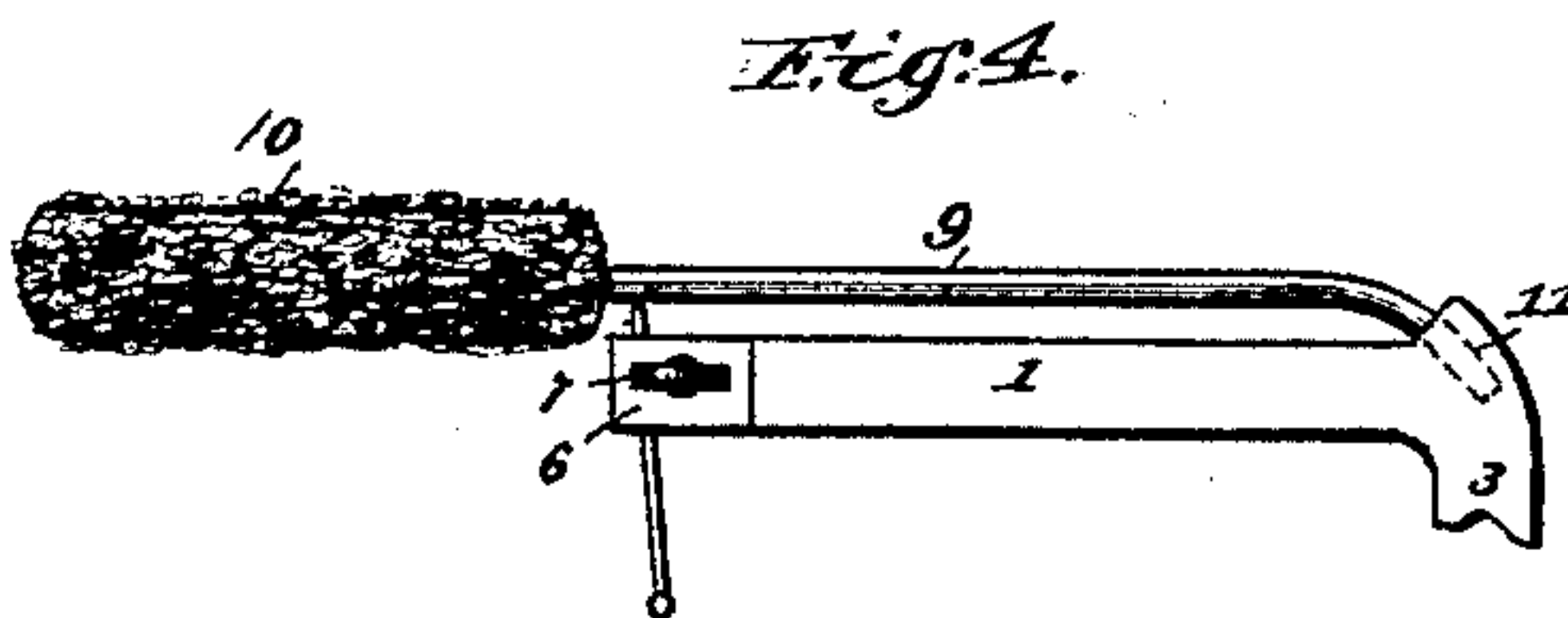
