Feb. 14, 1933. A. A. JONES 1,897,906

SIGNAL SWITCH FOR AUTOMOBILES

Filed May 17, 1930

Fig. 1.

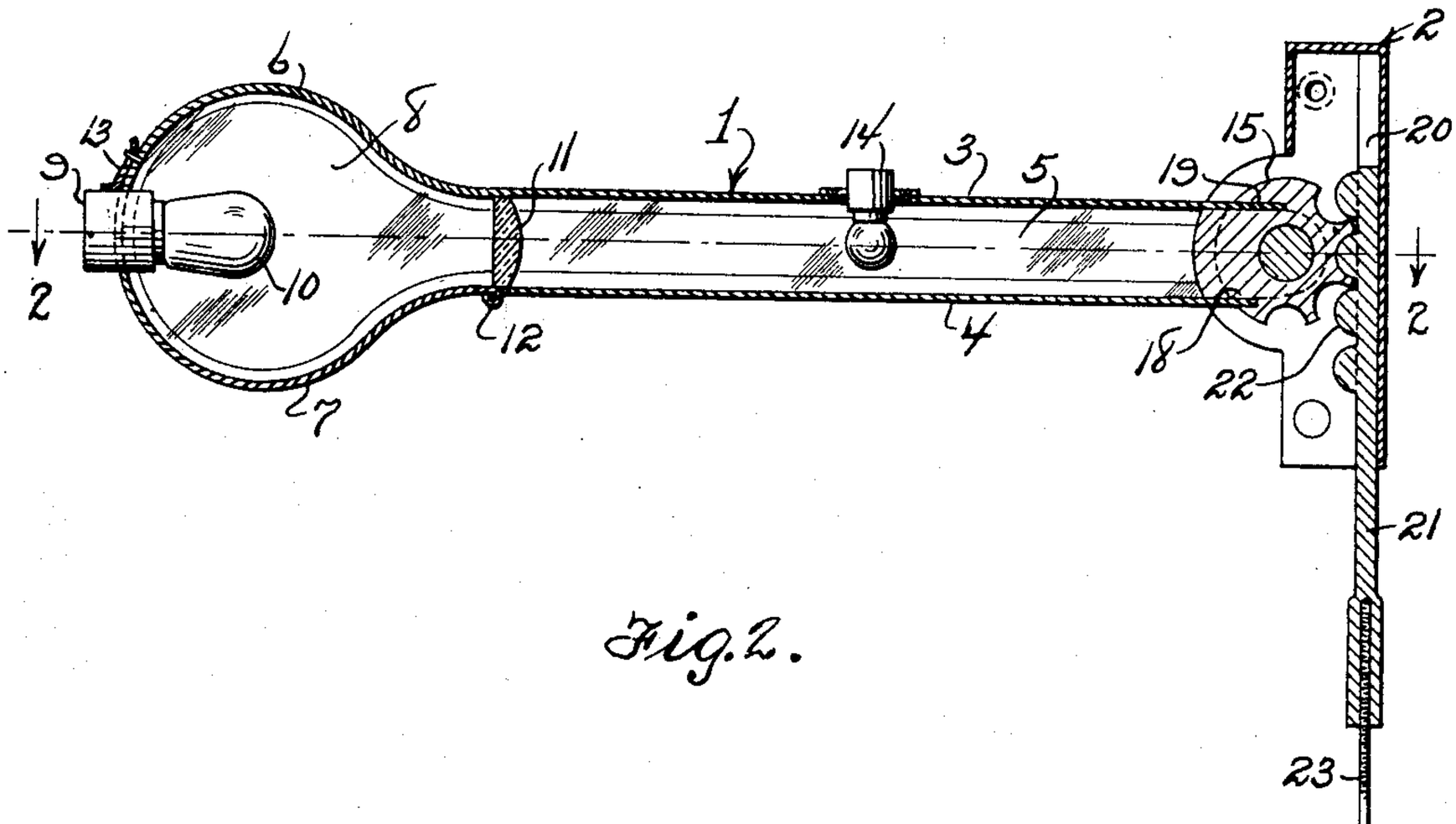


Fig. 2.

