April 24, 1962 P. VOGT 3,030,795

TIME CONTROLLED CONTAINER

Filed July 8, 1960

FIG.1

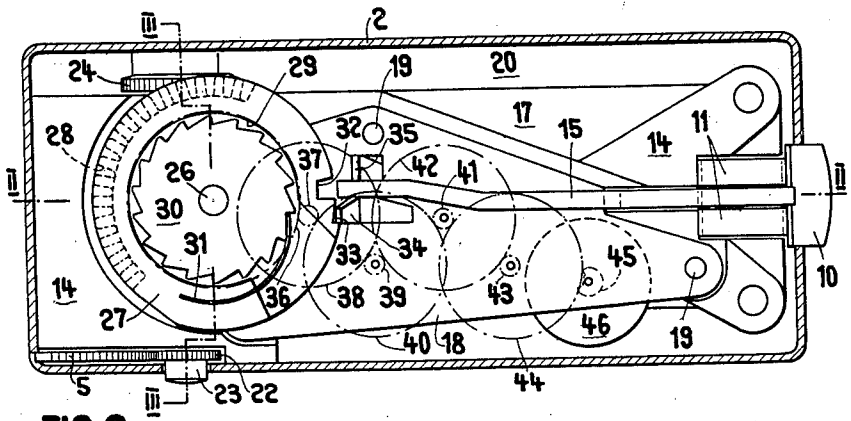


FIG.2

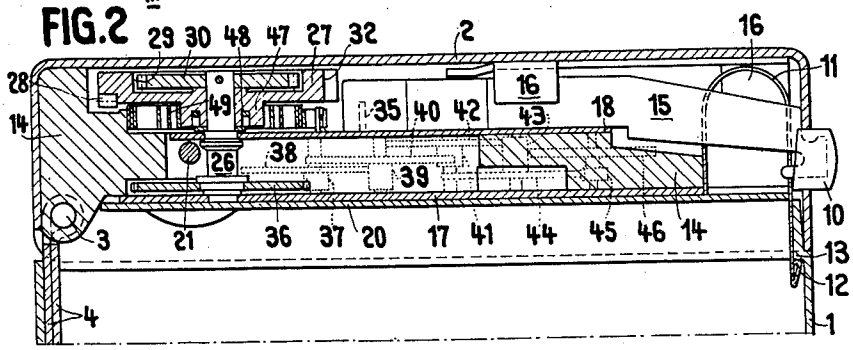


FIG.3

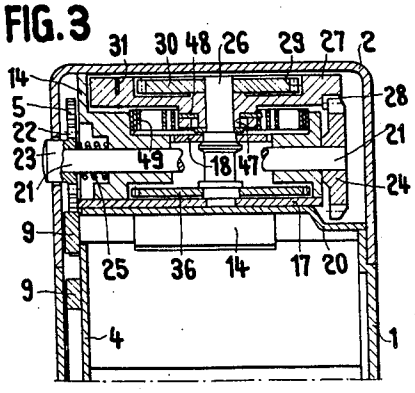
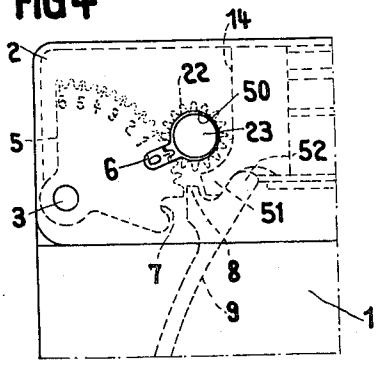


FIG 4



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TIME CONTROLLED CONTAINER

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The present invention relates to a case adapted to contain consumable articles such as cigarettes or the like, comprising a timing device mounted in the case and acting, after having been set and wound, on a device adapted to lock the case in such a manner that when the case is closed, it can be opened only at the end of a lapse of time determined by the said setting, the said timing device being mounted within a pivoting lid adapted to close the case. In accordance with the invention, the setting and winding device of the timing device comprises a toothed sector loosely mounted on the case body and cooperating with a stop spring also mounted on the case body, and the timing device comprises a toothed control member normally in mesh with the said toothed sector and coupled by means of a gear train with a winding member for the main spring of the timing device, the whole being arranged in such a way that when the lid is being closed, after the desired lapse of time has been set, the said toothed control member rolls on the toothed sector immobilized by the stop spring, whereas when the lid is completely closed, the stop spring is disengaged from the toothed sector which is brought back to its starting position by the toothed control member, which is now driven by the timing device running during the said predetermined lapse of time.

The accompanying drawing shows, by way of example, one embodiment of the invention.

FIG. 1 is a top view of the timing device.

