

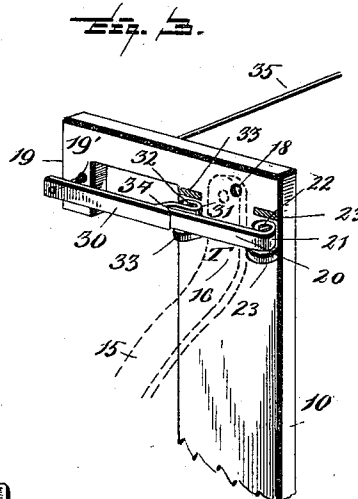
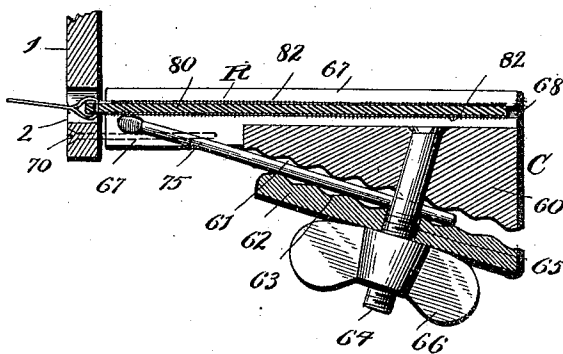
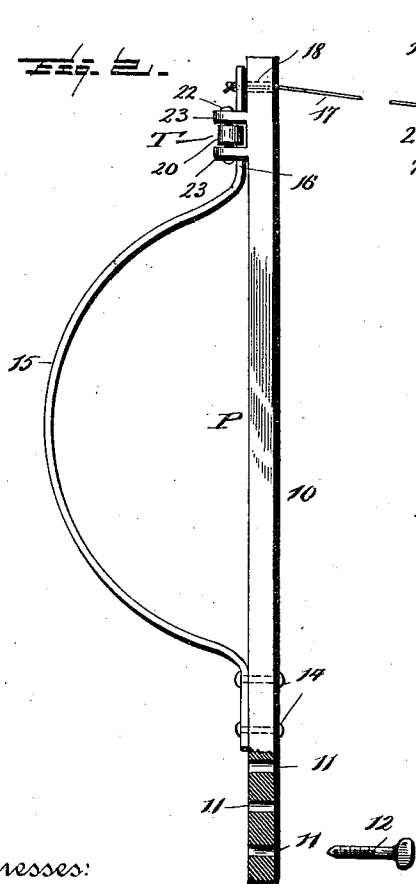
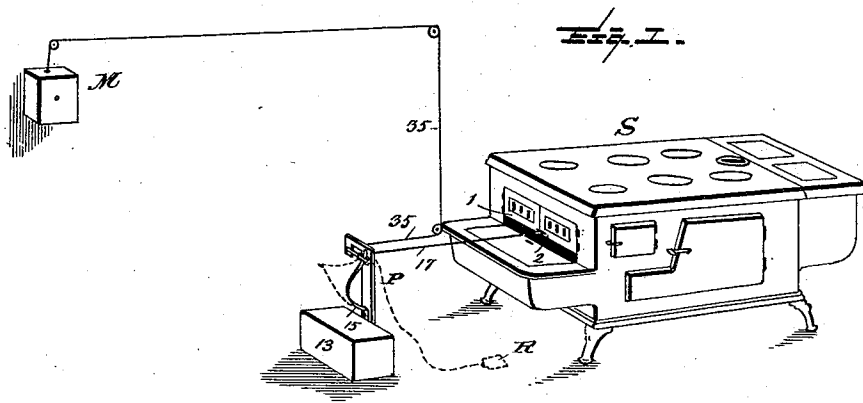
(No Model.)

2 Sheets—Sheet 1.

S. ROBINSON.
AUTOMATIC FIRE KINDLER.

No. 512,221.

Patented Jan. 2, 1894.



Witnesses:

L. C. Hills.
J. W. Johnson Jr.

Inventor:

Samuel Robinson,
by Collamer & Co.
Attorneys.

