

Dec. 1, 1936.

L. H. AMDUR

2,062,632

RADIO RECEIVING SET

Filed Jan. 27, 1936

2 Sheets-Sheet 1

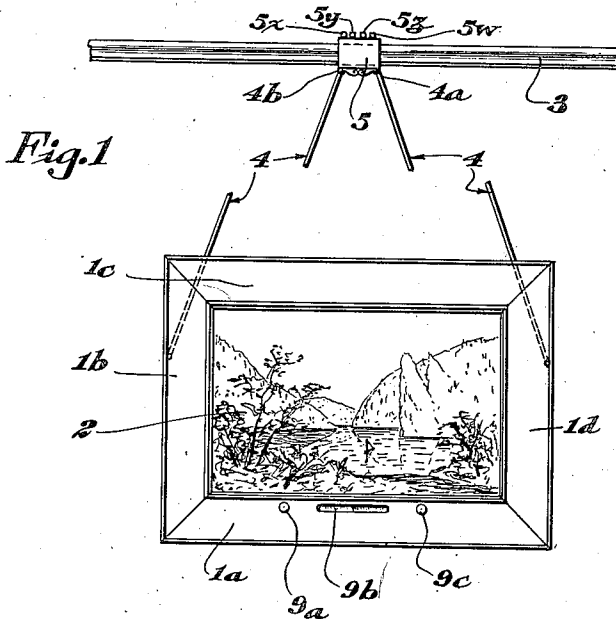
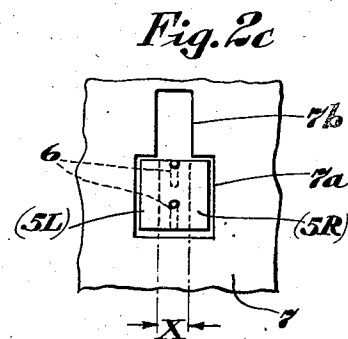
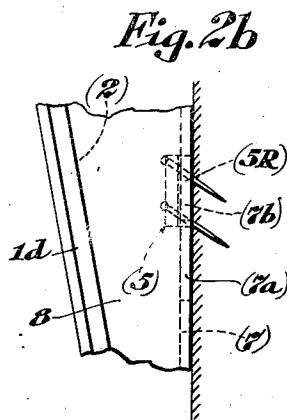
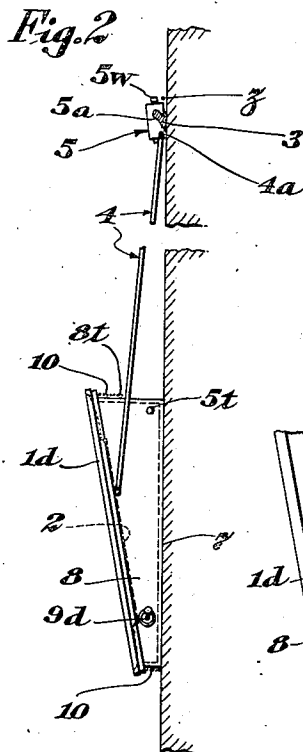
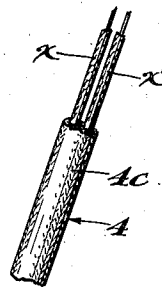


