

March 14, 1939.

A. H. FINLAY

2,150,434

FURNITURE

Filed March 21, 1936

2 Sheets-Sheet 1

Fig. 1.

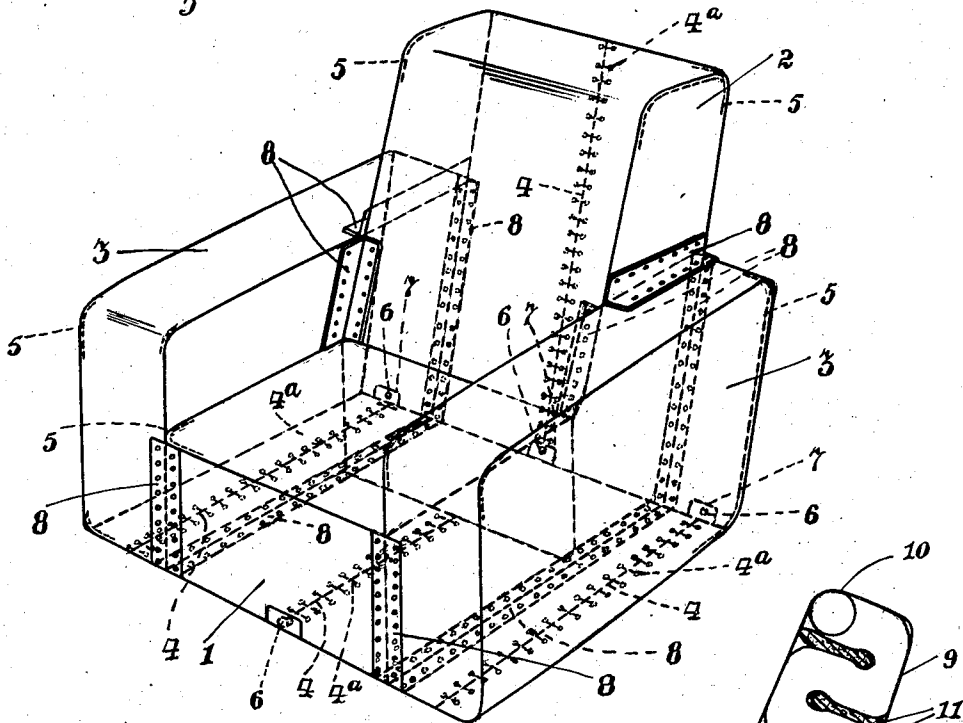


Fig. 2.

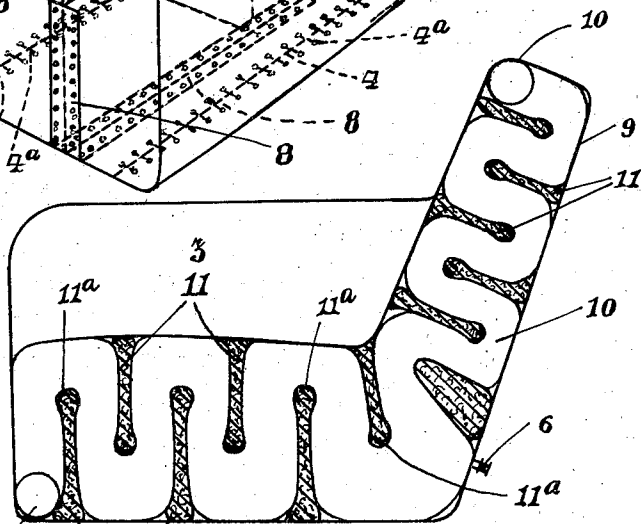
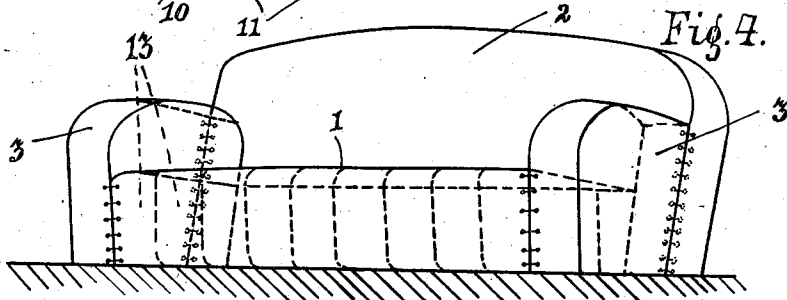


Fig. 4.



