

Oct. 20, 1942.

D. C. ROCKOLA

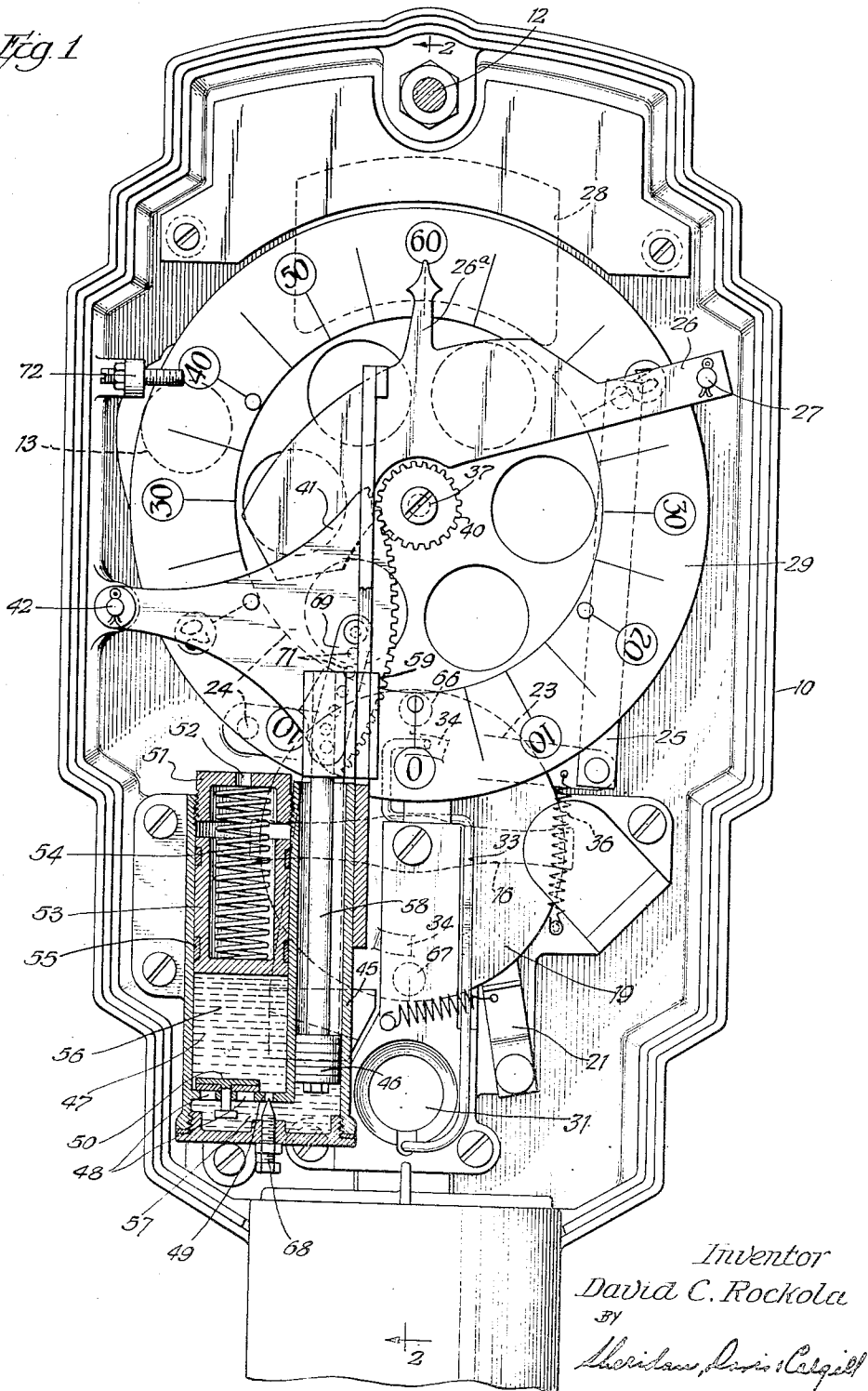
2,299,349

PARKING METER.

