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J. J. WALDHEIM ET AL

2,659,419

CHAIR

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Fig. 1.

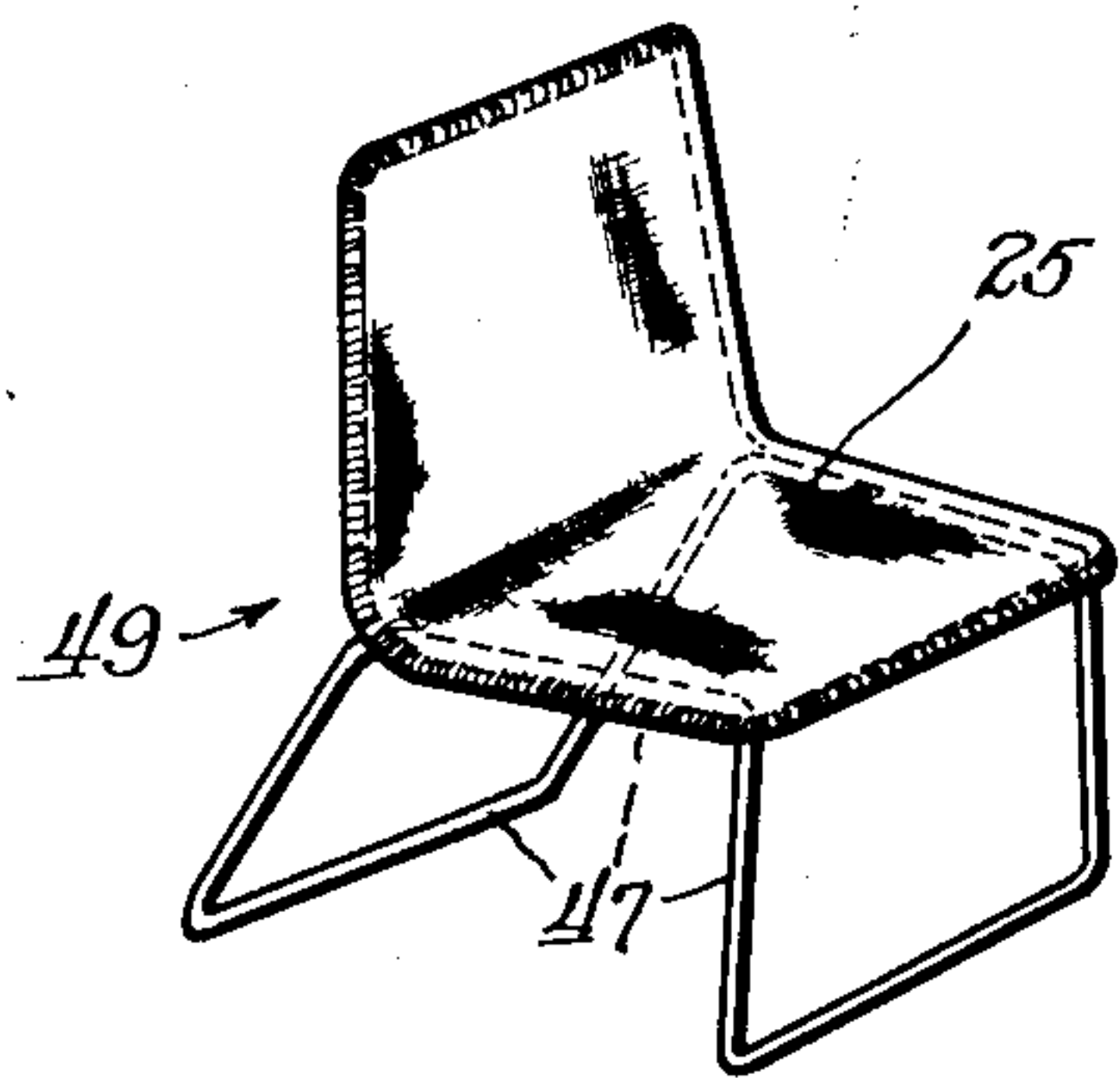


Fig. 2.