Fig. 1a



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Fig. 3

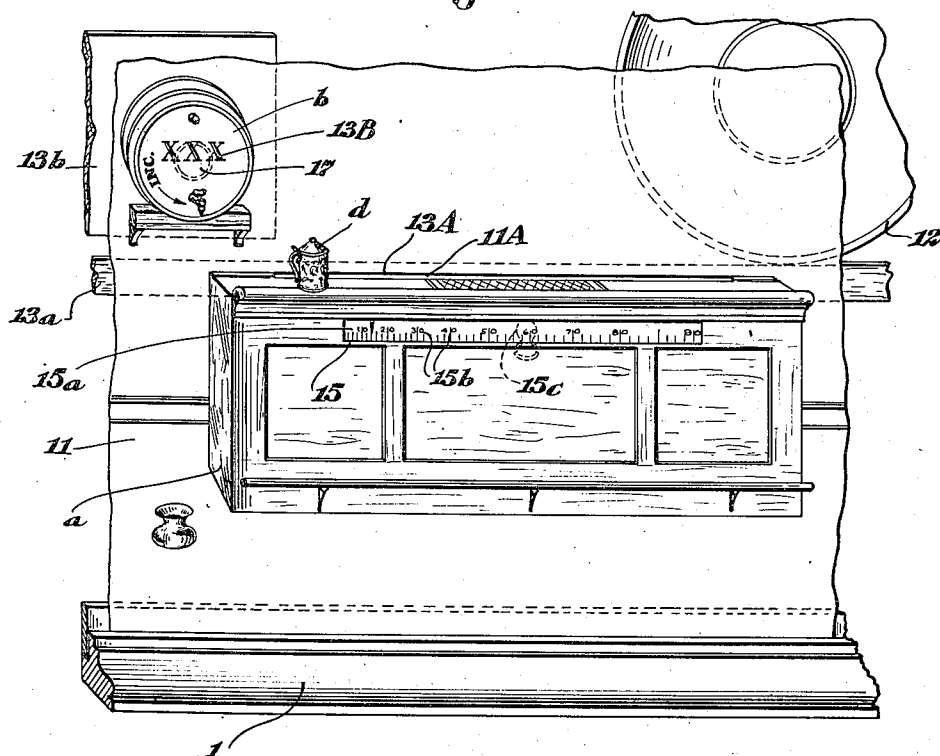
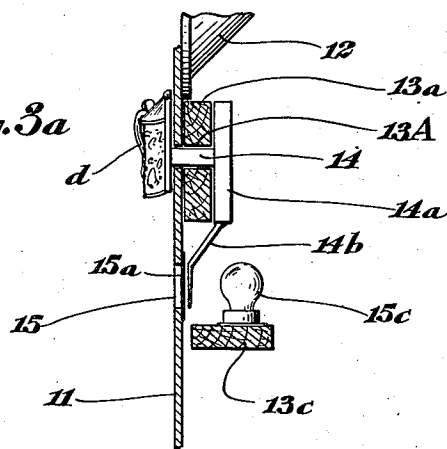


Fig. 3a



UNITED STATES PATENT OFFICE

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RADIO RECEIVING SET

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7 Claims. (Cl. 250-14)

This invention relates to radio receiving sets and more particularly to cabinets and the general arrangement thereof with special reference to the cabinet in which the set is incorporated. One of the objects of this invention is to devise a radio receiving set which shall occupy very little space and which shall be usable without occupying floor space and without the need of special furniture, such as a standard or end table, upon which to place it. This object of the invention is especially important in such instances as hotel rooms, where there is very little space to spare, although it is not necessary, in the contemplation of this invention, that the set be limited in use where space must be conserved.

Another object of this invention is to devise a radio set and cabinet therefor, which in addition to the first object above mentioned, shall be more suitable and convenient for manipulation than radio sets heretofore made. In the present sets, be it a cabinet or console model or a small table model, to manipulate the controls, an adult person must bend to reach them and bend still further to read the station dial. That is, this object is to devise a set which shall be placed at the correct height for facility, ease and convenience in adjusting the controls and reading the dials. Closely connected with this object, a further object is to devise a radio receiving set in which the set and/or the loud speaker unit thereof shall be at the correct height for audibility; this height is, for the best audibility, at the level of the ear of adult persons.

To attain the above objects and other objects below mentioned and such other objects as may hereinafter appear, I make my radio receiving set in the form of a picture to be hung on the wall, either from the picture molding of the room or by special wall fastening means. By this arrangement I accomplish the objects above enumerated, namely, first, no floor space is occupied, and supporting furniture needed. Secondly, the set is positioned at the best level from the standpoint of the eyes (in reading the dial), the hands (in manipulating and adjusting the controls, without stooping) and the ears (in listening to the reception especially in the act of adjusting the set). Furthermore, because of the coordination of the three senses mentioned and because of the fact that in devising the set as above set forth, the conditions are made ideal for all three requirements, the maximum enjoyment will be attained in radio reception. From the standpoint of the ear, the loud speaker unit of the receiving

set may itself alone be framed and hung as a picture.

In so making the the receiver that it may be hung on the wall, no limitation is set upon the height at which it may be placed (as in cabinet and table models); the receiver may be located where it will best suit all conditions above enumerated, which as mentioned, is at the ear-eye level. An additional advantage attained thereby is that better resonance may be gotten from the wall since the set may be located nearer the center of the wall, i. e. its point of maximum vibration, and closer to the wall than in present sets.

