Aug. 23, 1938. J. HILL 2,127,734

FOCUSING DEVICE FOR AUTOMOBILE HEADLIGHTS

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Fig. 2.

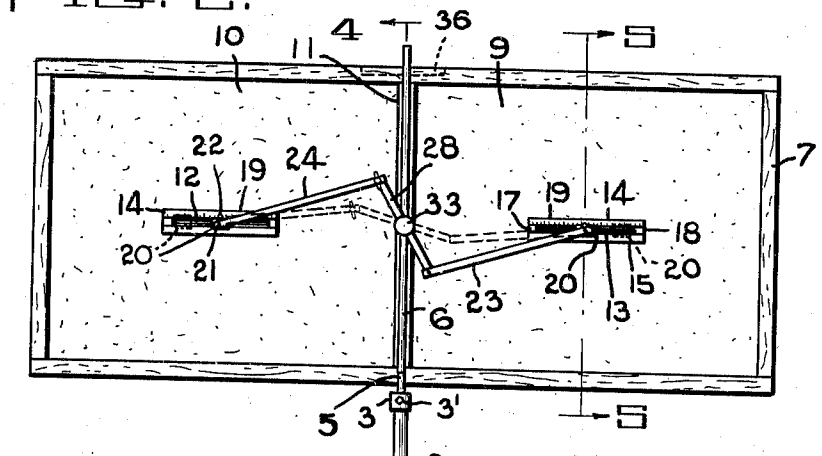


Fig. 1.

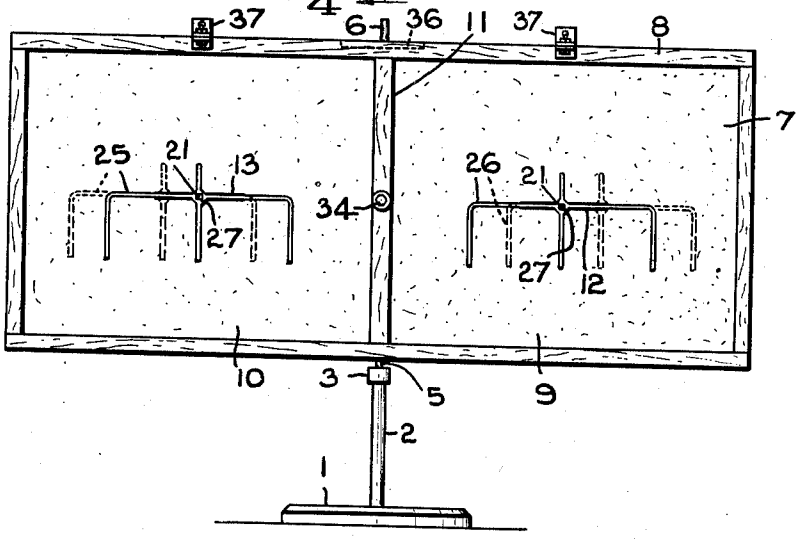
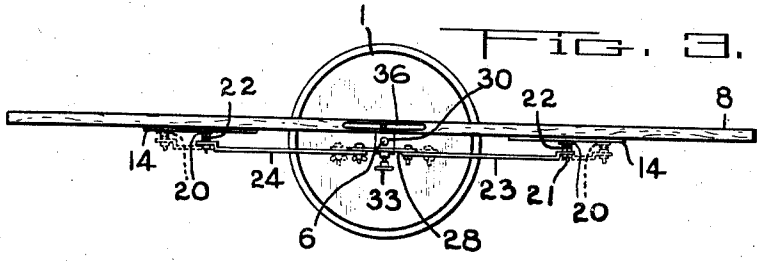


Fig. 3.



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Fig. 4.

