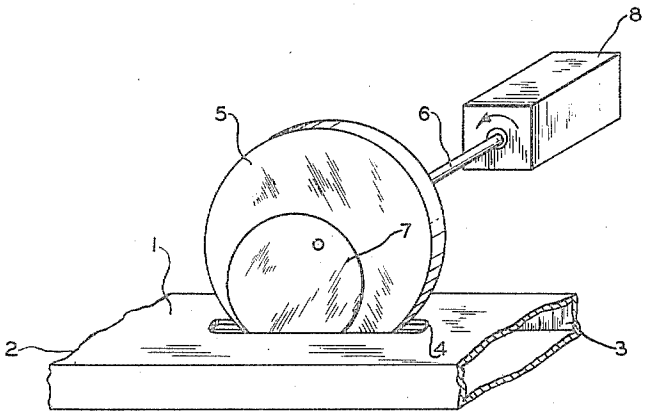
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WAVEGUIDE ATTENUATOR FOR AMPLITUDE MODULATION OF RADIO WAVES

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WAVE GUIDE ATTENUATOR FOR AMPLITUDE MODULATION OF RADIO WAVES

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3 Claims. (Cl. 178—44)

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This invention relates to wave guides, and more particularly to means for attenuating the flow of electromagnetic energy in wave guides.

It is known that a strip of resistive substance inserted in a wave guide, if properly disposed therein, will serve to attenuate wave energy conducted therethrough. Accordingly it is an object of my invention to provide means entailing the use of resistive material within a wave guide for modulating the energy conducted therethrough.

It is a further object of the invention to provide means of the above type whereby a coded modulation may be imparted to energy conducted through a wave guide.

Yet another object of the invention is to provide means of the above type which shall be of simple mechanical construction.

For a better understanding of the invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawing. The scope of the invention will be pointed out in the accompanying claims.

Referring now to the drawing, a wave guide 1 is provided having an input aperture 2, an output aperture 3, and a longitudinal slot 4 interposed between said input and output apertures. Also provided is a dielectric disc 5 mounted at its center to the end of a shaft 6 rotated by means of a motor 8. The disc is inserted in the slot 4 to an extent whereby its periphery barely touches the floor of the wave guide 1. A portion 7 of the disc 5 is coated with aquadag or a substance having similar resistive properties. It will be seen that when disc 5 is rotated, the periods when the resistive substance lies within the guide 1 will alternate with periods when the uncoated part of the disc is within the guide.

In a wave guide not having the disc provided for in this invention, radio frequency energy introduced at point 2 would leave the wave guide unattenuated at point 3. In the present invention, when the uncoated part of disc 5 projects into the wave guide, the wave is similarly unattenuated. However, when the disc is rotated so that the resistive coating projects into the wave guide, the radio frequency wave will be attenuated.

It will be apparent that resistive coating 7 may occupy various areas on the surface of disc 5, in accordance with a predetermined plan or code.

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Thus the radio frequency output at point 3 will be a modulated wave, the shape thereof depending upon the characteristics of the coated areas.

While there has been described what is at present considered preferred embodiments of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is therefore, aimed in the appended claims, to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I claim:

1. A combination in a wave guide assembly comprising a wave guide having an input aperture, an output aperture and a longitudinal slot interposed between said input and said output apertures, a disc comprising areas of resistive and dielectric material, said disc being partially inserted into said slot, and means for rotating said disc whereby radio frequency energy in said wave guide is attenuated when a resistive area of said disc lies within the guide.

2. A combination in a wave guide assembly comprising a wave guide having an input aperture, an output aperture and a longitudinal slot interposed between said input and said output apertures, a disc projecting partially into said slot and having areas of resistive and dielectric material formed in accordance with a predetermined code, and means for rotating said disc whereby radio frequency energy in said wave guide is modulated in accordance with said code.

3. A system including a hollow wave guide, a disc arranged to extend into said wave guide and including areas of varying resistivity arranged circumferentially thereabout, and means for rotating said disc to introduce and withdraw each of said areas into and from said wave guide successively.

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