In addition to attaining the above objects and advantages, my invention contemplates the embodiment in the suspended set of a picture suitable to the fancies or the setting of the room. Thus, instead of requiring a further piece of furniture upon which the set may be placed, the receiving set of this invention itself serves as another piece, namely, a picture. Another advantage and object is the facility with which wiring connections (aerial, ground, current) may be made, both from the standpoint of distance and location and also for blending or camouflaging the wire connections.

Another aspect of this invention contemplates the association of the various controls of the receiving set (which are, at least, the switch, the station dial and the volume knob, but which may include other controls and adjustments) with, and in, the particular picture shown. That is, in this aspect of the invention, the controls will not appear as such, but will be camouflaged as part of the picture, so that the uninitiated will not even suspect that the picture is a radio, or, even if he were told that much, would not see where the controls are nor how to adjust them. This aspect of my invention is not limited to radio receiving sets which are in the form of a hung picture, but may be embodied in the front face or panel of either console and cabinet models or small table sets. In addition to the controls being formed as part of, or blended into, the picture, the loud speaker unit will be formed and disguised in the same manner. Besides, the set may be provided with a light or lights, also disguised as part of the picture, which will be lit to illuminate, for example, the station dial.

Other objects of the invention is the construction of parts and arrangement thereof so that the set may be brought within the encompass of a picture (of small size, preferably) both from the standpoint of width and height and also to be positionable within a shallow casing, as a pic-

ture must be. Another object is to so locate the parts and so construct them as part of the picture, as to take advantage of certain features and limitations set by the physical requirements of pictures.

For the attainment of these objects and of such other objects as may hereinafter appear or be pointed out, I have illustrated an embodiment of my invention in the drawings, wherein:

- 10 Fig. 1 is a front view of the set in position on the wall and suspended from the picture molding.

Fig. 1a is a detail of the picture and service wires.

- 15 Fig. 2 is a side view of the set and picture molding and suspender shown in Fig. 1.

Fig. 2a is a detail (side elevation) of the suspender.

- 20 Fig. 2b is a partial side view of the suspender positioned behind the set; Fig. 2c is a front view of the casing and the suspender cooperating therewith.

Fig. 3 is a front view of a fragment of a picture, showing movable parts thereof for adjusting the set.

- 25 Fig. 3a is a detail (side elevation) of the movable part which adjusts the station selector.

- One form of my improved radio receiving set is shown in Figs. 1 and 2, wherein the casing for the radio receiving elements is designated 8 and the picture frame, for the four sides, designated 1a, 1b, 1c, and 1d, and the picture is designated 2. The set is shown suspended from the picture molding of the room by the picture wire 4, which may be secured to the frame sides 1b and 1d, as shown, or to the sides of the casing. The picture wire may be looped over the usual molding S-hook (not shown), or the picture wire may be secured to the suspender 5 at 4a and 4b. The suspender has a hook end 5a which fits over the picture molding 3.

- The suspender may have a number of binding posts, four being shown, 5x, 5y, 5z, and 5w for the aerial wire, the ground wire and the current wires. Where the binding posts are located on the suspender, the respective wires are run along the picture wire 4, to the set; the wires, x and x' for example, insulated from each other and from the picture wire 4, may be encased in an outer braid 4c, Fig. 1a. The aerial, ground or current wires in being brought to the connection 5, would be concealed by the picture molding, see wire z, Fig. 2. Instead of locating the binding posts, or all of them, on the suspender 5, all or some may be located on the frame itself, see 5t, Fig. 2, at convenient points thereon; also, additional binding posts may be there provided. This is for convenience in connecting the set to the respective wire, which are usually brought from various points in the room. Instead of approaching the set from above, the wires or some of them may approach the set from the floor.

- Instead of placing the suspender on the picture molding, the suspender may be provided with a nail hole or holes, such as 6, Fig. 2a, for securing the suspender to the wall at levels lower than the picture molding, if desired. In addition to the above two arrangements, the suspender may be made to be concealed behind the picture; in this case no picture wire is used. The set is made to be fastened directly to the suspender; this is shown in Figs. 2b and 2c. The suspender 5 is first secured to the wall, by nails or other means; the set is then attached to the suspender by any suitable means, such as the modified bayonet joint shown in the figures. The rear wall 7 of the cas-

ing of the set is provided with the bayonet slot comprising an enlarged portion 7a and a narrow portion 7b. The suspender is made of a size to snugly fit in the enlarged slot, but not in the narrow portion. At both sides of the suspender 5 is provided a groove, 5L (left) and 5R (right), such that the material of the suspender between the grooves, designated X in Fig. 2c, is just a little narrower than the narrow portion 7b of the bayonet slot. Hence, when the suspender is fully fitted in the enlarged portion 7a of the bayonet slot, the set may be lowered with the narrow slot 7b, or rather the side edge thereof, fitting in the side grooves 5L and 5R. When the suspender is used in this manner, the aerial, 15 ground and current wires are run directly to binding posts on the set, rather than on the suspender.

