June 10, 1958 L. F. HALLING ET AL 2,837,907

CIGARETTE CASE TIME LOCK DEVICE

Filed May 18, 1955 2 Sheets-Sheet 1

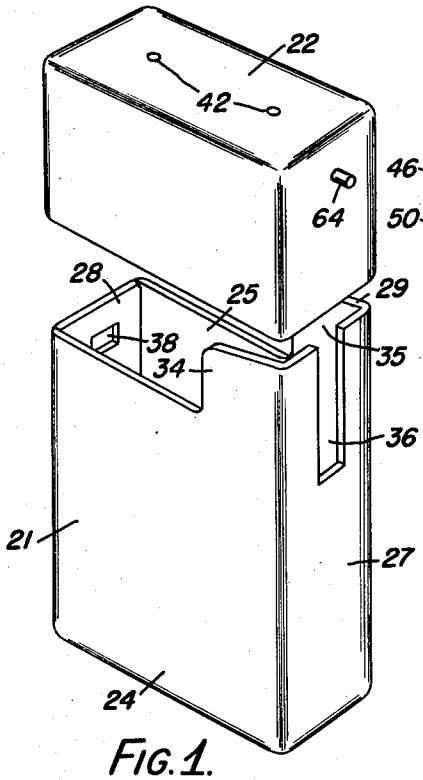


FIG. 1.

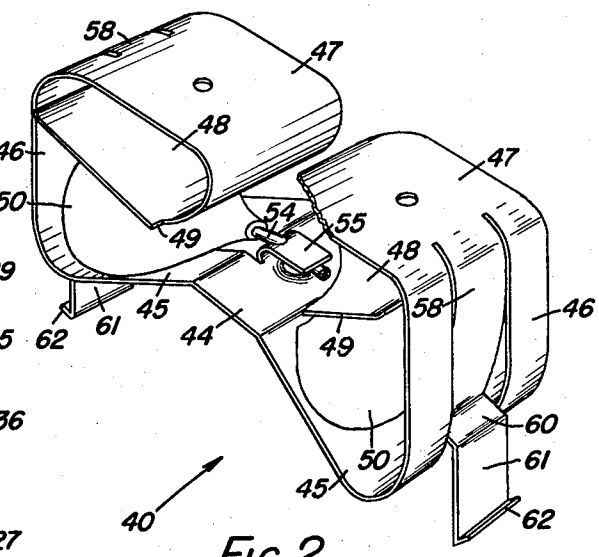


FIG. 2.

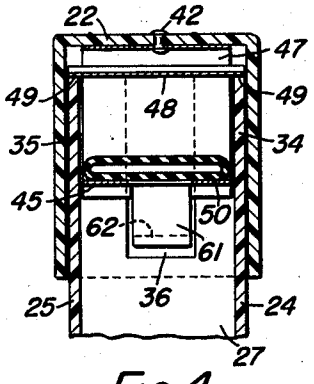


FIG. 4.

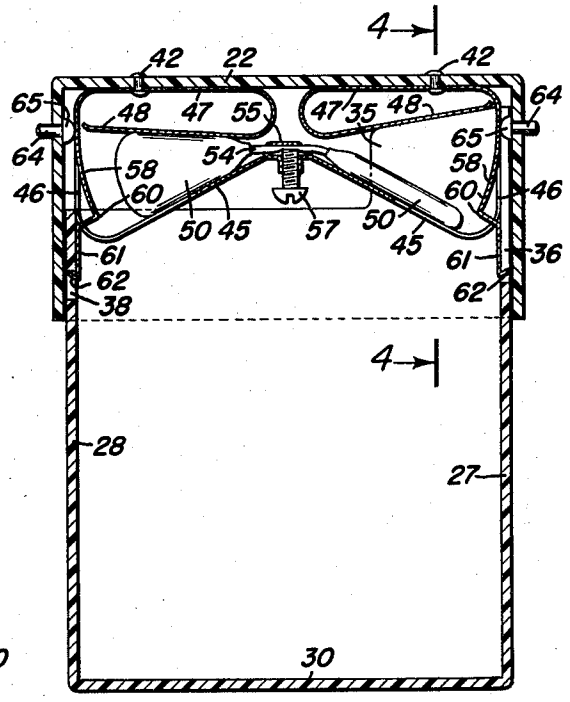


FIG. 3.

