

J. W. JONES.
COMBINED CLOCK AND INDICATING DEVICE.
APPLICATION FILED MAY 12, 1909.

1,040,344.

Patented Oct. 8, 1912.

Fig. 1

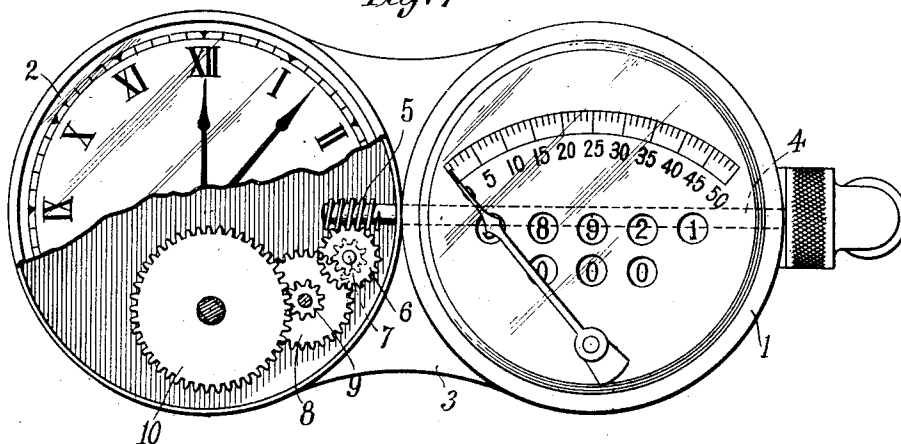


Fig. 2

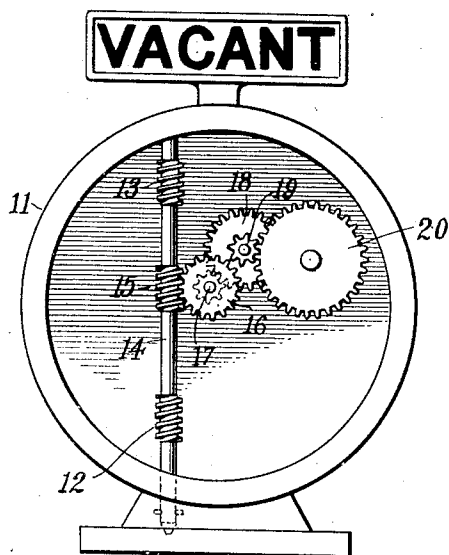


Fig. 3

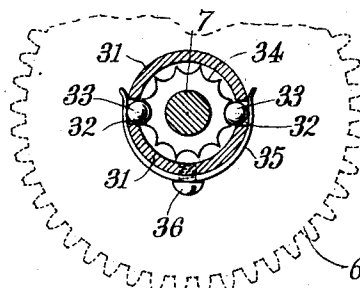
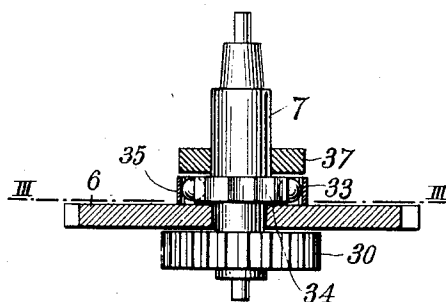


Fig. 4



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UNITED STATES PATENT OFFICE.

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COMBINED CLOCK AND INDICATING DEVICE.

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Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed May 12, 1909. Serial No. 465,422.

To all whom it may concern:

Be it known that I, JOSEPH W. JONES, a citizen of the United States of America, and a resident of New York city, New York, have invented a new and useful Improvement in Combined Clocks and Indicating Devices, which improvement is fully set forth in the following specification.

My invention relates to a combined clock and registering or recording device.

The purpose of the invention is to provide means for keeping the main spring of the clock in a wound-up condition, so as to avoid the necessity of having to open the clock-case and wind the same at stated intervals. I accomplish this by providing a train of gears or other connecting devices between a constantly-driven revoluble member of the registering or recording device and the clock-wind of the clock, with means for preventing the former from continuing to act upon the clock-wind after the main-spring has been completely wound up.

The invention will be best understood by reference to the annexed drawings that illustrate preferred embodiments thereof, in which—

Figure 1 illustrates the invention as applied to the twin combination of speed-o-meter and clock; Fig. 2 shows the invention applied to a clock located within a taximeter; Fig. 3 and Fig. 4 show a detail.

Referring to the drawings, 1 represents a speed-indicating device, preferably in a cylindrical case; 2 is a clock, preferably cylindrical, and located adjacent thereto; and 3 is a web or the like uniting the two. The speed indicating device and the clock are separate from each other in the sense that each constitutes no part of the mechanism of the other; they are individually complete. The device 1 is shown as of the well known Jones speed-o-meter type with pivoted hand swinging over a graduated dial face, and having openings in the dial to show the mileage traveled; but the employment in this connection of any registering or indicating device containing a revoluble shaft operated by the travel of the vehicle, would embody my invention.

