P. DUNSHEATH.

INDICATOR FOR VEHICLES.

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1,187,286.

Patented June 13, 1916.

Fig. 1.

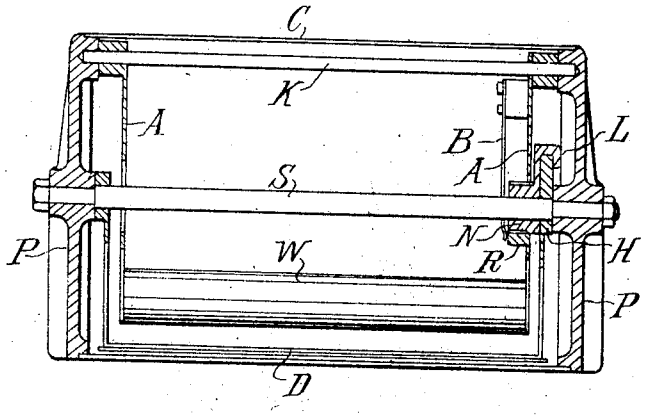


Fig. 2.

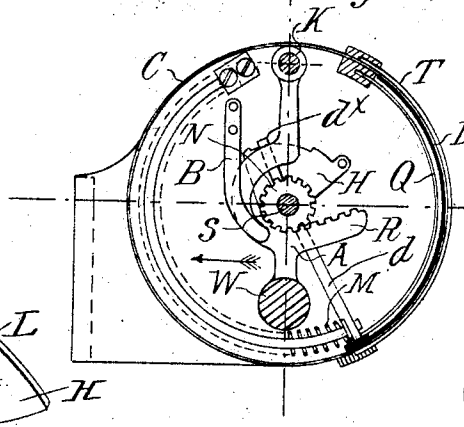


Fig. 3.

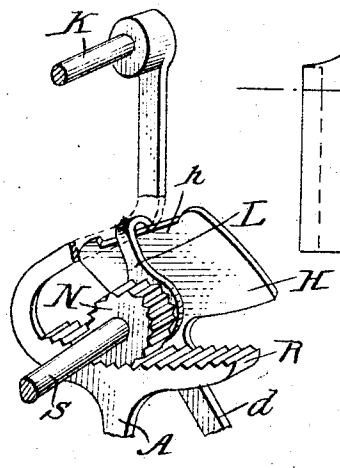
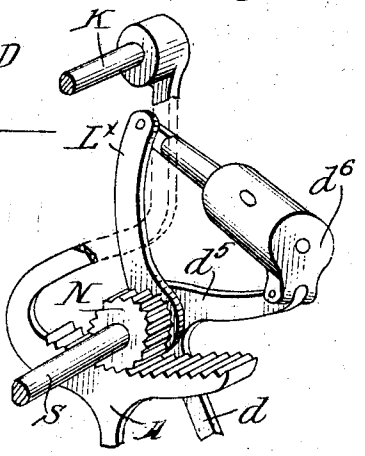


Fig. 4.



Inventor.
P. Dunsheath.

Witnesses
Floyd R. Cornwall
Louis Miller.

By Munn & Co Attys

UNITED STATES PATENT OFFICE.

PERCY DUNSHEATH, OF WEMBLEY, ENGLAND.

INDICATOR FOR VEHICLES.

1,187,286. Specification of Letters Patent. Patented June 13, 1916.

Application filed December 13, 1913. Serial No. 806,584.

To all whom it may concern:

Be it known that I, PERCY DUNSHEATH, a subject of the King of Great Britain and Ireland, residing at 17 Bowrons avenue, Wembley, in the county of Middlesex, England, have invented certain new and useful Improvements in Indicators for Vehicles, of which the following is a specification.

My invention relates to improvements in indicators for vehicles.

In heavy city traffic the stopping of motor vehicles without any warning to those following is liable to cause collisions and to avoid this the usual practice is for the driver to signal to the drivers of following vehicles his intention of slowing down or stopping by projecting his hand from the side of the vehicle. Several arrangements have been proposed in which means are provided for transmitting a warning signal from the driver to an indicator on the back of the vehicle or for indicating the speed of the vehicle by means of devices driven from the road wheels; but my invention relates to the use of a device which will indicate retardation and not speed, which will be self-contained and not mechanically operated externally in any manner, and which will give a warning signal whenever the speed of the vehicle on which it is fixed is reduced.

The invention also comprehends improvements in the details of construction and arrangement of parts which will hereinafter be described and particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a longitudinal vertical section of the indicator. Fig. 2 is a transverse section of the indicator. Fig. 3 is a detail perspective view of the operating mechanism. Fig. 4 is a similar view of a modified form of same.