Filed March 28, 1940

3 Sheets-Sheet 1

Fig. 1



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Fig. 2

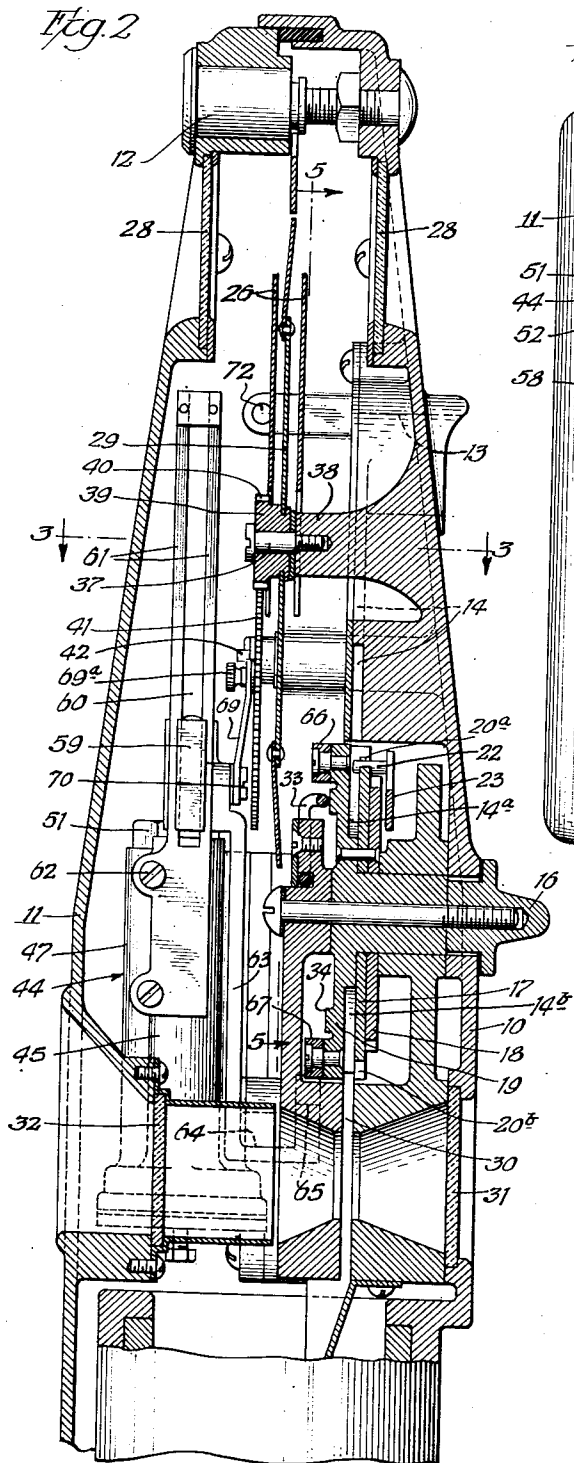
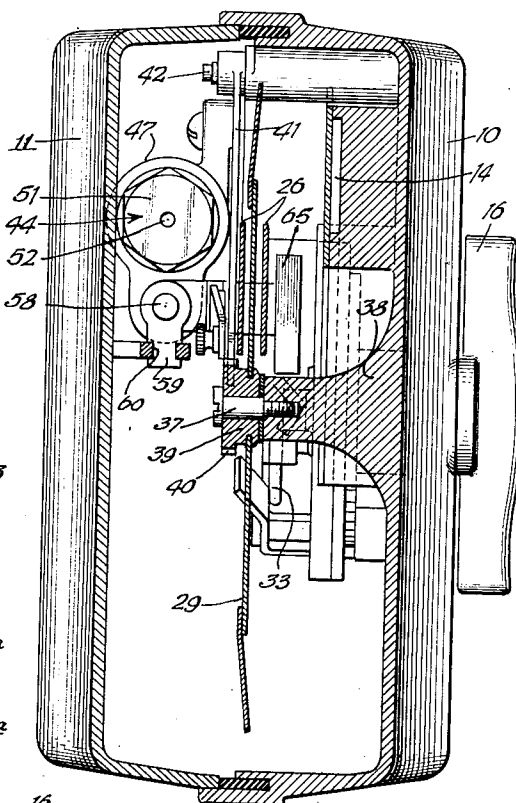


