

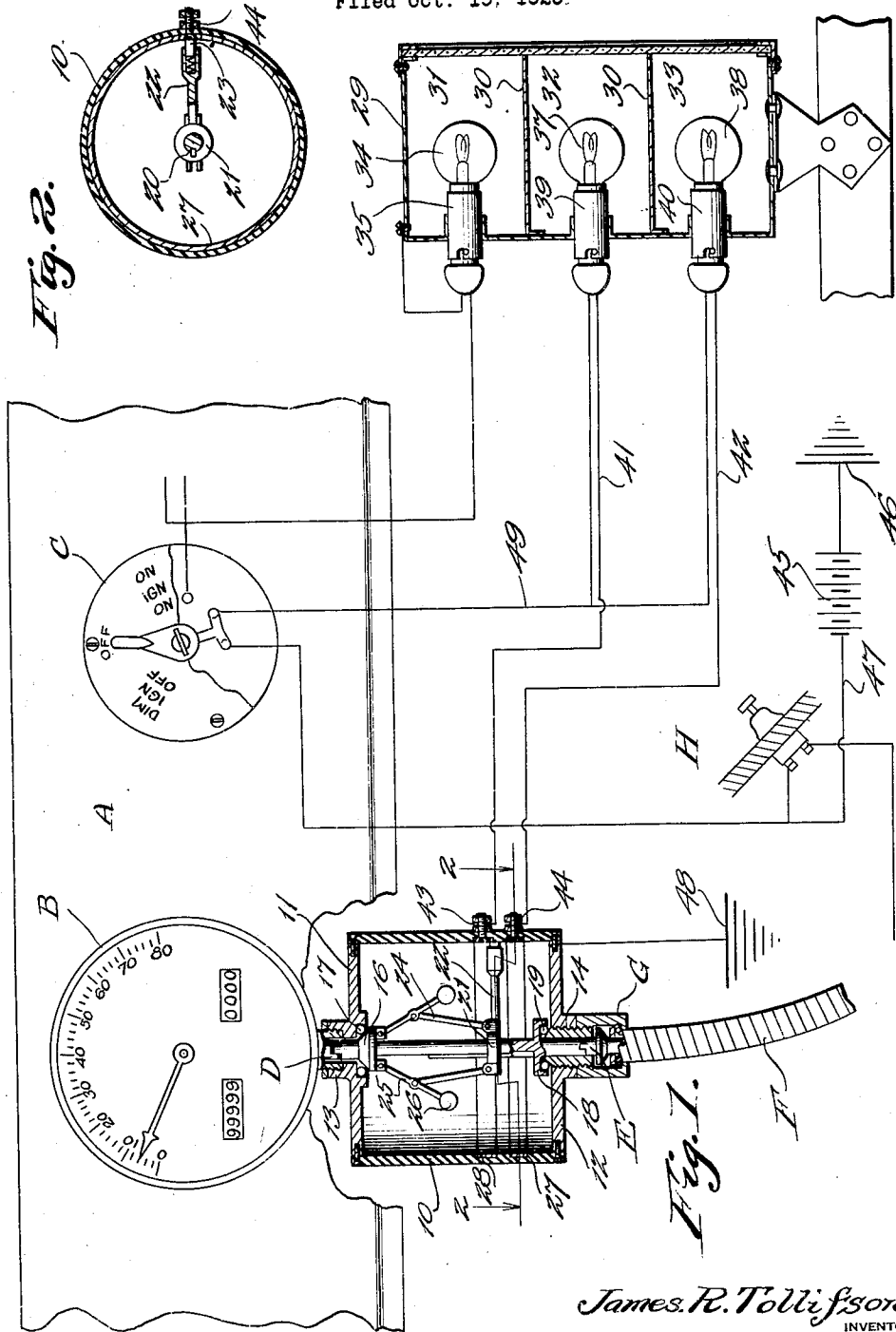
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AUTOMATIC SIGNAL DEVICE

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WITNESS:

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AUTOMATIC SIGNAL DEVICE.

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This invention relates to signal devices, particularly that type designed for use in connection with motor vehicles, and has for its object the provision of automatic circuit closing means used in conjunction with the speedometer of a vehicle for controlling energization of signal lights whereby the drivers of following cars will be apprised of the fact that the driver of the car equipped with the mechanism is slowing up and consequently preparing to stop, the invention being of great advantage in that it reduces likelihood of rear end collisions.

An important and more specific object is the provision of a signal device embodying a circuit closer which is governor actuated, the circuit closer being adapted for interposition between the usual speedometer and the driving cable or chain therefor, it being consequently possible to install the invention without making any material changes in already existing parts.

Still another object is to provide a device of this character embodying a plurality of contacts connected respectively with signal lights and engageable by a movably mounted brush the position of which is controlled by a governor device driven by the speedometer drive mechanism.

An additional object is to provide an apparatus of this character which will be comparatively simple and inexpensive in manufacture, easy to install, automatic in action, efficient and durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction, and the arrangement and combination of parts to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation of a portion of the instrument board of a vehicle showing the invention applied thereto in somewhat diagrammatic form, the lamp box and circuit closer structure being shown in section, and

Figure 2 is a detail in cross section taken on the line 2—2 of Figure 1.

Referring more particularly to the drawings, the letter A designates a portion of the instrument board of a motor vehicle, and B and C represents the speedometer and lighting and ignition control switch respectively mounted on the instrument board as

is customary. It is well known that the speedometer is actuated by means of a drive element D connected with a similar drive element E at the end of a flexible chain or cable enclosed within a metallic conduit F.

