

[54] **LIGHTED MATCH DISPENSER**

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[58] Field of Search.....221/267, 136-142

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Primary Examiner—Samuel F. Coleman

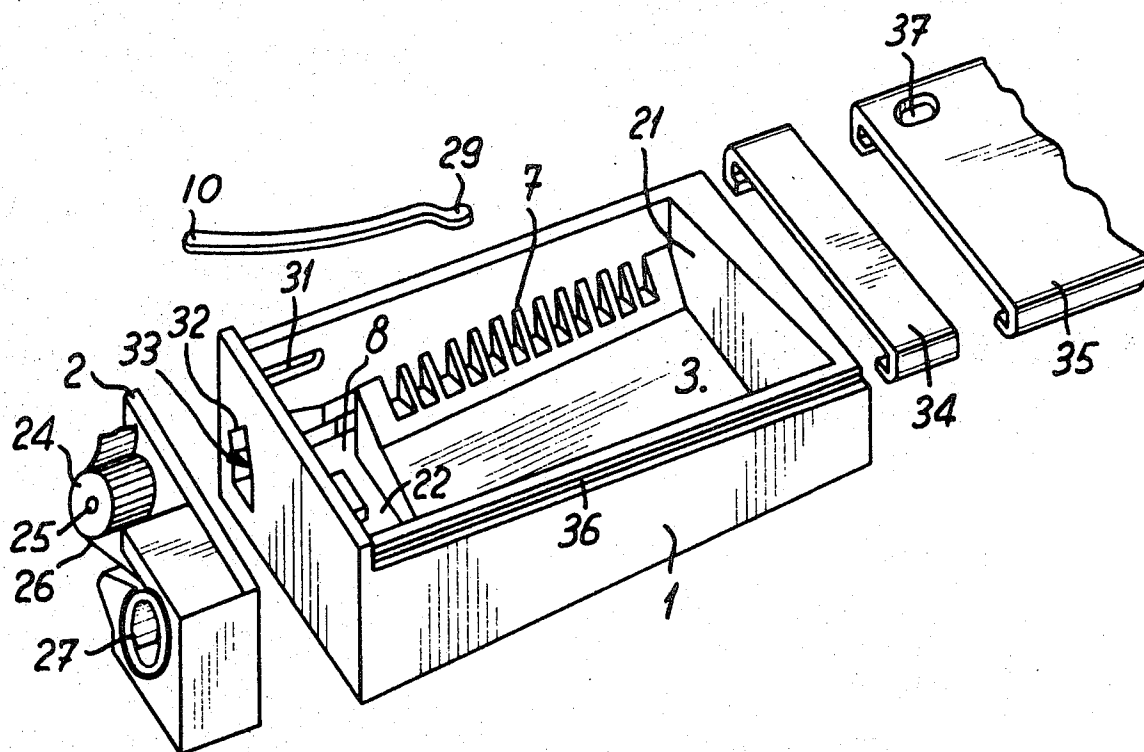
Assistant Examiner—Thomas E. Kocovsky

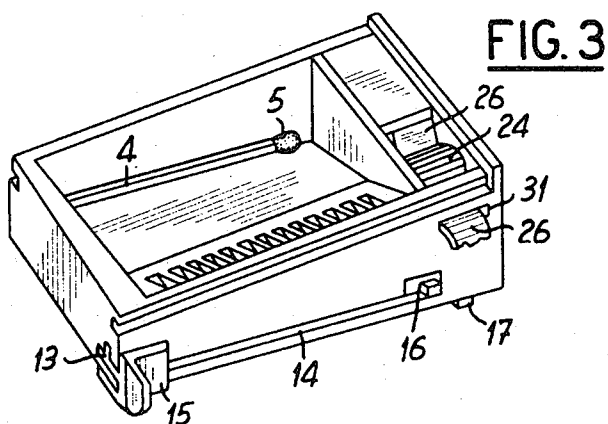
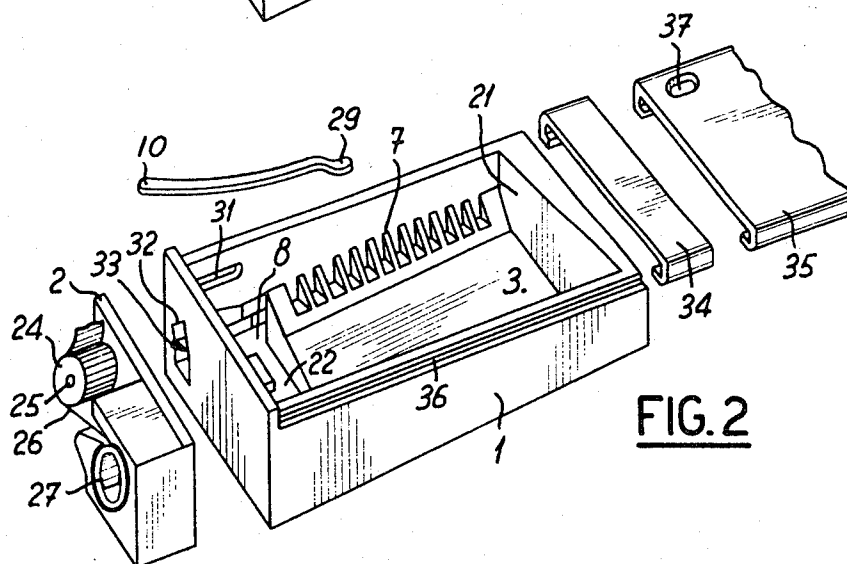
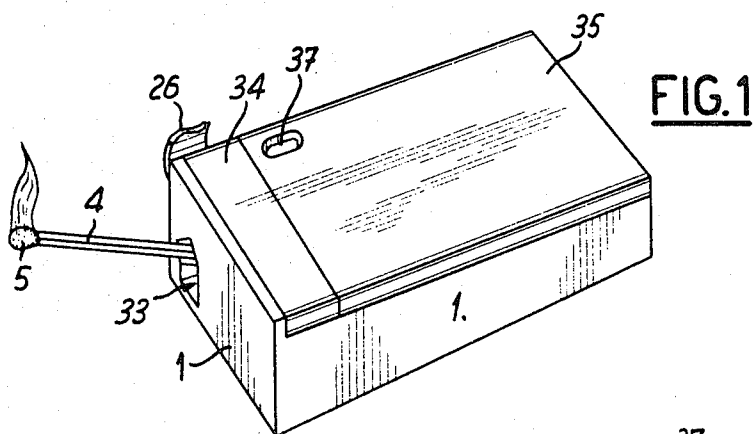
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[57]

ABSTRACT

A lighted match dispenser comprises a match container and means to move matches one-by-one, head end first, in striking contact against a flexible striking band. The match head presses the band against the periphery of a rotatable drum with a component of force peripherally of the drum sufficient to cause a small rotation of the drum and a small advance of the flexible band. In this way, the band is automatically advanced so that fresh portions are presented to subsequent match heads. Continued movement of the match in the same direction extends the match out of the dispenser, lighted end first, to a position in which it can be grasped and removed by the user.