FIG. 2 is a cross-sectional view along the line II—II in FIG. 1.

FIG. 3 is a cross-sectional view along the line III—III in FIG. 1.

FIG. 4 is a partial side view of the timing device, at an enlarged scale.

The cigarette-case illustrated in the drawing comprises a case body 1 and a lid 2 which is freely pivoted on a pin 3. The pin 3 is fixed to a metal plate 4 secured to the case body 1. On the pin 3 is also freely mounted a toothed sector 5 carrying a graduation from 0 to 6, one of these numerals being visible through an opening 6 of the lid 2. The toothed sector 5 has a side notch 7 adapted to cooperate, as explained later, with a tooth 8 of a stop spring 9 fixed to the metal plate 4. The case body 1 is adapted to receive cigarettes, the cigarettes being freely arranged in the body 1 or being contained in their original package torn at its top. The lid 2 has a locking button 10 fixed to a spring 11 the lug 12 of which may snap under a shoulder 13 of the case body 1. The spring 11 is bent as shown in FIG. 2 and its end remote from the lug 12 is attached to a support 14 of the timing device, the support 14 being preferably made of a plastic material. The locking button 10 is carried by a locking bar 15 guided between guide pieces 16 carried by the inner upper face of the lid 2. The function of the locking bar 15 will be explained below.

A timing device, described hereinafter, is mounted within the lid 2. It presents a main spring and a setting and winding device, and is arranged in such a way that, after having been set and wound, it acts on the locking button 10 so that the lid 2 can be opened only at the end of a predetermined lapse of time, selected by the user.

All the gears of the timing device are pivoted between two pillar plates 17 and 18 interconnected by pillars 19 traversing the support 14 and thus holding the support 14 in position. The lower pillar plate 17 is covered by a thin plate 20 closing the lid 2 and forming a dust cover, in order to avoid that tobacco particles enter within the mechanism of timing device.

In the support 14 is slidably mounted a setting rod 21 (FIG. 3) carrying at one of its ends a winding pinion 22 integral with a setting button 23 and at its other end a winding wheel 24. A coil spring 25, bearing on the support 14 and the winding pinion 22, surrounds the rod 21 and tends to push the rod 21 towards the left in FIG. 3, but the axial displacement of the rod 21 is limited by the fact that the winding wheel 24 strikes against the support 14.

Between the pillar plates 17 and 18 is pivoted a shaft 26, called central shaft, on which is loosely mounted a crown wheel 27 having contrate teeth 28 over a little less than half its circumference. The teeth 28 of the crown wheel 27 are normally in mesh with the winding wheel 24 carried by the setting rod 21. The crown wheel 27 has on its upper face a recess 29 in which is received a ratchet wheel 30 keyed on the central shaft 26. A leaf spring 31, fixed in the crown wheel 27, has its free end engaged in the teeth of the ratchet wheel 30, as shown in FIG. 1. On its periphery, the crown wheel 27 has a radial notch 32 adapted to receive the inner end of the locking bar 15, as explained later on (FIG. 1). By the side of the notch 32, the crown wheel 27 presents a catch 33 adapted to cooperate with a tongue 34 bent up from the upper pillar plate 18 for limiting the movement of rotation of the crown wheel 27 upon running of the timing device. A second tongue 35, also bent up from the upper pillar plate 18, serves, in connection with the tongue 34, to guide the inner end of the locking bar 15, as shown in FIG. 1.

On the central shaft 26 is keyed, in the vicinity of the lower pillar plate 17, a toothed wheel 36 forming the first wheel of the train of gears of the timing device. The wheel 36 drives the train of gears 37 to 44, the wheel 44 being the escape wheel which actuates a spindle 45 carrying a balance or vibrator 46. The spindle 45 is milled so as to present two teeth (FIG. 1), so that it can oscillate in the manner of an alarm hammer when the escape wheel 44 is rotated. As already said, all of the gears 37 to 46 are pivoted in the pillar plates 17 and 18.

In the hub 47 of the crown wheel 27 is fitted a hook 48 to which is attached the inner end of a main spring 49, the other end of which is fixed to the support 14 in a non-illustrated manner.

The winding pinion 22 is normally in mesh with the teeth of the toothed sector 5, as shown in FIG. 4, and a circular opening 50, made in the wall of the lid 2, is provided for the button 23. In the embodiment illustrated, both openings 6 and 50 are interconnected, so that one or two teeth of the sector 5 and of the winding pinion 22 are visible from the outside (FIG. 4). The button 23 is the only element that projects out of the lid 2 and it is possible to set the timing device merely by means of the said button 23.

The support 14 of the timing device is provided with an extension 51 (FIG. 4) with which cooperates a lug 52 of the spring 9, as explained below.

