

Jan. 28, 1958

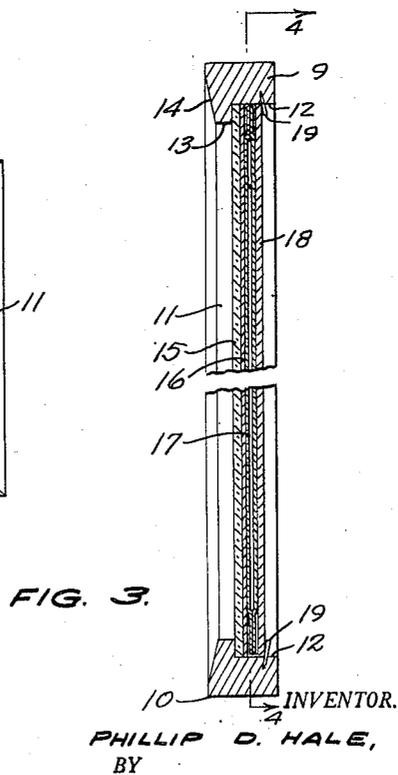
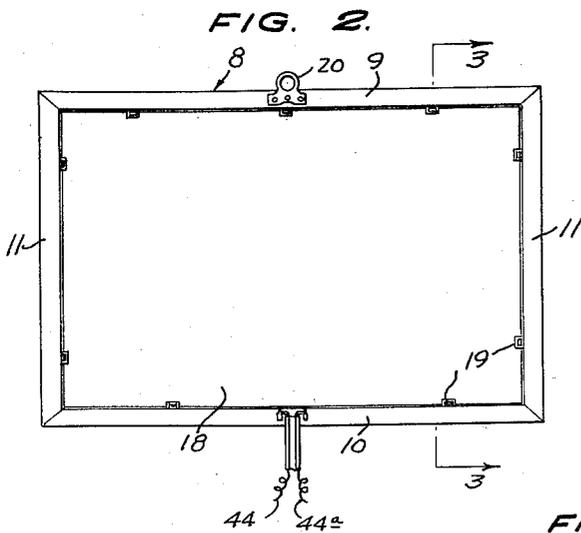
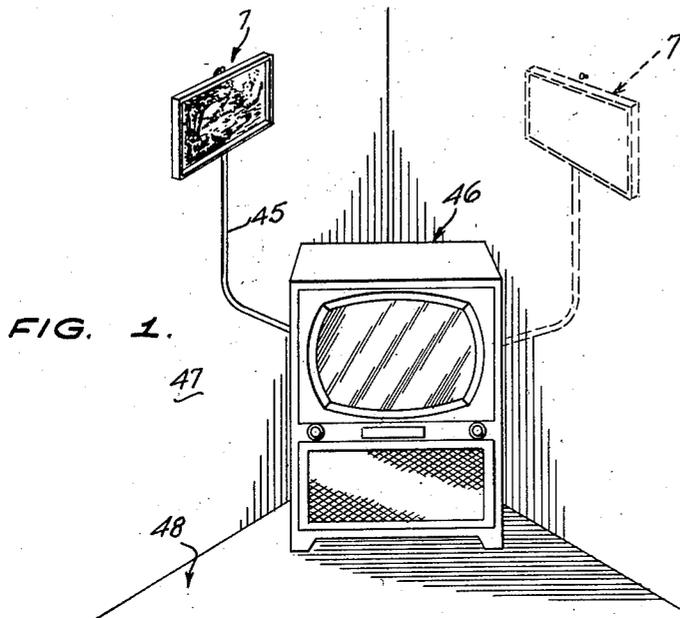
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2,821,710

TELEVISION ANTENNA

Filed Aug. 6, 1954

2 Sheets-Sheet 1



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FIG. 2.

