J. F. OHMER AND J. F. OHMER, JR.

CLOCK WINDING MECHANISM.

APPLICATION FILED MAR. 1, 1920.

1,367,712.

Patented Feb. 8, 1921

2 SHEETS—SHEET 1.

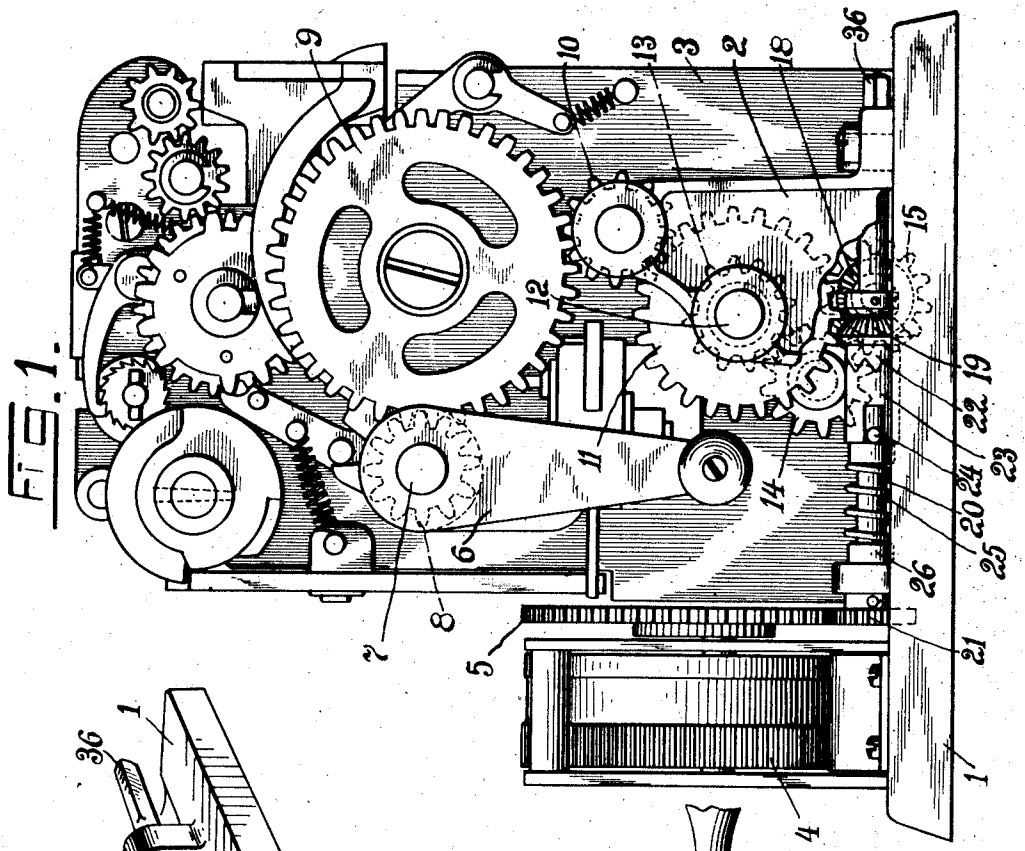


FIG. 1.

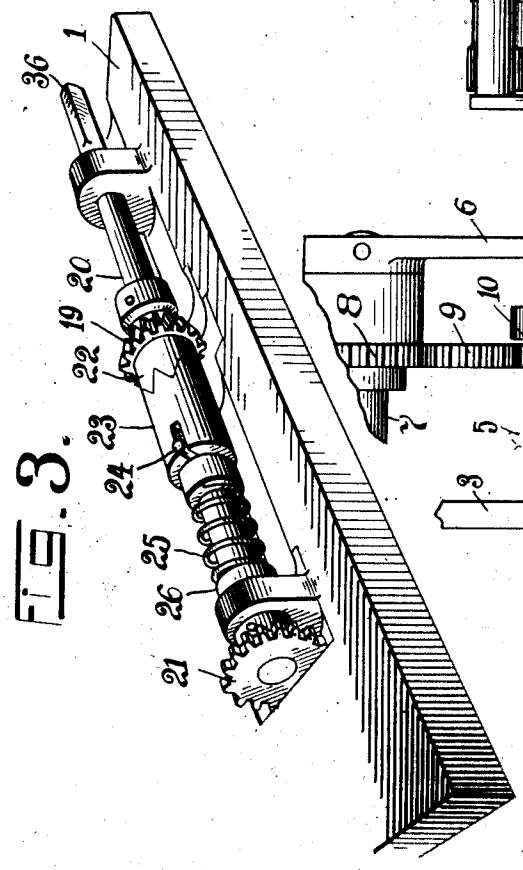


FIG. 3.