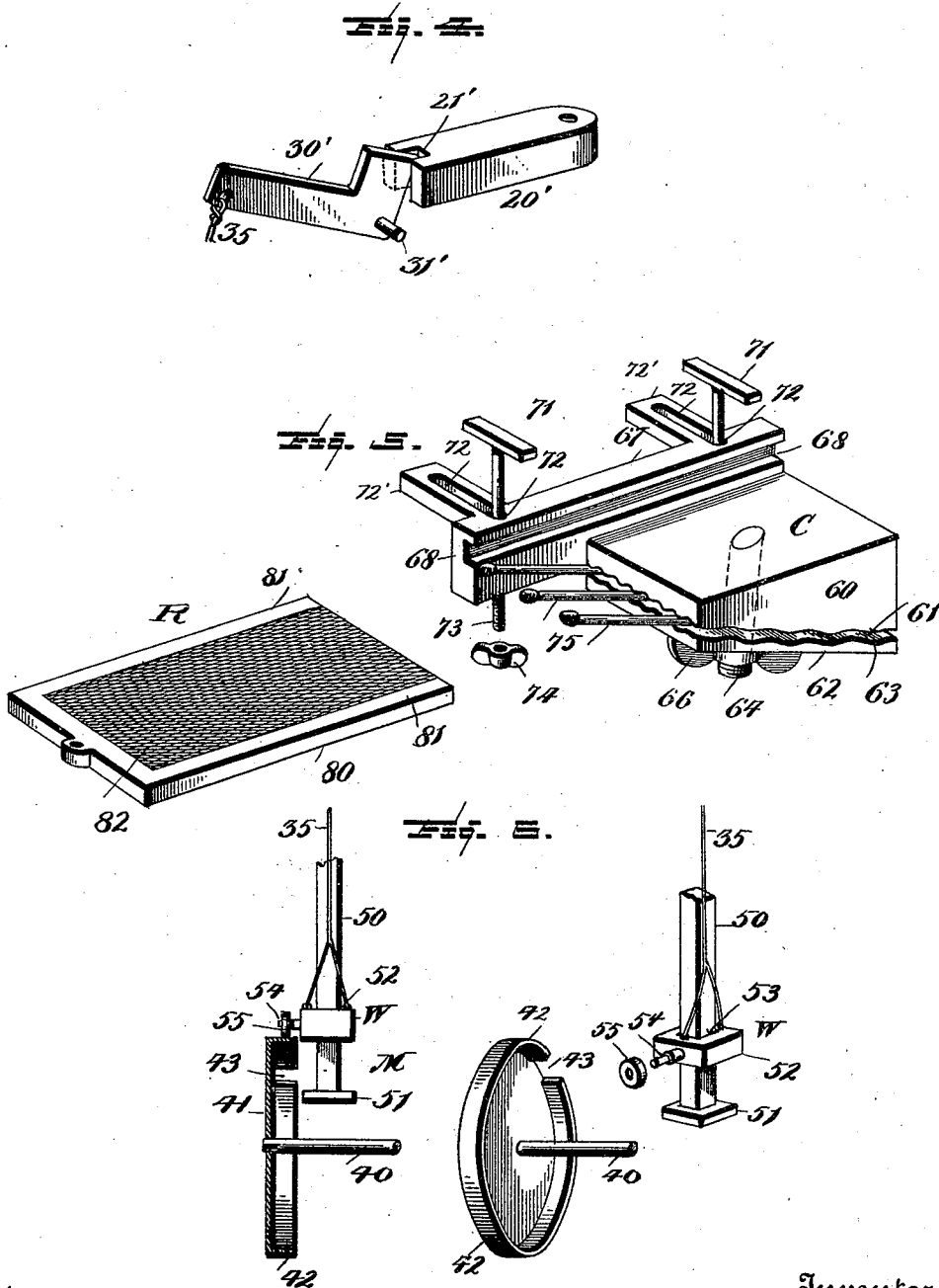
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UNITED STATES PATENT OFFICE.

SAMUEL ROBINSON, OF MONMOUTH, ILLINOIS.

AUTOMATIC FIRE-KINDLER.

SPECIFICATION forming part of Letters Patent No. 512,221, dated January 2, 1894.

Application filed March 3, 1893. Serial No. 464,495. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ROBINSON, a citizen of the United States, and a resident of Monmouth, Warren county, Illinois, have invented certain new and useful Improvements in Automatic Fire-Kindlers; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to fire kindlers, and more especially to that class thereof whose operation and action are automatic as when controlled or tripped by clock mechanism, and the object of the same is to produce a fire kindler of this character simple in construction, positive in operation, cheap of manufacture, and not readily gotten out of order.

