

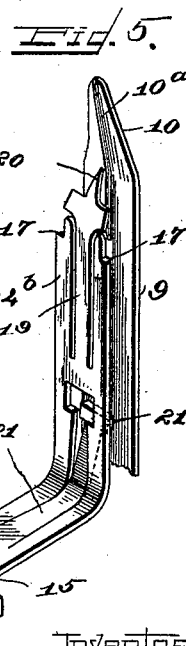
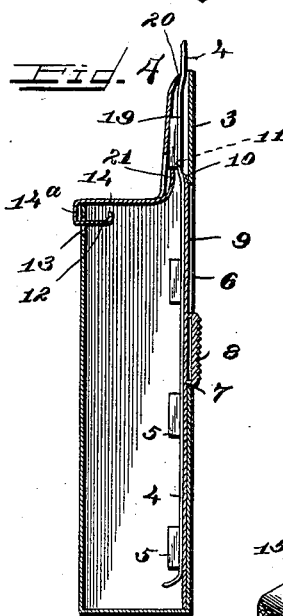
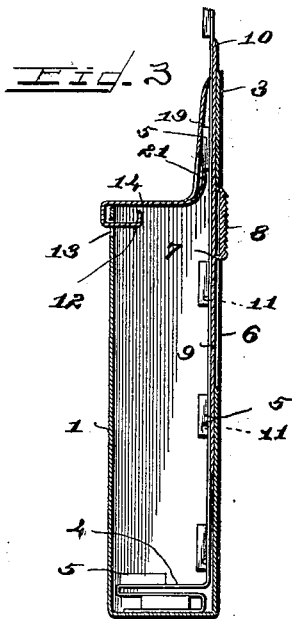
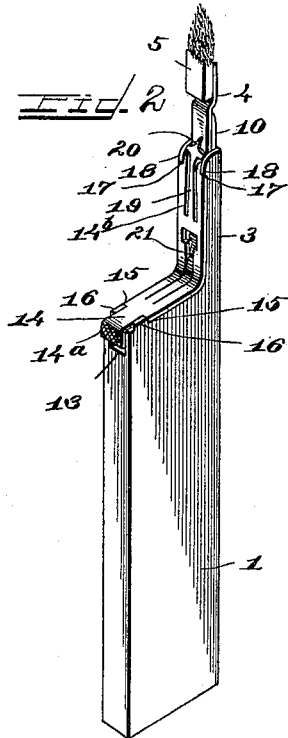
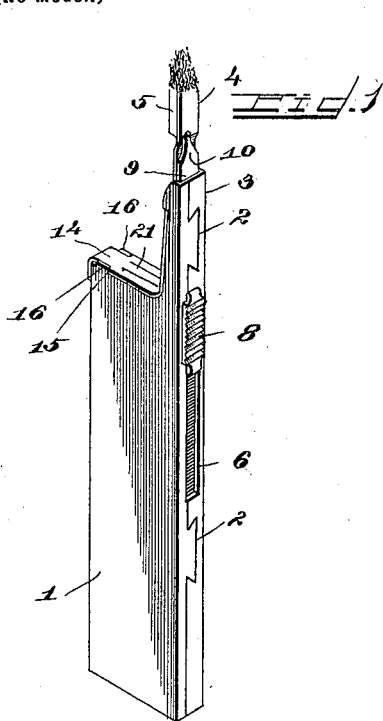
No. 649,074.

Patented May 8, 1900.

F. A. RATHBUN.
AUTOMATIC LIGHTER.

(Application filed Dec. 13, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

FRANK A. RATHBUN, OF INDIANAPOLIS, INDIANA.

AUTOMATIC LIGHTER.

SPECIFICATION forming part of Letters Patent No. 649,074, dated May 8, 1900.

Application filed December 13, 1899. Serial No. 740,164. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. RATHBUN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Automatic Lighters, of which the following is a full, clear, and exact specification.

My invention relates to automatic lighting devices, especially adapted for smokers, of that class in which the fulminate or ignitable heads are arranged in a box or receptacle and caused to be ignited as they are automatically ejected from such box by a pusher; and it has more especial reference to that species of said class of devices wherein the fulminate heads or matches are secured to a flexible strip and caused to pass through a narrow neck of the box, at the end of which is arranged the igniter, and within which neck reciprocates the pusher or ejector, which enters a cavity in the back of the match-head for properly ejecting the head from said neck and holding it while burning, as well as dislodging the burnt head from the end of the strip; and my invention has for its primary object to greatly simplify the construction of the box or receptacle, whereby it may be made more durable and less expensive, and to provide a novel form of cap for closing the end of the box which shall also serve as a means for holding the igniter against the match-head and guiding the latter as it is ejected through the neck of the box, making a device which shall be durable and cheap and simple in construction and operation.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described, with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a perspective view of my improved lighter looking from the back or ejector side of the box, showing a match ejected and burning thereon. Fig. 2 is a similar view looking from the opposite side. Fig. 3 is a vertical longitudinal section showing the ejector protruded. Fig. 4 is a similar view showing the ejector re-

tracted; and Fig. 5 is a perspective view of the cap or end portion which closes the open end of the box, also showing the upper end of the ejector.