6 Claims, 11 Drawing Figures




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FIG. 4

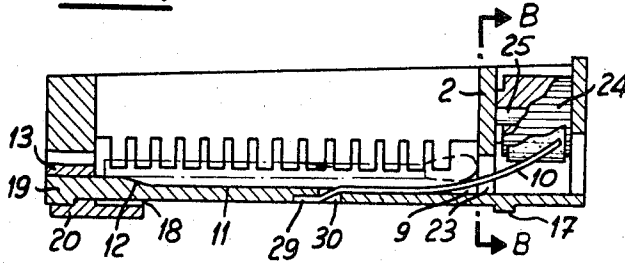


FIG. 5

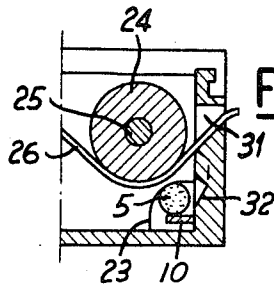
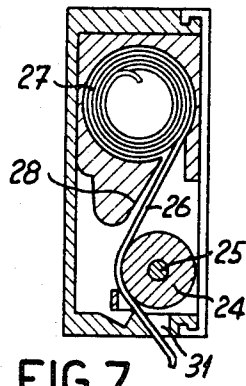
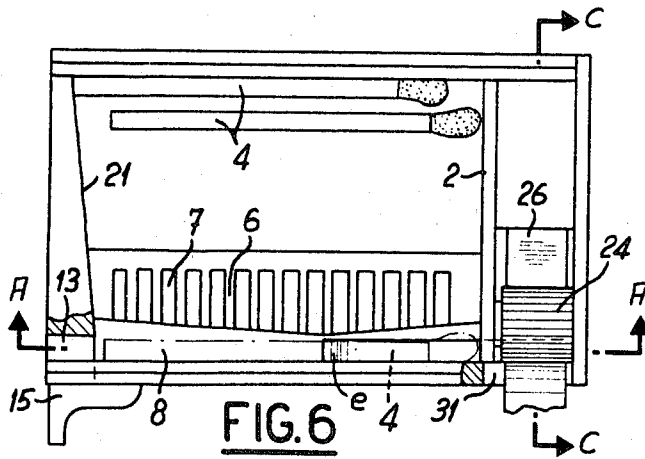
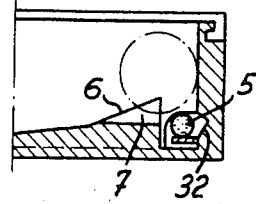


FIG. 8

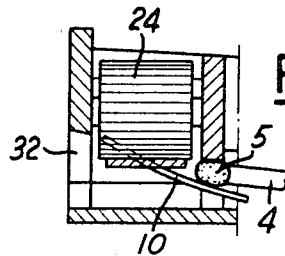


FIG. 9

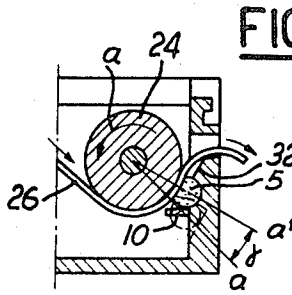


FIG. 10

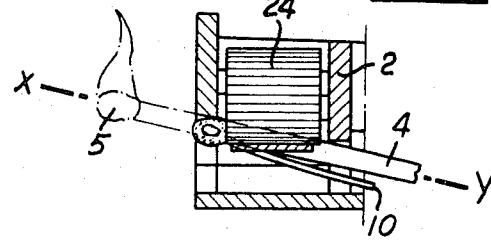


FIG. 11

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LIGHTED MATCH DISPENSER

The present invention has for its object the provision of a device for the dispensing of matches with automatic lighting comprising a body intended to receive the matches, and means for permitting to bring the matches one after the other through a lighting device to a delivery position.

Lighted match dispensers are known which deliver one after the other their lighted matches. The lighting devices comprise either a rubbing band or a rubbing surface against a portion of which each match is scratched during its delivery. Means are provided to periodically displace the rubbing band or the rubbing surface so that new portions of it will be in contact with the match to be delivered since after a certain number of lightings this surface is worn out and does not guarantee an automatic lightening of these delivered matches.

These devices have the drawback of being obliged to modify manually and periodically the position of the rubbing band or rubbing surface. In fact either the user forgets to adjust the lighter and the matches do not light during their delivery or he adjusts it too frequently, after each lighting for example, and it soon wears out.

The present invention concerns a match dispenser having automatic lighting mechanism tending to obviate the recited drawbacks by the fact that the means for feeding one after the other the matches to their delivery position comprises a piston for moving the matches one by one in a channel under the action of a blade spring tending to apply the head of a match against a rubbing band of the automatic lighting device and by the fact that this rubbing band is driven a certain distance through the rubbing of each match during its delivery.

The drawing shows schematically and by way of example one embodiment of the lighted match dispenser according to the invention.

FIG. 1 is a perspective view of the lighted match dispenser. A match is represented lighted in holding or delivery position.

