

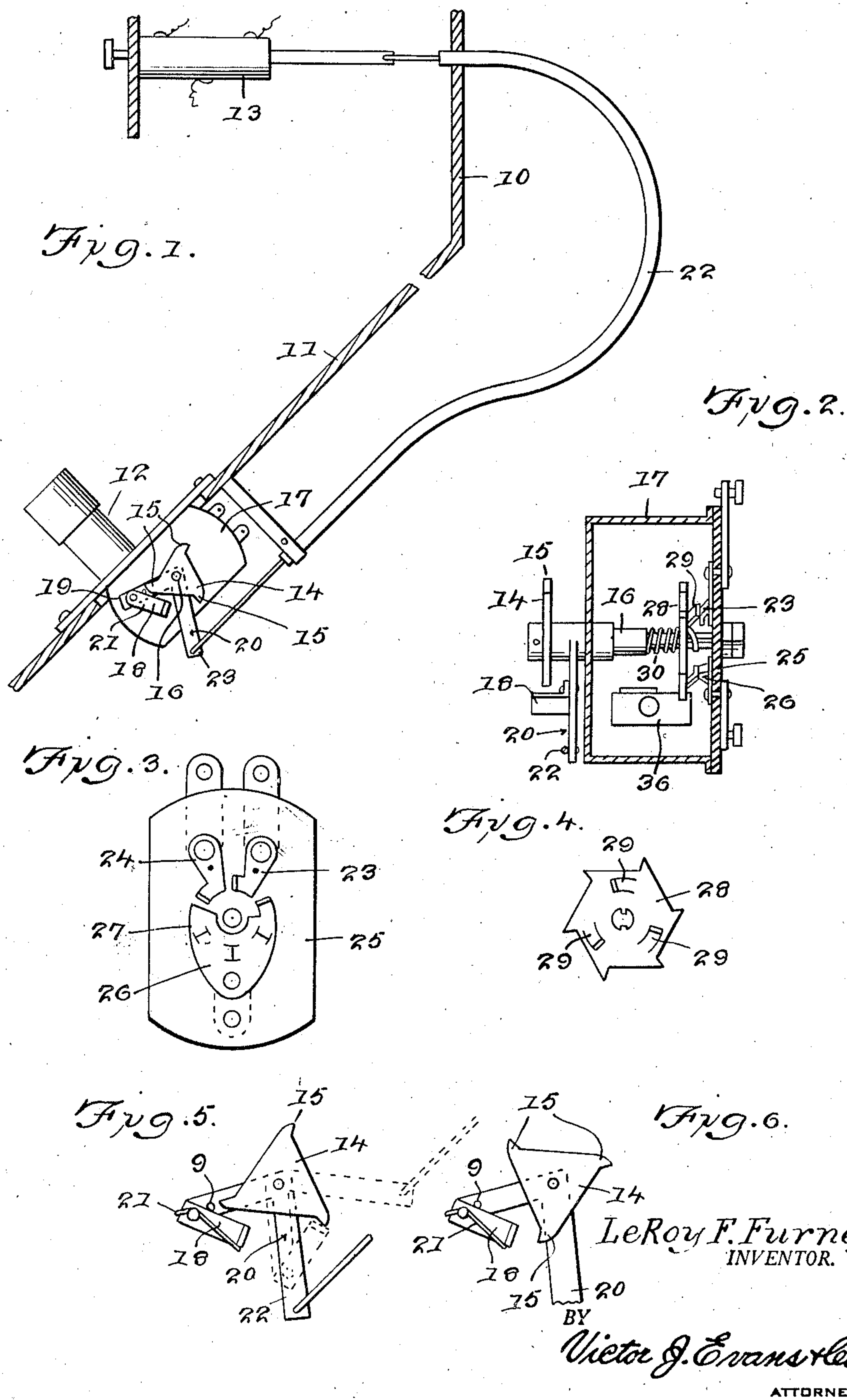
March 30, 1943.

