

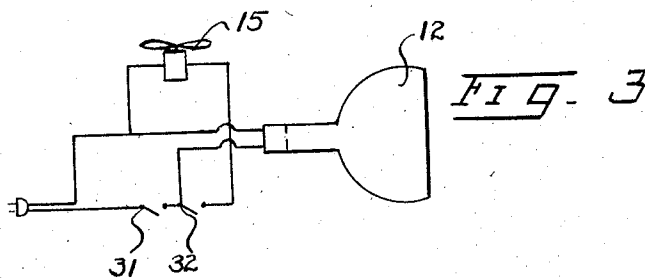
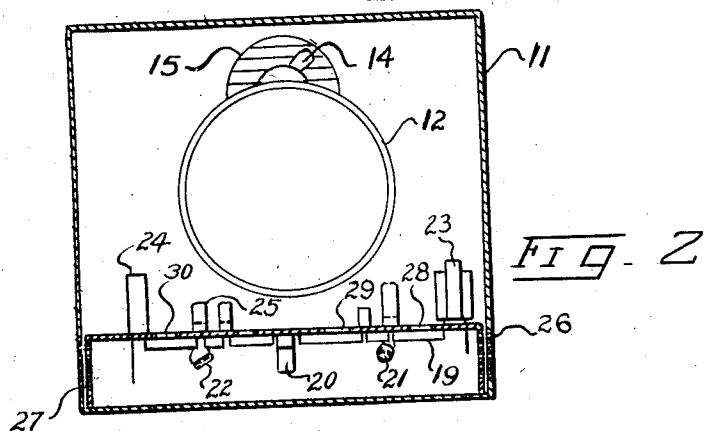
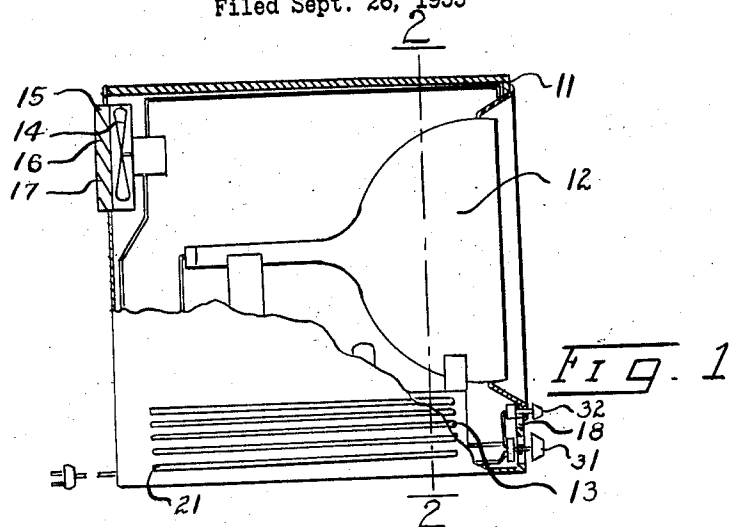
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COOLING MEANS FOR TELEVISION RECEIVERS

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COOLING MEANS FOR TELEVISION RECEIVERS

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2 Claims. (Cl. 340—367)

This invention relates to a cooling means for a television receiver, and more particularly one in which cooling air is circulated throughout the chassis and over the picture tube to obtain a maximum cooling effect.

It is a known fact that television receiving sets having a power rating of approximately 500 watts generate a considerable amount of heat and that the heat can become so intense that it damages the television receiver and renders the unit a source of danger. This is particularly true when the tube is formed of glass, as is the usual practice. In this instance, the heat may become so intense that subsequent chilling of the tube may cause it to explode.

It is therefore one object of my invention to provide a means which will cause air of normal room temperature to be continuously circulated about the television picture tube.

It is yet another object of my invention to provide a cooling means in which air will be circulated through the chassis to cause the cooling of the various transformers, tubes, etc. associated therewith.

It is yet another object of my invention to provide a cooling means which will be energized automatically when the television receiver is turned on.

It is a still further object of my invention to provide a cooling means in which the mechanism may be turned off separately from the receiver.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawings and following specifications, wherein is disclosed a single exemplary embodiment of the invention, with the understanding, however, that such changes may be made therein as fall within the scope of the appended claims without departing from the spirit of the invention.

In said drawings:

Figure 1 is a side view of a television receiver with a portion of the side wall cut away to show the cooling mechanism therein.

Figure 2 is a front cross sectional view taken at line 2—2 of Figure 1 to show the ventilating means in the chassis, and

Figure 3 is a schematic diagram of the electrical connections of the device shown in Figure 1.

Referring then to the drawings; the major component parts of a television receiver are the cabinet 11, the video or picture tube 12, and the chassis 13. In Figure 1 this assembly is shown in a side view with a portion of one wall of the cabinet cut away.