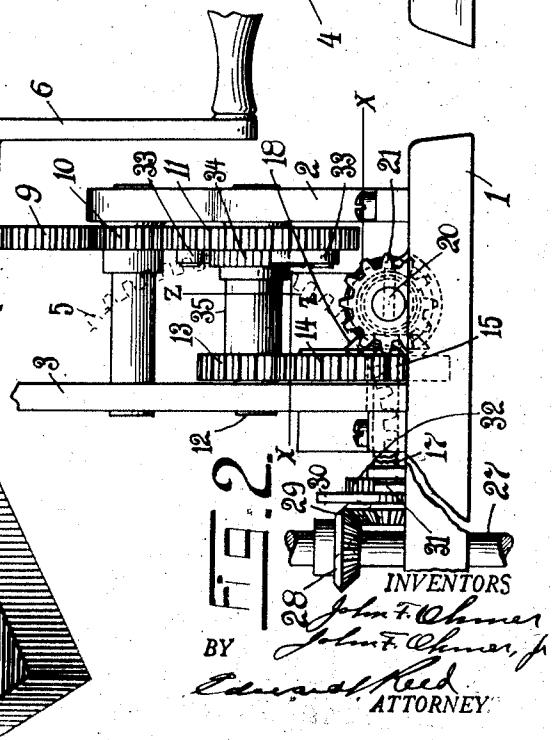


FIG. 2.

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2 SHEETS—SHEET 2.

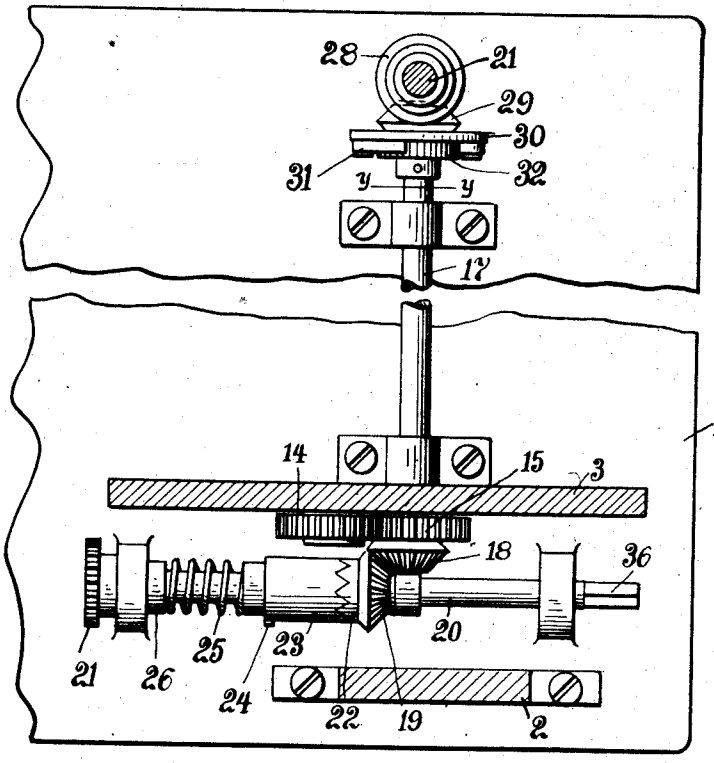


Fig. 4.

Fig. 5.

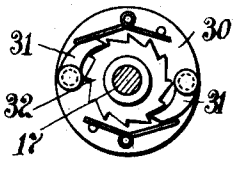


Fig. 6.

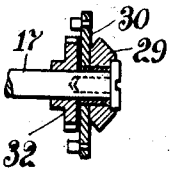
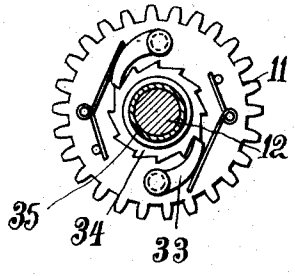


Fig. 7.



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CLOCK-WINDING MECHANISM.

1,367,712. Specification of Letters Patent. Patented Feb. 8, 1921.

Application filed March 1, 1920. Serial No. 362,506.

