

Jan. 29, 1952

C. A. RHOADS ET AL

2,583,966

TAXIMETER

Filed June 3, 1947

5 Sheets-Sheet 1

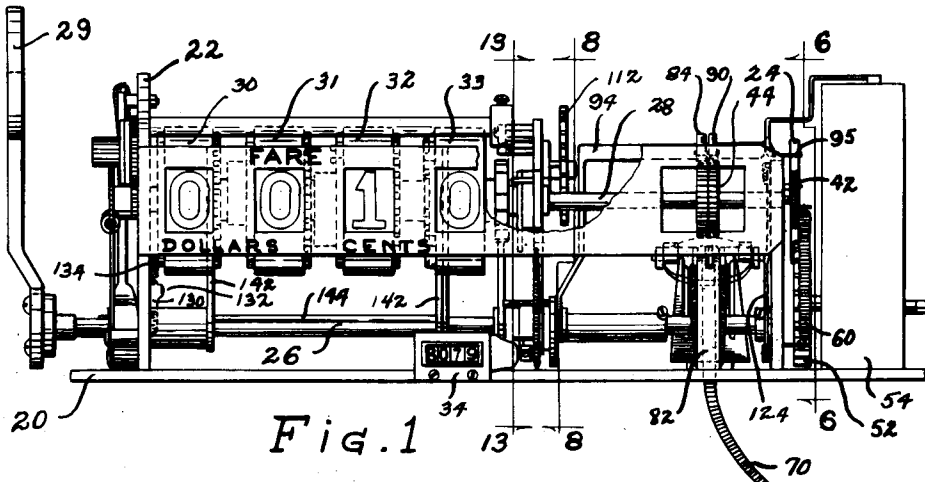


Fig. 1

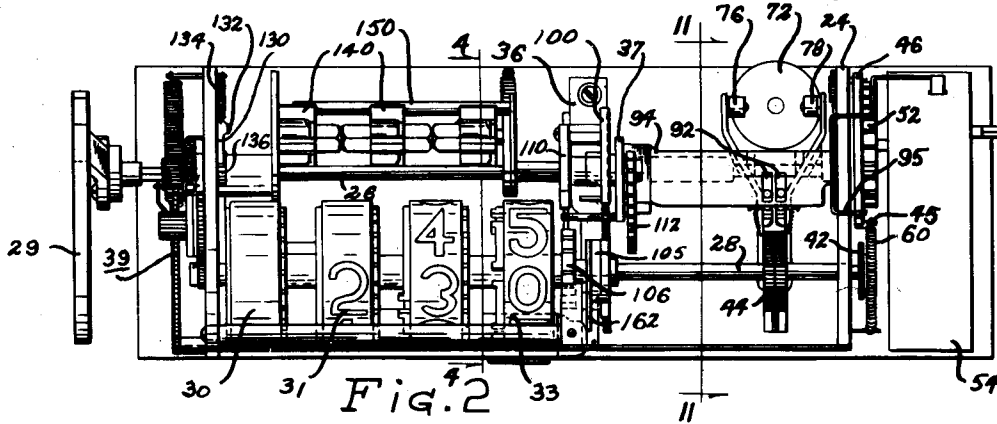


Fig. 2

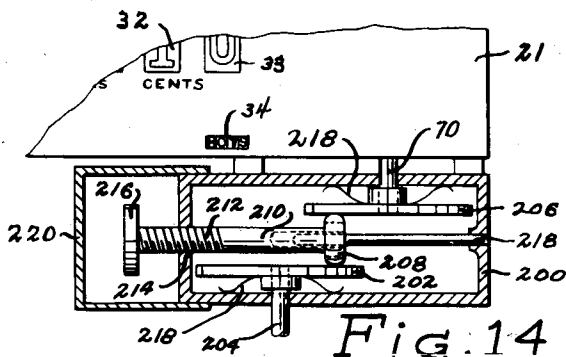


Fig. 14

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By Dybning & Dybning,
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5 Sheets-Sheet 2