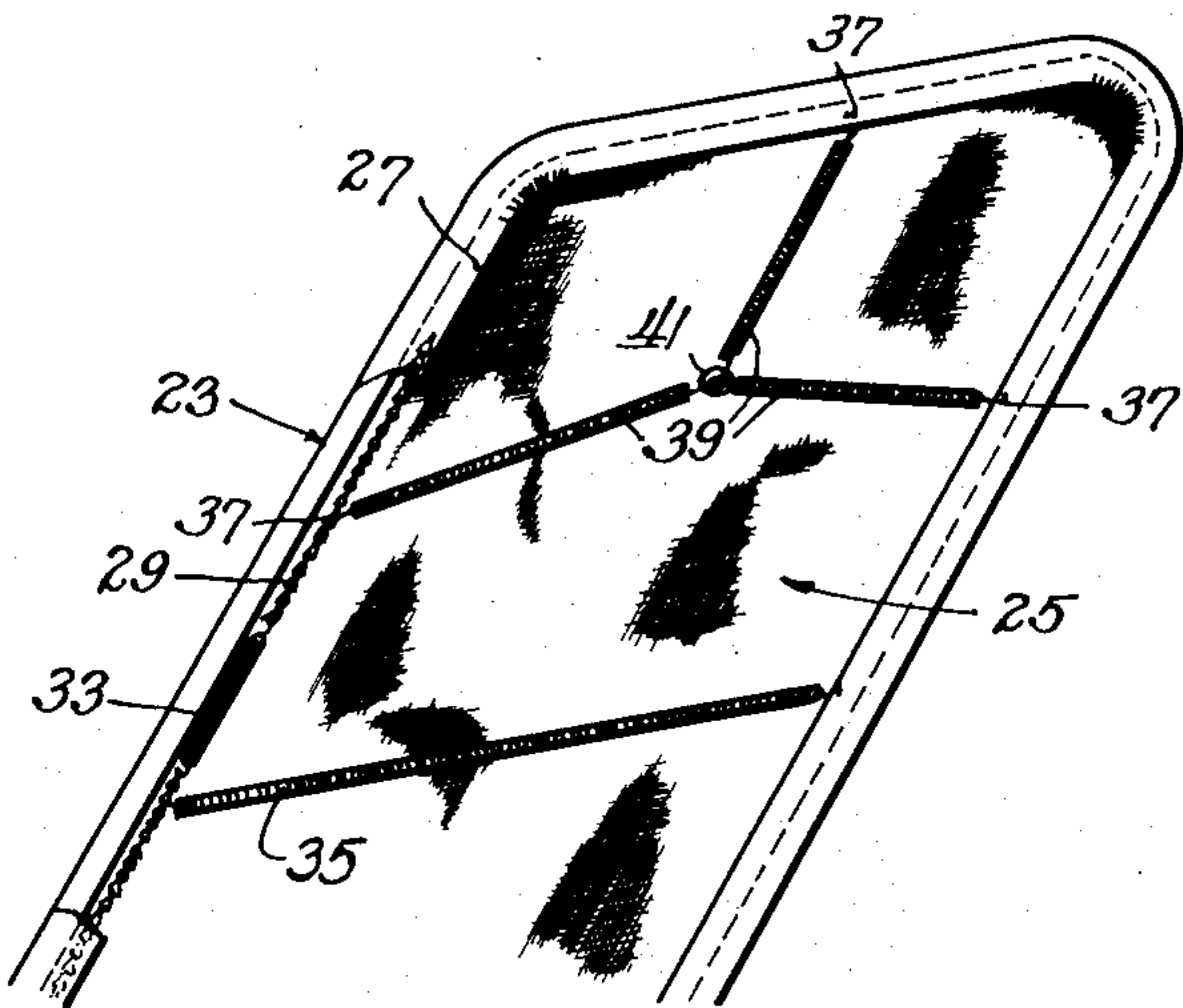


Fig. 3.

