March 15, 1927. 1,620,675

T. J. MOAN

HEADLIGHT CONTROL

Filed April 7, 1924 2 Sheets-Sheet 1

Fig. 1.

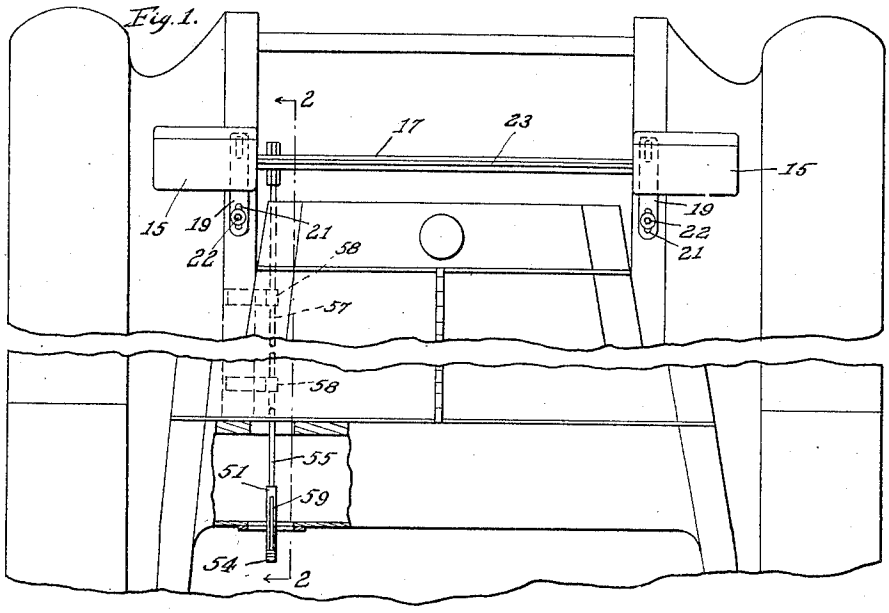


Fig. 2.

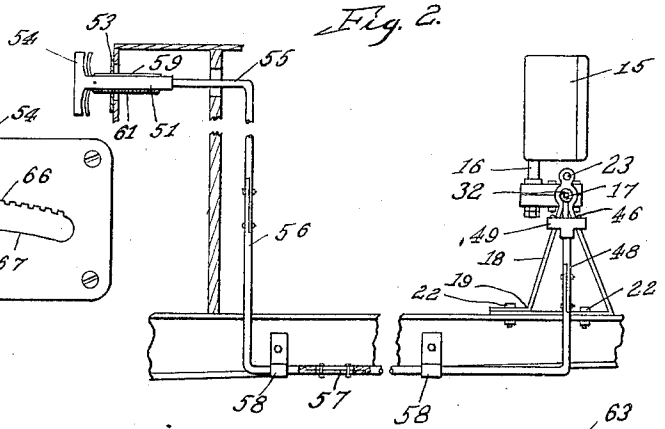


Fig. 3.

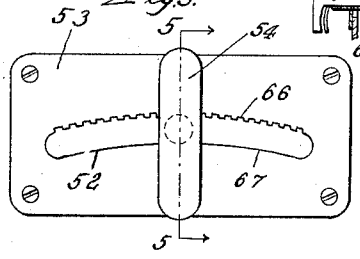


Fig. 4.

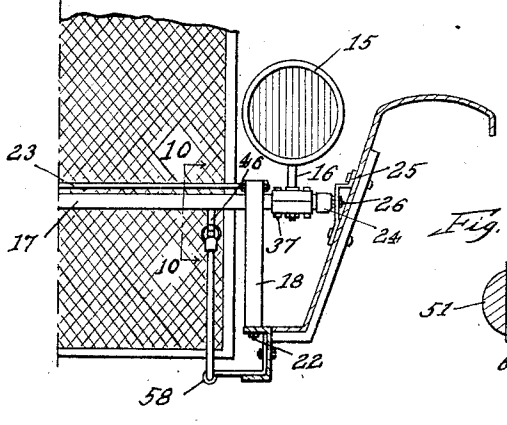


Fig. 5.

