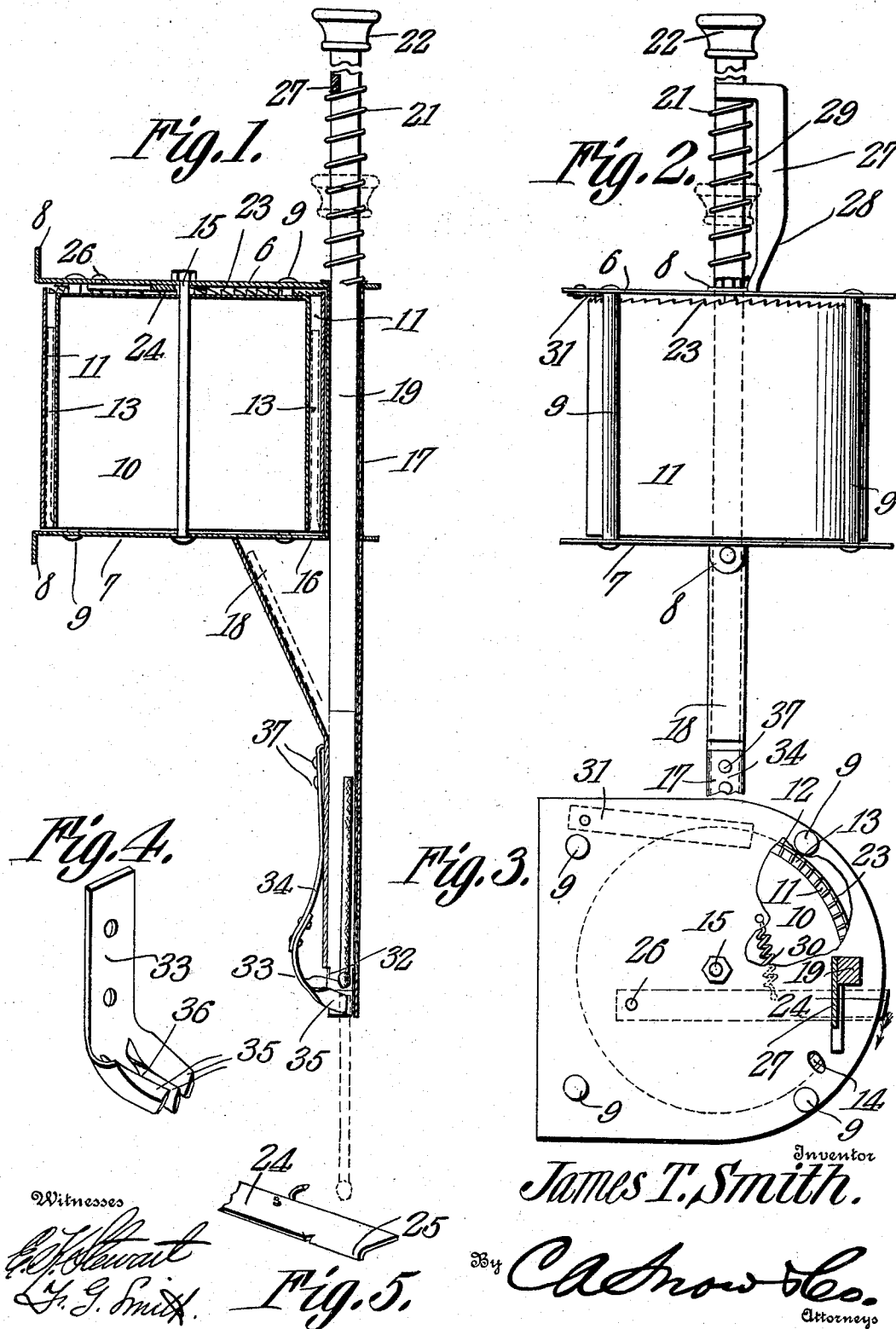


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MATCH SAFE.
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JAMES THOMAS SMITH, OF MOREHEAD, KANSAS.

MATCH-SAFE.

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To all whom it may concern:

Be it known that I, JAMES THOMAS SMITH, a citizen of the United States, residing at Morehead, in the county of Neosho and State of Kansas, have invented a new and useful Match-Safe, of which the following is a specification.

