Aug. 23, 1938. R. B. BAKER 2,127,710

FURNITURE CONSTRUCTION

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Fig. 1.

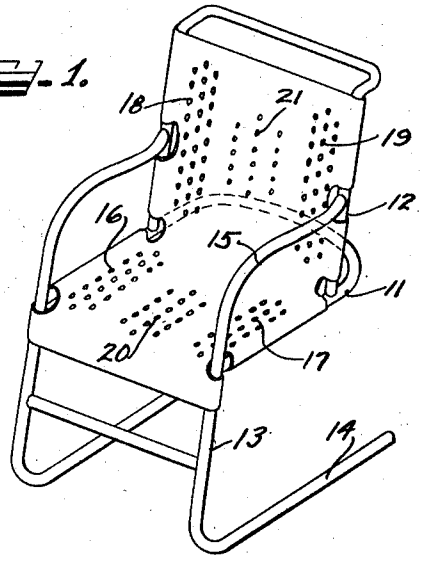
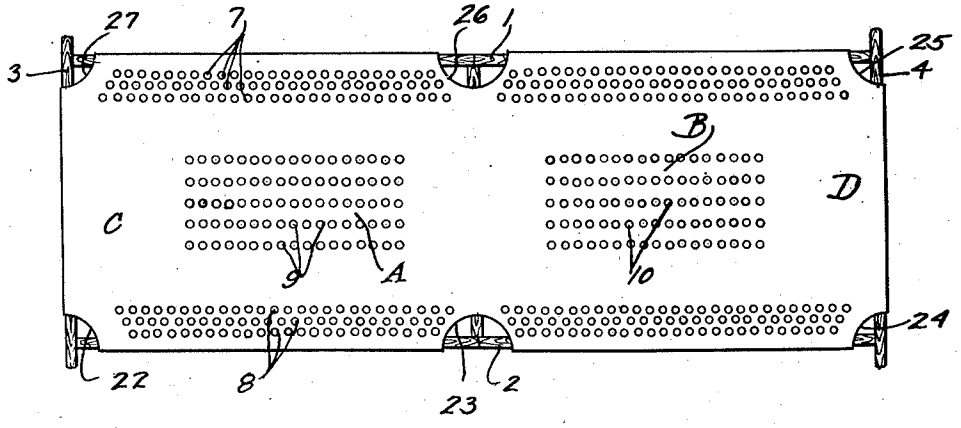


Fig. 2.



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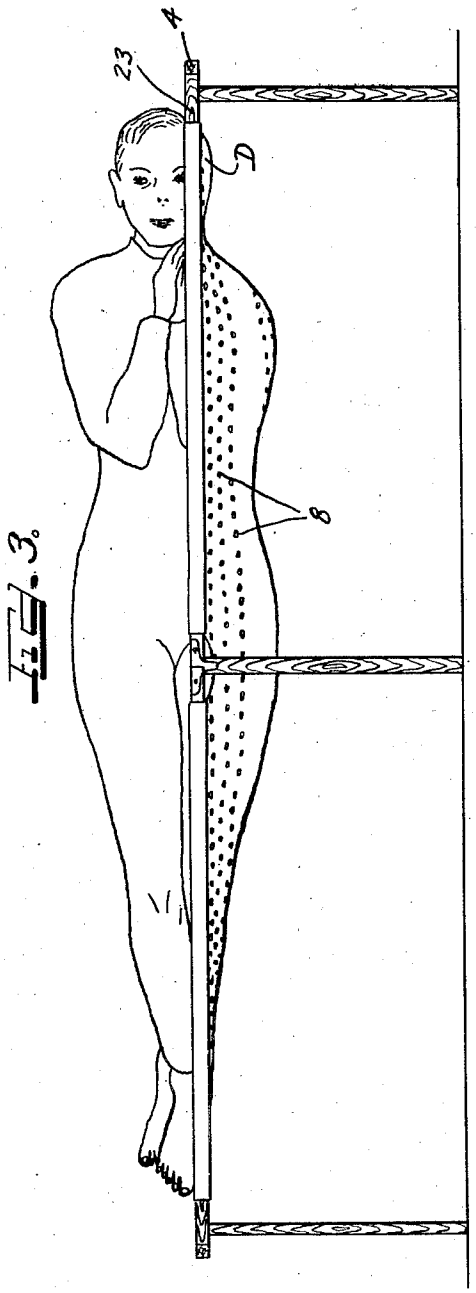


Fig. 3.