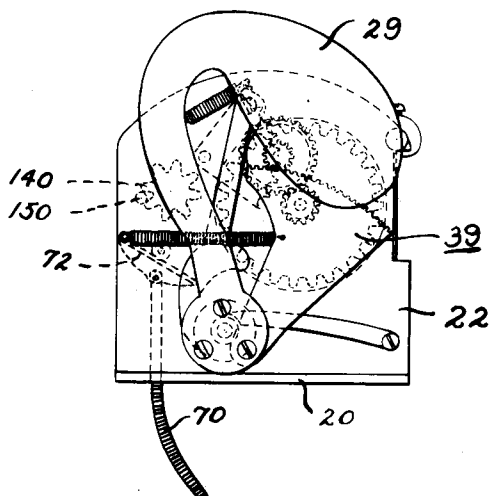


Fig. 3

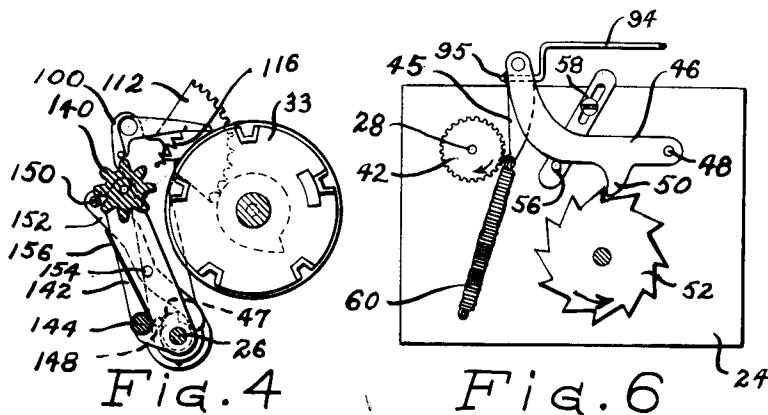


Fig. 4

Fig. 6

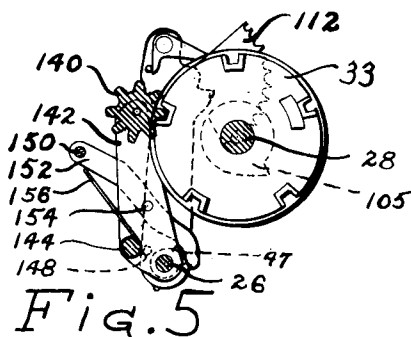


Fig. 5

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5 Sheets-Sheet 3

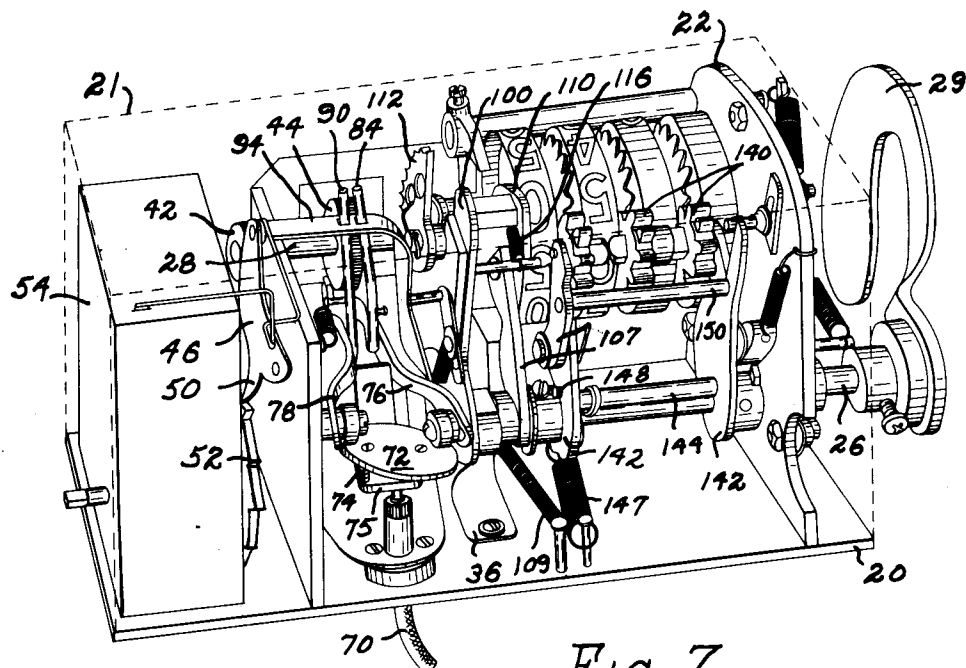


FIG. 7

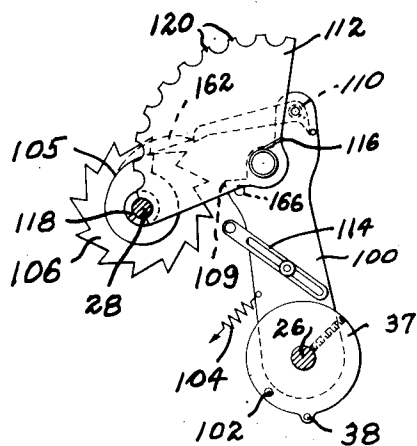


FIG. 8

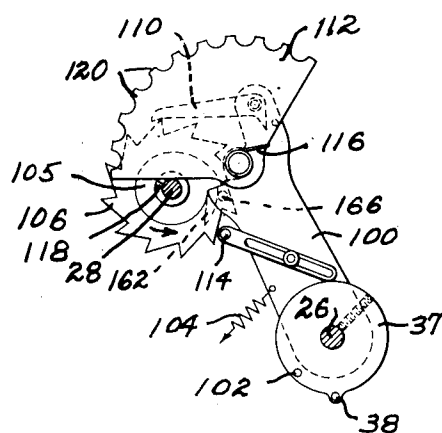


FIG. 9

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Filed June 3, 1947

5 Sheets-Sheet 4

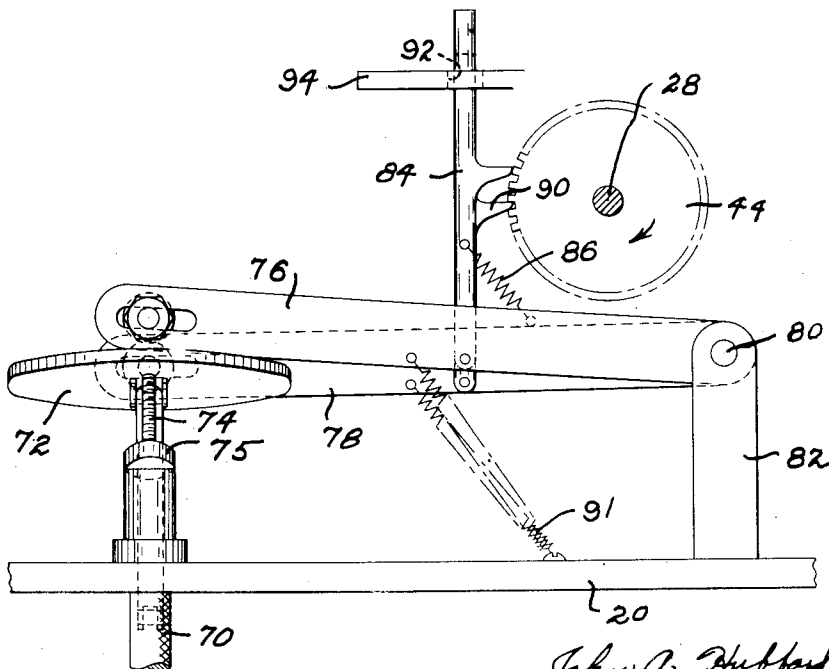
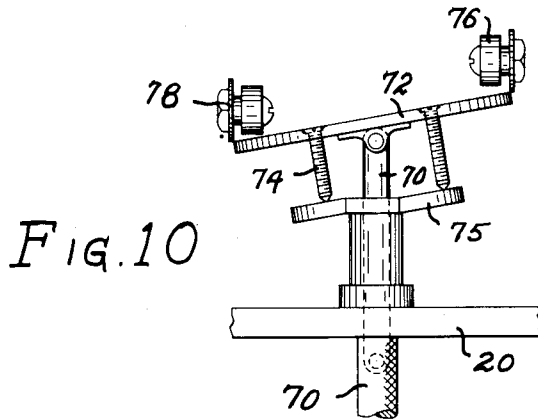


