

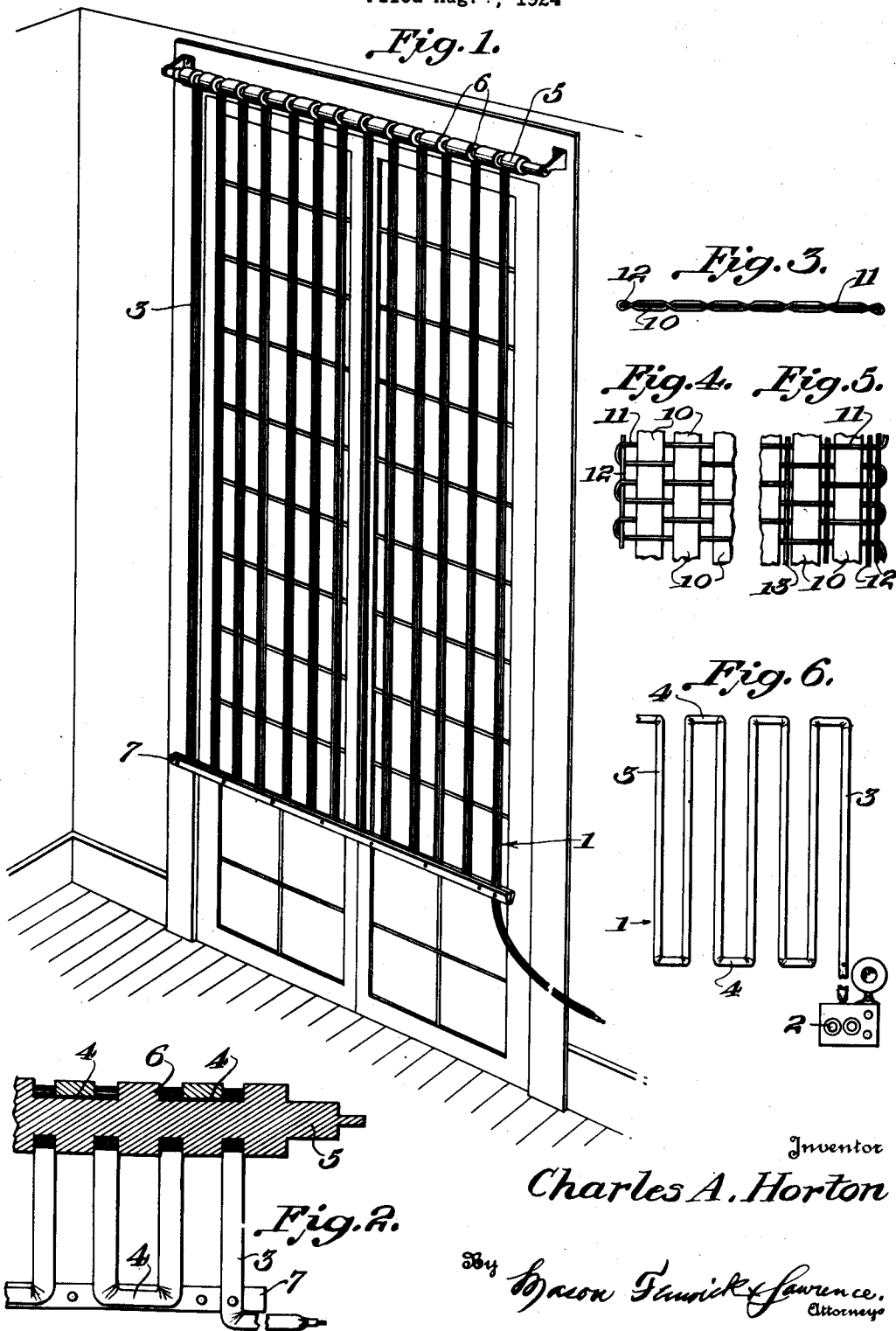
Dec. 25, 1928.

1,696,402

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RADIO ANTENNA

Filed Aug. 7, 1924



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UNITED STATES PATENT OFFICE.

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RADIOANTENNA.

Application filed August 7, 1924. Serial No. 730,651.

This invention has for its objects the construction of a radio antenna which may be readily varied as to length of conductor exposed to the radio waves and wherein the conductor itself shall consist of a ribbon of metallic strands, the ribbon being arranged in a manner hereinafter more fully specified. It may be further stated that the antenna is primarily designed for indoor use.

In order to more fully appreciate the nature of the invention, it may be stated that with the radio instruments set in a given manner with a given length of antenna, the quality and volume of the received signals or sounds can be very materially improved by adjusting the length of the antenna within certain limits readily determined by the operator from the sounds given forth by the receiving instrument. That is to say, after the radio receiving instrument has been set at its best receiving condition, the quality of sounds given forth by the said instrument can be improved by varying the length of the antenna, the best length being determined by trial.

My improved antenna is so constructed as to be capable of ready adjustment as to length and preferably takes the form of a continuous ribbon mounted on a spring roller in such manner that a plurality of bands depend from the roller, the bands being maintained in parallel relation thereon and being parts of a continuous ribbon. The appearance of the improved antenna is such that it can be supported in front of a window without detracting from the appearance of a nicely furnished room. In fact, the antenna by reason of being made from vertically disposed bands tends to add to the appearance of the room, inasmuch as the antenna when drawn out resembles an ornamental screen.

