

Jan. 27, 1959

R. TELLY

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PERIODIC CIGARETTE DISPENSER

Filed May 23, 1955

2 Sheets-Sheet 1

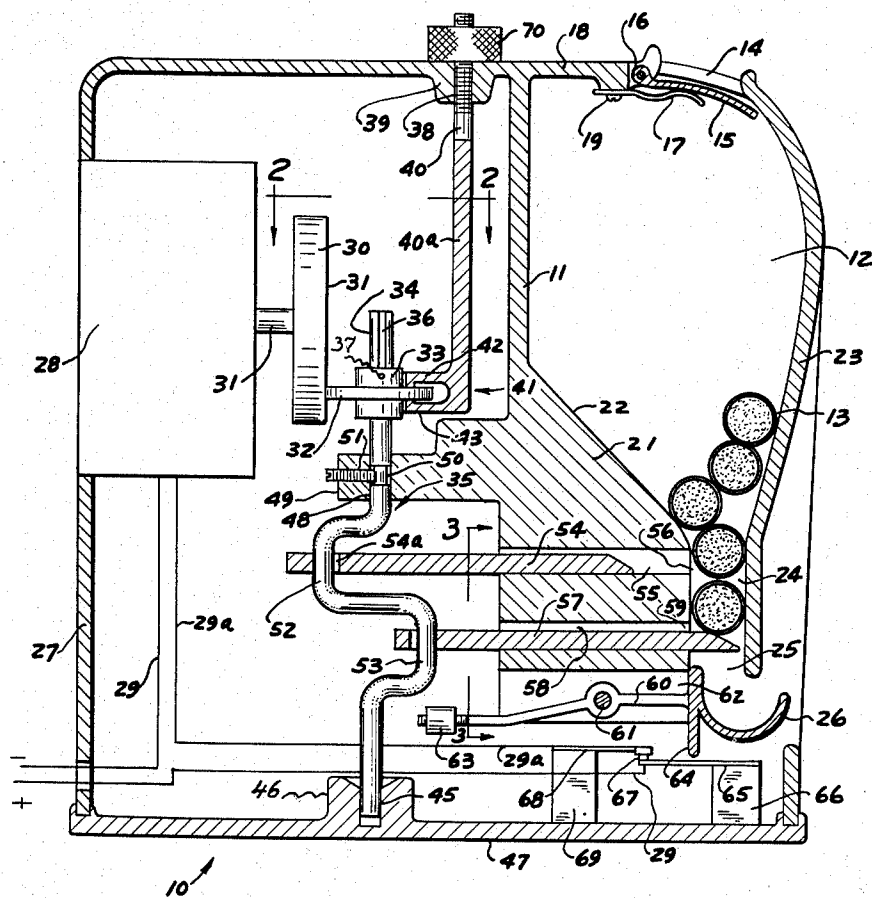


Fig. 1

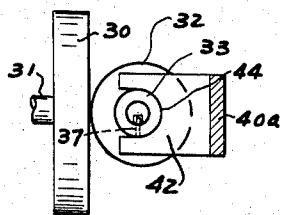


Fig. 2

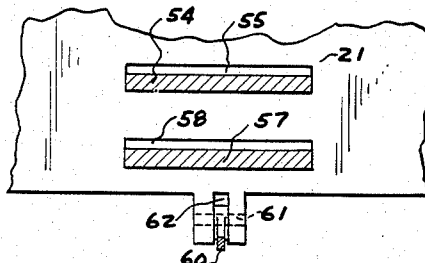


Fig. 3

INVENTOR.
REGINALD TELLY.
BY *Louis Charika*
ATTORNEY

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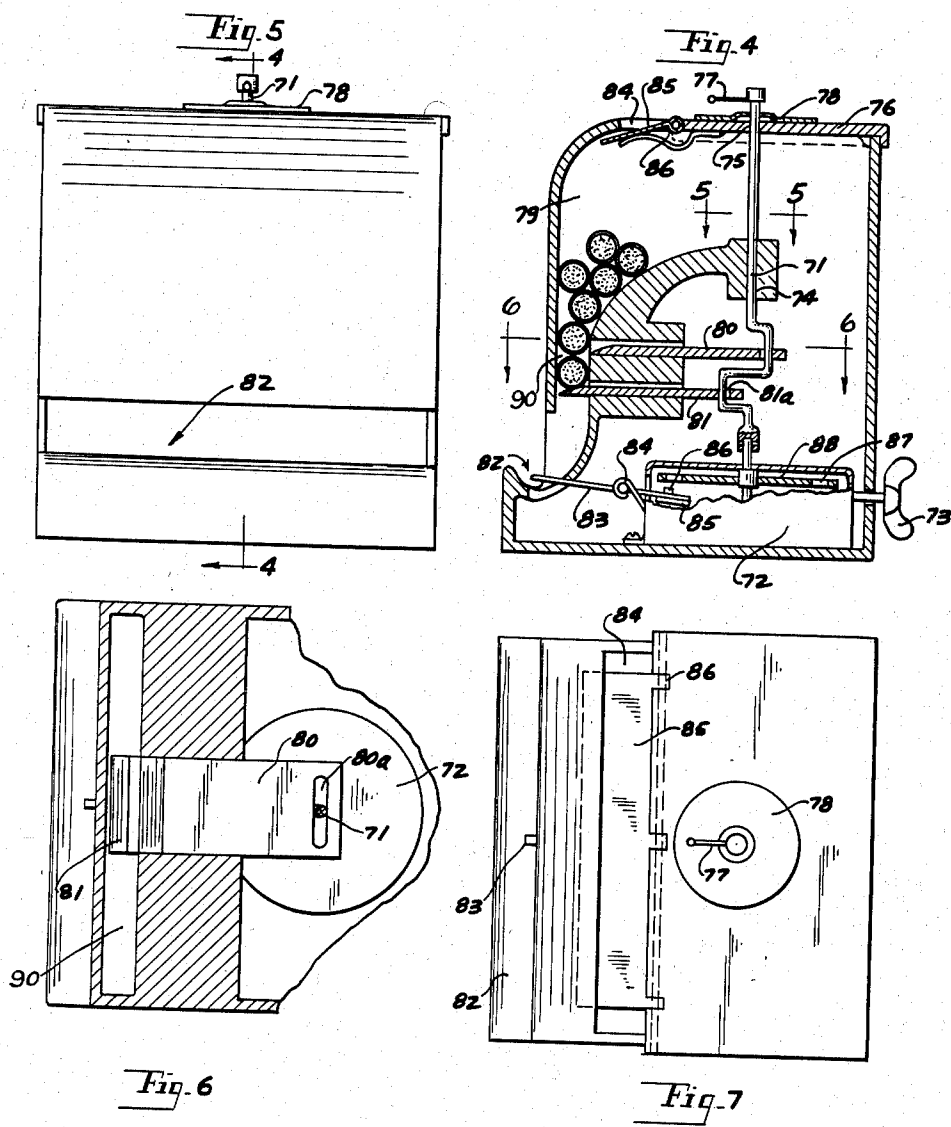
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PERIODIC CIGARETTE DISPENSER

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INVENTOR.
REGINALD TELLY.
BY *Louis Chayka*
ATTORNEY

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PERIODIC CIGARETTE DISPENSER

Reginald Telly, Detroit, Mich.

Application May 23, 1955, Serial No. 510,198

3 Claims. (Cl. 221—22)

The object of the invention is to provide a device which will dispense automatically one cigarette at a time into a delivery trough, from which it may be picked up manually, but which will dispense said cigarettes, singly, at predetermined intervals.

A further object of the improvement is to provide means whereby the time spacing between the deliveries may be adjusted beforehand. Another object of the invention is to provide means whereby the operation of the dispenser will be automatically discontinued if, before the removal of a single cigarette from the delivery trough, another one should be released into the same trough.

A further object of the improvement is to provide a dispenser of simple mechanical structure, but fully practical for the purpose for which it has been designed.

I shall now describe my dispenser with reference to the accompanying drawings in which:

- Fig. 1 is a vertical sectional view of the dispenser;