FIG. 2 is an exploded perspective view of the elements constituting the distributor.

FIG. 3 is a perspective view of the dispenser seen from the other side the lids being removed.

FIG. 4 is an enlarged longitudinal cross-section along line A—A of FIG. 6, a match being engaged in the inlet channel.

FIG. 5 is a fragmentary side view in transverse cross-section along line B—B of FIG. 4.

FIG. 6 is a corresponding plan view of the dispenser.

FIG. 7 is a side view in transverse cross-section of the lighter along line C—C of FIG. 6.

FIG. 8 is an enlarged fragment view in cross-section of FIG. 7 during the engagement of a match head within the opening of the support plate of the lighter.

FIG. 9 shows the FIG. 8 structure viewed from the left.

FIG. 10 is a view similar to FIG. 8, but at the end of the stroke engaging the head of a match in the sloped notch located in front of the rubbing band.

FIG. 11 is a view similar to FIG. 9 but corresponding to FIG. 10.

The lighted matches dispenser shown comprises a casing 1 preferably of parallelepipedic shape with its upper face open and the rear part of which, transversely limited through a support plate 2 of the lighter constitutes the container 3 for the matches 4.

This container 3 comprises a longitudinally sloped bottom in order to obtain a greater height at the location of the heads 5 of the matches 4 which are stacked and transversely sloped to constitute an inclined plan. This inclined plane is laterally connected with a ramp 6 presenting a plurality of transverse grooves 7, having the general shape of a comb. This ramp 6 terminates transversely in a space or channel 8 with respect to the corresponding inside face of the lateral side of the casing 1.

The U shaped channel 8 presents in front of the end face of the ramp 6 and in its middle a restriction *e* permitting the passage of only one match 4 at a time. The two ends of this channel 8 are larger to permit the entering of slightly curved matches.

The lower face of the channel 8 has a height having three different levels extending parallelly the one to the others, comprising a lower level 9 which houses a leaf spring 10, an intermediate level 11 and at its rear end a higher level 12 on which the end of the match 4 rests after its admission into the channel 8.

A piston 13 of rectangular section and of a height lower than the section of a match in order not to act simultaneously on two superimposed matches, is disposed in a longitudinal groove 14 located parallel to the bottom within the thickness of the corresponding lateral side of the casing 1 and in the plane of the higher level 12.

The piston 13 constitutes at the outside a push-button 15, limited in its forward stroke (greater than the length of a match) by the end of the groove 14.

This piston has a length such that its rear end can not be blocked at the end of its stroke by the next match 4 entering in the channel 8 and hindering thus its return stroke.

It is also to be noted that the forward end of the groove 14 constitutes a window 16 in which the piston 13 is inserted during its assembly, whereas a small outside boss 17 on the bottom of the case 1 cooperates with slot 18 of the push-button 15 to avoid its unwanted transverse slipping during its positioning in front of the said window 16.

On the opposite side the bottom of the case there is also a small abutment boss 19 which enters the rear slot 20 of the push-button 15 in order to position its rear position precisely.

During charging, the push-button 15 occupies the rear position, and it suffices to incline transversely the case 1 to cause by slipping on the inclined plane and on the ramp 6 the admission of one or two superimposed matches 4 in the channel 8.

It is also to be seen that the inclination of the casing 1 permits on the other hand, thanks to the slope 21 of the rear inside wall of the case 1, correctly to position the matches 4 in front of the channel 8.

Following the inclined plane and the ramp 6, the casing 1 is extended forwardly by a flat bottom, comprising a transversal groove 22 intended for the coupling of the support plate 2 of the lighter of the lighting device which is slidably mounted between the longitudinal

sides of the case. This plate 2 presents at its base and in front of the channel 8 a squared aperture 23 having a rounded edge, intended to give free passage to the head 5 of the match 4. On the other side a notched drum 24 adequately located with respect to the aperture 23, revolves around a fixed axis 25 and by its underside guides a rubbing band 26 wound on itself and located in a shell or cylindrical chamber 27 having a tangential outlet 28.

