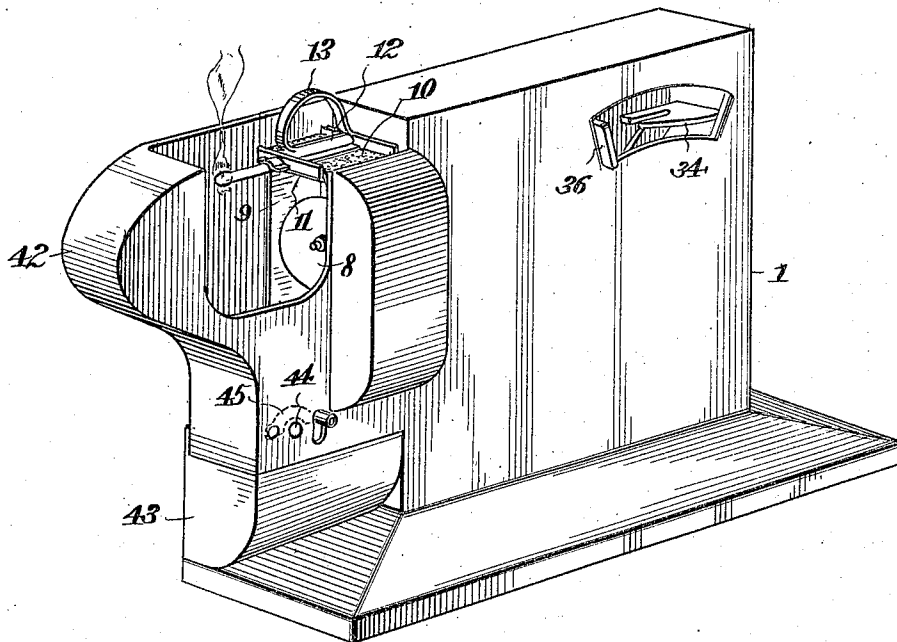


R. F. ENSMINGER.  
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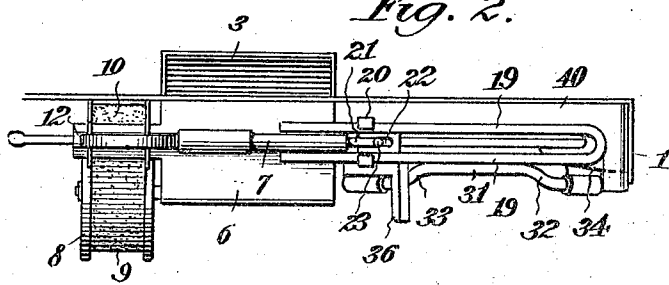
1,237,184.

Patented Aug. 14, 1917.  
 2 SHEETS—SHEET 1.

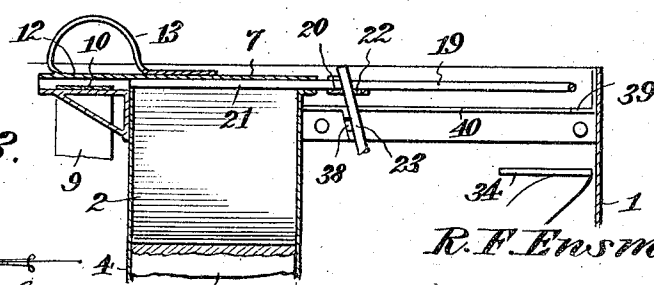
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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2 SHEETS—SHEET 2.

Fig. 4.

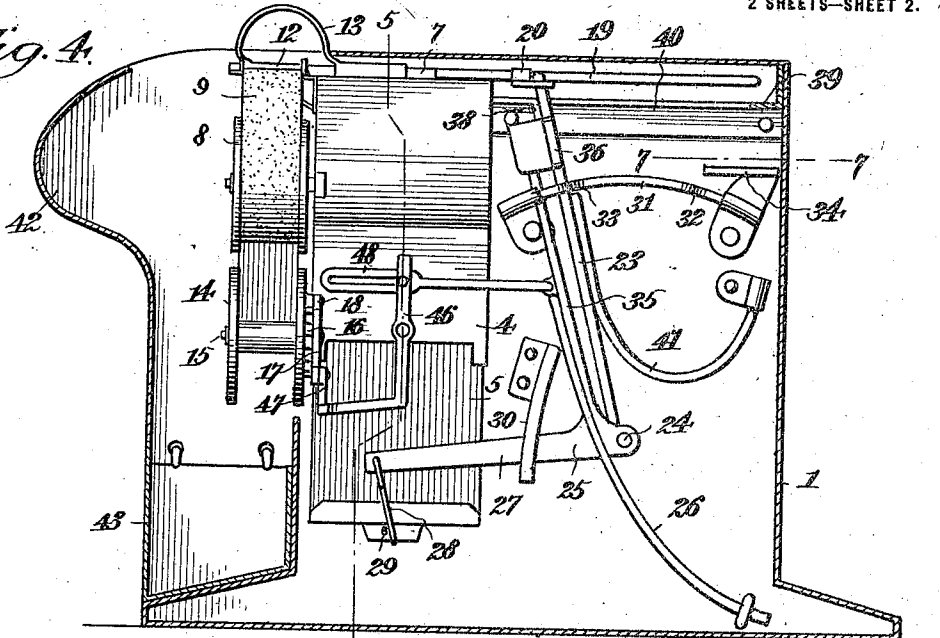


Fig. 5.

