(No Model.)

F. J. BERG.

AUTOMATIC FIRE LIGHTER.

No. 386,232. Patented July 17, 1888.

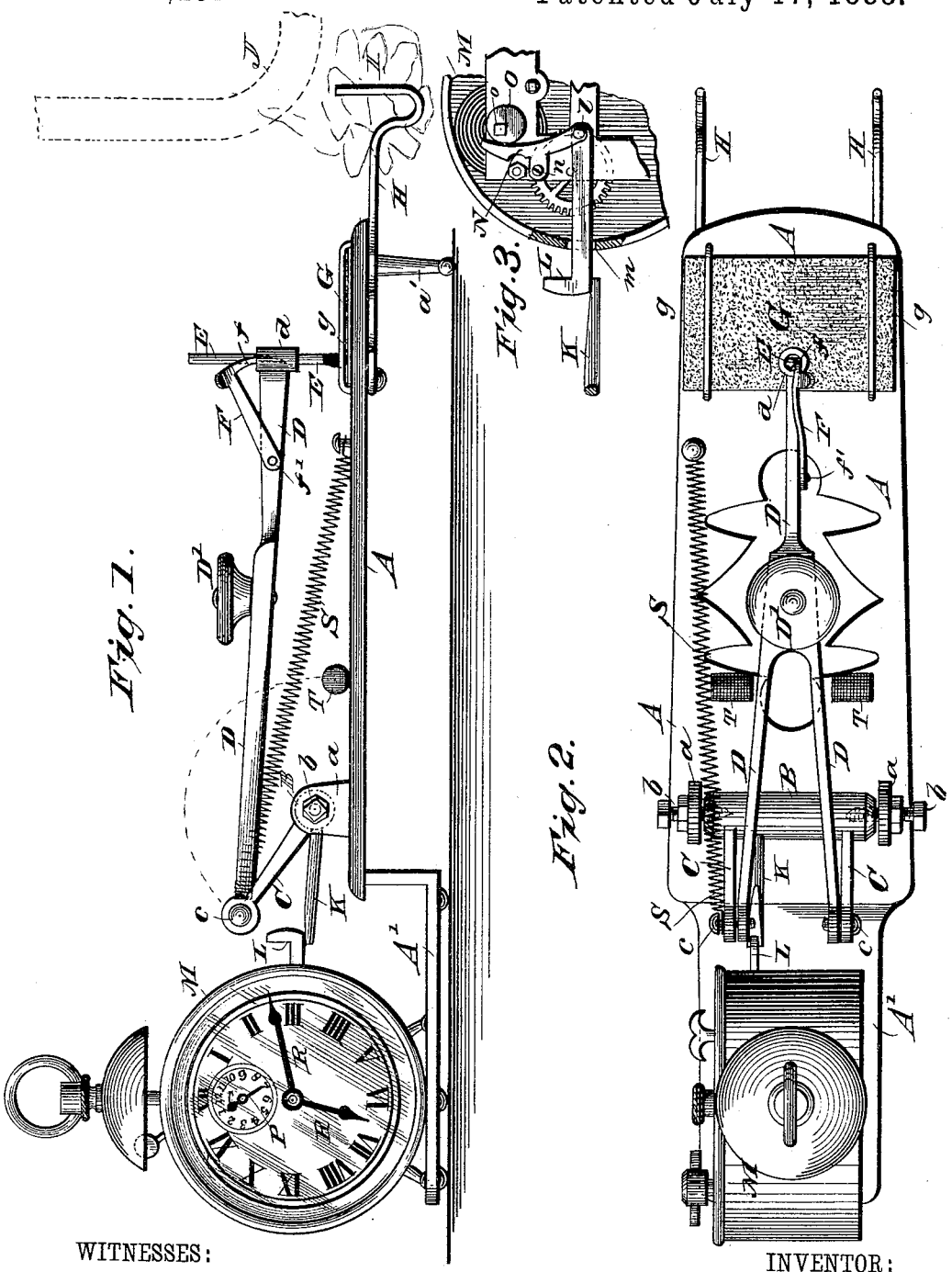

Fig. 1.

Fig. 2.

Fig. 3.

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AUTOMATIC FIRE-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 386,232, dated July 17, 1888.

Application filed October 19, 1887. Serial No. 252,815. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. BERG, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and Improved Automatic Fire-Lighter, of which the following is a full, clear, and exact description.

My invention relates to a device for automatically lighting or kindling fires at any predetermined time, and has for its object to provide a simple, inexpensive, and effective device of this character.

The invention consists in certain novel features of construction of the fire-lighter, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved fire-lighter with the fire grate and kindler indicated in dotted lines. Fig. 2 is a plan view of the fire-lighter, and Fig. 3 is a detail rear sectional view of a portion of the alarm-clock mechanism and the end of the trip arm of the fire-lighter mechanism.

A metal bed-plate, A, from which the fire-lighter mechanism is supported, is provided with a couple of lugs, *a a*, to which is journaled on screw-shafts or gudgeons *b b*, or otherwise, a rock-shaft, B, which carries fixedly a couple of arms, C C, to which are pivotally connected at *c c* the rear end parts of the bifurcated plate or bar D, which at its forward end is provided with an eye or socket, *d*, to receive a match, E, which may fit the eye tightly, but is preferably held in the eye by a hook, F, which is pivoted at *f'* to the bar D, and has a bill or point, *f*, which enters the eye *d* at the side of the match and wedges the match securely in the eye.

