March 20, 1928. 1,663,508

L. C. BRADLEY

COIN FREED DELIVERY MECHANISM

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Fig. 1.

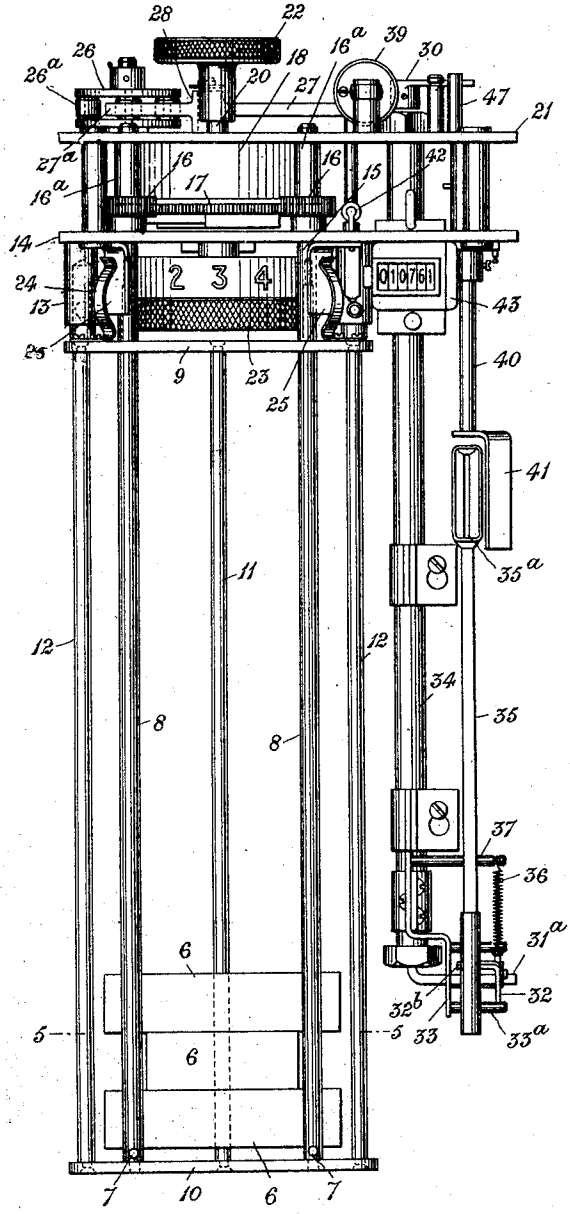
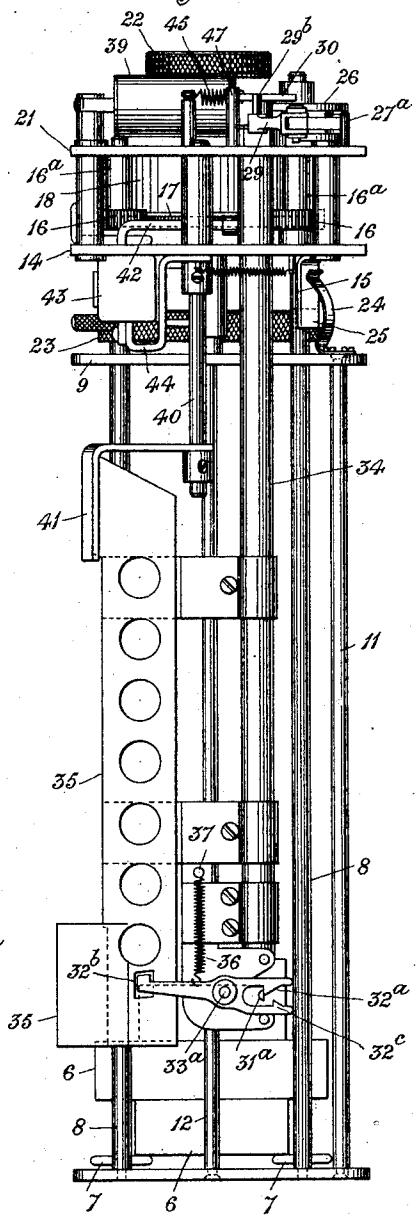


Fig. 2.



Inventor:—
Leslie C. Bradley
by George E. Folkes.
his Attorney.

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Fig. 3.

