

Jan. 26, 1943.

R. NOSKE
PRISMATIC SYSTEM
Filed Jan. 15, 1941

2,309,268

T2567

Fig. 2.

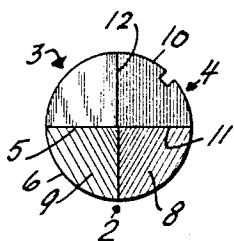


Fig. 1.

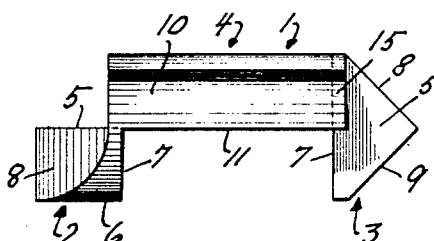


Fig. 3.

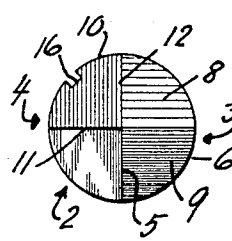


Fig. 4.

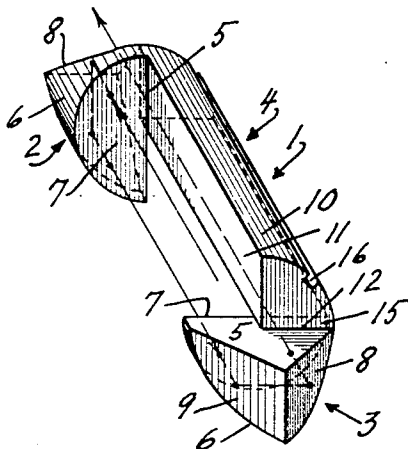
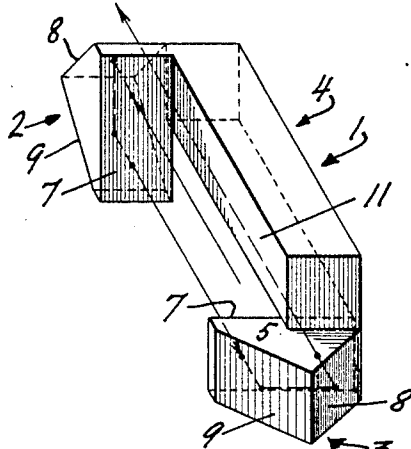


Fig. 5.



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Patented Jan. 26, 1943

2,309,268

UNITED STATES PATENT OFFICE

2,309,268

PRISMATIC SYSTEM

Rudolf Noske, San Carlos, Calif.

Application January 15, 1941, Serial No. 374,487

4 Claims. (Cl. 88—1)

The present invention relates to improvements in a prismatic system, and its principal object is to provide a system of the character described that is extremely simple in construction.

A further object of my invention is to provide a system of the character described in which a plurality of prismatic reflectors are interconnected and held in operative position with respect to one another by a connecting piece formed integral with the prismatic reflectors whereby the entire system is made as a one-piece, unitary structure, the connecting piece being preferably made of the same material as the reflectors.

A still further object of the invention is to join a plurality of prismatic reflectors by a single connecting piece which holds the reflectors in operative and spaced relation for reflecting light rays in a desired manner and which is off-set with respect to the reflectors so as to leave a clear path for the light rays.

It is further proposed to arrange the connecting piece and the reflectors in a single unit in complementary relation to form a simple geometrical body, such as a cylinder or a polygonal block adapted for endwise insertion into a similarly shaped chamber forming part of the instrument in connection with which the system is to be used, such as a telescope, a field glass, range-finder or other optical instrument.

And finally, it is proposed to provide a unitary prismatic system of the character described in which the outline of the device, if polygonal, may be used for properly positioning the system with respect to the chamber holding the same, or in which, where a cylindrical form is used, the connecting piece may be formed with proper guide grooves or ridges or other means for positioning the unit in its chamber.

Further objects and advantages of my invention will appear as the specification proceeds, and the novel features thereof will be fully set forth in the claims hereto attached.

The preferred forms of my invention are illustrated in the accompanying drawing, forming part of this application, in which:

Figure 1 is a side view of my prismatic unit;
Figure 2, an end view of the same;
Figure 3, an end view from the other end;
Figure 4, an isometric view of the same, and
Figure 5, an isometric view of a modified form of my unit.

While I have shown only the preferred forms of my invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto at-

tached, without departing from the spirit of the invention.

In its preferred form, my prismatic unit 1, as shown in Figures 1-4, inclusive, comprises two prismatic reflectors 2 and 3 and a connecting piece 4.

Each reflector may be described as being part of a semi-cylindrical block, having a flat diametrical face 5, a semi-cylindrical face 6 opposing the same, a flat base 7 and two angular reflecting faces 8 and 9 opposite the latter, the angular faces forming a right angle between the same.

When a ray of light enters perpendicularly through the base 7, it strikes one of the angular faces, say face 9, is deflected to strike the other face 8, and is again reflected to return through the base 7, in perpendicular direction and parallel to the incoming ray.

