

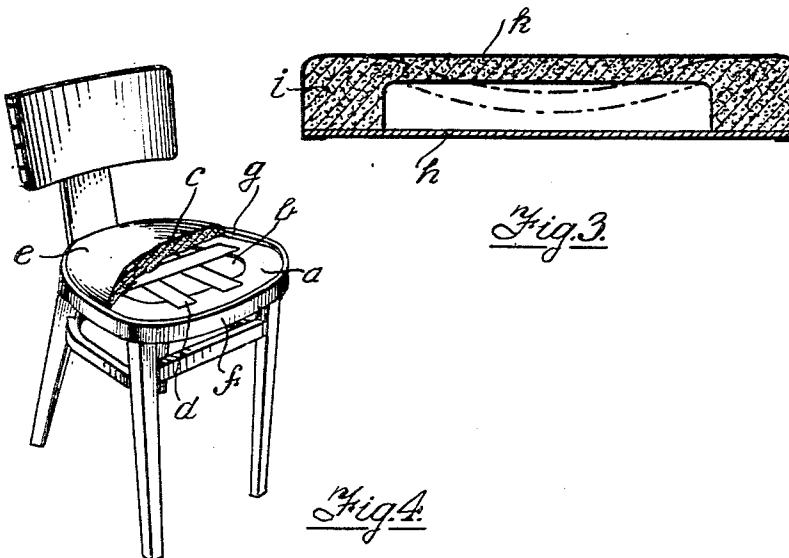
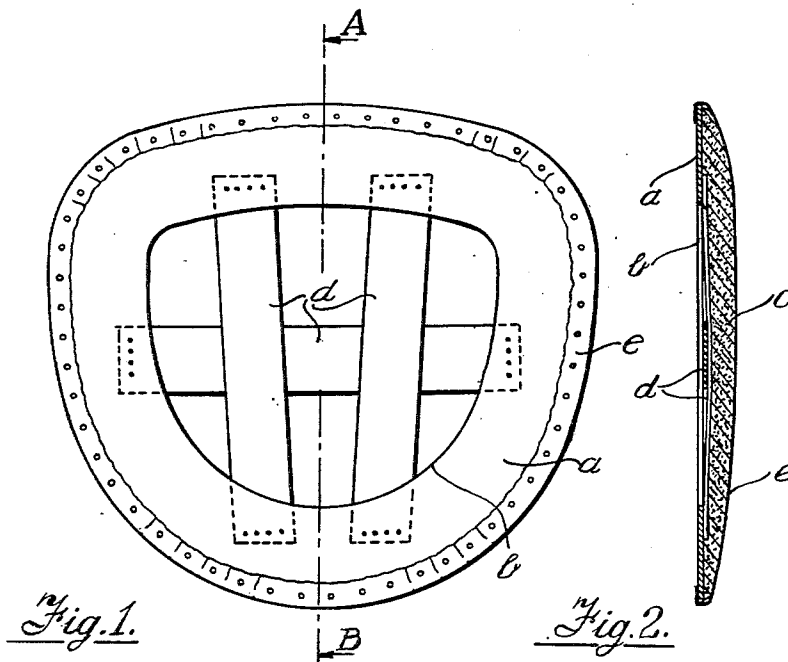
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SEATS

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SEATS

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This invention relates to seats for various purposes but has particular reference to chair seats of the kind adapted to be fixedly or detachably mounted in or upon a wooden seat frame.

The object of the present invention is to provide an improved form of seat construction designed to comply with the physical contours of the body and to prevent the upward spinal pressure which is a common source of discomfort when a person sits for a prolonged period upon a seat of normal type.

According to the invention a seat comprises a cushion of resilient or yieldable material and a rigid support therefor characterized in that the outer portions of the cushion are so constructed and supported that the central portion of the cushion can yield freely in a downward direction for the purpose of insuring that the weight of the sitter is distributed away from the central portion of the seat.

According to one form of the invention a chair seat comprises a frame having a central aperture of substantial dimensions to afford the minimum essential support to the sitter, and a covering of resilient or yieldable material extending over the entire area of the seat to cushion the surface of the frame but capable of yielding downwards to a substantial extent through the aperture to afford the maximum degree of comfort.

Reference will now be made to the accompanying drawings in which:

Fig. 1 is an inverted plan of a chair seat constructed according to the invention,

Fig. 2 is a cross-sectional view of the seat taken on the line A—B of Fig. 1,

Fig. 3 is a cross-sectional view of a modified form of construction, and

Fig. 4 is a perspective view, partly in section showing a seat operatively mounted in a chair frame.