4 is the revoluble shaft, which is rotated, as by flexible-shafting driven from an automobile wheel. The end of this shaft 4 extends into the casing of the clock at the point where the two casings are united. On this extension of revoluble shaft 4 is the worm 5,

in mesh with a large worm-gear 6, which is journaled with frictional contact, or a "slip-drive," on a transverse shaft 7. A smaller spur-gear on shaft 7 (marked 30 in Fig. 4) drives large gear 8, which carries a small pinion 9 in mesh with the large winding-gear 10 of the spring-barrel or main-spring of the clock 2. This clock-wind has the usual pawl-and-ratchet attachment (not shown). Additional reduction-gearing may be employed if desired.

On account of the great reduction between the worm 5 and the clock-wind 10, very little power is required to wind the main-spring; and so long as the vehicle is in motion and shaft 4 is being rotated, it will be winding up the main-spring of the clock, until the latter becomes "wound up," after which the frictional-contact (or "slip-drive"), which is preferably located between worm-gear 6 and its shaft 7, will no longer impart movement to the clock-wind 10.

Fig. 2 shows the invention applied to a taximeter 11, shown as of the Jones taximeter type, which has the revoluble shaft 14 that is driven from the vehicle wheel or the like, as by flexible-shafting (not shown) in the well-known manner. 12 is the worm on this shaft for driving the odometer train (not shown), and 13 is the worm for driving the taximeter train (not shown). Also on shaft 14 is the worm 15, in mesh with the large worm-gear 16, which is journaled with frictional contact, or a "slip-drive," on transverse shaft 17; and a small spur-gear (30, in Fig. 4) on this shaft drives large gear 18, which carries a small pinion 19, in mesh with the large clock-wind 20. The parts 14-20 inclusive correspond respectively with the parts 4-10 inclusive, in Fig. 1; and, as with the latter, additional reduction-gearing may be employed.

Figs. 3 and 4 illustrate a convenient form of "slip-drive". The worm-gear 6 has a central aperture which permits it to fit loosely upon transverse shaft 7; which carries the spur-gear 30. The circular wall or flange 31 rises from the gear 6 and surrounds the central aperture. This wall is cut away, preferably at two opposite places, as at 32 and 32', to receive the hardened steel balls 33 (33'), of greater diameter than the thickness of wall 31. The portion of shaft 7 surrounded by the wall 31 and balls 33 is longitudinally fluted, or provided with (coarse) gear-teeth 34, as seats for the inner portion

of balls 33. A spring bow 35 is secured, as by screw 36 taking into wall 31, with its ends resting against the balls to force them inwardly into the adjacent seats 34. A collar 37 encircles shaft 7 to hold the balls in place, and may be integral with the shaft, or if preferred is secured upon top of circular wall 31. So long as shaft 7 is free to revolve, balls 33 act as keys, and revolution of gear 6 carries shaft 7 with it; but when the main-spring (at 10) is fully wound up, so that shaft 7 is no longer free to turn, flutings 34 and balls 33 act as an escapement or ratchet, to permit continued rotation of gear 6 without imparting further movement to shaft 7.

As the result of this invention I provide a clock which the attendant does not have to wind up. The operation of the registering-device, in its ordinary use, keeps the clock in the condition of being wound-up. In effect, I provide a clock that requires no winding. If, however, it be desired, the clock can be wound in the usual manner, as when starting out after a long stay in the stable or garage.

It will be readily understood that some other construction and arrangement of reduction-gearing could be employed; some other form of slip-drive could be substituted, and its location changed; and other modifications could be made; without in any case departing from the spirit of my invention, which consists of employing the driven-shaft of the indicating-device, in combination with reduction-gearing and a slip-drive, to keep the main-spring of a clock wound-up. When I refer to an indicating-device or registering-device I mean any device (for registering, or for merely indicating, either

speed or distance or the amount of charges) in which the vehicle-wheel or the like operates a movable part (as a revoluble shaft) to actuate the register or indicator. The term includes odometers, speedometers, taximeters, and the like.

Having thus described my invention I claim:

1. The combination with a clock and an indicating-device, a revoluble shaft in said device extending into said clock and having a worm on its extremity, and a train of reduction-gearing connecting said worm and the clock-wind, of a slip-drive in said train comprising a shaft and spur, a worm-gear fitting loosely on said shaft and having a circular wall surrounding the latter, a ball located in a cut-away portion of said wall, flutings or pockets in said shaft adjacent said ball, and means for forcing said ball into said pockets.

2. The combination with a clock-wind and the revoluble shaft of an indicating-device driven from the vehicle, of connecting-means between the two containing a slip-drive comprising a driven-gear having a central aperture surrounded by a circular wall, a shaft fitting loosely in said aperture and having flutings or pockets opposite said wall and carrying a spur-gear, a plurality of balls seated in cut-away portions of said circular wall, and a bow-spring engaging said balls to force the same into said pockets.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH W. JONES.

Witnesses:

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