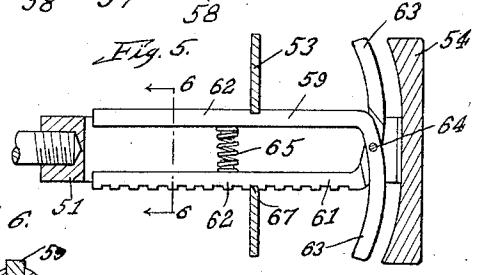


Fig. 6.

Inventor.
Thomas J. Moan
By Wilson & McCune
attys.

March 15, 1927. 1,620,675

T. J. MOAN

HEADLIGHT CONTROL

Filed April 7, 1924 2 Sheets-Sheet 2

Fig. 7.

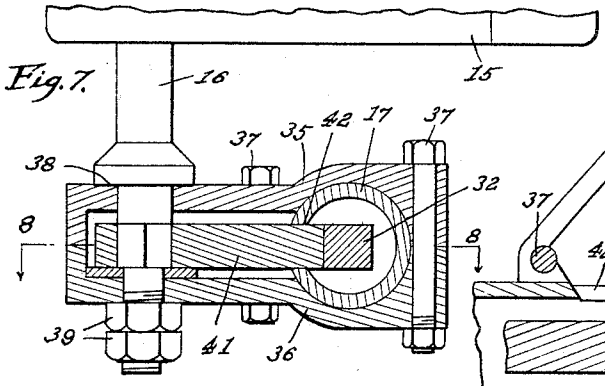


Fig. 8.

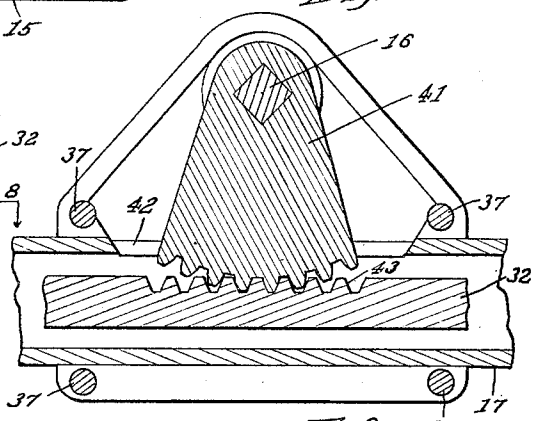


Fig. 10

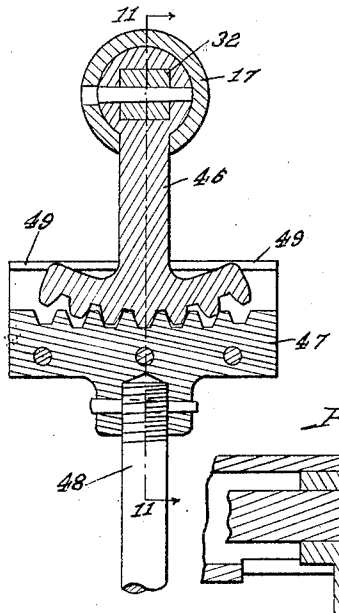


Fig. 9.

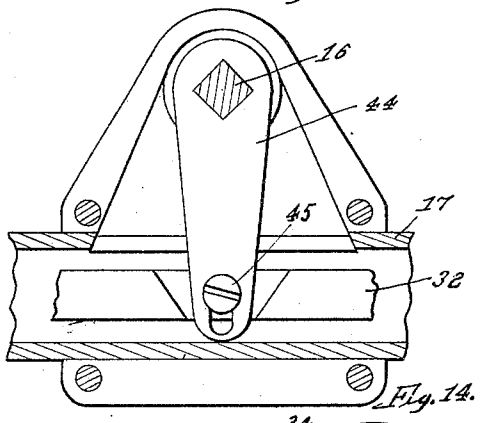


Fig. 14.

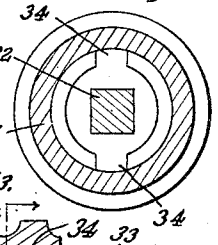


Fig. 11

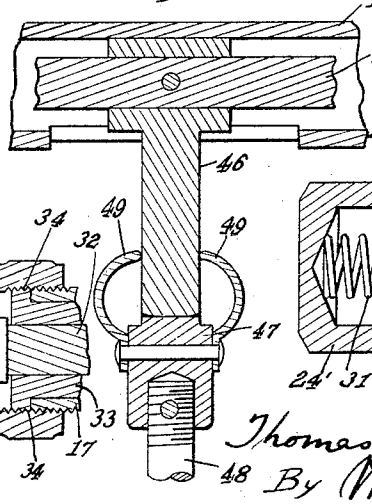


Fig. 13.

