July 13, 1965 A. LONKE ETAL 3,194,249

ATTACHMENT FOR COIN-CONTROLLED APPARATUS

Filed Sept. 19, 1963 3 Sheets-Sheet 1

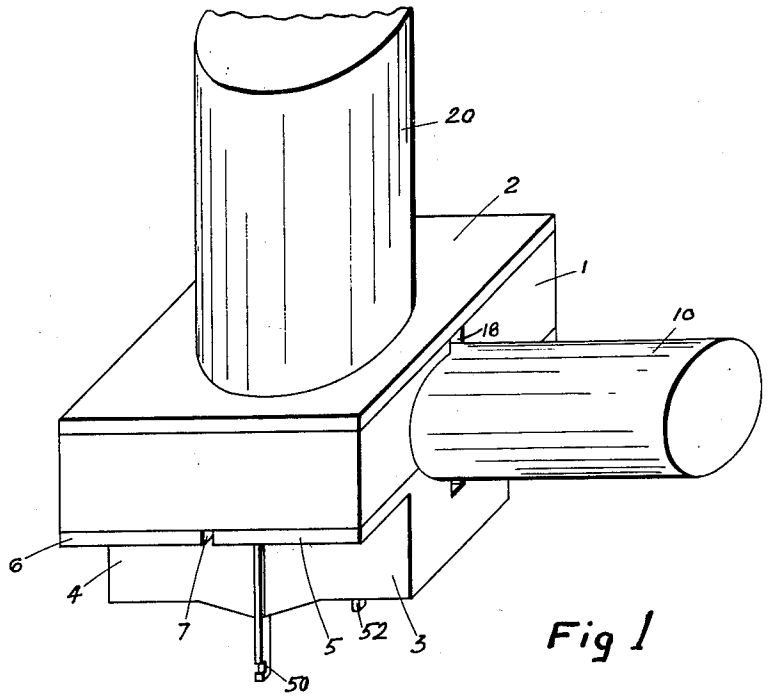


Fig 1

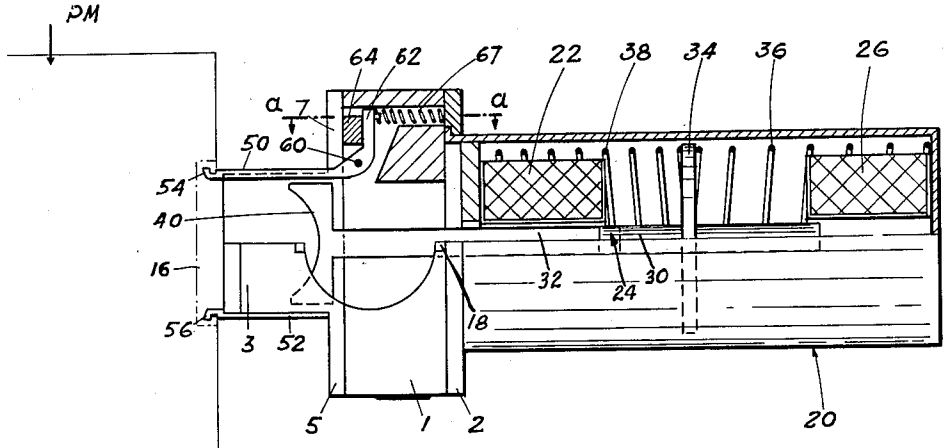


Fig 2

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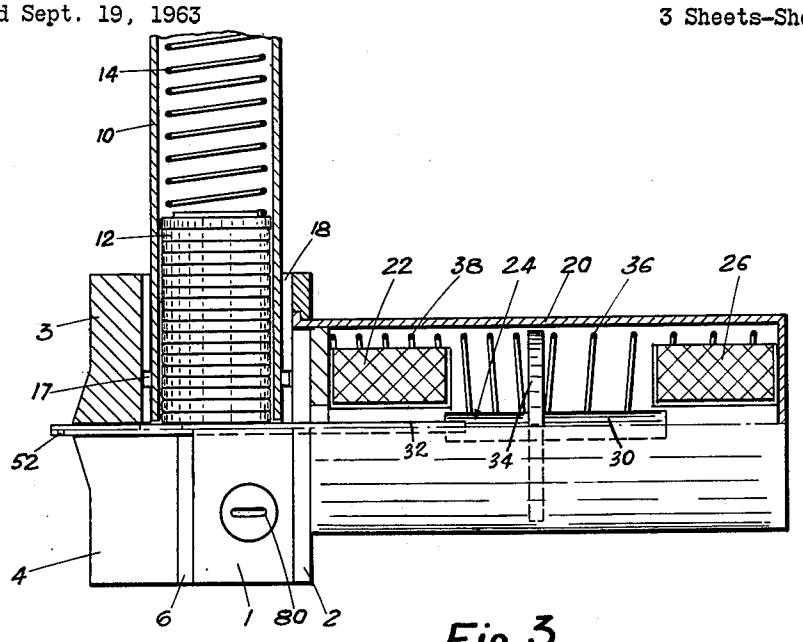