The timing device illustrated and described operates as follows:

Let us first suppose that the main spring 49 is released and the lid 2 is closed. The crown wheel 27 is in the position shown in FIG. 1, that is to say its radial notch or entry 32 faces the inner end of the locking bar 15. Therefore, if the button 10 is pressed, the inner end of

the locking bar **15** can penetrate into the notch **32** of the crown wheel **27**, and the lug **12** of the spring **11** is disengaged from the shoulder **13** of the case body **1**. The lid **2** can therefore be opened and turned around the pin **3**. Let use suppose now that the numeral "0" is visible through the opening **6**. The winding pinion **22** is in mesh with the teeth of the sector **5** (FIG. 4) and remains in this condition when the lid **2** is being pivoted, so that the sector **5**, loosely mounted on the pin **3**, is driven with the lid **2**. However, the stop spring **9**, which was originally in the position shown in FIG. 4 when the case was closed, the lug **52** resting upon the extension **51** of the support **14**, is moved to the left of FIG. 4 under the action of its own elasticity when the lid **2** is being opened, so that its tooth **8** enters the notch **7** of the toothed sector **5**. If the lid **2** is pivoted through a rather large angle, the tooth **8** of the spring **9** leaves the notch **7** of the sector **5**, but falls again therein as soon as the lid **2** comes back into its almost closed position.

In order to use the device, the locking button **10** is first pressed and the lid **2** is opened. The setting button **23** is then pressed against the action of the restoring spring **25**, so that the winding wheel **24** is brought out of mesh with the teeth **28** of the crown wheel **27**. The setting button **23** is maintained in depressed condition and the lid **2** is simultaneously rocked until the button **23** faces the desired numeral of the graduation of the sector **5**. By way of example, suppose that the button **23** faces the numeral "4" of the sector **5**, which means that the selected lapse of time is 40 minutes and that the cigarette-case must remain locked during that time. When the button **23** arrives opposite the numeral "4," it is released and the lid **2** is closed again. During the closing movement of the lid **2**, the sector **5** possibly effects first a free movement until the tooth **8** of the stop spring **9** enters the notch **7** of the sector **5**. On further rotation of the lid **2**, the sector **5** is immobilized by the stop spring **9**, so that the winding pinion **22** rolls on the sector **5** and is rotated by an angle which is proportional to the selected lapse of time. The winding wheel **24** is therefore also rotated and rotates the crown wheel **27**, so that the main spring **49**, attached to the hook **48** fixed to the crown wheel **27**, is wound by an amount which is proportional to the selected lapse of time. During the rotation of the crown wheel **27**, the leaf spring **31** slips on the gullet teeth of the ratchet wheel **30**, due to the fact that the crown wheel **27** is rotated in the clockwise direction of FIG. 1 and the ratchet wheel **30** is immobilized because the wheel **36** is permanently in mesh with the train of gears of the timing device. As soon as the crown wheel **27** has been rotated by a certain angle, its notch **32** ceases to be opposite the locking bar **15**, and therefore the locking button **10** can no longer be actuated. The cigarette-case is therefore locked. At the end of the closing movement of the lid **2**, the button **23** is again facing the numeral "0" of the graduation of the sector **5** (FIG. 4). At the moment when the lid **2** is completely closed, the extension **51** of the support **14** acts on the tooth **52** of the stop spring **9** and therefore disengages the tooth **8** from the sector **5** (position illustrated in FIG. 4).

The apparatus is now set and wound. Under the action of the main spring **49**, the crown wheel **27** tends to rotate in the counterclockwise direction of FIG. 1 and therefore to drive the ratchet wheel **30** through the intermediary of the spring **31**. This movement of the ratchet wheel **30** is transmitted to the central shaft **26** and to the wheel **36** which then drives the train of gears **37** to **44** of the timing device, and the escape wheel **44** causes the balance **46** to oscillate. While the timing device is running, the crown wheel **27** rotates the wheel **24** and therefore the setting rod **21** and the winding pinion **22**, so that the latter rotates the sector **5**, which is now free, in the clockwise direction of FIG. 4, until it has again assumed its initial position, i.e., in the example chosen, the position in which the numeral "4" is facing the button **23**.

At the end of the selected lapse of time, the catch **33** of the crown wheel **27** strikes against the tongue **34** of the upper pillar plate **18**, so that the crown wheel **27** comes to a standstill and the timing device is stopped. The radial notch **32** of the crown wheel **27** is again facing the inner end of the locking bar **15**, so that the locking button **10** can be actuated in order to open the lid **2**. The user can now take a cigarette in the case. If he closes again the lid **2**, the same process as just described is started again. It will be seen that the setting position of the button **23** is remained unchanged. If, therefore, a given time interval has been chosen once for all, for instance 40 minutes, the apparatus remains set for that interval. If the user wishes to change the time interval, he can do that when the lid **2** is in opened condition.