It is the object of the present invention to improve generally the construction of single delivery match safes, and more specifically speaking, to provide a device of this class of such construction that a single depression of a plunger is all that is necessary to eject a match from the safe and automatically ignite the same.

One of the novel features of the present invention resides in the specific form of match igniting device provided for the purpose of igniting the matches as they are ejected from the discharge chute of the device, the object being to provide a match igniting device or element of such character as to dig into the match tip or head at a plurality of points so as to positively insure of ignition of the head.

A further feature of the invention resides in the specific construction of the match reservoir and the discharge chute and the manner of actuating the reservoir to feed matches therefrom into the chute singly and at each stroke of the plunger or other match ejecting means provided within the chute or in connection therewith.

A still further novel feature of the invention resides in so constructing and mounting the match igniting device or element that after the match has been ignited and ejected partly from the chute, or in other words has been forced therefrom until the major portion of its length projects from the chute, the match will be held, head down, in position to be manually removed from the discharge end of the chute.

In the accompanying drawings, Figure 1 is a vertical sectional view through the match safe embodying the invention taken in a plane from front to rear. Fig. 2 is a front elevation of the device. Fig. 3 is a top plan view thereof. Fig. 4 is a perspective view in detail of the match igniting element, and Fig. 5 is a similar view of the dog for actuating the match reservoir.

As shown in the drawings, the match reservoir and the discharge chute are respectively mounted in and supported by a frame comprising a part of the match safe and this

frame is made up of an upper head 6, and a lower head 7, the said heads being preferably in the form of plates provided at their rear edges with attaching disks 8 provided with openings for the passage of screws or other securing devices whereby the frame may be attached to a wall or support and these two heads of the frame are connected by means of suitable connecting bars 9.

The match reservoir of the device is comprised of a hollow cylindrical drum 10 closed at both ends, an outer inclosing concentric drum 11 which is open at both ends, and short partitions or webs 12 which extend between the outer surface of the cylindrical wall of the drum 10 to the inner surface of the wall of the drum 11 and connect the two drums in spaced relation as above stated. These partitions 12 are arranged in an annular series, as will be of course readily understood, and formed between them an annular series of match-receiving compartments 13 into which matches may be introduced through an opening 14 provided in the upper head or plate 6 of the frame of the device, the matches being of course introduced singly and successively into the said receiving compartment, a step by step rotative movement being imparted to the reservoir at the time of filling the said compartment thereof. The reservoir is mounted for such rotative movement upon a suitable spindle 15 which is secured at its ends axially in the plates 6 and 7 of the frame of the device. As the reservoir is rotated, the lower ends of its match-receiving compartments 13 are successively brought into registration with a discharge opening 16 formed in the lower plate 7 of the said frame, it being understood that upon such registration of each compartment with the said opening, the match contained in the compartment will drop through the opening. It will be understood of course that the matches are inserted into the match-receiving compartment 13, tips down, and rest at their tip ends upon the upper face of the plate 7 of the frame of the device, and that upon rotative movement of the reservoir, matches will be brought with their tip ends above the discharge opening 16 and will drop, tip ends first, into the discharge chute of the device which will now be described.

The chute above referred to is in the nature of a tube, preferably rectangular, in-

5 indicated by the numeral 17, the said tube being fixed at its upper portion in the plates 6 and 7 at the edges thereof; these plates being extended at their edge portions beyond the periphery of the outer drum 11 of the match reservoir, and said tube, while it terminates at its upper end flush with the upper plate 6, extends downwardly below the lower plate 7 to a considerable degree as is clearly shown in Fig. 1 of the drawings. This tube 17 is provided with a rearwardly off-set extension or chamber 18 into which the match-receiving compartments 13 discharge, successively, the opening 16 establishing communication so that the matches are dropped first into the chamber or extension 18 of the tube and afterward slide down into the lower portion of the tube in position to be ejected, it being understood of course that the bottom wall of the chamber or extension 18 is inclined downwardly in the direction of the lower end of the discharge chute or tube 17. As a means for ejecting the matches from the tube or chute after having been fed therinto, there is provided a plunger 19 which is mounted for vertical sliding movement in the tube and projects at its upper end above the upper end of the said tube, the lower end of the plunger being normally in a plane above the lower end of the bottom wall of the chamber or extension 18 as is clearly shown in Fig. 1 of the drawings. The plunger 19 is normally held elevated, in which position its lower end is located in the plane stated, by means of a spring 21 which is disposed upon the upper portion of the said plunger and bears at its lower end against the upper face of the plate 6 of the frame of the device, the upper end of the spring bearing against a cam, which is carried by the plunger and the function of which will be presently described. The plunger is provided at its upper end with a knob or finger piece 22 which may be engaged by the thumb or one of the fingers for the purpose of depressing the plunger against the tension of the spring 21 thereon so as to thrust it downwardly in the discharge chute or tube 17 for the purpose of engaging the butt end of a match in the lower portion of the tube and ejecting the match from the said tube through the lower end thereof.