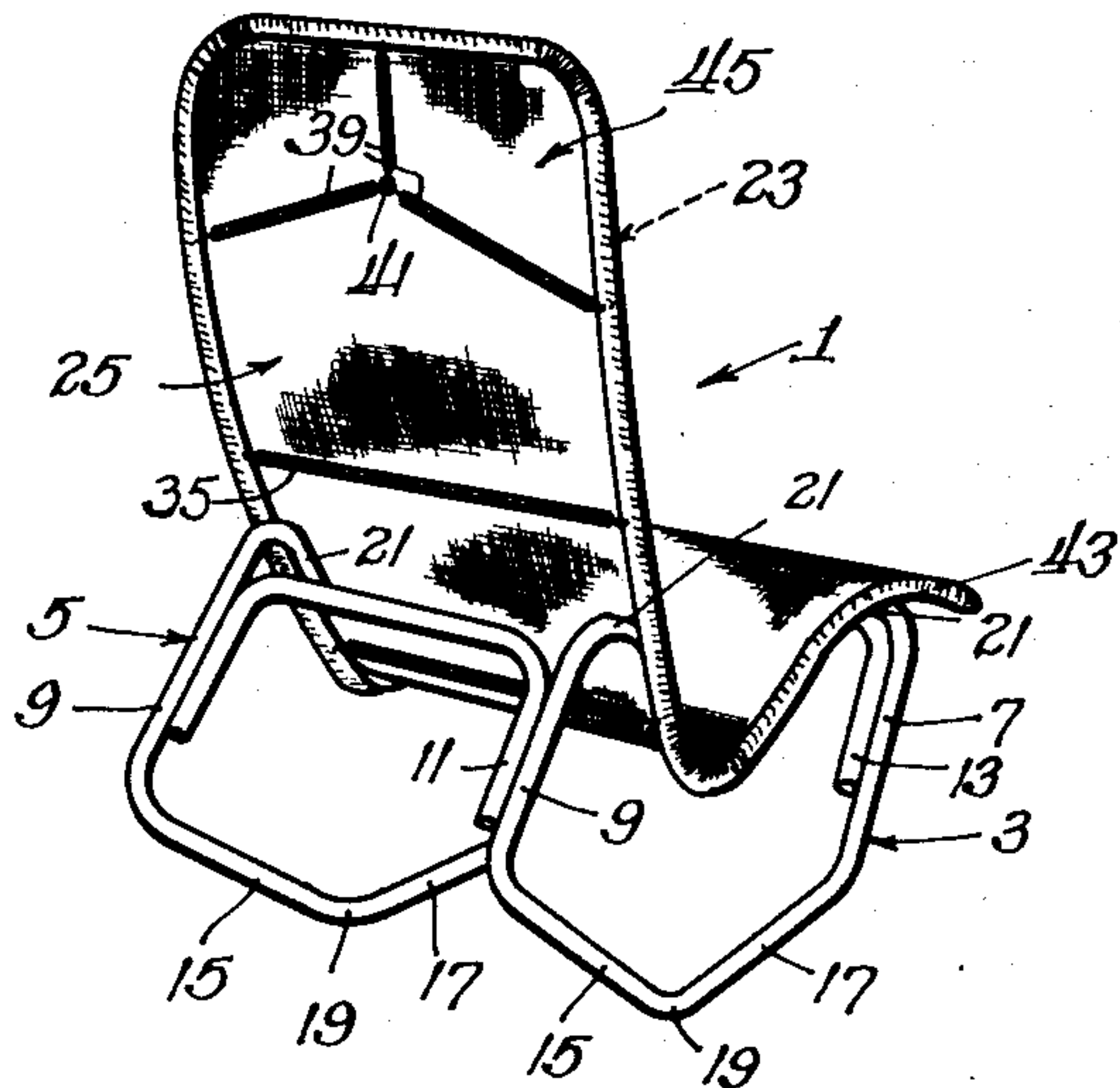


Fig. 4.

