Jan. 28, 1930. G. POHLMANN ET AL 1,744,794

DIRECTION INDICATOR

Filed Jan. 16, 1929

Fig. 1,



Fig. 2,

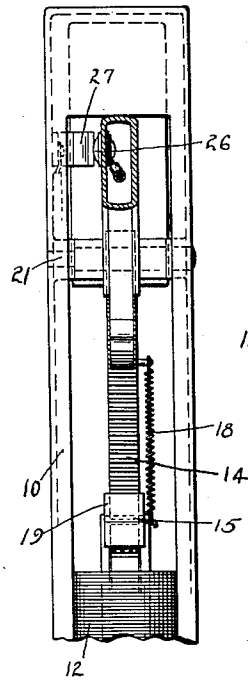


Fig. 4,

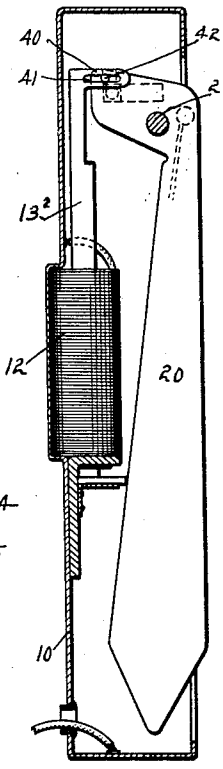
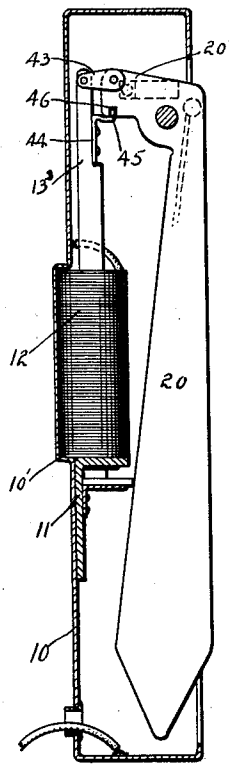


Fig. 5,



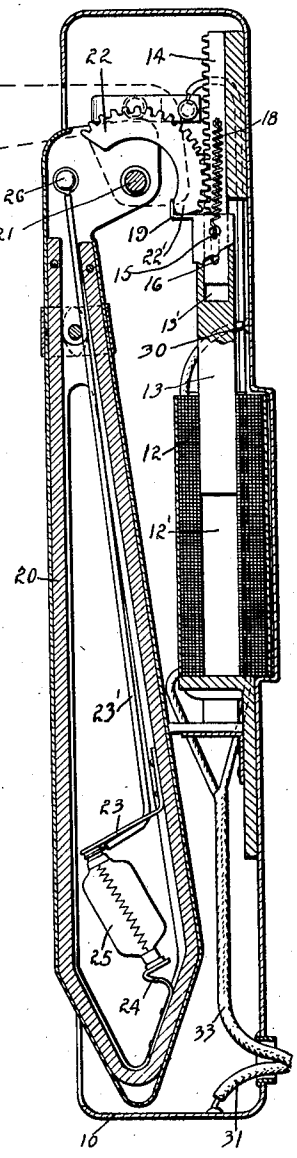
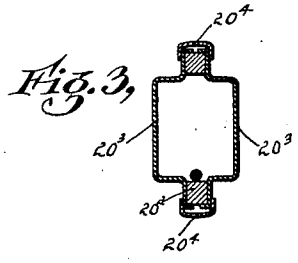


Fig. 3,



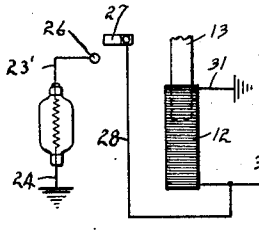
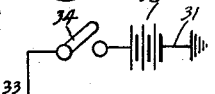


Fig. 6,



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UNITED STATES PATENT OFFICE

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DIRECTION INDICATOR

Application filed January 16, 1929. Serial No. 332,758.

The present invention relates to signalling devices and is designed for use with automobiles or other vehicles.

One object of the present invention is to provide a signalling device which is composed of a minimum number of elements thereby insuring smoothness of operation and small possibility of the device getting out of order.

Another object is to provide a device operable on current supplied from the ordinary storage battery or other source of electric power employed in the vehicle.

A further object is to provide a device which will be self locking in inoperative position and which it will not be possible to operate in other than the prescribed manner.

Still another object is to provide a signalling device which will be readily visible both at night-time and in the day-time.

Yet another object is to provide a device which may be readily manufactured without any great cost of production or material.

With these and other objects in view which will be readily apparent, our invention consists in the novel construction, combination and arrangement of parts hereinafter described which will be more fully understood by reference to the accompanying drawing which forms part of this specification, in which similar reference characters denote corresponding parts in which,

Fig. 1 is an elevation view partly in section of our new device.

Fig. 2 is a sectional detail of Fig. 1 with the arm in signalling position.

Fig. 3 is a section through the signalling arm of my device.

Figs. 4 and 5 are modifications of my device and

Fig. 6 is a diagram of the electrical connections thereof.

