July 27, 1926. 1,594,186

W. G. ORTH ET AL

TAXIMETER

Filed Nov. 2, 1922 2 Sheets-Sheet 1

Fig. 2.

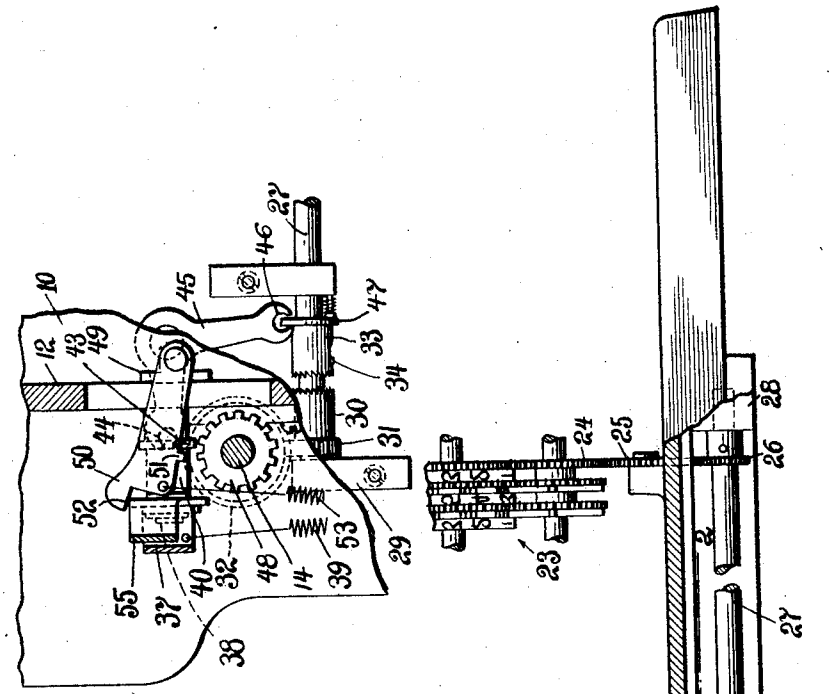
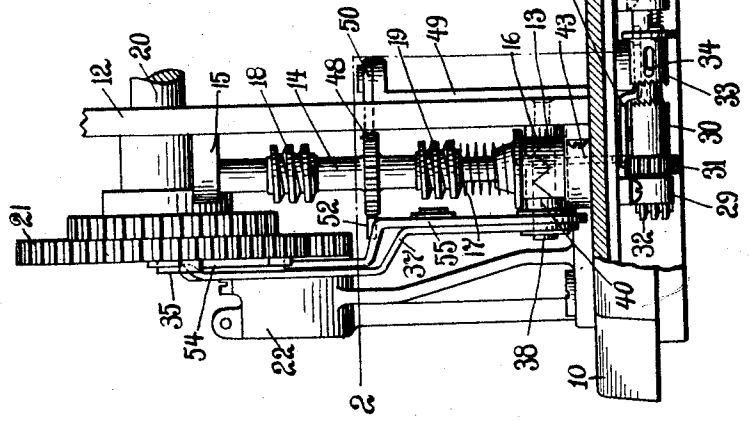


Fig. 1.



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Fig. 4.