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Fig. 3.

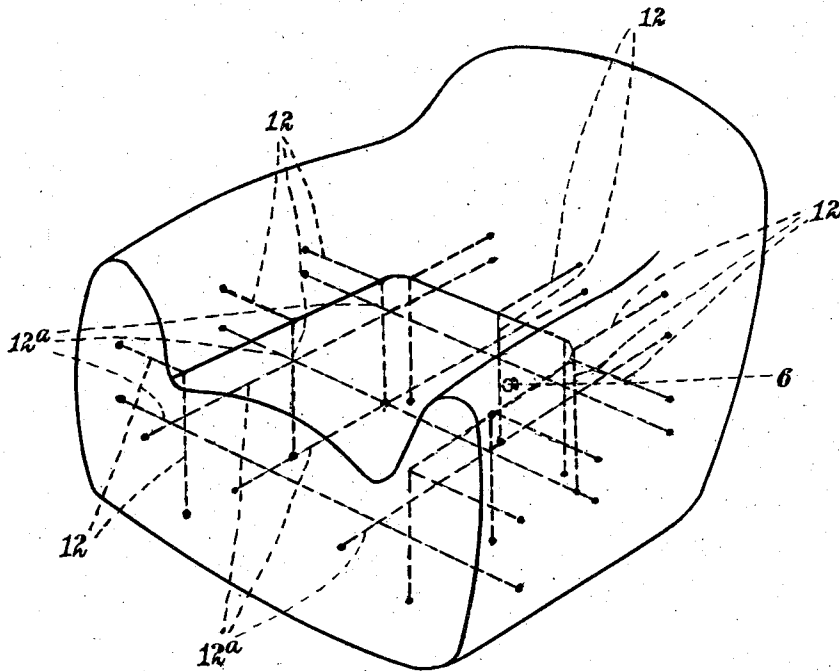


Fig. 5.

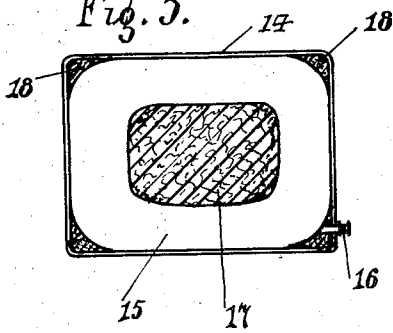
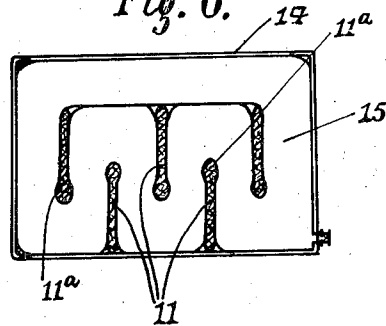


Fig. 6.



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# UNITED STATES PATENT OFFICE

2,150,434

## FURNITURE

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8 Claims. (Cl. 155—179)

This invention relates to armchairs, settees and like articles of furniture, presenting a recess to receive the user's body between adjacent portions constituting arm or back rests.

According to my invention, I provide an armchair, settee or the like article of furniture presenting a recess to receive the user's body between adjacent portions constituting arm or back rests, the whole being constituted without rigid frame members by a single pneumatic chamber or a plurality of such chambers arranged so as to be self supporting with the aid of tie means controlling the distension of the chamber or chambers under inflation.

Furniture in accordance with the invention comprises envelope means such as an outer cover of leather, canvas, rubber or other flexible material adapted by shape and construction to receive and accommodate one or more suitably shaped removable inflatable and deflatable inner chambers provided with air valves, one or more pockets or compartments being formed in the outer cover or envelope to receive and retain the inflated chamber in such manner as to provide the desired shape and to ensure its stability and comfort in use, the chambers and their respective casings or coverings constituting what is designated in the claims as envelope means, and within the envelope there is provided a core of packing, an additional packing or padding is provided to protect the walls of the inflatable chamber or chambers.

In order that the invention may be clearly understood, several examples are hereinafter described with reference to the accompanying drawings which are of a diagrammatic nature.

Fig. 1 is a perspective view of a lounge or easy chair in accordance with the invention.