Fig. 11

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Filed June 3, 1947

5 Sheets-Sheet 5

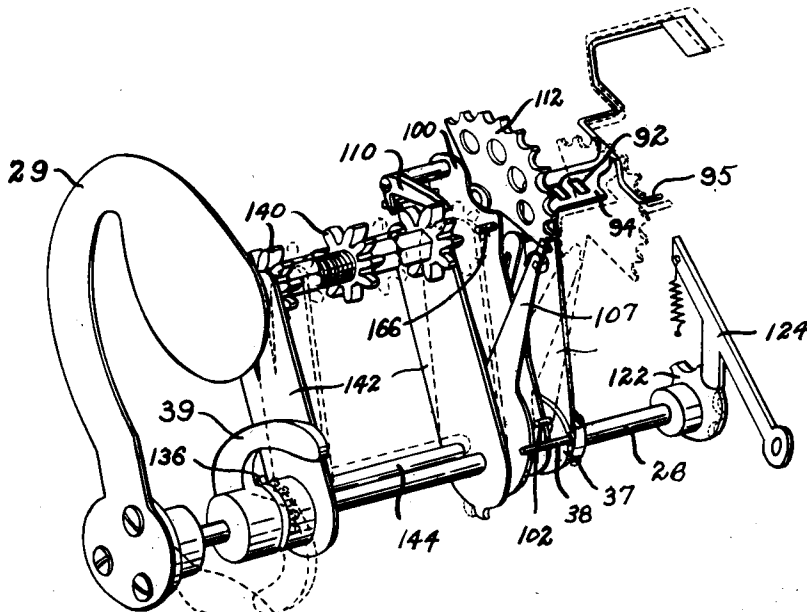


Fig. 12

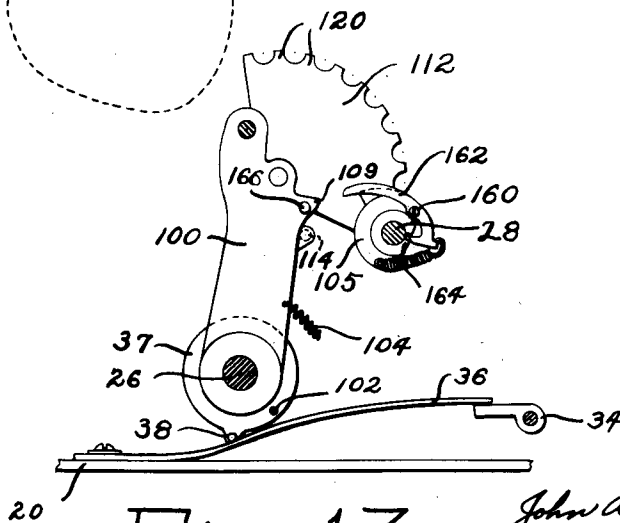


Fig. 13

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UNITED STATES PATENT OFFICE

2,583,966

TAXIMETER

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Application June 3, 1947, Serial No. 752,086

16 Claims. (Cl. 235—30)

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This invention relates to a taximeter and more particularly to a meter having improved means for adjusting for different types of fare schedules.

The rate charged for a ride in a taxi is usually governed by several factors such as the mileage driven, the time consumed in making the trip, and then there is usually a minimum initial charge such as 10¢ or 25¢ irrespective of the distance traveled or the time consumed. It is the practice in some cities to allow one to travel a certain distance before the rate begins to increase with the distance traveled. Thus, it is apparent that the fare to be charged is dependent upon many different factors, and these factors vary from city to city with the result that a different meter construction must be provided for almost every city unless some practical way is provided for adjusting the meter to take care of the variations in the rates between one city and the other. Furthermore, the meter construction must be such that the taxi driver cannot cheat the customers or the taxi owners. Thus, it is an object of this invention to provide a foolproof mechanism which may be adjusted to operate on any rate schedule.

One object of this invention is to provide an improved taximeter in which the parts are so correlated that only two shafts are required for supporting the main parts of the meter.

Another object of this invention is to provide an improved driving arrangement between the mileage drive and the fare indicating drums which includes an adjustable wobble plate type of drive.

Another object of this invention is to provide an improved initial fare adjusting means.

Another object of this invention is to provide an improved co-ordinating gear liner.

Still another object of this invention is to provide an improved arrangement for adjusting the driving connection between the clock and the fare or mileage recording drums.

Further objects and advantages of the present invention reside in the construction and combination of parts and in the mode of operation as will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of the present invention is clearly shown.