The leaf spring 10 located in the lower level 9 of the channel 8 is bent at its rear end to constitute an offset leg 29 which enters by hooking in an aperture 30 crossing the bottom and rests at the outside in a corresponding recess as shown in FIG. 4. On the opposite side the spring 10 crosses freely the squared aperture 23 and rises to ensure a resilient action on the rubbing band 26 guided by the periphery of the drum 24 (FIG. 7).

Thereafter, the rubbing-band 28 leaves through a window 31 in the corresponding longitudinal side of the case 1.

It is also to be noted that in front of the upper part of the squared opening 23 of the plate 2 the inside corresponding face of the longitudinal side of the casing 1 comprises a shaped notch 32 having a V shaped squared section, extending slopingly above the drum 24 (according to line x-y of FIG. 11) and reaches the outside through aperture 33.

This assembly is completed by two sliding lids 34 and 35 which are juxtaposed and the sides of which are bent to form U shaped slides to cooperate with the upper and lateral grooves 36 of the casing. One of the lids 34 of small width covers the lighter assembly, whereas the other lid 35 enables the opening of the casing 1 to fill it. The lid 35 has an elongated aperture 37 located in front of the forward end of the channel 8 to enable to the user to see whether a match is in place.

The operation of the invention is as follows:

The match 4 in the channel 8 is pushed forward by means of the piston 13 fast with the push-button 15 and its head 5, which rests on the leaf spring 10 enters the squared opening 23 of the support plate 2 of the lighter as shown in FIGS. 8 and 9.

The head 5 urged up-wards by the resiliency of the spring 10 presses on the rubbing-band 26 and applies it tangentially on the drum 24 to cause thus through a wedging action against the drum, the entry of the head 5 into the lower part of the squared groove 32.

The pushing effort continuing, the head 5 slides in the sloped profile of the said groove 32 along a sloped longitudinal axis with respect to the axis of the drum 24.

Therefore, the initial resting point of the head 5 on the rubbing band 26, shown by the line a-a in FIG. 10 moves up to the line a-a' corresponding to the end of

the groove 32. This causes on the one hand the circular displacement of the drum 24 through an angle α and on the other hand a progressive narrowing between said groove 32 and the periphery of the drum causing thus by friction the lighting of the head 5 of the match 4.

The rotation of the drum 24 ensures the linear displacement by successive steps of the rubbing-band 26 during each passage of a match, so that it presents always a new portion of band for the next match. The rubbing band is thus automatically driven during the dispensing of each match. The worn part of the rubbing band 26 leaves through aperture 31 and may be torn off and disposed of by the user.

At the end of the stroke of the push-bottom 15, the lighted match comes out of the casing 1 through aperture 33, as shown in FIG. 1 and is held still by the action of the spring 13.

It is to be noted that the next match constitutes an ejector, however, it is possible to manually take out each lighted match.

This dispenser may advantageously be manufactured off plastic material, either in the shape of a small box, or further in the form of a wall dispenser holding a larger quantity of matches.

I claim:

1. A lighted match dispenser, comprising a container for a supply of matches, a drum mounted for rotation on and relative to the container, a band of flexible material trained over the drum and having a surface on which matches may be struck on the side of the band which is opposite the drum, means for moving the matches from said supply of matches one by one through and out of the container to a dispensed position in a direction transverse to the direction of movement of said band over said drum, and means carried by said container for imparting to the head of each advancing match a minor component of movement tangential to the periphery of the drum and for pressing said head against said band and said band against said drum to rotate said drum and to advance said band.

2. A dispenser as claimed in claim 1, said match moving means comprising reciprocating pusher means that engages said matches one-by-one at the end of each match opposite the head.

3. A dispenser as claimed in claim 1, there being a supply of said band rolled up in said container.

4. A dispenser as claimed in claim 1, said container having an opening therethrough for the exit of used portions of said band.

5. A dispenser as claimed in claim 1, the last-named means comprising a portion of the container having a cam surface thereon.

6. A dispenser as claimed in claim 1, the last-named means comprising a leaf-spring pressing the match head against said band on said drum.

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