Fig. 3



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3 Sheets-Sheet 3

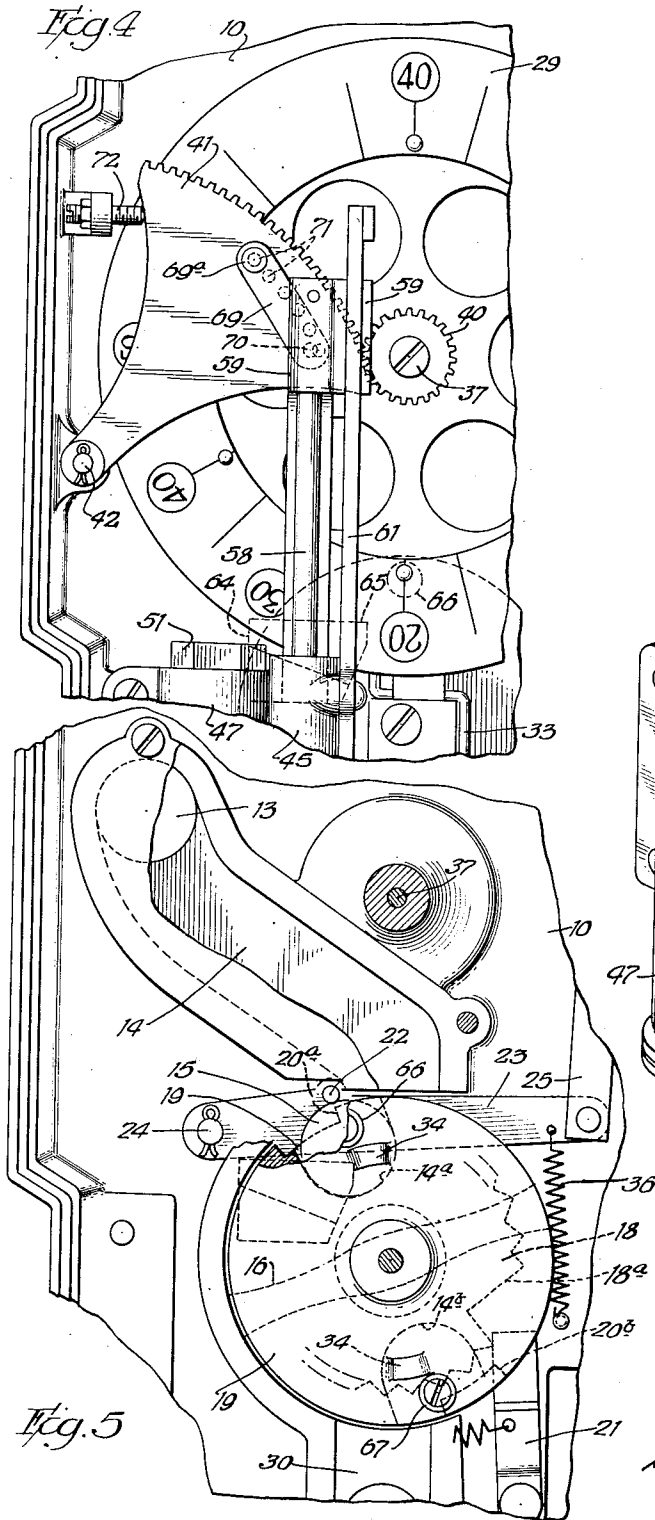
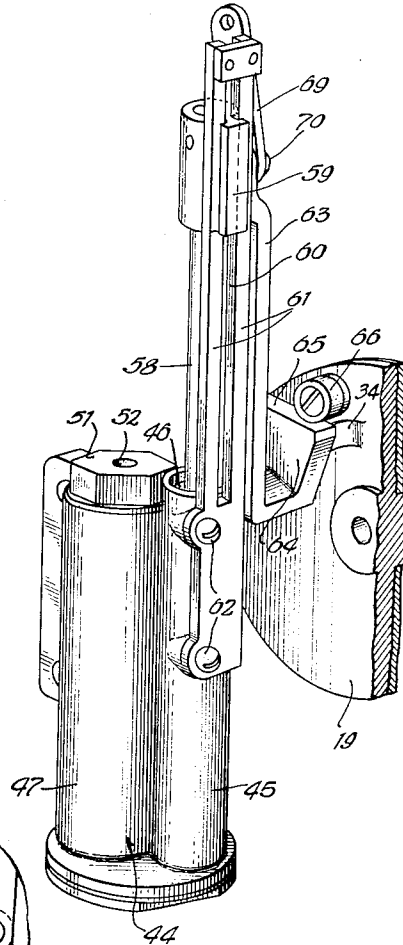