55 The upper edge of the drum 11 of the match reservoir is provided with a continuous series of teeth, indicated by the numeral 23 and these teeth are of such dimension that when the reservoir is rotated the extent or length of one tooth, a new one of the match-receiving compartments 13 will be brought into registration at its lower end with the opening 16 in the plate 7 of the frame of the device, and in order that such step by step rotative movement of the reservoir may be had, there is pivoted, upon the

under surface of the plate 6 a pawl 24 having one edge turned downwardly to form a tooth 25 adapted to engage successively with the rack teeth 23 of the drum 11 of the reservoir upon swinging of the said pawl 70 upon its pivot, the pivot being indicated by the numeral 26. A plate extension 27 having a cam edge 28, is carried by the plunger 19 at the upper portion thereof and has one edge slotted or spaced throughout 75 the greater portion of its length from the said plunger as at 29 to accommodate the spring 21 heretofore referred to. Normally, the pawl or dog 24 is held with its edge opposite its downturned end 25 in contact with the cam edge 28 of the plate extension 27, by means of a suitable extensible spring 30 and from an inspection of Fig. 2 of the drawings, it will be understood that the cam edge 28 of the said plate extension 27 is 85 of such outline or extent that when the plunger 19 is forced down into the discharge chute or tube 17, the pawl or dog 24 will be swung upon its pivot against the tension of the spring 30 and in the direction of the arrow in Fig. 3 of the drawings, so as to rotate the reservoir one step or in other words a distance equal to the length of one of the teeth 23, release of the plunger permitting the spring 21 to elevate or lift the 95 same and the retraction of the cam 27 serving to permit swinging of the dog 24 upon its pivot until it has assumed its normal position, this movement of the dog being of course had through the medium of the 100 spring 30.

From the foregoing description of the invention it will be understood that should a match have been fed into the lower end of the discharge chute or tube 17, downward 105 movement of the plunger 19 will result in the match being ejected through the lower end of the said tube and in a rotation of the reservoir of the device to provide for the delivery of a second match into the chamber 110 or extension 18 of the said tube, this last mentioned match however, being prevented from entering immediately into the lower end of the said tube 17 by reason of the fact that the lower portion of the plunger now 115 closes the lower end of the said extension or chamber 18 or rather the tube at the point of communication of this extension or chamber therewith. However, upon release of the plunger 19, the same will be elevated, as heretofore stated, through the instrumentality of the spring 21, and upon assuming its normal position, in which position its lower end is in a plane above the plane of 125 the lower end of the chamber or extension 18, the match, previously discharged into the said chamber, as above described, and lying upon the bottom wall of the said chamber, will slide down this wall and into the lower end of the tube 17 in position to be 130

ejected from the said tube through the lower end thereof at the next down stroke of the plunger. In order to prevent backward rotative movement of the reservoir, a leaf spring pawl 31 is secured upon the under face of the plate 6 and successively engages the teeth 23 at the upper edge of the drum 11 of the said reservoir.

