

Mount for an Optical Element

The invention relates to a mounting for an optical element for insertion in a housing.

Such a mounting is needed e.g. in the scanning device of a CD-player, a so-called optical pick-up. In the mounting a lens or an optical grating, for instance, can be arranged. The mounting with the lens or the optical grating is inserted in the housing of the optical scanning device.

From JP-A-61 001123 there is known an optical scanning head. A lens is arranged in a tube in the interior of the scanning head. On a first face of the lens there bears a helical spring, which is supported by one end of the tube, and which presses the other face of the lens against the other end of the tube. Since this scanning head is constructed of several components, its manufacture requires several difficult assembly steps.

The object of the invention to construct the mounting so that in a non-labour intensive manner it can be manufactured and inserted in the housing of the optical scanning device.

The invention solves this object in that the spring element is constructed as a ring which is bent and which is fixed by means of two web members on the other face.

There is shown in

Figure 1 a side view of an embodiment,

Figure 2 a sectional view through the embodiment,

Figure 3 the embodiment from above,

Figure 4 the embodiment from below,

Figure 5 how the embodiment is fitted in a housing.

With reference to the embodiment shown in the Figures, the invention will now be described and explained.

Figure 1 shows a cylindrical mounting, in one face S1 of which is fitted an optical element L, e.g. an optical grating or a lens. To the other face S2 two web members S are joined, which carry a ring-shaped spring element F, which is bent inwardly at the web members S. A hole B is provided at the side, the purpose of which is explained later.

In Figure 2 there is shown a sectional view through the mounting, which is rotated by 90° relative to the view of Figure 1. At the first face S1 there is provided a recess, in which the optical grating or the lens L is fitted. An

opening O for the light extends centrally, which can additionally serve as an aperture diaphragm.

In Figure 3 there is shown the first face S1 of the mounting with the optical element L. In Figure 4 the other face S2 of the mounting is shown with the ring-shaped spring element F.

In Figure 5 the mounting is fitted into the housing G. Because the ring-shaped spring element F presses the first face S1 of the mounting against a stop surface of the housing G, no additional clamping- or fixing-devices are needed. Because the ring-shaped spring element F is bent, the mounting with the optical grating can be rotated within the housing, so that the optical grating can be adjusted. The hole B is provided to allow adjustment of the optical grating L by means of an eccentric tool.

An essential advantage of the invention can be seen in that the mounting can be manufactured of plastics as an injection-moulding component. The manufacturing costs are therefore substantially lower than for a mounting which is assembled from several pieces.

The invention is suited for optical scanning devices, found for instance in CD-players, video record players, DRAW-disc-players or magneto-optical recording- and reproduction equipment.

CLAIMS

1. A mounting for an optical element (L) for insertion in a housing (G), in which at least one spring element (F) is provided on one face (S2), the element being arranged out of the beam path and, upon insertion of the mounting in the housing (G), tending to press the other face (S1) against a stop element, characterised in that the spring element (F) is constructed as a ring which is bent and which is fixed to the other face (S2) by means of two web members (S).

2. A mounting according to claim 1, characterised in that the web members (S) lie in mutually-opposed positions and that the ring-shaped spring element (F) is bent outwardly from the web members (S), so that the points of support lie on the circumference of a circle with the same diameter as the diameter of the ring-shaped spring element (F).

3. A mounting according to claim 1 or 2, characterised in that the mounting is constructed as an injection-moulded component of plastics material.