Fig. 6



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UNITED STATES PATENT OFFICE

2,299,349

PARKING METER

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Application March 28, 1940, Serial No. 326,361

3 Claims. (Cl. 161-15)

This invention relates to improvements in parking meters.

One object of the invention is to provide a parking meter having a meter setting and energizing mechanism which is adapted to be operated by a patron upon the insertion of a coin and which mechanism in being so operated stores energy in hydraulic means which, in turn, operates the meter indicator at a time measuring velocity for measuring or timing a parking period. By the present improvements the use of clock mechanisms in parking meters is dispensed with and durable and accurate parking period indicating means are provided.

Another object of the invention is to provide a meter having adjustable means whereby a meter can be set to indicate parking periods of different durations, which adjustments, however, do not vary the rate of velocity of the movement of any parts of the meter and hence in adjusting the meter to indicate a longer or a shorter parking period no alteration in the timing or control means is required.

Other objects relate to various features of construction and arrangement of parts which will be apparent from a consideration of the following specification and accompanying drawings, wherein,

Figure 1 is an elevation partly in section, illustrating a parking meter mechanism embodying the present invention;

Figure 2 is a vertical section taken approximately on line 2-2 of Figure 1;

Figure 3 is a sectional view taken on the line 3-3 of Figure 2;

Figure 4 is an enlarged broken elevation of the hydraulically controlled indicator operating means;

Figure 5 is an enlarged broken elevation illustrating a coin released energizing or actuating means which is operable by a patron;

Figure 6 is a detached perspective view of the energy storing and hydraulically operated mechanism of the meter.

In the drawings the illustrated embodiment of the invention is shown housed in a suitable casing comprising a forward section 10 and a rear section 11, which may be hinged together at the lower ends thereof and secured together at the upper ends by means of a suitable key operable lock 12. The casing section 10 is provided with a coin receiving opening 13 in which a patron who wishes to use the metered space inserts a coin of the proper denomination. The coin gravitates from the opening 13 through a coin passage 14 (see Figure 5) into one of two coin recesses 14a, 14b, provided in a manually operable energizing means, depending on which of said recesses is in registration with the lower end of the coin passage 14.

In Figure 5 of the drawings the coin passage 14a is shown moved counter-clockwise slightly from a position of registration with the lower end of the chute 14, from which position it may be assumed that the rotary actuating or energizing means has been moved by the patron who inserted a coin 15 in the meter. The rotary energizing mechanism illustrated comprises an exterior handle 16 on which is mounted a disc 17, a ratchet 18, and a second disc 19. The coin recesses 14a, 14b are shown as being formed in one face of the disc 19, whereby such recesses are disposed adjacent the disc 17. In horizontal registration with the recesses 14a, 14b there are provided in the disc 17 two slots 20a and 20b. The ratchet 18 cooperates with a pawl 21 (see Figure 5) which prevents full operative movement of the handle 16 as well as other parts of the rotary energizing mechanism in a clockwise direction as viewed in Figure 4. The pawl and ratchet arrangement, however, due to the provision of a pair of relatively large notches 18a, one of which is shown in Figure 5, accommodates slight arcuate movement of the handle 16 when no coin is in a recess 14a, 14b. The extent of this limited movement is predetermined by the length of the slots 20a, 20b, into one of which slots, depending on which one is uppermost, a pin 22 extends.