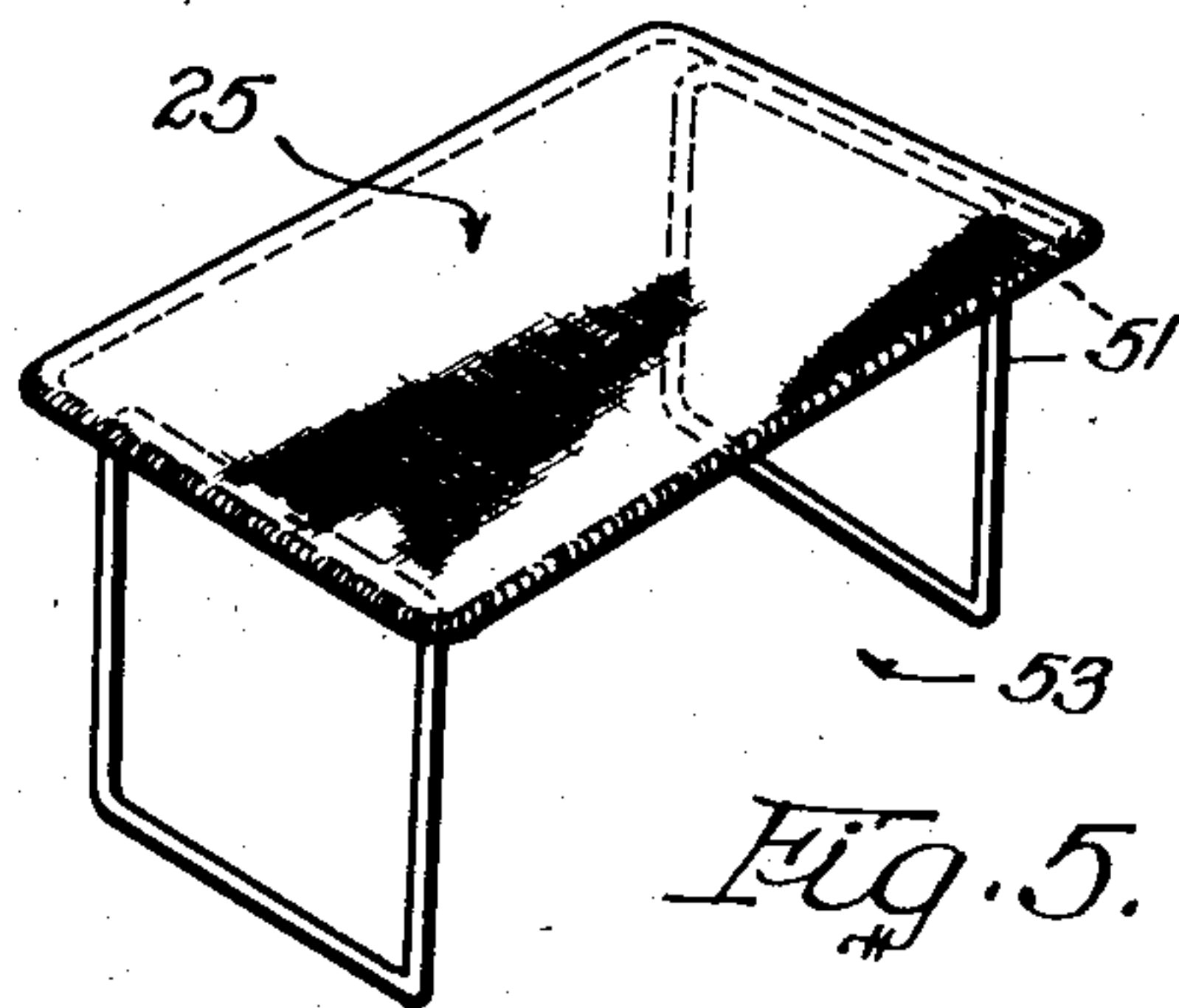