LE ROY F. FURNEY
HEADLIGHT DIMMER SWITCH

2,314,930

Filed Feb. 10, 1942

2 Sheets-Sheet 1



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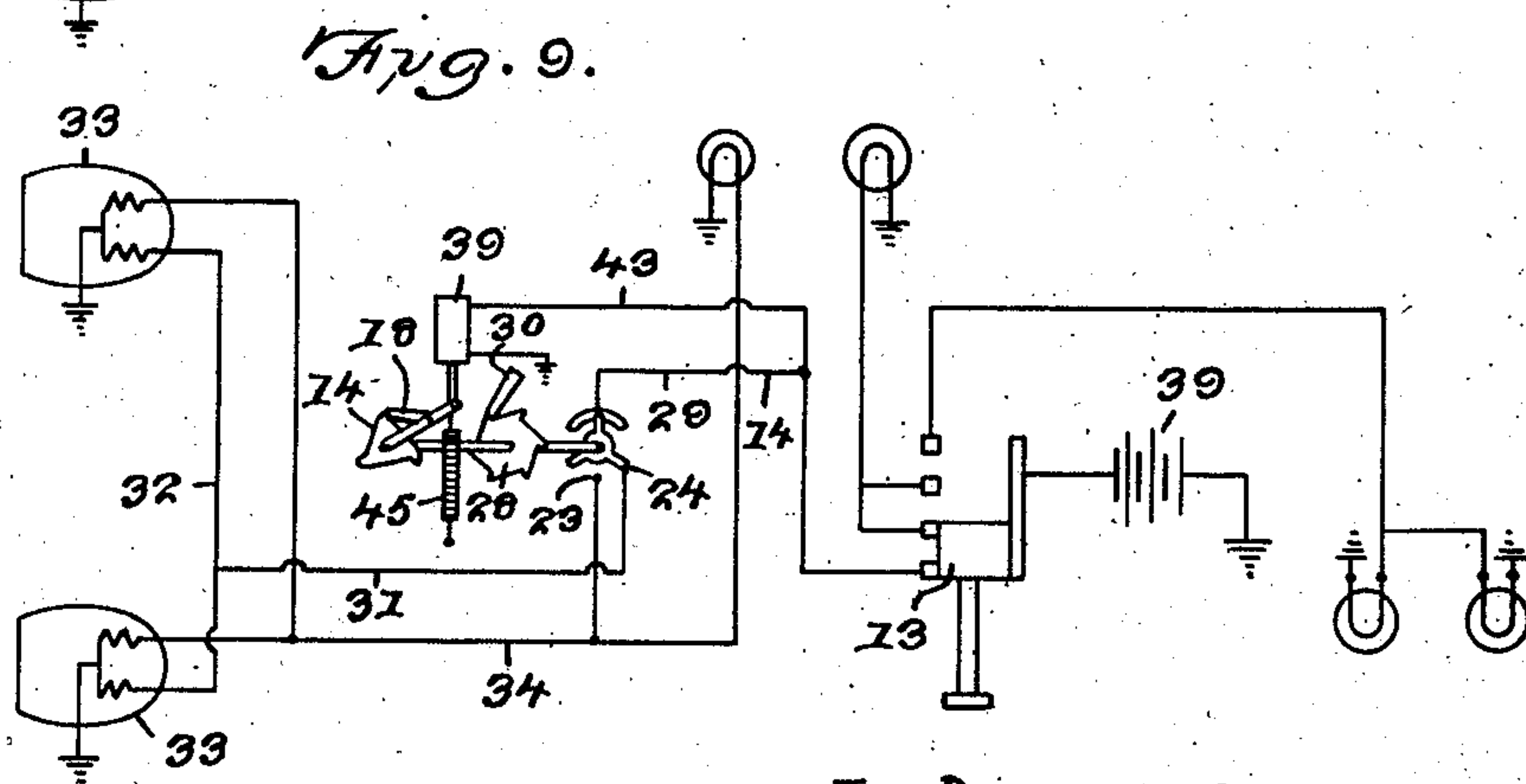
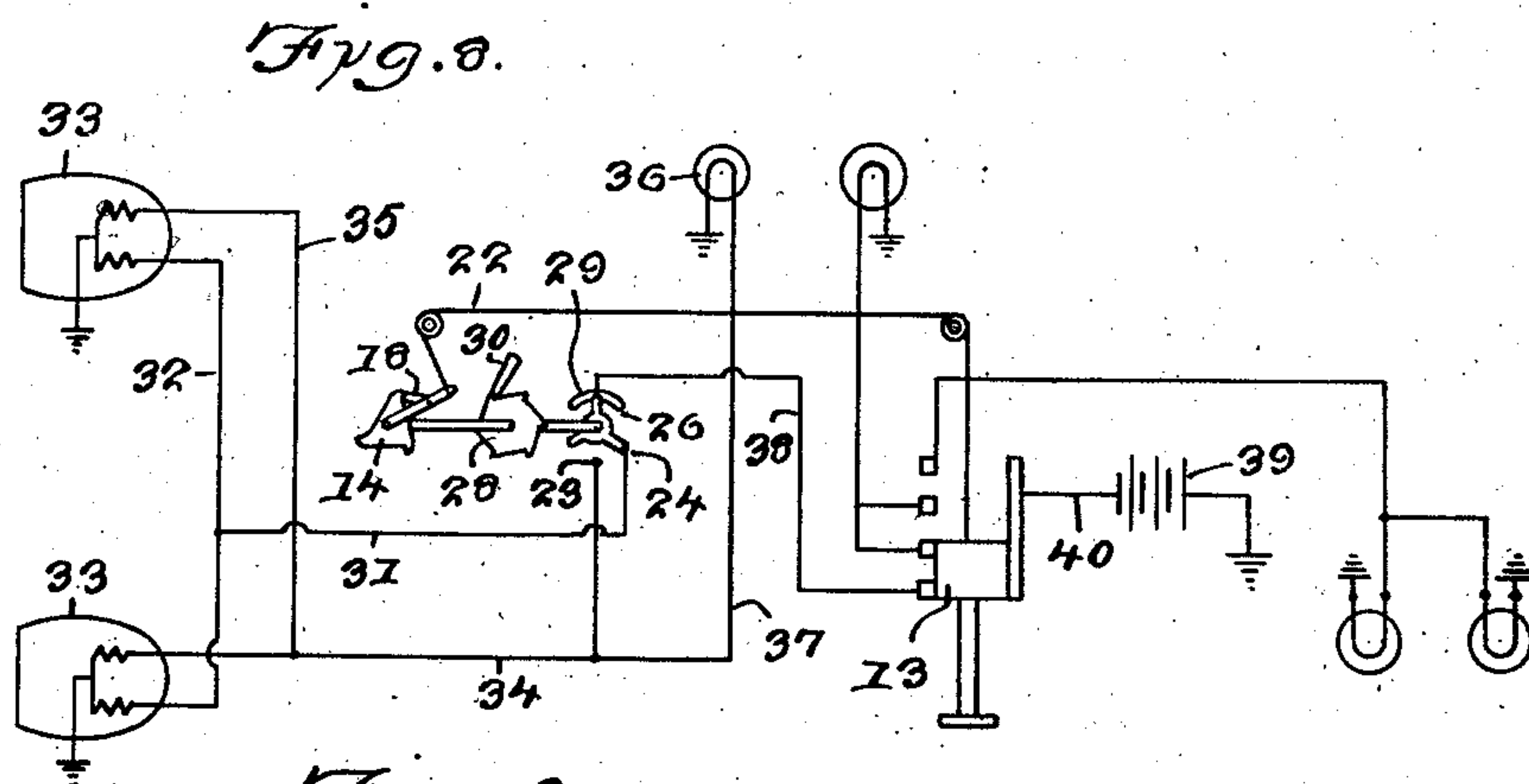