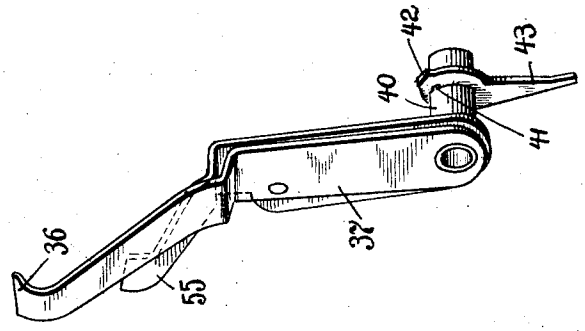
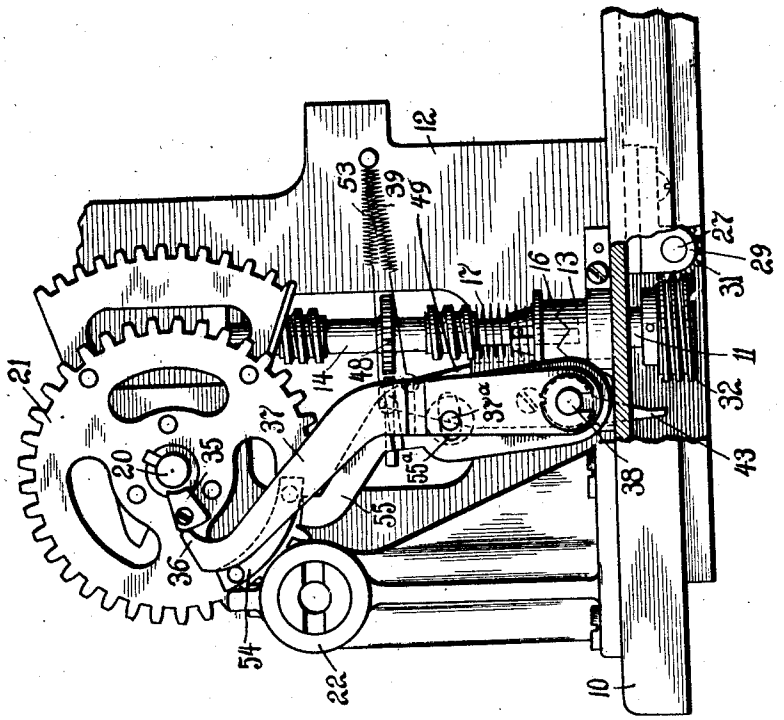


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TAXIMETER.

Application filed November 2, 1922. Serial No. 598,500.

This invention relates to printing taximeters, and is shown as applied to a machine of the type disclosed in Patent 1,136,164 of April 20, 1915 to Ohmer and Bridenbaugh, and in Patent 1,182,408 of May 9, 1916, to Ohmer and Orth.

The patents referred to disclose a record printing and ticket issuing taximeter.

The series of registering devices from which the record and ticket are printed comprises among others, mileage registers driven from a wheel of the vehicle, and fare registers adapted to be driven either from a wheel of the vehicle or from a clock mechanism.

The fare registers are disengaged from their driving mechanism, and a brake is applied to the balance wheel of the clock when the vehicle is not in hire. When the vehicle is hired the driver rotates a flag bearing crank a quarter of a revolution. This operation rotates the flag shaft (to which the crank is rigidly connected) thru a quarter revolution, this movement performing several functions among which are the release of the clock mechanism and the engagement of the fare register with its driving means. When the vehicle is discharged by the hirer the driver, (having first moved the flag to "stopped" position), turns a printing handle until a main printer shaft connected therewith has made one complete revolution.

The rotation of the printing shaft controls several movements, among which are inking the type of each of the two series of registers that are in printing position, advancing the printing platens to print the record and ticket, issuing the ticket, restoring the fare counters to zero, and restoring the flag shaft to "for hire" position. Means are provided for preventing damage to the meter if the vehicle is run when the movement of the register wheels is obstructed, for example by the engagement therewith of the printing platen. This device compriseses clutch elements on alined shafts, the movable element being spring pressed into engagement, and the engaging faces having V-shaped teeth, so that when the resistance to movement of the driven shaft is excessive the movable element is forced back against the compression of its spring and snaps into engagement again as the high points of the teeth on the two clutch members pass each other.

In the patent to Ohmer and Bridenbaugh above mentioned, a non-printing counter is provided for indicating the distance the vehicle has travelled with the movement of the meter so obstructed, by registering the number of oscillations of the movable clutch element. One object of the present invention is to provide a printing "tell tale" mileage counter mounted in alinement with the other counters which print the record, and adapted to be driven from the vehicle wheel driven shaft.

A further object of the invention is to provide a clutch mechanism for the tell tale mileage counter, so controlled from the main printing shaft that the tell tale counter is operative not only when the movement of some part of the meter mechanism is obstructed, but at all times when the printing shaft is not in home position.

