

Nov. 2, 1937.

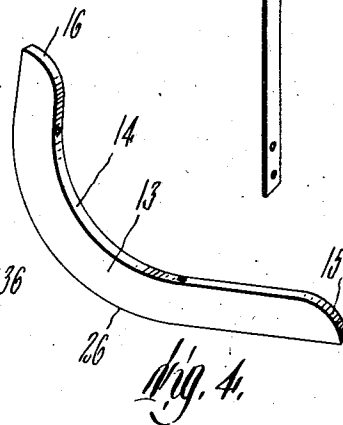
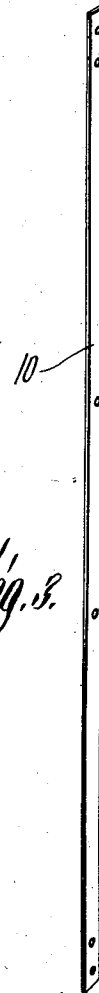
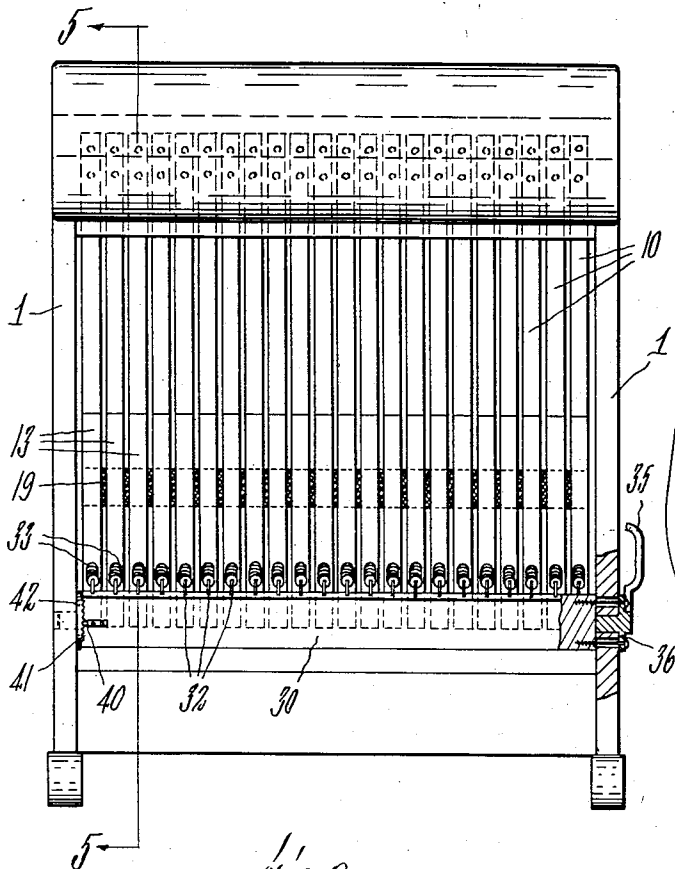
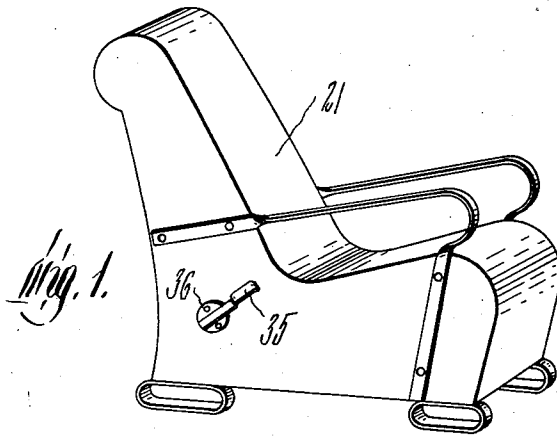
J. TURNER

2,097,541

CHAIR OR SEAT

Filed May 29, 1936

2 Sheets-Sheet 1



Inventor
John Turner
Wright Brown Pintoff
Attys.

Nov. 2, 1937.