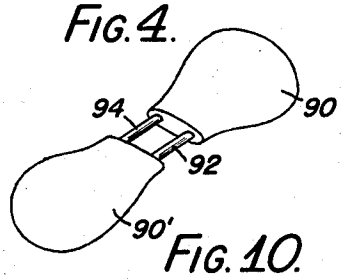


FIG. 10.

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CIGARETTE CASE TIME LOCK DEVICE

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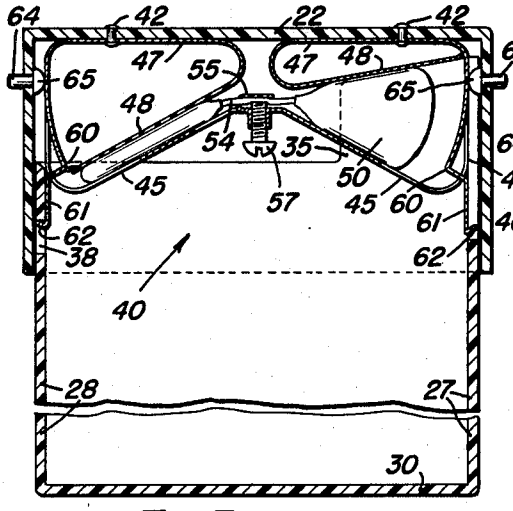


FIG. 5.

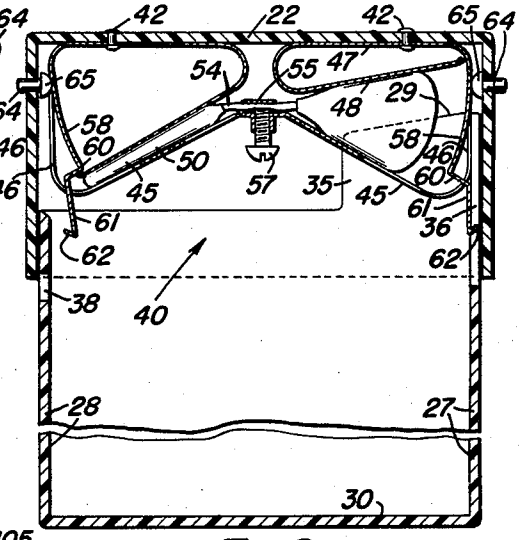


FIG. 6.

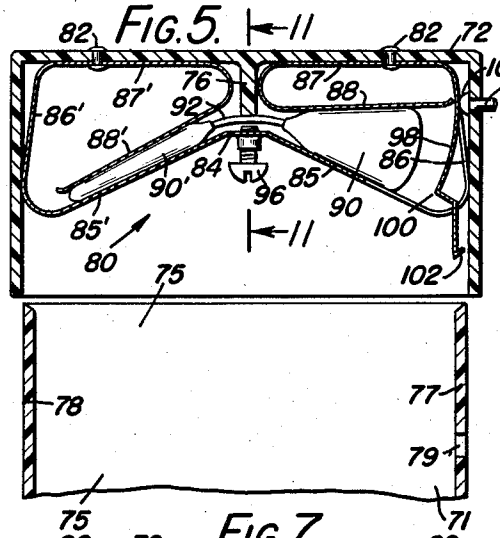


FIG. 7.

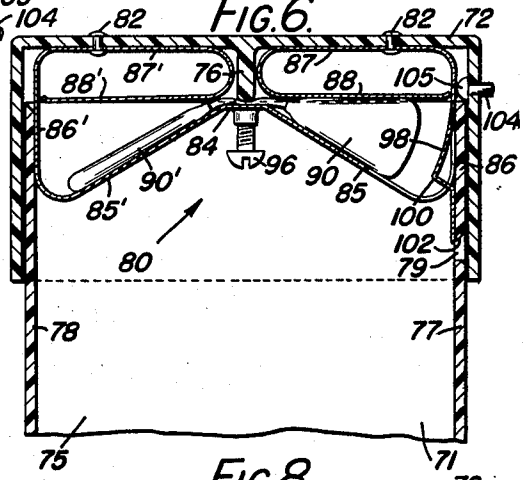


FIG. 8.

