

April 20, 1954

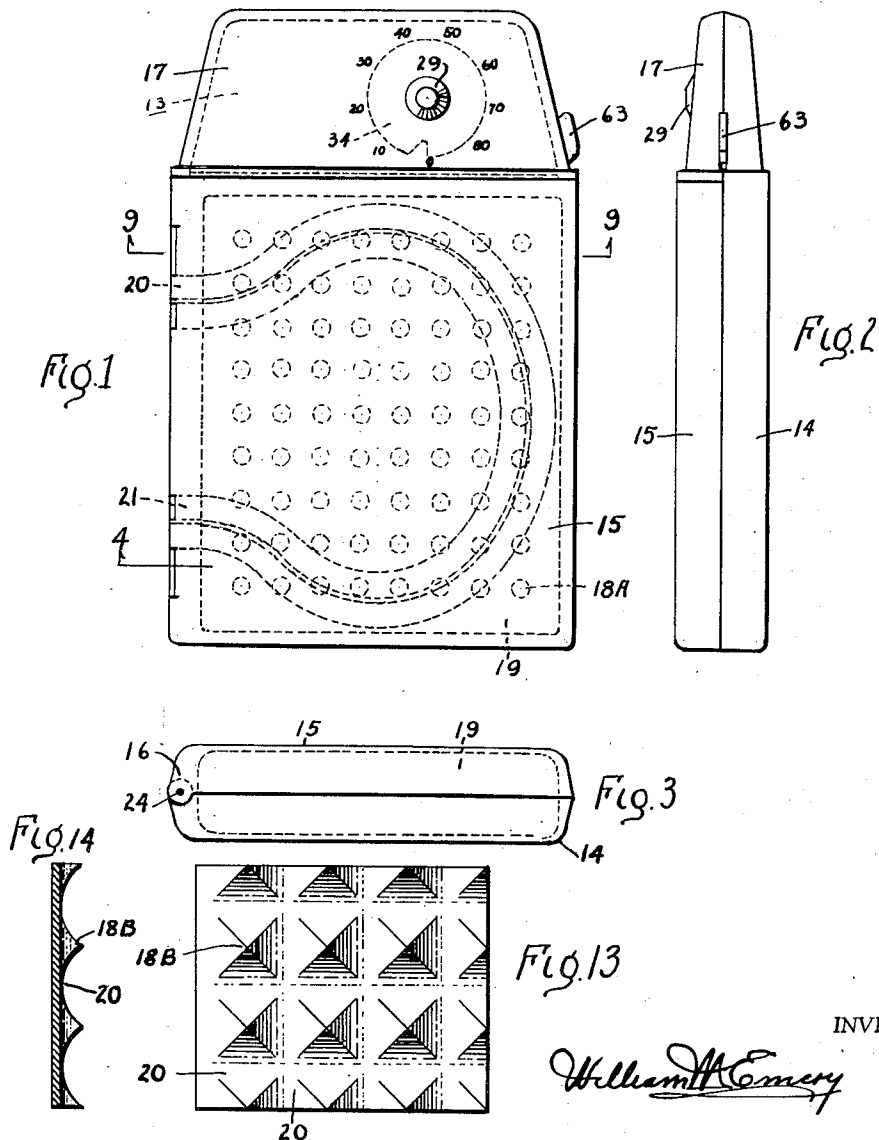
W. M. EMERY

2,675,693

TIME LOCKED CASE FOR CIGARETTES, ETC

Filed Sept. 10, 1949

3 Sheets-Sheet 1