- Fig. 2 is a sectional view on line 2—2 of Fig. 1;
- Fig. 3 is a sectional view on line 3—3 of Fig. 1;
- Fig. 4 is a vertical sectional view of a modified species of the dispenser;
- Fig. 5 is a front elevational view thereof;
- Fig. 6 is a sectional view on line 6—6 of Fig. 4;
- Fig. 7 is a top elevational view of said dispenser.

Similar numerals refer to similar parts throughout the several views.

The dispensing device, or the dispenser as it will be referred to in this specification, includes a housing which may be made of any suitable material, such as sheet metal or plastic. The housing, generally marked 10, is partitioned vertically by a wall 11, the wall defining on one side a hopper 12 in which a number of loose cigarettes 13 may be placed horizontally for subsequent delivery from the dispenser, one by one.

The top wall 18 of the dispenser contains an aperture 14 through which cigarettes may be loaded into the hopper, the aperture being normally closed by a plate 15 hinged at 16. A leaf spring 17, mounted by means of a screw 19 upon the inner surface of top wall 18, bears against the plate from within the hopper and keeps it in a closed position.

Beginning approximately midway the height of the dispenser, said wall 11 is integrally connected to a block 21, the outer surface of which slopes downwardly, as shown at 22, towards the opposite wall 23 of the hopper, said wall 23 forming, also, the front wall of the dispenser, till the space between said surface 22 and the wall 23 forms a narrow chute 24. The dimensions of the chute are such that the cigarettes may move through said passage downwardly only, one by one, dropping free through an outlet 25 into a receiving trough 26 to which I shall refer again.

