

June 9, 1964

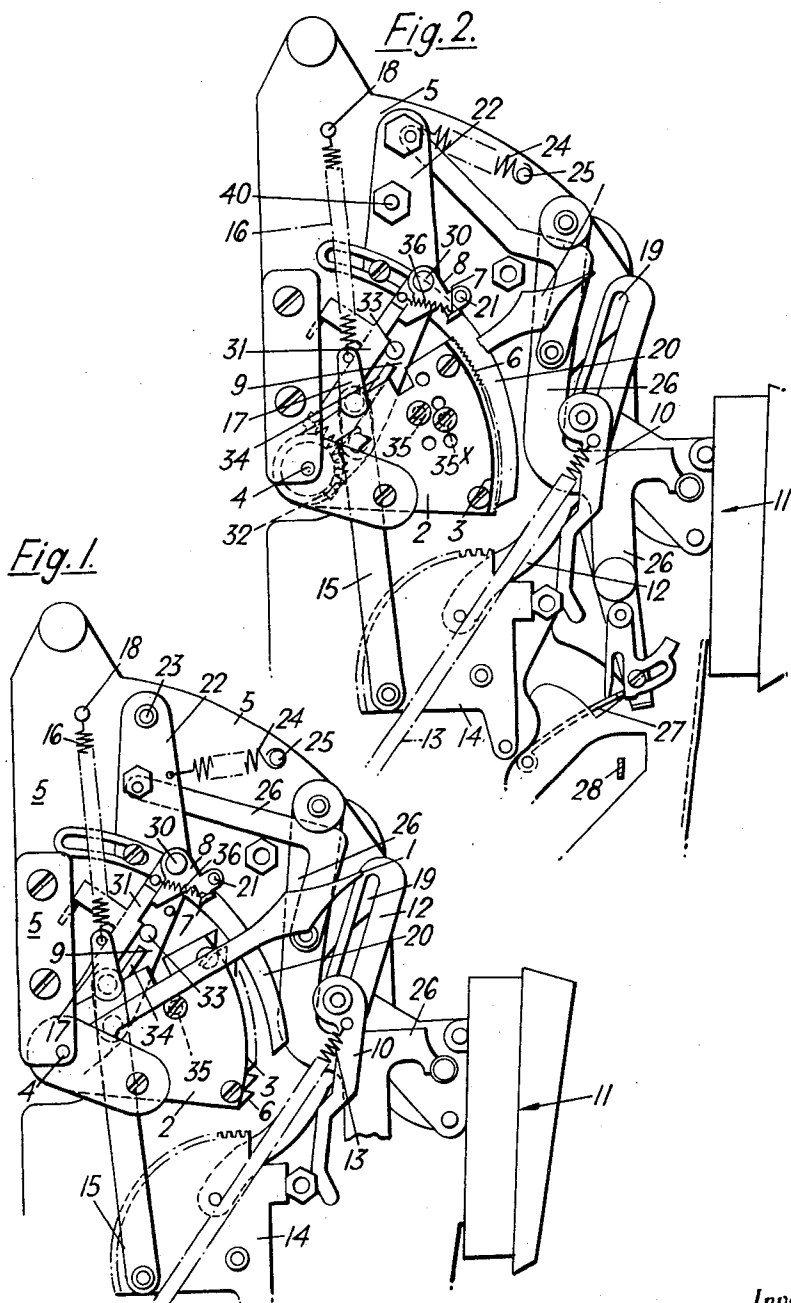
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3,136,403