To this end the invention consists in an automatic fire kindler constructed substantially as hereinafter described in detail, and as illustrated in the drawings, wherein—

Figure 1 is a general perspective view showing the application of this device and on a smaller scale than the figures following. Fig. 2 is a side elevation of the post and devices connected therewith, and a central longitudinal section of the match clamp and the scraper shown in its guides as ready for operation. Fig. 3 is a perspective detail of the upper end of the post and the trigger. Fig. 4 is a detailed view of a modified form of trigger. Fig. 5 is a perspective detail of the match clamp, the guides, and the scraper. Fig. 6 is a perspective detail of the actuating weight and tripping mechanism therefor, and an elevation partly in section of the parts assembled.

Referring to the said drawings, the letter S designates a stove or other device within which a fire may be built.

P is an upright or post adjustably supported from a suitable base and carrying a spring arm. T is a trigger at the upper end of this post for holding the upper end of the spring arm as shown in full lines in Fig. 1 and for releasing it as shown in dotted lines.

M is a clock or other actuating mechanism adapted at a predetermined moment to release a weight W which is connected with said trigger, and R is a roughened match-

scraper connected with the arm and adapted to move in guides over a match clamp C which is detachably mounted in the stove—these parts being severally of the following specific construction or of such similar constructions as will produce the same general result.

The stove S has a front door 1 within which is cut a slot 2 through which the scraper R may slide; otherwise this stove is of the usual construction and needs no further explanation.

The upright P consists of a post 10 having a number of holes 11 through its lower end, through any of which may be passed a screw 12 which takes in it a support 13, whereby the height of the post can be adjusted to suit different stoves.

Connected with the post by suitable means, as rivets or screws 14, is a spring-actuated arm 15 standing on the rear side of the post and having its body bowed outwardly as shown and its upper end 16 vertical; and 17 is a wire or light chain connected with such upper end and passing thence through a hole 18 in the post to the scraper R described below.

The trigger T comprises a short arm 20 having an eye 21 pivoted on a vertical rivet or pin 22 between ears 23 on the rear face of the post 10 and adapted to stand across in rear of the upper end 16 of the spring, and a trip 30 having an eye 31 similarly pivoted on a rivet 32 between ears 33 on the post—the heel of this trip having a notch 34 adapted to engage the free end of the arm 20 when the bodies of the trip and arm stand in alignment. The upper end of the post has a lateral extension 19 provided with a hole 19', and 35 is a wire or cord connected with the free end of the trip and passing through this hole 19' to the clock or other actuating mechanism M.

The modified form of trigger shown in Fig. 4 possesses an arm 20' with a notch 21' in its free end, and the trip 30' is L-shaped and pivoted at its angle at 31' between the ears 33. The short arm of the L passes into the notch 21' while the long arm is connected with the wire 35 as shown.

The mechanism M may be of any desired

construction, and considerable latitude must be allowed the manufacturer in this respect. I have referred to it as the "actuating mechanism" by which I desire to be understood as including any of the well known forms of such mechanism, as electricity or a clock driven by any form of power whatever, so long as it possesses a shaft rotated at a certain predetermined speed. In Fig. 6 I have shown such shaft 40 whereon is mounted a wheel 41 having a rim 42 provided with a notch 43, and when the shaft is turned so that this notch comes under the weight described below, the latter will drop and ignite the fire. I do not wish to limit myself to this form of tripping device, however, nor even do I desire to be understood as in all cases connecting the shaft 40 with clock mechanism. This shaft might be arranged to be turned as by the drawing of a bell wire from a remote point either manually, by the rising or fall of a float in a tank, or by any other agency whatsoever. The weight W is also susceptible of considerable modification. In my preferred form of weight, 50 is a square vertical rod having an enlarged head 51 at its lower end and standing adjacent to the rim of the wheel 41; and 52 is a weight having a hole 53 fitting loosely on this rod and provided with a pin 54 in one side which may be of a size to pass through the notch 43 or which preferably carries a roller 55 sustaining the weight by traveling on said rim and capable of dropping through the notch at the desired time. The weight is connected with the cord or wire 35 as shown. The actuating mechanism and weight may be located within the base 13 which would then be a box for this purpose, but in Fig. 1 I have shown the said mechanism at some distance from the stove. The mechanism could be an ordinary alarm clock, and the end of the string 35 could be connected with the alarm hammer thereof (and the bell removed or not as preferred), and at the proper hour and minute when the alarm was released the cord 35 would be drawn on and the trigger T would be operated.