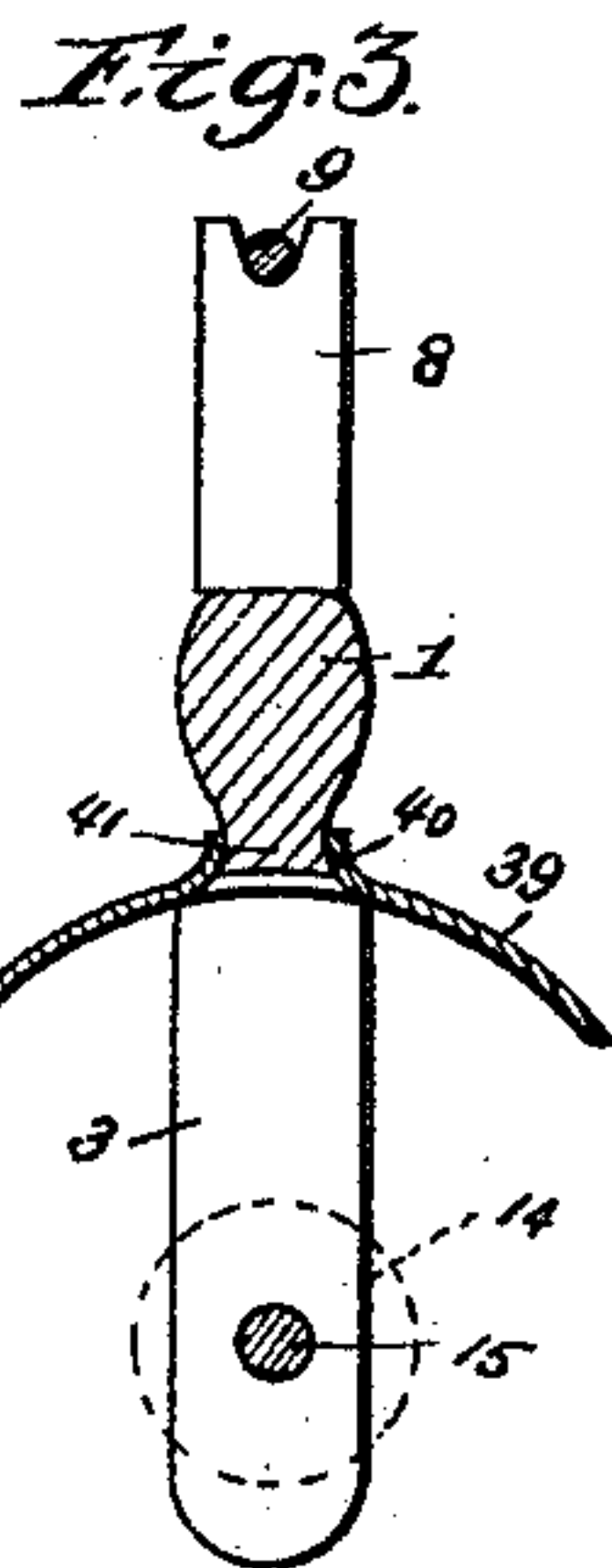
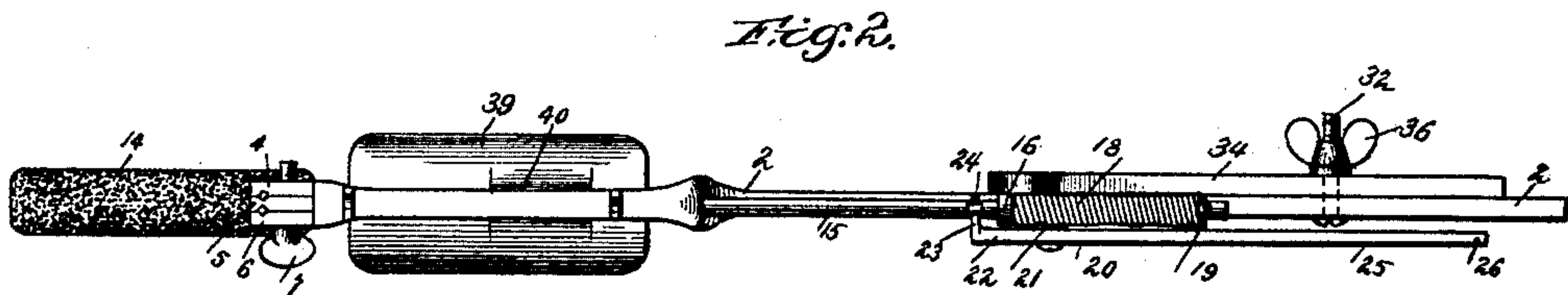
