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COMBINED TELEVISION AND RADIO RECEIVING SYSTEM

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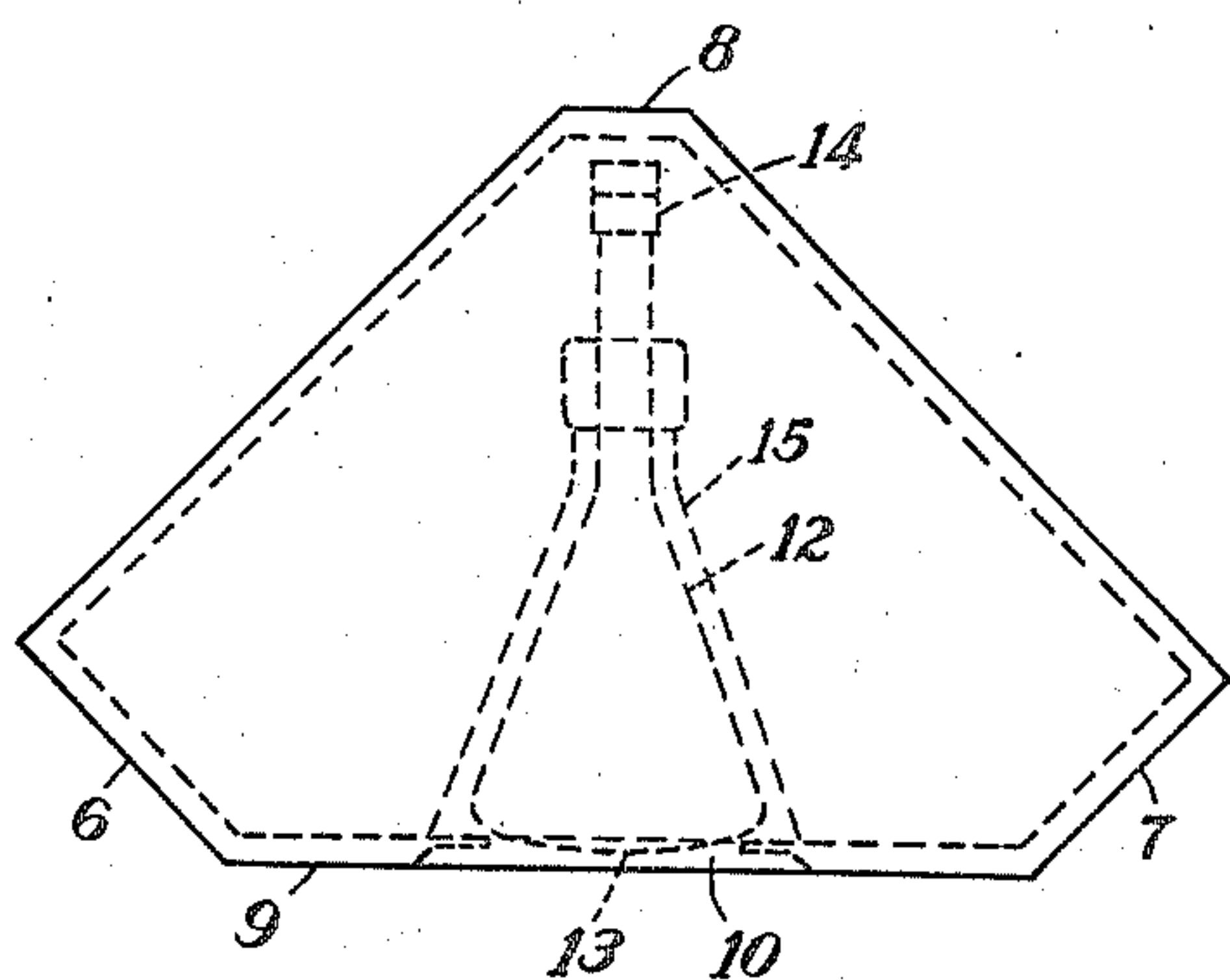