The match clamp C consists of a block 60 preferably with a roughened lower face 61, and a plate 62 preferably with a roughened upper face 63—a screw being passed through the plate into the block, or a screw 64 being fast in the block, passing through a hole 65 in the plate, and receiving a thumb nut 66 on its lower end as shown in Fig. 2. At each side of the block is attached thereto a guide 67 having a horizontal groove 68 standing above the upper face of the block and opposite the slot 2 in the stove door 1. This clamp can be secured to the stove in any suitable manner.

In Fig. 2 I have shown a screw 70 as passing through the stove door into the guide 67, and in Fig. 5 I have shown hooks having T-shaped heads 71 adapted to be passed upward through the grate bars and then turned across

the same, their bodies passing loosely through lateral slots 72 in ears 72' on the guides so they may be adjusted transversely to grate bars differently spaced, and their lower ends 73 being threaded to receive thumb nuts 74.

I do not limit myself to any precise means for connecting the match-clamp with the stove, but the two means above described are probably the best. By the first, my device can be attached to any stove door by simply cutting the slot 2 therein and boring a hole therethrough for the screw 70; by a second, even the boring of this hole is unnecessary (though the slot must always be cut when the damper opening cannot be used) and the operator can reach in under the grate, pass the hooks up over certain bars, and tighten the thumb nuts to hold the clamp in place. The matches 75 are clamped between the roughened faces 61 and 63 of the block and plate, and these faces stand at an angle with the upper horizontal face of the block so that the matches are presented in an oblique direction to the match-scraper. The latter consists of a plain strip 80 as of wood or metal and to which the wire 17 is connected. The strip is of a proper width to permit its smooth edges 81 to slide in the grooves 68 in the two guides, and between such edges the faces of the strip are roughened as at 82 in any suitable manner, as by cutting corrugations in the strip or applying sand paper or sand directly thereto. The grooves 68 are so arranged with reference to the clamp that when the matches are held therein as shown, the scraper will pass freely over the block 60 and its roughened lower face will drag over the heads of the matches to ignite them. Thereafter they will burn and their flames will pass upward between the grate bars directly to the fuel which is, of course, already laid in the stove.

With the above construction of parts, the operation of my device is as follows: The base 13 is placed in front of the stove S and the post P adjusted so that the hole 18 will stand about opposite the slot 2 in the stove door. The clamp is connected with the stove and the fire is built in the latter but not lighted, one or more matches being put into the clamp as shown. The spring arm 15 is then brought up under tension and engaged behind the trigger, and the scraper R is passed through the slot in the stove door and pushed carefully to the rear in the guides. The base 13 is then moved away from the stove until the wire 17 is tight; and the cord 35 is also drawn rather tight and connected with the weight W—the latter being raised and its wheel 55 resting on the rim 42 of the wheel of the actuating mechanism; or this cord 35 can be connected with the alarm hammer of an ordinary alarm clock, or in any suitable manner with any other proper actuating mechanism adapted to give the cord a slight pull at the proper moment. When such moment arrives and the cord is pulled (as by the drop-

ping of the weight W or the movement of the alarm hammer), the trip 30 of the trigger is moved to release the arm 20, and the spring 15 being released at its upper end drags on the wire 17 and pulls the scraper R across the match heads, through the slot in the door, and completely out of the stove to the position shown in dotted lines in Fig. 1. This movement of the scraper lights the matches, and they in turn ignite the fire.

The parts are of the desired sizes, shapes, proportions, and materials, and considerable change in the details of construction can be made without departing from the essential principles of my invention.

What is claimed as new is—

1. In a fire kindler, the combination with a spring, a trigger for holding it under tension, a cord for tripping said trigger, and actuating mechanism for drawing on the cord when desired; of a match-clamp adjacent the fire to be lighted, guides adjacent said clamp, a scraper removably inserted in said guides, and a wire connecting said scraper with the spring whereby the latter when freed from the trigger will jerk the scraper entirely out of the guides, as and for the purpose set forth.

