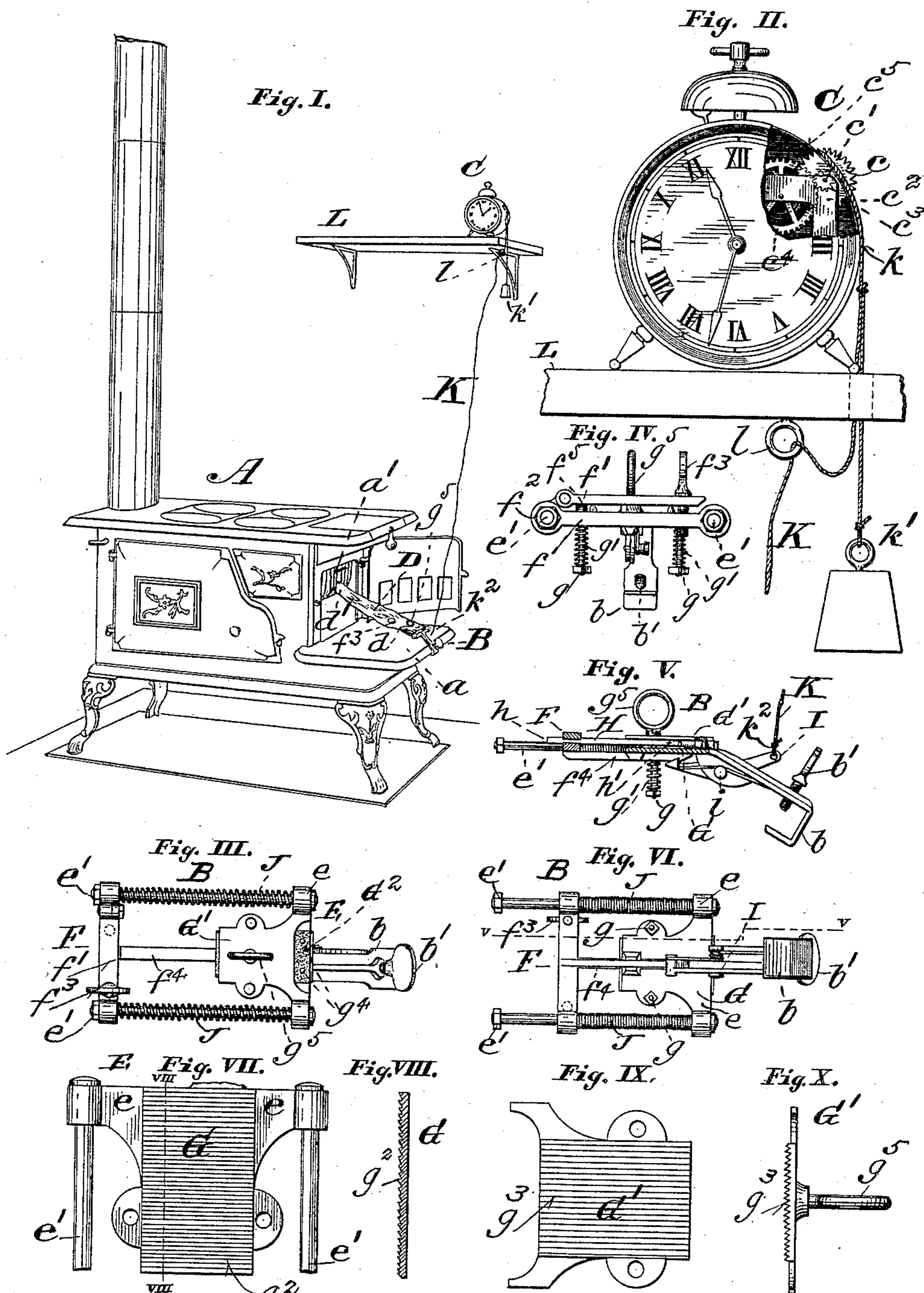


(No Model.)

