Feb. 26, 1957 B. R. VIGO 2,782,834

AIR-CONDITIONED FURNITURE ARTICLE

Filed May 27, 1955 2 Sheets-Sheet 1

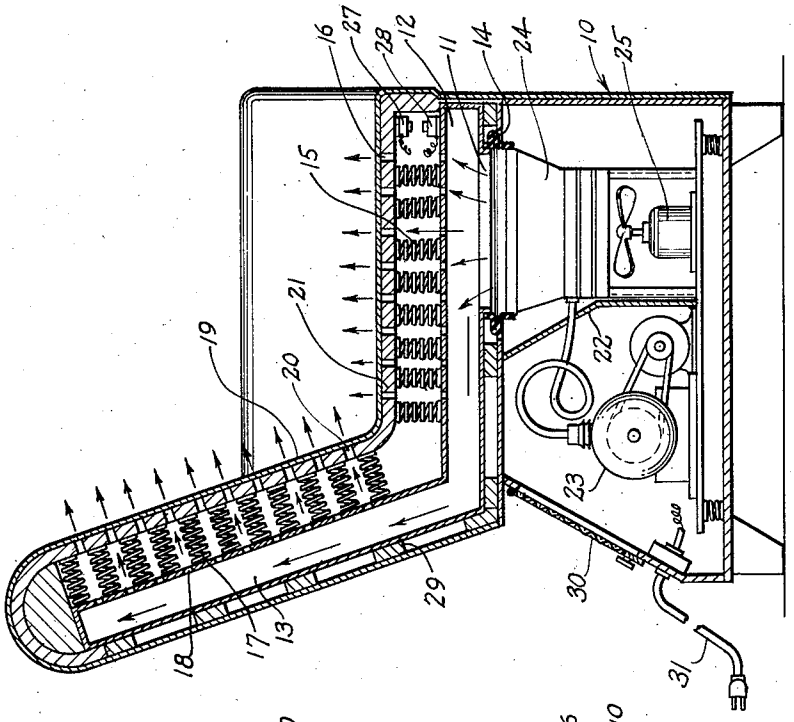


Fig. 2

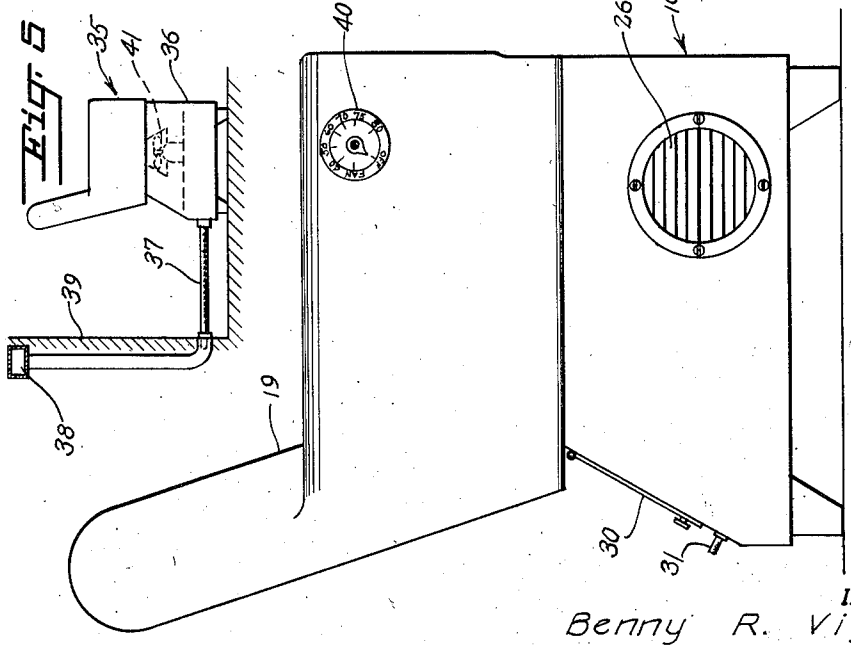


Fig. 1

Fig. 5

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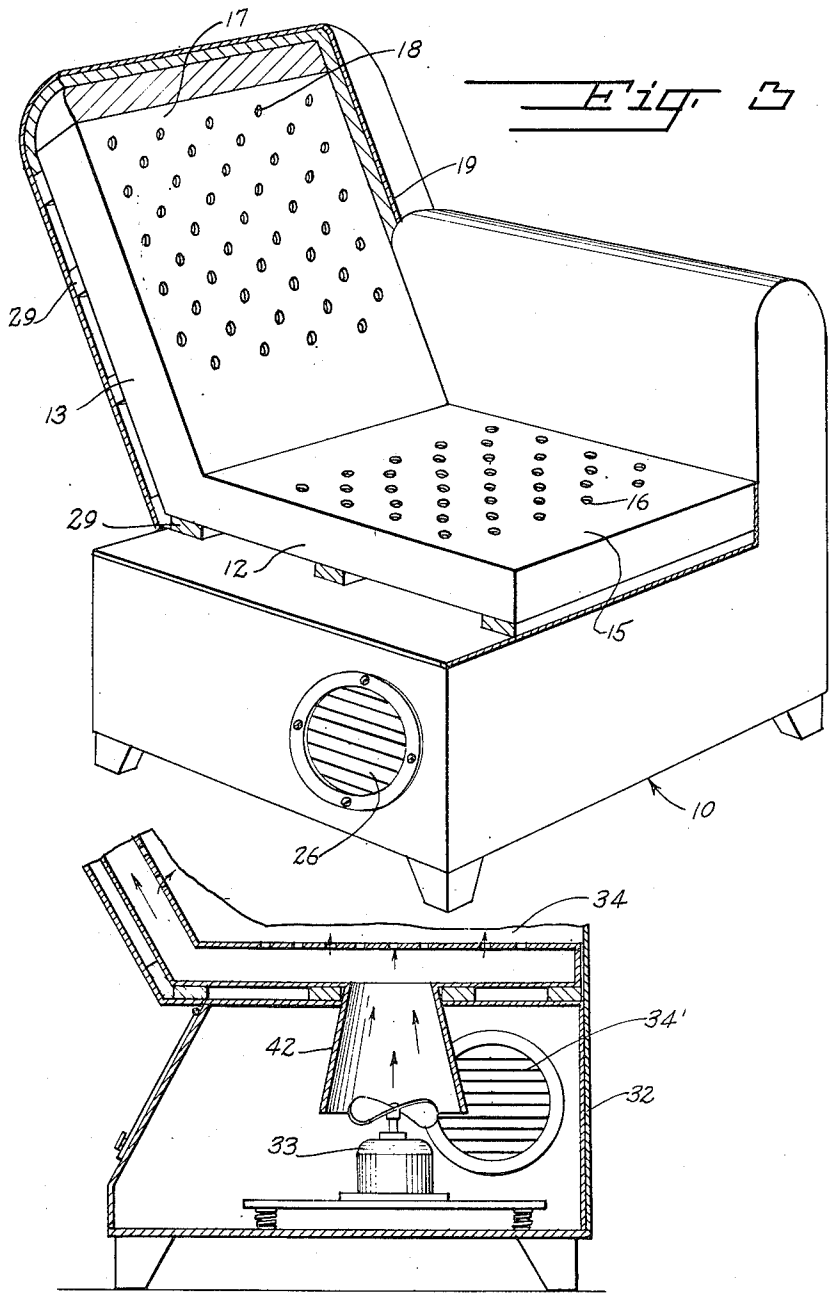


Fig. 4

Fig. 5

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AIR-CONDITIONED FURNITURE ARTICLE

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2 Claims. (Cl. 155—1)

The present invention relates to a furniture article of the type having a supporting surface for an individual in either an upright or a reclining position and provided with means for supplying heated air thereto. More particularly, the invention relates to a chair structure.

The primary object of the present invention is to provide a furniture article of the type having a supporting surface for an individual in either an upright or a reclining position in which means is provided for supplying treated air to such surface.

Another object of the present invention is to provide a furniture article such as a chair or other seat having a self-contained air-conditioning unit and an automatic control for energizing the unit when a person seats himself.

A further object of the present invention is to provide an air-conditioned chair of simple structure, sturdy in construction, one economical to manufacture and assemble, and one which is highly effective in action.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawings, in which:

Figure 1 is a side view in elevation of a first embodiment of the present invention,

Figure 2 is a side view in cross-section of the embodiment shown in Figure 1,

Figure 3 is an isometric view of the chair of the embodiment shown in Figures 1 and 2 and showing the chair partially broken away to show its construction,

Figure 4 is a side view in cross-section of a portion of a chair of a second embodiment of the present invention, and