To all whom it may concern:

Be it known that we, JOHN F. OHMER and JOHN F. OHMER, Jr., citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Clock-Winding Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to clock winding mechanisms for clock operated registering devices and is designed more particularly for use with taximeters and the like.

The object of the invention is to provide means whereby winding movement will be imparted to the clock mechanism by the operation of some operable part of the registering device, thereby keeping the clock constantly wound and avoiding the possibility of its running down through the foregetfulness of the operator.

It is also an object of the invention to provide means for limiting the winding movement which may be imparted to the clock mechanism and thus prevent the clock from being overwound which might result in breakage, or otherwise render the clock mechanism inoperative.

Other objects of the invention will appear as the mechanism is described in detail.

In the accompanying drawings Figure 1 is an end elevation of a mechanism embodying our invention; Fig. 2 is a side elevation of the same, partly broken away; Fig. 3 is a detail view of the winding shaft; Fig. 4 is a sectional view taken on the line x—x of Fig. 2; Fig. 5 is a sectional view taken on the line y—y of Fig. 4; Fig. 6 is a sectional view taken centrally through Fig. 5; and Fig. 7 is a sectional view taken on the line z—z of Fig. 2.

In these drawings we have illustrated one embodiment of our invention and have shown the same as applied to a taximeter in which the registering devices are operated through suitable driving connections with one of the wheels of the vehicle, so long as the vehicle is moving at or above a predetermined speed and in which the registering device is operated by a clock mechanism when the vehicle is standing still or is moving at a speed less than said predetermined speed. This taximeter is also provided with means for taking a record of the registration made thereby, and is provided with an operating member which actuates the record taking mechanism and also resets the trip registering device to zero. This mechanism is of a well known character and as a whole does not form any part of the present invention and it is therefore unnecessary to illustrate or describe the same, and the illustration has been limited to the operable parts of this mechanism which enter into combination with the winding devices. It will be understood moreover that the taximeter here shown has been chosen for the purposes of illustration only and that the invention may be applied to clock operated registering devices of various kinds.

As here illustrated, the taximeter mechanism is mounted on a base 1 having suitable frame members 2 and 3. Mounted on the base is a clock mechanism 4, which may be of any suitable character, which is operatively connected with the registering device, and which comprises a winding gear 5. The mechanism is provided with an operating member, which is here shown as a handle, 6 mounted upon a shaft 7 which operates the printing device, or other mechanism for taking a record of the registrations, and also serves to reset the registering counters, or a part of them, to zero. The connection between the handle 6 and the printing and resetting devices may be of a well known, or any suitable, character and are unimportant so far as the present invention is concerned, it being only necessary that the function of the handle 6 be such that it will be operated with more or less frequency. This handle, or operating member, 6 has a geared connection with the winding mechanism of the clock 4 and, as here shown, a pinion 8 is mounted on the shaft 7, and rigidly connected with the handle, and meshes with a gear 9 which in turn is connected through an idle pinion 10 with a gear 11 mounted on a shaft 12. Connected with the shaft 12 is a pinion 13 which is connected through an idle pinion 14 with a pinion 15 mounted on a shaft 17 to which is secured a beveled pinion 18 meshing with a beveled pinion 19 on the winding shaft 20, which is journaled on the base 1 and is provided with a pinion 21 which meshes with the gear 5 of the clock winding mechanism. Consequently each operative movement of the handle 6 will transmit winding movement to the clock mechanism. The particular arrangement of gearing here shown has been designed to adapt the mechanism to the

taximeter which we have illustrated but it will be understood that the geared connection between the handle and the winding shaft may be of any suitable form or arrangement.

To prevent the clock mechanism from being overwound, which might result in breaking some part thereof or otherwise rendering the same inoperative, we have provided a controlling device which will limit the winding movement which may be imparted to the clock mechanism. In the present instance this controlling device is in the form of a slip clutch which serves to connect the beveled pinion 19 with the winding shaft 20. As here shown, the beveled pinion is loosely mounted on the shaft 20 and has a hub, or sleeve portion, 22 provided with V-shaped teeth which coöperate with similar teeth on a second sleeve, or clutch member, 23 which is slidably mounted on the shaft 20 but is held against rotation thereon by means of a pin 24 mounted in the shaft 20 and extending into a longitudinal slot in the sleeve 23. A spring 25 is confined between the slidable sleeve, or clutch member, 23 and a fixed part, such as a collar, 26 on the shaft and tends to hold the slidable clutch in operative engagement with the hub, or clutch member, carried by the beveled pinion. The tension of the spring 25 is such that the clutch members will normally be held in operative engagement and the shaft will rotate with the beveled pinion, but when the clock mechanism has been substantially fully wound the resistance to the rotation of the winding shaft will overcome the tension of the spring 25 and the clutch member 23 will slip and permit the teeth of the clutch member on the beveled pinion to ride over the teeth thereon, thereby permitting the movement of the beveled gear and the train of gearing connected therewith without imparting further winding movement to the clock mechanism.