While the timing device is running, the user can ascertain at any time how much time remains until the case can again be opened. The setting button **23**, assumed to be placed on the division "4" (corresponding to 40 minutes) of the graduation of the sector **5**, is displaced during the winding operation up to the numeral "0" of the sector **5**, and while the timing device is running, the button **23** is displaced in opposite direction and finally comes back opposite the numeral "4." Therefore, if the user sees, while the timing device is running, that the button **23** is facing the numeral "3," for instance, he knows that he must still wait 10 minutes to open the lid **2**.

It results from the preceding that it is impossible to open the case before the selected time interval has elapsed. On the other hand, the case must be open if the device is to be set. It will thus be seen that the device illustrated and described enables the smokers to voluntarily reduce their consumption of cigarettes, by a mechanical and/or psychological aid. The same apparatus may be used to help certain persons to limit their consumption of other products, such as alimentary or pharmaceutical products, which may have a detrimental effect on their organism.

By modifying in an appropriate manner the movement of the timing device, it would be possible to provide a maximum running period of the timing device different from 60 minutes.

While I have described and illustrated one embodiment of my invention, I do not wish to unnecessarily limit the scope thereof, but reserve the right to make such modifications and rearrangements of the several parts as may come within the purview of the accompanying claims.

What I claim is:

1. In a case for consumable articles having a pivoting cover section and a container section, a latching mechanism for fastening the cover section to the container section, and a time control means for the latching mechanism whereby the latching mechanism releases the cover section from the container section after a selectable lapse of time, the time control means being arranged within the cover section, the improvement in which the time control means includes a setting and winding mechanism comprising a toothed sector loosely mounted on the container section and a stop spring also mounted on the container section and cooperating with said toothed sector, the time control means comprising in addition a toothed control member normally in mesh with said toothed sector and operatively connected with a winding member for the mainspring of the time control means, the whole being arranged in such a way that when the cover section is being closed, after the desired lapse of time has been selected, said toothed control member rolls on the toothed sector immobilized by the stop spring and winds the mainspring of the time control means by an amount which is proportional to the selected lapse of time, whereas when the cover section is completely closed, the stop spring is disengaged from the toothed sector which is brought back to its starting position by the toothed control member, which is now driven by the time control means running during the said selected lapse of time.

2. A case as claimed in claim 1, in which the toothed sector bears a graduation partially visible through an opening of the cover section.

3. A case as claimed in claim 1, in which a setting rod is slidably mounted in a support of the time control means, said rod carrying at one of its ends said toothed control member connected with a setting button projecting out of the cover section and its other end a winding wheel, a restoring spring tending to push the setting rod into a position in which said toothed control member is in mesh with said toothed sector.

4. A case as claimed in claim 3, in which the time control means comprises a central shaft on which is loosely mounted a crown wheel having contrate teeth over a portion of its periphery, said contrate teeth being normally in mesh with said winding wheel carried by said setting rod.

5. A case as claimed in claim 4, in which said crown wheel has a recess in which is received a ratchet wheel keyed to said central shaft, a leaf spring secured to the crown wheel having its free end engaged in the teeth of said ratchet wheel.

6. A case as claimed in claim 4, in which said crown wheel has on its periphery a radial notch adapted to receive a locking bar of the latching mechanism, said locking bar being connected with a locking button.

7. A case as claimed in claim 4, in which said crown wheel has a catch adapted to cooperate with a stationary part in order to limit the movement of rotation of the crown wheel when the time control means is running.

8. A case as claimed in claim 4, in which a toothed wheel is keyed to said central shaft, said wheel constituting the first wheel of the gear train of the time control means.

9. A case as claimed in claim 4, in which said crown wheel carries a hook to which is attached the inner end of a mainspring for the time control means, the other end of said mainspring being attached to a stationary part of the time control means.

10. A case as claimed in claim 1, in which a stationary part of the time control means has an extension adapted to act on a lug of the stop spring when the cover section of the case is completely closed, in order to disengage the stop spring from said toothed sector.

11. A case as claimed in claim 1, in which said toothed sector has a notch adapted to receive a tooth of the stop spring during the winding operation of the mainspring.

References Cited in the file of this patent

UNITED STATES PATENTS

2,613,527	Harris	Oct. 14, 1952
2,618,956	Hanna	Nov. 25, 1952
2,681,560	Shuttleworth et al.	June 22, 1954