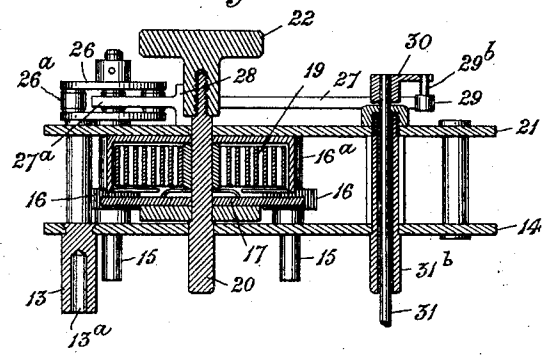


Fig. 4.

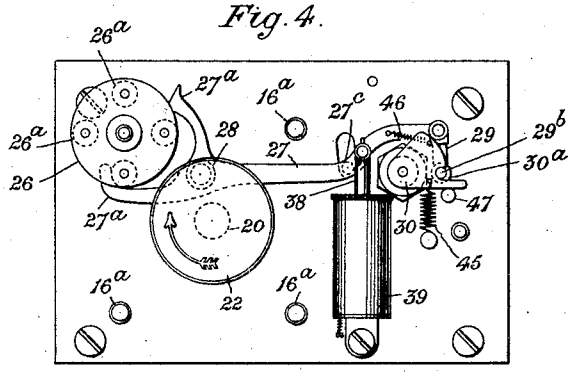
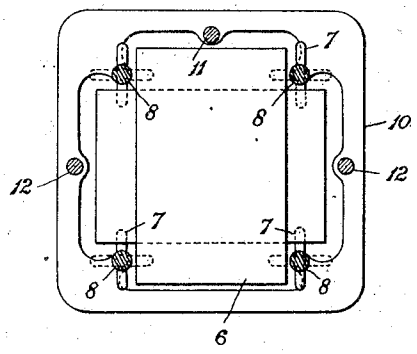


Fig. 5.



Inventor:—
Leslie C. Bradley
by George E. Folkes.
his Attorney

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UNITED STATES PATENT OFFICE.

LESLIE CLIFFORD BRADLEY, OF BIRMINGHAM, ENGLAND, ASSIGNOR TO W. & T. AVERY, LIMITED, OF BIRMINGHAM, ENGLAND.

COIN-FREED DELIVERY MECHANISM.

Application filed March 18, 1926, Serial No. 95,743, and in Great Britain March 23, 1925.

This invention has reference to improvements in or connected with coin freed delivery mechanism and relates particularly to such mechanism wherein the packages or articles to be delivered are alternately arranged and supported in a column, the lowermost package resting on a plurality of pins projecting from the ends of rods adapted to be rotated through an arc of 90 degrees at a time for the purpose of releasing a packet the rotation of the said rods being effected through mechanism set in operation by the insertion of a coin.

The present invention has for its object the provision of mechanism for effecting the rotation of the supporting means and for effecting the operation thereof upon the insertion of a coin.

The invention consists of an improved coin freed delivery mechanism of the kind referred to and comprises the provision of a coiled spring for effecting the rotation of the said supporting means, the requisite motion effected by the said coiled spring being governed by an escapement mechanism adapted to be controlled through a trip mechanism actuated by the coin.

The invention will now be described with particular reference to the accompanying sheet of drawings, wherein:—

Figure 1 is a front elevation of a coin freed mechanism in accordance with the invention for delivering packets of cigarettes.

Figure 2 is a side elevation of Figure 1.

Figure 3 is a vertical section of the upper portion of the mechanism seen in Figure 1.

Figure 4 is a plan of Figure 1, and

Figure 5 is a sectional plan on the line 5—5 of Figure 1.

The packets 6 are arranged alternately in a column and supported by means of pins 7 which project equally on either side of the lower ends of feed rods 8. These rods 8 are rotatably mounted at their upper and lower ends within bearings formed in plates 9 and 10 respectively said plates 9 and 10 being maintained apart by means of a distance piece 11 secured to each of the said plates 9 and 10. In addition, the plate 9 is adapted to embrace a pair of oppositely disposed guide rods 12 the upper ends whereof project above the said plate and are adapted to engage within sockets 13a formed in sleeves 13 secured to the undersurface of a plate 14 which constitutes the bottom housing plate for the actuating mechanism.