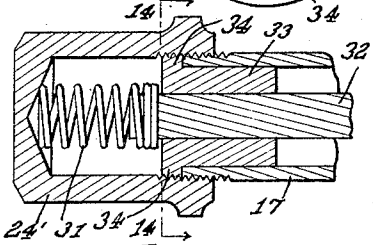
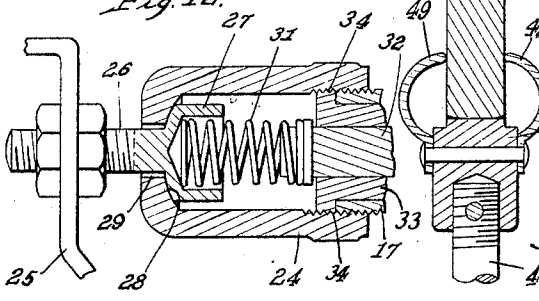


Fig. 12.



Inventor.
Thomas J. Moan
By Wilson & McGuire
attys.

Patented Mar. 15, 1927. 1,620,675

UNITED STATES PATENT OFFICE.

THOMAS J. MOAN, OF BELVIDERE, ILLINOIS.

HEADLIGHT CONTROL.

Application filed April 7, 1924. Serial No. 704,581.

This invention relates to dirigible light supports for general use but particularly adapted for motor vehicles.

The primary purpose of my invention is to provide an improved dirigible light support and control therefor adapted to be installed on any motor vehicle. One of the principal features of my improvements is the position of a control handle operable from the control compartment of the vehicle for imparting universal movement to the headlights and for locking them in any adjusted position. Thus by manipulation of the control handle the headlights may be swung horizontally or tilted vertically and locked in any position within the range of these movements.

Another object is to provide an improved mounting for the headlight characterized by a pipe casing which carries light supporting brackets and an internal shifting rod, the casing being supported for rotative movement for tilting the lights vertically and said rod being shiftable lengthwise for swinging the lights horizontally.

A further object of my invention resides in the mounting and bracing of said casing, as will be explained more fully hereinafter.

Still another object is the provision of an improved hand control for imparting universal movement to headlights mounted in the manner described.

Other objects and attendant advantages will be appreciated by those skilled in this art as the invention becomes better understood by reference to the following description when considered in connection with the accompanying drawings, in which—

Figure 1, is a fragmentary top view of a motor vehicle equipped with my improved headlight control;

Fig. 2, is a vertical longitudinal section taken on the line 2—2 of Fig. 1;

Fig. 3, is an enlarged face view of the control handle and locking plate on the dash;

Fig. 4, is a fragmentary front view of the headlight control at one side of the vehicle;

Fig. 5, is a section taken on the line 5—5 of Fig. 3;

Fig. 6, is a section taken on the line 6—6 of Fig. 5;

Fig. 7, is an enlarged vertical section through one of the light supports;

Fig. 8, is a horizontal section taken on the line 8—8 of Fig. 7;

Fig. 9, is a similar section showing a modified form of the means for oscillating the light spindle;

Fig. 10, is an enlarged vertical section taken substantially on the line 10—10 of Fig. 4;

Fig. 11, is a section taken on the line 11—11 of Fig. 10;

Fig. 12, is a vertical section through the means for supporting the above-mentioned casing at one end thereof;

Fig. 13, is a similar section showing a modified form of casing end; and

Fig. 14, is a section taken on the line 14—14 of Fig. 13.

The headlights 15 may be of conventional construction preferably including a spindle 16 about the axes of which the lights are adapted to be swung horizontally. These spindles are supported by brackets which will be presently described and which in turn are mounted on a casing extending transversely of the vehicle, preferably just in front of the radiator.

This casing 17, preferably in the form of a pipe is supported at each end of the vehicle through the agency of suitable brackets and with capacity to be oscillated about its longitudinal axis for tilting the headlights vertically. In the present instance I show two forms of supporting brackets, either or both of which may be used in a single installation, although it should be understood that my invention in its broader aspect is not limited to the particular form of supporting brackets.