The picture frame is made so that the plane of the picture (2, Fig. 2) is as near the outside edge 20 of the frame as possible; that is, the picture is very little set-in in the frame. The reason for this is to provide as much space as possible for the casing 8 of the receiving set. The front of the casing is the frame and picture 2; the rear wall 7 25 forms the rear face. Pictures are usually hung so as to be inclined to the wall; in embodying this invention, advantage is taken of this fact to secure sufficient space behind the picture for the casing, which appears as a trapezoid, see Fig. 2. 30 The receiving element which requires the greatest width may be either the loud speaker unit, or the variable condenser unit or both which would be placed, in the trapezoidal casing nearest the top of the picture, 8t, Fig. 2. 35

Within the casing 8 is housed the receiving set. The loud speaker unit might be directed toward the front of the casing, i. e. the side covered by the picture, which would be painted or otherwise impressed upon a loosely woven fabric, so that the egress of the sound waves will not be hindered. 40 The opening of the speaker unit may be directed, instead, to other sides of the casing, for example, the top side, 8t, Fig. 2, which would be provided with the appropriate opening or openings thereof; this arrangement would be used, for instance, where it is desired to cover the picture with glass. 45

The radio controls (station dial, volume control, switch, etc.) may be located on the frame, on the casing, or formed as part of the picture. 50 In the form shown in Figs. 1 and 2, the station selector, 9a, the station dial 9b, and the volume control, 9c, are on the frame, and the switch 9d is on the side wall of the casing, see Fig. 2. The controls 9a and 9c may be on the casing; the 55 switch 9d may be on the frame, etc.

Where an indoor aerial or a loop aerial is used, this may be formed by looping wires, such as 10, around the casing, so that they are hidden by the top edges of the frame, see Fig. 2; or, the picture 60 wire may constitute an aerial or part thereof.

In Figs. 1 and 2, the controls are on either the frame or the casing or both. Another aspect of this invention contemplates the disguising of the controls in a picture of which they form part. In 65 this aspect of the invention, the picture may be a hung (and framed) picture or it may be on the panel of the ordinary radio receiving set, either the floor (cabinet or console) or the table model. An exemplification of this aspect of the invention 70 appears in Fig. 3 which represents a portion of a bar-room scene, wherein the bar a, the barrel b, and other parts are painted or otherwise impressed upon the canvas or fabric 11 (of loose mesh or weave, not to impede the sound coming 75

from the loud speaker unit behind the picture, designated 12). Any kind of picture or painting may, of course, be shown; it should, though, depict parts which are susceptible of relative motion, either in a serious and natural vein or in a humorous vein.

The picture is secured to the frame 1. The securing of the picture, and the material upon which the picture is formed, may be such as to be acoustically suited to the loud speaker unit and to amplify, or at least, not hamper, the sound production therefrom. For these reasons the picture, at points, may be attached to either stationary or vibrating parts of the speaker.

In addition to the securing of the picture to the frame, a number of cross-pieces, 13a, 13b and others not shown, which are used for purposes soon to be explained, may serve to hold the picture in place. These cross-pieces, besides securing the picture also serve to support the movable parts of the picture, which parts, as above stated, adjust the receiving set. For example, in the bar-room scene selected as an illustration, a stein or bottle *d* might repose on the bar *a* and be movable therealong. The stein, which would be formed of, or painted on, a piece of thin wood or thick cardboard or other suitable material, see Fig. 3a, (and which may be either two-dimensional or three-dimensional) is integral with a bridge-piece 14 slidably held in a slot 13A provided in the cross-piece 13a. The bridge-piece is stabilized by the movable part (the stein) which bears against the picture and by an inner member 14a integral with the bridge-piece 14 and which bears against the cross-piece 13a. The picture itself is cut through by a slot 11A to enable the bridge piece to be attached to the movable picture part. Referring to Fig. 3, it will be seen that the slot in the picture is made (preferably) so as to blend with parts of the picture and not be noticeable. The edges of the slot in the picture are secured to the cross-piece 13a, see Fig. 3a.

