Nov. 18, 1941. C. A. TOCE ET AL 2,262,783

VEHICLE PARKING METER

Filed April 8, 1937 2 Sheets-Sheet 1

Fig. 1.

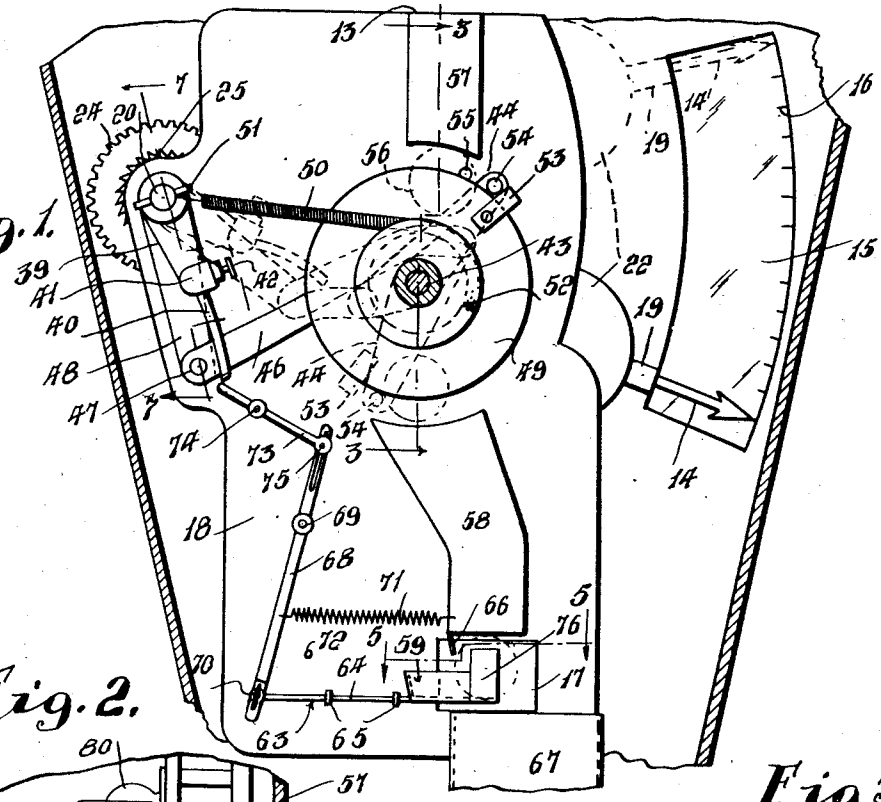


Fig. 2.

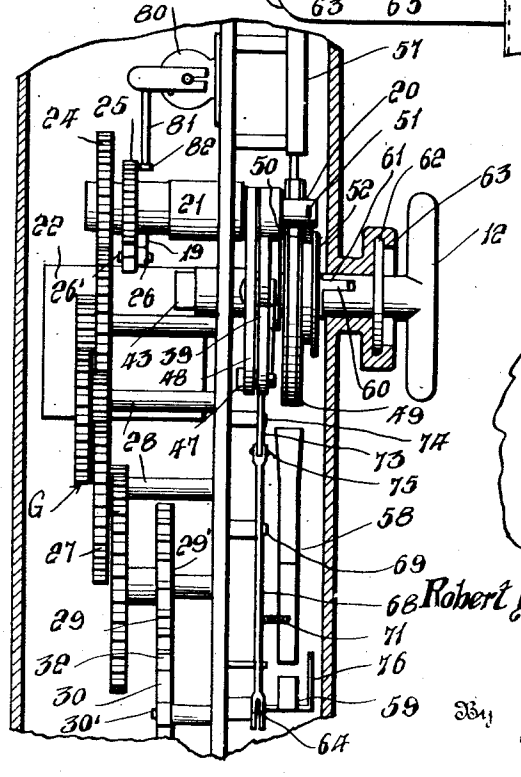
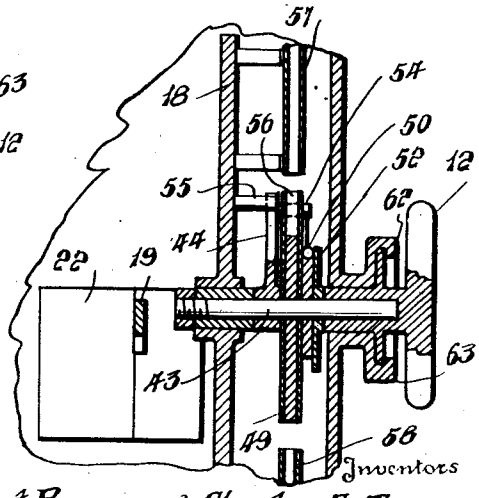


Fig. 3.