As shown in Figs. 1, 2 and 4 the casing 17 is supported at each end by a bracket designated generally by 18 of suitable material shaped so as to provide a base 19 adapted to seat on the chassis and having one or more slots 21 for fastening bolts 22 which secure the brackets to the chassis, the slots 21 permitting fore and aft adjustment when installing. Each bracket provides a supporting bearing at its upper end in which the casing 17 is adapted to be oscillated and further provides for the connection of a tie

rod 23 which holds the upper ends of the bracket 18 in rigid relative relation.

As shown in Figs. 4 and 12 there is threaded onto each end of the casing 17 a cap nut 24 attached to a fender-connected bracket 25 through the agency of a bolt 26. As shown in Fig. 12 the bolt 26 has a head 27 disposed within the cap nut 24 and shaped at one end to provide a somewhat spherical face 28 adapted to seat against a complemental face on the cap nut. The bolt 26 passes loosely through an orifice 29 in said cap nut. A coiled compression spring 31 in the cap nut located at one end in a recess in the head 27 of the bolt urges the latter outwardly against the spherical seat, thus establishing a universal connection between the casing 17 and the fender bracket. By means of this construction the casing 17 may be rigidly supported upon and between the fenders, or upon the chassis, or upon both as disclosed herein. It should be noted that in attaching the casing to the fenders the brackets 25 will be attached to the fender-supporting brackets in order to insure the desired rigidity.

In Fig. 13 the cap nut 24' is closed at its outer end, in which event the casing 17 will be supported entirely through the agency of brackets such as 18 or the equivalent.

Within the casing 17 is supported a shifting rod 32 which oscillates with the casing but is shiftable lengthwise thereof. In the present instance this rod is square in cross section and supported at each end in a bushing 33 (Figs. 13 and 14) which has diametrically opposed lugs 34 fitting in complemental recesses in the adjacent end of the casing 17. The outer end of each lug 34 has thread teeth which match those on the casing 17 and are adapted to be engaged by the cap nut 24 or 24' as the case may be for holding the bushing 33 in place. Each spring 31 is adapted to bear against the adjacent end of the shifting rod 32 for yieldingly resisting endwise movement thereof and serving also to prevent rattling.

The purpose of the shifting rod is to oscillate the lamp spindles through the agency of suitable connections which will now be described. Referring to Figs. 7 and 8 showing the bracket for attaching one of the lamp spindles to the casing 17 and the connection between said spindle and the shifting rod 32 and which applies to both headlights, the spindle supporting bracket is preferably formed of an upper and a lower section 35 and 36 respectively, clamped together and to the casing 17 by bolts 37. The lamp spindle 16 passes down through the brackets 35—36 and is suitably journaled and retained thereon.

In this instance the spindle 16 has a shoulder 38 resting on the top bracket section 35 and lock nuts 39 threaded on the lower end of the spindle for preventing upward displacement. The spindle supporting bracket provides an enclosure in which is disposed a segmental gear 41 fixed to the spindle and extending through a slot 42 in the casing 17 into mesh with a rack 43 on the shifting rod 32. It will be manifest that by shifting the rod 32 lengthwise the headlights may be swung horizontally about their spindle axes and that by rocking or oscillating the casing 17 on its support the headlights may be tilted vertically about the longitudinal axis of said casing.

In Fig. 9 I have shown a modified form of connection between the shifting rod and one of the lamp spindles, comprising a lever arm 44 fixed to the spindle 16 and having a pin and slot connection 45 with the shifting rod 32. In this case the spindle supporting bracket is constructed and mounted on the casing 17 in substantially the same manner as described above.

Referring now to the control mechanism by which the casing 17 and the rod 32 are operated, attention is first directed to Figs. 10 and 11 which show the means through which the control movements are transmitted to said members. This means comprises a segmental gear 46 fixed to and depending from either the casing 17 or the rod 32, in this case the latter, and meshing with a rack 47 fixed to the upper end of a control rod 48 which extends to the dash and is operable thereat by a control handle for imparting the desired movements. By moving the rod 11 bodily forwardly and backwardly with respect to the vehicle, that is to the left and right viewing Fig. 10, the casing 17 will be oscillated for tilting the headlights as above described. By moving said control rod transversely of the vehicle the segmental gear 46 will be operated to shift the rod 32 lengthwise in either direction, it being noted that suitable means is provided intermediate the parts 46 and 47 for transmitting this movement, this means comprising in the present instance a pair of curved thrust plates 49 which bear against opposite sides of the segmental gear 46 and are fixed to the rack 47.