It may also be desirable in some mechanism to operate the clock winding device from the mechanism which drives the registering device from the wheel of the vehicle and we have here illustrated means for accomplishing this result in conjunction with the operation of the winding mechanism from the operating handle. In the present mechanism the registering device is operating from the wheel by means of a shaft 27 and we have geared this shaft with the shaft 17 which carries the beveled gear 15, this being accomplished by means of beveled gears 28 and 29 so that the rotation of the shaft 27 will be transmitted through the shaft 17 to the winding shaft 20. In order that the winding shaft may be operated from either source of power without interference from the other source of power we have connected the driving shaft 27 and the handle 6 with the shaft 17 through suitable overrunning clutches which will cause the shaft to rotate with either source of power but will permit the shaft to rotate independently of either source of power. As shown in Figs. 4, 5 and 6 the beveled pinion 29 has secured thereto a disk 30 which carries pawls 31 which are held normally in engagement with a ratchet wheel 32 rigidly secured to the shaft 17 and will consequently cause the shaft to rotate with the beveled gear but will permit the shaft to rotate independently of the beveled gear. Likewise, as shown in Figs. 2 and 7, the gear 11 is loosely mounted on the shaft 12 and carries pawls 33 which engage a ratchet wheel 34 rigidly secured to a sleeve 35 which is also rigidly secured to the gear 13. Thus the rotation of the gear 11 will impart rotation to the gear 13 but the gear 13 is free to rotate independently of the gear 11. Consequently the winding shaft 20 can be actuated from either source of power without interference with or from the other source of power. The winding shaft 20 is preferably provided with a squared head, or end portion, 36 to receive a key by means of which the clock mechanism may be wound independently of the registering device and its coöperating parts.

While we have shown and described one embodiment of our invention we wish it to be understood that we believe ourselves to be the first to have provided means for imparting winding movement to the clock mechanism which operates a registering device by the operation of some operable part of said registering device and that we do not desire to be limited to the details of the mechanism here shown as various modifications may occur to a person skilled in the art.

Having now fully described our invention what we claim as new and desire to secure by Letters Patent is:

1. In a taximeter, the combination with a registering device, clock mechanism to actuate said registering device, and resetting mechanism comprising an operating member, of an operative connection between said operating member and said clock mechanism to cause winding movement to be imparted to the latter upon each rotation of said operating member.

2. In a taximeter, the combination with a registering device, driving mechanism for said registering device adapted to be actuated by a moving part of a vehicle and a clock mechanism operatively connected with said registering device, of an operative connection between said driving mechanism and said clock mechanism to impart winding movement to the latter, said connection comprising a normally operative slip clutch to interrupt said operative connection when said clock mechanism offers a predetermined

resistance to the operation of said driving mechanism.

3. In a taximeter, the combination with a registering device, driving mechanism connected with said registering device, clock mechanism connected with said registering device, and resetting mechanism for said registering device comprising an operating member, of an operative connection between said driving mechanism and said clock mechanism, and an operative connection between said operating member and said clock mechanism, whereby either said driving mechanism or said operating member will impart winding movement to said clock mechanism.

4. In a taximeter, the combination with a registering device, driving mechanism connected with said registering device, clock mechanism connected with said registering device, and resetting mechanism for said registering device comprising an operating member, of an operative connection between said driving mechanism and said clock mechanism and an operative connection between said operating member and said clock mechanism whereby either said driving mechanism or said operating member will impart winding movement to said clock mechanism, and means to permit either of said operative connections to operate independently of the other one.

5. In a taximeter, the combination with a registering device, driving mechanism connected with said registering device, clock mechanism connected with said registering device, and resetting mechanism for said registering device comprising an operating member, of an operative connection between said driving mechanism and said clock mechanism, and an operative connection between said operating member and said clock mechanism whereby either said driving mechanism or said operating member will impart winding movement to said clock mechanism, said operative connections each comprising an overrunning clutch which will permit either connection to operate independently of the other.

In testimony whereof, we affix our signatures hereto.

JOHN F. OHMER.
JOHN F. OHMER, JR.