

Device for sight illumination

This invention relates to a device for illuminating the reticule of a reflector sight to enhance the contrast between a target and the target marks of the sight.

Use of antitank and similar weapons at night and in poor visual conditions is possible only by using costly and complex night-vision sighting mechanisms. However, use of such mechanisms is only feasible for high-grade and long-range weapon systems. Therefore, efficient use of land weapons or small arms in the combat sector is not possible in poor visual conditions.

An object of the present invention is to provide an adjustable device which can be mounted and demounted rapidly and which will allow weapon use even in the case of unfavourable visual conditions and night-time use if the battlefield is illuminated.

According to the invention, there is provided a device for illuminating the reticule of a reflector sight operative to enhance the contrast between a target and target marking of the sight, comprising an assembly of adjacent generally cuboid glass bodies which are filled with gaseous tritium and mounted in a support, and the assembly of the glass bodies being coated on four sides with a reflecting or luminous paint or lacquer, leaving one free side of the assembly open to any ambient light and another free side of the assembly to illuminate said sight marking, and the support being connected to a slider which is adapted for ready affixing onto and removal from the sighting viewfinder and movable, when affixed, between operative and inoperative positions.

Specific implementation of the invention will be described further, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a partial perspective view of a small arms sighting viewfinder to which is affixed a preferred embodiment of a device for sight illumination in accordance with the invention;

Fig. 2a is a front view of the device shown in Fig. 1 when demounted from the viewfinder;

Fig 2b is a side view of the device shown in Fig. 2a;

Fig. 3a is an enlarged front view of the support part of the same devices as in Figs. 1 and 2, which part is provided with glass bodies filled with tritium;

Fig. 3b is a cross-section along the line A-B in Fig. 3a;

Fig. 3c is a cross-section along the line C-D in Fig. 3a;

Fig. 4a is a diagrammatic sketch of a glass body viewed from the front; and

Fig. 4b is a section along the line E - E in Fig. 4a.

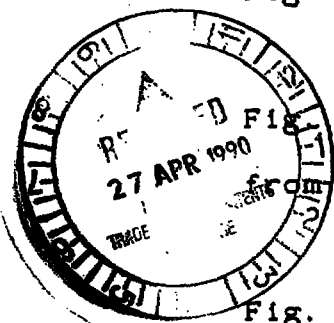


Fig. 1 illustrates a preferred practical embodiment of the device of the invention, consisting of a support 10 and a slider 13 mounted on a guide and stop pin 15 of a sighting viewfinder 12 in the so-called "carrying" or inoperative position 14a. In this position the reticule, which is not shown but is located within the view finder 12, below the level of the support 10 in Fig. 1, receives ambient light for its illumination. However, in twilight, in severely overcast (cloudy) conditions, and more especially at night, this is not sufficient to enable a target to be recognised. To enable target recognition and optimum sight adjustment in such conditions, the exemplified embodiment of the illumination device has two glass bodies 11, each filled with tritium gas 20, glued on to the support 10. Four surfaces of each of the glass bodies 11 are coated with reflecting or luminous paint or lacquer. These surfaces are four of the five surfaces which are enclosed by the support 10, as will be explained hereinafter.

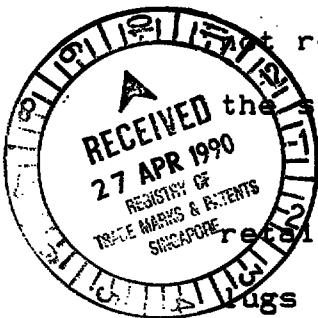
The support 10 consists of acrylic glass and encloses the glass bodies 11 in a frame-like manner, i.e. at all sides except the front. The glass bodies 11 are glued into the support 10 in such a way that little light is absorbed by the glue and no adhesive juts out beyond the support 10. The support 10 is, as illustrated by Figures 2a, 2b, arranged in a holding frame 13b which projects below the slider 13.