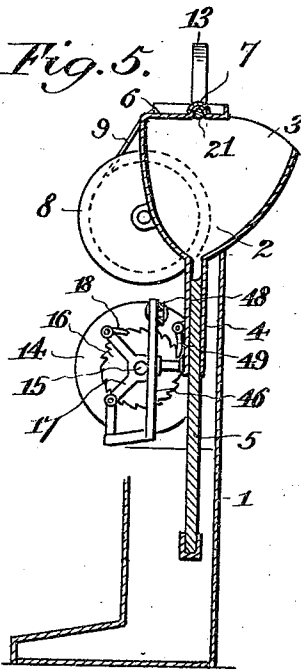


Fig. 6.

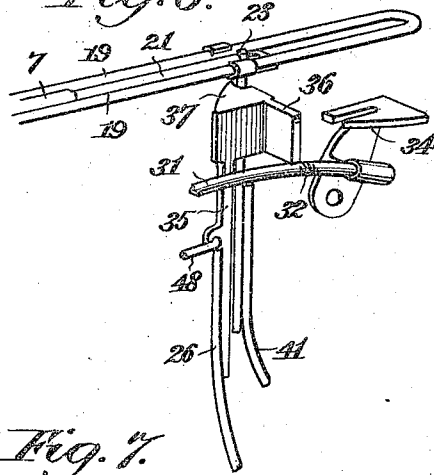
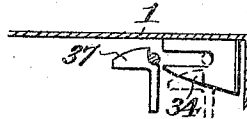


Fig. 7.



Witness \_\_\_\_\_

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# UNITED STATES PATENT OFFICE.

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MATCH EJECTING AND LIGHTING MECHANISM.

1,237,184.

Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed May 27, 1916. Serial No. 100,357.

*To all whom it may concern:*

Be it known that I, ROBERT F. ENSMINGER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Match Ejecting and Lighting Mechanism, of which the following is a specification.

This invention relates to match ejecting and lighting mechanism and has for its principal object, the provision of mechanism of this character which will include a container for the matches, means for acting upon the matches singly and for causing the same to be partly projected and at the same time subjected to the action of an abrasive surface so that the projected end of the match will be instantly ignited.

Another object of the invention is to provide a match lighting and ejecting mechanism in which the matches may be trained through a discharge conduit or channel for successive delivery and means for causing a used match to be wholly discarded from the mechanism on the delivery of the next succeeding unused match.

A still further object of the invention resides in the provision of match lighting and ejecting or delivering mechanism which will include means for successively delivering the matches into the presence of an ejecting mechanism and for simplifying the mechanical ends whereby such function is produced.

Another object of the invention resides in the provision of a match lighting and ejecting mechanism including operating means therefor and a movable abrasive surface adapted to be intermittently controlled through operation of said operating means.

With the above and other objects in view which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed out in the claims.

In the accompanying drawings, has been illustrated, a single and preferred form of the invention, it being, however, understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alternations and

modifications within the scope of the claims may be resorted to when desired.

In the drawings:—

Figure 1 is a perspective view of the device.

Fig. 2 is a plan view thereof, with the casing removed.

Fig. 3 is a fragmentary section thereof.

Fig. 4 is a longitudinal section.

Fig. 5, is a section taken on the line 5—5, of Fig. 4.

Fig. 6 is a perspective view of the operating device.

Fig. 7 is a horizontal section on the line 7—7, of Fig. 4, showing the cam element.

The device is principally intended for use in cigar stores or the like where it is desirable to provide an inexpensive and economical structure which will adapt itself to ordinary matches having phosphoric or like igniting or composition heads adapted to be ignited by friction. It consists of a suitable casing 1, having a hopper or match container 2, open at one side at 3, in order that the same may be supplied with matches as the occasion requires. Said hopper is provided with a vertically restricted portion 4, rectangular in horizontal section and adapted to permit a single match to gravitate thereinto and then on to a vertically movable ejector 5. The hopper is provided with a wall 6, in which a discharge conduit or channel 7, is formed. This channel is arranged in the same vertical line with the ejector 5, so that a match which is supported from the upper surface of the ejector may be alined horizontally with the conduit 7, for a purpose to be hereinafter explained.

An igniting mechanism is associated with the channel or conduit 7, so that the coated ends of the matches will be positively brought into frictional engagement there-with as the matches are fed from the device. This mechanism consists of a magazine drum or reel 8, supporting a spirally wound flexible abrasive strip 9. This strip is provided with a horizontal lead 10, which is extended over a rigid extension 11, of the conduit 7, and superposed relatively of said extension is a flexible extension 12, of the conduit which is held yieldingly toward the abrasive

under the action of a spring 13. This arrangement also serves for bringing the coated heads of the match into yielding contact with the abrasive surface of said strip 9.

