2 Sheets—Sheet 1

F. G. STEPHENSON.

Automatic Lamp-Lighting Device.

No. 207,317 Patented Aug. 20, 1878

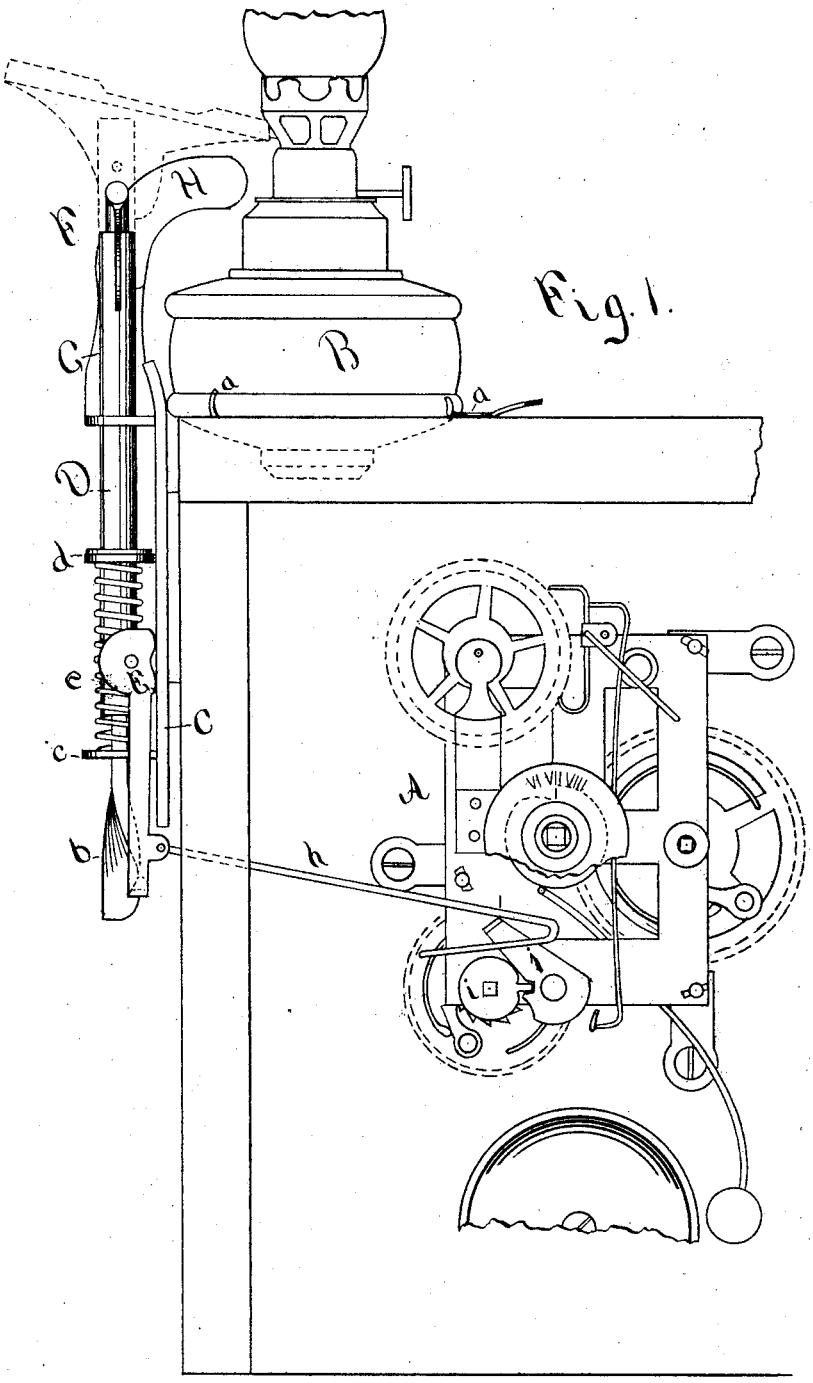

Fig. 1.

Witnesses:
W. B. Thomson
James B. Thomson

Inventor:
Frederick G. Stephenson
By James Shepard Atty.

F. G. STEPHENSON.

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Fig. 2.