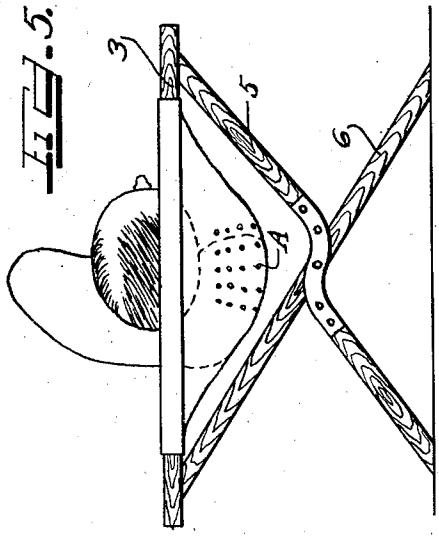


Fig. 5.

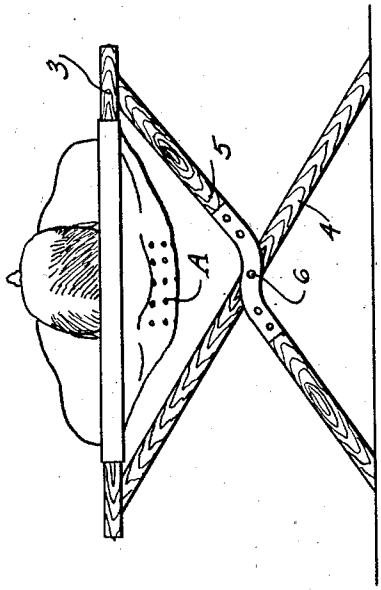


Fig. 4.

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FURNITURE CONSTRUCTION

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Application February 1, 1937, Serial No. 123,329

1 Claim. (Cl. 5—186)

The present invention relates to furniture construction and more particularly to a novel bottom for beds, cots and the like, and which bottom is also capable of use for chairs and similar articles of furniture.

An object of the present invention is to provide a bottom structure for furniture having portions of differing degrees of elasticity so as to adjust itself to accommodate the shape and weight of different parts of the body of a person occupying the bottom.

Another object of the present invention is to provide a bottom for an article of furniture having perforations along its side margins to provide non-metallic spring action to conform the bottom substantially to the shape of the body of a person occupying furniture.

A further object of the present invention is to provide a one-piece bottom for an article of furniture, which bottom is of inherently elastic material and which is perforated in spaced areas to provide zones or areas of greater elasticity to enable the bottom to readily conform to the shape of different parts of the body of a person occupying the furniture.

A still further object of the present invention is to provide a bed bottom having portions of differing degrees of elasticity so as to adjust itself to accommodate the shape of different parts of the body of the person lying on the bottom.

The above other and further objects of the present invention will be apparent from the following description and accompanying drawings.

The accompanying drawings illustrate embodiments of the present invention, and the views thereof are as follows:

Figure 1 is an isometric view of a chair equipped with a bottom of the present invention.

Figure 2 is a top plan view of a bed bottom constructed in accordance with the principles of the present invention, and utilized in a cot.

Figure 3 shows the manner in which different areas thereof stretch with differing degrees of elasticity when occupied by a recumbent person lying on his side.

Figure 4 is an end view of the cot of Figure 2, showing the stretch of the bottom unoccupied by a person lying on his back, and,

Figure 5 is an end view of the cot of Figure 2 showing greater stretch of the bottom when occupied by a person lying on his side.

The drawings will now be explained.