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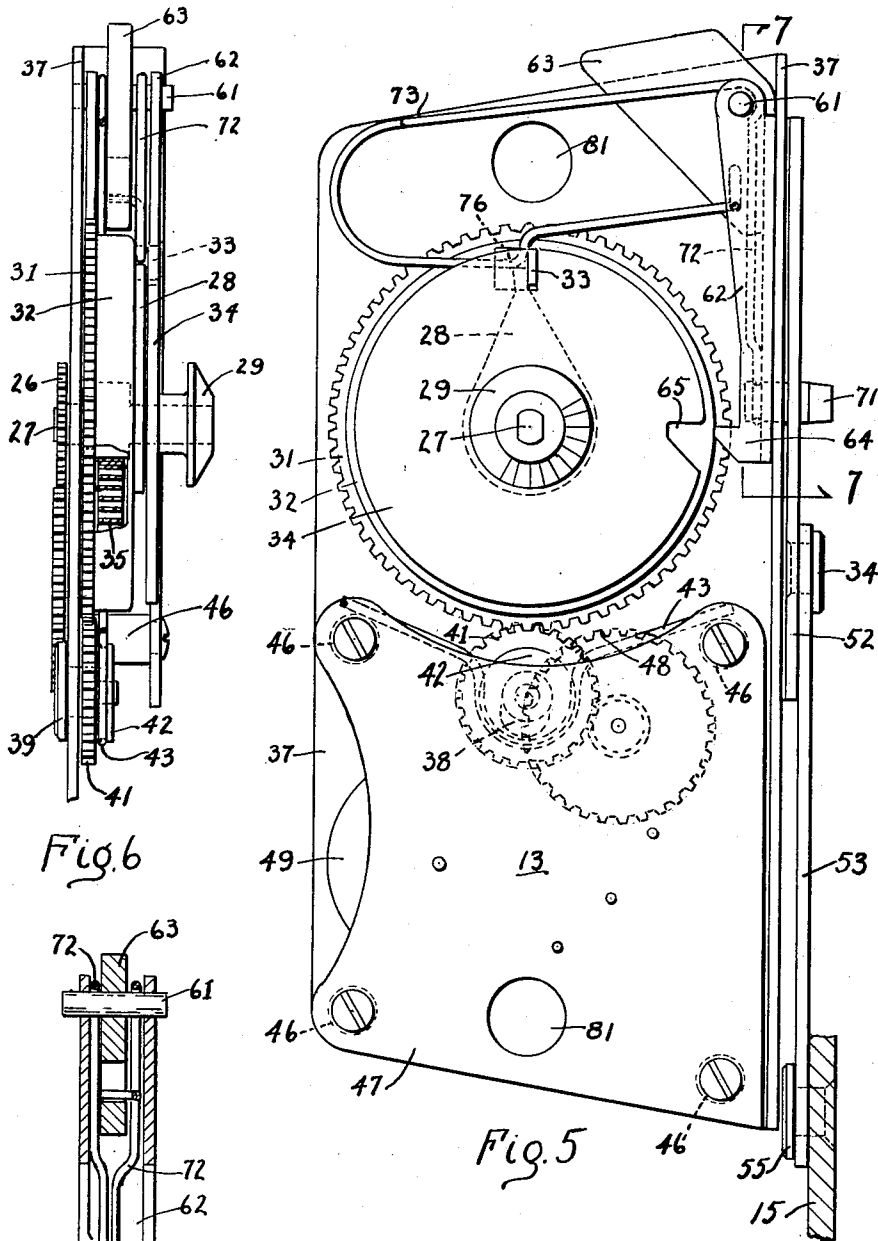
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3 Sheets-Sheet 2



INVENTOR.