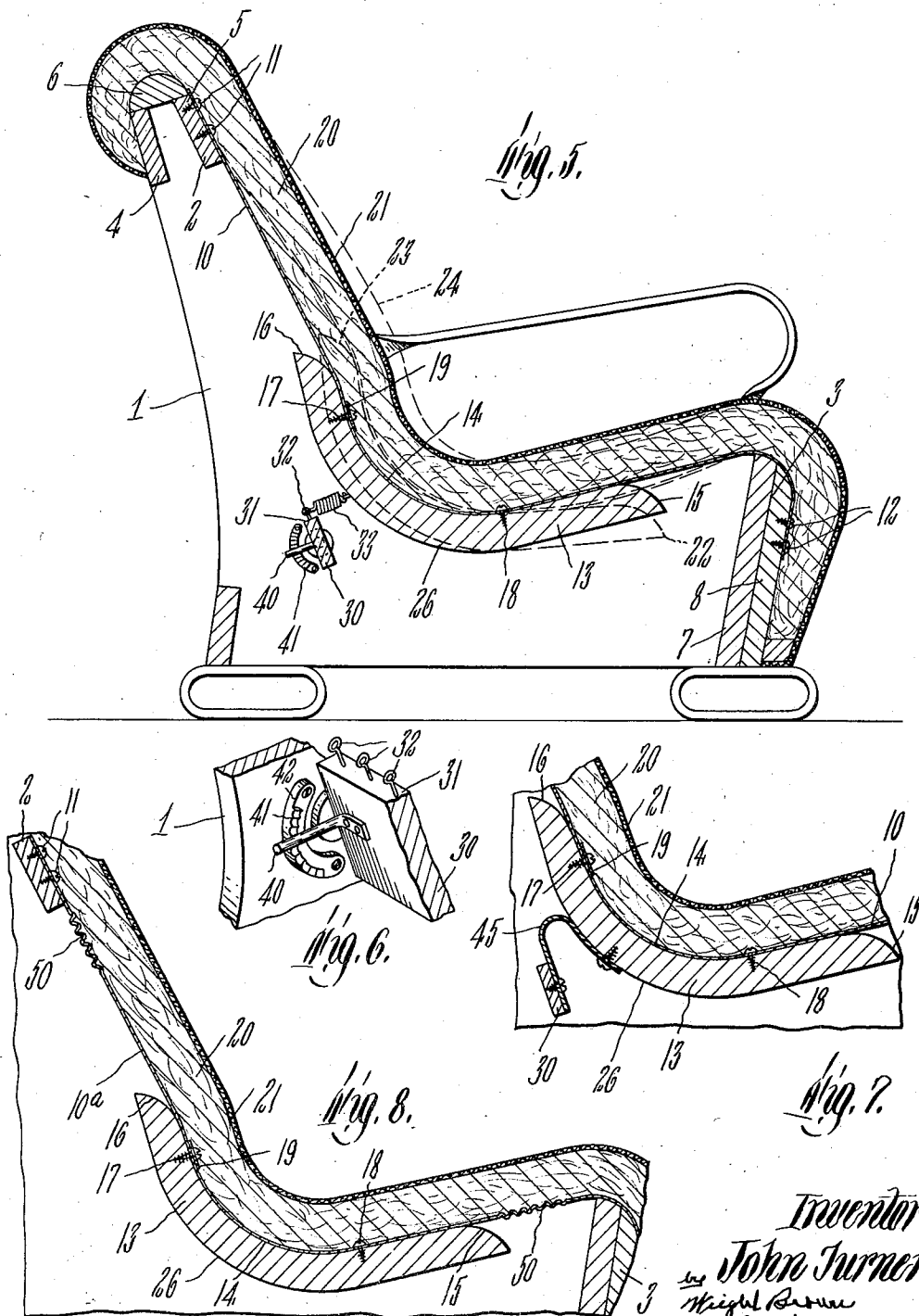
J. TURNER

2,097,541

CHAIR OR SEAT

Filed May 29, 1936

2 Sheets-Sheet 2



Inventor
John Turner
by
Wight Brown
Quincy, May
Attys.

UNITED STATES PATENT OFFICE

2,097,541

CHAIR OR SEAT

John Turner, Contocook, N. H.

Application May 29, 1936, Serial No. 82,463

8 Claims. (Cl. 155-119)

This invention relates to chairs or seats and has for an object to provide a construction wherein the body supporting portion will automatically conform to pressure of various parts of the body thereagainst so as to support the back of the occupant in accordance with his position, thereby to increase his comfort.

A further object is to produce a structure simple in character and inexpensive and easy to fabricate with relatively few tools.

Still another object is to produce a construction wherein the amount of pressure exerted against the back of the occupant in relation to his position on the seat portion may be adjusted by the occupant to suit his particular requirements or to modify the "feel" of the chair from time to time as he may find desirable for his maximum comfort.