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VEHICLE PARKING METER

Filed April 8, 1937 2 Sheets-Sheet 2

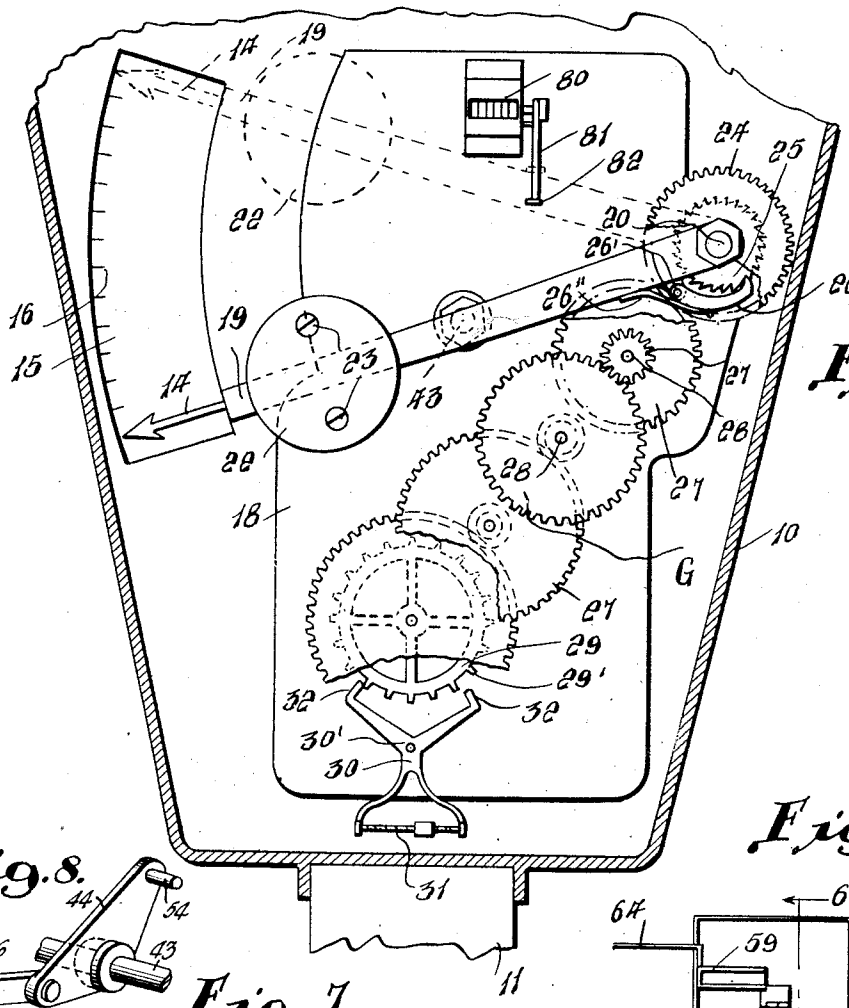

Fig. 4.

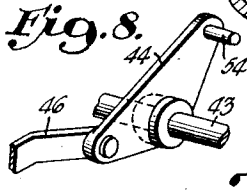

Fig. 8.

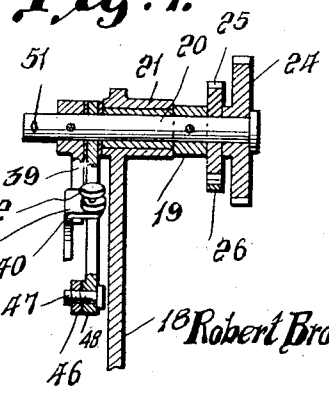

Fig. 7.

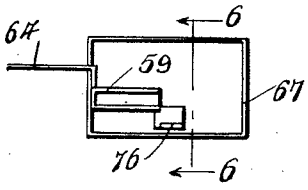

Fig. 5.

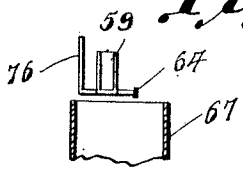

Fig. 6.

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UNITED STATES PATENT OFFICE

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VEHICLE PARKING METER

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Application April 8, 1937, Serial No. 135,792

6 Claims. (Cl. 194—84)

The present invention relates to a parking meter particularly adapted for use in connection with automobiles.