The frame structure of the cot illustrated in Figures 2 to 5 inclusive is a well known type, comprising two side rails 1 and 2, and end rails 3 and 4. Each of the side rails is made up of two sections hingedly connected together at substantially mid-length of the bed for folding purposes, as is common construction.

The frame of the cot is supported by folding legs, three pairs of which are shown, every pair comprising leg members 4 and 5, pivotally connected together at 6 and suitably connected at their upper ends to the frame structure of the cot.

The bed bottom illustrated in Figs. 2 to 5 inclusive is fashioned as one piece from a sheet of material having elastic characteristics. Material used is preferably rubber or rubber composition.

Because of the fact that the bed bottom is made of rubber or rubber composition, it is water impervious, is elastic, and is therefore much more comfortable for an occupant than a bed bottom such as heretofore manufactured of canvas or like material.

In order to increase the elasticity of certain areas or zones of the bottom of the present invention, a multiplicity of perforations are formed in areas spaced relatively one to another.

As illustrated in Figure 2, the perforations are arranged in several groups to afford perforated areas along the side margins of the bottom. These areas are formed by perforations 7 constituting an elastic area along one side margin and a similar group of perforations 8 along the other side margin of the bottom constituting an elastic portion along this margin of the bottom. The provisions of the perforated areas 7 and 8 constitute what may be termed as "non-metallic springs" thus enabling stretch of the bottom in excess of that made possible by its inherent elastic characteristics.

Referring to Figure 4 of the drawings showing a person lying on his back on the cot of Figure 2, it will be observed that the central portion of the bottom has sagged downwardly which sagging is made possible by reason of the marginal perforations 7 and 8, allowing stretch of the bottom along its side margins, and thus conforming the bottom in general to the shape of the back of the occupant.

In addition to the side marginal areas just described, the bottom may be provided with other perforations 9, disposed between one end of the bottom and its midlength constituting an elastic or stretchable area A and another group of perforations 10 between the mid-length of the bottom and its other end, and constituting a stretchable area B. The areas A and B are so disposed with reference to the length of the bot-

tom as to underlie the shoulders of a person occupying the bottom. There are two such areas formed in the bottom so that a person may lie on the bottom with his head toward either end of the bed as he may desire. Between the end margins of the areas A and B, the bottom is left imperforate as at C and D to afford head rest portions of the bottom.

When a person occupies the bottom of Figure 2 in recumbent position and on his side, the stretch of the bottom appears as illustrated in Fig. 3 with that portion of the bottom underlying the hips of the person stretched to a greater extent than the portion underlying his legs while the shoulder portion is stretched perhaps to a greater extent than the hip portion.

In the stretch of the bottom, as exemplified in Figs. 3 and 5 of the drawings, the perforations along side margins act to permit sag of the central portion of the bottom and the shoulder of the occupant stretches one of the areas A or B to conform the bottom to the shoulder portion of the occupant.

In order to attach the bottom to a cot frame or a bed frame, the sheet is made of such length and width as to have end and side pieces which may be wrapped around the side and end rails and then vulcanized to the under side of the sheet thus permanently connecting the sheet to the framework. If desired, additional fastening means such as rivets, screws, nails or the like might be employed for attaching the bottom to the framework.

Fig. 1 illustrates application of a bottom of the present invention to a chair in which the chair is provided with a frame portion 11, an upright back frame 12 and legs 13 having rearwardly extending feet 14. Arms 15 extend upwardly from the legs and are attached to the frame 12 of the back structure of the chair.

The seat of the chair is formed by a bottom of the present invention which bottom is extended upwardly along the back frame 12 to constitute the back of the chair. In this form of the invention, the seat of the chair and the back of the chair are made from a single sheet of material which sheet is perforate along its side margins forming zones 16 and 17 in the seat and 18 and 19 in the back. When the chair of the form illustrated in Fig. 1 is occupied, the seat portion will stretch because of the provision of the non-metallic springs formed in the perforated zones 16 and 17 and thus conform the chair seat to the shape and contour of the person occupying it.