A further object of the invention is to provide a locking device for the meter mechanism driving shaft, which will be operative when the printing shaft is not in home position.

A further object is to provide actuating devices for said lock and said clutch, which shall be moved by separate operating elements associated with the printing shaft, and shall be so related that the clutch is positively engaged before the lock becomes operative, and remains fully engaged until the locking members are fully disengaged.

A further object is to so arrange the lock and clutch operating devices that they are attached to the machine as a unit and the lock operating device is dependent on the clutch operating device for support.

A further object of the invention is to provide, in a taximeter means for so controlling the movement of two shafts adapted to be alternately actuated from a common driving element, that at least one of said shafts is operatively connected to said driving element at all times.

In the drawings:

Figure 1 is a front elevation of the parts comprising our invention with so much of the Ohmer taximeter as is necessary to show its attachment thereto.

Figure 2 is a fragmentary plan view, on the broken line 2—2 of Figure 1.

Figure 3 is an elevation of the left end of the taximeter, showing our invention applied thereto.

Figure 4 is a detail perspective of the clutch and lock operating arms.

Near the left hand end of the machine base 10 and extending thru said base is a short drive shaft 11, suitably supported from the main frame 12 of the machine. The shaft 11 is driven from a wheel of the vehicle by suitable means. A collar 13 formed at the top of shaft 11 serves to retain it against downward movement, and forms the driving member of a clutch. The collar 13 is suitably recessed to form a lower bearing for a shaft 14 (Fig. 1) which has an upper bearing in a lug 15 on the machine frame. The driven member of the clutch 16, is slidable on shaft 14, and moves the latter by means of a pin and slot connection, clearly shown in Figure 3.

Clutch member 16 is pressed into engagement with clutch member 13 by a spring 17, coiled about shaft 14. This arrangement permits the clutch to "slip" without damage to any parts when from any cause there is an excessive resistance to movement of shaft 14. The shaft 14 carries two worms 18 and 19 connected thru suitable gearing (not shown) to drive the fare and mileage registers.

It will be recalled that when the hirer discharges the vehicle a record of the trip is printed, and a ticket is printed and issued. A shaft 20 and associated parts control all movements incident to the printing and ticket issuing operation. A gear 21, or a similar gear on the opposite end of the shaft 20 meshes with a pinion associated with a hand operated crank, (not shown) such pinion and crank being supported in a suitable standard 22. In the printing and ticket issuing operation the crank is rotated until the shaft 20 has made one complete revolution, and suitable indicating and locking devices, not shown since they form no part of the present invention, are provided for clearly indicating when these operations have been properly completed.

The mechanism as so far described is substantially the same as that disclosed in Patent 1,136,164.

Turning now to the devices which constitute the present invention, it is apparent that if the vehicle is operated with the printer shaft 20 not in home position incorrect registrations will result, and it is important to the cab owner to know whether the vehicle has been so run. To this end we have provided a mileage counter, 23, conveniently mounted near the right hand end of the machine in alinement with the other counters which print the record. This counter is actuated thru idlers 24 and 25 by a pinion 26 on a secondary actuating shaft 27 which extends beneath the base of the machine and is supported in suitable bearings 28 and 29. Mounted on one end of a boss 30 loose on shaft 27 is a worm gear 31 which meshes with a worm 32 on the drive shaft 11 which it will be recalled is driven from a wheel of the vehicle. The boss 30 terminates in a clutch face with which engages a slidable clutch member 33 which has a pin and slot connection 34 with shaft 27. The sliding clutch member is moved to engaging position whenever the printing shaft moves from home position by the following mechanism:

Mounted on the gear 21 by means of which shaft 20 is rotated is a cam 35. When the shaft 20 is in home position this cam is in engagement with the nose 36 of an arm 37 loosely mounted on a stud 38 projecting from the side of the main frame. Nose 36 is held in contact with cam 35 by a spring 39, which also serves to draw the upper end of arm 37 toward shaft 20 when the cam 35 passes out of engagement with the nose 36 in the rotation of the shaft 20. The arm 37 carries a boss 40 from which project tangs 41 which engage slots in the hub 42 of a pendant lever 43. This lever extends thru an opening in the machine base, and terminates in a finger which is engaged by the forked end 44 of a bell crank 45 mounted on a stud in the machine base. The forked end 46 of the second arm of the bell crank engages a flange 47 on the sliding clutch element 33. Thus as soon as the printing shaft is turned from home position spring 39 moves arm 37 inwardly and engages the clutch. As the gear 21 approaches home position arm 37 is moved outwardly by cam 35, disengaging clutch 30—33.

It is also desirable that when the printing shaft 20 is not in home position the primary actuating shaft 14 be locked against movement. The movement of the locking device, however, must be so timed relative to the movement of the clutch 33 that the clutch will be fully engaged before the lock becomes effective, and will remain properly engaged until the lock is rendered ineffective, so that there will be no point in the rotation of the printer shaft at which no counter is operative. To this end the following locking device is provided.

Integral with the shaft 14 is a notched disk 48. Rigidly attached to the machine frame is an upright member 49 having a laterally bent portion on which is pivoted an arm 50. Arm 50 carries integral therewith a tang 51 extending toward the notched disk 48, and near its outer end is formed a shoulder 52. A spring 53 normally urges the tang into locking engagement with the notches of disk 48. Mounted on gear 21 is a second cam or guide 54 which when the gear and printer shaft are in home position engages an arm 55, which is rotatably mounted on the hub 40 of the arm 37. For convenience in assembly and to insure that

arm 55 will not be omitted, arm 37 carries a headed stud 37ª which engages a slot 55ª in arm 55, thus holding the two arms together but permitting the necessary relative lateral movement.

The shoulder 52 of the arm 50 engages the arm 55 so that the spring 53 urges the arm 55 against the cam 54, which cam holds the tang 51 out of locking engagement with the disk 48 while the printing shaft is in home position. After a slight initial movement of the printing shaft, cam 54 moves out of the path of lever 55. Arm 50 is thereupon drawn inward by spring 53, and the tang 51 in said arm engages and locks the toothed disk 48. The relation of the parts is such, however, that the clutch 33 is fully engaged before the lock 48—51 becomes effective. Likewise as the printing shaft approaches home position, the cam 54 is of such length that the lock is disengaged before cam 36 comes in contact with arm 37, to disengage the clutch. Thus if the vehicle is run with the printing shaft in any other than home position the tell tale counter 23 will record the distance that it was so run, will be rendered operative before the mileage and fare counters are locked against operation, and will remain operative until the mileage and fare counters are again rendered operative. It is impossible to run the vehicle without actuating one or the other of the mileage counters.

Variations in the exact structure shown and described may be resorted to within the scope of the appended claims.

We claim:

1. In a taximeter in combination a counter shaft, a clutch therefor, an operating shaft, a lock therefor, a printer shaft, and means controlled by said printer shaft for alternately operating said clutch and said lock.

2. In a machine of the character described, in combination two shafts adapted to be alternately driven from a part operatively connected with a wheel of the vehicle, a clutch controlling the movement of one of said shafts, a lock controlling the movement of the second of these said shafts, and operating mechanism for said block and clutch so controlled that said clutch is positively engaged before said lock becomes operative.

3. In a machine of the character described, in combination a shaft adapted to drive various registers, a second shaft adapted to drive a mileage register, a common vehicle wheel driven element adapted to alternately drive said shafts, a clutch for said second shaft, a lock for inhibiting movement of said first shaft, controlling means for said clutch and said lock, said controlling means comprising a pair of levers that are separately actuated but are connected so that they may be applied to the machine as a unit.