1 represents a box or receptacle of any suitable form and construction, but preferably a flat oblong box, which may be made of a stamping struck up from sheet metal and joined together at the back by dovetails 2 and having its bottom drawn together in any well-known manner, the top of the box being left entirely open and formed with a narrow extension on one side which forms part of a neck 3. Within the box or receptacle 1 is folded in a zigzag or any other suitable form the flexible strip 4, upon which the fulminate heads or matches 5 are secured, and the back of the box is provided with a slot 6, through which extends the shank 7 of a thumb-piece 8, which is free to slide up and down the back edge of the box and said shank of which is connected to a thin plate 9, located against the inner side of the back edge of the box and having its upper end pointed, as shown at 10, so as to constitute an ejector for engaging in the cavities 11, formed in the back of each match-head near the lower end. The upper open end of the box or receptacle is closed by a cap or end piece having a hook 12, which engages in an aperture 13 in the front edge of the box to hold said cap in place with capability of being turned as on a hinge. Said cap or end piece is also provided with a horizontal portion 14, which fits over the body portion of the end of the box and is provided with shoulders 15, which engage with lugs or corresponding shoulders 16, formed on the upper end of the box 1. At the end of the horizontal portion 14 the end piece or cap is carried upwardly along the narrow extension on the box 1, so as to constitute one side of the neck 3, and near the upper end of this upwardly-extending portion of the end piece is formed another pair of shoulders 17, which engage under corresponding lugs or shoulders 18, formed on the neck 3, the end piece being composed of spring material, so that by engaging its upper end first with the shoulders 18 and then pressing inwardly on the outer end of the horizontal portion 14, which is serrated or knurled at 14^a, the shoulders 15 may be forced behind and engaged with the shoul-

ders or lugs 16, thus holding the end piece or cap firmly in place until upward pressure is produced on the thumb-piece 14^a, disengaging the shoulders 15 and permitting the end piece to be turned back for refilling the box.

5 The upper end of this end piece of the box has a flexible tongue 19 struck up therefrom and provided with a point 20, which engages with the match-head 5 as the latter is forced

10 upwardly through the neck 3 by the plunger-point 10 and by thus scratching the match-head ignites it. In placing the matches 4 5 in the box one end of the strip is carried upwardly and laid in the neck 3 before the end

15 piece or cap of the box is secured in place, so that when the plunger rises it will certainly engage with one of the matches, and in order to insure this engagement the end of the plunger is bent toward the match, as better

20 shown in Fig. 1, so as to press the match outwardly against the end cap. After the match has been ejected and ignited it may be held in position for use on the pointed end 10 of the ejector, and when the ejector is with-

25 drawn the charcoal or burned match will be carried down against the igniter-point 20 and dislodged as the ejector withdraws into the box, the point of the ejector being provided with a groove 10^a to admit the igniter-point

30 20 without too severe friction and wear on the lighter. In order that this downward movement of the ejector may not pull the remaining matches so far down the neck 3 as to place them out of reach of the ejector

35 the next time it rises, I provide a spring-dog 21, which is formed of a tongue struck up from the portion 14 and portion 14^b and bent into the neck 3, so as to engage under the lower end of the match pulled above it by

40 the ejector when it forces one out of the box.

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

1. In an automatic lighter the combination

45 of a box or receptacle open at one end and having a narrow projection on that end, a removable plate secured over the open end and closing one side of said projection to form a neck, an ejector arranged to reciprocate up

50 and down in said neck and an igniter arranged at the upper end of said neck, substantially as set forth.

2. In an automatic lighter the combination of a box or receptacle having an open end

and a projection on that end, a removable plate closing said open end and forming one side of a neck constituted by said projection, an ejector arranged to reciprocate in said neck, an igniter carried by said removable plate and a retaining-dog carried by said removable plate to prevent retrograde movement of the matches in said neck, substantially as set forth.

3. In an automatic lighter the combination of a box or receptacle having an open end for the admission of the matches and a projection on that end, a removable plate closing said open end and forming one side of a neck constituted by said projection, a spring-tongue struck out of said plate and having a point constituting an igniter and an ejector arranged to reciprocate in said neck, substantially as set forth.

4. In an automatic lighter the combination of a box or receptacle having an open end for the admission of the matches and a projection on that end, a removable plate closing said open end and also one side of said projection so as to constitute a narrow neck, an igniter arranged at the outlet of said neck, an ejector arranged to reciprocate in said neck for pushing the matches therethrough and a spring-tongue struck out of said plate and deflected into said neck for preventing retrograde movement of said matches, substantially as set forth.

5. In an automatic lighter the combination of a box or receptacle having an open end provided with the narrow projection 3 and having the lugs or shoulders 16 18, a spring-plate bent at an angle and having shoulders engaging with said shoulders 16 18, and closing the end of said box, an igniter, and an ejector arranged to reciprocate in said narrow projection 3, substantially as set forth.

6. In an automatic lighter the combination of a box or receptacle having an open end and a narrow projection on one side of said open end, an angular spring-plate hinged at one end to one side of said box and sprung into place in the open end thereof and in one side of said projection, an igniter and an ejector arranged to reciprocate in said projection, substantially as set forth.

FRANK A. RATHBUN.

Witnesses:

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