In the embodiment of my invention herein shown, I have provided a fan 14 which is mounted on the back of the television cabinet on the upper portion of the back wall. The direction of rotation and angle of the blade is such that this fan in this position will create a suction in the cabinet itself, directing the air outwardly away from the cabinet. Television receivers, of course, are frequently placed against a wall and it would be

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undesirable to have the air discharged from the cabinet in a directly rearward area. To deflect the air upward, I provide a grill 15 which is immediately in front of the fan and has a series of angular vanes, such as 16 and 17, which are angled upwardly to cause the air to move in an upward direction.

While a television cabinet is not in an airtight container, it is not sufficient to merely allow the air withdrawn from the cabinet to be replaced by air simply leaking in through various openings. It is important that the air circulated through the cabinet be brought in at particular points in order to fully sweep all of the points within the receiver which are sources of heat. For this reason I have provided a grill 18 which is in the front of the cabinet immediately below the picture tube. This grill is in communication with the interior of the cabinet. It is customary, in the construction of television receivers, to allow for a slight space between the chassis 13 and the wall of the cabinet 11. This space permits air to be drawn directly through the grill and up over the walls of the television picture tube 12. This air of course carries away heat generated by the tube as rapidly as it accumulates.

Of course there are other portions of a television receiver which generate heat. The chassis itself 13 is customarily formed of sheet metal in the shape of a rectangular box and is fastened into the cabinet in an inverted position. The lower portions of the chassis contain the various wire and circuits required. These are indicated rather generally at 19. Occasionally tubes, such as is shown at 20, may also be placed in this base as well as various condensers and other electrical units, such as 21 and 22.

The upper side of the chassis is used for the mounting of still more equipment, particularly transformers such as 23, and additional tubes such as 24 and 25. All of these various components produce heat. To secure the cooling of these parts, I have provided two side grills such as 26 and 27. These grills consist of slots which extend through the walls of the cabinet 11 and are in registry with similar slots in the downwardly extending walls of the chassis.

In addition, I have provided a series of openings 28, 29 and 30 in the upper portion of the chassis. It will be at once apparent that air drawn through the grills 26 and 27 will circulate across the under side of the chassis and then up through the openings into the interior of the receiver where it will pass by the transformer tubes and the picture tube itself and then into the fan 14.

Normally it is desirable to have the fan in operation at all times when the television receiver is on. However it may be desirable, on some occasions, to omit the use of the fan. To secure this desirable alternate operation, I employ two switches. The switch 31 is the standard on-off switch such as is used on all television receivers. This switch is in the main power circuit of the receiver. A second switch 32 is employed to energize the fan 14. In the schematic diagram shown in Figure 3, it will be seen that this second switch is wired in series with the first switch. The fan is then connected across the power line in a parallel relation.

It will be apparent that when the switch 32 is closed and then the on-off switch 31 is subsequently closed, the fan will automatically go into operation and that alternatively if the switch 31 is closed and the switch 32 is open, the fan will stop.

It will be seen, from the foregoing description, that I have provided a device which will thoroughly and effectively cool a television receiving set. This is particularly true inasmuch as the air is drawn in not only over the surface of the picture tube, but through the entire chassis,

particularly through that area which normally is closed to air circulation and can generate considerable heat.

Although I have described a specific embodiment of my invention, it is apparent that modifications may be made by those skilled in the art. Such modifications may be made without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim as my invention:

1. In combination with a television receiving set having an enclosed cabinet, a picture tube mounted in the forward wall thereof and a rectangular chassis mounted immediately below said tube, a plurality of openings in the forward wall of said cabinet at the lowermost portion thereof below the picture tube, a second plurality of openings on both sides of said cabinet adjacent said chassis, a plurality of openings in said chassis in registry with said adjacent cabinet openings, a second plurality of openings in said chassis in communication with the upper portion of said cabinet, a fan positioned in said cabinet at the uppermost rearward portion thereof and adapted to cause air to be drawn upwardly through said chassis openings and said cabinet openings upwardly through said cabinet and outwardly therefrom, and directional means mounted in front of said fan to cause the air to be ejected from said cabinet in a predetermined direction.

2. In combination with a device of the type described having a cabinet, a picture tube mounted in said cabinet,

a chassis comprising a rectangular box mounted in the bottom of said cabinet, said rectangular box being positioned with its open portion in a downward direction and having openings in the side walls thereof, a plurality of openings in the lowermost portion of the forward wall of said cabinet and in communication with the interior thereof, a second plurality of openings along the lower side wall of said cabinet and in direct registry and communication with said side wall openings of said chassis, said side openings and said secondary openings being adapted to permit the introduction of air into the interior of said rectangular box-like chassis, a plurality of openings in the upper face of said chassis and in direct communication with the interior of said cabinet, a fan mounted on the upper rearward wall of said cabinet and adapted to draw air through said cabinet, chassis and side-wall openings thence through said upper face openings and forward wall openings through the interior portions of said chassis upwardly through said cabinet and eject said air outwardly therefrom.

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