H. PERK.
AUTOMATIC FIRE LIGHTER.

No. 464,891.

Patented Dec. 8, 1891.



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UNITED STATES PATENT OFFICE.

HERMANN PERK, OF ST. LOUIS, MISSOURI.

AUTOMATIC FIRE-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 464,891, dated December 8, 1891.

Application filed September 12, 1890. Serial No. 364,718. (No model.)

To all whom it may concern:

Be it known that I, HERMANN PERK, of St. Louis, Missouri, have made a new and useful Improvement in Automatic Fire-Lighters, of which the following is a full, clear, and exact description.

The present invention is an improvement more especially in that class of automatic fire-lighters which can be adjusted to operate in connection with a time-piece; and it consists, substantially, in the means hereinafter described and claimed, aided by the annexed drawings, in which—

Figure 1 is a view in perspective exhibiting the general arrangement of the improved mechanism as applied to a cook-stove; Fig. 2, a front elevation of the time-piece and the parts immediately therewith connected. A portion of the case of the time-piece is broken away to exhibit the novel portion of its mechanism more distinctly. Fig. 3 is a plan of the match-lighter; Fig. 4, an end elevation of the match-lighter, the view being of that end which is in using the device toward the fire-place; Fig. 5, a vertical section of the match-lighter, the parts being as when the match is in position for being ignited and the section being on the line 5 5 of Fig. 6, which in turn is a bottom view of the match-lighter; Fig. 7, a plan showing the lower one of the abrading-surfaces over which the match is drawn in being lighted; Fig. 8, a section on the line 8 8 of Fig. 7; Fig. 9, a view from the inner side thereof of the upper one of the abrading-surfaces, and Fig. 10 an edge elevation of the last-named surface.

The views are not all upon the same scale, and the same letters of reference denote the same parts.

The present fire-lighter can be used in connection with almost any of the ordinary fire-places in use. In the present instance it is applied to a cook-stove A. Its leading elements are the match-lighter B and the time-piece C. The match-lighter is adapted by means of its arm *b* and screw *b'* to be attached, say, to the hearth *a* of the stove, so that it is in position for the flame caused by the ignition of the match to be communicated to some part in the nature of a fuse—a strip of paper, for instance—which leads to the fire laid in the fire-place *a'* of the stove.

D represents the strip of paper. It leads from the match-lighter to the fire-place, substantially as shown, and in practice, after the match-lighter has been clamped to the stove-hearth, the paper is suitably arranged so that one end of it is in position to be lighted by the match and the other end sufficiently in the vicinity of the fire-place to communicate its flame thereto.

The match-lighter consists, essentially, of a frame E, a clamp F for holding the match, and an abrading surface or surfaces G G', past which the match in the action of the device is moved and thereby ignited. The frame E has an end cross-bar *e*, from which project two side rods *e' e'*. The arm *b*, above referred to, is attached to the cross-bar *e*. The clamp F is adapted to be moved on the side rods *e'* toward and from the cross-bar *e*. Its two positions are indicated, respectively, in Figs. 3 and 6. The clamp is composed, substantially, of the bar *f*, which is adapted to be held and moved upon the side rods *e'*, and an arm *f'*, which is hinged to the bar *f* at *f*², and thereby adapted to be opened apart from and closed toward the bar *f*. The match H is held in the clamp between the parts *f f'* and secured by means of the clamp-screw *f*³, which passes through the free end of the arm *f'* and is adapted to screw into the bar *f*. The abrading-surfaces for effecting the ignition of the match can be variously formed. I prefer the construction shown—namely, a lower surface G, which is secured to the cross-bar *e* and extends thence between the side rods *e' e'* and is corrugated or roughened suitably for the purpose in question, and an upper surface G', which faces the lower surface G and is connected therewith by means of the bolts *g* and the springs *g'*, which operate, as shown, to draw the surface G' toward the surface G sufficiently to nip the match and cause it to ignite when it is drawn between the surfaces, as presently described. The corrugations *g*² and *g*³, which respectively serve to roughen the surfaces G G', are preferably extended in opposite directions upon their respective surfaces. If desired, a piece G³ of ordinary sand-paper can be used instead of said corrugations, in which case the sand-paper may be held in place by impaling it upon the points *g*⁴ upon the cross-

