ABSTRACT: Rotary timing discs used in aerosol dispensers, particularly discs having adjustable time increment lugs mounted in their periphery, so as to contact a limit switch, or the like. As the disc rotates, the lugs contact the limit switch, activating an electrical circuit, which dispenses the aerosol bomb at the preselected time interval.
ROTARY TIMING DISC

CROSS-REFERENCE TO RELATED APPLICATIONS

The present rotary timing disc may be used with an aerosol dispenser of the type described in applicants' AEROSOL DISPENSER (application Ser. No. 71,055, filed Sept. 16, 1970).

BACKGROUND OF THE INVENTION

1. Field of the Invention

In the aerosol dispensing art, a great deal of recent attention has been given to automatic dispensing devices which are used to activate the aerosol bomb at predetermined time intervals and for a given period of time. For example, the aerosol dispensing device may be set in a warehouse or the like for activation of the aerosol bomb at 6-hour intervals, so as to disperse the desired insecticide. Such devices are, also, used in restaurants and the like to disperse deodorants, as well as insecticides.

2. Description of the Prior Art

Prior art investigations has developed the following U.S. Pats: to Brown, No. 3,228,562; Brown, No. 3,331,534; Mangel, No. 3,411,670.

Brown's U.S. Pat. No. 3,228,562 timing gear 43 has upwardly extending lobes 51 with corresponding downwardly extending undercut 53 (FIGS. 1, 3, and 6).

In FIG. 3, undercut 53 is shown as it depresses actuating element 57. Brown, U.S. Pat. No. 3,331,534 employs similar lobes on his timing gear and in FIG. 4 illustrates the engagement of cam 51 with tabs 52 on the large gear surface. Mangel is another type of upper and lower cam follower in an automatic dispensing device.

Each of these devices is relatively complex and is not adaptable to plastic manufacture nor ready adjustability of the time selection increments.

SUMMARY OF THE INVENTION

According to the present invention, a plastic molded or like disc is provided with a plurality of radially disposed slots intersecting its periphery, a central hub defining an aperture for a rotary shaft, and a plurality of locking apertures defined in said disc intermediate the radial slots and the hub. Pairs of aligning guides are positioned adjacent the locking apertures so as to define locking channels extending from the radial slots at the periphery inwardly towards the hub. The time increment lugs have a vertically extending baffle which is engageable with the radial slots at the periphery and a pair of clothespinlike arms which extend over and under the timing disc. The top arm fits into the pair of aligning guides and may include a downwardly extending stud which engages the locking aperture. The time increment lug is of plastic manufacture and, therefore, may fit snugly and resiliently on the timing disc, yet be readily removed from one aperture to the other as the time setting is varied.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the timing disc, showing the time increment lugs positioned in the 1:00 and 8:00 positions.

FIG. 2 is a front elevation of the clothespinlike time interval lug.

FIG. 3 is a transverse section, taken along section line 3-3 of FIG. 1, showing the time interval lug in place upon the timing disc.

In FIG. 1, timing disc 10 is illustrated as having a plurality of radially extending slots 14 intersecting its periphery 12 and a plurality of corresponding locking apertures 15 aligned with slots 14. Pairs of aligning guides 18 and 19 define a channel 16 which is aligned with the radial slots 14 and the locking aperture 15.

In FIG. 2, the adjustable time interval locking elements 20 are illustrated as comprising vertically extending vane 32 and a pair of clothespinlike arms 22 and 26. Top arm 22 may have a pointed or beveled end 28 and a downwardly extending locking stud 24. Bottom arm 26 may have a corresponding bevel tip 30.

As illustrated in FIG. 3, the time interval lug is locked into the timing disc by the vane 32 engaging the peripheral slot 14 at right angles and the arms 22 and 26 extending, respectively, over the top surface and bottom surface of the timing disc 10. Top arm 22 extends between guides 16 and 19, such that locking stud 24 extends into the locking aperture 15. As a result, there is a firm fit of the timing lug at the desired increment.

The timing disc may include an axial hub 40, defining aperture 42 for the entry of a rotary drive shaft and a set screw aperture 44 so as to lock the shaft in place.

In FIG. 1, time interval lugs 20 are indicated as positioned at the 1:00 and 8:00 apertures. However, they may be positioned in all or any of the various slots, as desired. Extraordinary time-setting versatility is provided. For example, the lugs may be set to program the disc for firing several times in succession and then will not fire for the remainder of the day.

Manifestly, the configuration of the timing lugs, as well as the radial slots and locking apertures, may be varied without departing from the spirit of the invention.

We claim:

1. A rotary timing disc comprising:
A. a circular disc having:  
  i. a plurality of radially disposed slots intersecting its periphery;  
  ii. a central hub defining an aperture for a rotary shaft;  
  iii. a plurality of pairs of aligning guides positioned upon said disc inwardly of and aligned with said slots, each said pair defining said slot extension;  
  iv. at least one lug member secured in said slots and said aligning guides and including:  
    i. a vertical baffle engaging said slot; and  
    ii. a top resilient arm extending inwardly between said aligning guides on the top of said disc and a bottom resilient arm engaging the bottom of said disc.

2. A rotary timing disc comprising:
A. a circular disc having:  
  i. a plurality of radially disposed slots intersecting its periphery;  
  ii. a central hub defining an aperture for a rotary shaft;  
  iii. a plurality of locking apertures defined in said disc intermediate said slots and said hub and aligned therewith;  
  B. a plurality of pairs of aligning guides positioned upon said disc inwardly of and aligned with said slots, each said pair defining a slot extension aligned with said radially disposed slots;  
  C. at least one lug member engaging one of said radially disposed slots and one of said pairs of aligning guides and including:  
    i. a vertical baffle engaging one of said peripheral slots, so as to extend above and below said one slot; and  
    ii. a top resilient arm engaging one of said peripheral slots, so as to extend above and below said one slot; and  
  D. a rotary timing disc as in claim 2, said adjustable lug having a clothespin profile with the opposed inner ends of said top and bottom arms being rounded, as an assistance in engaging said timing disc.

4. A rotary timing disc as in claim 3, the top arm of said adjustable lug having a downwardly extending stud engageable with one of said locking apertures.

5. A rotary timing disc as in claim 4, said circular disc including a raised hub defining a rotary shaft aperture.

6. A rotary timing disc as in claim 5, said raised hub including a set screw aperture for locking of the hub to the rotary shaft.

7. A rotary timing disc as in claim 6, wherein the forward part of said baffle locks into said slot, and said arms engage the top and bottom of said timing disc.
3. In a rotary timing disc of the type having timing increments positioned adjustably at its periphery, the combination of:
A. at least one timing lug having a vertical baffle portion and horizontally extending top arm and bottom arm spaced with respect to each other so as to engage the top and bottom of said disc; and
B. a plurality of slots and alignment channels radially aligned in said disc, so as to support said timing lugs.

4. A rotary timing disc as in claim 3, including locking apertures defined in said disc within said alignment channels and said timing lugs having stud means engageable with said locking apertures.

5. A rotary timing disc as in claim 3, said top and bottom arms being resilient.

11. A rotary timing disc as in claim 3, said lug being of plastic construction.

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