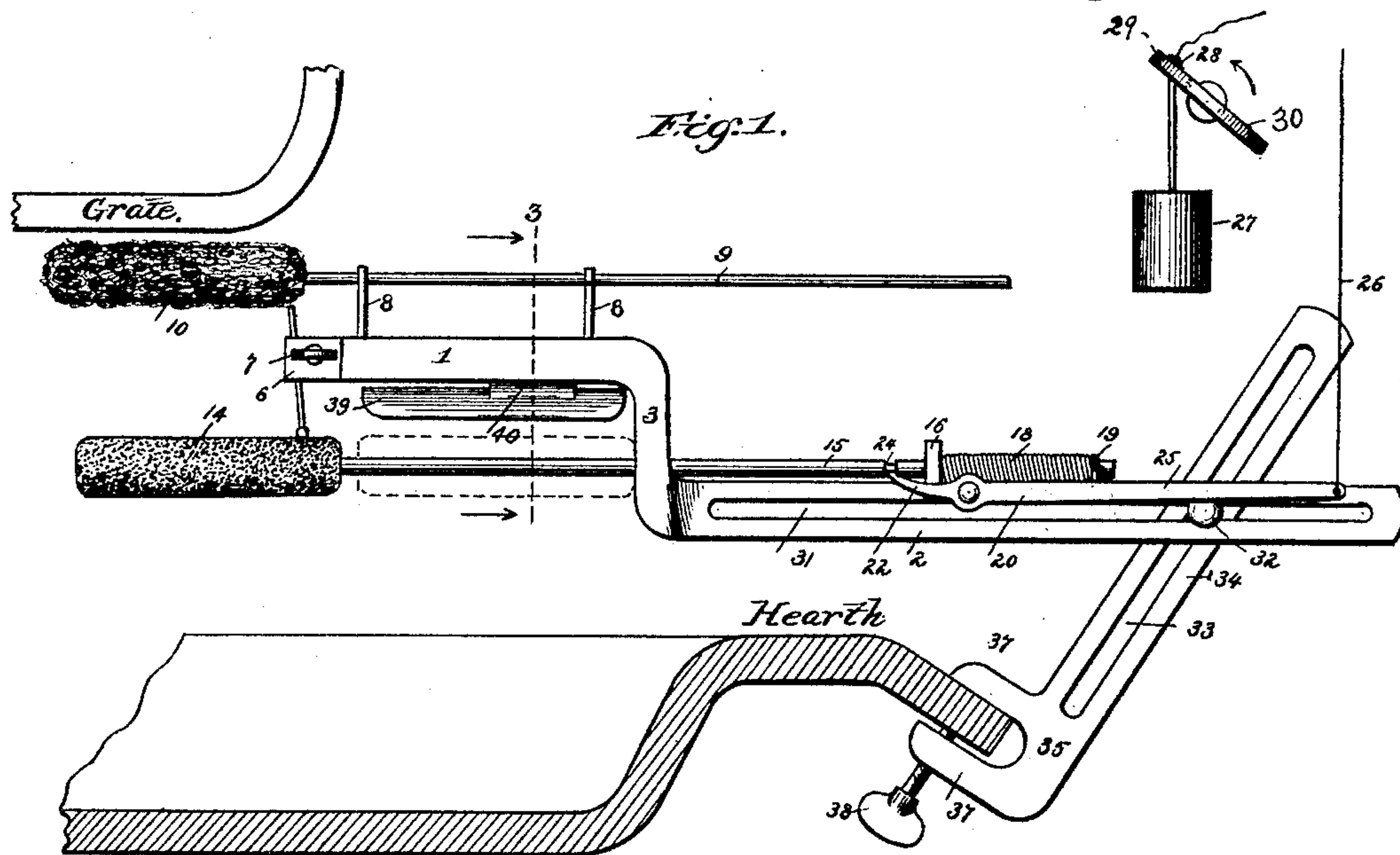