It can be seen that the rotary mechanism can be moved through the limited arcuate distance permitted by the length of the slot, or until the pin is engaged by one radial wall or the other of the cooperating slot. When a coin, however, has been deposited in the uppermost slot, such as slot 14a of Figure 5, such limited movement of the rotary mechanism will carry the coin forwardly or counter-clockwise, as viewed in Figure 5, and thereby cam the pin 22 out of the slot 14a and thus permit a full stroke of the handle and rotary mechanism, such full stroke being a movement of 180 degrees. The pin 22 is carried by a lever 23 pivoted at 24 as to a wall of the casing and at its right-hand end, as viewed in Figure 5, is pivotally attached to a link 25, the upper end of which is pivotally attached to a pair of shutters 26 pivotally mounted at 27 and adapted to be swung by such upward camming movement of the lever 23 so as to obstruct view through sight openings or windows 28 in the casing, through which openings a portion of a rotary indicator 29 can be viewed. Upon rotation of the handle 16 and the rotary mechanism through an 180 degree arc, the coin 15 shown in Figure 5 will be transferred through a like arc and will drop into a coin passage 30 (see Figure 2) and will be arrested in a position wherein the same is visible through two opposed windows 31 and 32. The coin arresting means comprises a member 33 (see Figure 4) which is

operable by a pair of cam-like bosses 34 provided on the adjacent face of the disc 19, as illustrated in Figures 2 and 5. Upon the rotation of one of the coin recesses, such as recess 14a, to the coin depositing position, the pin 22 will, under the action of a spring 36, drop into the other slot 20b (which will then be uppermost), and thus prevent further full operative rotation of the rotary mechanism until another coin has been inserted in the machine.

The foregoing described coin releasing mechanism, the coin arresting means, and the operation of the shutters are more fully described in the Rockola et. al. Patent No. 2,171,345 and in the Rockola Patent No. 2,130,155, and further description of the same here is deemed unnecessary.

The rotary indicator 29 is provided with suitable graduations carrying appropriate time indicia thereon which, as above stated, is partially visible through the windows 28. The indicator 29 is mounted for rotation on a journal 37, which may be carried by a hub-like inward extension 38 formed as a part of the casing 10. The indicator is provided with a hub 39 which is mounted on the journal 37 and is provided with a gear 40 which meshes with an arcuate rack 41 which is swingable about a pivotal mounting stud 42. It will be seen from an examination of Figure 1 that when the rack 41 is swung upwardly or counterclockwise from the position shown in said figure, the indicator 29 will be rotated clockwise, while, if the rack 41 is moved downwardly from the position shown in Figure 4, the indicator will be moved counterclockwise.

Means for operating the indicator at a timing velocity are provided, which means is likewise adapted to store up energy imparted to the mechanism by a patron when he operates the handle 16, such energy being utilized for operating the indicator 29 during the parking period. Such energy storing and indicator operating means are shown as being hydraulic in character, and a suitable embodiment thereof is illustrated in detached relation in Figure 6. The embodiment illustrated comprises a casing indicated generally by numeral 44 and, as illustrated in Figure 1, comprises a cylinder 45 in which a piston 46 is reciprocable and which cylinder communicates with an energy storing chamber 47. The communication between the cylinder and the chamber is effected by means of valve openings 48, which constitute intakes for the chamber 47, and a needle valve opening 49, by means of which the flow of fluid from the chamber 47 into the cylinder 45 is regulated for operating the piston 46 upwardly at a predetermined velocity. Over the openings 48 is provided a closure member 50 which prevents downward flow of fluid through the openings 48. The upper end of the chamber 47 is provided with a spring abutment member 51, provided with an air exhaust port 52 therein, and between which member and the head of a piston 53 is disposed a compressible spring 54. The piston 53 may be of any desired construction and is shown as provided with sealing rings 55 which prevent the escape of fluid upwardly past the piston. A suitable quantity of fluid 56 is shown in the chamber 47 and in a passage 57 through which the chamber 47 communicates with the cylinder 45 beneath the piston head 46.