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April 20, 1954

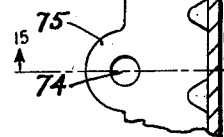
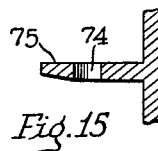
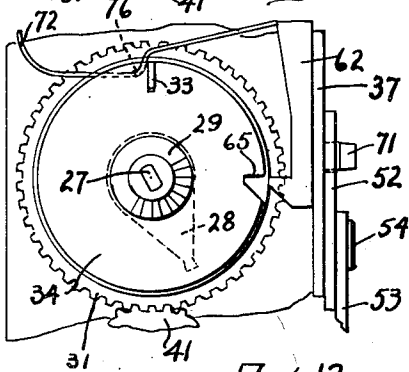
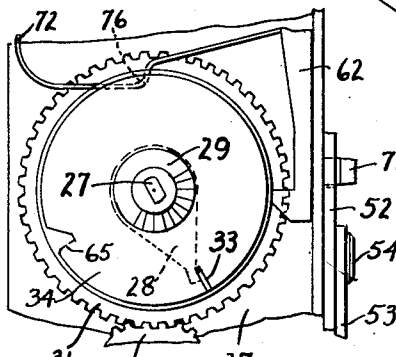
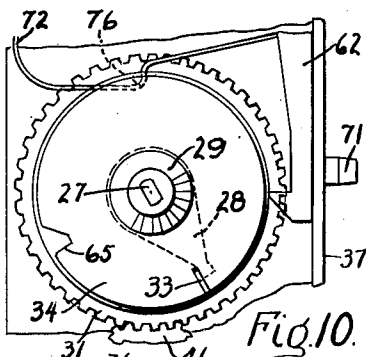
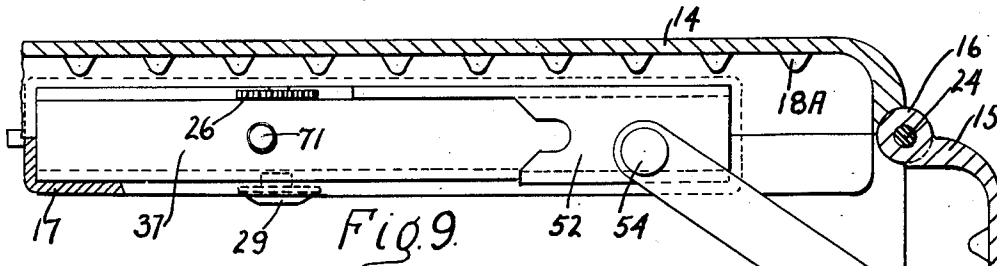
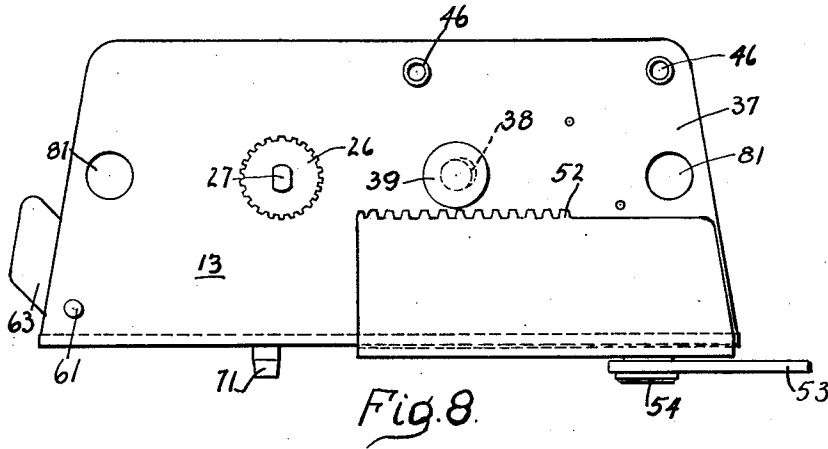
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,675,693

TIME LOCKED CASE FOR CIGARETTES, ETC.

William M. Emery, Summit, N. J.

Application September 10, 1949, Serial No. 115,059

12 Claims. (Cl. 70-272)

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This invention relates to a portable container which upon closure cannot be opened until the lapse of a predetermined interval.

Objects of my invention include providing such a container, the predetermined locked interval of which may be set when open and cannot be changed when closed. Another object is to provide such a container which will automatically rewind itself and reset the interval during the opening and closing of the container. A further object is to provide a light weight portable automatic time-locked container simple in design and practicable for mass production.

In this specification when I refer to cigarettes, such reference is only as an example to clarify this presentation, and it should be understood that my invention applies and refers equally to, any drug, food or other matter, the consumption of which a person may desire to control or limit in some respect.

