

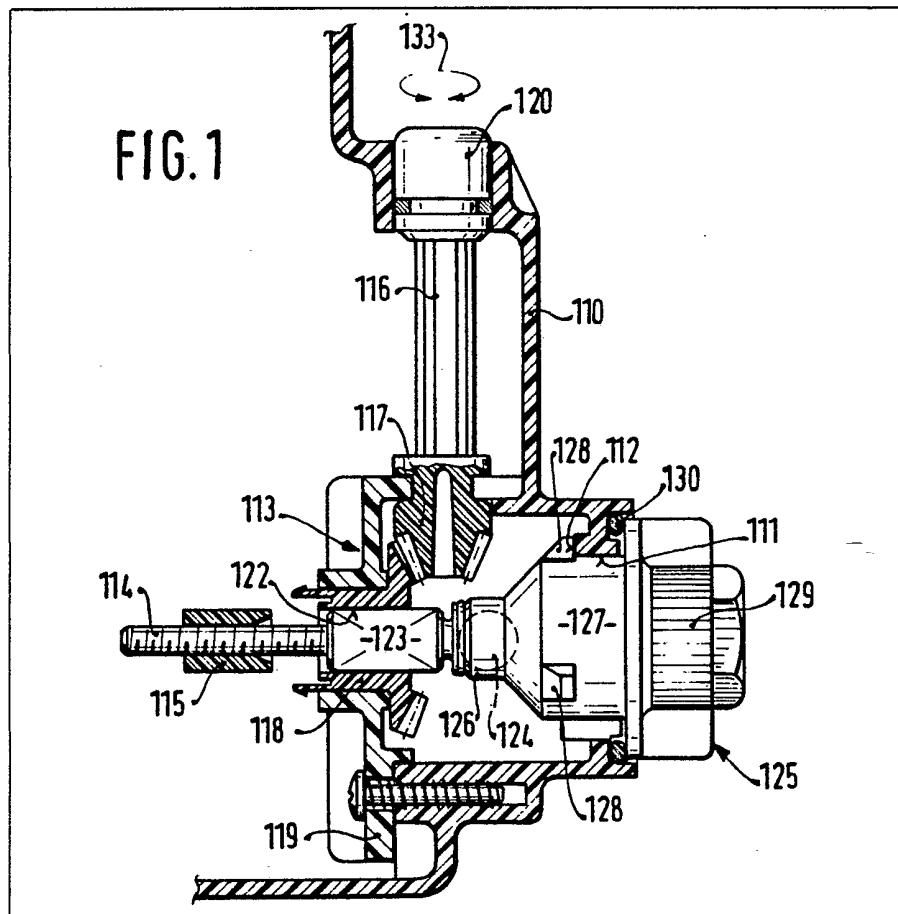
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(54) A headlamp for vehicles especially for motor vehicles

(57) So that, with few parts, a headlamp for a vehicle can be provided with a simple angle drive for positioning the reflector or additionally with the adjustment member of a lamp vertical aim system, the reflector is mounted in the headlamp housing (110) and is pivotable in a vertical and horizontal direction. A bearing bush (125) or an adjustment member of a lamp vertical aim adjustment system forms the vertical pivot bearing. A driver (123) is arranged in a driven wheel (118) of an angle drive (113) and is axially displaceable and secured against rotation and is hinged to the bearing bush (125) or to the push rod of the adjustment member by means of a snap connection. The bearing bush (125) or the ad-

justment member can be inserted from the outside into the housing (110) and can be fixed therein by means of a bayonet connection.