Fig. 2 is a cross sectional view of a modified form of easy chair.

Fig. 3 is a perspective view of a further modified form of easy chair.

Fig. 4 is a perspective view of a couch or settee in accordance with the invention.

Figs. 5 and 6 are cross sectional detail views of chambers applicable to the fabrication of armchairs, settees and the like articles of furniture.

Referring to Fig. 1 of the drawings, there is shown an easy chair comprising four envelope means, that is, one each for the seat and back designated respectively by the numerals 1 and 2, and two arm or side elements 3, and each comprises an outer cover of flexible but substantially inextensible material, for example, hide, woven fabric, or fabric-reinforced rubber, formed of

united pieces or of one shaped piece as the nature of the material will allow. Each cover has a slit opening 4, the openings in the seat unit 1 and side units 3 being located centrally underneath and that of the back unit 2 being located centrally at the rear. These openings serve for the insertion or removal of pneumatic inflatable tubes 5 preferably of rubber moulded to shape, these members 5 being only partially indicated by the appropriate dotted lines marked 5. Each member 5 has a valve 6 located in an inconspicuous position and covered by a flap 7. The openings 4 may be closed by lacing 4<sup>a</sup> or other suitable means such as sliding fasteners. After insertion of the inflatable tubes, the same are inflated to the required degree of pressure and the entire envelope means are assembled and connected together preferably in a readily detachable manner. As shown, the chambers are united by means in the form of flexible strips 8 having series of press button or the like connections with the envelopes to be joined. It will be evident that further strips may be employed between the back, seat and side envelopes as desired and that various other modes of connecting the chambers may be employed.

These strips 8 act against the separating force of the air pressure in the separate sections or envelopes and are in tension; therefore they act as tie means for tying the adjacent parts together.

Fig. 2 shows an easy chair constructed of inflatable envelopes similarly to the chair in Fig. 1 except that the seat and back are constituted by the same envelope means 9. A further difference consists in that the inflatable member or members consist of a sinuously disposed tube or tubes 10. The sinuous shape is ensured by means of stiffeners 11 which may consist of padded members having enlarged inner ends 11<sup>a</sup> to prevent folds or creases in the tube or tubes 10. The stiffeners may constitute lateral stiffening stays and the tube or tubes may have a fabric covering to limit the inflation thereof and to reinforce them against wear and puncture. The sides of the chair may be inflated in similar manner by tubes.

The modified form of easy chair shown in Fig. 3 consists simply of an inflatable, flexible and airtight envelope shaped to assume the shape shown when inflated to the required degree. It may be made of any suitable flexible material as previously specified, and preferably of fabric-reinforced rubber. To prevent distortion and to hold the associated parts against separation under pressure flexible ties 12 are provided inside, these ties joining the edges of the seat portion with the side walls, the back and the bottom, it

being readily understood that since the seat constitutes a re-entrant part of the inflatable envelope it will be liable to distortion on inflation. The valve 6 is provided at the rear. It will be readily seen that the inflatable chamber may be divided into separately inflatable chambers, each having a valve therefor. Obviously the airtight chamber will be of comparatively small bulk when deflated.

Horizontal ties 12<sup>a</sup> extending from side to side and from back to front may also be provided as shown and also hold the associated parts against separation by the fluid pressure.

The settee shown in Fig. 4 is built up of side, back and seat envelopes designated respectively by the numerals 3, 2 and 1 similarly to the chair shown in Fig. 1. Owing however, to the length of the seat chamber 1, it is built up of substantially rectangular chambers 13 enclosed within a suitable cover or envelope and suitably interconnected if necessary. The back unit 2 may obviously be built up of separate chambers in like manner. The envelopes 1, 2 and 3 may be connected together as described with reference to Fig. 1, or in any other suitable manner.

Fig. 5 shows an inflatable envelope or rectangular outer cover 14, and an inflatable endless tube 15 therein with the usual air valve 16. A suitable core or packing 17 is provided and the corners of any two rectangularly or similarly disposed surfaces of the cover 14 may be provided with packing 18 to prevent damage to the tube 15.

Fig. 6 shows an envelope in which the endless tube 15 being in part sinuously disposed around stiffeners or packing members 11 as previously described.