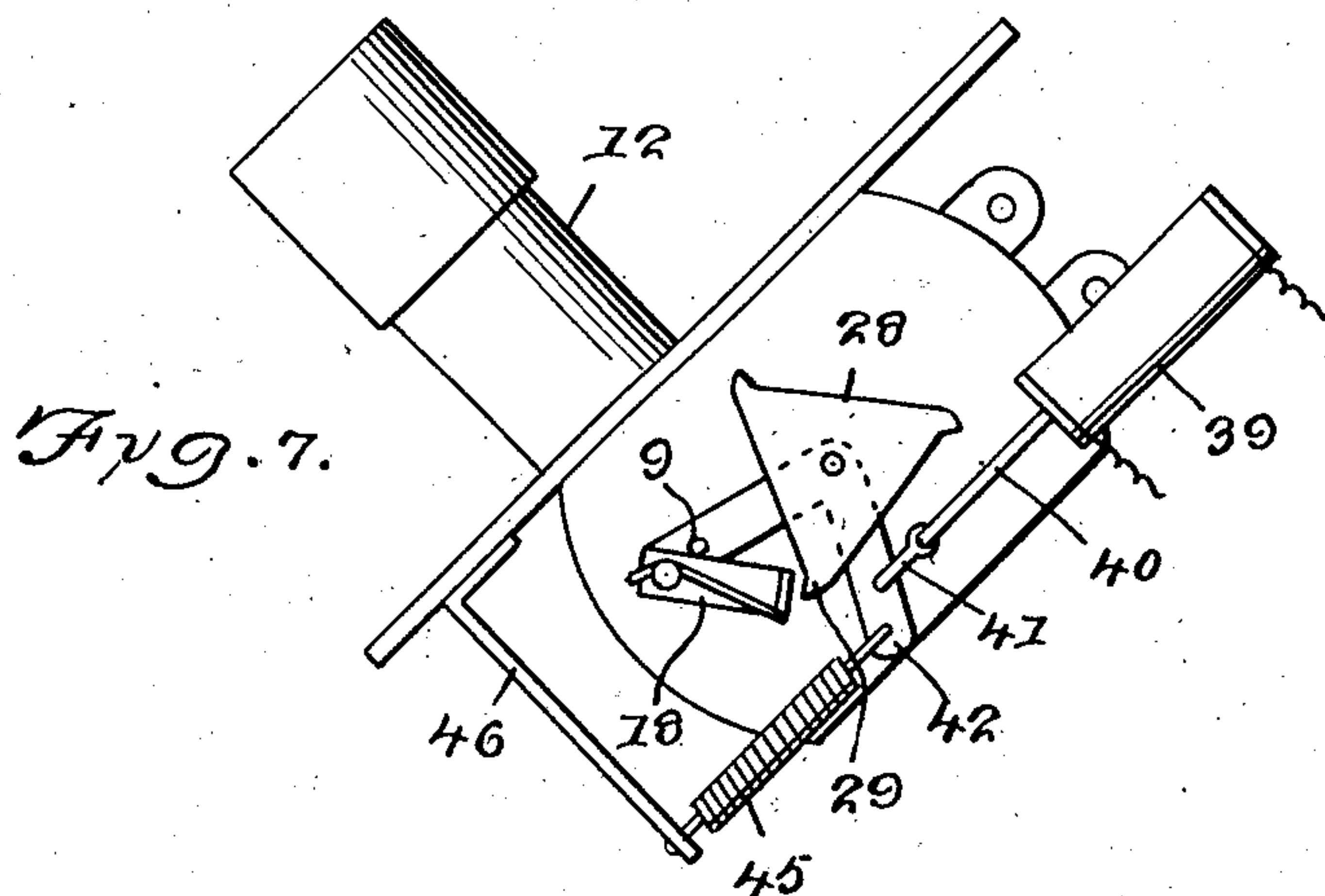
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2 Sheets-Sheet 2



