

Oct. 19, 1937.

S. G. BREEDEN

2,096,155

PARKING METER

Filed June 2, 1936

3 Sheets-Sheet 1

FIG. 1.

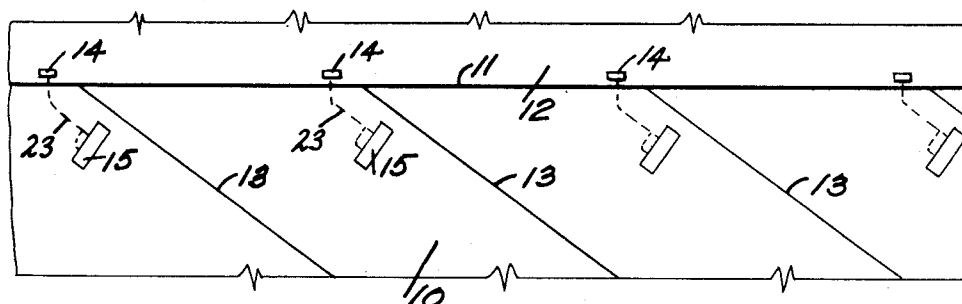


FIG. 2.

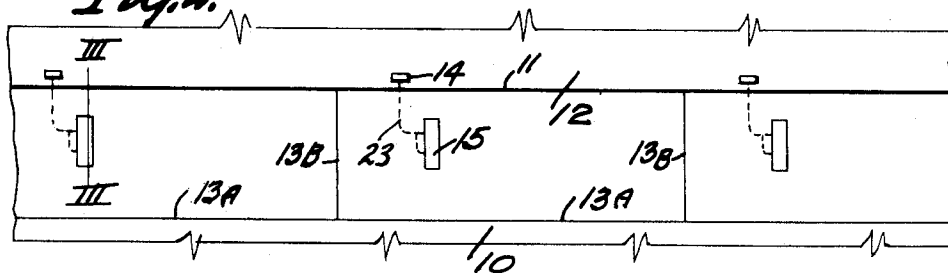


FIG. 3.

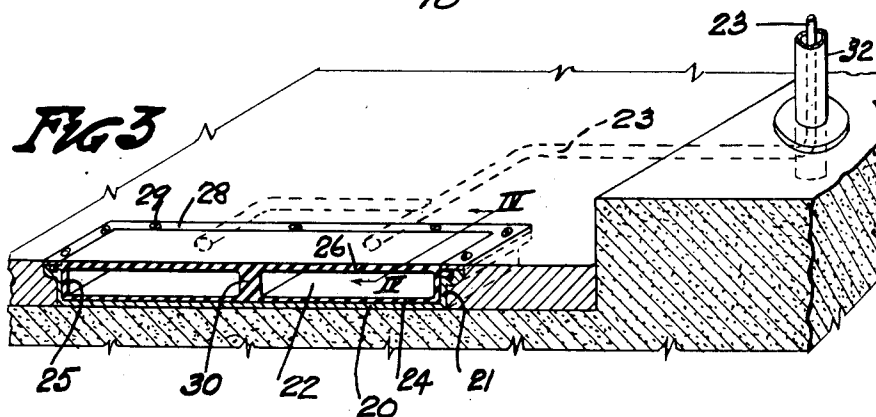
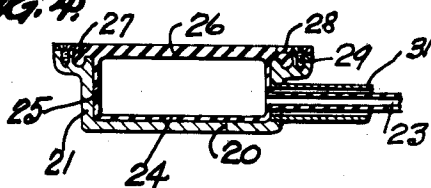


FIG. 4.



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Fig. 5.