Fig. 2

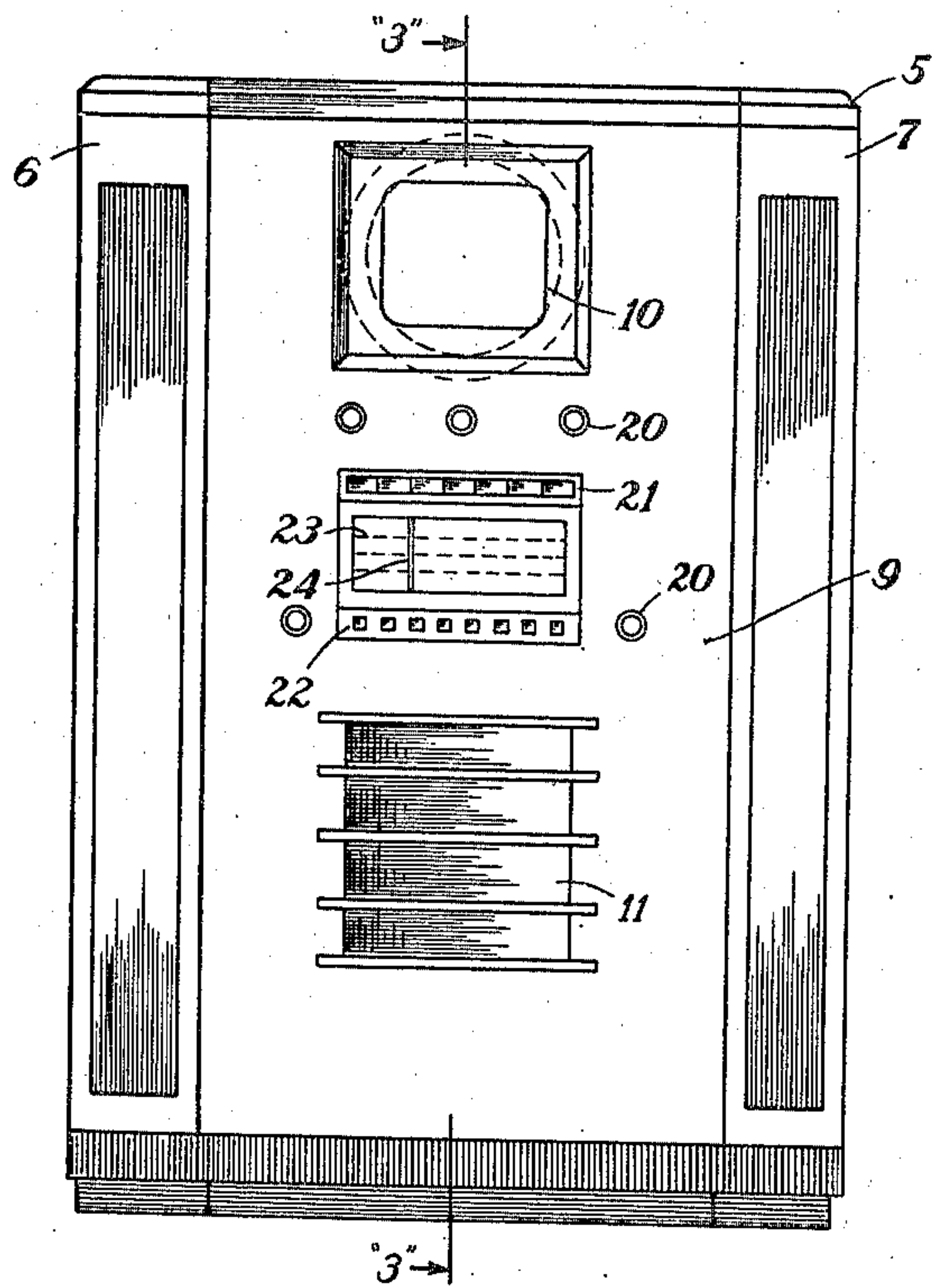


Fig. 1

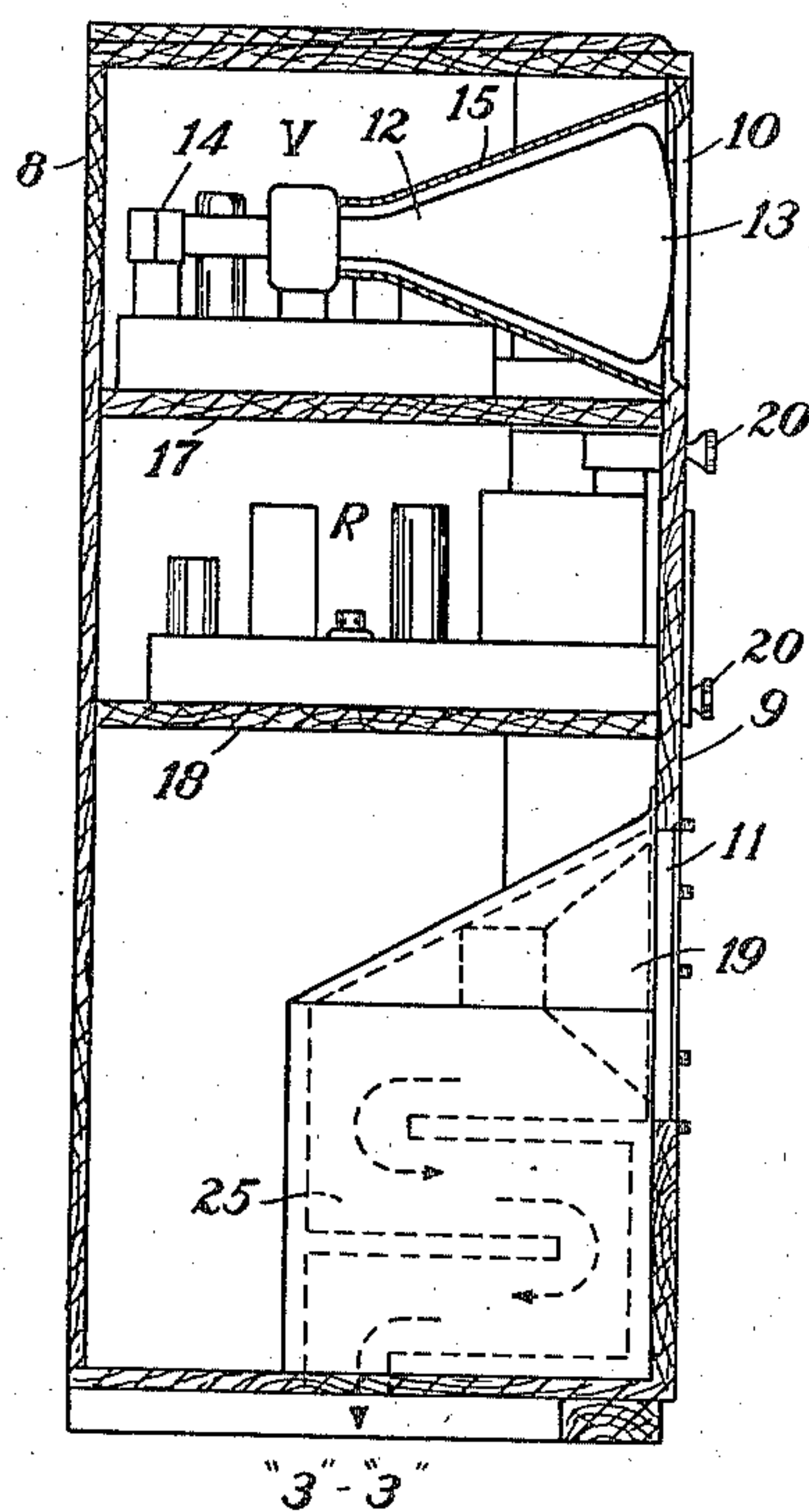


Fig. 3

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COMBINED TELEVISION AND RADIO
RECEIVING SYSTEM

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3 Claims. (Cl. 178-5.8)

This invention relates to a combined television and radio receiving system.

