No. 815,709. PATENTED MAR. 20, 1906.

H. IRWIN

ALARM.

APPLICATION FILED DEC. 9, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

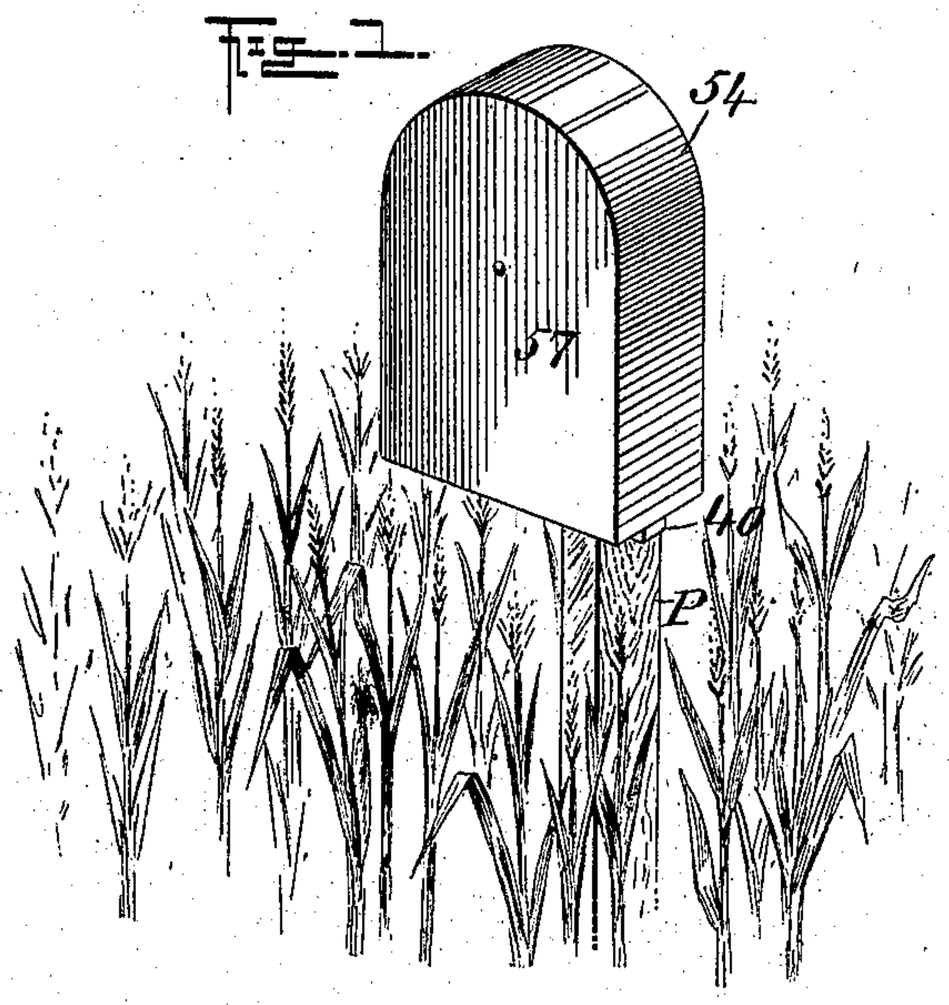


Fig. 5.

