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R. E. VAN NORSTRAND

2,267,383

CIGARETTE EXTINGUISHER

Filed May 8, 1940

Fig. 1.

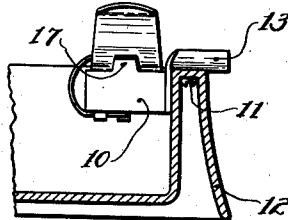


Fig. 2.

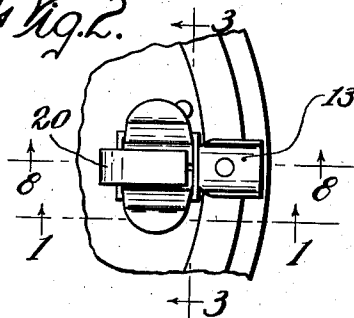


Fig. 3.

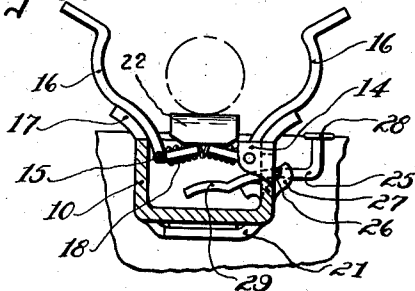


Fig. 4.

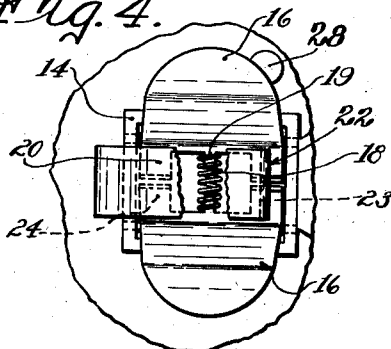


Fig. 5.

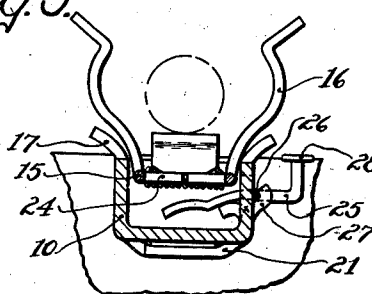


Fig. 6.

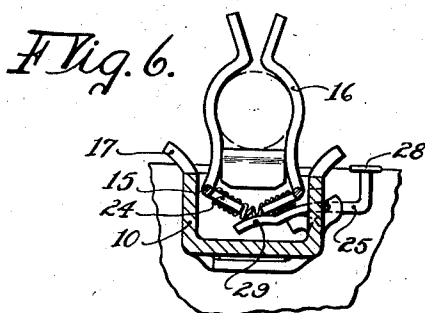
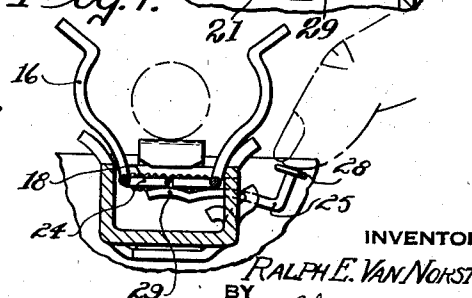


Fig. 7.



INVENTOR

RALPH E. VAN NORSTRAND

BY

Chapin & Neal  
ATTORNEYS

## UNITED STATES PATENT OFFICE

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## CIGARETTE EXTINGUISHER

Ralph E. Van Norstrand, Suffield, Conn.

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13 Claims. (Cl. 131—237)

In the making of ash trays for cigars and cigarettes the problem of providing some automatic means of preventing a burning cigarette falling off the tray if it is left unattended has previously been recognized. Various forms of trays have been proposed in which the cigarette is held by surfaces of sufficient area and heat conductivity so that the combustion will be extinguished when it reaches these members. If these members are properly designed they will extinguish a cigarette automatically before it has burned so short as to be in danger of falling off the tray and causing damage. These devices, however, have the disadvantage that since they do not positively clamp the cigarette they do not inspire confidence in their ability to prevent damage due to a cigarette burning beyond them and then falling off onto the table.

It has also been proposed to provide strips of bimetallic metal to grip the cigarette when the heat causes expansion of the strips. In practice the operation is very much the same as in the first group mentioned since the motion possible in the bi-metallic material is so slight as to make very little difference whether it occurs or not.