Figure 1 is a side elevational view of a meter incorporating features of our invention;

Figure 2 is a plan view of the meter shown in Figure 1;

Figure 3 is an end elevational view of the meter shown in Figures 1 and 2;

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Figure 4 is a fragmentary sectional view taken substantially on line 4—4 of Figure 2;

Figure 5 is similar to Figure 4 but shows the parts in a different relative position;

Figure 6 is a fragmentary elevational view showing the ratchet drive provided between the clock and the shaft on which the fare indicating drums are located;

Figure 7 is a pictorial view of the meter;

Figure 8 is a fragmentary sectional view taken substantially on line 8—8 of Figure 1 and showing the mechanism for making the initial mileage setting;

Figure 9 is a view similar to Figure 8 but showing the relationship of the parts after the allowable initial mileage has been traveled by the taxi and the mileage shaft has begun to operate the fare indicating drums;

Figure 10 is a fragmentary elevational view showing the arrangement of the wobble plate;

Figure 11 is a fragmentary elevational view taken at right angles to the view shown in Figure 10;

Figure 12 is a fragmentary pictorial view showing the flag shaft and associated parts;

Figure 13 is a fragmentary sectional view taken on line 13—13 of Figure 1; and

Figure 14 is a fragmentary sectional view showing a variable speed ratio drive mechanism used to compensate for tire wear and any other irregular gear ratio to bring the car up to standard.

Referring now to the drawings wherein we have shown a preferred embodiment of our invention, reference numeral 20 designates a base on which two parallel shaft supporting uprights 22 and 24 are mounted. Reference numeral 21 designates an outer housing (shown in dotted lines in Figure 7) for enclosing the meter mechanism. The meter requires the use of only two main shafts, the first of which has been designated by the reference numeral 26 and comprises the flag shaft of the meter and the second of which has been designated by the reference numeral 28 and constitutes the main operating shaft on which the fare indicating drums 30 through 33 are mounted.

The shaft 26 has one end thereof projecting to the outside of the meter housing 21 and has a conventional flag 29 secured thereto exteriorly of the housing for operating the shaft 26. The flag 29 is adapted to be lowered and raised once for each trip in accordance with standard practice. A trip registering device 34 has been provided which is operated in response to actuation of the flag shaft 26 for registering the number of trips made by each driver. Additional registering

means could be added for registering the number of paid miles, total miles, total units, etc. The shaft 26 (see Figure 13) has secured to it a disc 37 which carries a pin 38 for depressing a blade spring 36 which in turn operates the trip registering device 34. Operation of the flag shaft 26 also operates conventional resetting mechanism 39 for returning the fare indicating drums 30 through 33 to their zero setting in accordance with well-known practice. Since the resetting mechanism 39 is of conventional construction and inasmuch as the details of construction of the resetting mechanism is immaterial to our invention, it need not be described in greater detail.

The fare indicating drums 30 through 33 are mounted on the operating shaft 28 so as to be free to rotate independently of the shaft 28. The shaft 28 is adapted to be rotated in response to operation of the clock 54 and also in response to operation of the speedometer shaft 70 as will be explained more fully hereinafter.

A pair of shaft operating ratchet wheels 42 and 44 are non-rotatably mounted on the shaft 28. As shown in Figure 6, the ratchet wheel 42 is operated by the pawl 45 pivotally carried by the lever 46. The lever 46 has formed thereon a cam follower projection 50 which is arranged to engage the cam or ratchet wheel 52 driven directly by the clock mechanism 54. The lever 46 is pivotally supported on a pin 48 carried by the upright 24.

For purposes of illustration, the cam wheel 52 has been shown in the shape of a ratchet wheel which serves to oscillate the lever 46 in response to operation of the clock. The number of teeth or cam elements provided on the periphery of the wheel 52 may be varied somewhat without departing from the spirit of our invention. A cam element having 12 teeth has been found to be very practical for this purpose. The pawl 45 will be elevated a pre-determined amount once for each tooth on the wheel 52 which passes under the cam follower 50 whereby the ratchet wheel 42 and the shaft 28 are rotated. Since different fare schedules provide for different rates for a given period of time, it is necessary to provide some convenient means for varying the rate at which the clock rotates the shaft 28. This is done by adjusting the position of the stop element 56 which is secured to the upright 24 by means of the pin and slot connection 58. Adjustment of the stop element 56 adjusts the distance through which the pawl 45 moves the ratchet wheel 42 each time one of the teeth on the cam wheel 52 moves past the cam follower 50. As shown for purposes of illustration in Figure 6, the stop 56 has been set so as to allow the cam follower 50 to drop only a portion of the height of a tooth. A spring 60 which has its lower end attached to the upright 24 biases the pawl 45 downwardly and into driving engagement with the ratchet wheel 42. By virtue of the above described arrangement, it is obvious that by changing the setting of the stop 56, it is possible to vary the rate at which the clock 54 steps around the ratchet wheel 42. The ratchet wheel 42 is preferably provided with a large number of teeth so as to provide a fine adjustment. Thus the pawl 45 may be adjusted so as to pick up only one tooth of the ratchet wheel 42 each time, or it may be adjusted so that a larger number of teeth may be picked up each time depending upon the rate schedule for which the meter is adjusted.

In addition to operating the shaft 28 in response to operation of the clock 54, this shaft is

at times simultaneously operated in response to operation of the speedometer or some similar means responsive to the distance traveled by the taxi. The means for driving the shaft 28 in response to operation of the speedometer is best shown in Figures 10 and 11 of the drawing wherein reference numeral 70 designates a flexible shaft adapted to be connected to the speedometer or other driving mechanism (not shown). The shaft 70 operates the shaft 28 through a wobble plate drive which includes a wobble plate 72 adjustably mounted on the shaft 70. In order to adjust for differences in rate schedules the angle at which the wobble plate 72 is disposed may be adjusted by means of the screws 74 which engage the platform 75 secured directly to the shaft 70. The wobble plate 72 operates a pair of cam followers 76 and 78 which are pivotally supported at 80 on the post 82 projecting upwardly from the base 20. The cam follower 76 is provided with a pawl 84 which imparts rotary motion to the ratchet wheel 44 on the shaft 28 each time the pawl 84 moves upwardly. The pawl 84 is biased into ratchet engaging position by the spring 86 which has its one end connected to the pawl 84 and its other end connected to the cam follower 76 as shown in Figure 11. A similar pawl 90 is operated by the cam follower 78. Springs 91 bias the cam followers 76 and 78 into engagement with the wobble plate or cam 72. By virtue of the above described arrangement, it is obvious that the wobble plate adjusting means 74 may be used to vary the rate at which the speedometer shaft operates the fare indicating drums 30 through 33.