A still further object of this invention is to provide a construction particularly desirable for use in automotive vehicles, eliminating the necessity of using coil springs beneath the seat portion, and thus increasing the room available under the seat for the storage of tools or other articles.

Further objects and advantages will appear from a more complete description of certain embodiments of the invention shown in the accompanying drawings in which

Figure 1 is a perspective view of one embodiment of the invention.

Figure 2 is a rear elevation of the same to a larger scale with the back covering omitted.

Figures 3 and 4 are detail perspectives of certain elements of the construction.

Figure 5 is a section on line 5-5 of Figure 2.

Figure 6 is a fragmentary perspective to a larger scale than Figure 5 and showing certain of the loading adjustment mechanism.

Figures 7 and 8 are fragmentary sectional views similar to portions of Figure 5, but illustrating certain modifications.

Referring to Figures 1 to 5, at 1 are indicated side frame members to which are secured a top back member 2, and a front seat member 3. As shown best in Figure 5, the top back member 2 comprises three cross frame members 4, 5 and 6, the members 4 and 5 being of rectangular cross section and bridged over at their upper edges by the member 6 which is flat on its under face and curved at its upper face. The front seat members are shown as comprising the two strips 7 and 8. Arranged along the top back member 2 and secured to the member 5 thereof are a series of flexible strips 10 which may be of steel of, say, twelve hundredths of an inch thick. Metal of

this character, while of high tensile strength, can be readily punched with a hand punch to form holes through which may be passed securing screws 11 by which the strips may be secured in position. The forward ends of these strips are brought over the front seat member 3 and are there secured in a similar manner as by the screws 12. The intermediate portion of each of these strips depends between the members 2 and 3 and forms a continuous seat and back portion of the structure. At the lower part of the back portion of each of these strips and at the back part of the seat portion is secured to each a block 13 having a concave upper face 14 which defines the curvature where the back and seat portions merge. These blocks 13 may have their inner faces, as at 15 and 16, curved outwardly toward the convex back and under face 26 to form portions about which the strips may more or less wrap as the strips are flexed by pressure eccentrically applied thereto with relation to the blocks. These blocks 13 may be secured at suitable points, as 17 and 18, to the strips 10 and these strips are also tied together laterally of the structure as by means of a flexible tape at 19. This flexible tape not only retains the strips in spaced relation intermediate to their ends, but transmits some motion from one strip to its adjacent strips so that they all are caused to conform generally to the contour of the body of the occupant. These strips and the frame members 2 and 3 are shown as covered with a continuous cushion 20 over the back and seat portions and this may be provided with a suitable covering fabric as 21. The cushion may be made of sponge rubber, cotton, hair, or be of any other suitable construction.

It will be noted that the blocks 13 are floatingly arranged so that pressure exerted on the forward ends of each to deflect these ends, as into the dotted line position shown at 22, will bring the upper rear ends of the blocks inwardly into the dotted line position shown at 23 so that where the occupant is exerting pressure in the seat portion against the forward ends of the blocks, these blocks transmit pressure to the back portion of the structure and cause it to follow inwardly against the occupant's back, so that the face of the seat and back with which the occupant's body engages takes a position such as the dotted line 24. These blocks, therefore, act to define the general contour of the body supporting face of the chair at the juncture of the back and seat portions, and they also act to cause pressure applied at one portion of the structure by the body of the occupant to exert a pressure

against another portion of the body. Thus the chair follows the configuration of the body of the occupant during all changes of his position therein thus producing a comfortable support.

5 Means may be provided by which an initial loading may be placed on these blocks 13 so as to suit the requirements of the individual occupant, or to permit the nature of the response to pressure exerted on one portion of the body-supporting surface to be adjustable, so that the occupant may change the "feel" of the chair from time to time in order to provide a rest due to changing response where the occupant remains in the chair for long periods, as, for example, 10 when the structure is applied to an automotive vehicle and it is necessary for the occupant to remain seated for long periods at a time.

In order that this loading may be applied and adjusted as desired, a bar 30 is shown as arranged transversely between the end frames 1 20 in a rockable relation thereto. In the form shown in Figures 2 and 5, one edge of this bar, as at 31, is provided with a series of eyes 32 for the attachment of loading coil springs 33. The 25 opposite end of each of these springs is suitably secured to the back or lower face of one of the blocks 13, which blocks are arranged in substantial alignment across the width of the structure. By adjusting the angularity of the bar 30, it will be seen that the tension applied to the springs 33 30 may be adjusted as desired. A suitable hand actuator for adjusting this angularity may be provided. This, as shown in Figure 1, comprises a handle 35 which may be grasped by the occupant of the chair, this handle being secured to 35 the end of the journal member 36 secured to one end of the bar 30.