To the bridge-piece 14 (or its inner member 14a) is connected the movable member of the station selector (not shown) of the radio receiving set. By advancing the movable picture part (the stein) along the bar, the selection of stations may be made. The station dial may be painted directly on the picture (e. g., on the bar *a* of the picture) or an illuminable station dial may be provided as shown. A portion of the picture (as shown, along the bar) designated 15 in Figs. 3 and 3a, is cut out of the picture material, and across this opening is placed a transparent or translucent station dial 15a, bearing station indicia 15b. A light 15c, seated on cross-piece 13c, is lit up (upon operating the starting switch, 9d, Fig. 2) to illuminate the dial. Cooperative with the markings on the dial is an indicator 14b attached to the bridge piece 14 or its inner member 14a. The material and color of the dial should be such, in relation to the color of the picture, as not to be noticeable; i. e., it should not be seen (except, of course, upon close inspection) that there is a dial (on the bar) until the dial is lit up. Upon operating the station selector (the stein) the indicator 14b will be readable coordinately with the markings 15b of the illuminated dial.

Instead of a station selector and dial in which the selector and the indicator are moved along a straight line, any of the other types of selector and dial arrangements may be employed, such as the rotary type in which either the indicator moves around a stationary dial, or in which a rotary dial turns and portions of it become vis-

ible through a stationary window. Whatever type of selector dial is used, the movable parts thereof should harmonize with, and become part of the picture.

The volume control may be concealed, in the bar-room scene selected merely for purposes of illustration, by the barrel *b*. The end of the barrel, shown in Fig. 3, is a piece of suitable material fixed to the spindle 17, rotatably held in a journal 13B in the cross-piece 13b. By turning the barrel, the volume of the radio reproduction may be controlled by the usual elements (not shown).

I claim:

1. A radio receiving set comprising a casing for the receiving elements, a picture which conceals the said casing, the picture being so constructed as to allow various parts of the subject depicted to be relatively moved, and means adjustable by the said movable parts for controlling the said receiving elements.

2. A radio receiving set comprising a casing for the receiving elements, a picture impressed upon acoustically suited material, various parts of the subject depicted thereon being relatively movable, devices connected to the said movable picture parts for controlling the said receiving elements, the picture material being made discontinuous to permit the passage of the connections between the said movable picture parts and the said radio controlling devices, and supporting members upon which the said movable picture parts are mounted, provided with openings for the said connections, upon which supporting members the said discontinuous edges of the picture material are secured.

3. A radio receiving set comprising a casing for the receiving elements including a starting switch, a station selector and a station dial, a picture impressed upon acoustically suited material, the subject of the picture embodying a part which is relatively movable to adjust the said station selector, and parts which harmonize with the face of the said station dial, the picture material being discontinuous to uncover the face of the dial, means controlled by the said starting switch for illuminating the face of the station dial and an indicator controlled by the said movable picture part and cooperating with the said illuminated dial.

4. A radio receiving set according to claim 3 wherein the receiving elements include a volume control and the subject of the picture includes a relatively movable part for adjusting the said volume control.

5. A cabinet for a radio receiving set comprising a frame, a picture secured therein, various parts of the subject depicted being relatively movable, portions of the picture being removed, cross-pieces extending across the frame, against which the edges of the removed portions of the picture are secured, the cross-pieces being provided with openings which correspond to the removed portions of the picture and bridge-pieces movable in the openings in the said cross-pieces by the said relatively movable parts of the picture to control the receiving elements.

6. A radio receiving set comprising a casing for the radio receiving elements, including a loud speaker unit and a variable condenser unit, an upright frame to which the said casing is attached and by which it is supported, and whose relative dimensions are such as to conceal the said casing, the sides of the casing being trapezoidal with the front edges thereof inclined to the rear edges whereby space is provided in the

- top portion of the casing for the loud speaker unit and the variable condenser unit, the said frame having a picture which conceals the radio receiving elements, and means for removably
5 suspending the set upon a wall.
7. The radio set according to claim 6, the radio receiving elements thereof further including a volume control, a station dial and a station selector, wherein the said control, dial and selector are mounted upon the said frame.

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