The upper ends of the pawls 84 and 90 pass through apertures 92 provided in the pawl disengaging member 94. The member 94 is operated from the flag shaft 26 so as to disengage the pawls 84 and 90 from the ratchet 44 whenever the flag 40 is moved to its raised position for returning the fare indicating drums to their initial setting. The member 94 is also provided with an extension 95 which engages the clock operated pawl 45 so as to disengage it from the ratchet 42 during the meter resetting operation. It will also be noted that the arrangement is such that the pawl 84 prevents the ratchet wheel 44 from moving in the wrong direction when the pawl 90 moves downwardly and similarly the pawl 90 prevents the ratchet wheel 44 from moving in the wrong direction when the pawl 84 moves downwardly. In other words, either one of the above mentioned pawls prevents backlash or reverse rotation of the shaft 28 and the associated ratchet wheel 44 at all times except when the flag is in the raised position at which time the pawls 84 and 90 are held out of engagement with the ratchet wheel 44. It should be noted that the pawls 84 and 90 constitute a double clutch which makes it possible to actuate the ratchet wheel 44 in the correct direction irrespective of whether the taxi is going forward or in reverse. It is also obvious that the double pawl arrangement coupled with the wobble plate construction causes the shaft 28 to begin operating immediately when the speedometer shaft 70 first begins rotating, whereas in most of all, if not all, of the prior art meters the arrangement is such that the speedometer shaft may make several revolutions before taking effect.

In most cities, it is necessary to provide some means whereby the fare indicating drums are not actuated in response to operation of the speedometer shaft until after the taxi has been

driven a predetermined distance such as a quarter of a mile or the like. In order to accomplish this result, there is provided a special power transmitting means between the shaft 28 and the fare indicating drums which makes it possible to drive the taxi a predetermined distance before rotation of the shaft 28 begins operating the fare indicating drums. The power transmitting means provides for an initial mileage or zero setting which may be adjusted so as to allow for different rate schedule requirements. The power transmitting means includes a cam wheel 105 fixed to the shaft 28 so as to rotate in unison with the shaft and to engage the projection 109 on the lever 100 which is loosely mounted on the flag shaft 26 so as to be free to oscillate relative to the shaft 26 during normal meter operation. The upper end of the lever 100 is provided with a spring biased pawl 110 which is arranged to drive the ratchet wheel 106 which is fixed to the first of the series of fare indicating drums. Reverse rotation of the ratchet wheel 106 is prevented by the pawl 107 which is freely rotatable on the shaft 26 and is held in engagement with the ratchet wheel 106 by the spring 109. In order to prevent the transmission of power from the shaft 28 to the fare indicating drum 33 during the initial mileage period when the mileage responsive shaft is not supposed to operate the fare indicating drums, there is provided a zero mileage setting means which comprises a toothed segment 112 pivotally supported on the lever 100 for holding the pawl 110 out of contact with the ratchet wheel 106 during the initial mileage period. The segment 112 has its lower edge biased toward the adjustable stop element 114 by means of the spring 116.

At the beginning of each trip, the flag shaft 26 is operated so as to cause the pin 102 carried by the disc 37 to move the lever 100 in a direction away from the shaft 28 so as to disengage the pawl 110 from the ratchet wheel 106 and so as to return the zero mileage segment 112 to a position in which the lower edge thereof engages the stop 114. At the beginning of the run, the cab driver will operate the flag shaft 29 so as to allow the lever 100 to be moved by the spring 104 in a direction towards the shaft 28. The movement of the lever 100 towards the shaft 28 will be temporarily interrupted by the segment 112. Rotation of the shaft 28 causes the pin 118 carried by the shaft 28 to successively engage the teeth 120 on the segment 112 so as to shift the segment 120 relative to the shaft 28 one tooth per revolution of the shaft 28 until the last tooth of the segment 112 clears the shaft 28 at which time the pawl 110 moves into driving engagement with the ratchet wheel 106 and the projection 109 on the lever 100 moves into operative relationship to the driving cam 105. The adjustable stop 114 may be set so as to allow considerable latitude in the zero mileage setting, thus it may be set so as to cause the segment 112 to completely clear the shaft 28 or it may be set so as to cause the segment 112 to engage the shaft anywhere along the periphery of the segment 112.

The flag shaft 26 is provided with a precision or indexing cam 122 which cooperates with a spring pressed cam follower 124 (supported on the upright 22) for releasably holding the flag shaft in either of three positions. The shaft 26 is also provided with a flag lock which comprises a lever 130 (see Figures 1, 2, 7 and 12) which is pivotally mounted at 132 and which has its one

end connected to the spring 134 and its other end arranged to engage the teeth 136 carried by the flag shaft 26. The teeth 136 extend throughout approximately 45 degrees and are so arranged, relative to the lever 130, that once the operator starts to raise the flag, it is necessary for him to raise the flag all the way before it is possible to begin lowering the flag and once he begins lowering the flag, it is necessary to lower the flag all the way before it is possible to raise the flag.