Fig 3

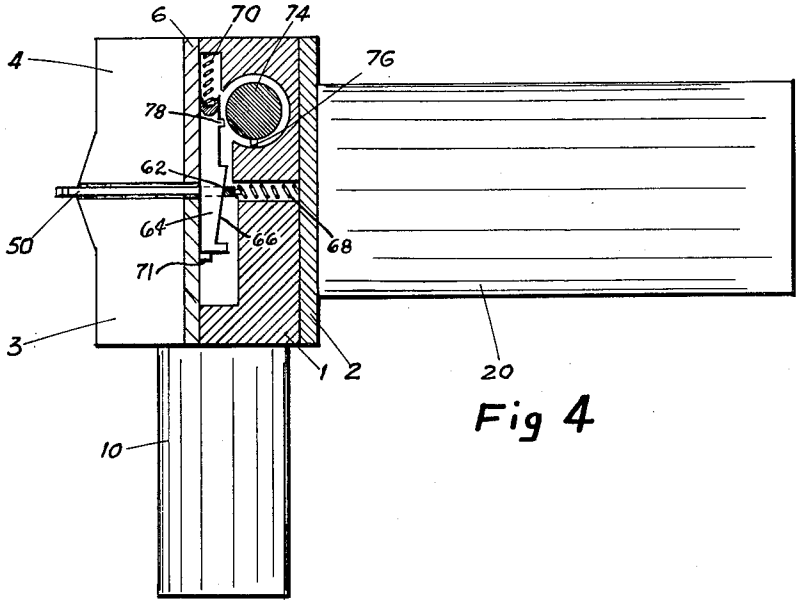


Fig 4

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ATTACHMENT FOR COIN-CONTROLLED APPARATUS

Filed Sept. 19, 1963 3 Sheets-Sheet 3

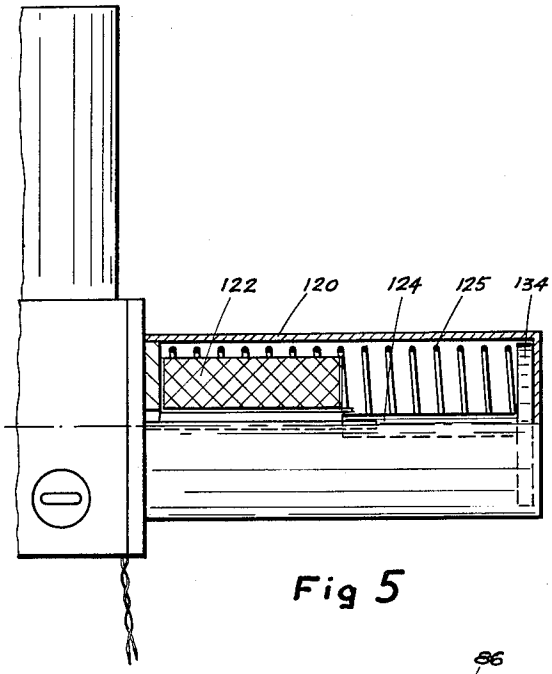


Fig 5

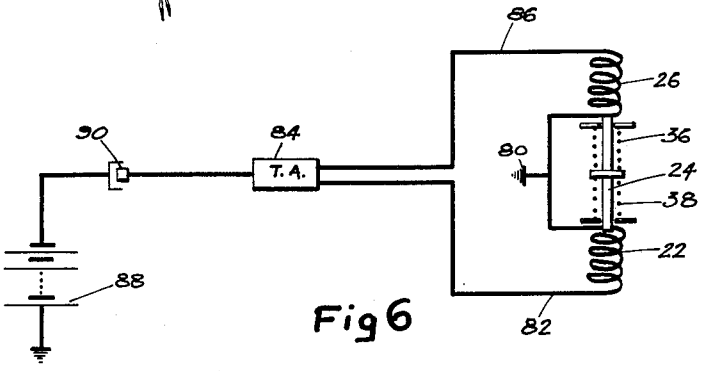


Fig 6

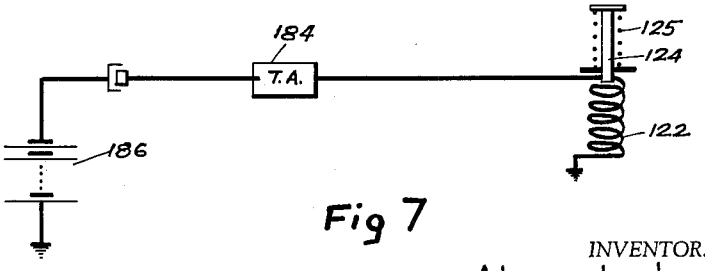


Fig 7

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ATTACHMENT FOR COIN-CONTROLLED APPARATUS

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6 Claims. (Cl. 133—4)

The present invention relates to an attachment for coin-controlled apparatus, and particularly to such apparatus which periodically requires the insertion of a coin after the elapse of a predetermined time period.

There are many types of coin-operated apparatus in which a coin (this term including a token or the like) must be inserted after the elapse of a pre-determined time in order for the apparatus to continue operating. One of the most common types is the vehicle parking meter, which requires that a coin of a certain denomination (e.g. five cents) be inserted into the meter in order for the meter to continue operating for a specified time (e.g. 30 minutes), after which time the meter will display an expiration signal if a new coin is not inserted. In addition to parking meters, television and radio receiving sets may include coin boxes which require the insertion of a coin after a pre-determined time, such sets being frequently found in motels and the like. Further, in some localities coin boxes are included in heating units which require the periodic insertion of a coin in order to continue receiving the heat.

The present invention is herein described with particular reference to a parking meter, although it will be understood that it may be applied or embodied in other types of coin-controlled apparatus.

Frequently, the coin-controlled apparatus such as a parking meter, will permit the insertion of only one coin for a pre-determined time period, which requires the user to return after the elapse of that time period to insert another coin in order for the meter to continue operating. This is usually a matter of considerable inconvenience to the user. Even in devices which will receive a number of coins at one time, the user may wish to have the device operate for a longer period of time than covered by the maximum number of coins acceptable by the meter, which again requires the user to return after this period of time and insert new coins. Also, the user may not know beforehand how long he wishes the device to operate, which means that he may insert too many coins for the actual time period he requires, or he may insert an insufficient number of coins for that time period. Erring in the former respect involves a loss to him of the excess number of coins inserted, and erring in the latter respect causes the device to expire prematurely, which may result in a traffic violation, in the case of a parking meter, or discontinuance of the service, in the case of other apparatus.

An object of the present invention is to provide a device for a coin-operated apparatus which will avoid one or more of the drawbacks discussed above.

A further object of the present invention is to provide a device which will automatically insert the coins in a coin-operated apparatus as and when needed.

A still further object of the present invention is to provide a device for coin-controlled apparatus in which the user can be assured that he will need to insert only the number of coins required for the actual time period he uses.