Means may be provided for retaining the bar 30 in any adjusted angular position, and as shown 40 this comprises a spring pin 40 projecting from the bar 30 (see Figure 6) which may be engaged in any of a series of notches 41 in an arcuate plate 42 secured to the inner face of one of the end frame members 1. The engagement of the 45 spring pin 40 in any of the notches 41 frictionally holds the bar 30 in adjusted position, but permits the bar to be turned from one to another position by manipulation of the handle 35.

Instead of employing the coil springs for loading the blocks 13, leaf springs 45 may be employed 50 as shown in Figure 7, one end of each of these springs being secured to one of the blocks 13, and the other being secured to the bar 30.

Where a more springy or yielding action in 55 the structure is desired than can be produced by the structure previously described, this may be secured by producing a series of corrugations as at 50 in the spring elements 10a as shown in Figure 8. Corrugated sections may be formed in 60 both the back and seat portions as shown in this figure, or in either one as may be found desirable.

Where the structure is of sufficient width for more than one occupant, it will be noted that the 65 action of the parts will permit conformation to the requirements of each substantially independently of all the others.

From the foregoing description of certain embodiments of this invention, it should be evident 70 to those skilled in the art that various changes and modifications may be made without departing from the spirit or scope of this invention as defined by the appended claims.

I claim:

75 1. A structure of the class described, comprising

ing a top back frame member, a front seat member, means for supporting said members in spaced relation, flexible strips arranged side by side and secured at their ends to said members, and depending therebetween and forming a body support, and a rigid curved element secured concave-side up to the lower face of each strip intermediate said members. 5

2. A structure of the class described, comprising a top back frame member, a front seat member, means for supporting said members in spaced relation, flexible strips arranged side by side and secured at their ends to said members, and depending therebetween and forming a body support, and a rigid curved element secured concave-side up to the lower face of each strip intermediate said members, said elements being positioned in substantial alignment laterally of the structure. 10 15

3. A structure of the class described, comprising 20 a top back frame member, a front seat member, means for supporting said members in spaced relation, flexible strips arranged side by side and secured at their ends to said members, and depending therebetween and forming a body support, and a rigid curved element secured concave-side up to the lower face of each strip intermediate said members, said elements having their inner faces at their ends curved toward their outer faces and forming bearings over which the 30 corresponding strip may wrap on rocking of said elements by eccentrically applied pressure.

4. A structure of the class described, comprising a top back frame member, a front seat member, means for supporting said members in spaced 35 relation, flexible strips arranged side by side and secured at their ends to said members, and depending therebetween and forming a body support, a rigid curved element secured concave-side up to the lower face of each strip intermediate said members, and means applying a loading pressure to said elements. 40

5. A structure of the class described, comprising a top back frame member, a front seat member, means for supporting said members in spaced 45 relation, flexible strips arranged side by side and secured at their ends to said members, and depending therebetween and forming a body support, a rigid curved element secured concave-side up to the lower face of each strip intermediate said members, means applying a loading pressure to said elements, and means effective to adjust the amount of said loading pressure. 50

6. A structure of the class described comprising a top back member and a front seat member, 55 a flexible body supporting member secured at its ends to said back and seat members and depending therebetween to form seat and back portions, and means engaging said seat and back portions and transmitting pressure exerted on one of said 60 portions from the occupant to pressure against the occupant at the other of said portions.

7. A structure of the class described, comprising a top back member, a front seat member, side frames supporting said members, a series of 65 flexible strips secured at opposite ends to said members and depending therebetween to form seat and back portions, a block having a concave upper face secured to the lower face of each strip at the lower part of the back portion and at the 70 rear part of the seat portion, a bar rockably supported between said side frames back of said strips, springs connecting said blocks to said bar eccentric to the pivotal axis of said bar, and means for adjusting the angular position of said 75

bar to thereby adjust the loading of said springs on said strips.

5 8. A structure of the class described, comprising a top back frame member, a front seat member, means for supporting said members in spaced relation, flexible strips arranged side by side and secured at their ends to said members, and de-

pending therebetween and forming a body support, a rigid curved element secured concave-side up to the lower face of each strip intermediate said members, and a continuous cushion member overlying said strips and forming a continuous seat and back covering. 5

JOHN TURNER.