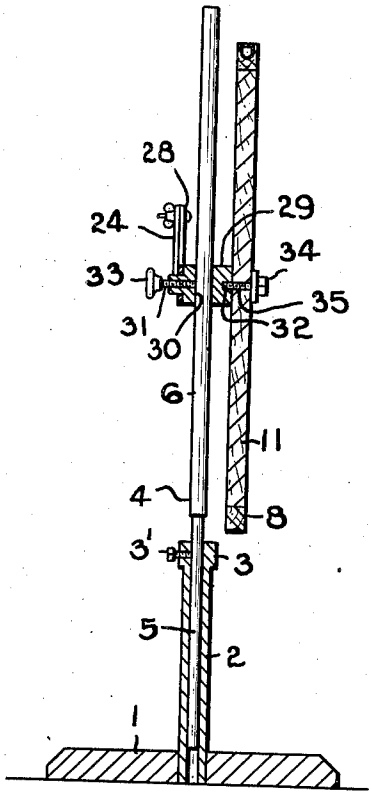


Fig. 5.

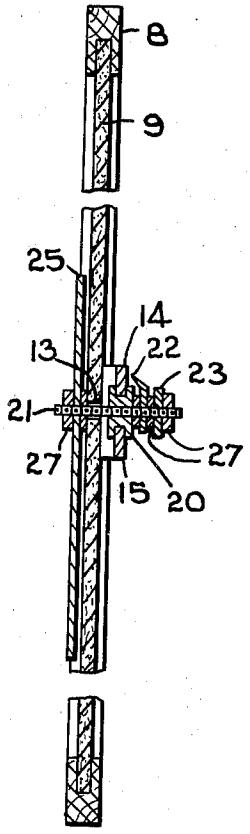
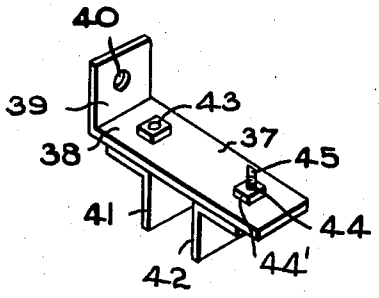


Fig. 6.



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UNITED STATES PATENT OFFICE

2,127,734

FOCUSING DEVICE FOR AUTOMOBILE HEADLIGHTS

James Hill, Mitchell, Ontario, Canada

Application August 13, 1936, Serial No. 95,943
In Canada August 14, 1935

1 Claim. (Cl. 33—180)

My invention relates to a device for enabling the correct focusing of automobile headlights, and the object of the invention is to provide a means whereby the angle of inclination of headlights may be checked and adjusted with absolute accuracy to any predetermined position in order to conform to the motor vehicle headlight regulations.

Heretofore, it has been the practice, when adjusting headlights, to run the vehicle to within a certain distance of a wall and after switching on the headlights so that they impinge on points on such wall to adjust them until they appear to be correct.

This method, however, is merely a matter of guesswork since it very often happens that the plane of the car body in relation to the wall is not level. If the car is tilted, however slightly, longitudinally or laterally it will be evident that the adjustment of its lights cannot possibly be true.

My device consists of a screen vertically movable upon a rod and provided with laterally movable focal points, the construction and arrangement of parts being as hereinafter more particularly explained.

Fig. 1 is a front view of my invention.

Fig. 2 is a rear view.

Fig. 3 is a plan view.

Fig. 4 is a sectional view taken on the line 4—4 Fig. 2.

Fig. 5 is an enlarged sectional view taken on the line 5—5 Fig. 2, and

Fig. 6 is a perspective view of a sighting device.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 is the base of my device, provided with a tubular rod 2 inserted therein and having at its upper end a collar 3 into which the screw 3' extends. 4 is a rod having a lower part 5 which extends into the rod 2, the upper part 6 being of just sufficient diameter to prevent its entering the tubular rod 2.

Upon the rod 4 I provide a vertically movable screen 7 consisting of a framework 8 and two panels 9 and 10, such panels being separated by a dividing bar 11.

Directly on the centre line of each panel I provide slots 12 and 13, each slot being provided with an assembly consisting of bars 14 and 15 and blocks 17, 18, the assemblies being securely fastened to the panels. The bar 14 of each assembly or if preferred, both bars 14 and 15 are provided with a scale 19.

20 are grooved blocks having a hole to receive bolts 21 and adapted to support indicating fingers 22, arms 23, 24, and focal devices 25, 26, such parts being held in place by means of nuts 27.