4. In a taximeter, in combination, a drive shaft, a second drive shaft operatively connected with a registering device, means for driving both of said shafts from a wheel of the vehicle, a printer shaft, means actuated by the rotation of said printer shaft for controlling the actuation of said drive shafts by their driving means, said means comprising two cams moved by the rotation of said printer shaft, two levers actuated respectively by said two cams, and operatively connected respectively with said drive shafts controlling means, said levers being interconnected for insertion in the machine as a unit.

5. In a taximeter, in combination, a drive shaft, a locking device for said drive shaft, a second drive shaft, a clutch device for controlling said second drive shaft, a manually rotatable printer shaft, means actuated by the movement of said printer shaft for actuating said locking device to inhibit the movement of said drive shaft during movement of said printer shaft, and means also actuated by the movement of said printer shaft but independently of the lock actuating means for actuating said clutch device.

6. In a taximeter, in combination, a drive shaft, a second drive shaft, a manually rotated printer shaft, means actuated by the rotation of said printer shaft for inhibiting the movement of said drive shaft, other means actuated by the movement of said printer shaft for causing the rotation of said second shaft.

7. In a taximeter the combination with a drive shaft, a second drive shaft associated with a mileage counter, and a printer shaft, of a locking device for inhibiting the movement of said drive shaft when the printing shaft is turned from its home position, a clutch enabling said second drive shaft when the printing handle is not in home position, means for actuating said lock, other means for actuating said clutch, said actuating means being so related that the clutch is fully engaged prior to the engagement of said locking device, remains fully engaged until the complete disengagement of said locking device.

8. In a taximeter, in combination an operating shaft, a counter, a printing shaft, and means whereby movement of said printing shaft renders said counter and said operating shaft alternately operative.

9. In a taximeter in combination a mileage counter actuating shaft, an auxiliary mileage counter, actuating devices effective to actuate said mileage counter actuating shaft in the normal operation of the vehicle, means for disabling said actuating devices, and other means associated with said disabling means for controlling said auxiliary mileage counter.

10. In a taximeter, in combination, an

element driven from a wheel of the vehicle, a register actuating device, an auxiliary register actuating device, controlling means for each of said actuating devices adapted to render them selectively operable by said wheel driven element, said controlling means comprising a locking device for said register actuating device, a clutch for said auxiliary register actuating device, a pair of levers associated respectively with said clutch and said locking device, said levers turning about a common fulcrum, operating connections between said levers respectively and said clutch and locking device, and means for moving said levers associated with the same moving element.

11. In a machine, of the character described, in combination a primary operating shaft, a secondary operating shaft, a drive shaft driven from a wheel of the vehicle, a locking device for said primary shaft, driving connection between said drive shaft and said secondary shaft including a positive clutch, driving connections between said drive shaft and said primary shaft including clutch elements which are spring pressed into operative engagement, whereby when said lock is effective said clutch is permitted to slip without injury to the mechanism.

12. In a device of the character described, in combination, a primary operating shaft, a secondary operating shaft, a drive shaft, connections adapted to cause said drive shaft to alternately rotate said primary and secondary operating shafts, said connections comprising a spring pressed clutch betweeu said drive shaft and said primary shaft, a positive clutch associated with said secondary shaft, but normally in ineffective position, a normally ineffective lock for inhibiting the movement of said primary shaft, means for moving said positive clutch to effective position, and associated means for concomitantly moving said lock to effective position.

13. In a device of the character described, in combination a primary operating shaft, a secondary operating shaft, a spindle driven from a wheel of the vehicle, a locking device for inhibiting the movement of said primary shaft, an operating connection between said spindle and said primary shaft comprising spring pressed clutch elements whereby said clutch will slip without injury to the mechanism when said locking device is effective, operating connections from said spindle to said secondary shaft including a clutch, and means for maintaining said clutch in effective position when said locking device is effective.

14. In a device of the character described, in combination a driving shaft, a driven shaft, a lock for inhibiting the movement of said driven shaft, said lock comprising a pivoted arm and means associated with said driven shaft adapted to be engaged by said arm, and a spring pressed clutch connecting said shafts and adapted to slip when said lock is effective, without injury to any part of the mechanism.