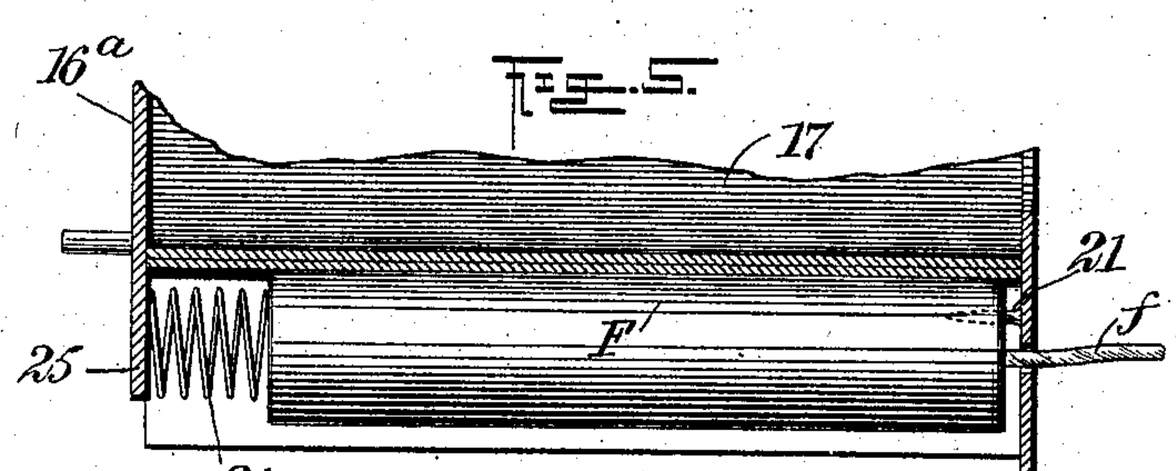


Fig. 7.

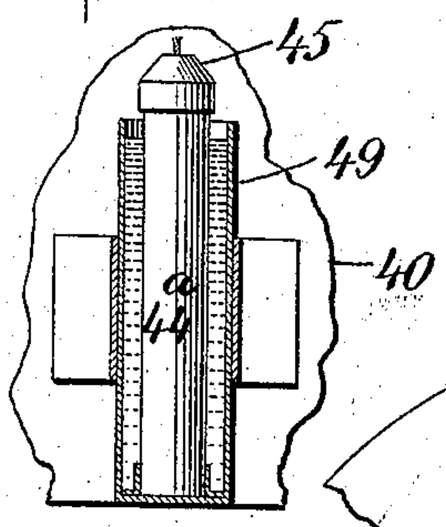
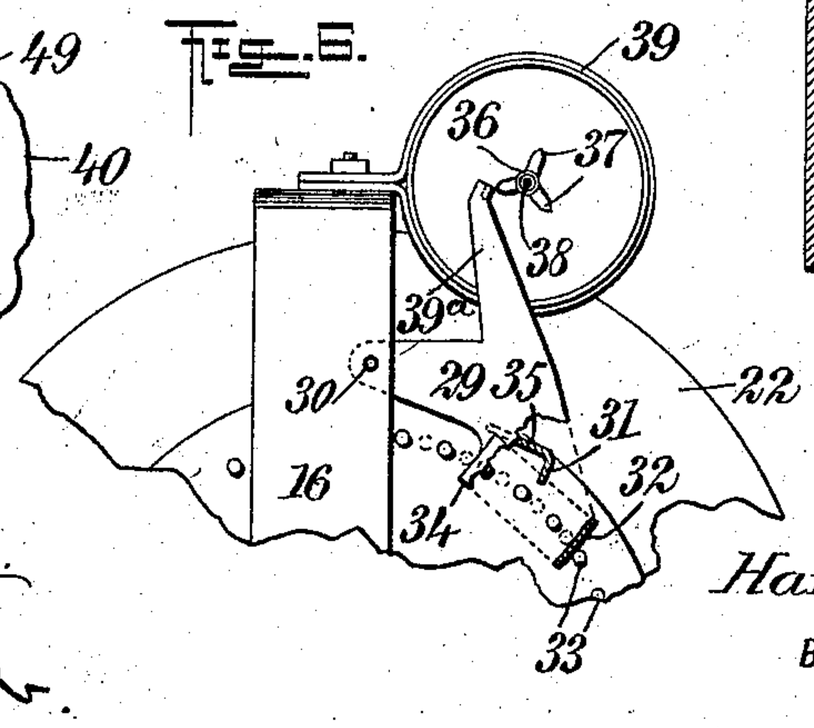


Fig. 6.



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2 SHEETS—SHEET 2.

FIG. 2.