On the bed-plate A, at its forward end, is held, preferably by long staples or wire clips or clamps *g g*, a piece, G, of sand-paper, on which the ignitible end of the match E rests, and to the forward end of the bed-plate are fixed or held in any suitable manner a couple of wire hooks, H H, on or in which a wad or bunch, I, of paper, shavings, tinder, or other readily-ignitible material, will be held in proximity to the fire-grate J of a stove or fire-place, and so that when the wad I is lighted by the match the fire will be started or lighted in the grate. The wad and grate are shown in dotted lines in Fig. 1 of the drawings.

To the rock-shaft B is fixed a trip arm, K, which, when the fire-lighter mechanism is set ready for action, catches beneath a latch arm or bar, L, which is fitted to the alarm-clock M and passes through a hole, *m*, in the clock-case, and is pivoted at *l* to one end of a lever, N, which is pivoted at *n* to the clock-works frame, and at its other end rests against a cam or eccentrically-set disk or wheel, O, which is fixed to the spring-shaft *o* of the alarm mechanism of the clock, and is brought into proper position for action, as shown in Fig. 3 of the drawings, by the winding up of the alarm-spring. When the alarm-hand P is set to any time on the alarm-dial and this time is recorded or indicated by the hands R on the main dial of the clock, the alarm will be tripped and its mechanism will ring the alarm-bell, and as the alarm-spring unwinds and carries the cam O around with it said cam will operate the lever N and draw the bar L inward to release the trip-arm K.

Rubber or other suitable buffers, T, are fixed to the bed-plate A to receive the arms C or bar D when the fire-lighter mechanism is tripped, and thereby prevent noisy contact of the metal parts. The clock M is preferably supported on a depressed portion, A', of the bed-plate A, which part A', in connection with front legs, *a'*, supports the device in proper position on the hearth-plate of a stove, or on the hearth-stone of a fire-place. A spring, S, fixed to the bed-plate A and one of the pivots *c*, or to one of the arms C, tends normally to contract and impart motion to the bar D, for carrying the match across the sand-paper for lighting the match and wad I for kindling the fire.

The operation of the fire-lighter is as follows: After the alarm is set to be rung at the desired time, the bar D will be grasped, preferably by a knob, D', provided on it for the purpose, and its end holding the match E will be lifted from the sand-paper and the bar will be moved over toward the clock M, which motion will swing the rock-arms C of the shaft B over on the bearings *b b*, and also carry the trip-arm K over and cause it to catch beneath the latch-bar L of the clock. The rearward movement of the bar D also puts the spring S in tension,

and when the match E is lowered gently to the sand-paper G, or other roughened face on which it may easily be ignited by friction, the device is ready for action. The weight of the knob D′ holds the match to the sand-paper with sufficient force to assure lighting of the match when the device is tripped into action. When the latch-bar L is withdrawn by the clock mechanism from the trip-arm K, the spring S will act instantly to throw the arms C C and the bar D forward and carry the match E over the sand-paper G and light it, and cause the match to light the wad or kindler I, which in turn will light the fire in the grate J. The parts C or D, one or both, strike the buffers T when the mechanism is carried forward and prevent excessive noise or jar of the parts, all as will readily be understood.

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

1. The combination, in an automatic fire-lighter, of a bed-plate or support, A, a rock-shaft, B, journaled thereto and carrying arms C K, a bar, D, adapted to carry a match, a spring, S, adapted to draw the parts D E forward for lighting the match on a friction-surface, and a catch adapted to retain the trip-arm to hold the device set ready for action, substantially as herein set forth.

2. The combination, in an automatic fire-lighter, of a bed-plate or support, A, a rock-shaft, B, journaled thereto and carrying arms C K, a bar, D, adapted to carry a match, a spring, S, adapted to draw the parts D E forward for lighting the match on a friction-surface, and a catch-bar, L, adapted to retain the parts K C D S, and fitted for withdrawal by a clock mechanism, substantially as described, for the purposes set forth.

3. The combination, in an automatic fire-lighter, of a bed-plate, A, a rock shaft, B, journaled thereto and carrying arms C K, a match-carrying bar, D, a spring, S, adapted to draw the parts D E forward for lighting the match on a friction-surface, hooks H, for holding a kindling-wad adapted to be lighted by the match, and a catch-bar, L, adapted to retain the parts K C D S, and fitted for withdrawal by a clock mechanism, substantially as described, for the purposes set forth.

4. In an automatic fire-lighter, the match-holding bar or device formed with an eye, *d*, and provided with a pivoted hook, F, adapted to wedge the match in the eye, substantially as herein set forth.

5. In an automatic fire-lighter, the combination, with a bed-plate, A, rock-shaft and arms B C, match-holding bar D, and a spring device drawing the parts B C D forward for lighting the match, of buffers T, substantially as described, for the purposes set forth.

6. In an automatic fire-lighter, the combination, with the winding-mechanism shaft *o* of alarm-clock, of a cam disk or wheel, O, on said shaft, a lever, N, pivoted to the frame, and a catch-bar, L, connected to said lever, substantially as described, for the purposes set forth.

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