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FIG. 1

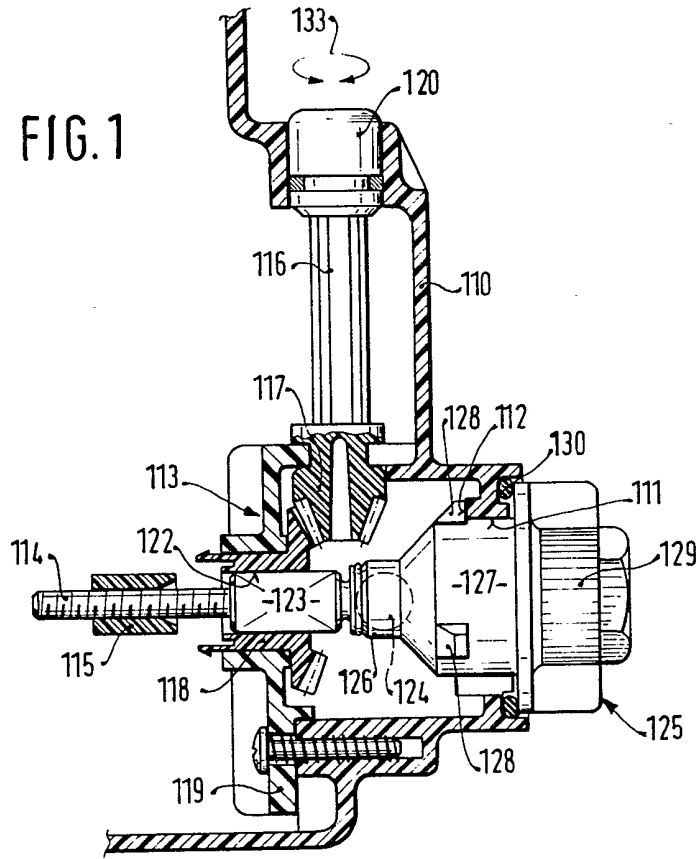
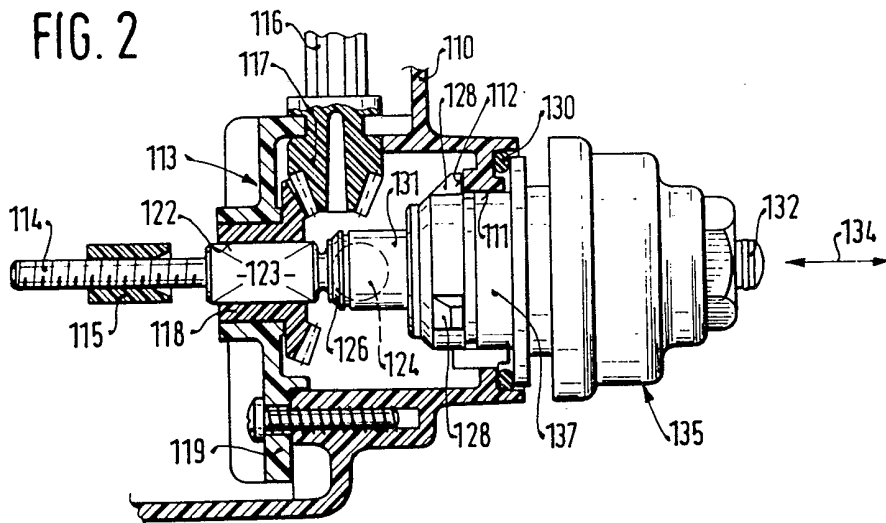


FIG. 2



## SPECIFICATION

**A headlamp for vehicles especially for motor vehicles**

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*State of the Art*

The invention originates from a headlamp for vehicles, especially for motor vehicles, according to the combination of features in claim 1 of the main application P 31 02 375.4. There is an increasing tendency for motor vehicles to be provided with equipment for controlling or regulating the headlamp.

15 *Advantages of the Invention*

The achievement with the headlamp for motor vehicles according to the invention with few parts and in a simple manner is that the headlamp can be provided either with only a simple angle drive or additionally with the adjustment member of a lamp vertical aim system.

Advantageous further developments of the invention are described in the sub claims.

25 With the form of the headlamp according to claim 3 and in particular according to claim 4, the drive may be securely and simply fixed in the bush or in the push rod of the adjustment member without auxiliary means. With claim 30 5, the drive can be mounted in a separate element and this can be fixed to the housing. The snap connection and the bayonet connection for the bush or the adjustment member securing the driver are particularly secure 35 against vibration when the headlamp is also provided with the feature of claim 6.

*Drawing*

Two embodiments of the invention are illustrated in the drawing and are explained in detail in the description of the figures. In partial section and in vertical section to normal scale; Fig. 1 shows the angle drive with a bush; and Fig. 2 shows the angle drive with an adjustment member of a lamp vertical aim 45 controlling system.

*Description of the Embodiments*

Of a headlamp for motor vehicles Fig. 1 shows its housing 110 of thermoplastics synthetic material provided with a round opening 111 and three end inner ramps 112 which are part of a bayonet connection. The housing 110 is fixed to the vehicle body and the reflector (likewise not shown) is mounted in it and is adjustable as regards its vertical position by an angle drive in the form of a bevel gear drive 113.

The angle drive 113 has a driving wheel 60 117 provided with a rod 116 arranged substantially vertically and an operating knob 120 mounted in the housing 110 and which can be actuated in one or another sense of rotation by a tool (not shown) applied substantially perpendicularly. A driven wheel 118 of

the bevel drive 113 meshes with the driving wheel 117, both are similarly produced from thermoplastics synthetic material and are rotatably mounted in a bearing plate 119 and 70 secured against axial movement. The driven wheel 118 has an opening 122 square in cross-section.