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HEADLIGHT DIMMER SWITCH

Le Roy F. Furney, Pueblo, Colo.

Application February 10, 1942, Serial No. 430,271

3 Claims. (Cl. 171—97)

This invention relates to a headlight dimmer switch and has for an object to provide a lever and contacts associated with a conventional floor board dimmer switch, the lever being mechanically and electrically connected to the light switch on the vehicle dash so that when the light switch is first turned to "on" position the headlights are automatically turned to "dim" position regardless of the "bright" or "dim" position of the floor board dimmer switch.

A further object is to provide apparatus of this character which will be formed of a few strong, simple and durable parts, which will be inexpensive to manufacture, and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed, it being understood that various modifications may be resorted to within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming a part of this specification:

Figure 1 is a side elevation of a headlight dimmer switch constructed in accordance with the invention.

Figure 2 is an inside elevation of the cover of the dimmer switch casing showing the contacts disposed thereon.

Figure 3 is an inside elevation of the dimmer switch cover showing the stepped contacts.

Figure 4 is a plan view of the ratchet wheel having twice the number of teeth as contacts.

Figure 5 is a side elevation of the lever, ratchet wheel and dog which is operated by closing the light switch on the vehicle dash.

Figure 6 is a view similar to Figure 1 but showing the position of the dog and ratchet wheel when the floor board dimmer switch is already in "bright" position and the light switch on the vehicle dash is closed.

Figure 7 is a side elevation of a headlight dimmer switch showing the lever of the ratchet wheel being operated electrically by closing of the light switch on the vehicle dash.

Figure 8 is a diagrammatic view showing the electrical connections of the headlight dimmer switch shown in Figure 1.

Figure 9 is a diagrammatic view showing the electrical connections of the dimmer switch shown in Figure 7.

Referring now to the drawings in which like characters of reference designate similar parts

in the various views, 10 designates a motor vehicle dash, 11 the floor boards, 12 the floor board dimmer switch, 13 the light switch, these parts being conventional.

5 In carrying out the invention an equilateral triangular ratchet wheel 14, having three teeth 15 at the apices, is fixed on the outer end of the dimmer switch shaft 16 which projects through the casing 17 of the dimmer switch. 10 A dog 18 is pivotally mounted on a leg 19 of a bell crank 20 which is loose on the shaft 16 outside of the dimmer switch casing. The dog is held by a leaf spring 21 against a stop pin 9 on the short leg 19 of the bell crank to assume such 15 position as to engage one of the teeth 15 of the ratchet wheel, if such tooth is in position to be engaged, when the bell crank lever is swung on the shaft 16 by a "Bowden" wire 22 attached to the light switch 13 and to the long leg 23 of the bell crank, and advance the ratchet wheel 20 a step actuation when the light switch 13 is first turned on with resultant movement of the dimmer switch to "dim" position if the dimmer switch has been left in "bright" position, otherwise the dog will merely move along one of the 25 sides of the equilateral triangular ratchet wheel and not advance the ratchet wheel and this takes place when the dimmer switch has been left in "dim" position when the light switch 30 was last turned off.

The conventional dimmer switch illustrated is provided with two contacts 23 and 24 disposed on the inner face of the insulating cover 25 of the switch casing 17. Also fixed to the inner face of the cover is a contact 26 having four steps 27 concentric with the contacts 23 and 24. 35 A ratchet wheel contact 28 is loose on the shaft 16 and is provided with three contacts 29, see Figure 4, one of which will always be in contact with one of the step contacts 27, which is connected to the source of electricity as will hereinafter be explained, and one of the contacts 29 will always be in engagement with either one of the contacts 23 or 24, which are connected 40 to respective "bright" and "dim" filaments of the headlight as will be presently explained. Rotation of the ratchet wheel 28 is effected by the plunger 30 of the dimmer switch, to alternately connect the source of electricity with the 45 "bright" and "dim" filaments through the medium of the contacts just described, as is well known. The ratchet wheel 28 is pressed by a spring 3 toward the contact 26.

In practice a tooth 15 of the triangular ratchet wheel 14, will be in position to be struck by the 55

dog 18 if the dimmer has been left in "bright" position when 13 is turned off so that when the light switch 13 is operated the dog will move the triangular ratchet wheel a step and shift the ratchet contact wheel 28 to carry that contact 29 which is in engagement with the "bright" filament contact 23 off this contact and onto the "dim" contact 24.