As heretofore stated, there is provided at the lower end of the discharge chute, a match igniting device or element which acts to ignite the tip of the match at the time of its ejection from the lower end of the discharge tube 17, and in order to receive the striking or working portion of this element, the lower end of the tube is provided, in one side, with an opening 32. The igniting device is in the form of a small plate 33 which is attached to a leaf spring 34 secured upon the rear side of the tube 17 at the lower end thereof, in a manner to be presently described, and this plate, at its lower portion, is bifurcated or otherwise cut to form a plurality of blades 35 which project forwardly at an angle therefrom and have their knife edges, indicated by the numeral 36, presented upwardly at an angle. The knives or blades 35 are here shown as three in number and the intermediate one of the blades has its cutting edge 36 located in a plane below the plane occupied by the cutting edges of the two outer blades 35 so that the three cutting edges will practically simultaneously engage with the convex head or tip of the match to be ejected and ignited. Another advantage accruing from the specific arrangement of the blades and their knife edges as above described, resides in the fact that after the match has been ignited by contact with the said edges of the blade, and has been almost entirely ejected from the tube 17 through the lower end thereof, the extremities of the blades will grip the stem of the match, adjacent the butt end thereof, between them and the front wall or side of the said tube 17, the line defined by the ends of the three blades being the arc of a circle so that the stem of the match will be gripped or engaged at more than one point. After the match has been ejected to the degree stated, it may be readily removed by the manipulator of the device and used for lighting a cigar or the like. In securing the spring 34 to the rear side or wall of the tube 17, the same is preferably riveted at two or more points as indicated by the numeral 37 and the tendency of the spring is of course to force the blades 35 with their extremities into contact with the inner face of the front wall or side of the said tube 17 at the lower end thereof.

What is claimed is:—

1. In a device of the class described, spaced heads, a reservoir mounted to rotate between said heads, one of the heads being

formed with an opening, the reservoir having a plurality of match-receiving compartments arranged to register successively with said opening, said reservoir being cylindrical and having the upper edge of its wall toothed, a pawl pivoted upon the upper one of the heads and engaging with the toothed edge of the wall of the reservoir, a discharge leading from the reservoir, a plunger arranged to force matches through said discharge, a spring normally holding said plunger in an upward direction, and a cam carried by the plunger and engaging with the pawl when the plunger is depressed, successive depression of the plunger acting to impart step-by-step rotative movement to the reservoir.

2. In a device of the class described, spaced heads, a reservoir mounted to rotate between said heads, one of the heads being formed with an opening, the reservoir having a plurality of match-receiving compartments arranged to register successively with said opening, the said reservoir being cylindrical and having the upper edge of its wall toothed, a spring dog upon the upper one of the heads engaging with the toothed upper edge of the wall of the reservoir, whereby to prevent rotation of the reservoir in one direction, a pawl pivoted upon the upper one of the heads and engaging with the toothed wall of the reservoir, a discharge leading from said reservoir, a plunger arranged to force matches through the discharge, a spring normally holding said plunger in an upward direction, and a cam carried by the plunger and engaging with the pawl when the plunger is depressed, successive depression of the plunger acting to impart step-by-step rotative movement to the reservoir.

3. In a device of the class described, spaced heads, a reservoir mounted to rotate between said heads, one of the heads being formed with an opening, the reservoir having a plurality of match-receiving compartments arranged to register successively with said openings, the said reservoir being cylindrical and having the upper edge of its wall toothed, a pawl pivoted upon the upper one of the heads and engaging with the toothed edge of the wall of the reservoir, a discharge leading from said reservoir, a plunger mounted to work in said discharge, a portion of the discharge being arranged to exactly receive the plunger and a portion above the first mentioned portion being of greater dimensions than the first mentioned portion, whereby to receive a match when the plunger is depressed and fills the first mentioned portion of the discharge, a spring holding said plunger normally elevated, depression of the plunger serving to force a match from the first mentioned portion of the discharge, and a cam carried by the

plunger and engaging with the pawl when the plunger is depressed, successive depression of the plunger acting to impart step-by-step rotative movement to the reservoir.

5 4. In a device of the class described, spaced heads, a reservoir mounted to rotate between said heads, one of the heads being formed with an opening, the reservoir having a plurality of match-receiving compartments arranged to register successively with said opening, the said reservoir being cylindrical and having the upper edge of its wall toothed, a pawl pivoted upon the upper one of the heads and engaging with the

10 toothed edge of the wall of the reservoir, a discharge leading from said reservoir, a

15 plunger arranged to force matches through

said discharge, a spring normally holding said plunger in an upright direction, a cam carried by the plunger and engaging with the pawl when the plunger is depressed, a spring connected to the pawl and holding the same normally in engagement with the cam, successive depression of the plunger acting to impart step-by-step rotative movement to the reservoir. 20 25

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES THOMAS SMITH.

Witnesses:

L. S. PURCELL,
M. A. FINLEY.