It is more specifically aimed to provide a compact, efficient and inexpensive structure wherein a weighted indicator, by means of a pawl co-acts with a ratchet on one of the members of a train of gears in order to retard the descent or movement of the indicator.

More specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view showing the casing in section and the operating parts of my invention primarily in front elevation;

Figure 2 is a view showing the casing in section and the operating parts primarily in side elevation looking toward the right in Figure 1;

Figure 3 is a detailed sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a view of the parts of Figure 1 looking from the rear;

Figure 5 is a detailed plan of the coin holder, chute and associated parts;

Figure 6 is a detailed section taken on the line 6—6 of Figure 5; and

Figure 7 is a detailed sectional view taken substantially on the line 7—7 of Figure 1.

Figure 8 is a detailed view of an operating arm and connecting link employed in my invention.

Referring specifically to the drawings wherein like reference characters designate like or corresponding parts throughout the different views, the operating parts (see Figures 1 and 4) are contained within a suitable casing 10 permitting access to the interior thereof for inspection and repair of the operating parts, as well as the withdrawal of coins. The said casing may be mounted in any suitable manner as by means of a pedestal 11 and the device may be permanently attached to a curb or the like or be portable, as preferred.

Briefly, the device is operated by the manual turning of a knob or lever 12 (see Figures 1 and 3) following deposit of the proper coin into an opening 13, which operation, through interconnecting mechanism, lifts a weighted arm, subsequently permitting its descent under the action of gravity, carrying with it an indicator 14 which is visible through suitable transparent windows 15, disposed in alignment, at the front and rear walls of the casing and which indicator may co-act with calibrations 16 delineated on the window panels. Through mechanism later to be described, the indicator 14 has a downward movement corresponding to any desired unit of time for which the parking space is allotted or sold, as for instance, one hour, two hours, etc. The coin itself (see Figure 1) will be visible substantially throughout the length of the parking time, through a transparent window 17 in the adjacent wall of the casing. As a result spurious coins may be observed and detected through the window. Due to this arrangement, the officer or attendant, who may be busy at the time the automobile is parked, can later observe the coin at his leisure.

Most of the operating parts of our device (see Figures 1 and 2) are mounted upon a vertical panel 18 stationarily mounted within the casing in parallel with and spaced from the front and rear walls of the casing.

The indicator 14 (see Figures 1 and 4) is in the form of an arm 19 disposed at the rear of the panel 18. Arm 19 (see also Figure 7) is rigidly connected to a rock shaft 20 journaled in a bearing 21 provided on the panel 18. The arm 19 is urged downwardly at its free end by a weight 22. Such weight 22 is preferably made in sections which are secured together and adjustably on the arm 19 by means of screws or the equivalent 23.

Descent of arm 19 under the action of gravity is controlled by a train of reducing gearing. This train of gearing includes a gear wheel 24 which is loose on the shaft 20 and rigid with such gear wheel 24 is a ratchet wheel 25. Indicator 19 has a pawl 26 pivoted thereto at 26' and urged by a spring 26'' into engagement with the teeth of said ratchet wheel 25. Said gear 24 is enmeshed with one gear of any suitable number of gears 27, journaled on shafts 28 carried by the panel 18. According to the sizes and numbers of the gears mentioned, the speed of descent or movement of the indicator is regulated or predetermined. Connected to the lowermost gear wheel 27 is an escapement wheel 29 having escapement teeth 29'. An escapement lever 30 is pivoted at 30' to the panel 18 and it has a rod 31 on which a poise is screw-threaded or otherwise adjustable in order to normally maintain one of a plurality of escapement projections 32 between an adjacent pair of the teeth 29'.

Assuming that the indicator is in its uppermost or the dotted line position shown in Figures 1 and 4, the same can lower under the urgency

of its weight 22, only as fast as the train of gearing will permit since the pawl 26 carried by the indicator engages the ratchet wheel 25 and starts motion to the various gears of the train. The pawl 26 will readily ride over the ratchet teeth, when the indicator 19 is raised to starting position.

Rigidly clamped or otherwise connected to the rockshaft 20 in front of the panel 18 (see Figures 1 and 7) is a crank or arm 39 having an extension 40 and also having a laterally or inwardly projecting lug 41 in which a screw 42 is mounted for accurate adjustment of contact with a link 48 moved in actuating the meter as hereinafter described. Adjustment of screw 42 serves to accurately set indicator 14 with respect to its associated scale 15.