Figure 5 is a greatly reduced side elevational view of a third embodiment of the present invention showing a chair connected to a source of treated air under pressure.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views, in Figures 1 to 3, inclusive, a first embodiment of the present invention is shown and is seen to consist in a chair having an upright hollow base **10** having an open top, and a hollow seat **12** and a hollow back **13** arranged in superimposed relation with respect to the base **10** with the seat **12** bridging and supported on the open top of the base **10**.

An opening **11** is provided in the lower wall **14** of the seat **12** and connects the seat with the interior of the base. A partition **15** in the seat **12** is provided with spaced apertures **16** and a partition **17** in the back is also provided with spaced apertures **18**. The apertures **16** and **18** in the partitions **15** and **17**, respectively, permit the flow of air from the opening in the lower wall **14** of the seat into a space between the partitions and the top wall **19**, the latter being fabricated of a flexible, reticulated material, such as mesh cloth, mesh or perforated plastic, or the like, and extends over and encloses both the seat **12** and the back **13** a spaced distance therefrom, and is movable toward and away from the seat bottom wall.

A plurality of springs **20** together with a layer of perforated padding **21** form cushion assemblies disposed between the partition **15** of the seat **12** and the adjacent portion of the top wall **19** and between the partition **17** of the back **13** and the other portion of the top wall **19**.

Within the base is an upright partition **22** one one side of which is a compressor portion of an air-conditioning unit which has its expansion or evaporator coils (not shown) laid horizontally in the throat of a plenum chamber **24** spaced from and above the fan of a motor fan assembly **25**.