15. In a device of the character described, in combination, a driving shaft, a driven shaft, a lock for inhibiting the movement of said driven shaft, said lock comprising a notched disk rigid with said driven shaft, a spring pressed arm pivoted to the frame of the machine and comprising a projection cooperating with the notches of said disk, and a clutch connection between said shafts adapted to slip when said lock is effective.

16. In a machine of the character described, in combination, a driving shaft, a driven shaft in alinement therewith, a spring pressed clutch connecting said shafts, a locking device for inhibiting movement of said driven shaft comprising a notched disk rigid with said shaft and a locking member pivoted on the frame and spring pressed toward locking position, an arm engaging said locking member, and a cam device normally engaging said arm to maintain said locking member in ineffective position against the tension of its spring.

17. A device according to claim 16 in which the cam device is mounted on a rotatable shaft, and means for rotating said shaft, thereby releasing said arm and permitting said spring pressed locking member to move to locking position.

18. In a machine of the class described, in combination, a driving shaft, a primary driven shaft, a secondary driven shaft, a lock for inhibiting the movement of said primary driven shaft, a clutch for connecting said secondary driven shaft to said driving shaft, operating devices for said lock and said clutch including a pair of arms adapted to be applied to the machine as one unit.

19. In a machine of the character described, in combination a printer shaft, cam devices associated with said shaft, spring pressed arms engaged respectively by said cams when said printer shaft is in home position, one of said arms being pivoted on the frame and comprising a hub portion, another of said arms being pivoted on the hub portion of the first arm, a locking device controlled by the movement of the first arm and a clutch device controlled by the movement of the second arm.

20. In a machine of the character described, a drive shaft, a primary operating shaft, a secondary operating shaft, a printer shaft, a lock for inhibiting the movement of said primary operating shaft, a clutch for operatively connecting the secondary operating shaft with the drive shaft, and con-

trol devices for said lock and said clutch actuated by the movement of said printer shaft.

21. In a machine of the character described, in combination a drive shaft, a primary operating shaft, a secondary operating shaft, a printer shaft, means controlled by the movement of the printer shaft for governing the operative relations of said drive shaft to said operating shafts.

22. In a machine of the character described in combination, a drive shaft, a primary operating shaft, a secondary operating shaft, a printer shaft, means under the control of the printer shaft for operatively connecting said secondary operating shaft to said drive shaft, and other means under the control of the printer shaft for immediately thereafter inhibiting the movement of said primary operating shaft, means for releasing the primary shaft and other means for immediately thereafter disabling the operative connection to said secondary operating shaft.

23. In a machine of the character described, in combination, a drive shaft, a primary operating shaft normally driven by said drive shaft, a printer shaft adapted to complete a printing operation in one complete rotation, a secondary operating shaft, normally idle but adapted to be operatively connected to said drive shaft during the rotation of said printer shaft.

24. In a machine of the character described, in combination, a drive shaft, a primary operating shaft normally driven by said drive shaft, a secondary operating shaft normally idle, a printer shaft adapted to perform one complete rotation, and means effective on the rotation of the printer shaft to perform the following operations in sequence, first, operatively connect the secondary shaft to said drive shaft, second, inhibit the movement of said primary drive shaft, third, release the primary drive shaft, fourth, disconnect the secondary drive shaft.

25. In a taximeter, in combination a normally inoperative mileage counter, actuating means therefor, a printer shaft adapted when actuated to effect the printing of a record from the taximeter registers, and means effective to connect said normally inoperative mileage counter with its actuating means during the record printing movement of said printer shaft.

26. In a register comprising counters normally operated from a driving means thru a primary operating shaft, a normally idle tell tale counter, and means effective on an improper manipulation of the register to inhibit the movement of the primary operating shaft, and to operatively connect said tell tale counter with said driving means.

27. In a registering device, counters normally actuating from a driving element, a shaft adapted to be manually rotated at the completion of a registering operation, a normally idle tell tale counter, and means effective during the rotation of said shaft for inhibiting the movement of said first named counters, and for connecting said tell tale counter with said driving means.

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