In a system of this kind, it is desirable to house the television receiving apparatus and the radio receiving apparatus in the same cabinet. However, it has been discovered that the sound pressure components developed within the cabinet by the inner surface of the diaphragm of a cone-type loud speaker, mechanically vibrate the elements in the cathode-ray tube and the electrical circuits forming a part of the television receiving apparatus, in a manner tending to cause image distortion. Present cathode-ray tubes of a size sufficient to give satisfactory television images, are of such length that if these tubes are mounted horizontally in cabinets, the cabinets must be of such depth that they will be necessarily bulky and will occupy an inordinate amount of space in any room. The necessarily large space within the cabinet and especially the increased depth of the cabinet from the front to the rear thereof, tends to develop large cavity resonance, which distorts the signal reproduced by the loud speaker, causing an objectionable sound effect known in the art as "boominess."

In accordance with the present invention, there is provided a combined television and radio-receiving system which is compactly housed in a generally triangular cabinet with the cathode-ray tube having its principal axis extending horizontally in the cabinet so that its viewing end is visible through an opening in the front of the cabinet, and so that its small end projects into the apex of the cabinet opposite said front whereby the size of the cavity in the cabinet is reduced and whereby means can be introduced for preventing the radio receiver from disturbing the cathode ray tube.

Another feature of the invention relates to a cabinet adapted to be positioned in a corner of a room whereby the front of the cabinet extends across the corner and thereby limits the radiation of the loud speaker to a radiation angle of approximately 90° as distinguished from 180° as is the case where a rectangular cabinet is placed with its back against a side wall of a room. This restricted radiation affords an effectively stronger acoustic signal at the ear of the listener with a given signal output, than where the same signal is distributed through a radiation angle of 180° .

These and other features will appear from the detailed description and claims when taken with the drawing in which:

Figs. 1 and 2 are respectively front and top views of a combined television and radio receiv-

ing system made in accordance with the present invention; and

Fig. 3 is a vertical section taken on substantially the line 3-3 of Fig. 1.

Referring to the drawing, the invention includes a cabinet designated 5. This cabinet in horizontal cross section is generally triangular altho all three of its corners are preferably truncated as indicated at 6, 7 and 8. One of the vertical cabinet walls such as 9, which is conveniently referred to as the front, has provided therein, two openings 10 and 11. In the upper part of the cabinet there is horizontally mounted, a cathode ray tube 12 having its large or viewing end 13 visible through the opening 10. The reduced end or base 14 of the cathode ray tube extends toward the apex of the cabinet directly opposite the front thereof, the depth of the cabinet between the last-mentioned parts thereof being approximately equal to the length of said tube. A shield 15 encloses the sides of this tube to prevent the scattering of the glass envelope of the tube in the event that the tube is shattered. The synchronizing, amplifying and control apparatus V for the cathode ray tube is preferably mounted on a shelf 17.