(No Model.)

C. C. HARRIS.
AUTOMATIC FIRE KINDLER.

No. 435,892.

Patented Sept. 2, 1890.



Witnesses.

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AUTOMATIC FIRE-KINDLER.

SPECIFICATION forming part of Letters Patent No. 435,892, dated September 2, 1890.

Application filed December 18, 1889. Serial No. 334,155. (No model.)

To all whom it may concern:

Be it known that I, CARLETON C. HARRIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Kindlers, of which the following is a specification.

The present invention relates to a device whereby fuel arranged in a grate may be held without requiring the presence of an attendant at the time; and the object of said invention is to provide a simple, safe, and effective device, which when properly set will accomplish this result upon the tripping of a detent, either by clock-work or by hand, through the medium of a connection extending to a distant room.

The invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter, a device embodying said invention being first fully described in detail with reference to the accompanying drawings, of which—

Figure 1 is a side elevation of said device secured to the stove and in readiness for being tripped. Fig. 2 is a plan view of said device with the parts in the same positions as in Fig. 1, except that the torch is not shown. Fig. 3 is a transverse section thereof on the line 3 3. Fig. 4 is a side elevation of a fragment of the device under a slight modification.

The frame is preferably cast in one piece, and consists of two arms 1 and 2, which lie in parallel planes and project in opposite directions from the opposite ends of an offset portion 3. The arm 1 (when the device is in operative position) occupies a higher level than the arm 2, and carries at its extremity the match-holder. This holder is susceptible of many modifications, as any device that will receive and hold the match may be employed, and my invention is therefore not limited to the particular arrangement shown, which consists of a pair of clamp-plates 4 and 5, fitted against the opposite sides of the reduced end 6 of the arm 1, and a clamp-screw 7, which screws into one of said plates and passes loosely through the other and through the arm. This constitutes a holder having but three jaws and capable of holding two matches. The meeting faces of the jaws are preferably provided with opposing shallow grooves for

receiving the stems of the matches and preventing them from being displaced. These grooves may be perpendicular with respect to the arm 1, as suggested by Fig. 1, or they may be at an angle thereto; or instead of grooves the jaws may be simply roughened, or, lastly, they may be smooth.

Rising from the top of the arm 1 are two standards 8, whose upper extremities are notched, as shown in Fig. 3, (or they may be perforated,) for the reception of the stem of the torch. The torch consists preferably of the stem 9 and a head 10, formed of a wad of asbestos, which is designed to be saturated with oil and placed over the match-holder and under the grate in which the fuel is arranged, so that the flames from the matches will reach and ignite the torch and the flames from the latter will reach and ignite the fuel. A torch of this form, Fig. 1, is preferred, because of its simplicity and the facility with which it may be charged. It requires only to be thrust into a can of oil.

The torch shown in Fig. 4 differs from the one described only in that its stem is shorter, (it may be straight or curved,) and instead of being supported by the two standards 8 its end enters a socket or perforation in a single lug 11, cast with the arm 1. This stem may or may not be removable from its socket. If desired, the torch may be dispensed with entirely, in which case the fuel in the grate is so arranged that some easily-inflammable material—such as a whisk of paper—will project close enough to the match to take fire directly from it.

The match-scratcher consists of a cylindrical emery-coated head 14, secured centrally to a cylindrical stem 15, which latter passes through a perforation formed through the offset portion 3 of the frame and through a second perforation formed through a lug 16, cast upon the top side of the arm 2 some distance from its extremity. The scratcher is capable of free longitudinal motion in the direction of its length, and also of free rotary motion about its axis. By making the head of the scratcher cylindrical and capable of rotation every part of its surface is available for use, and this form is therefore preferred. The head may turn upon the stem, or the head and stem may be fixed with relation to each other and the stem be capable of turning in its bearings.