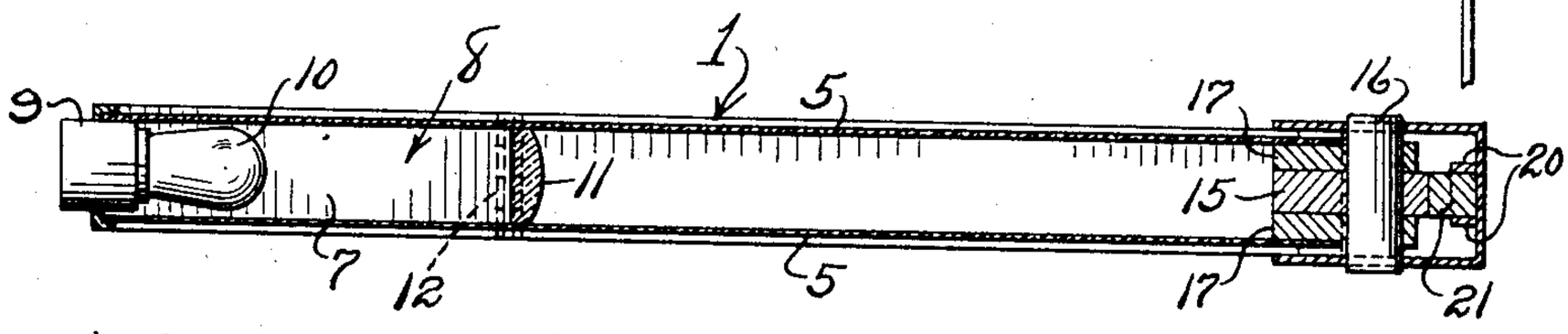


Fig. 3.

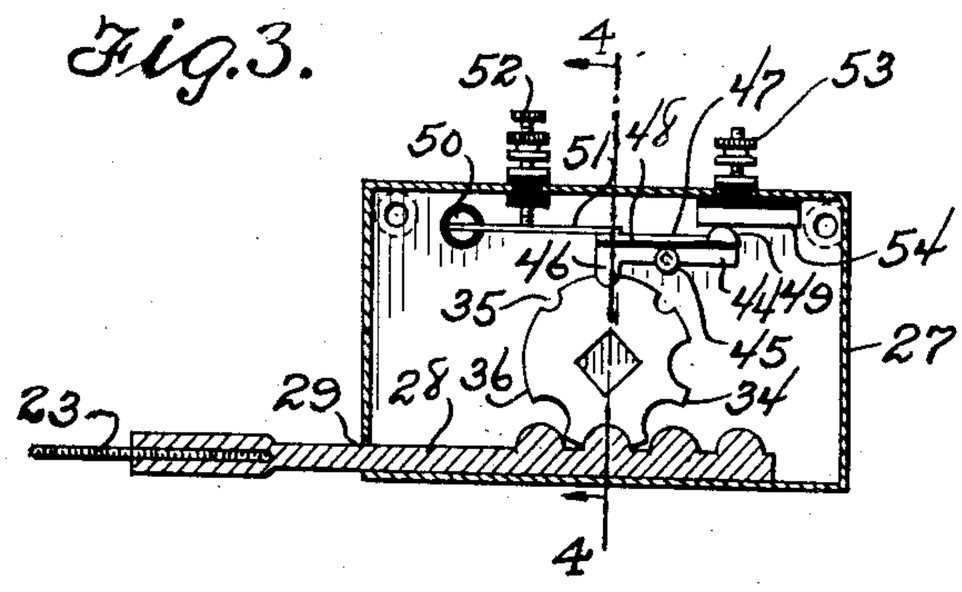
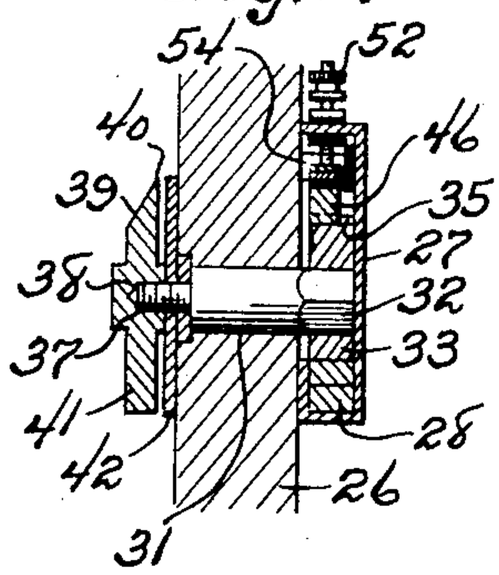


Fig. 4.



Arthur A. Jones
INVENTOR

BY Victor J. Evans
ATTORNEY

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UNITED STATES PATENT OFFICE

ARTHUR A. JONES, OF CHINO, CALIFORNIA

SIGNAL SWITCH FOR AUTOMOBILES

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The object of the invention is to provide means located in such close proximity to the steering wheel of a motor vehicle as to permit of its actuation to effect adjustment of the signal arm thereof without necessitating the removal of either of the driver's hands from the steering wheel.