Rigidly fastened to the panel 18 (see Figures 1 and 3) and extending forwardly therefrom is a fixed or stub-shaft 43. On said shaft 43, a lever 44 is journaled or pivoted which is also pivoted to a link 46, in turn pivoted at 47 to another link 48 which is pivoted or journaled on the aforesaid rock-shaft 20. When the indicator is in lowermost position, the projection 41 and screw 42 are disposed over the link 48 and in its path of upward movement. Upward movement of the link 48, as by lifting link 46 through clockwise movement of arm 44 (see Figures 1 and 8), results in a corresponding lift of arm 39 and associated arm 19 bearing pointer 14.

A rotatable operating disc 49 (see Figures 1 and 3) is journaled on the fixed shaft 43 and counter-clockwise movement thereof is normally urged by a contractile coil spring 50 attached to the rock-shaft as at 51 and having its opposite end partially wound about a pulley 52 fastened to one side of the rotatable disc 49 and to which pulley the adjacent end of the spring 50 is fastened. Such counter-clockwise movement of the rotary member 49 is limited by the engagement of a lug or projection 53 on such rotatable member with a pin or stop 54 projecting forwardly from the lever 44 at the free end of the latter and which free end abuts a pin or stop 55 projecting forwardly from the panel 18 and terminating short of the rotatable member 49. Thus the contractile action of the spring 50 normally maintains the free end of lever 44 in contact with the pin 55 and the projection 53 in contact with pin 54, and substantially as shown in Figures 1 and 3.

The rotatable disc 49 has a coin recess 56 in its periphery, adapted to align, when the parts are idle, with a chute 57, fastened to the panel 18, and with the upper end of which chute the previously mentioned coin deposit opening 13 communicates. The pin 54 is in the path of rotation of the coin when the coin moves unitarily with the rotatable member 49, in a clockwise direction, as described hereinafter, the coin thus operating the lever 44 by pushing the pin 54 and finally falling by gravity into a chute 58, (see the dotted portion of Figure 1) carried by the panel 18, and from which chute the coin falls in an upright position, into a cup or holder 59 open at the top and at the right hand end.

The operating knob or the like 12 is rotatable on the fixed shaft 43 and detachably inter-fitted at 60 (see Figure 2) with projections 61, on the pulley 52. Detachment of such operating knob or handle 12 is prevented by the locking or attachment to a pressed flange 62 on such operating member rotatably in a device 83 on the casing.

The coin cup or holder 59 (see Figures 5 and 6) is carried by a slide 64 mounted and guided as at 65 on the panel 18. Such slide 64 is adapted to be pulled to the left to the position shown in Figure 1, to the end that the slide will disengage the coin which cannot move to the left because of a projection 66 on the chute 58, and which will accordingly fall into a till or tray 67 from which they may be removed from time to time by the owner or authorized agent.

In order to operate this slide 64 a lever 68 is pivoted at 69 to the panel 18 and at 70 it is pivoted to the slide. A contractile coil spring 71 is connected to the lever 68 below its pivot 69 and to the chute 58, urging the slide to the right and normally maintaining lever 68 in abutment with a stop 72 extending from the panel 18. Another lever 73 pivoted at 74 to panel 18, has a pin and slot connection at 75 with the upper end of lever 68. One end of lever 73 is free and adapted to be engaged by lever 39 or its extension 40, upon lever 19 reaching its lowermost position as seen in Figure 1, to move the slide 64 to the left, in which position a flag or signal 76 carried by the slide will align with the window 17 to indicate that the parking time allotted or paid for has expired. This flag may have any suitable data delineated thereon.

Normally, that is when not operating, as when an operating period has just expired (see Figure 1) the indicator 14—19 is in its lowermost position as shown in full lines in Figures 1 and 4. In normal position the upper end of lever 44 abuts stop 55 and projection 53 abuts pin or stop 54 and these parts are urged to this position by the spring 50. From this normal position the rotatable element 49 and knob 12 may be freely rotated to the right on the fixed shaft 43. Upon the deposit of a coin of proper denomination in the opening 13 it will slide in a vertical position down chute 57 into the recess 56. Thereupon upon turning the handle 12 to the right such coin will engage with the pin 54, thereby rocking lever 44 which in turn moves the links 46 and 48 upwardly and to the right. Since projection 41 and adjustable screw 42 are in the path of link 48, such link moves the crank 39 upwardly and to the right, thereby rocking shaft 20 and moving the indicator arm 14—19 upwardly to the dotted line position shown in Figures 1 and 4, the pawl 26 idling over the teeth of ratchet 25.