In accordance with the present invention a thermosensitive member is provided actuated by the heat of the burning cigarette and serving to trip off other mechanism by which the cigarette is positively gripped. If the clamping action is adjacent the burning portion of the cigarette the clamp itself may serve to put out combustion. In any event the clamp will prevent the cigarette from falling off the tray and when once tripped will continue to hold the extinguished cigarette irrespective of the gradual cooling off of the thermo-responsive element.

The invention will now be described in connection with the accompanying drawing, in which

Fig. 1 is a side elevation of a device embodying the invention taken on line 1—1 of Fig. 2;

Fig. 2 is a top plan view thereof;

Fig. 3 is a section on line 3—3 of Fig. 2 taken on a larger scale;

Fig. 4 is a top plan view also on a larger scale and partly broken away;

Figs. 5, 6, and 7 are views similar to Fig. 3 but illustrating further steps in the operation of the device; and

Fig. 8 is a median section through the mechanism shown in the other figures.

The device is mounted in a box-like structure 10 formed in any suitable way, preferably of

sheet metal and secured as with a screw 11 to an ash tray or other receptacle 12 which forms no part of my present invention. The box portion 10 preferably has a trough-like part 13 which serves as a part of the rest for a cigarette and also has a means for attachment to the ash tray. The box portion 10 has an end portion 14 into which fit pivots 15 formed on clamping members 16. These members have an outer position shown in Fig. 3 in which they are limited in their motion by lugs 17 formed on the box structure and an inner position closely embracing the cigarette as shown in Fig. 6. The clamp members are movable into either of these positions by a compression spring 18 which is mounted upon pins 19 struck up from the clamp members as best shown in Fig. 4. The angle of these pins is such that when the clamp members are in either extreme position the spring tends to keep them there unless the clips are acted upon by some other force. This arrangement is commonly referred to as a toggle spring. The mechanism as thus far described may be opened manually and the clamp will remain in this position until one of them is urged toward the other, when they will automatically snap to the position of Fig. 6.

In the preferred form this automatic operation is started by the action of a bi-metallic strip 20 secured as by straps 21 formed on the bottom of the box member 10 and bent around in the U form shown in Fig. 8. The free end of this bi-metallic strip is bent downwardly as shown in 22 in that figure. In this position the bent portion of the bi-metallic strip lies above a pair of lugs 24 preferably integral with the clamp members 16 and extending toward each other almost to a point of meeting as shown in Fig. 5. The upper portion of the bi-metallic strip is substantially flat so that it forms a rest for the cigar or cigarette and is made with its more expansible metal on the outside of the curve. The result is that, as soon as the burning portion of the cigarette approaches sufficiently near to the strip to heat it, it is caused to bend downwardly, as will be seen by a comparison of Figs. 3 and 5, striking the lugs 24 and causing the spring 18 to snap the clamp members down into the closed position of Fig. 6. In this position the clamp members encircle the cigarette and will thus prevent it from falling out of the ash tray and will extinguish the combustion.

When it is desired to remove a cigarette which has been clamped as described, the clamp mem-

bers may be moved to open position by the fingers and will be retained in that position by the action of the toggle spring. It is preferable, however, to supply a device which may be moved by the mere pressure of one finger to shift the clamp members into open position. In the drawing this device is shown as a lever 25 having a pivot 26 engaged in a hook-like lug 27 formed in the side of the box-like member. This lever has a finger portion 28 and a curved end 29, which as best shown in Figs. 6 and 7 extends underneath the two lugs 24. As the lever is pressed downwardly as indicated in Fig. 7 the lugs 24 will be elevated to a point where the spring 18 will cause the clamp members to be swung automatically to open position and held there until they are again tripped in the opposite direction.

I claim:

1. A clamping device for cigarettes for use on ash trays and the like comprising a support, clamping means pivoted to said support, a spring for moving the clamping means into clamping position, thermo-responsive means for causing actuation of the spring, and means for resetting the clamping means.

2. A clamping device for cigarettes for use on ash trays and the like comprising a support, a pair of clamp members pivoted thereto and movable from an open position to a position embracing a cigarette, toggle spring means positioned to hold said clamping means in either open or closed position, and thermo-responsive means positioned to be heated by the lighted end of a cigarette on said support and movable when so heated to cause actuation of said spring in the latter direction.