Mounted upon the rear wall 27 of the housing 10 is a clockwork 28 which is driven by an electric motor to which current from a source of supply may be delivered by wires 29 and 29a, respectively. The clockwork drives

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a wheel 30 mounted upon a shaft 31, the outer surface of the wheel being flat. The wheel is to rotate slowly, preferably at half the speed of the minute hand of the conventional time clock, that is, at the rate of 180° in an hour.

Bearing against the face of the wheel, in a frictional contact therewith, is the rim of a smaller wheel 32. The wheel, including a hub 33, is mounted upon the upper end 34 of a crankshaft generally marked 35. A vertical slot 36 in the surface of said end 34 of the crankshaft serves for engagement with a radial pin 37 which passes through the hub into said slot 36 in order that the wheel 32 and the crankshaft 35 may rotate as a unit, but that the position of the wheel 32 may be adjusted vertically with respect to said shaft.

Threaded into an aperture 38 in a boss 39, on the inner surface of the top wall 18 of the housing 10, is a vertical rod 40 forming the upper end of a flat bar 40a. The bar, at its lower end, is provided with an integrally-formed fork 41 composed of two parallel plates 42 and 43, the plates being spaced vertically, straddling said wheel 32 therebetween. Each of the plates is provided, at its free end, with a semi-circular recess 44 to fit about the surface of the hub 33, as best shown in Fig. 2.

At its lower end, the shaft 35 is journaled for rotation in a bearing 45 within an integrally-formed boss 46 upon the base board 47 of the housing, and at its upper portion within a bearing 48 in a horizontal ledge of block 21. An annular groove 50 in the portion of the shaft disposed within said last bearing serves for reception of one end of a transverse pin 51 threaded into said groove through the body of the ledge, the arrangement serving as a means to prevent vertical displacement of the shaft.

The shaft includes two integrally-formed cranks, 52 and 53, respectively, these being diametrically opposed to each other. The first of said cranks passes through a lateral slot 54a in a flat plate 54, called herein a separator. The separator is disposed slidably in a horizontal slot 55 within said block 21, said slot opening at 56 in the chute 24 already described above.

Another separator, 57, is disposed horizontally in a lower slot 58 in the same block, the slot opening into said chute 24 at 59. It is just below the level of said separator 57 that the dispenser contains a delivery trough 26. The latter is carried at one end of a beam 60 fulcrumed intermediate its ends at 61 in a transverse slot 62 within the lower end of block 21. Secured to the other end of the beam is a weight 63 which is sufficient to balance the weight of the trough and a single cigarette therein.

Projecting downwardly from the trough is a spur 63, the lower end thereof adjoining a flexible metal strip 65 which, being supported at one end upon a block 66, carries, at the end, a knob 67 for electric contact with a stationary strip 68 secured to a supporting block 69. It will be understood that the strips are made of a good conductor of electricity and that the supporting blocks are of a suitable dielectric material. The strips, as shown in the drawings, serve as component elements of an electric switch adapted to be operated by the spur of the trough 26.

The dispenser operates as follows:

A quantity of cigarettes is placed within the hopper 12, in a horizontal position, through the aperture 14 in the top of the housing 18. The cigarettes, by their weight, will fall into chute 24, where, because of the restricted dimension thereof, they will be stacked up vertically, one above another, in a single vertical row. It will be assumed that the wheel 32, indirectly driven by the clockwork 28, will rotate slowly, so as to complete a rotation about its axis within an hour.

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In the course of this rotation, the upper separator will be pushed by the upper crank 52 between the two cigarettes shown in chute 24, while the lower separator 57 will be withdrawn from said chute, allowing the cigarette supported by said lower separator to drop into the trough 26, whereupon, still in the course of the same rotation, the lower separator will be moved back to its original position, while the upper one will be withdrawn, permitting a cigarette to fall down upon the lower separator.

This particular mechanism is well known and needs no further description.

If a cigarette in the trough 26 is allowed to rest and another is delivered on top of it, the weight of the additional cigarette will depress said beam 60 so that the spur 64 will deflect the strip 65 from contact with the strip 68, thus breaking the electric circuit operating the clockwork 28 and, thus, stopping the rotation of the crankshaft.

The interval between the deliveries of the single cigarettes into the trough may be varied by raising or lowering, as the case may be, of the friction wheel 32 with respect to the axis of the driving wheel 30. This may be effected by adjusting the vertical position of rod 40 by means of a knurled nut 70 at the top of the housing 10.