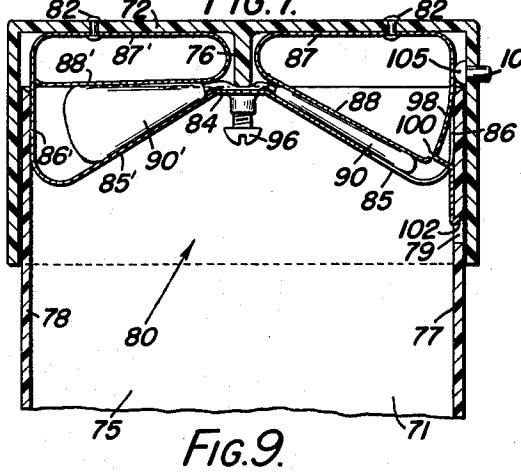


FIG. 9.

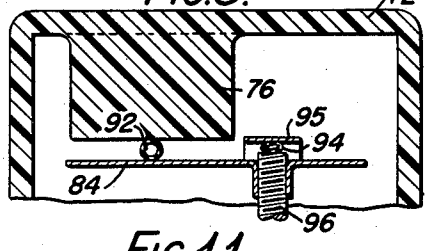


FIG. 11.

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CIGARETTE CASE TIME LOCK DEVICE

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Application May 18, 1955, Serial No. 509,242

3 Claims. (Cl. 70—267)

The present invention relates generally to cigarette cases and more particularly to a cigarette case having timing means for regulating the intervals at which the case may be opened.

At the present time, there is considerable concern over the adverse effects caused by the smoking of cigarettes. Many medical authorities consider that excessive cigarette smoking is injurious to the smoker's health. On the other hand, many of the same authorities also agree that cigarette smoking is not harmful to health if used in moderation.

The primary problem with the moderate use of tobacco, and particularly cigarettes, is the inability of the average smoker to properly regulate his smoking habit so that he will only smoke a certain number of cigarettes in a given period of time, such as a day. For instance, if a smoker decides to smoke only a dozen cigarettes a day, he will have to limit himself to less than one cigarette per hour. If he inadvertently smokes several cigarettes in a short period of time, such as in the hour after breakfast, then his late morning, afternoon and evening smoking will have to be greatly curtailed, or else the smoker will have to raise his quota of cigarettes for that day.

One object of the present invention is to provide means with which a smoker can easily regulate the number of cigarettes which he will smoke in a given period of time.

Another object of this invention is to provide a cigarette case having a time-lock incorporated therein so that, after the case has been opened, a cigarette removed, and then closed again, the case is locked and closed and cannot be reopened for the removal of another cigarette until a predetermined period of time has elapsed.

A further object of this invention is to provide a cigarette case having a time-lock which can be quickly and easily adjusted to set its timing interval.

Still further objects of this invention are to provide a cigarette case having a time-lock mechanism of simple construction, so that the case and time-lock can be manufactured in volume at low cost.

Other objects of this invention will be apparent hereinafter from the specification and from a the recital of the appended claims.

In the drawings:

Fig. 1 is a perspective view of the body and cover of a cigarette case constructed according to one embodiment of this invention;

Fig. 2 is a perspective view, on an enlarged scale of the time-lock mechanism used in this case for locking the cover to the case body, a part of the spring strap forming the catch of this time-lock being broken away to show more clearly the timing bladder, the parts being shown in positions similar to that shown in Fig. 3;

Fig. 3 is a vertical section taken mid-way through the cigarette case showing the cover locked to the case body, and showing the time lock at the start of its timing cycle;

Fig. 4 is a section taken on the line 4—4 of Fig. 3, looking in the direction of the arrows, and illustrating how

the timer is automatically set in operation when the cover is placed on the case body;

Fig. 5 is a section similar to Fig. 3 but showing the time-lock in releasable position at the end of its timing cycle;

Fig. 6 is a similar section showing the time-lock unlatched from the case body and the cover partially removed;

Fig. 7 is a fragmentary, vertical section taken midway through a cirgarette case and its cover, the cover being provided with a time-lock mechanism constructed according to another embodiment of this invention, and the cover being shown removed;

Fig. 8 is a fragmentary, vertical section through this cigarette case and cover, the cover being shown mounted on the case and with the timing mechanism at the start of its timing cycle;

Fig. 9 is a view similar to Fig. 8 but showing thhe timer at the end of a working cycle;

Fig. 10 is a perspective view of the bladders used in this second form of time-lock mechanism and the dual hoses which connect them; and

Fig. 11 is a section taken on the line 11—11 of Fig. 5 and looking in the direction of the arrows.