A second horizontal shelf 18 supports the radio receiving apparatus R including the various amplifying and demodulating and audio output stages which function to translate and amplify incoming audio signals for both the television and the broadcast programs and operate a loud speaker 19 preferably of the cone diaphragm type. A series of control knobs 20 located at the front of the cabinet adjust the amplifying and control apparatus. A sufficient number of push buttons 21 are provided in the front of the cabinet to operate channel selecting circuits for tuning the various television video and associated audio channels. Also push buttons 22 are provided for selecting any one of a number of pre-set standard broadcast station channels, and a dial 23 with pointer 24 are provided for tuning standard broadcast and short wave stations by hand (manually). The radio receiving and loud speaker portion of the system need not be further described since they can be of the conventional type. The diaphragm of the loud speaker is mounted directly behind the opening 11 in the front of the cabinet so that sounds generated by the front of the diaphragm are transmitted through this opening into the room wherein the apparatus is used. The rear surface of the diaphragm of the cone of this type also generates sound which develops sound pressure components

within the interior of the cabinet. Such components tend to be exaggerated by the cavity resonance of the cabinet.

In accordance with the present invention, the shelf 18 tends to prevent these components, which would otherwise disturb the operation of the cathode ray tube, from reaching the upper compartment of the cabinet. As a further precaution against this type of disturbance the rear surface of the diaphragm communicates with a circuitous passageway 25 which is preferably lined with a sound damping material so that the major portion of the sound generated at the rear surface of the diaphragm is dissipated and thereby further reduces any tendency for the sound pressures developed within the cavity from reaching the cathode ray tube.

It will be appreciated that since the cabinet is generally triangular in horizontal cross section, it may be placed in the corner of a room where it occupies a minimum amount of useful space. Furthermore, some corner of every room is usually the darkest portion thereof, or else is the most readily shielded from light originating from a window. In addition such a triangular cabinet, when placed in the corner of a room has the further advantage that it restricts the area of sound radiation from the loud speaker and therefore, the efficiency of the loud speaker appears to be greatly enhanced.

What I claim is:

1. In a structure of the class described, a cabinet generally triangular in horizontal section, said cabinet having an opening in one of its sides, a horizontally mounted cathode ray tube having its large end adjacent said opening in a position to be visible therethrough and having its small end projecting toward the apex of said cabinet opposite said side whereby the principal axis of said tube extends in a generally horizontal direction, the depth of said cabinet from said side to said apex being such that the small end of said tube is located adjacent said apex, apparatus to operate said tube, a loud speaker having a cone-type diaphragm and apparatus for actuating the same supported within said cabinet, the principal axis of said cone diaphragm extending in a generally horizontal direction and means for absorbing the major portion of a sound pressure component generated by said loud speaker with-

in said cabinet whereby said tube is substantially undisturbed by said component.

2. In a structure of the class described, a cabinet generally triangular in horizontal section, said cabinet having an opening in one of its sides, a horizontally mounted cathode ray tube having its large end adjacent said opening in a position to be visible therethrough and having its small end projecting toward the apex of said cabinet opposite said side whereby the principal axis of said tube extends in a generally horizontal direction, the depth of said cabinet from said side to said apex being such that the small end of said tube is located adjacent said apex, an apparatus to operate said tube, a loud speaker having a cone-type diaphragm and apparatus for actuating the same supported within said cabinet with the principal axis of said cone diaphragm extending in a generally horizontal direction, and means including a circuitous sound damping path for absorbing the major portion of a sound pressure component generated by said loud speaker within said cabinet whereby said tube is substantially free from acoustical disturbances.

3. In a combined radio and television receiver, a cabinet generally triangular in horizontal cross-section, said cabinet having an opening in the center of one of its sides adjacent the upper end thereof, a horizontally mounted cathode ray tube having its large end adjacent said opening in a position to be visible therethrough and having its small end projecting toward the apex of said cabinet opposite said side, the depth of said cabinet from said side to said apex being only slightly greater than the length of said tube, said cabinet having a second opening spaced from and disposed below said first mentioned opening, control apparatus related to said cathode ray tube, a loud speaker including a cone shaped diaphragm positioned in the lower portion of said cabinet with the principal axis of said cone extending in a generally horizontal direction, said diaphragm being mounted adjacent said opening with one of its surfaces serving to project sound through said second opening, and means for preventing a sound pressure component developed within said cabinet by said loud speaker from disturbing said control apparatus.

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