The dispenser shown in Fig. 5 is of a modified structure in which the crankshaft 71 is rotated by a spring-operated clockwork 72 which may be wound up by means of a key 73. The crankshaft is disposed within a bearing 74, extends upwardly through an aperture 75 in the top wall of the housing of the dispenser, and is provided, at the top, with a radial hand or indicator 77. A stationary disk 78 under the hand serves as a background therefor.

The cigarettes contained in a hopper 79 roll by gravity into a chute 90 and are released, one by one, by means of two separators, 80 and 81, which are analogous to separators 54 and 57 shown in Fig. 1. Each of the separators is provided with a lateral slot, as shown at 80a and 81a, respectively. When released from the passage, a cigarette will fall into a delivery trough 82 and crosswise upon a beam 83 which is fulcrumed at 84 and is provided, at its other end, with a weight 85 and with an upwardly-turned tooth 86.

The weight is sufficient to counterbalance one cigarette within the trough. When the trough contains more than one cigarette, the tooth 86 will be caused to enter one of the many apertures 87 in the peripheral portion of a horizontal disk 88 which is axially secured to said shaft 71 for rotation therewith. This would stop the operation of the clockwork till at least one of the cigarettes have been removed from the trough.

To conclude the description of the dispenser, I wish to add that numeral 84 shows an aperture in the top through which cigarettes may be dropped into the hopper 79, and that numeral 85 identifies a door 85 normally closing said aperture. The door is hinged at 86 and is kept in a normally closed position by a leaf spring 87 affixed at one end to the top wall 76 of the housing of the dispenser on the inner side thereof, as shown in Fig. 4.

It will be understood that some changes may be made in the structural design of the dispenser without departing from the inventive concept disclosed herein.

What I, therefore, wish to claim is as follows:

1. A cigarette-dispensing device comprising a housing, a hopper within the housing, a hinged door closing the hopper at the top, a spring inside the hopper to hold the door in a closed position, the hopper including, within its lower portion, a chute for reception of cigarettes in a single vertical file, one wall of the chute being provided with two horizontal slots, one above the other, a vertical shaft mounted opposite said slots for rotation about its axis, the shaft including two diametrically-

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opposed cranks, one above the other, a flat separator slidably disposed in one slot and pivotally connected at one end to one crank, while the other end of the separator is adapted to be reciprocated by said crank into and out of said chute, a similar separator slidably disposed in the second slot and adapted to be similarly reciprocated by the other crank a spring-operated clockwork to rotate the shaft about the axis, a delivery tray under the lower end of the chute, a disk axially mounted on the shaft for rotation therewith, the disk being provided with a plurality of apertures along its rim, and a pivoted lever responsive to the weight of the cigarettes in the tray, said lever having a member for engagement with any one of said apertures to stop the rotation of the shaft.

2. A cigarette-dispensing device comprising a housing, a hopper within the housing, the hopper being provided with an opening at the top, the opening being large enough for admission of cigarettes in horizontal position into the hopper, but too small for manual reach into the hopper, the hopper including within its lower portion a chute for reception of cigarettes in a single vertical file, one wall of the chute being provided with two horizontal slots, one above the other, a vertical shaft within the casing opposite the slots at the ends remote from the chute, the shaft being journaled for rotation about its axis, the shaft including two diametrically-opposed cranks, one being at the level of one slot, the other being at the level of the other slot, a flat separator slidably disposed in one slot and being pivotally connected at the end remote from the chute to one crank, a similar separator slidably disposed in the other slot and similarly connected at one end to the other crank, a spring-operated clockwork to rotate the shaft, a delivery tray under the lower end of the chute, a disk axially mounted on the shaft for rotation herewith, the disk being provided with a plurality of apertures along its rim, a lever pivotally mounted intermediate its length, the lever having one arm projecting into the delivery tray into the path of the cigarettes to be deposited therein and being adapted to be depressed by the weight of the cigarettes deposited in the tray, the opposite end of the lever being adapted to engage one of the apertures in the disk to stop the rotation of the shaft.

3. A cigarette-dispensing device comprising a housing, a hopper within the housing, the hopper being provided with an opening at the top, the opening being large enough for admission of cigarettes in horizontal position into the hopper, but too small for manual reach into the hopper, the hopper including within its lower portion a chute for reception of cigarettes in a single vertical file, one wall of the chute being provided with two horizontal slots, one above the other, a vertical shaft within the casing opposite the slots at the ends remote from the chute, the shaft being journaled for rotation about its axis, the shaft including two diametrically-opposed cranks, one being at the level of one slot, the other being at the level of the other slot, a flat separator slidably disposed in one slot and being pivotally connected at the end remote from the chute to one crank, a similar separator slidably disposed in the other slot and similarly connected at one end to the other crank, a motor to rotate the shaft, a delivery tray under the lower end of the chute for reception of cigarettes from the hopper, and means responsive to the weight of the cigarettes in the tray to stop the operation of the motor.

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