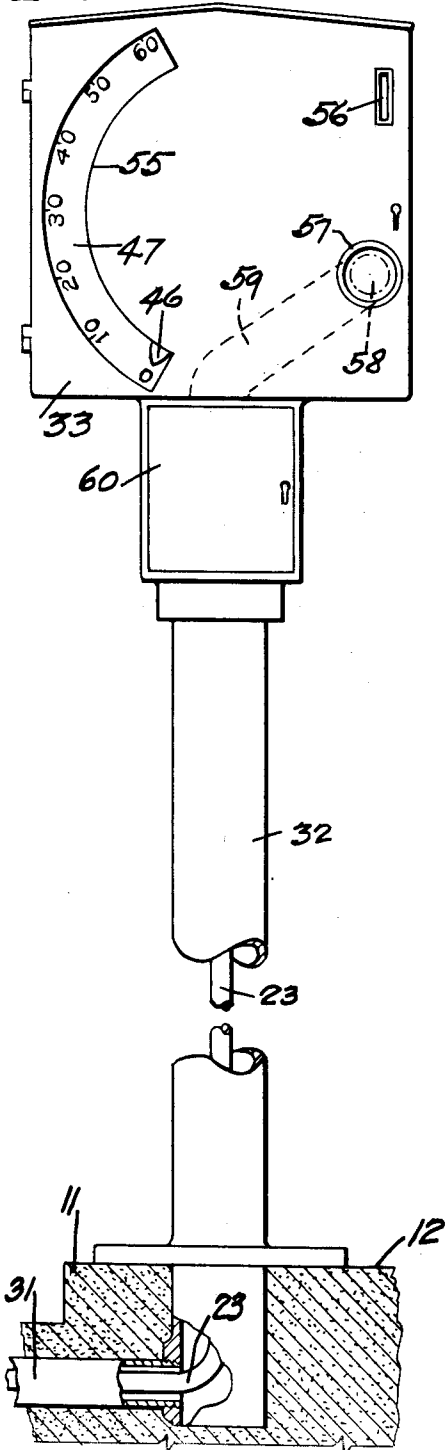
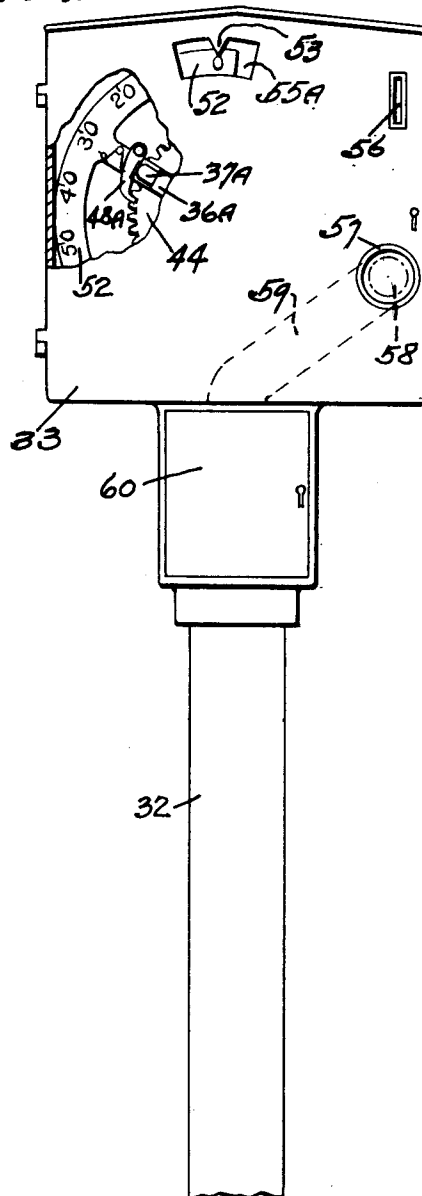


Fig. 6.



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FIG. 7.