The wiring diagram is shown in Figure 8. The "dim" contact 24 is connected by conductor wires 31 and 32 to the "dim" filaments of both headlights 33 while the "bright" contact 23 is connected by conductor wires 34 and 35 to the "bright" filaments of both headlights. The dash indicator light for indicating when the "bright" lights are on, is connected by wire 37 to the wire 34. The light switch 13 is connected by a conductor wire 38 to the contact 26. The source of current supply 39 is connected to the light switch by conductor wire 40 so that when the light switch is closed the contact 26 of the floor board dimmer switch will be supplied with current which is selectively supplied by the contacts 29 of the ratchet wheel contact 28 to either the "bright" or "dim" filaments by operation of the floor board dimmer switch in the customary manner, while the motor vehicle is being driven on the highways.

The purpose of this invention is to make sure in all cases, especially in city driving, that the lights are on "dim" when first put into operation, since many drivers have their lights on "bright" contrary to city ordinances, and drive without knowing they are on "bright." As heretofore explained should the dimmer switch be on "bright" position when the lights are first put in operation, closing of the light switch 13 will advance the triangular ratchet wheel 14 from the position shown in Figure 6 to the position shown in Figure 5 and so changes the setting of the dimmer switch to "dim" position. However should the switch already be set in "dim" position the dog 18 will travel along a straight side of the ratchet wheel 14 when the bell crank is being moved, as shown in dotted lines in Figure 5 and will not disturb the position of the ratchet wheel so that the "dim" setting of the dimmer switch is not disturbed.

Although a mechanical operation of the bell crank has been described the bell crank may be moved electrically, and for this purpose, see Figure 7, a solenoid 39 has connected to its core 40 a hook 41 which is engaged with the long leg of the bell crank 42. Since other parts of the mechanism are the same as hereto described they have been given identical numerals in Figure 7.

As best shown by the wiring diagram in Figure 9 the coil of the solenoid is grounded at one end and the other end is connected by a conductor wire 43 to the light switch 13, and a conductor wire 44 is connected to the conductor wire 43 and to the contact 29 of the dimmer switch.

When the light switch 13 is turned on the solenoid will be energized to move the bell crank and should a tooth 15 of the dimmer switch be in position to be struck by the dog 18, indicating that the dimmer switch is set in "bright" position, the ratchet wheel 14 will be advanced a step to change the setting to "dim" as heretofore described.

A helical spring 45 is connected to the bell crank 42 and to a stationary support 46 to return the bell crank to initial position when the solenoid 39 is deenergized, ready for the next operation. In the form of the invention which is operated by the "Bowden" wire 22 such a spring is not necessary since when the light switch 13 is pushed into open position the "Bowden" wire will reset the bell crank to initial position.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

1. The combination with a main and an auxiliary circuit, a main switch for opening and closing either one of said circuits, a second switch in the main and auxiliary circuits between the main switch and the point of consumption, and means operated by the closing of the main switch to either position for setting the second switch in a position to close the auxiliary circuit.

2. The combination with a main and an auxiliary circuit, a main switch for opening and closing either one of said circuits, a second switch in the main and auxiliary circuits between the main switch and the point of consumption, a ratchet controlled contact coacting with contacts of the second switch to connect the circuits to one or the other of the contacts of the second switch, a lever for operating the ratchet switch contact, and a "Bowden" wire connecting the lever to the main switch for actuating the lever when the switch is opened or closed.

3. The combination with a main and an auxiliary circuit, a main switch for opening and closing either one of the said circuits, a second switch in the main and auxiliary circuits between the main switch and the point of consumption, said second switch comprising a three point contact member, means for operating said member, a ratchet for operating said second switch, a lever carrying a pawl for engaging the ratchet and operating the same to connect the circuit to one or the other of the contacts, and a "Bowden" wire connecting the lever to the main switch for actuating the lever when the switch is opened or closed, whereby the second switch closes the auxiliary circuit regardless of the position of the main circuit.

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