3. In a cigar or cigarette clamping device for use on ash trays and the like, a support, a pair of clamp members pivoted thereto and movable from an open position to a position embracing a cigarette, toggle spring means positioned to hold said clamping means in either open or closed position, thermo-responsive means positioned to be heated by the lighted end of a cigarette on said support and movable when so heated to cause actuation of said spring in the latter direction, and means for resetting said spring in its position holding the clamping members in open position.

4. A cigar or cigarette clamping device for use on ash trays and the like comprising a support, a pair of clamping members shaped to embrace a cigar or cigarette and pivoted to said support, said clamping members having pin-like members projecting towards each other, a compression spring located upon said pin-like members, the angular relation of said pin-like members being such that the spring passes from one side to the other of a straight line joining the pivots when the clamping members are turned from open to closed position, a bi-metallic strip secured to the support and bent over into position lying between the clamping members, and abutting members formed on the bi-metallic strip and on the clamping members to cause movement of the spring mechanism beyond the line of centers when the bi-metallic strip is heated by the burning portion of the cigarette.

5. A cigar or cigarette clamping device for use on ash trays and the like comprising a support, a pair of clamping members shaped to embrace a cigar or cigarette and pivoted to said support, said clamping members having pin-like members projecting towards each other, a com-

pression spring located upon said pin-like members, the angular relation of said pin-like members being such that the spring passes from one side to the other of a straight line joining the pivots when the clamping members are moved from open to close position, a bi-metallic strip secured to the support and bent over into position lying between the clamping members, and abutting members formed on the bi-metallic strip and on the clamping members to cause movement of the spring mechanism behind the line of centers when the bi-metallic strip is heated by the burning portion of the cigarette or the like, and lever mechanism operative upon said clamping members to cause the spring means to be swung to that side of the line of pivots in which the clamping members will be held in open position.

6. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a member movable towards a cigarette on the rest, and thermo-responsive means for initiating the movement of said member towards a cigarette on the rest, said member being loosely coupled to the thermo-responsive means to permit continued movement of the member towards the cigarette beyond the movement given by the thermo-responsive means.

7. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a member movable towards a cigarette on the rest, and a bi-metallic strip positioned to be heated by the lighted end of the cigarette and movable when so heated to initiate the movement of said member towards the cigarette, said member being loosely coupled to the bi-metallic strip to permit continued movement of the member toward the cigarette beyond the movement of the member given by the strip.

8. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a member having a curved surface adapted to overlie a cigarette on said rest, a hinge supporting said member for movement from an inactive position to a position overlying the cigarette, and a bi-metallic strip positioned to be heated by the lighted end of the cigarette and movable when so heated to initiate the movement of said member toward the cigarette, said member being loosely coupled to the bi-metallic strip to permit continued movement of the member toward the cigarette beyond the movement of the member given by the strip.

9. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a clamping member, a spring for moving the member into clamping position, and thermo-responsive means for causing actuation of the spring.

10. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a clamping member, a spring for moving the member into clamping position, and a bi-metallic strip positioned to be heated by the lighted end of a cigarette on the rest and movable when so heated to initiate the movement of said member toward the cigarette, said member being loosely coupled to the bi-metallic strip to permit continued movement of the member toward the cigarette under the influence of the spring and beyond the movement of the member given by the spring.

11. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a clamping member, a spring stressed to move the member into cigarette clamping position, and

thermo-responsive means positioned to be heated by the lighted end of a cigarette on the rest and movable when so heated to release the member for movement toward the cigarette under the influence of the spring.

12. An extinguishing device for use on ash trays and the like comprising a cigarette rest, a clamping member, a spring stressed to move the member into cigarette clamping position, and a bi-metallic strip positioned to be heated 10 by the lighted end of a cigarette on the rest and movable when so heated to release the member for movement toward the cigarette under the influence of the spring.

13. A clamping device for cigarettes for use on ash trays and the like comprising a support, a pair of clamp members pivoted thereto and movable from an open position to a position embracing a cigarette, toggle spring means positioned to hold said clamp members in either open or closed position, and a bi-metallic strip positioned to be heated by the lighted end of a cigarette on said support and movable when so 5 heated to move said toggle spring means beyond its dead center position to cause said means to move the clamp members to closed position.

RALPH E. VAN NORSTRAND.