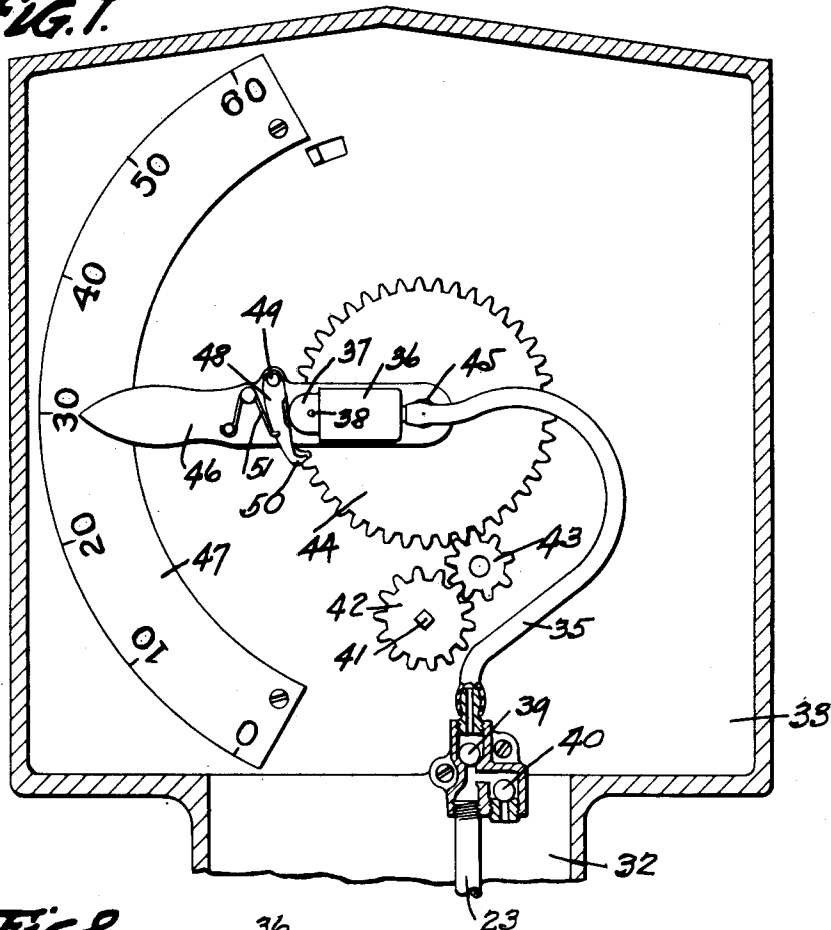
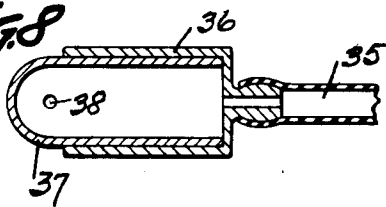


Fig. 8



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UNITED STATES PATENT OFFICE

2,096,155

PARKING METER

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Application June 2, 1936, Serial No. 83,047

7 Claims. (Cl. 161—15)

This invention relates to devices for measuring parking time of automobiles, particularly in city streets.

At the present time the question of parking automobiles on down town streets has become such a problem that numerous devices have been proposed for indicating and collecting for the time parked, there being a number of such devices in which a coin inserted in the machine will start a timing and indicating device by which the length of parking time may be definitely determined. Use of these devices show that a great number of motorists park less than the allotted time covered by the coin payment, and that other motorists take advantage of this situation and park for the unexpired portion of the time without payment. In some instances a careful check shows that substantially half of the motorists parking, do so on time paid for by others, without additional payment.

The object of the present invention is to provide means actuated by the egress or ingress of the car from the parking space for resetting the indicator of a parking meter to a zero position, thus making it necessary for each user of the space to make payment therefor.

A further object of the invention is to improve the details of construction of the mechanism employed.

The means by which the foregoing and other objects are accomplished and the manner of their accomplishment, will be readily understood from the following description, on reference to the accompanying drawings, in which,—

Fig. 1 is a view showing a portion of a street marked to indicate diagonal parking spaces; with a related parking meter for each space and a related trip actuating device for each meter.

Fig. 2 is a fragmentary view showing an arrangement of the same devices where parking occurs parallel with the curb.

Fig. 3 is a fragmentary perspective view showing the actuating device with the front portion thereof cut away as along the line III—III of Fig. 2.

Fig. 4 is a transverse section taken as on the line IV—IV of Fig. 3.

Fig. 5 is an elevation of a parking meter; and

Fig. 6 a similar elevation of a modified form of the meter a portion of the front being broken away to show the present device associated therewith.

Fig. 7 is an enlarged view of the upper portion of the meter shown in Fig. 5 with the front there-

of cut away to disclose a portion of the interior construction and my device applied thereto.

