My invention relates to improved means for driving the odometer mechanism of a speedometer.

It has for its principal object the elimination of several gears which are ordinarily used to drive the odometer trip and season mileage figure wheels from the speed indicating mechanism. These gears are usually worm gears and are comparatively expensive to produce. Therefore, by dispensing with them, the cost of the speedometer is reduced considerably.

A further object is to reduce the amount of friction developed in the usual type of odometer drive due to the use of the worm gears. By using a ratchet type drive for the odometer mechanism, this friction is avoided and consequently there is much less strain placed on the flexible driving member which connects the speedometer with the transmission or front wheel, and therefore less likelihood of breaking it.

Another object is to provide odometer driving mechanism consisting of a double pawl and ratchet, one ratchet driving the season mileage figure wheels on one half of the movement of the pawl, and the other ratchet driving the trip mileage figure wheels on the other half of the movement. Thus by driving the figure wheels at different times, the friction is equalized and the power required is reduced by one half.

With the above and other objects in view, my invention will be more clearly understood by referring to the specification and accompanying drawing, in which:

Figure 1 is a fragmentary front view of a speedometer, with the housing and face plate removed, showing my improved ratchet drive for the odometer mechanism.

Figure 2 is a section taken on the line 2-2 of Figure 1.

In the drawings, the numeral 10 designates a speedometer main frame having bosses 12 to which is attached the odometer frame 14 by screws 16. Journalled in the main frame 18 is a driving worm shaft 19 having a worm gear 20 cut at its upper end, and being provided with a square end 21 which engages the usual flexible driving member (not shown) connecting the speedometer with the transmission or front wheel. Keyed or otherwise held in the shaft 18 is a short piece of flexible shaft 22 which drives the speed indicating mechanism (not shown).

A second shaft 24, journalled in the main frame 10, is provided with worm teeth 26 which mesh with worm gear 29. Eccentrically mounted as at 27 on this shaft is an arm 28 having its opposite end 30 pointed to form a pawl. This pawl engages ratchet wheel 32 mounted on the season mileage figure wheel shaft 34. The ratchet wheel 32 drives the season mileage figure wheels 33 in the usual manner. Pivotiled on the arm 28, by a loose rivet 36, is a pawl member 38, which engages ratchet wheel 40 mounted on the trip mileage figure wheel shaft 42. The ratchet wheel 40 drives the trip mileage figure wheels 44 in the usual manner through the reset mechanism (not shown) and gears 48. The pawl member 38 is provided with a bent over portion 46, to which is attached a tension spring 50, the opposite end of which is hooked around the star wheel shaft 52. This spring serves to hold both pawls in driving engagement with their respective ratchet wheels. Fastened to the odometer frame 14 by screw 54 is a stamped spring member 56 having bent portions 58 and 60, which engage the teeth of the ratchet wheels and prevent the reverse rotation of the latter when the pawl is being returned to starting position.

It will be seen that as the shaft 24 is rotated, the arm 28 will be moved back and forth. Each time it is moved toward the front of the speedometer it will advance the ratchet wheel 32 one or more notches, dependent upon the amount of eccentricity provided and also upon the pitch of the teeth in the ratchet wheel. As the arm is returned to its original position, the pawl member 38 will rotate the ratchet wheel 32 a corresponding amount.

Obviously it will only require approximately one half as much power to drive the odometer mechanism when using my double ratchet, as only one half of the figure wheels are being driven at any one time.

By using this ratchet drive, I have been
able to eliminate four worm gears and one spur gear from the usual odometer driving mechanism. This not only reduces the cost of manufacturing the speedometer but also renders it much easier to drive, thereby prolonging the life of the flexible driving member connecting the speedometer with its driving means.

It is thought from the foregoing taken in connection with the accompanying drawing that the construction and operation of the device will be apparent to those skilled in the art, and that various changes in size, shape, and proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim:

1. In a device of the class described, a pair of ratchet wheels, a driven shaft, a pawl eccentrically mounted on said shaft and adapted to rotate one of said ratchet wheels when the pawl is moved in one direction, and a second pawl associated with the first pawl and adapted to rotate the other ratchet wheel when the first pawl is moved in the opposite direction.

2. In a device of the class described, a pair of ratchet wheels, a driven shaft, a pawl eccentrically mounted on said shaft and adapted to rotate one of said ratchet wheels when the pawl is moved in one direction, a second pawl associated with the first pawl and adapted to rotate the other ratchet wheel when the first pawl is moved in the opposite direction, and a single spring serving to hold both paws against their respective ratchet wheels.

3. In a device of the class described, a driven shaft, a double pawl journalled eccentrically on said shaft, a ratchet wheel rotated by movement of the pawl in one direction, and another ratchet wheel rotated by movement of the pawl in the opposite direction.

4. In a device of the class described, a driven shaft, a pawl journalled eccentrically on said shaft, a ratchet wheel driven by said pawl, a pawl member pivoted on said pawl, and a second ratchet wheel driven by said pawl member.

5. In a device of the class described, a driven shaft, a pawl journalled eccentrically on said shaft, a ratchet wheel driven by said pawl, a pawl member pivoted on said pawl, a second ratchet wheel driven by said pawl member, and a single spring serving to hold both the pawl and the pawl member against their respective ratchet wheels.

6. In a device of the class described, a pair of ratchet wheels, a driven shaft, a pawl eccentrically mounted on said shaft and adapted to rotate one of said ratchet wheels when the pawl is moved in one direction, and a second pawl pivoted on the first pawl and adapted to rotate the other ratchet wheel when the first pawl is moved in the opposite direction, and a spring connected to said second pawl and serving to hold both paws against their respective ratchet wheels.

7. A device for intermittently rotating two members in the same direction comprising, driving mechanism, a shaft driven by said mechanism, a double pawl journalled eccentrically on said shaft, a ratchet wheel rotated by movement of the pawl in one direction and a second ratchet wheel rotated by movement of the pawl in the opposite direction.

In testimony whereof I affix my signature.

RALPH OLAF HELGEBY.