The piston 46 is secured to a piston rod 58 which extends upwardly from the cylinder 45 and at the upper end thereof is secured to a guiding block 59 which is guided in a slot 60 defined by two upright guide members 61 which

are secured to the exterior of the casing 44 as by screws 62. The guiding action thus provided for the upper end of the piston insures that the piston will move truly axially of the cylinder 45. Secured to the block 59, or as a part thereof, is a depending bracket 63 having an upwardly turned lower end 64 having a horizontal face 65 which is located adjacent the inner face of the disc 19. The face 65 is adapted to be engaged by one of two rollers 66 or 67 during the operation of the energizing mechanism which follows the insertion of a coin by a patron. As shown in Figure 6, rotation of the disc 19 counterclockwise will cause the roller 66, due to its engagement with the face 65, to force the bracket 63 downwardly, which will, of course, carry with it the piston rod 58 and the piston 46. Since the roller 66 moves through an arc of 180 degrees, the roller will move from engagement with the face 65 as the piston 46 reaches its lowermost position, the roller 66 continuing its arcuate movement until it has moved to the position of roller 67, shown in Figure 5. The roller 67 will, of course, during such cycle of movement, move to the uppermost position or to the position occupied by roller 66 in said figure, whereby such roller 67 will operate the piston upon the rotation of the handle 16 when another patron has inserted a proper coin in the meter. The downward movement of the piston as above described will force liquid in the cylinder 45 through the valve openings 48 into chamber 47 and against the piston 53 therein, causing the latter to move upwardly against the spring 54, compressing the same, and storing the energy imparted thereto by the rotary movement of the disc 19.

The spring pressed piston 53 acts upon the liquid in the chamber 47 and forces the same through the outlet 49 at a rate permitted by the adjustment of a needle valve 68. The fluid under compression acts upon the piston 46 and forces the same upwardly and causes a link 69 which is pivoted at its lower end to the piston guide block at 70, and to the rack 41, to swing rack 41 from the lowermost position shown in Figure 1 upwardly or counterclockwise to the position shown in Figure 4. Such swinging movement of the rack as above described operates the meter indicator 29 during the parking period. The rate of flow of the liquid through the port 49 is such as to effect the timing action of the indicator 29, that is, the adjustment of the rate of flow through the port 49 will so regulate the movement of the indicator that the meter will move in a ten minute interval through the arcuate distance between numerals 60 and 50 of the indicator, for example.

The link 69 may be attached to the rack 41 at any one of several positions, the positions being indicated by openings 71, six of which are shown in Figures 1 and 4. Referring to Figure 1, wherein the piston 46 is shown in the lowermost position, and the dial graduation of indicium 60 is in registration with a pointer 26a of the shutter, the upward movement of the piston 46 under the force of the stored energy, will move the indicator 29 clockwise, as viewed in Figure 1, through an arcuate distance not only sufficient to bring the zero graduation into registration with the pointer, but preferably to move the indicator beyond that position for indicating the extent of overtime parking, if any. In Figure 4 the graduation or time indicium 40 is illustrated in the uppermost position, which indicates that the indicator has moved clockwise from the position shown in Figure 1 until the right-hand in-