Other objects and novel features within the scope of my invention will be apparent from the following specification especially when considered in conjunction with the drawings in which:

Figure 1 is a front view of a cigarette case,

Figure 2 is a side view of Figure 1,

Figure 3 is a bottom view of Fig. 1,

Figure 4 is a fragmentary sectional view taken substantially on line 4 of Fig. 1,

Figure 5 is a front view of an interval timer,

Figure 6 is a fragmentary top view of a portion of Fig. 5,

Figure 7 is a sectional view of the latch, taken substantially on line 7 of Fig. 5,

Figure 8 is a back view of the interval timer mechanism.

Figure 9 is a sectional fragmentary view showing the bottom view of Fig. 8 and attendant parts, taken substantially along line 9 of Fig. 1.

Figures 10 to 12 are fragmentary views of Fig. 5 showing the parts in various positions occurring in the cycle of operation.

Figure 13 is a fragmentary view of the interior of the case.

Figure 14 is a fragmentary side view of Figure 13.

Fig. 15 is a sectional fragmentary view taken substantially along line 15-15 of Fig. 9.

Figures 1 to 3 show a cigarette case including three parts preferably made of transparent plastic, a back section 14, a cigarette chamber lid 15 hinged thereto by a piano type hinge 16 and a half cover 17 for a timer mechanism 13. A plurality of projections 18A extend into a rectangular shaped cigarette holding chamber 19 from

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the inner walls of back section 14 and lid 15 (Fig. 9).

Lid 15 is called a lid purely for convenience of explanation. Because it also contains cigarettes, it could also be said that 15 is the container and the back section 14 is the lid. This should be kept in mind in interpreting the specification and claims hereafter set forth since any differentiation between the lid and the rest of the container may be purely artificial.

An alternate form of projection 18B is shown in Figures 13 and 14. These are formed by the right angle intersection of a plurality of grooves 23.

Projections 18A and B are arranged to position standard length cigarettes horizontally and the longer or king size vertically in an orderly and parallel manner. The cigarettes are further maintained in this position, each in its own location, whether the case be full or not, by two separators 21 and 22 which are hinged together as a part of piano hinge 16 as shown in Fig. 4. Each of the two ends of each separator are formed around respective torsional springs 23 in which is inserted hinge pin 24. Springs 23 are effective to normally separate the separators 21 and 22, pressing each against the cigarettes in the respective halves of the case which in turn causes lid 15 normally to spring open. The separators are designed in a U shape without crossing each other, to be adjacent to at least three walls of chamber 19 to position the cigarettes therein whether they be standard or king size.

Figures 5 and 6 show a winding and setting shaft 27 to which are fixed a winding gear 26, an arm 28, and a knurled knob 29. Bearinged on shaft 27 is a great gear 31, a clock spring barrel 32, from which an ear 33 is bent to turn a notched disk 34 also journaled on shaft 27. A clock spring 35 interconnects shaft 27 with great gear 31 or barrel 32, the two latter parts being interconnected.

The knob end of shaft 27 is bearinged in timer cover 17 and the other end is bearinged in a back plate 37.

Slidably mounted in an elongated hole 33 in back plate 37 is a stud 39 on which is journaled a ratcheting idler gear 41. A groove in a disk 42 which is fixed to stud 39 positions ratchet spring 43 which also bears on two of four spacers 46.

These four spacers 46 position a top plate 47 relative to bottom plate 37. Between these plates and bearinged therein are various conventional and standard timing gears and devices such as

gear 48. Idler gear 41 normally meshes with great gear 31 and gear 48, but ratchets when the great gear turns clockwise as viewed in Figures 1, 5, 10, 11 and 12.

A balance wheel 49 is also shown. Gear 48 and balance wheel 49 and the gearing, etc., between them may be considered conventional and are not shown in detail. Any suitable escapement or other timing device may be substituted for them within the scope of my invention.

