W. W. BATCHELDER.

Scintillator for Lighting Tinder-Cord.

No. 204,284. Patented May 28, 1878.

Fig. 1.

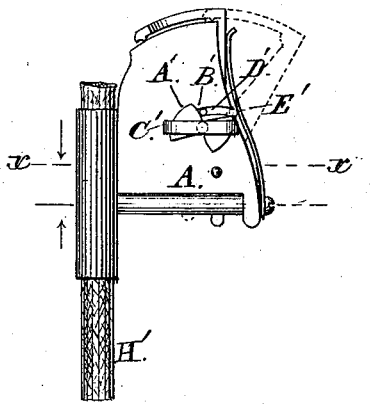


Fig. 2.

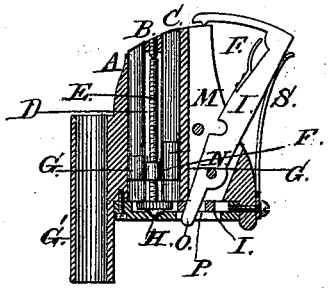


Fig. 3.

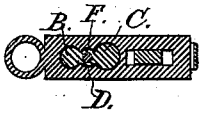
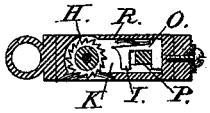


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM W. BATCHELDER, OF NEW YORK, N. Y.

IMPROVEMENT IN SCINTILLATORS FOR LIGHTING TINDER-CORD.

Specification forming part of Letters Patent No. **204,284**, dated May 28, 1878; application filed May 1, 1878.

To all whom it may concern:

Be it known that I, WILLIAM W. BATCHELDER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Scintillators for Lighting Tinder-Cord and other Material, of which the following is a specification:

This invention relates to an improved igniter, which is designed principally for the use of smokers for lighting cigars, pipes, &c., although it may be advantageously used for other purposes.

It has for its object to provide a cheap and reliable device that may be conveniently carried about the person with perfect safety, and by which a light may be produced at a moment's notice without trouble, which will continue to burn as long as may be desired, and cannot be extinguished by wind or rain.

My invention consists, first, in the combination, in a suitable casing, of two or more separate substances or compounds which will not explode when separate, but will burn violently or explode when mixed or brought in contact with each other and rubbed or otherwise mechanically acted upon, and a scraper connected to a reciprocating pawl, adapted to operate the mechanism for ejecting the substances, and accomplishing such mixing or uniting and ignition of said substances or compounds, said casing having a tube in which is arranged a slow-match, which is ignited by the flash or flame of the ignited substances in order to keep up the combustion as long as desired; second, in the combination, in an igniter for smokers' uses and other purposes, of a casing provided with two parallel chambers for holding the igniting materials, and an intermediate screw and traversing nut for projecting such substances, a scraper for firing the projecting substances, and a pawl-and-ratchet wheel for actuating the screw, the whole arranged as hereinafter more particularly described; also, in a novel construction and combination of the scraper and tripping devices adapted for application to the casing, as hereinafter set forth.

In the drawing, Figure 1 represents a side elevation of my invention, and Fig. 2 a sectional view of my invention, showing the scraper thrown back and ready for firing. Fig. 3 represents a section on the line *x x* of Fig. 1, and Fig. 4 a section on the line *y y* of same figure.

The letter A represents a metallic casing, having a curved top to correspond with the line of travel of the scraper. Said shell is provided with two parallel cylindrical chambers, B C, and an intermediate chamber, D, in which is journaled longitudinally a screw, E. The letter F represents a traversing nut, secured to said screw and provided with lateral branches G G, extending into the chamber B C, forming followers, which may reciprocate therein by the action of the screw upon the nut. The lower end of the screw is provided with a ratchet-wheel, H, in which a pawl, I, secured in a recess, K, in the lower part of the casing, is adapted to engage at each movement of the scraper to rotate the screw and advance the nut thereon in proper direction to project the substance in the chambers sufficiently at each stroke of the scraper. The scraper is represented by the letter L, and is pivoted in a chamber, M, in the casing at N, as shown in Fig. 2, and has an extension, O, on its lower end projecting through a slot, P, in the pawl I, whereby said pawl is actuated. The pawl fits loosely on said projection, and is provided with a spring, R, pressing against the side of the chamber, which accommodates the motion of the pawl to the motion of the ratchet in turning, and throws it back to its normal position when released, so as to fall properly in line with the next succeeding ratchet.

Behind the scraper, and bearing against it, is a spring, S, which is secured to the outside of the case, and which serves to throw the scraper forward after it has been thrown back.

The letter A′ represents a double cam, pivoted at B′ to the outside of the casing, and provided with a thumb-and-finger piece, C′, by means of which it may be freely rotated; and D′ represents a projection on the scraper, extending through a curved slot, E′, in the side of the casing, in such a position as to be successively engaged and tripped by said double cam, giving the scraper two motions to each revolution of said cam. To the front of the scraper is secured a spring, F′, which

throws the scraper slightly back after it has been thrown forward to set it in position ready for the next firing.

The letter G′ represents a tube at the front edge of the casing, in which is held the end of a slow-match, H′, which is composed of fibrous material, saturated with nitrate of potash or other suitable material. The slow-match is provided with a short chain, to which is attached a cap, which closes the end of the tube and extinguishes the match when it is drawn back through the tube.

The substances employed in the respective chambers are in the form of cylindrical sticks of proper diameter and length. The stick for the first chamber, which is made larger in diameter than the other, consists of chlorate of potash, with sufficient clay to hold it together, and that for the second chamber is composed of amorphous phosphorus, and clay, in order to prevent confusion in inserting the sticks in proper order, as it is preferable that the white or chlorate-of-potash stick should be struck first, although it is not absolutely necessary that they should be arranged in such order.

The operation of my invention is as follows: When a light is required, the cap is seized and the slow-match drawn forward to the upper edge of the casing. The cam is then rotated, carrying the hammer back with it, the pawl on its lower end engaging the ratchet-wheel on the screw and rotating it so as to advance the nut and followers and project the sticks slightly from their respective chambers. When the cam has been rotated sufficiently to release the projection on the hammer said scraper is thrown forward by its spring, passing over the exposed end of the sticks in the first aperture and conveying a portion of its substance to the exposed portion of the stick in the second chamber, and bringing the two substances into frictional contact, causing their ignition, the flame being projected into the end of the slow-match and igniting it in turn. The screw is operated to retract the plunger by turning the ratchet-wheel in a reverse direction by operating it with the finger-nail through an opening at the side of the shell opposite said wheel, for the purpose specified.

I claim—

1. The combination, in a suitable casing, of two or more separate substances or compounds which will not explode when separate, but will burn violently or explode when mixed or brought in contact with each other and rubbed or otherwise mechanically acted upon, and a scraper connected to a reciprocating pawl, adapted to operate the mechanism for ejecting the substances, and accomplishing such mixing or uniting and ignition of said substances or compounds, said casing having a tube in which is arranged a slow-match, which is ignited by the flash or flame of the ignited substances, in order to keep up the combustion as long as desired.

2. The combination, in an igniter for smokers' uses and other purposes, of a casing provided with two parallel chambers for holding the igniting material, and an intermediate screw and traversing nut for projecting said substances, with the scraper for firing the projecting substances and a pawl-and-ratchet wheel for actuating the screw, the whole arranged as and for the purposes set forth.

3. The combination, with the scraper and the projection thereon, of a double cam pivoted to the casing or shell and adapted to trip the scraper, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

W. W. BATCHELDER.

Witnesses:

JAMES L. NORRIS,

JAMES A. RUTHERFORD.