bar *e*. The surface *G'* is provided with a handle *g*⁵ to enable the operator to open the surface *G'* away from the opposing surface *G* when it is desired to insert a match between them. The bar *f* of the clamp *F* is provided with a hook *f*⁴, which coacts with a spring-actuated trigger *I*, which is pivoted at *i* to the frame-work of the device.

The match-lighter is adjusted for use by clamping one end *h* of the match in the clamp *F* and then moving the clamp toward the cross-bar *a* and causing the other end *h'* of the match to be held between the surfaces *G* *G'* and securing the clamp in that position by causing its hook *f*⁴ to engage with the trigger *I*. On moving the trigger the clamp-hook is released, and the springs *J J*, which are upon the side rods *e' e'*, respectively, operate to thrust the clamp *F* sharply outward, and thereby cause the match to be drawn between the surfaces *G G'* and ignited.

The complemental portion of the mechanism—namely, that immediately connected with the time-piece—will now be described. The time-piece *C* is an ordinary alarm-clock, saving, however, that it is provided with a shouldered movable part *c*, adapted to be moved by the action of the clock-works, and in such movement to cause the movement of a cord *K* or equivalent part which leads to the trigger *I* of the match-lighter. The part *c* is preferably in the form of a toothed wheel fastened to a shaft *c'*, which is journaled in the frame *c*² of the time-piece, and also carrying a pinion *c*³, which engages with the driving-wheel *c*⁴ of the alarm-train of the time-piece. A portion of the wheel *c* projects through the case *c*⁵ of the time-piece, and thereby forms a shoulder or projection upon which the cord *K*—say by means of its loop *k*—can be hung. The time-piece *C* is supported—say by means of the shelf *L*—at a sufficient elevation to enable that end of the cord which is hung upon the wheel *c*, and which is weighted, as indicated at *k'*, to drop,

and thereby draw the cord through or over a bearing *l*, and thus cause the end *k*² of the cord which is attached to the trigger *I* to be drawn upward, and the trigger thereby moved to release the clamp-hook *f*⁴. The time-piece can be set, of course, to cause its alarm-train to operate at any appointed hour and at the same time to effect the operation of the fire-lighter in the manner described—that is, when the alarm goes off the wheel *c* is rotated, and the loop *k* thereby dropped from the wheel. The weight *K'* acts to draw the cord through the bearing *l*, and the trigger is thereby moved to release the clamp *F*, which then moves and draws the match past the surfaces *G G'*. So far as this mode of controlling the operation of a fire-lighter is concerned I desire not to be restricted herein to the special form of the match-lighter shown, as other match-lighters can be operated by the herein-described time-piece and parts leading therefrom to the match-lighter.

The paper *D* is conveniently connected with the match-lighter by impaling its end *d* upon some projection, such as the handle *g*⁵ or the screw *f*³, and its end *d'* may be inserted in the fire-place *a'*, as shown. A spring *f*⁵, inserted between the parts *f f'*, is useful in opening the arm *f'* when that part is released by the screw *f*³, as described.

I claim—

1. In a match-lighter, the abrading-surfaces *G G'*, one of said surfaces being adjustable toward and from the other, substantially as described.
2. The combination of the cross-bar *e*, the side rods *e' e'*, the springs *J J*, the clamp provided with the hook, and the spring-actuated trigger, substantially as described.

Witness my hand this 6th day of September, 1890.

HERMANN PERK.

Witnesses:

C. D. MOODY,
A. BONVILLE.