In carrying out the invention, I provide an attachment interposed between the drive chain and conduit and the speedometer, this attachment comprising a suitable shell or casing 10 of insulating material mounted in any desired manner upon the instrument board, preferably to the rear thereof. The top and bottom of this shell or casing, designated respectively by the numerals 11 and 12 are preferably removable so that access may be had to the interior in case of any necessity for repairs. At the top of the casing is a bearing structure and coupling device 13 threadedly engaged with the usual terminal member of the speedometer, and at the center of the bottom 12 of the shell or casing in a connection 14 upon which is engaged the usual union G carried by the flexible conduit or housing F.

Journally mounted at the center of the shell or casing 10 is a shaft 15 provided at its upper end with a member 16 operatively engaged with the element D of the speedometer, the member 16 being preferably of conical formation and engaging against bearing balls 17 located within a suitable race. At the lower portion of the shaft 15 is an enlargement 18 engaging bearing balls 19 mounted in a suitable race. By virtue of these two constructions at the ends of the shaft it is obvious that the shaft will be adequately journaled for rotary movement with very limited friction.

The shaft 15 comprises a part of a governor mechanism or a structure similar to a governor mechanism including an assembly 20 including a collar 21 splined upon the shaft 15 for longitudinal movement thereon while rotating therewith, this collar carrying an arm 22 terminating in a contact brush 23. Pivotally connected with ears on the collar 21 are links 24 which are in turn pivotally connected with arms 25 carrying fly weights 26 and pivotally connected with the member 16. The contact brush 23 of course engages against the inner periphery of the shell or casing 10, and embedded flush within the wall of this shell are metallic contact rings 27 and 28, the former of which will be engaged by the brush 23 when the machine is standing idle and the latter of which will

be engaged by the brush when the machine is travelling at a very low speed. Obviously, centrifugal force will act to throw the fly weight 26 outwardly and move the collar 21 forming part of the brush assembly 20 upwardly when the shaft 15 is rotated.

In conjunction with the above described parts, I make use of a signal device comprising a lamp box 29 divided by partitions 30 into a plurality of compartments 31, 32 and 33, the first mentioned of which constitutes an ordinary tail light and encloses an incandescent bulb 34 mounted within a suitable socket 35 with which is connected a current supply wire 36 leading to the switch device C on the instrument board. Within the compartments 32 and 33 are incandescent bulbs 37 and 38 respectively mounted within sockets 39 and 40 suitably mounted through the back of the casing and having connected therewith conductors 41 and 42 which connect with binding posts 43 and 44 on the shell 10 connected with the respective rings 28 and 27. The numeral 45 designates a suitable source of current which may be the storage battery of the car, which has one terminal grounded at 46 and its other terminal connected by a conductor 47 with the starting switch H and control switch C. The metallic bottom 12 of the member 10 is grounded to the frame of the car, the ground being indicated diagrammatically at 48. The sockets 39 and 40 are connected in the car system by a conductor 49.

In the operation of the device, it will be seen that the energization of the bulb 34 is controlled by the switch C and forms no part of the present invention, except that I have described and illustrated it in view of the fact that it may occupy or be enclosed within a compartment of the signal box. Supposing that the vehicle is traveling at a normal rate of speed, it is quite apparent that centrifugal force will act to throw the fly weight 26 outwardly so that the collar 21 connected therewith by means of the links will be in a sufficiently elevated position that the contact brush 23 will engage the inner wall of the shell or casing 10 at a point above the contact ring 28. When this is the case there is no energization of the bulbs 37 or 38. If, however, the operator slows down preparatory to stopping, it is clear that the centrifugal force acting on the fly weight 26 will be reduced and the collar member 21 will be moved downwardly until the contact brush 23 engages against the contact ring 28. When this occurs current is supplied to the lamp 37 and the compartment 32 will be illuminated. It is preferable that the compartments 32 and 33, and in fact the compartment 31 also be covered by a pane or panes of transparent or translucent material indicated at

49^a, the pane or panes being provided with suitable legends at the compartments 32 and 33, for instance, "slow" and "stop", respectively. Quite naturally, that portion of the glass or other transparent or translucent panes covering the compartment 31 should be colored simply red in order to define the conventional tail light. When the lamp 37 is energized as above described, it is obvious that the legend "slow" will be clearly visible to following vehicles. When the operator of the car has not only slowed down but has actually brought his vehicle to a stop it is apparent that the centrifugal force acting upon the fly weight has been reduced to the minimum or in fact eliminated, whereupon the collar 21 and brush assembly 20 will be moved downwardly to such an extent that the contact brush 23 will be in engagement with the metallic contact ring 27 so that current will be supplied to the incandescent lamp 38, resulting in energization of the latter and display of the legend "stop" at the compartment 33. From the above it is quite evident that the drivers of following cars will be thoroughly apprised of the driver's intention and may govern or drive their vehicles accordingly, to avoid accident and congestion. It is believed that the construction, operation and advantages will be readily apparent to one skilled in the art, without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claim. Having thus described the invention, I claim:—

In a speed responsive mechanism, a shell formed of metallic end walls and a side wall of cylindrical shape and of insulating material, a shaft journaled axially of said casing, means for rotating the shaft, a plurality of contact rings recessed into the wall of the casing and flush with the inner surface thereof, binding posts extending radially from said rings and through the shell, binding nuts upon said last named members, a collar fixed upon said shaft, ears carried by said collar, arms pivoted upon said ears and terminating in fly balls, a collar slidably and non-rotatably mounted upon the shaft and provided with ears, arms pivotally connected with said second named ears and with said first named arms, and an arm member carried by the second named collar and terminating in a contact brush adapted to engage said contact rings.

In testimony whereof I affix my signature.

JAMES R. TOLLIFSON.