Fig. 8 is an enlarged view of a preferred form of trip actuating cylinder and plunger.

Referring now to the drawings in which the various parts are indicated by numerals, 10 is the street surface, 11 the curb line and 12 the adjacent sidewalk. 13 are lines marked on the street surface, diagonally to the curb, which divide the street surface into spaces to be occupied each by an automobile. 14 are parking meters there being one such meter for each parking space. 15 are actuating devices or actuators, each connected as by a tube 23 to a related parking meter. The actuators 15 are of such length and are so positioned relatively to both the curb and the side lines of the parking spaces that some one wheel of any automobile parked in a parking space must cross the device as the automobile enters and/or as the automobile leaves the parking space. In Fig. 2 the lines 13A, 13B outlining the parking spaces are respectively parallel to, and at right angles to, the curb line.

Each actuator 15 in its preferred form and as shown in Figs. 3 and 4, preferably comprises a shallow rectangular metal box having a flat bottom 20, and sides and ends 21, in which box is a bulb 22 which is compressed by the weight of the automobile wheel passing thereover to force air through a connecting tube 23 to a trip mechanism to be hereinafter described. The bulb 22 may be of rectangular form adapted to closely lie on the bottom 20 of the box and against the sides thereof, the bulb in such event having a bottom 24, and sides 25, of rubber which may be comparatively thin, and a flat top 26 integral with the sides 25, which top is relatively heavy and stiff, and is also preferably of rubber, or rubber and fabric built up in usual and well known manner. The bulb top 26 is preferably provided with an outwardly extending flange 27 extending entirely around the bulb and overlying the top edge of the box sides and ends 21, the peripheral edge of the flange being thickened, and the top edges of the sides, and ends being suitably grooved to receive the thickened edge. 28 is a metal rim, secured to the box as by screws 29, which rim clamps and seals the flange to the box and against entrance of moisture or other extraneous matter into the box. If desired one or more division walls of rubber, one wall 30 being shown, may divide the bulb into two or more parts, both or all of which are connected to the tube 23. When the bulb 28 is installed in the box the top 26 of the bulb and of the rim 28 lie in the same plane and when

installed should lie flush with the street surface, the overall depth of the box preferably ordinarily being three inches, so that the usual asphalt surface may be cut out and the box placed directly on the concrete foundation.

From the bulb 22 the tube 23, leads preferably through a protecting pipe 31 into the stand 32, usually hollow, and through this stand into the casing 33 of the meter proper. In the present case no attempt has been made to show the detail of this meter, those parts only which are essentially associated with the instant invention being particularly shown. No attempt therefore has been made to detail the method of winding the clock mechanism employed; the manner in which the coin inserted in the coin slot initiates movement; the means by which the clock is stopped; or the means by which the pointer or dial as the case may be, can be otherwise returned to initial position.

Within the casing 33, the tube 23 is connected by a flexible tube 35 with a cylinder 36 in which is slidably mounted a displaceable plunger 37. This plunger preferably is so fitted in the cylinder as to allow slow leakage whereby the plunger after being pushed outward may slowly be returned to initial position. If desired this escape of air may be assisted or entirely accomplished by a vent 38 of restricted size which is here shown in the plunger, but may as well be in the cylinder instead. 39 is a check valve which is disposed in the tube line 23—35 leading to the cylinder 36 to prevent return flow therethrough. 40 is a check valve, disposed between the check valve 39 and the actuating bulb 22, which allows entrance of air into the tube 23 and through that tube to the bulb 22 when the valve 39 is seated. 41 is the minute hand shaft of a usual form of clock mechanism. Mounted on the shaft 41 is a gear 42 which meshes through an idler gear 43 with a gear 44 of larger size than the gear 42, whereby a slower movement is accomplished. The gear 44 turns on a shaft 45 on which is also mounted a pointer 46 which pointer 46 cooperates with a fixed dial 47, having indicia thereon indicating time periods, the indicia shown indicating periods from 0 to 60 minutes in the present example. 48 is a dog which is secured as by a pivot pin 49 to the pointer 46, the free end 50 of the dog being adapted to engage with the teeth of the gear 44 and being normally held in contact therewith as by a spring 51, the dog contacting the end of the plunger 37 and being displaceable by said plunger to disengage the dog from the gear 44. It is intended that the pointer 46 be of such weight or be so weighted that, when the dog 48 is disengaged from the gear 44, the pointer will return by gravity to the zero point as indicated in Fig. 5, though mechanically equivalent returning means may obviously be employed.

