Nov. 28, 1939. E. GERHARD 2,181,181

SHORT WAVE REFLECTOR

Filed Feb. 25, 1936

Fig. 1

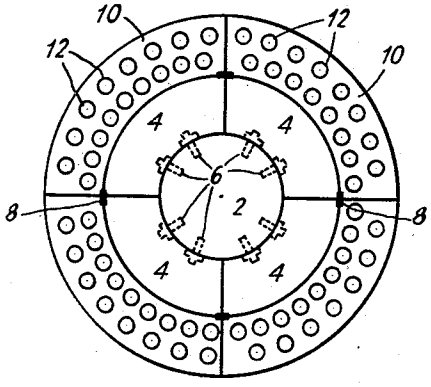


Fig. 2

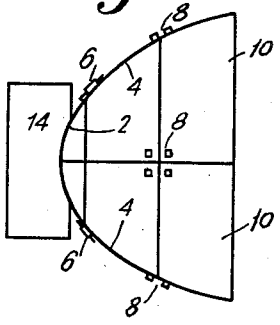


Fig. 4.

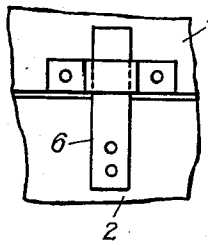


Fig. 5.

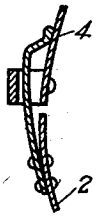


Fig. 3.

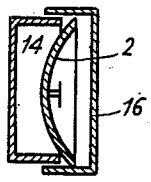


Fig. 6.

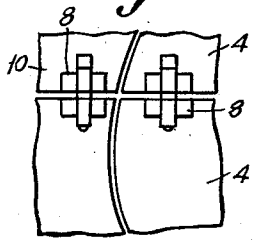
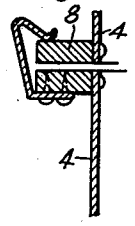


Fig. 7.



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2,181,181

SHORT WAVE REFLECTOR

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Application February 25, 1936, Serial No. 65,614
In Germany March 5, 1935

5 Claims. (Cl. 250—11)

This invention relates to a new and novel reflector for short wave work, especially of cowl or hemispherical shape.

The present invention is concerned with planer or more particularly curved reflectors for ultra-short waves. Untuned reflectors arranged in the form of a sheet or surface, say, in the shape of parabolic cylinders, paraboloids of revolution, or of hemispherical form are extensively employed in short wave work.

With a view to insuring proper concentration or focusing of the beam energy, the dimensions of the reflectors bear a definite relationship to the working wave length. For the wave lengths that come into consideration in practice, the relation between reflector dimensions and wave length is no longer negligibly small, and as a result the still useful reflector dimensions become relatively great. Reflectors of such large size become cumbersome and are attended with difficulties whenever short waves are to be used with portable equipment.

The reflector of this invention for ultra-short waves has this outstanding characteristic that the same consists of component parts, and that means are provided so that the constituent parts may be laid or assembled together in a simple and expeditious manner.

Reflectors as here disclosed offer the merit that they are manageable and transportable far more readily inasmuch as the constituent parts may be accomodated in boxes or other carrier means which can be easily handled and transported by one person, or can be shipped on small cars or vehicles without occupying much space.

A number of exemplified embodiments of the invention shall be described in more detail in what follows by reference to the accompanying drawing, in which:

Fig. 1 is a front elevation of a reflector;

Fig. 2 is a side elevation of Fig. 1;

Fig. 3 is a diagram showing a reflector of Figs. 1 and 2 located within an equipment box;

Fig. 4 is a detailed elevation of the spring clips for retaining two portions of the reflector together;

Fig. 5 is a section of Fig. 4;

Fig. 6 is an elevation showing detachable junction lugs; and

Fig. 7 is a section of Fig. 6.

Figure 1 illustrates a revolution symmetric reflector having cap or hemi-spheric form. Around a center piece of planar form 2 are fitted, as shown by Fig. 4 and 5, by the aid of suitable twin clip-like spring members 6, four lateral or quadrantal planar pieces 4 one portion of the spring clip members being fastened to the center piece 2, the other portion of said spring-like clip being fastened to members 4. The outer rim of the reflector is held together with readily detachable junction lugs 8, as shown by Fig 6 and 7. Whenever necessary, the dimensions of the reflector may be enlarged by further marginal pieces 10. In this connection it will often be found necessary to make the peripheral pieces so as to diminish the air resistance, and also to make all parts of the reflector with a view to minimizing weight, from apertured pieces of sheet or grate-like metallized fabrics (materials), the metallization being produced, for instance, by spraying. The holes indicated at 12 are intended to show in what way apertures may be formed of any suitable shape and arranged in the marginal pieces 10, say, by punching.

Figure 2 shows the same reflector in side elevation. The center piece 2 of the reflector is fixedly united with the outfit box or the case of the apparatus.

Figure 3 shows the equipment box 14 with the center piece 2. In order that the reflector and the antenna may be safeguarded from the chances of being damaged, a lid 16 is fitted over the open ends of the reflector.

The basic idea of this invention is useful not only in connection with the exemplified embodiments here shown and described. For instance, the constituent parts could be made foldable by means of hinges or the like.

In cases occurring in practice where the reflectors are subject to severe shocks and percussions, for instance, caused by engines, etc., it will be recommendable to insulate adjacent reflector parts at their joints inasmuch as, if the contact between the component parts were imperfect or changing, the energy transmitted or picked up is likely to be subject to amplitude effects or changes, and this would result in disagreeable scratching noises in the telephone receivers.

I claim:

1. A hemispherical shaped reflector for ultra short waves comprising a central portion, a plurality of separate detachable parts surrounding the outside periphery of said central portion, a plurality of spring members for securing said separate detachable parts to said central portion, and a plurality of junction lugs securing the outside rim of said detachable parts together.

2. A hemispherical shaped reflector for ultra short waves comprising a central portion, four

separate detachable parts surrounding the outside periphery of said central portion, two spring members secured to each detachable part for securing said separate detachable parts to said central portion, and a plurality of junction lugs securing the outside rim of said detachable parts together.

3. A hemispherical shaped reflector for ultra short waves comprising a central portion, a plurality of separate detachable parts which are insulated from each other surrounding the outside periphery of said central portion, a plurality of spring members for securing said separate detachable parts to said central portion, and a plurality of junction lugs securing the outside rim of said detachable parts together.

4. A hemispherical shaped reflector for ultra short waves comprising a central portion, four separate detachable parts surrounding the outside periphery of said central portion, two spring members secured to each detachable part for securing said separate detachable parts to said central portion, a plurality of junction lugs securing the outside rim of said detachable parts together, and at least two other separate detachable parts surrounding said first mentioned detachable parts.

5. A hemispherical shaped reflector for ultra short waves comprising a central portion, four separate detachable parts surrounding the outside periphery of said central portion, two spring members secured to each detachable part for securing said separate detachable parts to said central portion, a plurality of junction lugs securing the outside rim of said detachable parts together, and at least two other separate detachable parts of metallized fabric surrounding said first mentioned detachable parts.

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