The upper ends of the rods 8 also project above the surface of the plate 9 the projecting ends being somewhat reduced in diameter and formed with a squared section adapted to engage within correspondingly shaped sockets formed in bosses 15 rotatably mounted in the bottom housing plate 14. These bosses 15 are formed integrally with pinions 16 which are adapted to mesh with a common spur wheel 17 secured to a casing 18 adapted to contain a clock spring 19. One end of the clock spring 19 is anchored to a shaft 20 rotatably mounted in the bottom plate 14 and in a plate 21 forming the top plate of the housing for the actuating mechanism, the spring 19 being adapted to be tensioned by means of rotation of the shaft 20 by a knob 22 secured thereon.

Secured to the lower section of the main shaft 20 and rotatable therewith is a cylindrical drum 23 provided with numerical markings around the periphery thereof said numerical markings being observable through a window disposed at the front of the casing or housing within which the apparatus is normally located and serving to denote the number of packets remaining in the machine. Secured to the upper surface of the plates 9 are four equi-distantly spaced leaf springs 24 the free ends whereof are adapted to co-operate with a plurality of correspondingly spaced angle brackets 25 secured to the undersurface of the bottom housing plate 14 said springs 24 and angle brackets 25 co-operating to secure the container unit to the actuating mechanism.

The pinions 16 are also provided with upwardly projecting bosses 16a the upper ends whereof are rotatably mounted in bearings formed in the top housing plate 21. Secured to one of these bosses 16a is an escapement wheel 26 carrying four stops 26a which are arranged at 90 degrees apart the escapement wheel 26 being disposed above the top housing plate 21.

Adapted to engage with this escapement wheel is a forked escapement lever 27 the arms 27a whereof engage with the stops 26a on the escapement wheel 26 said lever 27 being pivotally mounted on a spindle 28 projecting from the top housing plate 21. The lever 27 is pivotally connected at its other end to a link 29 said link having at the end

thereof a pin 29b adapted to engage within a notch 30a formed in a quadrant 30 secured at the upper end of a rod 31 which is rotatably mounted in a sleeve 31b secured to the housing plates 14 and 21. The lower end of the rod 31 is provided with a horizontally projecting arm 31a which is normally engaged behind a stop 32a formed on the upper arm of a jawed trip lever 32 pivotally mounted on a pin 33a secured to a bracket 33 carried by a fixed rod 34. The other arm of this trip lever 32 is provided with a cranked section 32b which is adapted to project within the coin chute 35 and to be depressed by the coin during its fall a spring 36 anchored at one end to the trip lever 32 and at the other end to a pin 37 projecting from the bracket 33 being provided for returning the trip lever 32 to its normal position.

The escapement lever 27 is connected to the piston rod 38 of a double acting dashpot 39 for regularizing the action of the mechanism.

Secured at the lower end of a rod 40 is a shutter 41 adapted to close the coin slot 35a when the word "empty" appears on the drum 23 suitable gearing being provided to ensure synchrony between the drum 23 and the shutter 41.

The escapement lever 27 is also provided with a pin 27c adapted to have connection with a cranked arm 42 adapted to actuate a counting mechanism 43 said counting mechanism being secured to the bottom housing plate by means of a bracket 44 the indications of the counting mechanism being visible through a window formed in the case or housing within which the mechanism is located.

The operation of the mechanism is as follows: Upon the insertion of a coin in the slot 35a the said coin traverses the chute 35 and in its passage strikes the cranked arm 32b of the trip lever 32 which projects within the said chute. This lever 32 is depressed by the weight of the coin and thereupon raises the other arm whereby the arm 31a of the rod 31 is freed from engagement with the stop 32a on the upper jaw of the trip lever 32 and allows the said arm 31a to move in an anti-clockwise direction. The rotation of the arm 31a however is temporarily arrested by a stop 32c on the lower jaw of the trip lever 32, the initial motion however thus permitted admits of the partial disengagement of the pin 29b on the link 29 in connection with the escapement lever 27 from within its notch 30a in the quadrant 30. Upon the release of the coin from the chute the trip lever 32 rises and permits of the disengagement of the arm 31a from the stop 32c on the lower jaw of the trip lever 32 and admits of the arm 31a continuing its anti-clockwise motion. This continued motion admits of the complete disengagement of the pin 29b on the link 29 from within the notch 30a on the quadrant 30 and allows the escapement wheel 26 to rotate through an angle of 90 degrees under the action of the coiled spring 19. The rotation of the spur wheel 17 through the intermeshing pinions 16 on the feed rods 8 effects a rotation of the supporting pins 7 carried by the lower ends thereof whereby the lowermost packet 6 is freed and allowed to fall into the delivery chute. Simultaneous with the partial release of the escapement wheel 26 two of the stops 26a on the said wheel come into engagement with the forked arms 27a of the escapement lever 27 and return the same to its initial position. The quadrant 30 and link 29 are also returned to their initial position by means of springs 45 and 46 respectively connected therewith, a stop 47 being provided to limit the return motion of the quadrant 30. The motion of the escapement lever 27 is retarded by means of the dashpot 39 whereby a sufficient period of time elapses between the successive operations of the trip mechanism to admit of the delivery of the packet without causing any jamming of the several parts of the mechanism.