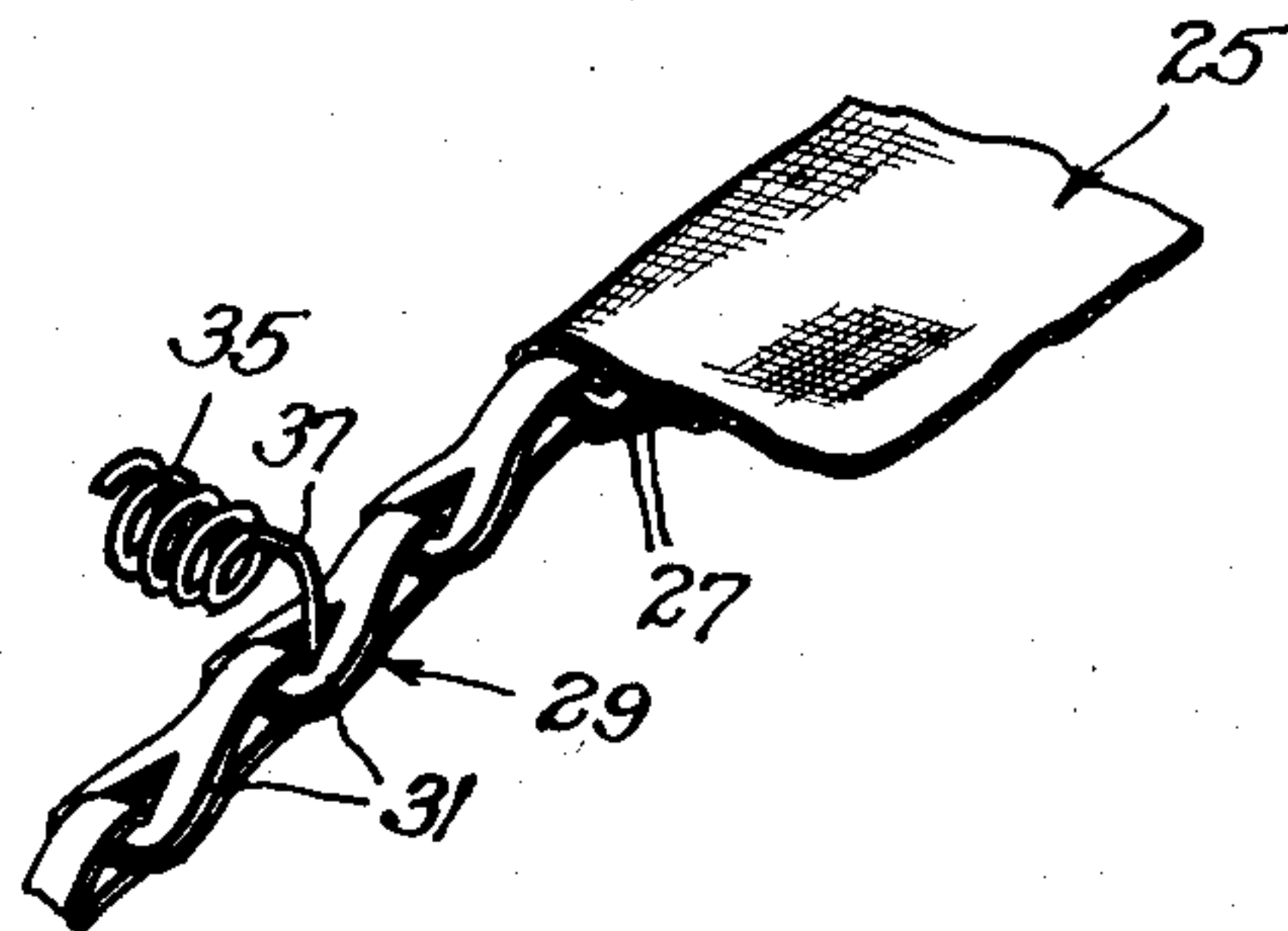