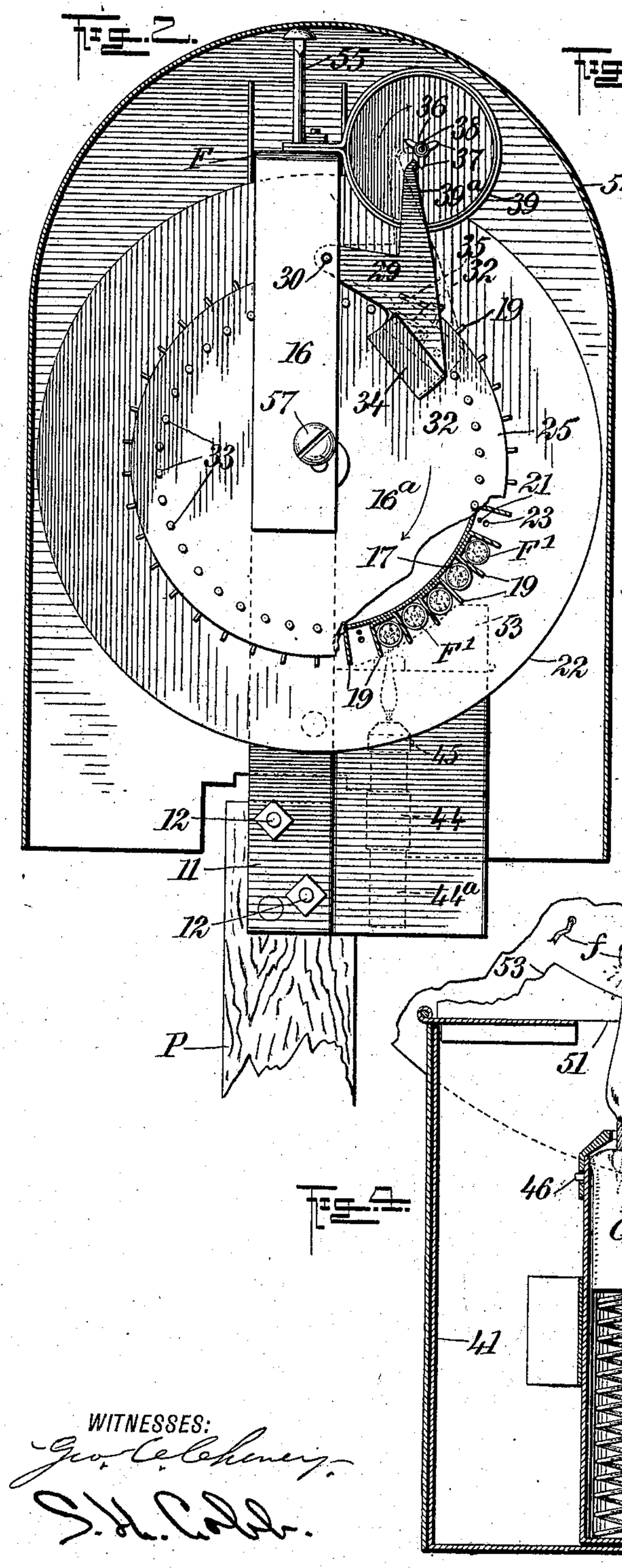
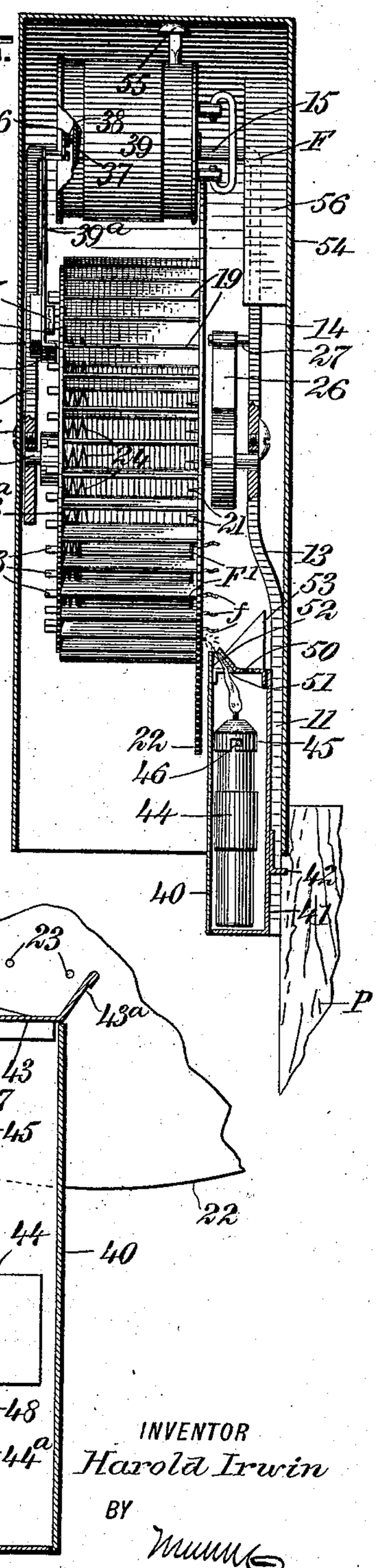