140

This slider 13 has, at its side edges, two guide rails 13a which fit around the sight housing and ensure exact vertical displacement of the device on the housing. Furthermore, the slider 13 is provided with a slotted hole 14 into which the guide and stop pin 15 of the sighting viewfinder 12 engages in such a manner as to allow a manual adjustment of the device between upper and lower positions. In this respect, the location of the pin 15 in the slot 14 in these respective positions is indicated in Fig. 2a at 14a and 14b. The upper part of the slider 13 has integral protrusions 17 at the ends of guide ledges 18 as well as a leaf spring 18b and a fastening rivet 18a thereof.

In the so-called daytime (inoperative) position 14a, which is illustrated in Fig. 1 and can be considered as the normal position of the slider 13, the slider 13 with its support 10 engages the antiglare device of the sighting view finder 12 by means of the integral protrusions. In this position the device does not serve for illumination of the reticule. When such illumination is required, in conditions of poor external visibility, the device is simply pushed down to position 14b. Obviously it can be lifted off if not required at all by virtue of the widened region of the slot 14.

Referring now to Figs 3 and 4, the support 10 is retained in the holding frame 13b of the slider 13, by lugs 10a (which are shown in Fig. 3a).



As has already been mentioned, the support 10 is made from acrylic glass and the glass bodies 11 are glued into the support 10. This is done with silicon adhesive. Since, in this exemplified embodiment, two glass bodies 11 are used together, these are likewise bonded at their abutting faces.

The luminous intensity of the two bodies 11 when mounted in the support 10 as just described amounts, as shown by the test results, to 431 mL.

The bodies 11 are preferably so-called "Beta Lights" (BETA LIGHT is a Registered Trade Mark) which consist of a glass tube welded by laser and filled with gaseous tritium 20. Such glass bodies 11 are also called "Micro Lights". One source of suitable glass bodies is the French company called Toilumin. Those surfaces of the glass bodies 11 which are provided with luminous paint or reflective lacquer as well as those surfaces which remain free thereof are shown in Fig. 4a and 4b. A suitable reflective lacquer has a white base. The tritium gas filling of each glass body 11 amounts to a maximum of 2.5 bar and has in the unlacquered state of the body a luminous intensity of 234 mL.

The glass tube used to form the bodies 11 is preferably pigmented with zinc sulphide powder or zinc silicate powder, in which respect the glass itself has a crystal granularity of 20mm and an inherent yellow colour.

16

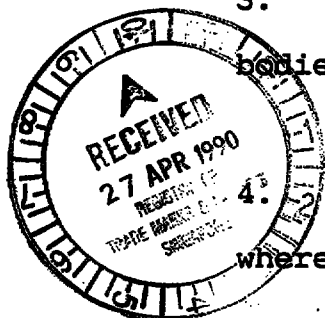
CLAIMS

1. A device for illuminating the reticule of a reflector sight operative to enhance the contrast between a target and target marking of the sight, comprising an assembly of adjacent generally cuboid glass bodies which are filled with gaseous tritium and mounted in a support, and the assembly of the glass bodies being coated on four sides with a reflecting or luminous paint or lacquer, leaving one free side of the assembly open to any ambient light and another free side of the assembly to illuminate said sight marking, and the support being connected to a slider which is adapted for ready affixing onto and removal from the sighting viewfinder and movable, when affixed, between operative and inoperative positions.

2. A device as claimed in claim 1 wherein the support consists of acrylic glass and surrounds the glass bodies in a frame-like manner, i.e. with the exception of one front side.

3. A device as claimed in claim 2 wherein the glass bodies are glued into the support.

4. A device as claimed in any preceding claim wherein the slider is provided with a slotted hole which



17
allows its displacement between two end positions on a guide and stop pin of the sighting viewfinder.

5. A device as claimed in any preceding claim, wherein, in daytime conditions with sufficient existing brightness, the slider, with its support, is capable of engaging by means of integral protrusions into an antiglare device of the sighting viewfinder.

6. A device as claimed in any preceding claim, wherein each glass body consists of a glass tube which is pigmented with zinc sulphide powder or zinc silicate powder.

7. A device as claimed in any preceding claim, wherein the assembly of glass bodies is coated on its four sides enclosed by the support to leave only its side facing the reticule of the sighting viewfinder and its lower side at right angles thereto free of coating.

8. A device for illuminating the reticule of a reflector sight substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

