Aug. 3, 1943. W. GARTENMEISTER 2,325,765

ROTATION-SYMMETRIC REFLECTOR

Filed Dec. 13, 1940

Fig. 2

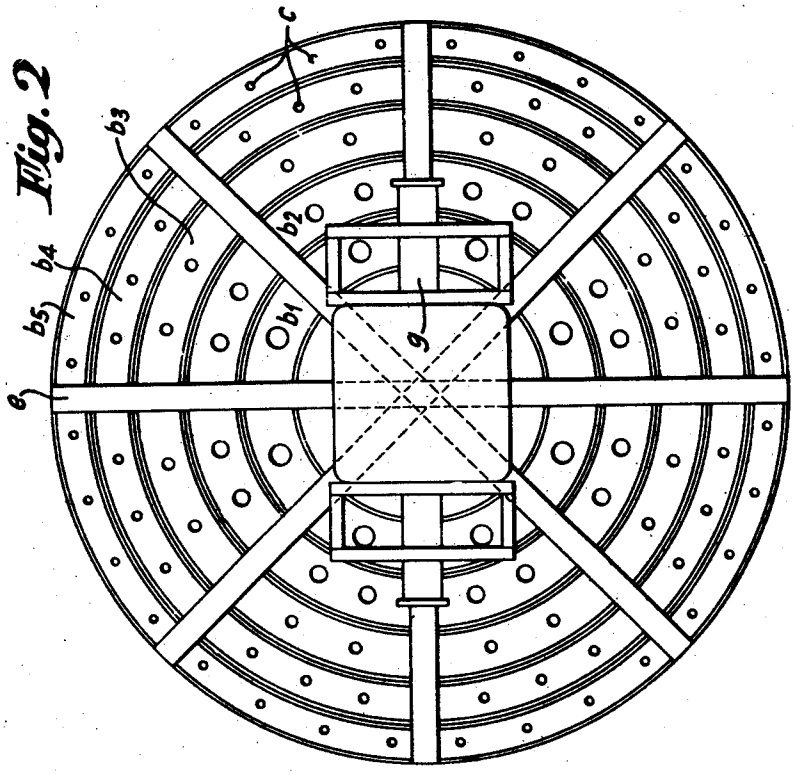
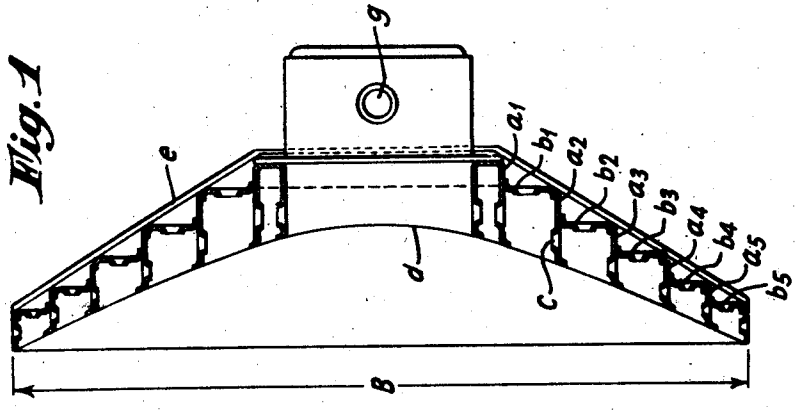


Fig. 1



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ROTATION-SYMMETRIC REFLECTOR

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6 Claims. (Cl. 250—11)

This invention relates to a novel and useful arrangement for a rotation symmetric reflector designed to be used for the transmission or the reception of electromagnetic oscillations of ultra-short wave-length. An object of this invention is to provide a parabola type of reflector in which the focus can be varied to give different reflecting surfaces. The aperture of the parabola must be chosen according to the sharpness or smallness of the beam, that is, the focus or concentration of the radiation sent out.

In the prior art supporting means customarily used for rotation symmetric reflectors it is necessary to replace the entire reflector whenever a different width of sector is desired. Therefore, a certain number of reflectors are needed each having a convenient apertural width or angle, this also involves varied types of construction and supporting means for the reflectors.

Now, this invention obviates the drawbacks inherent in the rotation symmetric reflectors heretofore used. The invention creates and discloses a uniform and standard form of construction for reflectors of this kind. This construction is independent of the aperture desired in any given case and also provides for reflectors of different dimensions.

A feature of rotation symmetric reflectors of this invention is that the supporting means of the reflector consist of a plurality of co-axial cylindrical rings of widening diameters and also a plurality of flat rings with increasing mean diameter which inter-connect the various cylindrical rings to provide a rigid mechanical union.