The arms 23, 24 are pivotally attached at their other ends to an arm 28 pivotally attached to a block 29 by set screws or other suitable means. The block 29 is adapted to slidably travel along the rod 6 which passes through a hole 30 in the block. The block 29 is further provided with threaded holes 31 and 32, 31 being for the reception of a bolt 33 (see Fig. 4) adapted to be tightened against the rod 6 and prevent any movement of the block upon the shaft. 34 is a cap screw adapted to extend through a hole 35 in the bar 11 and fasten the screen to the block 29 by screwing into the hole 32.

As a means of checking up my device and as one of its main features, I provide a level 36 set flush with the frame 8.

I also provide a sighting device 37 consisting of a bar 38 bent at right angles to form a flange 39 which is provided with a central hole 40. 41 and 42 are angle irons secured to the device by the bolt 43 and the bolt 44 projecting beyond the nut 44' to form a sight 45.

It has been determined by tests carried out that the best angle for the headlights is to have the top of the beam at the same height as the centre of the headlight at a 25 foot distance.

The screen is placed directly in front of the car at 25 feet from the headlights. In order to get an exactly central position of the screen it is necessary for someone to sit in the front seat of the car and sight directly along the ridge which runs along the top of the hood. When the rod upon which the screen is supported comes into line with the ridge, the screen will, of course, be in correct position.

The second step is the levelling of the car, the screen is brought into a level position by use of the level embedded in the frame and is then swung until the operator can sight along the frame at any one of the car fenders. In order to determine the amount the vehicle is out of level, one operator should hold a yard stick or other gauging means alternately at the base of each wheel. The person sighting the screen can from this tell the number of inches it is necessary to lift the car on any one corner or corners and may so cause the vehicle to be brought to a level plane. This method may also be used to determine the amount necessary to build up a garage floor to a level surface in order that this operation will not need repetition every time.

In order to focus the headlights properly upon

the screen, it will first be necessary to determine the distance between the centre lines of the headlights and the height of such headlights from the ground. The screen may then be adjusted upon the rod **6** which is marked in inches until its horizontal centre line is at the same height as that of the headlights. The graduated bar **14** is marked in half inches, each half inch being considered as an inch, the graduations beginning at the distance the bar is situated from the centre line of rod **6**, i. e. if the bar **14** is 10 inches away from the centre line the numbers will begin at 20. If the distance between two headlights happens to be 32 inches the pointer **22** on either scale is moved along to number 32. This will move the corresponding pointer on the other side to the same number and since 32 indicates only 32 half inches from the centre line of the screen, the distance between the pointers will total 32 inches. The moving of the sliding blocks **22** along the grooves **12** and **13** will, of course, move the focal indicators **25** and **26** into a corresponding position on the other side of the screen.

In order to check the headlights and see whether they are in line or not a sighting device of the type shown in Fig. 6 may be used. This is positioned upon the top of the screen directly above the pointer and by taking a sight through the hole **48** and across the sight **45** in the manner of a rifle, the operator can determine whether his screen is parallel to the headlights. It will be understood that the whole screen is dropped until the desired height is reached.

The headlights may be then turned upon the screen and adjusted until the beams are parallel and at a correct angle.

As an additional adjustment I provide the lower part **5** of rod **4** with graduations and if any difference exists between the heights of the car and screen base the rod **4** may be adjusted to take up such difference prior to its use.

From this description it will be seen that I have provided a device, which may be conveniently used in garages and wherever desired to accurately determine the positioning of the headlights.

It will, of course, be understood that the central rod on which the screen is moved vertically would have a scale marked thereon for accuracy of adjustment of the screen.

What I claim as my invention is:—

In a headlight beam regulating device, a base, a central rod secured to the base, a vertically movable screen consisting of a framework and two panels, a central dividing bar from which the panels extend laterally, a block secured to the back of the screen and through which the central rod extends, a bolt extending through the block on the central rod, a bolt extending through the dividing bar in front of the screen, a double arm swung on the latter bolt, slotted bars disposed at equal distances on the panel from the centre rod and provided with scales, bolts extending through the slotted bars to the back of the screen, arms connecting the bolts to the double arm and focal devices consisting of a bar secured centrally on the opposite ends of the bolts.

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