2. In a fire kindler, the combination with a match-clamp detachably fastened beneath the grate of a stove and consisting of a block having a roughened lower face, a plate having a roughened upper face, both said faces inclining upwardly to the front end of the block, and a screw through the plate into the block; of a scraper, and means for jerking this scraper over the block and out of the front of the stove when desired, as and for the purpose set forth.

3. In a fire kindler, the combination with a match-clamp consisting of a block having an upwardly inclined face and a plate removably secured against said face, guides along the edges of the block having parallel horizontal grooves on their inner faces above the upper face of the block, and means for detachably connecting said clamp with a stove; of a scraper consisting of a strip with smooth edges sliding in said grooves, its faces between said edges being roughened, and means for jerking this scraper over the block and out of the front of the stove when desired, as and for the purpose set forth.

4. In a fire kindler, the combination with a block, a plate detachably clamped against the lower face of said block and standing in an inclined plane, horizontal guides secured to opposite edges of said block and having grooves on their inner faces, upright hooks passing through said guides, and thumb nuts on the lower ends of the bodies of said hooks; of a match-scraper whose edges slide in said grooves and whose lower face is roughened, and means for jerking this scraper over the block and out of the front of the stove when desired, as and for the purpose set forth.

5. In a fire kindler, the combination with a

support, an upright detachably secured thereto at the height desired, a spring secured at its lower end to the back of the upright, a trigger for detachably holding the upper end of the spring against the upright, and means for tripping said trigger when desired; of a match-clamp secured within the stove body, a scraper sliding in guides above said clamp, and a wire connecting the scraper with the upper end of said spring, as and for the purpose set forth.

6. In a fire kindler, the combination with an upright having near its upper end two pairs of ears, an arm having an eye at one end mounted on a rivet between two of said ears, a trip having an eye at one end similarly pivoted between the other two ears, said trip having a notch near its heel detachably engaging the free end of the arm, and means for moving the free end of the trip when desired; of a spring whose upper end, when the spring is under tension, may be passed between said eyes, a match-clamp, a scraper, and connections between the scraper and spring, as and for the purpose set forth.

7. In a fire kindler, the combination with an upright having near its upper end two pairs of ears, an arm having an eye at one end mounted on a rivet between two of said ears, a trip having an eye at one end similarly pivoted between the other two ears, said trip having a notch near its heel detachably engaging the free end of the arm, a lateral extension at the upper end of the upright provided with a hole, a cord connected with the free end of the trip and passing through said hole, and actuating mechanism for drawing on said cord when desired; of a spring whose upper end, when the spring is under tension, may be passed between said eyes, a match clamp, a scraper, and a wire connected at one end to the scraper, passing through a hole in the upright above and between said pair of ears, and connected with the upper extremity of said spring, as and for the purpose set forth.

8. In a fire kindler, the combination with the match-clamp, scraper, spring for moving the scraper, and trigger for the spring; of the actuating mechanism comprising a rotating wheel having a horizontal rim provided with a notch, a weight having a pin adapted to drop through said notch, and a cord connecting the weight with said trigger, as and for the purpose set forth.

9. In a fire kindler, the combination with the match clamp, scraper, spring for moving the scraper, and trigger for the spring; of the actuating mechanism comprising a rotating wheel having a horizontal rim provided with a notch, a square upright rod standing adjacent said rim and having a head at its lower end, a weight having a square hole sliding on said rod, a pin in one side of the weight, a roller journaled on said pin smaller than the notch, and traveling on the rim of the wheel,

and a cord connecting the weight with said trigger, as and for the purpose set forth.

10. In a fire kindler, the combination with a match clamp, a scraper moving over the
5 clamp, and means for jerking the scraper out of position when desired; of ears on the sides of the clamp having lateral slots, upright hooks whose bodies pass loosely through said slots and whose lower ends are threaded, the
10 upper ends of the hooks having T-shaped

heads, and thumb nuts on said threaded lower ends, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 27th day of February, A. D. 1893.

SAMUEL ROBINSON.

Witnesses:

J. S. POLLOCK,
R. H. MCLOSKEY.