The connecting piece 4 is shown, in Figures 1-4, inclusive, as comprising a quarter-section of a cylinder, of the same diameter as the cylinder from which the reflectors are made, and having a quarter-round face 10 and two flat radial faces 11 and 12 forming a right angle between the same.

The two reflectors 2 and 3 are permanently and integrally secured to opposite ends of the connecting piece 4 so as to project laterally, one from one of the flat faces and the other from the second flat face, with their base faces 7 opposing one another in parallel and semi-overlapping relation, which brings two of the reflecting faces, indicated at 9, opposite one another while providing clear paths of entry and exit for the other two reflecting faces 8. The cylindrical faces of the reflectors and the connecting piece all lie in the same cylindrical plane.

Describing the arrangement in detail, the diametrical face 5 of the reflector 3 has that portion of it lying opposite the reflecting face 8 secured upon the flat face 12 of the connecting piece, the contacting faces overlapping just sufficiently for suitable anchoring, as at 15. This causes the connecting piece 4, in end view (see Figure 3), to occupy a quarter of the circle and the reflector to occupy that one-half of the circle adjacent the face 12 of the connecting piece.

The other reflector 2 is similarly secured, at the other end of the connecting piece 4, to the face 11 thereof, so as to occupy that one-half of the circle adjacent said face 11. This arrangement brings the two reflecting faces 9 opposite one another, while the two reflecting faces 8 are unopposed.

The connecting piece 4, occupying that quarter of the circle left unoccupied by the reflectors does not interfere with the travel of the light rays.

In operation, referring particularly to the isometric view of Figure 4, the path of a light ray is indicated by the broken line, the points of entry, reflection and exit being indicated by dots.

The light ray, paralleling the connecting piece, passes the reflector 3 through the quarter space left unoccupied by both the reflector and the connecting piece 4, enters the reflector 2 through the base 7, strikes the reflecting face 8, is diverted to the reflecting face 9, returns through the base 7, paralleling itself, enters the first reflector 3 through its base 7, is diverted by its reflecting face 9, strikes the reflecting face 8 and is turned back, again paralleling itself, to pass the second reflector through that quarter-circle left unoccupied by the reflector 2 and the connecting piece.

The outer face of the unit is cylindrical and will fit into any similar cylindrical chamber. It may be held against rotation by any suitable means, for instance, by the groove 16 in the connecting piece fitting over a suitable rib in the chamber.

The two reflectors and the connecting piece are preferably made of one piece of material, such as glass or other transparent plastic, and may be manufactured by any suitable method.

The form of my invention shown in Figure 5 is built on the same principle and operates in the same manner, the only difference being that the unit is made in the form of a rectangular block instead of a cylinder. In that case the groove 16 may be omitted, since the rectangular block will position itself automatically when introduced into a similarly shaped chamber.

I claim:

1. A unitary prism structure adapted for sliding insertion into a tube comprising a pair of prismatic reflectors, each having a base, a pair of reflecting faces and an end face, and a linear connecting member having its ends secured to the end faces of the prisms for supporting the latter in spaced and semi-overlapping relation with the bases facing one another, the outer faces of the prisms and of the connecting member being

shaped to lie within the surface of a rectilinear body having a sliding fit with the tube.

2. A unitary prism structure adapted for sliding insertion into a tube, comprising a rectilinear supporting member having two side faces arranged at a right angle to one another, a pair of prisms, each having a base, a pair of reflecting faces and an end face, means for securing the end face of one of the prisms to the end of one of the side faces along a narrow overlap and means for similarly securing the end of the other prism to the opposite end of the other side face, the outer faces of the prisms and the supporting member being shaped to lie within the surface of a rectilinear body having a sliding fit with the tube.

3. A unitary prism structure adapted to have a sliding fit in a cylindrical chamber, the said prism structure comprising a rectilinear holding piece occupying a one-quarter section of the chamber and having an outer face contacting a quarter of said chamber and two radial faces at right angles to one another, a prismatic reflector of semi-cylindrical contour secured to one of the faces at one end of the holding piece to occupy one half of the chamber outside the holding piece, and a second prismatic reflector secured to the other face at the other end of the holding piece to occupy one half of the chamber outside the holding piece, the two reflectors being arranged in semi-overlapping relation with respect to one another.

4. A unitary prism structure adapted to have a sliding fit in a rectilinear chamber of regular cross-section, the said prism structure comprising a rectilinear holding piece occupying a one quarter section of the chamber and having an outer face contacting a quarter of said chamber and two inner faces at right angles to one another, a prismatic reflector secured to one of the inner faces at one end of the holding piece to occupy one half of the chamber outside the holding piece, and a second prismatic reflector secured to the other inner face at the other end of the holding piece to occupy one half of the chamber outside the holding piece, the two reflectors being arranged in semi-overlapping relation with respect to one another.

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