FIG. 5.



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HAROLD IRWIN, OF HAWKES BAY, NEW ZEALAND.

ALARM.

No. 815,709. Specification of Letters Patent. Patented March 20, 1906.

Application filed December 9, 1904. Serial No. 236,127.

To all whom it may concern:

Be it known that I, HAROLD IRWIN, a subject of the King of Great Britain, and a resident of Fern Hill, Hawkes Bay, New Zealand, have invented a new and Improved Alarm, of which the following is a full, clear, and exact description.

My invention relates to alarms, and more particularly to those adapted to serve as scarecrows. Its principal object is to provide an efficient apparatus of this character by which a series of explosions may be produced at definite intervals for the purpose of frightening birds or animals away from trees, crops, and the like.

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

Figure 1 is a perspective view of one embodiment of my invention set in place in the field. Fig. 2 is a vertical longitudinal section through the hood with parts of the mechanism broken away. Fig. 3 is a central vertical transverse section. Fig. 4 is an enlarged detail of the ignition device. Fig. 5 shows one of the holders for supporting the explosive. Fig. 6 is a detail in side elevation of the escapement and its operating mechanism, and Fig. 7 is a sectional detail showing a water-jacket surrounding the candle-socket.

F designates a frame, which is here shown as including a portion 11, in which are openings to receive bolts 12 for the purpose of fastening the apparatus to a post P or other suitable support. The frame above the portion 11 is offset at 13, furnishing a portion 14, which preferably extends substantially parallel to the portion 11. It is then bent at substantially right angles to furnish an arm 15 and again bent downwardly, forming a depending portion 16, which may be approximately parallel to the portion 14. Mounted upon the frame is a support for the explosive, which may consist of a wheel comprising a disk 16^a, at one side of which is secured a rim 17. This wheel is preferably fixed upon a journal 18, rotatable in alined bearings in the portions 14 and 16 of the frame. The wheel carries holders, which may be formed of trough-shaped pieces 19, soldered or otherwise secured to the rim and separated by intervals which are preferably equal to the width between the arms of the troughs, so that they are adapted to receive explosive members of equal diameter—such, for example, as fire-crackers—which are indicated at F'. One end of each cracker is engaged by a sharpened projection 21, secured at the end of the holders upon a flange 22, which is of considerable width and shown as extending from the opposite edge of the rim from that which is secured to the disk. The fuses *f* of the crackers preferably extend through openings 23 in this flange 22, while at the opposite end are springs 24, fixed at their outer ends to a flange or extension 25 from the disk 16^a, these springs serving to force the crackers into firm engagement with the projections and prevent their being disengaged by the explosions.

The wheel may be rotated by a spring 26, the inner end of which is secured to the journal 18, while the outer end is attached to a pin 27, mounted upon the portion 14 of the frame. The rotation of the wheel under the influence of the spring is preferably controlled by an escapement, which may consist of a pallet 29, pivoted at 30 upon the arm 16 of the frame and having projections 31 and 32 alternately engaging pins 33, which are arranged in a circular series about the disk. The pallet is shown as provided with a weight 34, which normally holds the projections in proximity to the pins, the downward movement being limited by an extension 35 from the projection 31, which rests upon the outer surfaces of said pins. The escapement may be operated by a cam wheel or member 36, having teeth 37, here shown as three in number and arranged at equal angles, this wheel being fixed upon the outer extremity of a spindle 38 of suitable clockwork, which is inclosed by a case 39. The teeth may coöperate with an arm 39^a of the pallet.