A coin freed delivery mechanism constructed as hereinbefore described admits of the whole of the mechanism being enclosed within a housing and is substantially fraud-proof. Moreover the mechanism is both simple and efficient and ensures that only one packet may be obtained for each insertion of a coin and further by reason of the indicating devices it is readily possible to ascertain the state of the apparatus and to obtain a record of the deliveries effected thereby.

Claims:—

1. A coin freed delivery mechanism comprising a spring operated shaft for actuating a dispensing means, a spur wheel adapted to be driven from said shaft, an escapement wheel adapted to be driven from said spur wheel, stops arranged at 90 degrees apart on said escapement wheel, an escapement lever adapted to co-operate with said escapement wheel for effecting the release of the said lever subsequent to the insertion of a coin and trip mechanism adapted for actuation by the coin for controlling the operation of said lever.

2. A coin feed delivery mechanism comprising a spring operated shaft for actuating a dispensing means, a spur wheel adapted to be driven from said shaft, an escapement wheel adapted to be driven from said spur wheel, stops arranged at 90 degrees apart on said escapement wheel, an escapement lever adapted to co-operate with said escapement wheel for effecting the release of said lever subsequent to the insertion of a coin, a coin chute, a trip lever an arm whereof is disposed within said coin chute,

and means connected with said trip lever for releasing the escapement lever upon the insertion of a coin.

3. A coin freed delivery mechanism comprising a spring operated shaft for actuating a dispensing means, a spur wheel, adapted to be driven from said shaft, an escapement wheel adapted to be driven from said spur wheel, stops arranged at 90 degrees apart on said escapement wheel, an escapement lever adapted to co-operate with said escapement wheel, a coin chute, a trip lever an arm whereof is disposed in the coin chute and in the path of the falling coin, a stop on the other arm of said trip lever, and a rotatably mounted rod in operative connection at its upper end with the escapement lever and at its lower end with the stop on the trip lever the rotation of said rod being controlled by the trip lever for freeing the escapement lever upon the insertion of a coin.

4. A coin freed delivery mechanism comprising a spring operated shaft for actuating a dispensing means, a spur wheel adapted to be driven from said shaft, an escapement wheel adapted to be driven from said spur wheel, stops arranged at 90 degrees apart on said escapement wheel, an escapement lever adapted to co-operate with said escapement wheel, a coin chute, a trip lever one arm whereof is disposed within the said chute and in the path of the falling coin, a stop on the other arm of said trip lever, a rotatably mounted rod, a quadrantal shaped member mounted on the upper end of said rod, a slot in said quadrantal shaped member, a pin in operative connection with the escapement lever and adapted to co-operate with the aforesaid slot, an arm on the lower end of said rod adapted to engage with the stop on the trip lever, and spring means for returning the pin and quadrantal member to their normal positions.

5. A coin freed delivery mechanism comprising a spring operated shaft for actuating a dispensing means, a spur wheel adapted to be driven from said shaft, an escapement wheel adapted to be driven from said spur wheel, stops arranged at 90 degrees apart on said escapement wheel, an escapement lever adapted to co-operate with said escapement wheel, a coin chute, a trip lever an arm whereof is disposed within said coin chute, means connected with said trip lever for releasing the escapement lever upon the insertion of a coin, and means for denoting the number of packets remaining or extracted from the machine.

In testimony whereof, I have signed my name to this specification.

LESLIE CLIFFORD BRADLEY.