Several separate tubes may be disposed within said covers which may thus be of varying sizes and which can also be of widely differing shapes. By means of such inflatable envelopes many different articles of furniture may be built up, as shown for example in Figs. 1, 2 and 4, previously described. In the case of an article of furniture so built up, the inflatable tubes in all the envelopes or in groups of envelopes may be connected by a common tube having a valve therein so that all the chambers so connected can be blown up at once. Valves may also be provided between the inflatable tubes in each envelope and the common tube to prevent complete deflation on a puncture occurring in any envelope.

An armchair, settee or the like piece of furniture may comprise compartments in an outer cover capable of receiving inflatable inner members. Some such articles of furniture may be inflated under such high air pressure that practically a solid unyielding effect is obtained, any desired softness being given by the use of separate inflatable or other cushions. In other cases the air pressure may be such as to give a desired degree of resiliency.

Furniture made as hereinbefore described will be found an improvement on existing structures. It can be stored in deflated condition or readily deflated for removal or cleaning. If made of rubber it will be hygienic and easily cleaned by washing. The improved furniture has the further advantage that it is practically indestructible being therefore particularly suitable for hotel, ship and the like public use.

The chamber for use in constructing an armchair, settee or the like article of furniture as described may comprise an inflatable member enclosed in an unyielding canvas or equivalent

cover to limit its expansion to a desired shape and size.

I claim:—

1. An article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of pneumatic envelope means at least one of which constitutes a seat portion, and two each constituting an arm rest, said envelope means being connected by tie means which act in opposition to the pneumatic pressure and constitute the sole means for maintaining the shape and rigidity of said article, each of said envelope means comprising a non-circular outer cover, an endless inflatable tube disposed annularly therein, and padding means also disposed in said cover.

2. An article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of pneumatic envelope means, one of which constitutes a back rest portion, another constituting a seat portion, and two each constituting an arm rest, said envelope means being connected by tie means which act in opposition to the pneumatic pressure constituting the sole means for maintaining the shape and rigidity of said article, each of said envelope means comprising a non-circular outer cover, an endless inflatable tube disposed annularly therein, and padding means also disposed in the said cover.

3. A settee, the whole being constituted by a plurality of pneumatic envelope means, each comprising an outer flexible cover, an inner inflatable member and an air valve connected thereto, the back and arm rests each constituted by a separate envelope means, and the seat portion being constituted by a plurality of adjacent envelope means, tie means detachably connecting said envelope means and acting in opposition to the pneumatic pressure to maintain the shape and rigidity of the settee, each of said envelope means comprising a non-circular outer cover, an endless inflatable tube disposed annularly therein, and padding means also disposed in said cover.

4. An article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of pneumatic envelope means, tie means connecting the same and which tie means act in opposition to the pneumatic pressure and maintains the said envelope means against separation, each of said envelope means comprising a non-circular outer cover, a continuous inflatable tube disposed annularly therein, and padding means also disposed in said cover.

5. As an article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of inflatable envelope means, tie means connecting the same and which tie means act in opposition to the pneumatic pressure and maintains said envelope members against separation, each of said envelope means constituting a non-circular outer cover, a continuous and inflatable tube therein, and a core of packing material of substantial area between and contacted by adjacent portions of the tube.

6. As an article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of inflatable envelope means, tie means connecting the same and which tie means act in opposition to the pneumatic pressure and maintains said envelope members against separation, each of said envelope means constituting a non-

5 circular outer cover, a continuous and inflatable tube therein, a core of packing material of substantial area between and contacted by adjacent portions of the tube, and padding means also within and disposed between the cover and the adjacent portion of said tube.

7. As an article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of inflatable envelope means, the means connecting the same and which tie means act in opposition to the pneumatic pressure and maintains said envelope members against separation, each of said envelope means constituting a non-circular outer cover, a continuous and inflatable tube therein, and a core of packing material of

substantial area between and contacted by adjacent portions of the tube, said core being anchored to the cover.

8. As an article of furniture presenting a recess to receive the user's body between adjacent back and arm rests, the whole being constituted by a plurality of inflatable envelope means, tie means connecting the same and which tie means act in opposition to the pneumatic pressure and maintains said envelope members against separation, each of said envelope means comprising a non-circular outer cover, an endless inflatable tube disposed annularly therein, and a core of packing material of substantial area between and contacted by adjacent portions of the tube.

ARCHIBALD HENRY FINLAY. 15