The control handle above referred to comprises in the preferred embodiment a lever-carrying part 51 extending through an arcuate slot 52 in a locking plate 53 attached to the dash board or any suitable support, and a handle part 54 at the control side of the plate 53. The part 51 connects to the control rod 48 above-mentioned it being noted that in the present instance said rod has a horizontal reach 55 (Fig. 2) a vertical reach 56, and a horizontal reach 57 journaled in suitable brackets 58 and terminating at its forward end in the vertical reach of said rod first above described. For convenience in installing, each reach of the rod has a

lapped joint to provide for lengthwise adjustment in order to take care of variations in dimensions of various cars. It will be noted that the slot 52 is struck on an arc the center of which is the pivotal mounting of the horizontal reach 57 of the control rod, said rod forming a lever adapted to be swung laterally for shifting the rod 32 and to be pushed forwardly and backwardly in brackets 58 for oscillating the casing 17. These movements are permitted by the construction disclosed, and the control rod is adapted to be locked at any position within the range of such movements by locking means which will now be described.

There is pivoted on the part 51 of the control handle a pair of locking levers 59 and 61, each of which has an elongated locking part 62 disposed in a diametrical slot in the control handle part 51 and an actuating part 63 adjacent to the handle part 54. These levers are crossed as shown in Fig. 5 and pivotally connected to the handle part 51 on a common pivot 64. The locking ends 62 of said levers are constantly urged apart and into contact with adjacent sides of the slot 52 by suitable spring means such for example as a coiled expansion spring 65 interposed between said lever ends. The ends 62 of the lever 59 is held into engagement with any one of the notches in the face 66 of said slot, thereby locking the control device against lateral displacement. The locking end 62 of the lever 61 is notched throughout its length as plainly shown in Fig. 5 and held against the edge 67 of the slot 52 for locking engagement therewith so as to hold the locking device against lengthwise displacement. It will be manifest that by grasping the handle 54 the actuating end 63 of either lever 59 or 61 or of both said levers may be operated for releasing and engaging their respective locking ends to enable shifting of the locking device to any position within its range and the locking of said device in the position to which it is moved. For example, when the lever 59 is released the handle 54 may be swung to the left and right for correspondingly swinging the headlights through the agency of the control rod and connections above described. During this movement the headlights will be locked against tilting vertically if the lever 61 is not released. If it is desired to tilt the headlights vertically the lever 61 may be released and the handle pushed forwardly or backwardly as the case may be depending on the tilting movement desired. By releasing both locking levers the control handle may be moved in any combination of the movements described, thereby permitting what might be termed universal adjustment of the headlights.

It is believed that the foregoing conveys a clear understanding of the objects prefaced above and while I have illustrated but a single working embodiment with the exception of several modifications noted, it should be understood that considerable change might be made to the construction and arrangement of parts without departing from the spirit and scope of the invention as expressed in the appended claims in which—

I claim:

1. A headlight control comprising, in combination, a tubular casing, means supporting the casing so that it is rotatable about its longitudinal axis, a cap nut threaded onto each end of the casing, a light-supporting bracket mounted on each end of the casing, a pair of headlights each having a spindle mounted on one of the brackets to turn about a vertical axis, a shifting rod mounted in the casing to rotate therewith but being shiftable lengthwise with respect thereto, a coiled spring interposed between each end of said rod and the adjacent cap nut, a connection between each spindle and said rod for oscillating the spindle by lengthwise movement of the rod, and means for oscillating the casing to tilt the headlights vertically and for shifting said rod for swinging the headlights horizontally.