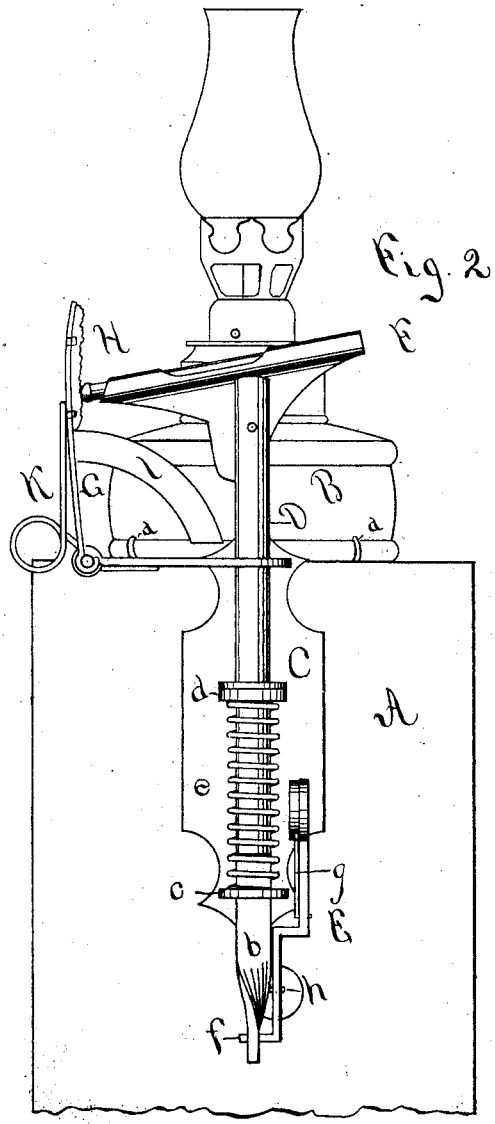


Fig. 3.

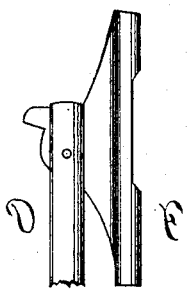
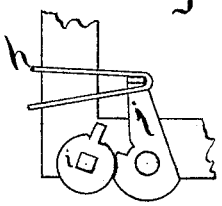


Fig. 4.

Fig. 5.



Witnesses
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James P. Thomson.

Inventor.
Frederick G. Stephenson
By James Shepard atty

UNITED STATES PATENT OFFICE.

FREDERICK G. STEPHENSON, OF PLAINVILLE, CONNECTICUT.

IMPROVEMENT IN AUTOMATIC LAMP-LIGHTING DEVICES.

Specification forming part of Letters Patent No. **207,317**, dated August 20, 1878; application filed March 22, 1878.

To all whom it may concern:

Be it known that I, FREDERICK G. STEPHENSON, of Plainville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lamp-Lighters, of which the following is a specification:

My invention consists in the peculiar construction of mechanism, and in the combination of parts, both new and old, as hereinafter described.

In the accompanying drawing, Figure 1 is a front elevation of parts of an alarm-clock and a lamp-lighter which embodies my invention. Fig. 2 is a side elevation of the same; and Figs. 3, 4, and 5 are detached views thereof.

A designates an alarm-clock of any ordinary construction. B designates a lamp, firmly secured to the top of the clock-case by means of proper clamps *a a*. One arm of the chimney-holder, by the side of the lamp-burner, is cut away, as shown in Fig. 2, in order to facilitate the application of a match thereto. C designates the frame of the lighter, to which frame a vertically-sliding rod, D, is secured. The upper end of this rod is round and fits in a round bearing in the frame. The lower end, *b*, is flat and twisted a quarter-turn, something like the twist of an auger. This flat and twisted end *b* fits in a thin bearing, *c*, the slot in which corresponds in shape to the transverse area of said twisted end. Said rod is provided with a collar, *d*, rigidly secured thereon, below which and surrounding the rod is a spiral spring, *e*. A lever, E, is hung to the frame C, the lower end of which lever is provided with an offset-arm, *f*, Fig. 2, which, when the rod D is depressed, engages a notch in its lower end, the arm of the lever being held in engagement therewith by the spring *g*, Fig. 2.