As explained hereinabove, the shaft 28 serves to rotate the fare indicating drum 33 at the conclusion of the initial mileage period. The mileage indicating drums 30 through 33 are of conventional construction and need no further showing or explanation. Co-ordination or transfer gears 140 are provided for cooperation with the fare indicating drums. These co-ordinating gears serve their usual well-known purpose and are arranged to be supported by the upper ends of the pivoted levers 142. The levers 142 are connected to one another by means of the tie rod 144 which serves the purpose of causing the two levers to oscillate about the flag shaft 26 in unison. In order to disengage the co-ordinating gears from the respective fare indicating drums with which they normally cooperate, there is provided a lug or cam 146 which is attached to the flag shaft 26 so as to rotate therewith. The lug 146 engages a pin 148 so as to swing the levers 142 relative to the shaft 26 a distance sufficient to disengage the co-ordinating gears from the fare indicating drums. The spring 147 returns the levers 142 into gear engaging position.

In order to properly align the co-ordinating gears preparatory to them reengaging the gears on the fare indicating drums, we have provided a co-ordinating gear liner 150 (see Figures 4, 5 and 7) carried by the upper end of a lever 152. The lever 152 is pivotally mounted at 154 on one of the co-ordinating gear supporting members 142. The lower end of the lever 152 is arranged to be engaged by the cam 47 described hereinafter whenever the flag shaft is moved to the position in which the flag is down or in meter operating position. However when the flag is raised, the cam segment 47 moves out of the way of the lower end of the lever 152 so that the spring 156 moves the lever from the position in which it is shown in Figure 5 to the position in which it is shown in Figure 4 with the result that the co-ordinating gear liner 150 will engage teeth of the co-ordinating gears in such a manner as to insure proper alignment of the gears. When the flag is lowered and the flag shaft is returned to the position which it normally occupies when the meter is in operation, the cam 47 will be instrumental in causing the co-ordinating gear liner 150 to move out of engagement with the gears.

As explained hereinabove, raising of the flag 29 causes the resetting mechanism 39 to return the fare indicating drums 30 through 33 to their zero or initial fare setting. The resetting mechanism 39 causes reverse rotation of the main shaft 28 which in turn drives the fare indicating drums in reverse through the clutch 160 as best shown in Figure 13. The clutch 160 comprises a pawl 162 which is pivotally mounted on one side or face of the cam 105 which is secured directly to the main shaft 28. The pawl 162 is arranged to engage within the notch 164 formed in the hub of the ratchet wheel 106. The pawl

162 has a free end projecting somewhat tangentially so as to engage a pin 166 provided on the lever 100 whereby engagement of the free end of the pawl 162 by the pin 166 causes the pawl to disengage from the notch 164. Since the upper end of the lever 100 is moved away from the shaft 28 during the meter resetting operation, the pin 166 is ineffective to disengage the pawl 162 from the recess 164 during the meter resetting operation.

Since wear on the tires of a taxi affects the number of revolutions which the wheels make per mile traveled and since some cities, such as New York city, require that the taximeter be adjusted to compensate for the effect of tire wear, we have provided a special removable speed change type of compensating unit between the speedometer shaft and the wobble plate drive shaft as shown in Figure 14. The compensating unit is removably mounted on the underside of the base 20 of the meter and makes it possible to compensate for tire wear without changing any gear wheels or the like within the main meter housing. This compensating unit comprises a main casing 200 which rotatably supports a first disc 202 which is attached to the end of the speedometer shaft 204 and a second disc 206 which is secured to the wobble plate operating shaft 70. The discs 202 and 206 are offset from one another as shown and power is transmitted from the disc 202 to the disc 206 by means of a roller 208 which is rotatably mounted on the adjustable support 210. The support 210 is provided with threads 212 which cooperate with the thread opening 214 provided in the end wall of the housing 200 whereby rotation of the knob 216 which is fastened to the outer end of the support 210 causes longitudinal movement of the roller 208. The support 210 is recessed for the reception of a supporting stud 218 which is fixedly carried by the end wall of the housing 200. It will be observed that by shifting the roller 208 towards the axis of rotation of the shaft 70 causes rotation of the speedometer shaft 204 to drive the wobble plate shaft 70 at a higher rate of speed than if the roller 208 were to be moved closer to the center of rotation of the shaft 204. In order to maintain sufficient pressure between the roller 208 and the discs 202 and 206, springs 218 are provided for biasing the discs 202 and 206 into firm engagement with the rollers 208. By virtue of this construction, compensation is also made for wear on the discs and the roller. In order to prevent unauthorized adjustment of the device, we have provided a cover 220 for enclosing the knob 216. Suitable seal means (not shown) may be provided for securing the cover 220 to the housing 200 so as to prevent unauthorized removal of the cover without breaking the seal.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

Having thus described our invention, we claim:

1. In a taximeter, an outer casing, a base member within said casing, a pair of uprights mounted on said base member, a first shaft journaled in said uprights, a second shaft journaled in said uprights and having one end projecting through said casing, fare indicating drums rotatably supported on said first shaft, a first ratchet wheel fixed to said first shaft, a second ratchet wheel fixed to said first shaft, clock means for oper-

ating said first ratchet wheel, mileage responsive means for operating said second ratchet wheel, said mileage responsive means including means for preventing rotation of said second ratchet wheel in one direction, power transmitting means between said first shaft and said fare indicating drums including a pawl mechanism supported from said second shaft and a cooperating ratchet in driving engagement with one of said fare indicating drums, co-ordinating gears supported for movement into and out of operative engagement with said fare indicating drums, supporting means for said co-ordinating gears pivotally mounted on said second shaft, a co-ordinating gear liner pivotally mounted on said supporting means, cam means on said second named shaft for moving said liner into and out of engagement with said co-ordinating gears in response to rotation of said second named shaft, and a manual operator for said second shaft mounted on said projecting end.