Referring now to the drawings by numerals of reference and first to the embodiment shown in Figs. 1–6 inclusive, **21** denotes the body or bottom portion, and **22** the top or cover of a cigarette case made according to one embodiment of the invention. The two parts of the case may be made of plastic, aluminum or some other light, easily fabricated material. The body **21** is adapted to receive and hold a full pack of cigarettes in the original package, but the package will be torn open at the top to permit access to the cigarettes.

The body **21** of the case has a forward wall **24**, a rear wall **25**, two side walls **27** and **28** and a bottom wall **30**. The side wall **28** is of reduced height as compared to side wall **27**; and the front and rear walls **24** and **25** are of the same height as wall **28** for the major portions of their widths and for the rest **34** and **35** of their widths are of considerably greater height, rising to the height of the wall **27**. The top edges **29** of the higher portions **34** and **35** of walls **24** and **25** are inclined downwardly at a slight angle from the top of side wall **27**. The top edges of wall **28** and of the major portions of walls **24** and **25** are parallel to base **30**.

Side **28** of the cigarette case body has a small, rectangular keeper-hole **38** therein. Side **27** has an elongate vertical slot **36** therein, extending downwardly for a considerable portion of the height of the body as clearly shown in Fig. 1.

The cover or closure **22** of the case fits snugly over case body **21**. Inside it is mounted a time-lock mechanism **40** (Fig. 2) which is connected to the top of the closure by rivets **42**. The frame of the time-lock mechanism is made from a single strip of spring strap metal. The strip is formed with a horizontal central portion **44**, and is bent downwardly at opposite sides of the central portion **44** to form downwardly inclined base portions **45**, is then bent upwardly to form sides **46**, then inwardly to form top portions **47** and finally is bent downwardly and inwardly to form pressure spring arms **48**. The width of the timer frame is approximately equal to the space between walls **24** and **25** of body **21** except that the spring arms **48** have outwardly projecting ears or tabs **49** (Figs. 2 and 4) which are adapted to project over the walls **24** and **25** of the body portion of the cigarette case so that they may rest on the top edges **29** of the walls. The width of the timer frame measured at the tabs **49** is, however, less than the distance inside cover **22** between its front and rear walls so that the cover may readily be

placed on and removed from the body portion of the case.

Interposed between the spring portions 48 and the base portions 45 of the frame are two bladders 50. These bladders, which are made of rubber, plastic, or some other flexible, water-tight material, are connected to each other through a flexible tube 54. The bladders are filled with a liquid, such as alcohol or water, which is adapted to pass from one bladder to the other bladder through the tube 54. As will be described hereinafter, the time required for the liquid to flow from one bladder to the other is utilized to control the time-locking of the closure 22 on body 21 of the cigarette case. One bladder is filled when the cover is put on the body of the case; and until that bladder is emptied by flow of the liquid from that bladder to the other through tube 54, the cover cannot be removed from the case, as will be described further hereinafter.

Tube 54 passes beneath a tab 55 formed by striking up and reversely bending a strip from the central portion 44 of the timer frame (Fig. 2). Tab 55 is provided with a small hole through which the tube passes. An adjustable, regulating screw 57, that threads into the central portion 44 of the timer frame, is adapted to squeeze tube 54 against tab 55 to regulate the rate of flow of the liquid from one bladder to the other. Therefore, merely by tightening up on screw 57 or loosening it, the rate at which liquid may flow through the duct can be easily regulated.