In Fig. 7 the pointer 46 is shown indicating an elapsed time of 30 minutes.

In Fig. 6 a modification is shown in which a movable dial 52 having indicia thereon corresponding to the fixed dial 47 has been substituted for the movable pointer 46, this dial being similarly movable with relation to the gear 44, as was the pointer, and being engaged for movement therewith by a dog 48A which may be of identical design with the dog 48, this dog being disengaged by a similar plunger-cylinder assembly 37A, 36A. 53 is a fixed pointer cooperating with the dial indicia to indicate the elapsed time, the dial being shown in its initial position with the pointer opposite the zero marking.

In Fig. 5 the fixed dial 47 and cooperating movable pointer 46 are shown as visible through a suitable window 55 in the front of the meter casing 33, and in Fig. 6 a window 55A is shown through which the movable dial 52 is visible.

In Figs. 5 and 6, 56 indicated the usual coin slot, 57 a window through which the coin 56 is visible, 59 a slot leading from the coin window, and 60 the coin box in which the coin is eventually deposited, these parts being usual and incident to meters of this class.

It will be understood that the slots 55, 55A and the coin window 57 are ordinarily covered with glass and that to prevent theft this glass should be shatter-proof.

It will be understood further, that the bulb 22 is intended to be indicative of a bulb which is necessarily compressed when a wheel passes over the mechanism and that such bulb need not necessarily be of the special type here shown.

It will further be understood that the actuating mechanism is also intended to be in itself typical only of a vehicle wheel operated means for disengaging an indicator from its operating mechanism. I therefore wish it distinctly understood that it is not my intention to limit myself specifically to any of the details hereinbefore shown except as same may be hereinafter set out in any claim or claims.

In installing, the street is marked off to indicate parking spaces. Adjacent each one of these spaces a parking meter is set up. Within each parking space, in such position preferably that one of the front wheels of the automobile must run over it when the car enters the space and when it leaves the space, an opening is cut in the street surface and the actuator installed. From this actuator a trench is cut to and through the curb to the post of the meter and, preferably, a section of pipe installed connecting the box of the actuator into the hollow post which carries the meter. Through the pipe the tube 23, which may be a rubber tube, metal tube, or of other desired material, is installed and connected up both to the actuating bulb and the trip mechanism and the device is ready for use.

In use the motorists drive into the parking space in usual manner passing over the actuator. Irrespective of where the pointer 46 is with respect to the arc 47, the bulb 22 when depressed by the automobile wheel, forces the plunger 37 against the dog 48 and disengages the dog from the teeth of the wheel 44, allowing the pointer, if not already there positioned, to return to zero. When the plunger 37 is forced out by such action, the check valve 39 closes, preventing return of the plunger until such time as air may leak out along the plunger or through the restricted opening 38 established for such purpose. Should it so happen that the pointer is at an advanced position on the dial such as at the position 30 shown or even higher, the return of the plunger is so retarded that the pointer will have time to return to zero, before the dog is again engaged. After entering the space the motorist inserts his coin in usual manner in the coin slot and thereby starts his metering period in the usual manner. When the motorist leaves the parking space one of his wheels again engages the actuating mechanism depressing the bulb 22 and as above disengages the dog and returns the pointer to zero.

It will be understood that the action of the pointer with relation to the fixed arc 47 and of the movable dial 52 with respect to the fixed pointer 53 are for all purposes substantially identical.