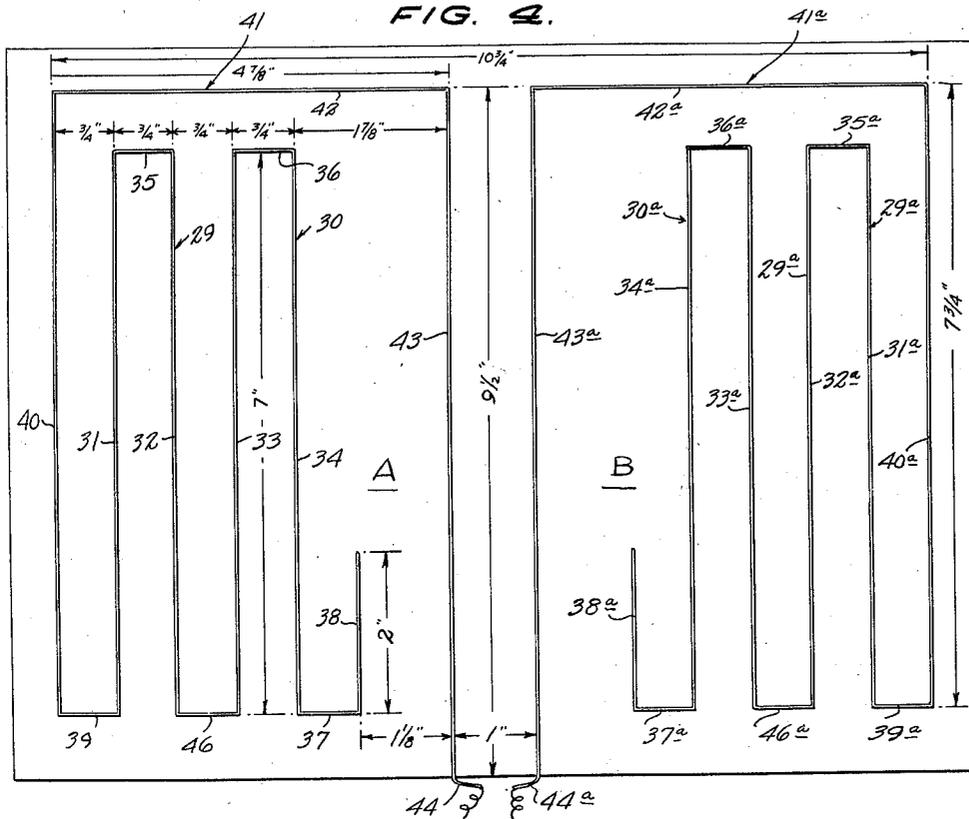


FIG. 5.

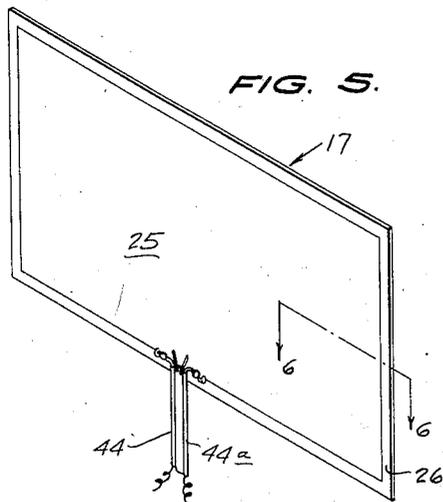
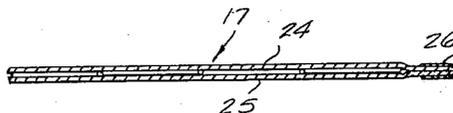


FIG. 6.



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TELEVISION ANTENNA

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4 Claims. (Cl. 343—806)

This invention relates to improvements in television receiving antennae, and the primary object of the invention is to provide an improved antenna attachment for television receiving sets to supplement or replace existing built-in antennae, for improved local and fringe reception of V. H. F., U. H. F., and color picture signals.

Another important object of the invention is the provision of an antenna of the character indicated above which comprises two novel matched dipoles which are unconnected to each other except at the lead-in wire to the associated television set, the antenna being non-directional for local reception.

A further important object of the invention is to provide an antenna of the character indicated above which is in the form of a decorative framed picture adapted to be hung on the wall of a room near the associated television set.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific embodiment of the invention is set forth in detail.

In the drawings:

Figure 1 is a general perspective view showing an antenna in accordance with the present invention mounted on a wall of a room near a television set, and showing in phantom lines an alternative mounting of the antenna;

Figure 2 is a rear elevation of said antenna;

Figure 3 is an enlarged, contracted transverse vertical section taken on the line 3—3 of Figure 2;

Figure 4 is an enlarged plan view of the two dipoles mounted on a sheet or plate;

Figure 5 is a perspective view on a reduced scale of the antenna component; and

Fig. 6 is a fragmentary horizontal section taken on the line 6—6 of Figure 5.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated antenna, generally designated at 7, comprises a picture frame 8, preferably of rectangular shape and having upper and lower longitudinal members 9 and 10, respectively, and vertical end members 11, 11. The said frame members have communicating grooves 12 in their rear, laterally inward corners, which define a stop flange 13 extending around the front side 14 of the frame 8.

A glass 15 fits in the groove 12 and engages the back of the flange 13 and a decorative picture plate or sheet 16 fits in the groove 12 and engages the back of the glass 15.

Also fitting in the groove 12 and engaging the back of the picture plate 16 is a rectangular antenna component 17 which is held against the back of the picture plate 16 by a backing plate 18 which is secured in place by any suitable means, such as staples 19, driven into a surface of the groove 12. A hanger loop 20 can be provided on the back of the upper longitudinal member 9 of the frame 8 for mounting or suspending the antenna 7 upon a room wall 21 near a television set 22 in a room 23.

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The antenna component 17 comprises a front rectangular dielectric plate or sheet 24, a similar back rectangular dielectric plate or sheet 25, and an edging 26 extending around and secured to the peripheral edges of the plates 24 and 25 so as to secure the same together in registry with each other. The plates 24 and 25 may be of cardboard.