Back plate 37 is bent forwards 90° to form the bottom face of the timer 13. Along the turned portion of plate 37 there is mounted an L-shaped rack bar 52 which meshes at certain times with winding gear 26. Back section 14 is shouldered to furnish a sliding bearing for rack 52 and to retain it in a position adjacent to back plate 37. This shoulder is not shown. A link 53 interconnects lid 15 with rack 52 by means of studs 54 and 55. The movement of lid 15 is not limited to 90°, but is thus shown for purposes of explanation only.

One end of a shaft 61 is bearinged in back plate 37 and the other end in timer cover 17. Loosely fitted on shaft 61 is a channel shaped stamping 62 and a finger lever 63 positioned between the legs of stamping 62 and notched to nest therewith for mutual actuation. One leg of stamping 62 is extended to form tooth 64 which is positioned to move into notch 65 of notched disk 34 when the latter is positioned as shown in Figures 5 and 12. Tooth 64 also blocks the movement of stamping 62 by finger lever 63 when notch 65 is out of alignment.

Latch pin or bolt 71 extends through suitable openings in stamping 62 and the bent edge of back plate 37 and also through a notched out portion of rack 52. Latch pin 71 is circumferentially grooved to ensure its retention within a loop of a spring 72. Both ends of spring 72 make substantially a right angle bend about shaft 61 and press against cover 17 or back sections 14 at 73 in such a manner as to resiliently press either stamping 62 or latch pin 71 or both downward to engage a latch hole 74 of an ear 75 in lid 15. One side of ear 75 is cammed to press latch pin 71 independently of stamping 62 out of the way to allow a latch pin 71 to enter hole 74 when the lid 15 is closed at a time when notch 65 is out of alignment with tooth 64.

One end or leg of spring 72 terminates at 73, but the other is looped in a manner to engage ear 33 to form a ratchet stop 76 and continues to engage an elongated hole in finger lever 63. Ratchet stop 76 allows ear 33 to pass under it when turned clockwise, but acts to stop the mechanism when notch disk 34 is turned counterclockwise to a position where notch 65 is receptive to tooth 64.

The timer cover 17 is clamped to back section 14 by two screws passing through holes 81 in the back or front plates 37 or 47 and threaded in cover 17.

Operation

The timer is designed (1) to prevent the manual withdrawal of latch pin 71 for a preset interval after lid 15 has been closed; (2) to rewind and start upon the closing of lid 15; (3) to reset automatically for repetitive intervals; and (4) to allow gradual change of the interval period through a plurality of small subdivisions of the range from substantially zero time to maximum time by the user only when the lid is open.

With the case open, as shown in Figures 8 and 9, rack 52 is disengaged from winding gear 26

and in this position the main spring assembly including parts 26 to 34 may be turned clockwise by turning knob 29, since in this direction gear 41 ratchets rather freely. Suppose we set the assembly and more particularly notch 65 of disk 34 in the position shown in Fig. 10 at 150 degrees or a little less than 40 minutes from the ultimate stopping position of disk 34 shown in Fig. 12. The numerals shown in Fig. 1 are on the transparent timer cover 17 through which notch 65 of disk 34 is clearly visible. The numerals are positioned to indicate the length of time which must elapse or the length of the interval before the case can be opened, on the assumption that the timer mechanism will provide for the great wheel 31 to make one complete turn in 90 minutes. Any other timing of the great wheel is within the scope of my invention. Ear 33 is accordingly now positioned 150 degrees of travel from ratchet stop 76.

Now if lid 15 is slowly closed, then during its initial movement rack 52 does not engage winding gear 26, but when it does contact gear 26 it turns the winding shaft 27 together with arm 28 counterclockwise almost one complete turn to the position shown in Fig. 11. Note that ratchet gear 41 has prevented the great gear 31 from turning with shaft 27 and accordingly energy equivalent to practically one turn of the clock or main spring 35 has been stored therein. Also ear 33 and notched disk 34 have remained stationary but the tip of arm 28 has shifted contact from one side of ear 33 to its other side.

