
20 strip shall be normally away from the burner, together with means for actuating said strip and rotating the barrel against the stress of the spring in order to bring the igniting point into proximity to the burner, substantially as  
25 and for the purpose described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOSEPH H. LEHMAN.

Witnesses:

ANDREW ZANE;

WALTER C. PUSEY.