5 From the horizontal lead 10, said strip 9, is trained over a winding drum 14, having its axle 15, provided with a fixed ratchet wheel 16, and a free rocker 17, having a pawl 18, engaging the teeth of the wheel, and it is adapted, on the rocking of the arm 17 in one direction, to move the drum which in turn, will result in the strip 9 being fed over the said extension 11, of the match discharge conduit.

15 The delivery mechanism for the matches consists of a pair of rails 19—19, having a longitudinally traveling head 20, to which a match projecting plunger 21, is connected. This plunger operates in the conduit or channel 7, as the matches are singly delivered to said channel and as shown, said head is provided with an aperture 22, through which the upper end of a rocker 23, extends. The lower end of this rocker is pivoted from

25 a post 24, carried by the casing. Supported from the same post 24, is an operating rocker 25, having connection with a spring 26, whose office is to normally hold the rocker in the starting or initial position shown in Fig. 4. Said rocker 25, carries a branch arm 27, having a link 28, which finds connection at 29, with the match follower 5, so that when the rocker is moved in one direction, the follower will be elevated in the manner hereinbefore referred to.

30 The arm 27, operates over a suitable guide 30, carried by the casing 1.

The rocker 25, is free for slight rocking movement and as shown, the upper end thereof is movable over a guide rail 31, having off-set ends 32 and 33, the former being arranged directly under a fixed cam surface 34. The arm 35, of the rocker 25, is provided with a thumb piece 36, which is exposed from the machine so as to be operated from the outside thereof. This thumb piece is provided with a latch 37, which is adapted to find engagement behind the first rocker 23. The said first rocker

40 is movable between fixed stops 38 and 39, which extend from a guide rail 40, upon the casing. Said rocker is normally held against the stop 38, under the action of a spring 41. In this manner, it will be seen that when the thumb piece 36, is moved in the direction of the cam element 34, the rocker 23, will be picked up by the latch 37, and carried therewith. In this operation, the follower 5, will be carried in an upward direction and a match which has previously been deposited thereon will be brought in horizontal alinement with the channel 7. On advancing the movement of the thumb piece toward the cam element, it

will be brought over and actively presented 65 to the releasing surface of the cam and the rocker 25, will be tilted laterally, hence the provision of the off-set 32, in the mentioned guide rail 31. This stops the latch 37. In other words, it causes the latch to be auto- 70 matically released from the said first mentioned rocker 23, and then, under the action of the spring 41, the plunger 21, will be projected through the channel 7, and behind the match which has been delivered to the channel by the follower 5. The match is then advanced over the extension 11, where the head thereof will be brought into frictional contact with the flexible abrasive sheet 9. Successive with this operation, the 80 lighted end of the match will be exposed from the machine in the manner indicated in Fig. 1. It is then accessible and cigars or the like can be lighted therefrom as will be understood. 85

As stated, the match is only partly projected. It is not intended that it be removed from the device by the user. Each previous match which has been partly projected is adapted to be wholly ejected by the next 90 succeeding match as it is delivered from the machine. For this reason, a guard 42, is provided as a fixed part of the casing. This guard opens into a removable receptacle 43, for the burnt matches. Above the 95 receptacle 43, and formed in one of the walls thereof, is an opening 44, into which the tip of the cigar may be extended. A cutter 45, operates behind the opening and is adapted to sever the tip from the body of 100 the cigar and to permit the tip to fall into the waste receptacle 43.

While accomplishing the previously stated functions, movement is to be imparted to the abrasive strip 9, in succession with 105 the delivery of the matches. This is done partly through the ratchet wheel 16, the rocker 17, and the pawl 18. It is finally and operatively accomplished by a rocker 46, having connection at 47, with the rocker 17, 110 and it further has operative connection with the rocker 25, through a slotted power transmitting bar 48, which is adapted to reciprocate as the rocker 25, rocks. This reciprocating motion is then converted into 115 rotary motion and power is supplied to the drum 14, so as to wind the tape 9, thereon. Retrograde movement of the drum 14, is prevented by a suitable pawl 49. After a match is lighted and when it burns back 120 to the extension 12 it is automatically extinguished inasmuch as the said extension prevents the air from getting at the flame.

What is claimed as new is:—

1. A match igniter comprising a con- 125 tainer, means for ejecting a match from the container, and an abrasive located in the path of movement of the match, and means

for simultaneously moving the ejecting means and the abrasive. match lifting means and finally the ejector and the abrasive simultaneously. 10

2. A match igniter comprising a container, means for lifting a match in the container, an ejector for forcing the lifted match beyond the container, an abrasive located in the path of movement of the match and means for initially moving the

In testimony whereof I, affix my signature in presence of two witnesses.

ROBERT F. ENSMINGER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."