2. In a taximeter, a base member, a pair of uprights mounted on said base member, a first shaft rotatably supported in said uprights, fare indicating means, means for transmitting power from said first shaft to said fare indicating means, a mileage responsive drive shaft, means for transmitting power from said mileage responsive drive shaft to said first named shaft irrespective of direction of rotation of said mileage responsive drive shaft, said power transmitting means comprising a wobble plate drive mechanism, said wobble plate drive mechanism comprising means for adjusting the angle of wobble so as to regulate the speed ratio between said mileage drive shaft and said first named shaft.

3. In a taximeter, a base, a wobble plate cam rotatably supported on said base and adapted to be operated so as to be rotated at a speed proportional to the speed of the taxi, means for adjusting the angle of said wobble plate cam, fare registering drums supported for rotation on said base, and power transmitting means for transmitting power from said wobble plate cam to said fare registering drums comprising a pair of cam followers arranged in engagement with said wobble plate cam on opposite sides of the axis of rotation of said cam.

4. In a taximeter or the like, a drive shaft, a driven shaft, means for transmitting power from said drive shaft to said driven shaft comprising a wobble plate cam secured to said drive shaft, a ratchet wheel secured to said driven shaft, a first cam follower pivotally mounted for engagement with said wobble plate cam on one side of said drive shaft, a second cam follower pivotally mounted for engagement with said wobble plate cam on the other side of said drive shaft, first pawl means carried by said first cam follower and arranged in driving engagement with said ratchet wheel, second pawl means carried by said second cam follower and arranged in driving engagement with said ratchet wheel, means for biasing said pawl means into driving engagement with said ratchet wheel, and means for disengaging at least one of said pawl means from said ratchet wheel.

5. In a taximeter or the like, a drive shaft, a driven shaft, means for transmitting power from said drive shaft to said driven shaft comprising a wobble plate cam secured to said drive shaft, a ratchet wheel secured to said driven shaft, a first cam follower pivotally mounted for engagement with said wobble plate cam on one side of said drive shaft, a second cam follower pivotally mounted for engagement with said wobble plate

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cam at the other side of said drive shaft, first pawl means carried by said first cam follower and arranged in driving engagement with said ratchet wheel, second pawl means carried by said second cam follower and arranged in driving engagement with said ratchet wheel, means for biasing said pawl means into driving engagement with said ratchet wheel, second ratchet means secured to said driven shaft, clock means, a third pawl means operated by said clock means and arranged in driving engagement with said second named ratchet wheel, and means for simultaneously disengaging all of said pawl means from said ratchet wheels.

6. In a taximeter, a base, upright means carried by said base, a shaft journaled in said upright means, fare indicating drums rotatably supported on said shaft, power transmitting means between said shaft and said fare indicating drums, a ratchet wheel on said shaft, a clock, a cam wheel operated by said clock, a lever, means for pivotally mounting said lever adjacent said cam wheel, said lever having a cam follower in engagement with said cam wheel, spring means biasing said projection against said cam wheel, said lever having a pawl member carried thereby arranged in driving engagement with the teeth of said first named ratchet wheel, and adjustable stop means for limiting the stroke or angle of oscillation of said lever.

7. In a taximeter, a base, upright means carried by said base, a shaft journaled in said upright means, fare indicating drums rotatably supported on said shaft, power transmitting means between said shaft and said fare indicating drums, a ratchet wheel on said shaft, clock means, a cam wheel driven by said clock and having peripheral cams formed thereon, a cam follower, means for pivotally mounting said cam follower adjacent said cam wheel, said cam follower having a pawl member carried thereby arranged in driving engagement with the teeth of said ratchet wheel so as to rotate said ratchet wheel, adjustable stop means for limiting the movement of said cam follower towards said cam wheel so as to adjust the rate at which said clock means rotates said shaft, a flag shaft rotatably supported in said upright means, and means operated by said flag shaft for lifting said pawl members from engagement with said ratchet wheel.

8. In a taximeter, a pair of parallel shafts, shaft supporting means, fare indicating drums, one of said parallel shafts comprising a flag shaft and the other of said parallel shafts comprising a drive shaft for said fare indicating drums, mileage responsive means for operating said drive shaft, power transmitting means between said drive shaft and said drums, said power transmitting means comprising a ratchet wheel connected to one of said mileage drums, a pawl mechanism pivotally supported on said flag shaft including a pawl arranged to drive said ratchet wheel, a cam secured to said drive shaft and arranged in driving engagement with said pawl mechanism so as to oscillate said pawl, zero mileage setting means carried by said pawl mechanism for holding said pawl out of driving engagement with said cam during a predetermined initial mileage comprising an element carried by said pawl mechanism and having a portion for engagement with said drive shaft so as to hold said pawl out of engagement with said ratchet wheel, and means carried by said last shaft operable to move said element out of engagement

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with said last shaft in response to a predetermined movement of said last shaft.

9. In a taximeter; a pair of parallel shafts; shaft supporting means; fare indicating drums, one of said parallel shafts comprising a flag shaft and the other of said parallel shafts comprising a drive shaft for said fare indicating drums; mileage responsive means for operating said drive shaft; power transmitting means between said drive shaft and said drums; said power transmitting means comprising a ratchet wheel connected to one of said mileage drums, a pawl mechanism pivotally supported on said flag shaft including a pawl arranged to drive said ratchet wheel, and a cam secured to said drive shaft and arranged in driving engagement with said pawl mechanism so as to impart oscillation to said pawl; zero mileage setting means carried by said pawl mechanism for holding said pawl out of driving engagement with said cam during a predetermined initial mileage comprising an element carried by said pawl mechanism and having a portion for engagement with said drive shaft so as to hold said pawl out of engagement with said ratchet wheel and means carried by said last shaft operable to move said element out of engagement with said last shaft in response to a predetermined movement of said last shaft; and means for adjusting the amount of movement of said drive shaft required to move said element out of engagement with said drive shaft.