Another object of the invention is to provide a novel and highly effective switch for controlling the supply of current to the illuminating means for the signal arm while the arm is in each of its positions of adjustment to give a signal, the means being so constructed that when the arm is in lowered or idle position, no circuit will be closed through the light bulb constituting the source of illumination.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing, and specifically pointed out in the appended claim, it being understood of course that minor changes may be made so long as they fall within the scope of the claim.

In describing my invention in detail, reference will be had to the accompanying drawing, wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a central vertical sectional view of a signaling device of a character to be operated by the invention.

Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1 looking in the direction indicated by the arrows.

Figure 3 is a central vertical sectional view of the switch comprising the invention.

Figure 4 is a sectional view on the line 4—4 of Figure 3 looking in the direction indicated by the arrows.

The device embodying the invention comprises a signal arm which is pivotally mounted for vertical swinging adjustment, at one end, in a casing which is to be mounted upon the wind shield of the automobile and within which casing a part of the actuating means for the arm is housed, and in the drawing the arm is indicated in general by the numeral 1 and the said casing by the numeral 2.

The arm 1 is formed, so far as its body construction is concerned, of sheet metal and is of hollow rectangular form throughout its length except as will presently be set forth. The arm comprises upper and lower portions 3 and 4 and between these portions there are slidably mounted, in grooves therein, light-ray transmitting panes 5 which may be of celluloid, glass, or other light-ray transmitting material, and these panes may be of any desired color or clear and transparent. In the embodiment of the invention shown in the drawing the arm 1 is provided at its outer end with an extension of each of the portions 3 and 4 and rounded to provide the top and bottom walls 6 and 7 of a substantially flat sided and circular head 8, and the panes 5 will be enlarged in width to seat within the head 8 at the front and rear thereof or a separate bend may be arranged within the head and this bend will be mounted in substantially the same manner as the bends 5. An electric light bulb socket 9 is mounted in an opening formed in the rear or outer end of the head 8 and a light bulb 10 is fitted in this socket and the rays from this bulb are reflected by the walls 6 and 7 in a manner to be directed longitudinally within the arm and thereby illuminate the panes 5. If desired, or found necessary, a lens 11 of red or clear glass may be mounted in the arm substantially at the juncture of the arm with the head 8, and this lens will constitute a means for concentrating the light rays from the light bulb 10 and directing the rays longitudinally the full length of the arm.

The head 8 may be divided, horizontally, into two sections, and the lower section may be hingedly mounted at the outer end of the portion 4 of the arm 1 as indicated by the numeral 12 and held in closed position, confronting the upper section of the head and properly enclosing the light bulb 10, through the medium of a latch 13 which serves to connect the outer end of the wall 7 with the corresponding end of the wall 6, and at this point it will be understood that by loosening the latch 13, in order to replace the light bulb

10 in the event this is found necessary, the socket 9 will be supplied with current through the medium of a conductor wire (not shown) which may be led in any convenient manner through the arm and through the casing 2 and to the control means for the arm as will presently be explained. Ordinarily, where the arm 1 is not of great length, the signal bulb will suffice for supplying sufficient illumination to properly illuminate the panes 5 and 8, but if desired, an auxiliary socket 14 may be employed and mounted in an opening in the upper member 3 of the arm at a point intermediate the ends of said arm.

The means by which the arm is directly swung to its different positions of adjustment comprises a segmental gear 15 which is rotatably mounted upon a short shaft 16 fixed in one or both side walls of the casing 2 and assembled with this gear are segmental disks 17 between which the gear may be rotated, or these disks may be fixed with respect to the gear for rotation therewith, and the arm 1 is held assembled with the gear by having its lower portion seated in a notch 18 formed in the untoothed side of the gear and the end of its upper portion 3 seated in the tapered notch 19 similarly formed.

The casing 2 is mounted in any suitable manner upon one side member of the wind shield frame and slidably mounted within the casing against the inner side wall thereof, and between spaced guide flanges 20, is a rack bar 21, the teeth 22 of this bar meshing with the teeth of the segmental gear 15. The rack bar is, of course, vertically movable in the casing and its movement is effected by a means which will presently be described, one element of this means however being a flexible member indicated by the numeral 23, and this rod is connected at one end as shown in Figure 1, to the lower end of the rack bar 21.