For a fuller explanation of the invention reference is made to the accompanying drawing forming part of this specification.

In the drawing, Fig. 1 is a perspective of a portion of a room showing my improved antenna hung in front of a French window;

Fig. 2 shows the manner of mounting the conductor ribbon on the roller and hand bar of the same;

Fig. 3 is a cross-section on an enlarged scale through the improved ribbon or tape

constituting the conducting member of the antenna;

Fig. 4 is a fragmentary plan view of the ribbon shown in Fig. 3;

Fig. 5 is a fragmentary plan view of a modified form of ribbon; and

Fig. 6 is a diagrammatic view illustrating how the ribbon is disposed between the roller and hand bar.

Reference numeral 1 indicates generally the metallic ribbon constituting the conducting member of the antenna. As indicated in Fig. 6, the ribbon or tape is a continuous member reversely arranged in a series of parallel bands, one end of the ribbon adapted for connection with a radio receiving instrument 2.

For convenience of description the bands are indicated by numeral 3 and the connecting portions at the alternate ends by 4, which connecting portions may or may not be an integral continuation of the ribbon.

A spring roller 5 of conventional type is provided with a plurality of spaced annular grooves 6, one groove for each band 3, the upper ends of the bands and connecting portions 4 therebetween being secured to the roller in such manner that the bands will roll up in the grooves. The lower ends of the bands 3 may be affixed between a pair of slats 7 in any suitable manner, said slats constituting a hand bar for raising and lowering the curtain-like antenna, as will be readily understood.

In Fig. 1, the antenna is shown as supported by its roller in front of a French window, and as far as appearances are concerned might well be taken for an ornamental screen. It will be noted that the bands are spaced some little distance apart, thus enhancing the pleasing appearance of the antenna and disguising its real purpose.

The length of the continuous ribbon constituting the antenna will be such as is found most desirable in practice, say, two hundred feet. It will be apparent that when the antenna is drawn out only partially, the wave receiving length of the same will be less than if it were drawn out its full length—this for the reason that when the antenna is partially rolled up the radio waves will pass from the depending bands through the coil of ribbon rolled upon the

roller, or, in other words, on the radii of the coils and thence through the connecting conductors 4 and to the radio receiving instrument.

5 As illustrated in Figs. 3 to 5 the conducting ribbon preferably consists of metallic strands 10 of flat thin metal, the weft threads being indicated by numeral 11 and being of fibre. In order to reinforce the edges of the tape there may be provided one or more fibre warp ends 12, one such warp end being shown at the edge of the form illustrated in Figs. 3 and 4, and two such ends being shown in the form illustrated in Fig. 5. It is also within the scope of the invention to provide the conductor with one or more warp ends between the metal strands as indicated by numeral 13 in Fig. 5 to separate the respective metal strands one from the other, thus giving a plurality of independent conductors in the same ribbon.

As already indicated the conductor is woven. It can, therefore, readily be made in any desired width; the strands are uniformly spaced apart; different color combinations of threads and metallic strands can be readily obtained; a multiplicity of individually weak metal strands are combined to make a collectively strong article; a maximum amount of flat metal surface is obtained from a given amount of metal; and breakage of a strand does not materially interfere with the radio conductivity of the ribbon because so long as the broken strands are not pulled apart the protective features of the woven article are such that close contact of the broken ends will serve to maintain the ribbon's efficiency as an aerial. Furthermore, it will be readily apparent that the woven metallic ribbon will be very convenient to handle, it being wound in rolls like conventional ribbon as it comes from the looms. By reason of the conductor being flat and flexible it lends itself admirably to convenience in experimentation, to placing on picture molding in a room, and so forth. Other advantages and uses of the flat woven metallic conductor will

readily suggest themselves to those skilled in the art.

What I claim is:

1. In combination with a roller support an antenna comprising a plurality of continuous non-insulated, uncovered conductor bands suspended from and spaced apart axially along said roller, each intermediate band having its opposite ends electrically connected alternately to the adjacent ends of the bands at opposite sides thereof, the rotation of the roller winding each band upon itself to shorten the effective length of the antenna as a whole.

2. In combination with a rotatable support, an antenna comprising an insulated uncovered flexible conducting ribbon looped as a grid over said support and secured to said support at its points of contact therewith, the rotation of said support winding each leg of said loops upon itself to change the effective length of said ribbon as a whole.

3. A radio antenna woven as an uncovered ribbon comprising warp and weft threads of insulating material having continuous electrical conducting ribbons interlaced with the weft threads and separated from each other by the insulating warp threads.

4. An antenna conductor woven as an uncovered ribbon having weft and selvage threads of insulating material and having intermediate warp threads thereof formed of continuous ribbons of conducting material and spaced apart and insulated from each other along said weft threads.

5. In combination with a rotatable support, an antenna comprising an uncovered continuous conducting ribbon looped as a grid over said support and secured to said support at its points of contact therewith, a rod of insulating material fixed to the free end of said grid to hold the loops in spaced relation to each other, the rotation of said support winding each leg of the grid upon itself to change the effective electrical length of the antenna as a whole.

In testimony whereof I affix my signature.

CHARLES A. HORTON.