Secured by any suitable means, such as cement, to the inward side of either or both of the dielectric plates, such as the plate 24, as illustrated in Figure 4, are two similar dipoles A and B, which are reversed with respect to each other.

Each dipole is formed of a single continuous, preferably steel wire, of a length of fifty-three inches and of a diameter of .0145 inch.

The dipole A comprises two similar vertical narrow loops 29 and 30, whose parallel sides 31, 32 and 33, 34, respectively, are seven inches long, the sides being connected at their upper ends only by $\frac{3}{4}$ inch connections 35 and 36, respectively.

The lower end of the side 34 of the loop 30 terminates in a lateral connection 37 which is $\frac{3}{4}$ of an inch long, and which is connected to the lower end of a two inch high wire portion 38 which parallels the side 34.

The lower end of the side 31 of the loop 29 terminates in a lateral connection 39, of $\frac{3}{4}$ inch length, which is connected to the lower leg end of the outer leg 40 of a wide loop 41, the leg 40 being parallel to and spaced from the leg 31 of the loop 29 at a distance of $\frac{3}{4}$ of an inch.

The large loop 41 includes a connecting portion 42 extending inwardly across the tops of the loops 29 and 30 and spaced upwardly therefrom at a distance of about $\frac{3}{4}$ of an inch, the connecting portion 42 being $4\frac{7}{8}$ inches in length.

The connecting portion 42 terminates at its inward end in a depending inner leg 43 of the wide loop 41, the leg 43 being laterally spaced from the inner leg 34 of the loop 30 at a distance of $1\frac{1}{2}$ inches. The lower end of the leg 43 extends below the loops 29 and 30 and terminates in a portion 44 which leads to the antenna lead cable 34 of the television set 46.

The adjacent legs 32 and 33 of the narrow loops 29 and 30 are connected together at their lower ends by a connection 46 about $\frac{3}{4}$ of an inch long.

The other dipole B is similar to but reversed with respect to the dipole A. The inner legs 43 and 43^a of the wide loops 41 and 41^a of the two dipoles are parallel and spaced from each other at a distance of one inch.

The dimensions of the dipoles A and B, and of their components, as given herein above are critical to best results in the use of the antenna 7.

It is to be observed that there are no direct electrical connections between the dipoles A and B, so that both dipoles radiate separately, each dipole receiving its own signal and transmitting this signal to the antenna coil or transformer of the television set 46, so that the set receives both signals at the tuner of the set.

For local reception the antenna 7 is non-directional. However, for long distance and fringe reception, the antenna operates better when turned to face the broadcasting station desired to be received. The antenna 7, for local reception may be mounted on any room wall 47 of a room 48 in which the television set 46 is located.

What is claimed is:

1. In a television antenna, a pair of matched and reversed antennas, said antennas being open and unconnected to each other, each of said antennas comprising a pair of laterally spaced narrow vertical loops and a single wide vertical loop embracing the narrow vertical loops, and dielectric means mounting said antennas in side by side relations, substantially in the same plane.

2. In a television antenna, a pair of matched and reversed antennas, said antennas being open and unconnected

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to each other, each of said antennas consisting of a pair of laterally spaced narrow vertical loops and a single wide vertical loop embracing the narrow vertical loops, said narrow vertical loops being connected together, one of said narrow loops having a free terminal and the other narrow loop being connected to one end of the wide loop and the other end of the wide loop terminating in a terminal for connection to a television set lead-in wire, and dielectric means mounting said antennas in the same plane.

3. In a television antenna, a pair of matched and reversed antennas, said antennas being open and unconnected to each other, each of said antennas consisting of a pair of laterally spaced narrow vertical loops and a single wide vertical loop embracing the narrow vertical loops, said narrow vertical loops being connected together, one of said narrow loops having a free terminal and the other narrow loop being connected to one end of the wide loop and the other end of the wide loop terminating in a terminal for connection to a television set lead-in wire, and dielectric means mounting said antennas in the same plane and laterally displaced with respect to each other.

4. In a television antenna, a pair of laterally displaced, coplanar antennas, each antenna consisting of a wire

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fifty-three inches long, each wire providing a narrow inner loop, a narrow outer loop, and a wider loop, said narrow loops having spaced parallel legs seven inches long connected at one end by connections $\frac{3}{4}$ of an inch long, a leg of the inner loop terminating in a lateral connector, said lateral connector terminating in a wire portion two inches long, said wide loop having an outer leg parallel to and spaced laterally outwardly from said outer narrow loop and connected at one end to a leg of the outer loop, said wider loop having a connecting portion $\frac{4}{8}$ inches long reaching across and spaced from said narrow loops, said connecting portion terminating in an inner leg spaced laterally inwardly from the inner narrow loop, the inner leg of the wide loop terminating in a terminal for connection to the lead-in wire of a television set, the antennas being otherwise unconnected to each other.

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