However great gear 31, spring barrel 32, ear 33 and notched disk 34, all turn slowly counterclockwise as the timing mechanism functions until the parts are stopped in the positions shown in Fig. 12 by ratchet stop 76. Latch pin 71 can now be disengaged by manual pressure on finger lever 63 at the will of the operator. Note that arm 28 has not moved and cannot, because rack 52 is locked and in engagement with winding gear 26. Neither can the interval setting be altered while lid 15 is closed.

The main spring as indicated by the travel of arm 28 from the position shown in Fig. 10 to that of Fig. 11 was originally wound very close to 350 to 360 degrees, but as shown in Fig. 12 it has unwound only 150 degrees and the timing mechanism has stopped at this point. When the latch pin 71 is withdrawn by manual pressure on finger lever 63, the 200 to 210 degrees of unexpended energy within the main spring 35 react on the rack bar 52 to aid in opening the lid 15. This force is in addition to the force in torsion springs 23. The unexpended force of the main spring is completely expended when the mainspring assembly, parts 26 to 34 assume the positions shown in Fig. 5.

However, since in going from the position shown in Fig. 10 to that of Fig. 11, arm 28 made practically full turn and in moving from the position shown in Fig. 12 to that shown in Fig. 5, the winding gear 26 and the winding shaft 27 have turned only 200 to 210 degrees, they still have 150 degrees yet to go before rack 52 disengages from gear 26, accordingly, it is clear that the complete opening of the lid will turn notched disk 34 and all the parts 26 to 34 clockwise to the starting positions shown in Fig. 10. If now the case lid 15 is reclosed the timer will be started, rewound and reset to repeat for an identical subsequent interval.

Rack 52 and link 53 would be in the position shown in Fig. 5 when parts 26 to 34 are in the position shown only at the end of a 90 minute or 350 to 360 degree interval.

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With the case open if it is desired to lengthen the interval then knob 29 can be turned slightly clockwise. It is desired to decrease the interval, then knob 29 must be revolved clockwise at least until ear 32 has passed ratchet stop 76, since ratchet gear 41 will not allow assembly 26 to 34 to be turned counterclockwise.

Although exemplary forms of the invention have been described in detail hereinabove and illustrated in the accompanying drawings, it should be understood that the invention is capable of embodying a wide variety of modifications without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. A portable container including a lid hinged thereto for opening and closing the container, a manually retracted locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together automatically upon the closing of the container by the lid, a blocking member mounted on said container for rotary reciprocation adjacent said manually retracted locking device to prevent manual retraction thereof during a preselectable interval of time, a timer interconnected with said blocking member and carried by the container to govern the duration of the preselected interval, the magnitude of the angular movement of rotary reciprocation of the blocking member varying with the duration of the preselected interval, and a mechanical linkage interconnecting the blocking member and the hinged lid in such a manner as to move the blocking member into a position to prevent the manual retraction of the locking device incident to the opening of the lid.

2. A portable container including a lid associated therewith for opening and closing the container, a manually retracted locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together automatically upon the closing of the container by the lid, a blocking member mounted on the container adjacent said manually retracted locking device to prevent manual retraction thereof during a preselected interval of time, a timer interconnected with said blocking member and carried by the container to govern the duration of the preselected interval and a mechanical linkage interconnected to the blocking member and the lid in such a manner as to move the blocking member into a position incident with the opening of the lid to prevent the manual retraction of the locking device.

3. A portable container comprised of two sections which when closely adjacent contain a space suitable for carrying cigarettes and the like, one of said sections being adapted to engage and disengage the other section to close and open respectively said container and said confined space, a manually retractable locking device carried by one of said sections and adapted to interengage said section with the other section in such a manner as to lock said sections together automatically upon engagement, a blocking member mounted on one of said sections adjacent said manually retractable locking device to prevent the manual retraction thereof during a preselected interval, and a linkage interconnected to the locking member and one of said sections in such a manner as to move the blocking member incident to the at least partial opening of the container to prevent the manual retraction of the locking device.