A louver panel **26** covers an opening in the side wall of the base **10** and permits the flow of air inwardly to the interior of the base to where it will be forced by the fan of the motor fan assembly **25** upwardly over the evaporator coils of the air-conditioning unit and through the opening in the lower wall of the seat **12**, thence outwardly through the apertures **16** and **18** in the partitions **15** and **17**, respectively, and through the openings in the top wall to cool a person seated thereon.

An automatic control means is provided and consists in a pair of normally open contacts **27** and **28** arranged in the space between the partition **15** of the seat **12** adjacent the front edge thereof and the adjacent portion of the top wall **19** of the seat, the one contact **27** being movable and carried by the padding **21** and the other contact **28** being fixed and supported upon the partition **15** so that when a person seats himself the contacts close and set into operation the air-conditioning unit and the motor of the motor fan assembly.

Preferably the seat and back of the first embodiment is supported upon transverse rails **29** and the upholstering fabric extends completely over the back and down over the front and side walls of the base excepting the opening under the louver. An inspection and servicing panel **30** is hingedly connected to the rear wall of the base **10** over an opening therethrough and is fabricated of a mesh material to permit circulation of air through the interior of the base to cool the condenser coils of the compressor portion **23** of the air-conditioning unit.

A plug-in cable **31** is provided for connecting the air-conditioning unit and fan motor to a source of electrical power.

In the chair of the second embodiment shown in Figure 4, the base **32** encloses only a motor fan assembly **33** to force the air upwardly and through the seat and back of the chair **34**. A louver panel **34'** permits the flow of outside air inwardly to the base **32**. This form is for use in theaters, auditoriums, and in other places where the air in the room is treated by an air-conditioning unit.

In the third embodiment shown in Figure 5, the chair **35** is shown having its base **36** connected by the conduit **37** to a supply conduit **38** within a wall structure **39**, there being a source of treated air under pressure connected to the supply conduit **35**.

A heating element may be positioned in the base of the chair shown in Figures 1 to 3, inclusive, in order that the seat and back cushion assemblies of the chair be warmed when desired, and a temperature control **40** shown to be positioned in Figure 1 on one arm of the chair is incorporated in the electrical circuit of the air-conditioning unit and the heating element to control the temperature of the air forced through the chair.

In the embodiment of the invention shown in Figure 5, a motor fan assembly **41**, shown in dotted line in that figure, may be controlled by a similar pair of contacts **27** and **28** (not shown) so that only the chairs which are occupied and so equipped will be cooled, the motor fan assembly **41** serving to draw the air from the supply conduit **38**.

In the first embodiment of Figures 1 to 3, the fan on

the motor fan assembly is positioned in the lower end of a plenum chamber while in the other embodiments shown and described, the fan is positioned in a conduit depending from the opening in the seat bottom wall.

Although the invention has been specifically described in connection with a chair, other furniture articles, such as sofas, settees, divans, couches, and even office furniture, may be constructed according to the present invention and provided with the air-treating means heretofore described.

What is claimed is:

1. A chair comprising a hollow upstanding base having an open top and an opening in the side wall thereof for the admission of outside air therein, a hollow seat including a fixed bottom wall and a top wall movable toward and away from the bottom wall positioned so that the bottom wall bridges and is supported upon the open top of said base, there being provided an opening in the bottom wall of said seat, a conduit depending from the opening in said seat bottom wall, an air conditioning unit within said base operable to cool the air in said conduit, a hollow back rising from the rear edge of said seat and connected in communication therewith, there being reticulated openings in said seat top wall and in the front wall of said back, a motor fan assembly positioned within said conduit so that the fan directs air toward and through said bottom wall seat opening, a source of electric current connected to the motor of said assembly, a first contact positioned within and fixedly carried by said seat and electrically connected to said source, and a second contact positioned within and dependingly carried by said seat top wall and movable into contact with said first contact in response to the weight applied to said seat top wall by an occupant when seated on said seat to close the circuit and energize said fan motor assembly.

2. A chair comprising a hollow upstanding base having an open top and an opening in the side wall thereof for the admission of outside air therein, a hollow seat including a fixed bottom wall and a top wall movable toward and away from the said bottom wall positioned so that the bottom wall bridges and is supported upon the open top of said base, there being provided an opening in the bottom wall of said seat, a conduit depending from the opening in said seat bottom wall, an air-conditioning unit within said base operable to cool the air in said conduit, a hollow back rising from the rear edge of said seat and connected in communication therewith, there being reticulated openings in said seat top wall and in the front wall of said back, a motor fan assembly positioned within said conduit so that the fan directs air toward and through said bottom wall seat opening, a source of electric current connected to the motor of said assembly, a first contact positioned within and fixedly carried by said seat and electrically connected to said source, a second contact positioned within and dependingly carried by the said seat top wall and movable into contact with the first contact in response to the weight applied to said seat top wall by an occupant when seated on said seat to close the circuit and energize said fan motor assembly, and a spring cushion assembly interposed between said top and bottom walls of said seat urging said top wall away from said bottom wall.

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