What I claim is:

1. The combination with means defining a space adapted for parking a vehicle and a time measuring device for indicating the length of occupancy of said space by a said vehicle; said device including movable means for indicating elapsed time, means urging said movable means to return to zero, and means for progressively advancing said movable means; of vehicle actuable means for restoring said time indicating means to zero; said means comprising an actuator disposed in said space in the line of travel of a wheel of a said vehicle entering and/or leaving said space and actuable by passage of said wheel thereover, trip means normally effecting engagement of said movable means to said advancing means, and means operably connecting said actuator to said trip means, to effect disengagement of said trip means on operation of said actuating means by passage of a vehicle wheel thereover.

2. The combination with a time measuring device which includes movable means for indicating elapsed time, means urging said movable means to return to zero, and means for progressively advancing said movable means; of vehicle actuable means for restoring said time indicating means to zero; said means comprising an actuator disposed in the line of travel of a wheel of a said vehicle parking and/or leaving and actuable by passage of said wheel thereover, trip means normally effecting engagement of said movable means to said advancing means, means operably connecting said actuator to said trip means, to effect disengagement of said trip means on operation of said actuating means by passage of a vehicle wheel thereover.

3. The combination with means defining a space adapted for parking a vehicle, and a time measuring device for indicating the length of occupancy of said space by said vehicle; said device including a dial member carrying markings indicating time divisions, a cooperative pointer member, and means for progressively advancing one of said members relatively to the other thereof to indicate elapsed time; of means for restoring the movable one of said members to its starting point, comprising an actuator disposed in said space in the line of travel of a wheel of a vehicle entering and/or leaving said space and actuable by passage of said wheel thereover, trip means interposed between said advancing means and said movable member for effecting driving connection therebetween, means operably connecting said actuator and said trip means for displacing said trip means on depression of said actuator to effect disconnection of said movable member from said advancing means, and means urging said movable means toward initial position.

4. The combination with a time measuring device for indicating the parking time of a vehicle, said device including a dial member carrying markings indicating time divisions, a cooperative pointer member, and means for progressively advancing one of said members relatively to the other thereof to indicate elapsed time; of means

for restoring the movable one of said members to its starting point, including an actuator disposed in the line of travel of a wheel of a vehicle parking and/or leaving, and actuable by passage of said wheel thereover, trip means interposed between said advancing means and said movable member for effecting driving connection therebetween, means operably connecting said actuator and said trip actuator to effect disconnection of said movable member from said advancing means, and means urging said movable means toward initial position.

5. The combination with a time measuring device for indicating the parking time of a vehicle; said device including movable means for indicating elapsed time, means urging said movable means to return to zero, and means for progressively advancing said movable means; of vehicle actuable means for restoring said time indicating means to zero, said means comprising a bulb disposed in said space in the line of travel of a wheel of a said vehicle parking and/or leaving, and compressible by passage of said wheel thereover, a trip normally effecting engagement between said advancing means and said movable means, a cylinder, a displaceable plunger therein engaging said trip, and tubular means for establishing connection between said bulb and said cylinder.

6. The combination with a time measuring device for indicating the parking time of a vehicle; said device including a stationary and a movable member for indicating elapsed time, means urging said movable member to return to zero and means for progressively advancing said movable member; of vehicle actuable means for restoring said time indicating means to zero, said means comprising a bulb disposed in said space in the line of travel of a wheel of a said vehicle parking and/or leaving, and compressible by passage of said wheel thereover, a trip adapted to effect engagement between said advancing means and said movable member, a spring urging said trip into engagement, a cylinder, a displaceable plunger therein operably engaging said trip, and tubular means for establishing connection between said bulb and said cylinder.

7. The combination with a time measuring device for indicating the parking time of a vehicle; said device including cooperative fixed and movable members for indicating elapsed time, means urging said movable member to return to zero and means for progressively advancing said movable member; of vehicle actuable means for restoring said time indicating means to zero, said means comprising a bulb disposed in the line of travel of a wheel of a said vehicle parking and/or leaving, and compressible by passage of said wheel thereover, a trip adapted to effect engagement between said advancing means and said movable member, means urging said trip into engagement, a cylinder, a displaceable plunger therein actuably contacting said trip, and tubular means for establishing connection between said bulb and said cylinder.

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