In the construction illustrated and referring first to Figs. 1 and 2, the improved chair seat is constructed from a frame which may conveniently be cut from a single sheet of plywood. This frame consists of a relatively narrow flat rim *a* surrounding a central aperture *b*. This frame is surmounted by a cushion *c* which may consist of a pad of cellular rubber, cellular plastic or other similar material co-extensive or nearly co-extensive in area with the frame. In practice it is preferred to support this cushion upon interlaced strips *d* of rubber or fabric extending at right angles or at any other angle across the aperture in the frame *a* and fixed to the upper surfaces thereof.

The use of these strips is not essential to the invention in all cases but they afford a useful support for certain kinds of cellular media and have the advantages of assisting the rapid recovery of the seat after use and of retarding disintegration of foamed or sponge-like media.

The dimensions of the central aperture *b* remain substantially constant to accord with the dimensions of the

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human frame but for most practical purposes the maximum width of this aperture should be of the order of 10 to 11 inches.

The seating is finished with an outer covering *e* of fabric, leather, plastic or other upholstery material. This seating can be constructed for fixing to a seat frame or can be formed as a unit detachable for cleaning or recovering.

When a seat as above described is in use the weight of the sitter is taken by the frame *a*, the central portion of the cushion being depressed through the aperture *b* in the frame in conformity with the contours of the human seat resting upon it. The design is such that the depression of the cellular medium *c* through the aperture *b* takes place to a substantial degree. In this manner the seat not only provides a comfortable conformation but the aperture *b* insures that the weight of the person seated is distributed away from the central portion of the seat and therefore away from the central nerves and circulation center to the outer extremities of the seating area. This distribution of the weight also insures that the central portion of the seat cannot set up the resistance which commonly produces a tiring upward pressure on the region at the base of the spine of the sitter.

In certain applications of the invention it may be found desirable to increase the thickness of that portion of the cushion *c* immediately above the frame. In certain applications of the invention it may be necessary to superimpose the deformable cushion upon a solid frame, that is one without the aperture *b*, in which case it is necessary to increase the thickness of the peripheral portions of the cushion. Such a modification is shown in Fig. 3 wherein *h* indicates a solid supporting base and *i* indicates the thickened or built up edge portions of the cushion. These edge portions may be of any convenient width to accord with the type of seating and may be of internal arched or recessed structure. The central portion *k* of this form of cushion is depressed when the seat is occupied to the position shown in broken lines and thus functions in the same manner as the seat shown in Figs. 1 and 2. The height of the seat is built up according to the density of the cushion material employed to such a dimension as will prevent any possibility of contact with the solid base *h* when the weight of an average person is imposed upon the seating.

One method of utilizing a seat constructed as above described is to mount it in a wooden seat frame *f* of a bentwood chair as shown in Fig. 4 wherein the seat forms an easy fit within the frame which is formed internally with a ledge *g* or is otherwise formed or provided with means on which the outer edge portion of the seat is supported.

In all forms of the invention herein described the edge portions of the seating may be discontinuous in that the central peripheral portion at the front may be cut away.

I claim:

1. In a seat support structure, a rigid flat-sided frame having a single central aperture therethrough, said aperture being formed to conform to the contour of the human frame and including an arcuate front edge having a selected radius of curvature and an arcuate rear edge having a selected radius of curvature of substantially lesser magnitude than the radius of curvature of said front edge; and a resilient flexible imperforate cushion supported on said frame over said aperture and having a bottom face spaced above the top of said frame in opposed unflexed relationship to said aperture, said cushion having a flat sided substantially peripheral integral portion projecting downwardly from said bottom face in supported bearing relation to said frame peripherally

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around and near the edges of said aperture, said cushion being sufficiently yieldable by the weight of a human body so that the central portion thereof is capable of being depressed through said aperture in conformity with the contours of the human frame to thereby uniformly distribute the weight of the human body to the peripheral portions of the seat and relieve upward pressure on the corresponding portion of the body.

2. In a seat support structure, a rigid flat-sided frame having a single through central aperture approximately 10-11 inches in width, said aperture being formed to conform to the contour of the human frame and including an arcuate front edge having a single selected radius of curvature and an arcuate rear edge having a single selected radius of curvature of substantially lesser magnitude than the radius of curvature of said front edge; and a resilient flexible imperforate cushion supported on said frame over said aperture and having a bottom face spaced above the top of said frame in opposed unflexed relationship to said aperture, said cushion having a flat sided substantially peripheral integral portion correspond-

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ing to the contour of said aperture and projecting downwardly from said bottom face in supported bearing relation to said frame peripherally around and near the edges of said aperture, said cushion being sufficiently yieldable by the weight of a human body so that the central portion thereof is capable of being depressed through said aperture in conformity with the contours of the human frame to thereby uniformly distribute the weight of the human body to the peripheral portions of the seat and relieve upward pressure on the corresponding portion of the body.

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