A rod or wire, *h*, secured to the lever E, extends into the clock-case, and is so connected to the alarm mechanism that the rod will be pulled to trip the lever E when the alarm is set off. This is accomplished by placing a rotating stop, *i*, on the end of the main or winding shaft of the alarm, so as to engage a swinging lever, *j*, said parts being shown in Figs. 1 and 2, the former figure representing the same with the alarm wound up and before it has started, while the latter is a detached view, representing said stop and lever just after the alarm has been set off and started.

The stop *i*, of the form shown, and a rotating piece, having a deep notch and circular depression like those in *j*, are old in clock-movements for the purposes of a stop merely. The novelty of these parts, as herein shown, consists in adding a lever to the piece *j*, with an outturned end or other means for connecting it with the rod *h*, so that it shall pull the same. So soon as the alarm starts the arm of the stop *i* throws the lever *j* into the position shown in Fig. 2, when the circular depression, engaging the circular edge of *i*, holds the lever *j* in said position until the parts are again brought into the position shown in Fig. 1 by rewinding the alarm.

Upon the upper end of the rod D is a spring match-holder, F, the same being pivoted within a slot in the end of said rod, so that the holder may be turned down, as shown in Figs. 1 and 2, or turned up, as shown by the detached side and end views, respectively, in Figs. 3 and 4. This holder is made of two pieces of sheet metal, as shown in Fig. 4, and pivoted below the upper end of the rod D a distance greater than the diameter of said rod.

When the holder is in the position shown in Figs. 3 and 4, its sides are withdrawn from the end of the rod D, so that they spring open to facilitate the insertion or removal of a friction-match; but when the holder is turned down, as shown in Figs. 1 and 2, the sides are pressed firmly against the match, to hold it, by reason of the end of the rod embracing the sides of the holder at a point much nearer the match than before, so that the sides cannot spring open to any great extent. One end of the holder may be provided with a stop for the end of the match to rest on.

At one side of the frame C is a hinged arm, G, provided with a curved friction-pad, H, of paste, composition, roughened metal, or any other surface well adapted for igniting matches. This arm G and pad H are forced toward the match-holder by the spring *k*, and are stopped from moving in that direction beyond a certain point by the stop *l* engaging the frame C.

To use the device, the alarm is wound up and set by ordinary means to start or set off

the alarm at the desired hour. The match-holder F is turned up, as shown in Fig. 3, and then depressed, with the rod D and spring *e*, until the arm *f* of the lever E engages the notch in the edge and lower end of the rod D, to hold it down. A match is then inserted in the holder, and the latter turned down, with the end of the match resting against the spring-actuated pad H, as most clearly shown in Fig. 2. When the alarm starts, the arm *f* is disengaged, and the spring *e* throws the rod and match-holder upward, the same making a quarter-turn in their upward movement by reason of the twisted end, thereby carrying the match swiftly upward over the pad to ignite it, and turning it around to present its ignited end to the lamp and light the same, as indicated by the broken lines in Fig. 1.

I am aware that lamp-lighters have heretofore been combined with clocks, and I hereby disclaim the same.

I claim as my invention—

1. In combination with the mechanism of a lamp-lighter, the connecting-rod *h*, rotating stop *i* on the main shaft of the alarm, and the lever *j*, operated by said stop to pull the rod *h* when the alarm starts, substantially as described.

2. In a lamp-lighter, the rod D, carrying the match-holder, said rod being flattened and twisted, whereby it makes a quarter-turn simultaneously with its rising movement, substantially as described, and for the purpose specified.

3. In a lamp-lighter, the match-holder F, formed of two thin plates, and pivoted in the split end of the rod D, substantially as described, and for the purpose specified.

4. The combination of the spring-actuated friction-pad H, holder F, rod D, spring *e*, lever E, and mechanism operated by the alarm-spring to trip said lever at the proper time, substantially as described, and for the purpose specified.

FREDERICK G. STEPHENSON.

Witnesses:

HIRAM V. HARRIS,

W. O. BUNNELL.