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4. In a portable container, a lid hinged thereto for opening and closing the container, a locking device carried by the container and adapted to lock the lid closed, a timer mechanism carried by the container and adapted to control the locking device allowing it to be opened only after selectable maximum and shorter-than-maximum selectable intervals, and included in the timer mechanism, a spring mounted in the mechanism in such a manner as to expend forces stored therein to rotate parts in said mechanism, said expenditure of forces being in direct proportion to the duration of the selected intervals and also a winding shaft carried by the container and operated by the movement of the lid, said shaft being turned in one direction by the closing of the lid to wind the spring to always store sufficient forces therein to rotate said timer mechanism parts for the maximum selectable interval and turned in the other direction by the opening of the lid first to unwind the spring expending the unused portion of the forces still stored therein after a shorter-than-maximum interval and thereafter to further turn the winding shaft to actuate resetting the timer mechanism for a subsequent duplicate interval.

5. In a portable container, having two principal sections hinged together one acting as a lid or closure for the other thereby constituting a container which may be opened and closed by relative movements of said sections, a locking device carried by one of said sections and adapted to lock the other sections closed, a timer mechanism carried by the one of said sections and adapted to control the locking device allowing it to be opened only after selectable maximum and shorter-than-maximum intervals, and included in the timer mechanism, a spring mounted within the mechanism in such a manner as to expend forces stored in the spring to rotate parts of said mechanisms, said expenditure of forces being in direct proportion to the duration of the selected intervals and also a shaft attached to one end of said spring and carried by one of the two sections and operated by relative movement of the other section, said shaft being turned in one direction by movement of the sections to close the container to wind the spring always storing sufficient forces therein to rotate the timer mechanism parts for the maximum selectable interval and turned in the other direction by relative movements of the container sections to open the container thereby unwinding the spring and expending the unused portion of forces still stored therein after a shorter-than-maximum interval and thereafter further turning said shaft in the same direction and rotating the parts of the timer mechanism to reset the timer for a subsequent identical interval during the opening of the container.

6. In a portable container including a lid hinged thereto for alternate movements to open and close the container, a locking device carried by the container and adapted to lock the lid closed, parts constituting a timer mechanism carried by the container and adapted to govern and defer the unlocking of the locking device until after selectable maximum and shorter-than-maximum intervals, and included in the timer mechanism parts, a spring mounted within the mechanism to expend forces stored in said spring in substantially direct proportion to the duration of the selectable intervals to rotate parts in said timer mechanism, a shaft closely associated with said spring and carried by the container and

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operated by alternate movements of the lid to open and close the container and one of said alternate movements turning said shaft in one direction to always wind the spring to store sufficient forces therein to slowly rotate said parts in said mechanism for the maximum selectable interval and the other of said alternate movements turning said shaft in the opposite direction first to unwind the spring and expend the unused portion of the forces still stored therein after a shorter-than-maximum interval and thereafter to further turn the shaft in the same direction moving parts of the timer mechanism to reset the mechanism for a subsequent repeat interval.

7. A portable container including a lid hinged thereto for opening and closing the container, a manually retractable locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together when the container is closed by the lid, a time responsive mechanism carried by the container to prevent the manual retraction of the locking device before the elapse of a predetermined and preselected interval, said mechanism including an interval selecting and winding shaft mounted within the container and in such a manner that one end accessibly projects from the container, a pinion gear mounted on said shaft to turn said shaft, a second gear driveably engageable with the pinion gear and attached to the lid in such a manner as to be actuated thereby and also spaced and movably mounted in such a manner that said gears are disengaged from each other when the lid is fully open so that the projecting end of the shaft may be manually turned to preselect the duration of said interval when the lid is open, and also spaced and mounted in such a manner as to maintain locked engagement of said gears when the lid is closed thereby blocking said shaft from being turned after the container is closed and locked, and also spaced and mounted for relative movement to turn one gear relative to the other when the lid is moved intermediate of its open and closed positions to turn the winding shaft to store forces to operate the time responsive mechanism.