PARKING METER OR THE LIKE

Filed March 30, 1962

3 Sheets-Sheet 1



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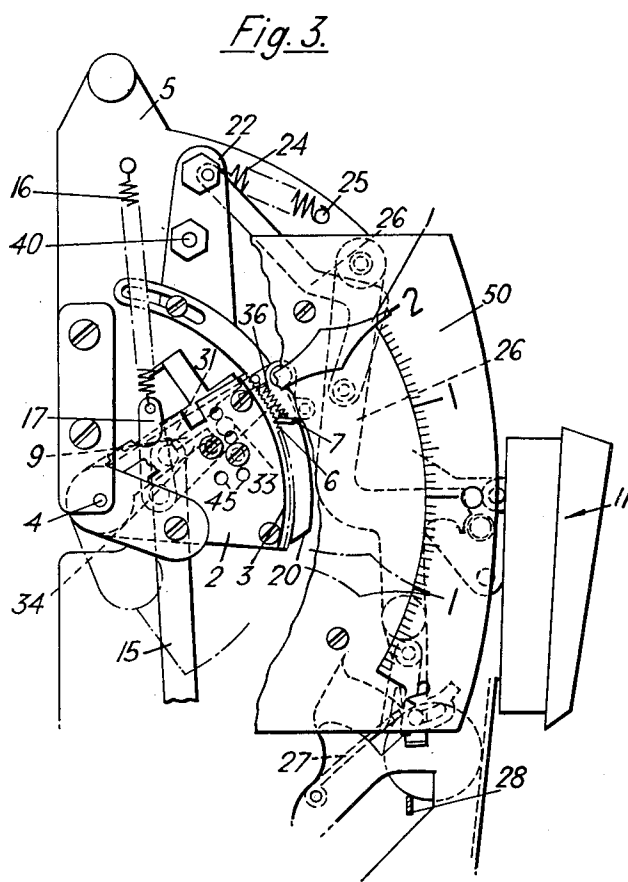
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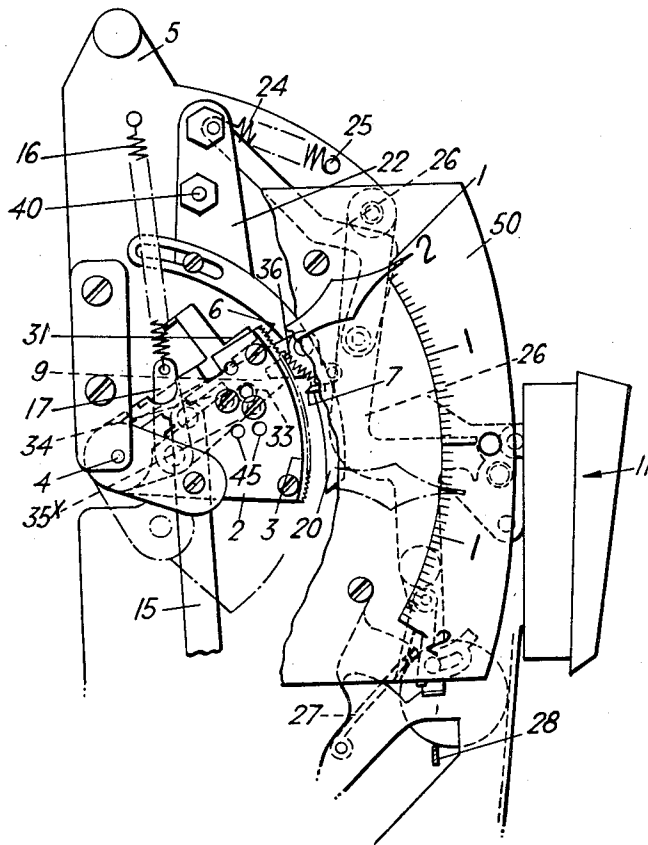
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Fig. 4.



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PARKING METER OR THE LIKE

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1 Claim. (Cl. 194—72)

This invention relates to a parking meter or the like, that is to say any device intended to serve a function similar to that served by a parking meter.

With a device such as a parking meter, the function of which is to enable a user to "purchase" a period of time during which he may legitimately leave a vehicle parked adjacent to the parking meter, it is sometimes arranged that periods of time of different duration may selectively be "purchased" by the insertion of coins of denominations which correspond respectively to such periods of time, say, for example, a smaller sized coin for half an hour and a larger sized coin for one hour. The extent of the movement of the parts of the meter mechanism, terminating in the movement of a pointer or the like relative to an indicator scale, may be governed by the size of the coin in each case, that is to say the greater the size of the coin the greater the relative movement between the pointer or the like and the indicator scale.

In certain countries, however, coins do not increase in size as they increase in value; thus for example in the United States a 10 cents coin or dime is smaller in size than a 5 cents coin or nickel. Clearly, therefore, existing meter mechanisms cannot be employed for the "purchase" of periods of time of different duration as referred to above.

The present invention has for its object to overcome this problem, and to this end according to this invention there is provided a device such as a parking meter adapted to receive a first coin for the "purchase" of one period of time, and a second coin of higher value for the "purchase" of another longer period of time, the second coin smaller in size than the first, the extent of the movement of the parts of the meter mechanism, terminating in the movement of a pointer or the like relative to an indicator scale, being governed by the size of the coin in each case, the greater movement being effected by the insertion of the coin of higher value but smaller size.

One embodiment of this invention will now be described, by way of example, in its application to a known parking meter mechanism, that is a mechanism as described in the specification to British Patent No. 775,509, only those parts of the mechanism which are directly concerned being referred to.

In the accompanying drawings:

FIGURE 1 is a fragmentary side elevation of a parking meter mechanism as known heretofore.

FIGURE 2 is a view similar to FIGURE 1 showing the meter mechanism modified in accordance with the present invention, parts thereof being broken away.