10. In a taximeter, a mileage responsive drive shaft, a main shaft, fare indicating drums, means for transmitting power from said main shaft to said drums, clock means, a ratchet type of drive means between said clock and said main shaft, a wobble plate type of drive means for transmitting power from said drive shaft to said main shaft, said drive means including a ratchet wheel carried by said main shaft and a pair of pawl members operated in response to rotation of said drive shaft, at least one of said pawls being in engagement with said ratchet wheel at all times during the operation of the meter so as to prevent backlash of said driven shaft, and means for lifting both said pawl members from said ratchet wheel so as to permit reverse rotation of said main shaft during resetting of the meter.

11. In a taximeter; a base member; a pair of uprights mounted on said base member; an outer casing enclosing said base member and said uprights; a first shaft journaled in said uprights; a second shaft journaled in said uprights and having one end projecting through said casing; fare indicating drums rotatably supported on said first shaft, a first ratchet wheel fixed to said first shaft; a second ratchet wheel fixed to said first shaft; clock means for operating said first ratchet wheel; mileage responsive means for operating said second ratchet wheel; said mileage responsive means including means for preventing rotation of said second ratchet wheel in one direction; power transmitting means between said first shaft and said fare indicating drums including a cam on said first shaft; a cam follower pivotally mounted on said second shaft and oscillated in response to rotation of said cam, a second pawl mechanism supported from said cam follower, and a second ratchet wheel cooperating with said second pawl and arranged in driving engagement with one of said fare indicating drums; co-ordinating gears supported for movement into and out of operative engagement with said fare indicating drums; supporting means for said co-ordinating gears mounted for limited piv-

otal movement on said second shaft; a co-ordinating gear liner pivotally mounted on said supporting means; cam means on said second named shaft for moving said gear liner into and out of engagement with said co-ordinating gears in response to rotation of said second named shaft; and a manual operator for said second named shaft mounted on said projecting end.

12. In a taximeter; a base member; a pair of uprights mounted on said base member; a first shaft journaled in said uprights; a second shaft journaled in said uprights; fare indicating drums rotatably supported on said first shaft; a first ratchet wheel fixed to said first shaft; a second ratchet wheel fixed to said first shaft; clock means for operating said first ratchet wheel; mileage responsive means for operating said second ratchet wheel; said mileage responsive means including means for preventing rotation of said second ratchet wheel in one direction; and power transmitting means between said first shaft and said fare indicating drums including a cam on said first shaft; a cam follower pivotally mounted on said second shaft, a second pawl mechanism supported on said cam follower, a second ratchet wheel on said first shaft cooperating with said second pawl and arranged in driving engagement with one of said fare indicating drums, and meter resetting means comprising means for disengaging the pawls from said first and second ratchet wheels, means for operating said first shaft in reverse, and clutch means between said first shaft and said fare indicating drums for transmitting power from said first shaft to said fare indicating drums during reverse rotation of said shaft so as to reset said drums.

13. In a taximeter, a base, a pair of uprights secured to said base, a first shaft journaled in said uprights, fare indicating drums rotatably supported on said shaft, power transmitting means between said first shaft and said fare indicating drums, a mileage responsive drive shaft, means for transmitting power from said drive shaft to said first named shaft comprising a wobble plate drive mechanism whereby rotation of said drive shaft in either direction always operates said first named shaft in one direction, said wobble plate drive mechanism comprising a wobble plate cam operated by said mileage responsive shaft and a pair of cooperating cam followers arranged to engage the wobble plate cam on opposite sides of the axis of rotation thereof, ratchet means carried by said first named shaft, and pawl means operated by said cam followers for driving said ratchet means, means for adjusting the angle of wobble of said plate so as to adjust the rate at which said mileage responsive drive shaft operates said fare indicating drums, and means for resetting said fare indicating drums at the end of a run, said last named means including means for disengaging said pawl means from said ratchet means.

14. In a taximeter, a first speed responsive shaft, a second shaft, fare indicating drums rotatably mounted on said second shaft, said second shaft being arranged at right angles to said first named shaft, means for transmitting power from said first named shaft to said second shaft, a third shaft parallel to said second shaft, a lever pivotally mounted on said third shaft, cam means on said second shaft for oscillating said lever, pawl means carried by said lever so as to oscillate

with said lever, ratchet means on said fare indicating drums arranged to be driven by said pawl means, and means operable in response to rotation of said third shaft for resetting said fare indicating drums, said power transmitting means including an adjustable speed ratio means for adjusting for differences in fare schedules.

15. A variable rate power transmitting means for use in a metering device comprising a drive shaft, a driven shaft, indicating means operated by said driven shaft, a wobble plate carried by said drive shaft, a ratchet wheel carried by said driven shaft, pawl means having a first portion riding on said wobble plate and a second portion arranged to drive said ratchet wheel in response to rotation of said wobble plate, and means for adjusting the angle of wobble of said wobble plate.

16. In a taximeter, a base member, a pair of uprights mounted on said base member, a first shaft journaled in said uprights, a second shaft journaled in said uprights, fare indicating drums rotatably supported on said first shaft, a first ratchet wheel fixed to said first shaft, a second ratchet wheel fixed to said first shaft, clock means for operating said first ratchet wheel, mileage responsive means for operating said second ratchet wheel, said mileage responsive means including means for preventing rotation of said second ratchet wheel in one direction, power transmitting means between said first shaft and said fare indicating drums including a pawl mechanism supported from said second shaft and a cooperating ratchet in driving engagement with one of said fare indicating drums, coordinating gears supported for movement into and out of operative engagement with said fare indicating drums, supporting means for said co-ordinating gears pivotally mounted on said second shaft, a coordinating gear liner pivotally mounted on said supporting means, cam means on said second named shaft for moving said liner into and out of engagement with said co-ordinating gears in response to rotation of said second named shaft, a manual operator for said second shaft.

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