The sides 46 of the time-lock frame are slightly spaced from the adjacent sides of cover 22 (Figs. 3, 5 and 6). Each side 46 is slit to provide a flexible arm 58. The arms 58 are formed so that in their upper portions they tend to curve inwardly relative to sides 46, then they are bent sharply outwardly as denoted at 60 and then downwardly at 61; and each arm terminates in an upwardly directed catch portion 62. Each arm 58 tends resiliently to move outwardly. The catches 62 are adapted to be engaged alternately in hole 38 to lock the cover 22 to body 21 of the case.

Closure or cover 22 carries a pair of release pins 64 which are mounted to slide through opposite side walls of the closure. Each pin 64 has an enlarged rounded head 65 at its inner end which engages one of the arms 58 so that it is normally pressed outwardly. By pressing a pin inwardly, however, the associated arm 58 may be pressed inwardly to release associated catch 62 providing the associated bladder 50 will permit release of the catch as will be described below.

The manner in which the timing mechanism operates can be seen from Figs. 3–6.

Assuming that an opened pack of cigarettes has been placed in the body portion 21 of the cigarette case, the closure 22 is oriented relative to the body 21 so that the bladder 50, which, at the time is full of liquid, is at the side of the body which contains keeper-hole 38, and then the cover is pushed onto the body. Assuming that the keeper-hole 38 is at the left as shown in Fig. 3, then the cover 22 will be positioned so that its full bladder 50 is also at the left as shown in this figure. As the closure is pressed downwardly over body 21, the catch 62, which is at the left, will ride down over the upper edge of wall 28 which may be sloped inwardly as shown, and when the catch 62 registers with the keeper-hole 38, it will snap into that slot, locking the cover 22 to body 21. The catch 62 at the right hand side of the timer frame at this time, however, is not in engagement with body 22 for it is in slot 36 of wall 27. The downward movement of closure 22, however, does cause the upper edges 29 of portions 34 and 35 of walls 24 and 25 to engage the projecting tabs 49 of spring arm 48 at the right of the timer frame (Figs. 3 and 4) and forces this spring arm upwardly to the position shown in Fig. 3.

Fig. 3 shows the cover 22 locked to the body 21 of the case. When the parts are in the positions shown in this figure, the catch 62 at the left, which is in locking position, cannot be released, for spring arm 48 is long enough to prevent the user from pushing the left-hand spring-arm 58 inwardly far enough to disengage this catch. Spring arm 48 at the left presses continuously downwardly on the associated bladder 50 at the left, however, and gradually forces the liquid contained in this bladder from this bladder through tube 54 and into the other bladder 50 at the right. The rate at which the liquid will flow from the left-hand bladder to the right-hand bladder will depend upon the bore of the tube 54 and the adjustment of screw 57.

As long as there is sufficient liquid in the left hand bladder 50 to hold left-hand spring-arm 48 above the ledge portion 60 of the left-hand catch-arm 58, closure 22 will be locked on body 21. This catch cannot be disengaged by pressing left-hand button 64 inwardly until the extreme end of left-hand spring drops below ledge 60 of the left-hand catch arm.

As the liquid flows from the left hand bladder to the right hand bladder, however, left hand spring arm 48 gradually moves downwardly. When the left hand spring arm 48 has dropped below the ledge portion 60 (Fig. 5) of the left-hand catch arm 58, the left hand pin 64 may be pressed inwardly by the user to disengage catch 62. Then the cover 22 may be lifted off the body 21 (Fig. 6) to permit removal of a cigarette from the case. Fig. 5 shows the left-hand spring arm 48 just about to reach a position where the left-hand pin 64 can be pressed to disengage left-hand catch 62. Fig. 6 shows the cover being lifted off body 21.

After extracting a cigarette, the smoker turns closure 22 180° to shift the now full bladder at the right to the left. He then places the closure on body 21 and presses it downwardly until the catch 62, which was previously at the right, but which is now at the left, engages slot 38. Now, once again, the cover may not be removed until the liquid passes from the left to the right hand bladder. The time required for the flow of liquid from the left hand to the right hand bladder again determines when the cover may be removed to permit the smoker access to a cigarette.

It will thus be seen, that a positive control is exercised over the smoker, limiting his consumption of cigarettes. If a smoker wishes to smoke, for example, one cigarette per hour he merely adjusts screw 57 to set the proper rate of flow of the liquid from one bladder to the other so that the cover cannot be removed from the case, once it has been locked thereon, until an hour has expired. Other time intervals can be set by other adjustments of the screw 57. The proper timing cycle can readily be obtained by a little experiment.