Another feature of the invention is to reduce the weight of the supporting means by having the various rings recessed or otherwise diminished in cross-sectional area. The edges of such recesses or cut-away portions could be crimped or flanged, in order to reinforce the construction.

Still another feature of the invention is to further stiffen the supporting structure for axial supporting or journaling of the rotary reflector by providing radial stays or struts whereby the various rings are inter-connected.

An exemplified embodiment of the basic idea of the invention, is illustrated in the drawing, in which Fig. 1 is a section and Fig. 2 an elevation of a rotation symmetric reflector. The reflecting surface is supported and adjusted by a plurality of coaxially arranged cylindrical rings *a1*, *a2*, *a3*, *a4*, *a5*, etc., and a plurality of flat rings *b1*, *b2*, *b3*, *b4*, *b5*, etc., which connect the cylindrical rings with one another by crimping the edges which have the inner edge extending upward and the outer edge extending downward. The crimped edges join the cylindrical rings by such methods as welding or riveting.

The active reflecting surface *d* may consist of a suitably shaped metallic sheet or of a wire grate or grid construction which is placed into the supporting means and may be secured thereto by any suitable means such as by small angle clips. The advantage of an arrangement of this invention is that the construction may be used independently of the apertural width or opening angle B of the reflector. All that is necessary is to insert the requisite number of cylinder rings *a* and of flat rings *b*.

The rings are supported in the rear by radial connecting struts or braces *e* and to support the axial bearing means *g*. Recesses *c* as crimped are indicated in the drawing to lighten and strengthen the rings.

Another advantage of the form of construction here disclosed is that by virtue of the mechanical strength thus secured the devices and apparatus required for the transmission or the reception of short waves may be directly fitted into the rear of the supporting structure of the reflector.

Another merit of the form of construction here disclosed is that any light weight metal may extensively be used.

While the basic idea of the invention has been described in its application to a reflector designed for the transmission or reception of electromagnetic oscillations of ultra-short length, it will be understood that the same idea may be used similarly in all similar reflector arrangements in which any kind of mechanical or electrical oscillations or vibrations, no matter of what wave-length have to be focused.

What is claimed:

1. A reflector for electro-magnetic oscillations comprising a plurality of cylindrical rings coaxially arranged with respect to one another, a plurality of flat rings each one of which is interposed between the adjacent cylindrical rings, a metallic curved reflecting surface located at the frontal portion of said rings, and arranged with said rings to change its curvature by changing the number of rings secured thereto.

2. A reflector for electro-magnetic oscillations comprising a central portion, a plurality of cylindrical rings surrounding said central portion and coaxially arranged with respect to one another, a plurality of flat rings each one of which is interposed between the adjacent cylindrical rings, a metallic curved reflecting surface located at the frontal portion of said rings, and arranged

with said rings to change its curvature by changing the number of rings secured thereto.

3. A reflector for electro-magnetic oscillations comprising a plurality of cylindrical rings coaxially arranged with respect to one another, a plurality of flat rings having extruded ends, each one of which is interposed between the adjacent cylindrical rings, a metallic wire grate curved reflecting surface located at the frontal portion of said rings, and arranged with said rings to change its curvature by changing the number of rings secured thereto.

4. A short wave electro-magnetic rotation symmetric reflector comprising a plurality of cylindrical rings of increasing diameter coaxially arranged with respect to one another, a plurality of flat rings of increasing diameter each one of which is interposed between the adjacent cylindrical rings, a metallic curved reflecting surface located at the frontal portion of said rings, and arranged with said rings to change its curvature by changing the number of rings secured thereto.

5. A reflector for electro-magnetic oscillations comprising a central portion, a support for said reflector secured to said central portion, a plurality of cylindrical rings coaxially arranged with respect to one another, a plurality of flat rings each one of which is interposed between the adjacent cylindrical rings, a curved reflecting surface located at the frontal portion of said rings, and arranged with said rings to change its curvature by changing the number of rings secured thereto.

6. A short wave electro-magnetic rotation symmetric reflector comprising a plurality of cylindrical rings of increasing diameter coaxially arranged with respect to one another, a plurality of flat rings of increasing diameter each one of which is interposed between the adjacent cylindrical rings, a curved metallic reflecting surface located at the frontal portion of said rings and arranged with said rings to change its curvature by changing the number of rings secured thereto and a plurality of braces radially mounted at the rear of said rings.

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