The means which is manually actuated for the purpose of effecting adjustment of the signal arm, comprises a sheet metal casing 27 which is mounted at one side upon the instrument board 26 and a rack bar 28 is slidably mounted in the bottom of this casing and through an opening 29 formed in one end wall of the casing and to the outer end of this rack bar there is connected the other end of the flexible member 23 and it will be understood at this point that shifting of the rack bar 28, by a means to be presently explained, will result in shifting of the rack bar 21 and a raising or lowering of the signal arm, in the swinging movement, thus imparted to the same.

A shaft 31 is fitted rotatably through an opening in the instrument board 26 as shown in Figure 4 of the drawing, and one end of this shaft is secured as indicated by the numeral 32 and a gear 33 is mounted upon this end of the shaft and this gear is provided, for a portion of its circumference, with a series of teeth 34 designed to mesh with the teeth of the rack bar 28, the rack bar teeth being preferably of substantially semi-cylindrical form as shown in Figure 3. For another portion of its circumference, the gear 33 is formed with a series of three notches indicated by the numeral 35 and the remaining portion of the circumference of the gear, indicated by the numeral 36, is of arcuate form and unbroken. The end of the shaft 31 opposite its squared end 32 is reduced in diameter and threaded as indicated by the numeral 37, and a finger piece 38 is fitted onto this end of the shaft and comprises a hub portion from which radiate, in alinement with each other, a finger 39 which is tapered to an indicating point 40 and another finger 41, the two fingers constituting a finger knob whereby the shaft may be rotated to impart rotary motion to the gear 33. A dial plate 42 is mounted upon the face of the instrument board 26 in plain view of the driver of the automobile, and a scale (not shown) is provided upon the face of this disk and, in the rotation of the shaft 31, the indicator point 40 will be brought into registration with one or another of the scale marks, and these marks are so indicated as to indicate a right turn, left turn, and stop. At this point it will be understood that by rotating the shaft 31, the gear 33 may be rotated so as to shift the rack bar 28 and effect corresponding shifting of the rack bar 21 so as to angularly adjust the signal arm in accordance with the rotation of the shaft 31 and the indications upon the disk 42.

In order that the battery circuit of the automobile may be closed through the lamp sockets 9 and 14 when the signal arm is moved to any one of its three display positions, a switch unit is provided within the casing 27, and this unit comprises a pawl 44 mounted for rocking movement as at 45 within the casing and provided at one end with a tooth 46 for engagement in the notches 35 in the rotation of the gear 33. A contact plate 47 is mounted upon a leaf 48 of insulating material which is in turn mounted upon the upper side of the pawl 44, and a contact button 49 is mounted at that end of the plate which is opposite the end at which the tooth 46 is located. A pin 50 is mounted upon one wall of the casing 27 and is split to hold one end of a leaf spring contact 51 and this contact normally rests in engagement with the leaf 47 and a contact screw 52 is mounted upon the top of the casing and engages at its lower end with the spring 51, and this screw constitutes a binding post, and a similar binding post 53 is likewise mounted upon the top of the casing and is connected electrically with a contact block 54. One of the binding posts 52 or 53 is connected with the positive pole of the auto-

mobile battery, and the other binding post has connected to it the conductor which has previously been referred to and which connects with the light bulb sockets 9 and 14, these sockets being mounted at their other contacts as is customary in automobiles.

From the foregoing it will be understood that when the gear 33 is rotated so as to effect adjustment of the signal arm to one position or another, the engagement of the tooth 46 of the pawl 44 in a corresponding one of the notches 35 will permit the spring contact finger 51 to act to bring the contact button 49 upon the other end of the pawl into engagement with the contact block 54, and therefore the circuit will be closed through the light bulb sockets 9 and 14. When the gear is so rotated as to bring the portion 36 of its periphery to position beneath the tooth 46 of the pawl 44, the button 49 will be out of engagement with the contact block 54 and therefore the circuit will be broken and at this time the signal arm will be in its lowered position and substantially concealed from view.

What I claim is:—

In a device of the character described, a disk mounted for turning movement and being provided upon its periphery with two sets of notches, the notches of one set being distinguished from the notches of the other set, a pawl pivotally mounted and adapted to engage in the notches of one set and ride upon the periphery of the disk between said notches, a terminal contacting with said pawl when the same is in one of the notches and spaced from the pawl when the pawl is upon the periphery of the disk, a spring bearing upon the pawl and urging the same toward the disk, a terminal connected with the spring, a rack bar slidable transversely across the axis of the disk and having teeth adapted to enter the other set of notches upon the disk.

In testimony whereof I affix my signature.

ARTHUR A. JONES.