In the embodiment of the invention shown in Figs. 7–11 turning of the cigarette case closure 180° after each opening of the case is rendered unnecessary. For the timing operation, liquid passes from one bladder to another in the same manner as previously described. However, when the closure of the case is removed, the liquid is fast-fed back to the bladder in which it was originally contained. It is this feature which obviates turning the closure 180°.

In this embodiment of the invention, the walls of the body portion 71 of the case are all of the same height. The rear wall of the body is denoted at 75 and the two side walls are designated 77 and 78, respectively. Wall 77 has a small catch-slot or keeper-hole 79 therethrough.

Case body 71 has a closure 72 which fits snugly onto it. Closure 72 is similar to closure 22 previously described except that it has an integral, central depending portion 76 (Fig. 9) which serves a purpose hereafter described.

A time-lock mechanism 80 is mounted in closure 72, being connected thereto by rivets 82. The frame of the time-lock is made from a single strip of spring strap metal formed with a horizontal central portion 84. At opposite

sides of portion 84 the strip is bent downwardly to form base portions 85, 85' then bent upwardly and slightly inwardly to form sides 86, 86', then bent inwardly again to form top portions 87, 87', and finally bent downwardly and inwardly to form spring arms 88 and 88'.

The timer frame has a width slightly less than the space between the front and rear walls of the cigarette case body 71, except for its spring arm 88' which is formed with laterally projecting tabs (not shown), like tabs 49 of the first-described embodiment of the invention, which are adapted to engage the top edge of the case body when closure 72 is in place on the body.

Interposed between the spring arms 88 and 88' and the respective base portions 85 and 85' associated with the two arms are bladders 90 and 90'. These are connected to each other by parallel tubes 92 and 94 (Fig. 10), one of which, 92, serves as a fast-return duct and, the other of which, 94, serves as a timing-duct.

Tube 94 passes beneath a tab 95 formed by upwardly and inwardly turning a part of central portion 84 of the timer frame (Fig. 11). A screw 96 is adjustably threaded into central portion 84 to engage tube 94. The tube is thus squeezable between screw 96 and tab 95; and by tightening or loosening the screw the rate at which liquid may flow through this tube can be regulated.

Tube 92 is interposed between the surface of central portion 84 of the timer frame and depending lug 76 of the closure.

As shown in Fig. 7, the sides 86, 86' of the timer frame engage the adjacent sides of closure 72. Side 86 is slit, like the sides 46 of the first described embodiment of the invention, to form a spring arm 98. The arm 98 is formed in a manner similar to arms 58, of the first-described embodiment and has an angular ledge portion 100, and a catch 102 at its free end.

Closure 72 carries a release pin 104 which is mounted in a hole in one side wall of the closure and is slidable therein. Pin 104 has a head portion 105 on its inner end which engages arm 98.

The manner in which the closure 72 is time-locked to body 71 of the cigarette case will now be described.

When the closure 72 is removed from body 71 the parts of the timing mechanism are as shown in Fig. 7. As soon as the cover 72 is lifted away from the body 71, the spring arm 88' is freed to exert its pressure on bladder 90'. Spring portion 88' is made stronger than spring portion 88, and therefore exerts a greater pressure on bladder 90' than does spring portion 88 on bladder 90. If the cover 72 is held in the user's hand a few seconds, then bladder 90 becomes full of liquid and bladder 90' at the left, is substantially emptied.

The upper case or closure 72 is adapted to be mounted on the lower case 71 with the side which carries release pin 104 in register with that side of the lower case 71 that has catch-slot 79. As the closure is pressed downwardly on the case body, the upper edge of the lower case first engages the catch 102 and causes the spring catch arm 98 to be sprung inwardly. Then, top edges of the sides of the lower case engage sides 86 and 86' of the timer frame and force them inwardly from the position shown in Fig. 7 to the positions shown in Fig. 8. This inward movement of sides 86 and 86' causes central portion 84 to be sprung upwardly. This action pinches hose 92 tightly between portion 84 of the timer frame and depending member 76 of the closure, closing off hose 92. The upper edge of the lower case also engages the lateral, projecting edges of spring member 88' and forces this spring member upwardly, to relieve the pressure on bladder 90' (Fig. 8). When the closure 72 is fully seated on the lower case catch 102 snaps into engagement with catch-slot 79 to lock the cigarette case closed. Spring portion 88 now holds arm 98 against inward movement, and until arm 88 moves down below ledge 100, release pin 104 cannot be pressed in to unlatch catch 102.