A still further object of the present invention is to provide a device as described above particularly useful with respect to vehicle parking meters.

According to a broad aspect of the invention, there is provided a device comprising a container adapted to contain a plurality of coins, the container having an opening

at one side thereof and the coins being individually dispensable through the opening: means for attaching the container to a coin-controlled apparatus with the opening in registration with the coin-receiving opening of the apparatus; ejecting means which, upon actuation, is adapted to eject a coin out of the container and into the coin-receiving opening of the coin-controlled apparatus; and timing means controlling the ejecting means to actuate same after the elapse of a pre-determined time period.

According to a feature of the invention, the ejecting means is electrically operated and includes, for example, a solenoid winding and an armature, the armature being adapted to eject the coins from the container upon energization of the solenoid winding.

The means provided for attaching the device to the coin-controlled apparatus includes a finger adapted to be inserted in the coin-receiving opening. The finger is moveable from a non-locking position to a locking position, and further means preferably key-operated, are provided for latching the finger in the locking position.

Where the device is used as an attachment to a parking meter, the ejecting means and the timing means may be operate from the battery of the automobile, and therefore the device also includes a conductor connectible to the automobile battery through, for example, the cigarette lighter.

There are a number of other features and advantages of the invention which will become apparent from the description below of two preferred embodiments thereof, taken by way of example, illustrated in the accompanying drawings, wherein:

FIG. 1 is a perspective view showing the general outside configuration of a device constructed in accordance with the invention particularly for use with parking meters:

FIG. 2 is a front plan view, partly in section and with the coin-container removed, of the device of FIG. 1 showing how it is attachable to the parking meter;

FIG. 3 is a side plan view, partly in section, of the device of FIGS. 1 and 2;

FIG. 4 is a partial sectional view along the lines *a—a* of FIG. 2;

FIG. 5 is a partial sectional view, similar to FIG. 3, but of a modification of the device of FIGS. 1–4;

FIG. 6 is a schematic diagram illustrating the electrical circuit for use with the device of FIGS. 1–4; and

FIG. 7 is a schematic diagram of a circuit that may be used with the modification of FIG. 5.

With reference particularly to FIGS. 1–4, the device illustrated comprises a substantially rectangular block 1 having secured thereto, by any suitable means, a rectangular plate 2 on one side of the block and a pair of T-shaped members 3 and 4 on the other side. The latter members include a plate portion, 5 and 6, providing the means for their securement to the block 1. Members 3 and 4 are positioned so as to provide a slight space 7 therebetween. Block 1 and members 3 and 4 are formed with a longitudinally extending cut-out and define therebetween an internal bore.

Fitted within the latter bore is a cylindrical holder 10 adapted to contain a plurality of coins 12. A spring 14 (FIG. 3) is disposed within the container 10 at one side of the stack of coins 12 and is adapted to urge the coins toward the opposite side of the container 10. That side of the container 10 is open, permitting the coins to be individually dispensed therethrough. The open side of the container is in alignment with space 7 between members 3 and 4.

The device is attachable to the parking meter PM (FIG. 2) with its open end and with space 7, in registration with the coin receiving opening 16 of the meter. The outside surface of the container may be formed with

a pair of bayonet pins 17 (FIG. 3) receivable in grooves 18 formed in the internal bore, to provide ready attachment and release of the container from block 1.

Plate 2 also supports a housing 20 in which is disposed ejecting means for ejecting a coin from container 10 into the coin-receiving opening 16 of the parking meter PM. As shown in the drawings, housing 20 is fitted in plate 2 and extends at right angles to container 10 for the coins.

The ejecting means in the illustrated embodiment is electrically operated and includes a solenoid winding 22 fixed within housing 20, and an armature 24 concentrically disposed within winding 22 and moveable within housing 20. Winding 22 is used to actuate the armature 24 to eject a coin 12 out of container 10 and into the parking meter PM. In the embodiment of FIGS. 1–4, a second winding 26 is provided for returning the armature. Armature 24 is made of two sections, one section 30 being of soft iron or other magnetizable material and the other section 32 being of aluminum or bronze, or other non-magnetizable material. Magnetizable section 30 includes an annular ring 34 approximately midway between the two windings 22 and 26. A spring 36 is disposed between annular ring 34 and one end of the housing 20, and a second spring 38 is disposed between annular ring 34 and the opposite end of the housing.