FIGURE 3 illustrates the operation of the meter mechanism shown in FIGURE 2 on the insertion of the smaller of the two coins which the mechanism is adapted to take, and

FIGURE 4 illustrates the operation of the meter mechanism on the insertion of the larger of the two coins.

In the mechanism as known heretofore, see mainly FIGURE 1, an indicator pointer 1 moves with a segmental plate 2 pivotally mounted at the centre of curvature of its arcuate edge 3 on a shaft 4 supported in the fixed frame 5 of the mechanism. Along the arcuate edge of the plate 2 there are provided ratchet teeth 6 and these are adapted to be engaged by a pawl 7 on a carrier member

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8 on an arm 9 pivotally mounted on the same axis as the segmental plate 2, that is the shaft 4. The outer end of the arm 9, on which the said member 8 is actually mounted, extends beyond the arcuate edge 3 of the segmental plate so that it moves outside such edge. In the operation of the drive mechanism this arm is adapted to be drawn down through an angle of about seventy degrees and then returned to its initial position.

The drive mechanism is in itself known, but briefly it comprises a power pawl 10 which, on the insertion of a coin into a coin reception element 11, is lifted up and engaged with a drive link 12, a tension spring 13 being tensioned further in the process. Under the restoring force of the spring 13, the drive link 12 partially rotates a drive segment 14 to which is connected one end of a link 15, the other end of which is connected to the arm 9. This explains briefly the manner in which the arm 9 is drawn down. It is returned by the restoring force of another tension spring 16 which is connected at one end to a link 17 fixed to the arm 9 and at the other end to a pin 18 mounted on the fixed frame 5. The drive link 12 has a slot 19 in the head thereof to enable the required relative movements between the drive link and the power pawl to take place.

Disposed outside but somewhat behind and partly overlapping the arcuate edge 3 of the segmental plate 2 (when the latter is in its rest or zero position) is a curved guide arm 20, the curve of which follows the curve of said arcuate edge. A pin 21 on the pawl carrier member 8 is adapted to engage this curved arm so that the pawl 7 will be held in a position in which it cannot engage the ratchet teeth 6 of the segmental plate 2. The guide arm 20 is carried at the lower end of a lever 22 which is rockable about a horizontal pivot pin 23 mounted in the fixed frame 5. A tension spring 24, connected at one end to the lever 22 below the pivot pin 23 and at the other end to a pin 25 mounted on the fixed frame 5, serves normally to hold the lever 22 with the guide arm 20 in the rest position with respect to the segmental plate 2 as aforesaid. The lever 22 is connected to and adapted to be rocked by a link assembly 26 the lower end member of which is associated with an element 27 (see FIGURE 2 for this item) adapted to engage the circumferential periphery of every coin inserted into the mechanism. Each coin in fact rests temporarily on a coin stop member 28 while the element 27 engages the coin. With the arrangement as shown in FIGURE 1 the element 27, when engaged with a coin, pushes on the link assembly 26, thereby rocking the lever 22 and moving the guide arm 20 inwardly behind the segmental plate. The pawl 7 is now no longer prevented by the guide arm 20 from engaging the teeth 6.

The pawl carrier member 8 is rockably mounted on a pin 30 on the arm 9, and is arranged to co-operate with a stop lever 31 rockably mounted on the shaft 4 adjacent the arm 9, spring means 32 (see FIGURE 2 again) being arranged to urge the free end of the stop lever against the pawl carrier member 8 and so hold the pawl in a position in which it cannot engage the teeth 6. In this position the stop lever 31 also engages a stop 33 on the arm 9. The stop lever 31 also has a projecting lug 34 and on the movement of the arm 9 behind or inside the segmental plate 2 this lug engages a pin 35 on the rear or inside face of the segmental plate. The stop lever 31 is thus pushed back against the action of the spring means 32 which frees the pawl carrier member 8, the latter then being caused to pivot about the pin 30 by a tension spring 36 connected at one end to the arm 9 and at the other end to the pawl 7. The pawl 7 is thus moved into engagement with one of the teeth 6.

In the arrangement shown in FIGURE 1 the lever 22 is rockable about a pivot, the pin 23, which passes

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through its upper end and the link assembly 26 is connected to the lever 22 between the pin 23 and curved guide arm 20. Thus the guide arm 20 is moved inwardly to a degree which increases in direct relation to the increase in size of the coin inserted.

In the modified arrangement in accordance with the present invention (FIGURE 2) the lever 22 is rockably mounted on a pivot pin 40 arranged centrally thereof, and the link assembly 26 is connected to the upper and now free end of the lever 22, being appropriately lengthened and/or cranked. It will be apparent that with this arrangement the curved guide arm 20 will now move outwardly away from the segmental plate 2 to a degree which increases in direct relation to the increase in size of the coin inserted.