Since bladder 90' is no longer being compressed by spring portion 88' and since spring portion 88' is now held in its upper position (Fig. 8), seated on the upper edges of the case, spring portion 88, which is narrow enough to pass between the front and rear walls of the lower case, acts against bladder 90 and forces the liquid contained therein through duct 94 and into bladder 90'. The rate at which the liquid will be transferred from bladder 90 to bladder 90' is regulated by the bore of tube 94 and by adjustment of screw 96. When sufficient liquid has been transferred from bladder 90 to bladder 90' for spring portion 88 to pass ledge 100 of arm 98, pin 104 may be pressed in to force catch 102 out of slot 79 and unlock closure 72.

When closure 72 is removed in order to remove a cigarette from the body of the cigarette case, sides 86 and 86' of the timer frame spring back into engagement with the side walls of the closure. As this occurs, central portion 84 of the timer frame drops to the position shown in Figs. 7 and 11, opening duct 92. Spring portion 88', which is no longer held up by the top edge of the lower case, and which has much greater strength than spring 88, then acts upon bladder 90' subjecting it to a compressing force. The liquid in bladder 90' is thus fast-fed through now-open duct 92 and back into bladder 90. In just a matter of seconds, the timing mechanism switches from the end-of-cycle position shown in Fig. 9 back to the beginning of the cycle position shown in Fig. 7. Therefore, in the time required to remove a cigarette from the case, the liquid is transferred back to bladder 90. When the closure is again placed on the case, then, the device is ready for another cycle.

From the foregoing, it can be seen that applicant has provided a cigarette case having a timing mechanism of relatively simple construction which, therefore, can be manufactured at low cost. Further, applicant's invention provides a simple means by which a smoker can regulate his or her smoking habits.

While this invention has been described in connection with two different embodiments thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention, following, in general, the principles of the invention and including such departures from the present disclosure as come within the limits of the appended claims.

Having thus described our invention what we claim is:

1. A container, a closure for said container, a detent for releasably locking said closure to said container, and means preventing release of said detent until elapse of a predetermined time interval, comprising a bladder adapted to be filled with a liquid, a second bladder, a duct connecting the two bladders so that liquid may flow from one to the other, means controlling the rate of such flow, and a spring member constantly pressing on the first-named bladder, and having a portion which will prevent release of said detent until a predetermined amount of liquid has flowed from the first bladder to the second.

2. A container, a closure for said container, a detent releasably locking said closure on said container, and means for preventing opening of said closure until a predetermined time has elapsed, comprising a pair of bladders adapted to be filled with liquid, a pair of ducts connecting said bladders, a timing spring operable against one of said bladders to force liquid out of said one bladder through one of said ducts into the other bladder, a return spring operable against the other of said bladders to force the liquid out of said other bladder through the other duct into said one bladder, said return spring having a force greater than said timing spring, means for closing off said other duct and for moving said return spring to inoperable position when said closure is mounted on said container, said timing spring preventing release of said detent until a portion of the liquid

has passed from said one bladder to said other bladder, said return spring being operative to rapidly return said liquid to said one bladder through said other duct when said closure is opened, and means for regulating the rate of flow of liquid from one bladder to the other.

3. A container, a closure for said container, a detent for releasably locking said closure to said container, and means for preventing release of said detent until a predetermined time interval has elapsed, comprising a pair of bladders adapted to be filled with liquid, a duct connecting said bladders, a pair of springs normally operable to press against said bladders, means on said container for moving one of said springs to inoperative position when said closure is in container-closing position, the other of said springs thereupon forcing liquid from the associated bladder and into the other bladder, said other spring being positioned so as to interfere with and prevent movement of said detent to released position

until a predetermined amount of liquid has flowed into said other bladder, and means for regulating the rate of flow of liquid.

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