A driver 123 of thermoplastics synthetic material is square in cross-section and has a 75 bolt 114 projecting into the interior of the housing 110 and a ball journal 125 at the opposite end. A nut 115 of the reflector (not shown) co-operates with the bolt 114.

A bearing bush 125 of thermoplastics synthetic material has a ball cup 126, a member 80 127 provided with three radially projecting locking lugs 128 and a hand grip 129. The bearing bush 125 can be inserted from the outside of the housing 110 into the opening 85 111 and be fixed by means of a bayonet joint which comes into play through the co-operation of the locking lugs 128 with the inner ramps 112. An O ring 130 seals the bearing bush 125 with respect to the housing 110.

90 In the second embodiment in Fig. 2, parts already described are provided with the same reference numerals. An adjustment member 135, likewise in the form of a bayonet connection, can be fixed in a prescribed manner 95 in the housing 110 instead of the bearing bush 125 and a push rod 131 is displaceable in a cylinder 137 and is provided with the ball cup 126. A connecting pipe 132 issues into the operating chamber (not shown) of the cylinder 137. The ball journal 124 of the driver 123 is likewise fixed in the ball cup 126 by means of a snap connection.

The bevel drive 113 in Fig. 1 operates as follows: a rotation of the driving wheel 117 in 105 one of the two arrow directions 133 produces consequential rotation of the driver 123 through the driven wheel 118. Due to the secured axial position of the driver 123 in the bearing bush 125, the rotation of the bolt 114 produces an axial displacement of the nut 115 and consequently of the reflector (not shown).

The adjustment member 135 in Fig. 2 superimposes on the vertical basic adjustment 115 produced by the bevel drive 113 as follows: in accordance with the change in the load carried by the motor vehicle, the pressure in the cylinder 137 is so varied in value and direction that the push rod 131 performs a 120 stroke in accordance with the arrow 134 in one or the other direction. This stroke is transmitted to the reflector through the coupled driver 123, the bolt 114 and the nut 115.

## 125 CLAIMS

1. A headlamp for vehicles, especially for motor vehicles, comprising a housing which can be fixed to the vehicle body and comprising a reflector mounted in the housing and 130

adjustable from the rear and comprising a respective angle drive for the horizontal and vertical adjustment of the reflector, wherein each angle drive is arranged within the housing, characterised in that, a driving wheel (117) and a driven wheel (118) of the angle drive (113) are rotatably mounted and secured against axial movement in the housing (110), that a bearing bush (125) or an adjustment member (135) of an equipment for the lamp vertical aim regulation can be fixed selectively in the housing (110), that a driver (123) has a bolt (114) co-operating with a nut (115) of the reflector, that the driver (123) is secured against rotation in the driven wheel (118) and is axially displaceable and that the end section (124) of the driver (123) is arranged rotatable and axially secured in the bearing bush (125) or in a push rod (131) of the adjustment member (135).

2. A headlamp according to claim 1, characterised in that, the driving wheel (117) can be actuated from above in the installed condition of the headlamp on the vehicle body.

3. A headlamp according to claim 2, characterised in that, the rotatable and axially secured arrangement of the end section (124) of the driver (123) in the bearing bush (125) or in the push rod (131) of the adjustment member (135) takes place by means of a snap connection.

4. A headlamp according to claim 3, characterised in that, a ball journal (124) of the driver (123) and a ball cup (126) of the bearing bush (125) or of the push rod (131) of the adjustment member (135) receiving the ball journal (124) form the snap connection.

5. A headlamp according to one of claims 1 to 4, characterised in that, the bearing bush (125) or the adjustment member (135) can be inserted from the outside of the housing (110) in an opening (111) and be fixed therein and the fixing takes place by means of a bayonet connection.

6. A headlamp according to one of claims 1 to 5, characterised in that, a bearing plate (119) receives the driving wheel (117) and rotatably and axially non-displaceably receives the driven wheel (118) and that the bearing plate (119) can be fixed to the inside of the housing (110) preferably by screws.

7. A headlamp according to one of claims 1 to 6, characterised in that, the angle drive consisting essentially of the driving wheel (117) and the driven wheel (118) is a bevel gear drive (113).

8. A headlamp according to one of the preceding claims, characterised in that, the housing (110) of the headlamp, the bevel gear drive (113) and the bearing plate (119) consist of plastics material, particularly of thermoplastics synthetic material.

9. A headlamp for vehicles, substantially as herein described with reference to Fig. 1 or Fig. 2 of the accompanying drawings.