The arrangement is such that on the insertion of the smaller of the two coins which the mechanism is adapted to take (see FIGURE 3) the pawl 7 will still engage one of the teeth 6 as above described. On the insertion of the larger of the two coins, however, the curved guide arm 20 will be moved outwardly to a degree such that it will, by engaging the pin 21, prevent movement of the pawl carrier member 8 to engage the pawl 7 with one of the teeth 6.

On the rear or inside of the segmental plate 2 there is provided a second pin 35*, which is arranged below and outside the pin 35. The pin 35* is arranged in the path of the stop 33 on the arm 9 and is engaged by the latter after the engagement of the lug 34 with the pin 35. Drive from the arm 9 to the segmental plate 2 is therefore effected through the engagement of the stop 33 with the pin 35*. It will be appreciated that the lug 34 still engages the pin 35 causing the stop lever 31 to be pushed back as before, but the pawl carrier member 8 cannot rock about the pin 30 due to the engagement of the pin 21 with the curved guide arm 20.

The size of the teeth 6 is variable as required, and as illustrated in FIGURE 1 on the one hand and in FIGURES 2 to 4 on the other hand.

The angular disposition of the pin 35* in the segmental plate 2 is governed by the size of the larger coin being used. As shown in FIGURES 2 to 4 the segmental plate 2 may be drilled with a plurality of holes 45 ready to take pins 35 and 35* as required.

Referring particularly to FIGURES 3 and 4 which illustrate the operation of the mechanism on the insertion of the two different sized coins, it will be seen that when the smaller coin is inserted (FIGURE 3) the pawl 7 engages a tooth on the segmental plate 2 at a position such that the pointer 1 will be moved to a position in which it will indicate, on an associated time scale 50, a given period of time, for example one hour. When the larger coin is inserted (FIGURE 4) the pointer will only be moved to indicate half an hour. This is based on the assumption that the smaller coin is twice the value of the larger coin.

Moreover, with small teeth 6, as shown in FIGURES 3 and 4, by inserting a series of coins an accumulative movement of the pointer can be effected. It will be appreciated that with such accumulative movement after the first coin has been inserted the segmental plate, and the pointer, will have been moved down. It therefore follows that the engagement of the lug 34 and pin 35

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(smaller coin) or of the stop 33 and pin 35* (larger coin) as above described cannot take place. Instead, when the pawl carrier member 8 reaches the lower end of the curved guide arm 20 the pin 31 will disengage from the latter allowing the pawl 7 to engage a tooth 6 on the segmental plate. The degree of movement made by the segmental plate on the insertion of the first coin will determine the degree to which it can be moved on the insertion of the second coin and so on.

I claim:

In a parking meter the improvement comprising in combination

- (a) a casing and a shaft therein;
- (b) an assembly including a pointer and a first lever pivotally mounted on said shaft; a pawl pivotally mounted on the outer end of said first lever; a segmental plate connected to the pointer having an arcuate edge and pivotally mounted on said shaft at the center of curvature of said edge; ratchet teeth axially displaced on said arcuate edge cooperating with said pawl; a locking lever pivotally mounted on said shaft and resiliently connected to said first lever to hold the pawl disengaged from said ratchet teeth; a first pin mounted on said segmental plate to abuttingly engage and turn said locking lever relative to said first lever thereby releasing the pawl;
- (c) an operational link engaging said first lever to pivot said assembly about said shaft;
- (d) a two armed second lever and a second pin connected to the casing and rockably supporting said second lever intermediate its ends thereof;
- (e) an arcuate guide arm attached to one arm of said second lever, and in rest position contacting the arcuate edge of the segmental plate;
- (f) a glide pin attached to said pawl for sliding movement on said arcuate guide arm and during the rest position thereof holding said pawl out of engagement with the ratchet teeth;
- (g) a link assembly attached to the outer end of the other arm of said second lever and adapted to rock the same in such manner that the guide arm releases the pawl for engagement with one of the ratchet teeth, said link assembly and said operating link being put in motion by the insertion of a coin into the casing;
- (h) a third pin mounted on said segmental plate and a stop member on said first lever, said stop member when abutting said third pin driving the segmental plate and pointer;
- (i) the arrangement being such that on insertion of a small coin the guide arm is moved away from the toothed arcuate edge of the segmental plate insufficiently to prevent the pawl from engaging one of the ratchet teeth, while on insertion of a larger coin said guide arm is caused to sufficiently swing away from the toothed arcuate edge of the segmental plate to prevent such engaging.

References Cited in the file of this patent

UNITED STATES PATENTS

2,680,506	Woodruff	June 8, 1954
2,831,557	Eames	Apr. 22, 1958
2,901,078	Hamilton	Aug. 25, 1959