Section 32 of the armature is adapted to be disposed just above the first coin in the stack, that is the first coin to be dispensed. That end of the armature is formed with a curved surface 40 engageable with the first coin to eject same when the armature is actuated.

The arrangement in the FIGS. 1–4 embodiment is such that armature 24 is normally in the position illustrated in FIG. 2 wherein lower section 32 is in its downward position. When a coin is to be ejected, winding 26 of the solenoid is energized to pull-up the armature against spring 36, which permits the stack of coins 12 to be moved by spring 14 so that a new coin is in alignment with space 7 between members 3 and 4, and therefore, in position to be dispensed. Solenoid 22 is then energized to cause the armature 24 to come down rapidly with its curved surface 40 in engagement with the coin to be dispensed and ejecting same out of container 10 and into the coin-receiving opening 16 of the parking meter.

The device is attachable to the coin-receiving opening of the parking meter by a pair of opposed fingers 50 and 52, one disposed at each end of space 7, the fingers being insertable at each end of the parking meter slot 16. As shown, the two fingers are formed with hooked ends 54 and 56 adapted to engage the sides of the slot opening 62 when attached to the parking meter. Both fingers are moveable to permit the insertion and removal of the device from the parking meter.

Finger 50 is moveable from an unlocking position to a locking position, and means are provided for latching finger 50 in the locking position. For this purpose, finger 50 is pivotably mounted on a pin 60 (FIG. 2) and includes a projection 62 extending at right angles to the finger portion. A latching slide 64 is disposed underneath projection 62 of the finger, the latching slide 64 being formed with a cam surface 66 (FIG. 4) against which projection 62 bears. The latter projection is urged against cam surface 66 in its locking position, which is the position shown in FIG. 4, by a spring 68. In this position, projection 62 of finger 50 engages a high surface of the cam surface 66 of latching slide 64, the slide being urged to this position by a spring 70, and resting against stop 71. Accordingly, finger 50 is not permitted to rotate about its pin 60, and is therefore locked in the position illustrated in FIG. 2.

Means are provided for unlocking finger 50, this means being in the form of a rotatable disc 74 having a projection 76 on its surface adapted to engage a projection 78 on latching slide 64. Disc 74 is rotatable by a key

receivable in key-opening 80 (FIG. 3) of the device. Accordingly, to unlock finger 50 in order to permit removal of the attachments from the parking meter PM, a key is inserted in opening 80 and turned, which rotates disc 74 and causes its projection 76 to engage projection 78 of latching slide 64. This moves the latching slide leftwardly as shown in FIG. 4, which permits the finger 50 to rotate about its pin 60, enabling the finger 50 to be detached from the coin-receiving opening 16 of the parking meter PM, and thereby permitting removal of the device.

The second finger 52 may be fixed or moveable as finger 50. It is preferred to have it moveable. Accordingly, the foregoing structure for latching and unlatching finger 50 would be duplicated for finger 52, except that only one disc 74 need be provided, that disc having projections acting on the latching slides for both fingers.

In the embodiment of FIGS. 1–4, two solenoid windings 22 and 26, are provided for actuating the armature 24, one winding actuating the armature to eject the coin and the other winding returning the armature. FIG. 5 illustrates a variation in this arrangement, this variation utilising only one solenoid winding instead of two.

In FIG. 5, the electrically-operated ejecting means is disposed within housing 120 and comprises a solenoid 122 for actuating armature 124, and a spring 125 for returning the armature. The armature 124 is of the same construction as in the FIGS. 1–3 embodiment, except that its annular ring is formed at its ends, wherein it is identified by the reference numeral 134 in FIG. 5, instead of in the middle. Return spring 125 is inserted between annular ring 134 of the armature and the opposite end of housing 120.