The back of the chair, when the occupant leans against it, will stretch because of the provision of the non-metallic springs formed by the perforated zones 18 and 19, thereby conforming the back of the chair to the shape of the occupant.

If desired, plurality of perforations 20 and 21 may be formed in the seat and back respectively for purposes of ventilation or for affording additional elasticity to the bottom structure of the article of furniture.

It will be observed that the bottom structure of the present invention is elastic and being provided with areas or zones of greater elasticity readily adapts itself or conforms itself to the form of the occupant of the bottom, thereby assuring greater comfort to such occupant. By reason of the zones of differing degrees of elasticity, the bottom will conform itself to the different shapes and weights of different parts of the body of an occupant thereby increasing the comfort afforded such occupant by such bottom.

The manufacture of the bottom of rubber or rubber composition material makes possible the use of furniture equipped with such bottoms in wet climate or for outdoor use without fear of deterioration of the bottom structure. The perforated areas as shown in the bottom structure enable ready ventilation, which is an improvement over the canvas bottom type of cot or chair.

The bottom structure being of rubber or rubber composition lends itself very readily to seating so that at all times it affords a pleasing, convenient and comfortable bottom for furniture construction.

A bottom of the present invention lends itself very readily to conform to the suspension of a body in its natural shape, thus adding to the comfort of an occupant of a bottom of the present invention.

By the provision of the perforated marginal zones or areas, the central portion of the bottom assumes a flatter position, when occupied, than it would were there no perforated areas in it. In a bottom containing no perforated areas, or one uniformly perforated, the usual result, when occupied, is to sag between its end and side supports and not conform to the natural contour of the body of an occupant.

The bottom of the present invention enables its occupancy in such manner that the occupant's body is normally level, that is to say, the feet are not higher than the head nor is the head higher than the feet when the occupant lies on his side as is the condition when occupying a canvas cot.

The number of perforations utilized in constructing bottoms of the present invention may, of course, be varied to vary the degree of elasticity of such bottoms.

In general, however, the provision of the side marginal perforations, functioning as "non-metallic" springs is considered of importance in the present invention and in fact the gist of the present invention. The addition of the perforated areas A and B as described with reference to Fig. 2 is for providing areas of greater elasticity than would be provided were the body of the bottom imperforate except for the side marginal perforations or zones 7 and 8. This latter, that is, the provision of areas A and B may be optional if desired, although it has been found in practice that these areas are desirable for greater comfort.

When a bed bottom such as that illustrated in Figure 2 is occupied by a person lying on his back, the stretch of the bottom occurs in the perforated marginal areas 7 and 8, with appreciably no stretch occurring in the areas A and B, as may be observed in Fig. 4.

Either area A or B comes into use, when a person lies on his side with one shoulder against one of these areas as illustrated in Figs. 3 and 5, to increase the stretch of the bottom underneath the shoulder portions of the occupant.

It will be observed that the bottom of the present invention comprises an elongated single sheet of elastic material, which is substantially continuous and imperforate and which is provided with a plurality of series of apertured localized areas spaced one from another.

The sheet when used as a bottom for a cot has cutout portions as indicated at 22, 23, 24, 25, 26, and 27, and when used as a seat for a chair, such as that illustrated in Fig. 1, has corresponding cutouts to accommodate the arms and joints of the frame structure of the chair or other article of furniture to which the bottom may be applied.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

The invention is claimed as follows:

A one-piece bottom for a bed or the like, said bottom comprising an elongated and substantially continuous and imperforate sheet of elastic material provided with two groups of longitudinally extending and parallel inner rows of holes disposed about the longitudinal axis of the sheet and with the groups disposed to leave substantial areas of imperforate material between the groups and between each group and an adjacent end of the sheet, said sheet being also provided with longitudinally extending parallel outer rows of holes disposed adjacent each longitudinal margin of the sheet and spaced from said two groups to leave an imperforate strip of the sheet between said two groups and said outer rows.

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