Movement of crank 39 and its extension 40 permits movement of levers 73 and 68 under the action of spring 71, thus taking slide 64 to the right and signal 76 out of view. Such operation of the knob 12 rotates the disc 49 clockwise substantially one hundred eighty degrees (180°) so that the coin falls by gravity into the chute 58 and is caught in the holder 59. The coin stays in this position until practically the end of the period allotted or paid for, and may be viewed to ascertain its genuineness, through the window 17.

The length of the windows 15 corresponds to the movement of the indicator for any pre-determined length of parking time, for instance an hour, two hours, one-half day or the like, the rapidity of the downward movement in such indicator from its upper or starting position, being regulated and retarded by the train of reduction gearing.

Close to the end of the parking time allotted or downward movement of the indicator 14, the crank 39 or extension 40 thereof engages the free end of lever 73 which in turn rocks the lever

68 against the tension of spring 71, moving the slide 64 to the left, causing the coin to fall into the chute 67 and displaying the flag 76 opposite the opening 17. Thereafter the officer, attendant or other person in authority will know that the automobile, if it is still parged, has been parked longer than the allotted or authorized time, whereby the device is an accurate meter of the time permitted or paid for.

A counter may be used in order that a record may be kept of the number of coins that are deposited in the machine and to this end a conventional counter is shown at 80 in Figures 2 and 4. This counter is adapted to be operated through the elevation of an arm 81 connected to the counter, and normally urged and maintained in lowermost position by a weight 82, a spring or the equivalent. This weight and arm 81 are arranged in the path of upward movement of the indicator 19, and on each operation of the indicator the counter will be operated.

Various other changes may be resorted to within the spirit and scope of the invention.

I claim as my invention:

1. A device of the class described having timing means including energy storage means and an indicator adapted to move to an extent corresponding to a predetermined parking period, coin-controlled operating means associated with said timing means to restore the energy of the timing means, position said indicator and then discharge the actuating coin, means to receive and hold the discharged actuating coin in a position for inspection substantially throughout the movement of the indicator during the parking period, means operable by the timing means to release the coin, and an inspection window in the device through which the coin may be viewed when in the holding means.

2. In a parking meter, in combination, an indicator, means including energy-storage means moving the same at timing rate, coin-controlled means for setting the indicator to an initial indicating position and restoring the energy of said energy-storage means, signal means, coin-exposing means, and means controlled by said coin-controlled means in setting the indicator to initial indicating position for setting said signal means to non-signalling position and actuating said coin-exposing means to display the actuating coin.

3. A device of the class described having an indicator adapted to move to an extent corresponding to a predetermined parking period, a rock-shaft carrying said indicator, a crank on said rock-shaft, coin-controlled means operatively engageable with said crank to turn the rock-shaft, position said indicator and then discharge the actuating coin, means controlling the return of said rock-shaft and indicator at timing rate, means to receive the discharged actuating coin and display the same during such return of rock-shaft and indicator, and signal means operated upon substantial completion of the return of said rock-shaft and indicator to signal a termination of the predetermined parking period.

4. A device of the class described having an indicator adapted to move to an extent corresponding to a predetermined parking period, a rock-shaft carrying said indicator, a train of gearing having a gear journalled on said rock-shaft provided with a ratchet, a pawl on the indicator engaging said ratchet, a lever, linkage connected to said lever and pivoted on said rock-shaft, mechanism to operate the rock-shaft through operation of the linkage, a projection on said lever, a rotatable operating means, said projection being in the path of operative rotation of a coin deposited in said means in order to rock the said lever.

5. A device of the class described having an indicator adapted to move to an extent corresponding to a predetermined parking period, a rock-shaft carrying said indicator, a train of gearing having a gear journalled on said rock-shaft provided with a ratchet, a pawl on the indicator engaging said ratchet, a lever, linkage connected to said lever and pivoted on said rock-shaft, mechanism to operate the rock-shaft through operation of the linkage, a projection on said lever, a rotatable operating means, said projection being in the path of operative rotation of a coin deposited in said rotatable operating means in order to rock the said lever, mounting means for said rock-shaft, a stop on said mounting means, a projection on said rotatable operating means, and spring means normally maintaining the first projection in contact with said stop and said two projections in contact with each other.

6. In a parking meter, in combination, a graduated scale, an associated pointer, a weight thereon, means for lifting the pointer and weight, a gear train and escapement means for controlling the descent of the pointer at a timing rate, coin-controlled means for actuating said lifting means and discharging the controlling coin, and means actuated by said coin-controlled means for receiving and displaying the discharged coin substantially throughout the descent of said pointer and then releasing the same.

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