The arrangement of FIG. 5 is such that the energization of winding 122 pulls armature downwardly to eject a coin, and coil spring 125 returns the armature upon completion of the ejecting operation.

The circuit for the two embodiments are schematically illustrated in FIGS. 6 and 7. In both cases, the circuits may be operated from the automobile battery.

In FIG. 6, illustrating a circuit for use with the embodiment of FIGS. 1–3, the actuation winding for the armature is shown as 22, and the return winding is shown as 26. One side of winding 22 is connected to ground 80 and the other side of the winding is connected by conductor 82 to a timing device 84. Similarly, one side of winding 26 is connected to ground, and the other side of the winding is connected to conductor 86 to timing device 84. The timing device is in turn connected to the battery 88 of the automobile by any suitable means, such as by connector 90 insertable in the cigarette lighter of the automobile.

Timing device 84 may be any one of a number of well-known designs adapted to provide an electrical pulse to conductor 82 at a pre-determined time, and a second electrical pulse to conductor 86 at a second pre-determined time. A suitable timing device for use in this application is a timing electrical motor which closes one switch, for line 82, at pre-determined time intervals, and closes a second switch, for line 86, at other pre-determined time intervals. In the arrangement of FIGS. 1–4, as briefly mentioned earlier, winding 26 is first energized to return the armature 24 to its normal raised position, and then winding 22 is energized to bring down the armature, to eject a coin. Accordingly, in this arrangement, timing device 84 would first energize winding 26 and then a short time later would energize winding 22.

How frequently windings 22 and 26 are energized by timing device 84 depends upon the time-setting of the coin-controlled apparatus with which the device is used. For example, if the device is used with a parking meter which requires the insertion of a coin every 30 minutes, then timing device 84 is set to actuate windings 22 and 26 every 30 minutes.

The circuit of FIG. 7 may be used with the embodiment

of FIG. 5, wherein the single winding **122** is periodically energized through timing device **184** powered by automobile battery **186**, and spring **125** returns the armature after its actuation, to eject a coin, has been completed.

It is to be understood that the described embodiments of the invention are illustrative only, and that many other embodiments, forms and applications of the invention, or its several features, alone or in combination, may be made without departing from the spirit and scope of the invention as defined in the following claims.

We claim:

1. A device of the character described, comprising: a container adapted to contain a plurality of coins, said container having an opening at one side thereof and said coins being individually dispensible through said opening; means for attaching said container to a coin-controlled apparatus with said opening in registration with the coin-receiving opening of the apparatus; said attaching means including a finger adapted to be inserted in the coin-receiving opening, said finger being movable from an unlocking to a locking position and means for latching said finger in locking position in said opening; ejecting means which, upon actuation, is adapted to eject a coin out of said container and into the coin-receiving opening of the coin-controlled apparatus; and timing means controlling said ejecting means to actuate same after the lapse of a predetermined time period.

2. A device as defined in claim **1**, wherein said finger is pivotably mounted, and said latching means includes a latching slide movable from a latching position to block the pivotable movement of said finger, to an unlatching position permitting said finger to pivot to unlocking position.

3. A device as defined in claim **2**, wherein said latching means further includes key-operated means for moving said latching slide to its unlatching position.

4. A device as defined in claim **3**, wherein said key-operated means comprises a disc rotatable by said key, said disc having a projection engageable with said latching slide to move said slide to its unlatching position upon rotation of said disc.

5. A device of the character described, comprising: a container adapted to contain a plurality of coins, said container having an opening at one side thereof and said coins being individually dispensible through said opening; means for attaching said container to a coin-controlled apparatus with said opening in registration with the coin-receiving opening of the apparatus; said attaching means including a pair of opposed fingers each insertable at one end of the coin-receiving opening, at least one of said fingers being moveable to permit the insertion of said device; and ejecting means for ejecting a coin out of said container and into said coin-controlled apparatus.

6. A device as defined in claim **5**, wherein both of said fingers are movable to permit the insertion of said device.

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