A spring 18, surrounding the stem 15 beyond the lug 16 and bearing at its respective extremities against said lug and a collar 19 on the stem, tends to hold the scratcher normally in the retracted position indicated by dotted lines. When drawn out to the position shown by full lines, it is held by a detent, which engages the stem, and which, so far as the generic features of my invention are concerned, is susceptible of many modifications. The one shown in the drawings is simple and effective. It consists of a lever 20, fulcrumed to the arm 2 and held out of contact with said arm by a boss 21, cast upon it. One arm 22 of this lever projects toward the head of the scratcher and beyond the lug 16, and is provided with a laterally-projecting finger 23, which constitutes a seat for engaging a shoulder 24, formed on the stem 15 by cutting a groove therein. The finger 23 projects beneath the stem 15, and the arm 22 of the lever is lighter than the arm 25, so that the latter operates as a weight and causes the sear to engage automatically. This arm 25 constitutes also the trigger of the device, and to it is attached a trip-cord 26, by pulling which the detent will free the stem 15 and permit the spring 18 to quickly withdraw the scratcher to the position shown by dotted lines. The trip-cord may be carried to any room in the house, as a sleeping-room, and may be operated either by hand or by a suitable time mechanism—as, for example, an ordinary alarm-clock. To this end a small weight 27 is attached to the cord and a knot 28 is tied in it some distance above the weight. A notch 29 is cut in the alarm-key 30 of the clock. By inserting therein that portion of the cord that is between the knot and weight the knot is caught and the weight thereby suspended. When the alarm mechanism is tripped and the key turns, (see arrow,) the knot will slip out of the groove 29 and the weight 27 will fall, thereby producing a sufficient jerk on the cord to trip the detent.

To secure the kindler to the hearth or other convenient part of the stove, the arm 2 of the frame is provided with a slot 31, extending nearly its entire length, through which passes a screw 32, which latter passes also through a corresponding slot 33, formed in the bracket-arm 34 of a clamp 35 and receives a thumb-nut 36. This constitutes a combined sliding and pivotal connection between the frame and bracket-arm and permits of unlimited adjustment of one with relation to the other in a plane perpendicular to the screw 32. The clamp consists of a pair of rigid parallel jaws 37, which are a sufficient distance apart to admit between them the edge of the hearth or some other convenient portion of the stove, and a thumb-screw 38, fitting a threaded perforation through one of the jaws.

To use the kindler, the scratcher is first drawn out to the position shown by full lines and there locked by the detent. The matches are then fixed in the holder so that

their heads have contact with the scratcher. The clamp is then fixed to the hearth of the stove. The saturated torch is then placed upon its brackets 8, (if a removable torch be used.) The trip-cord is then arranged in either of the ways described, and the whole device so arranged is allowed to remain until the time arrives for lighting the fire, which is accomplished by a pull on the cord, as already described. When the arm 2 and bracket 34 35 are once adjusted for attachment to a certain stove, the adjustment need not be afterward changed.

39 is a curved metallic shield, which is secured to the under side of the arm 1 to protect the head 14 of the scratcher from heat when said head is made of wood. It consists simply of a curved piece of tin having a short longitudinal slot and two transverse cuts at the respective extremities thereof, the margins of the metal between said cuts being bent upward to form lips 40, as shown more clearly in Fig. 3. These lips embrace a lug 41, of dovetail shape, cast upon the under side of the arm 1, the shield being put in place by slipping its lips endwise onto the lug.

Instead of the weight and notched key, the trip-cord may be attached to a drum or cylinder fixed to the alarm-key, in which case the detent will be tripped by the winding of the cord upon the drum.

Having thus described my invention, what I claim as new is—

1. In a fire-kindler, the combination, with the frame and the match-holder, of a scratcher movable in one direction for the purpose of adjusting it with relation to the match-holder, so as to render its entire surface available for scratching matches, and movable in another direction for scratching the matches, and means for operating it, substantially as set forth.

2. In a fire-kindler, the combination, with the frame and the match-holder, of a cylindrical scratcher movable about its axis and movable in the direction of its length, and means for operating said scratcher, substantially as set forth.

3. In a fire-kindler, the combination, with the frame having the arm 1, the match-holder on said arm, and the sliding scratcher and means for operating it, of a shield fixed to said arm, beneath which said scratcher withdraws, substantially as set forth.

4. In a fire-kindler, the combination, with the frame having the arm 1, the match-holder on said arm, and the scratcher and means for operating it, of the dovetail lug 41 on said arm, and the shield having the lips 40, adapted to embrace said lug, substantially as set forth.

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