Referring to the drawing 10, denotes a casing or frame in which our device is housed, said casing being open along a greater portion of one edge and provided in the closed opposite edge with a set off portion 10′. Mounted on a support 11 interiorly of the casing and partly in said set off portion 10′ is a solenoid 12 consisting of a multi-turned coil of wire provided with a central bore 12′ in which is freely and slidably fitted a magnetic plunger 13 of magnetic material as iron or steel. Provided at the upper end of the plunger 13 is a bore 13′ and adapted to fit in said bore is a rack 14 which may slide in said bore, the length of slide being limited by a pin 15 extending through said plunger and a slot 16 in said rack. A tension spring 18 or other suitable tensioning means, continuously urges the rack into the bore in the plunger causing said pin 15 to rest against the upper portion of slot 16. Mounted on said plunger or integrally formed therewith is a lip or projection 19 for a purpose hereinafter specified.

The signalling means proper in this case, an L shaped arm 20 is pivotally mounted in the casing 10 by means of a pivot 21 passing through the casing and the short arm 20′ of the L. Fixedly mounted at the end of the short arm is a circular gear section 22 designed to mesh with the rack 14, said arm being so pivoted relative to said rack as to accomplish this and also being so arranged that when said arm is in non-signalling position it is practically all hidden in said casing. One end 22′ of said gear is designed to be caught by said lip 19 when said arm is in closed position and thereby prevent said arm from being again raised until said solenoid is actuated.

The arm 20 in form may be composed of a frame 20^2 and provided at its sides with transparent or translucent walls 20^3 suitably held to said frame as by an auxiliary frame 20^4. Mounted interiorly of said arm as for instance between two spring clips 23 and 24 is an electric light bulb 25. The clip 24 is grounded to the frame of the arm and clip 23 is electrically connected as by wire 23′ to contactor point 26 insulatively mounted in the shorter arm 20′ and projecting a slight bit from the side thereof.

A contact strip 27 is insulatively mounted in the side of the casing and connected to the high side of the solenoid as shown in Fig. 6 by wire 28, said contact being so placed as to only make contact with said point 26 when said arm is in signalling position.

The electric circuit of the solenoid system is a simple series arrangement, in the present instance accomplished by grounding one lead of the solenoid coil to the frame as at 30 and connecting the frame to a lead-in wire 31 and connecting the other lead 32 of the coil to a second lead-in wire 33. Lead 33 may be connected to one pole of a switch 34 and the other pole of said switch to one terminal of a battery 35, the second terminal of said battery being connected to lead-in wire 31.

The device operates as follows:

When switch 34 is closed currents flows through the solenoid and the magnetic field draws plunger 12 into the coil. The rack 14 does not move immediately but plunger 13 moves down against the action of the spring 18 causing lip19 to disengage the end 22′ of gear section 22, thus unlocking the signal arm. Then as plunger 12 moves further into the coil the rack 14 moves with it and because of its meshing engagement with gear section 22 causes the arm to swing outwardly from the casing and into signalling position and retains it in this position until the current is again turned off. When the arm reaches its signalling position the contactor point 26 contacts with strip 27 and completes the lighting circuit causing lamp 25 to light.

My invention is capable of modification in many ways and for instance in place of the rack and gear arrangement of Fig. 1 I can substitute that of Fig. 4 which differs from that of Fig. 1 in that the plunger 13^2 has a transversely projecting short arm 40 provided at its upper end, said arm being provided with a horizontal slot 41 in which engages a pin 42 mounted on the short arm 20′ of the signal arm. Now then when the plunger moves down the arm 20 will be pivoted about its pivot point and the pin 42 will adjust itself in slot 41 as the arm swings to signalling position. As before in signalling position the lamp will light.

In the modification of Fig. 5, the plunger 13^3 has a narrowed end to which is pivoted a connecting link 43 which is also pivoted to the short arm 20′ of the signalling arm. A lip 44 is mounted on the plunger and provided with a small vertical upwardly projecting tab 45 designed when said arm is in non-signalling position to engage in a slot 46 arranged in the lower face of arm 20′, thus locking the arm in this position. When current is supplied to the solenoid as before the plunger 14 moves downwardly causing tab 45 to disengage from slot 46 and then said plunger continues to move downwardly, said arm is swung to signalling position and the signal lamp is lit as before when it reaches position.

Our device may be modified in various ways without departing from the spirit of the invention involved and we do not wish to be limited by the details shown and described. For instance the gravity return of the signal arm to signalling position may be provided with retard mechanism or the like (not shown) and other further modifications may be made.

What we claim is:

1. In a signalling device the combination with a signal arm of a solenoid, a solenoid plunger, a rack slidably mounted in said plunger resiliently attached thereto and engaging a meshing element mounted on said arm whereby when said solenoid is actuated said arm will swing to signalling position, and locking means for retaining said arm in non-signalling position when said solenoid is unactuated including a lip member mounted on said solenoid plunger and adapted to engage said arm.

2. In a signalling device the combination with signalling means, of means for actuating said first named means including a solenoid, a plunger for said solenoid formed at one end with a recess, a rack slidably mounted in said recess and extending outwardly therefrom, resilient means continuously urging said rack to its lowermost position in said recess, a meshing element mounted on said signalling means adapted to mesh with said rack whereby said signalling means will be moved to signalling position when said solenoid is actuated, and locking means adapted to retain said signalling means in non-signalling position when said solenoid is unactuated.

3. In a device as per claim 2 in which said locking means includes a lip member mounted on said plunger and engaging means therefor on said signalling means, said lip member engaging said engaging means when said solenoid is unactuated and preventing said signalling means from being moved to signalling position.

In testimony whereof we affix our signatures.

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