C indicates a cylindrical casing closed at its ends by heads P, P, which support two spindles S and K. Suspended freely from the upper spindle K, by means of two arms A A is a weight W, one of said arms A being provided with a rearwardly extending rack R, located under the spindle S. On the central spindle S are two freely swinging arms *d*—*d*, to the outer ends of which is fastened a semi-cylindrical shutter D, which normally sandwiches in between a transparent window T in the case, and a screen Q, marked in some distinctive manner as with the word "Stop"

Mounted to freely rotate on the spindle C, is a pinion N, which meshes with the rack R, which transmits the swinging motion of the weight to the shutter. Extending from one of the arms *d*, is a plate H, having its curved edge provided with a notch *h*, in which operates a finger L extending from the pinion N. A flat adjustable spring B provides a friction damping on the swinging of the weight, and a spiral spring M opposes the opening of the shutter in the clockwise direction when weight W moves to the left (Fig. 2).

In operation, assuming the vehicle is moving forwardly and the speed is reduced, the weight will by momentum swing forwardly in direction of the arrow in Fig. 2. This forward movement of the weight is resisted by the spring M, and is retarded in its return movement by the spring B. When the weight swings forwardly the rack R rotates the pinion N, whereupon the finger contacts with one of the walls of the notch *h*, and through the plate H, arms *d* swing the shutter D, and expose the sign "Stop" to warn the driver on a vehicle following to stop or slow down. Of course, the degree of opening the shutter is determined by the suddenness of the retardation of the vehicle.

The slot *h* is provided, so as to prevent the shutter swinging under the influence of ordinary road regulations, or the usual jolting of the car.

Obviously when the speed of the vehicle carrying the device decreases the weight will swing and cause the shutter to uncover the screen, the uncovering of the screen being proportionate with the acuteness and duration of the decrease of speed. When the vehicle is moving at a fixed speed, of course the shutter remains closed. If the brakes of the vehicle be applied suddenly, the momentum of the weight will cause the shutter to open wide, and if the speed of the vehicle is again increased the shutter will again close.

In Fig. 4 I have shown a modified form of operating means. In this figure one of the arms *d* is provided with an extension d^5, and pivoted thereto is a dash pot d^6. Operating in the dash pot is a plunger, the stem of which is pivoted to an extension L^x, attached to the pinion N. This construction takes the place of the notch *h* and the finger operating therein. In this form of the invention the lost motion necessary to prevent operation of the shutter under ordinary jolting of the car occurs when the plunger

starts its movement in the dash pot, and the air escapes. Of course, when the vehicle stops suddenly the quick thrust of the plunger in the dash pot acts more or less as a rigid connection.

What I claim is:—

1. In an apparatus of the class described, the combination of a casing formed with guides, a shutter operating in the guides, means supporting the shutter, said means comprising an arm, a swinging weight mounted in the casing, means to support the swinging weight, said last named means comprising an arm having teeth, a freely rotatable gear which engages the said teeth, means between the gear and said first mentioned arm to operate the shutter when the weight is swung by momentum by the movement of a vehicle carrying the apparatus.

2. In an apparatus of the class described, the combination of a casing formed with guides, a shutter operating in the guides, a weight in the casing, means for supporting the weight to permit the latter to swing by momentum, operating means between said weight supporting means and the shutter whereby the latter is caused to be operated when said weight moves a predetermined distance, said operating means having lost motion to prevent movement of the shutter under slight movements of the weight.

3. In an apparatus of the class described, the combination of a casing provided with a signal, a shutter operating over a portion of the casing and normally covering the signal, arms extending from the shutter, means for pivotally mounting the arms, one of said arms having a segmental portion provided with a notch, weight arms pivotally mounted in the casing, a weight supported by the weight arms, one of the weight arms having rack teeth, a pinion meshing with the rack teeth, a lever secured to and extending from the pinion, said lever having a finger which operates in the notch whereby when the weight moves by momentum a predetermined distance the finger will contact with one wall of the notch and operate the shutter to expose the signal.

4. In an apparatus of the class described, the combination of a casing provided with a signal, a shutter normally covering the signal, means including a pendulum which swings when a moving vehicle to which the apparatus is attached is slowed down to operate the shutter in one direction to expose the signal and a buffer spring to retard the movement of the pendulum when the latter is operated by its momentum.

5. In an apparatus of the class described, the combination of a casing provided with a signal, a shutter which normally covers the signal, arms for pivotally supporting the shutter, one of said arms having a notch, a weight, means for pivotally mounting the weight, said means including a segmental rack, a friction spring engaging said latter means, a pinion engaging the segmental rack, means carried by said pinion coöperating with the notch for permitting slight movement of the weight and pinion independently of the shutter, said means adapted to subsequently engage a wall of the notch to operate the shutter when the weight is moved by momentum a predetermined distance.

6. In an apparatus of the class described, the combination of a plate having a signal, a shutter normally covering the signal, a weight which is swung by momentum by the movement of a vehicle to which the apparatus is attached, mechanism between the weight and the shutter to operate the latter to uncover the signal, said mechanism including means for preventing minor movements of the weight operating the shutter, and a buffer for the weight.

7. An indicator of the character described comprising a casing formed with a signal, a shutter normally covering the opening, a swinging weight operable by momentum when the speed of a vehicle is reduced, and means between the weight and the shutter for operating the shutter by the movement of said weight.

In testimony whereof I affix my signature in presence of two witnesses.

PERCY DUNSHEATH.

Witnesses:
TRACY LAY,
HERBERT D. JAMESON.