8. A portable container including a lid hinged thereto for opening and closing the container, a locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together when the container is closed by the lid, a time responsive mechanism of component parts effective in conjunction with the locking device to prevent the opening of the container before the elapse of a predetermined and preselected interval, said mechanism being carried by the container and including a winding and interval preselecting shaft mounted within the container in such a manner that one end projects from the container when closed, a pinion gear mounted on said shaft to turn said shaft, a second gear driveably engageable with the pinion gear and attached to the lid in such a manner as to be actuated thereby and also spaced and movably mounted in such a manner that said gears are disengaged from each other when the lid is fully open so that the projecting end of the shaft may be manually turned to preselect the duration of the sequential interval if a change in the interval is desired and also spaced and mounted in such a manner as to maintain locked engagement of said gears when the lid is closed thereby blocking said shaft from being turned while the container is closed and locked, and also spaced and mounted for relative

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movement to turn the pinion gear when the lid is moved intermediate of its fully open and closed positions to turn the winding shaft in one direction to store forces to operate the time responsive mechanism and in the other direction to shift relative positions of component parts of the time responsive mechanism to automatically reset the timer mechanism for a subsequent repeat interval.

9. A portable container including a lid hinged thereto for movement to open and close the container, a locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together automatically when the container is closed, a time responsive mechanism also carried by the container and adapted to prevent unlocking of the locking device before the elapse of a predetermined interval, said mechanism including a spring one end of which is operatively connected to a timing train, an interval selecting and winding shaft assembly mounted in the time responsive mechanism for relatively free turning in at least one direction when the case is open and operatively connected to the other end of the spring to wind the spring, a pinion gear assembled on the winding shaft, a driving gear mounted to mesh with the pinion gear and operatively connected to the lid for actuation by the opening and closing movement of the lid to turn the shaft to wind and unwind the spring, and a manually accessible projection from the winding shaft assembly to predetermine its initial prewinding position and the relative starting position of the time responsive mechanism according to the duration of the predetermined interval desired.

10. A portable container including a lid hinged thereto for movement to open and close the container, a locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together when the container is closed by the lid, a time responsive mechanism carried by the container to defer the unlocking of the locking means until after the elapse of predetermined and variably selectable intervals, said time responsive mechanism including a winding shaft mounted within said mechanism, a gear attached to said shaft, a second gear mounted in such a manner as to be actuated by movements of the lid to engage and drive the first gear and also to disengage it, the shaft being associated with the remainder of the time responsive mechanism in such a manner that the length of the selectable interval may be varied by indexing said shaft and first gear relative to the second gear when the gears are disengaged to vary the tooth of first gear initially engaged by the second gear upon reengagement of the gears and according to the duration of the predetermined interval desired.

11. In a portable container including a lid hinged thereto for opening and closing the container, a locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together, a time-responsive mechanism carried by the container and associated with the locking device in such a manner as to be effective to defer the unlocking of the locking device until after the elapse of a predetermined and preselectable interval, said mechanism including a timing train, a winding and interval setting shaft, a spring mounted on the shaft to turn bodily therewith when turned in one direction to predetermine the interval duration and to be wound thereby

when turned in the other direction, one end of said spring being substantially fixed to the shaft, the other end of said spring being operatively connected to a timing train to drive the train.

12. A portable container including a lid hinged thereto for movement to open and close the container, a locking device carried by the container and adapted to interengage the container and its lid in such a manner as to lock them together automatically when the container is closed, a time responsive mechanism also carried by the container and adapted to prevent unlocking of the locking device before the elapse of a predetermined interval, said mechanism including a spring, one end of which is operatively connected to a timing train, an interval selecting and winding shaft assembly mounted in the time responsive mechanism for relatively free turning in at least one direction when the case is open and operatively connected to the other end of the spring to vary the tension of the spring, a pinion gear assembled on the winding shaft, a driving gear mounted to mesh with the pinion gear and operably connected to the lid for actuation by the opening and closing movement of the lid to turn

the shaft to vary the tension of the spring, and a manually accessible projection from the winding shaft, manually turnable to turn the winding shaft assembly to predetermine its initial prewinding position and the relative starting position of the time responsive mechanism according to the duration of the predetermined interval desired.

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