2. In a headlight control, in combination, a light-supporting casing adapted to be mounted on a vehicle transversely thereof, a cap nut threaded onto each end of the casing, fender brackets, a bolt connecting each cap nut and the adjacent fender bracket, a pair of headlights mounted on the casing to turn about vertical axes, and control means for oscillating the casing about the axes of said bolts for tilting the headlights vertically, including a shifting rod in the casing mounted to oscillate therewith and to move lengthwise with respect thereto, connections between the shifting rod and headlights whereby the latter will be swung horizontally by lengthwise movement of the shifting rod, and a coiled compression spring interposed between each end of the shifting rod and the adjacent cap nut for resisting outward movement of the shifting rod.

3. In a headlight control, in combination, a light-supporting casing adapted to be mounted on a vehicle transversely thereof, a cap nut threaded onto each end of the casing, fender brackets, a bolt connecting each cap nut and the adjacent fender bracket, a pair of headlights mounted on the casing to turn about vertical axes, and control means for oscillating the casing about the axes of said bolts for tilting the headlights vertically, including a bolt passing loosely through each cap nut and provided with a head having a spherical seat against an inner wall thereof, and a coiled compression

spring interposed between each end of the shifting rod and the adjacent bolt head for urging the latter against its spherical seat and for resisting outward movement of the shifting rod.

4. A headlight control comprising, in combination, a casing adapted to be mounted on a vehicle to turn about a horizontal axis transversely thereof, a pair of headlights mounted on said casing to turn about vertical axes, a shifting rod mounted in the casing to rotate therewith and shift lengthwise with respect thereto, connections between the shifting rod and headlights for swinging them about their vertical axes, a segmental gear fixed to the shifting rod and depending therefrom, and control means including a rack meshing with said segmental gear and adapted to be moved lengthwise for oscillating the casing to tilt the headlights vertically and to be moved transversely of the vehicle for shifting the said rod and thereby swinging the headlights horizontally.

5. A headlight control as set forth in claim 4, in which the control means includes a lever pivoted beneath the casing and connected at its upper end to the rack, and means for swinging said lever transversely of the vehicle and for shifting it longitudinally thereof for transmitting said headlight control movements.

6. In a headlight control, in combination, a light-supporting casing adapted to be mounted on a vehicle and to be oscillated about an axis transversely thereof, a headlight mounted on each end portion of the casing to turn about a vertical axis, a shifting rod in the casing connected to oscillate therewith and adapted to be shifted lengthwise with respect thereto, connections between the shifting rod and headlights for turning the latter about their vertical axes by shifting movement of the rod, a segmental gear fixed to said rod, a rack meshing with the gear, guides fixed with respect to the rack and engaging opposite sides of the segmental gear, and control means for moving the rack and guides in different planes for shifting said rod lengthwise and oscillating the casing.

7. A headlight control comprising, in combination, a headlight adapted to be moved about a vertical and a horizontal axis, a locking plate mounted remote from the headlight support and having an arcuate guide slot, a control lever connected with the headlight and pivotally mounted on a center coincident with that of said guide slot, said lever having an end extending through said guide slot and equipped with a control handle, and locking devices operable between said handle and the plate including a pair of levers, one for locking the lever against movement for swinging the headlight about one axis and the other for locking the lever against swinging it about the other axis.

8. A headlight control comprising, in combination, a headlight mounted to move about a horizontal and a vertical axis, control means for the headlight including a control lever mounted to move in intersecting planes, in one plane for moving the headlight about its vertical axis and in the other for moving it about its horizontal axis, a locking plate having an arcuate guide slot, a control handle passing through said guide slot and connected with said lever, and locking devices operable between said handle and guide slot, one of which devices locks the lever against movement in one plane and the other device against movement in the other plane.

9. A headlight control comprising, in combination, a headlight mounted to turn about a horizontal and a vertical axis, a control lever mounted to move in intersecting planes and connected to the headlight for turning it about its vertical axis when moved in one plane and about its horizontal axis when moved in the other plane, and a control device connected to said control lever including a handle and locking devices adapted to be operated for locking the control lever against movement in either or both of its said planes.

10. A headlight control as set forth in claim 9, in which the control device comprises a locking plate having an arcuate slot one edge of which is serrated, the control handle having a part extending through said slot and equipped with a pair of locking levers, one of said locking levers being adapted to engage in any of the serrations for locking the device against movement lengthwise of the slot and the other lever being serrated longitudinally for engagement with the opposed edge of the slot for locking the device against movement in the other plane.

THOMAS J. MOAN.