Situated just below the wheel, at one side of the flange 23, is an ignition device, which is shown as comprising a case or box 40, having a removable side 41 to permit ready access to the interior, this side preferably having a finger-piece 42. At the upper end of the box is hinged a cover 43, having at its free end a finger-piece 43^a. Mounted within the box is a bracket 44 to receive a holder or socket 44^a for a candle C. Instead of the candle it will be obvious that any flame or sufficiently-heated substance, such as a lamp or hot wire, might be employed. The holder as illustrated has a cover 45, conveniently secured in place by a bayonet-joint 46, and at its center an opening 47, through which the wick of the

candle may project. At the lower end of the socket is a spiral spring 48, which serves to maintain the candle at a constant height or always in contact with the cover. As shown in Fig. 7 of the drawings, the socket may be surrounded by a water-jacket 49, which will prevent the wax of the candle from melting under high atmospheric temperatures. In the cover of the box is a series of air-holes 50, and at one side of the socket is an opening 51 to give the flame access to the fuses. Above the opening is preferably located an inclined wall 52, which directs the flame toward the wheel, this arrangement causing the soot which may accumulate to fall at one side of the flame, thus avoiding its extinguishment. A guard-wall 53, rising from the cover of the box, may be interposed between the opening and the wheel.

The apparatus may be covered by a hood 54, held in the correct vertical position by a contact-piece 55 and by a guide 56, which engages the portion 14 of the frame. The hood may be secured upon the frame by a set-screw 57.

In the use of the apparatus the proper tension is applied to the spring 26 by holding the pallet out of engagement with the pins and rotating the wheel in the direction opposite to that indicated by the arrow in Fig. 2. The clockwork is also wound and the holders are then supplied with fire-crackers of suitable size, with their fuses projecting through the openings in the flange. The candle or other igniting member is then lighted and the apparatus set up in place and covered by its hood. The inclosure of the candle within the box allows only the access of sufficient air to support combustion and renders it impossible for it to be extinguished by the wind. The rotation of the cam wheel or member 36 will now move the escapement at regular intervals, permitting the wheel to advance under the influence of the spring by an amount equal to the space between the pins. This brings one of the fire-cracker fuses over the flame, which ignites it, and an explosion follows, giving sufficient sound to be effectual in frightening birds and animals from the crop to be protected. After a suitable interval the succeeding tooth acts and a second fire-cracker is brought over the flame and exploded, this continuing until the charge upon the wheel is exhausted, when it may be renewed and the operation continued as before.

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

1. The combination with a wheel provided with holders adapted to receive fire-crackers, of means for rotating the wheel, an escapement coöperating with said wheel, means for operating the escapement, and a holder having flame-producing means situated in proximity to the wheel for coöperation with the fire-crackers.

2. The combination with a wheel provided with holders adapted to receive fire-crackers, of means for rotating the wheel, an escapement coöperating with said wheel, clockwork operating upon the escapement, and a holder having flame-producing means situated in proximity to the wheel for coöperation with the fire-crackers.

3. The combination with a wheel provided with holders adapted to separably receive fire-crackers and having a wall at one end of said holders provided with openings through which the fire-cracker fuses may pass, of an ignition device situated outside the wall and adjacent to the opening.

4. The combination with a movable support provided with a holder, of engaging means situated at one end of the holder, and a spring situated at the opposite end.

5. The combination with a support for an explosive, of an ignition device comprising a box provided with an opening and a holder having flame-producing means situated beneath and at one side of the opening.

6. The combination with a support for an explosive, of an ignition device comprising a box provided with an opening above which is a wall inclined toward the support, and a holder having flame-producing means situated beneath and at one side of the opening.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HAROLD IRWIN.

Witnesses:
H. HUMPHRIES,
A. S. G. CARLSON.