dicium 40 shown in Figure 1 has moved into registration with the pointer 26a. In this position the rack 41 has moved into contact with the adjustable stop screw 72, which limits further movement of the indicator. When the meter is again operated, the downward movement of the piston will swing the rack 41 downwardly and restore the indicator to the position shown in Figure 1, which indicates the beginning of the parking period. It will be seen that if the screw 69a, by means of which the link 69 is attached to the rack 41, is attached on one of the lower openings, the indicator 29 will not be restored to the position shown in Figure 1, but to another position indicating a shorter parking period. For example, if the screw 69a is attached in the next lower opening 71, the indicator will be returned, upon energization of the meter by turning the knob 16, to a position wherein the graduation 50 registers with the pointer 26a. Adjustment of the screw 69a into the successive lower openings 71 will, upon energization of the meter, effect restoration of the indicator to the positions successively corresponding to the graduations or time indicia 40, 30, 20 and 10. It will be seen therefore that merely by changing the position of the screw 69a as above indicated, the duration of the parking periods to be indicated by the meter may be varied as desired. The time graduations on the right-hand of the vertical diameter of the indicator, as shown in Figure 1, will indicate overtime parking when any such graduations have been moved by the mechanism into registration with the pointer 26a. This overtime indicating portion of the meter may be distinctively colored whereby, when any such portion is visible through the windows 28, the duration of the period that a motorist has parked beyond the allotted period will be indicated by the meter. If desired, this right-hand portion of the meter may have the first five or ten minute graduations so colored as to indicate a permissible overtime parking period.

By the present improvements it will be seen that means have been provided which stores up energy imparted to the mechanism by the motorist after inserting a proper coin and operating the handle 16, which energy is thereafter utilized in operating the meter mechanism. Delicate clock mechanism has thus been dispensed with in the present meter and once the valve 68 has been properly adjusted to control the flow of fluid through the port 49 for timing or regulating purposes, it need not be altered in making the adjustment required in altering the duration of the parking periods to be indicated by the meter, since the latter adjustment is effected, as above described, by locating the pin 69a in one of the openings 71 of the rack 41.

While I have shown and described an embodiment of my invention for the purpose of illustration, various modifications may be made without departing from the spirit of the invention.

I claim:

1. A parking meter comprising a movable parking period indicator, a reciprocable member operatively connected to said indicator for actuating the same, said reciprocable member comprising a fluid actuable plunger, a fluid cylinder in which such plunger operates, manually

operable means for moving said plunger in a direction to force fluid from said cylinder and to move said indicator to an initial position to indicate the beginning of a parking period, a second fluid cylinder communicating with the first cylinder for receiving fluid forced from the latter by said plunger, a piston in said second cylinder movable to an energy storing position by the fluid forced into the second cylinder by said plunger, and means for regulating the rate of flow of fluid from said second cylinder to said first cylinder by the action of said piston for operating the plunger in the opposite direction at a velocity whereby said indicator is operated from said initial position for measuring a parking period.

2. A parking meter comprising a manually operable meter energizing mechanism, a rotatable parking period indicator, a reciprocable pressure fluid operable member, means operatively connecting said reciprocable member to the indicator for effecting movement of the latter in one direction to indicate the elapsing of a parking period and in the other direction to a position wherein the indicator indicates the beginning of a parking period, energy storing means comprising a cylinder having a spring resisted piston therein operatively associated with said reciprocable member for receiving fluid displaced thereby and for effecting the storing of meter operating energy in the spring when said reciprocable member is moved in the direction for moving the indicator to the position wherein it indicates the beginning of a parking period, means for regulating the rate of flow of pressure fluid from said cylinder to said reciprocable member for effecting the operation of the latter and said indicator at a velocity for measuring a parking period, means carried by said energizing mechanism for operating said reciprocable member in said first named direction, and means for adjusting said connecting means for effecting a variation in the extent of movement of the indicator by said reciprocable member for varying the duration of a parking period.

3. A parking meter comprising a rotary parking meter indicator, a shaft on which the indicator is mounted, a cylinder having a fluid operable plunger therein, means operatively connecting said plunger to said shaft whereby the movements of the plunger effect movements of the indicator, a second fluid cylinder communicating with said first cylinder and having a spring resisted piston therein movable against the action of the spring for storing in the latter meter operating energy, a manually operable member engageable with said plunger for moving the latter in a direction to move the indicator to an initial position indicating the beginning of a parking period and to force fluid from said first cylinder into said second cylinder for moving the piston against the action of the spring to store energy therein, and means for controlling the rate of flow of fluid from the second cylinder to the first cylinder for causing said plunger to operate in the opposite direction and effect movement of said indicator from said initial position at a velocity and through a range measuring a parking period.

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