Fig. 5.

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UNITED STATES PATENT OFFICE

2,659,419

CHAIR

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1 Claim. (Cl. 155—179)

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Our invention relates to chairs which have a supporting framework constructed, for example, of metal tubing, and particularly to a flexible covering therefor.

Such covering constitutes the seat and back of the chair, and it is desirable to have such covering smooth at all times, i. e., free of wrinkles or sagging portions, in order that it may be serviceable and comfortable, as well as pleasing in appearance.

It is an object of our invention to provide a cover for a chair frame, which cover will resiliently support an occupant in a comfortable, relaxed position. It is a further object in this connection to provide a cover of the foregoing type which will resume its original position and shape after the occupant arises from it, so that there shall be no sag in the material.

In the attainment of the foregoing objects, metallic springs preferably are employed in cooperation with material such as canvas. It is, therefore, another object of our invention to provide means which will prevent the metal springs from tearing the material.

Since the framework of some of the furniture for which our cover is designed may be of metal, it is a further object of our invention to protect the user of the furniture from contact with such framework, because it is a conductor of heat and may become uncomfortably hot when exposed to sunshine or uncomfortably cold when in a cool location.

Other objects, uses and advantages of our invention will become apparent from the following description and from the related drawings in which:

Figure 1 is a perspective view of a chair employing a cover which embodies our invention;

Figure 2 is an enlarged, fragmentary view of the back of the chair of Figure 1 with portions broken away to reveal the inner structure of the cover;

Figure 3 is an enlarged, fragmentary view of the hem of a cover and cooperating chain and spring means;

Figure 4 illustrates the employment of our invention as a cover for another form of chair; and

Figure 5 illustrates the employment of our invention as a cover for a table.

Like reference numerals are employed in the several views to indicate the same elements.

Referring now to Figures 1, 2 and 3, a chair is indicated, generally, by the reference numeral 1 and comprises a pair of vertical, laterally

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aligned, side supporting members 3 and 5 secured together at their respective forward and rearward portions 7 and 9 by U-shaped members 11 and 13, respectively. The side supporting members 3 and 5 each comprise the forward and rearward portions 7 and 9 joined together by a rearward flat 15, a forward flat 17 and an intermediate curved fulcrum surface 19. To the top in-turned ends 21 of the side supporting members 3 and 5 is secured the generally L-shaped upper supporting frame 23. All of the members so far mentioned are preferably formed of metal tubing with the members being welded together, or otherwise suitably connected.

On this upper supporting frame 23 is placed the cover of our invention, said cover being indicated generally by the reference numeral 25. The cover is formed of flexible material, such as canvas, mesh, netting or other fabric which, when sat upon, will tend to conform generally to the outline of a person occupying the chair. The area and shape of the cover conforms generally to the area defined by the upper frame member 23, but the dimensions of the cover are sufficiently greater than such area so as to permit the edges of the cover to pass around the sides and back of the frame member 23, as may be most readily noted from Figure 2.

At its periphery the cover 25 has a hem 27. Metal sash chain 29, or other chain-like means having links or loops 31, passes through the hem 27 and has its ends connected by a spring 33. This permits the manufacturer of the chair, or its purchaser, to slip the cover 25 off or on to the frame 23 by stretching the spring 33. A cord having loops could be employed in place of chain 29, but it is likely to stretch to an undesirable degree under continued use. It will also be apparent that in place of spring 33 a hook or other non-elastic member could be substituted. In such case, it is desirable to have a short length of the hem cut away, or retractable, if the cover is to be removable by the purchaser of the chair, since access may then more readily be had to the connected ends of the chain 29.

Opposed edges of the hem 27 are preferably connected together, for example, by springs 35, the ends 37 of which are passed through the hem 27 and hooked into the links 31 of the chain 29. At the upper end of chair 1, shorter springs 39 may be interconnected by their one ends with each other or with a washer 41, or like element, and will have their other ends connected through the hem 27 with links 31 of the chain 29. The vertically extending spring 39 serves to resiliently

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hold the cover 25 from being pulled free from the top of frame 23 in a longitudinal direction when a person occupies the chair, and the other springs 35 resiliently hold the cover against extensive lateral displacement. These springs 35 and 39 therefore reinforce the draw of the chain 29 and its spring connection 33 and serve to resiliently suspend the occupant from the framework of the chair. When the occupant arises, the springs return the cover to its original smooth condition. It will be understood that at the lower end of the cover 25 adjacent the foot rest portion 43 of the chair 1, a group of springs, similar to springs 39 described above, will be employed. If desired, more than one longitudinally extending spring 39 may be used at each end of the cover 25.

By hooking the ends of the springs 35 and 39 in the links 31 of the chain 29, movement of the cover will not result in the springs tearing or enlarging the holes in the hem 27. It is obvious that if the springs were merely hooked into the hem 27 or over a cord in the hem 27, the springs could cause tearing of the hem when a person sits in the chair. Although separate links or loops secured in place in the hem could be used, they would need to be individually fixed against movement and would not offer as many varied points of connection for the springs as does chain 29. Furthermore, the pull of the springs in such case would tend to produce a scalloped appearance of the hem.

When a spring 33 is employed to connect the ends of chain 29 and when springs 35 and 39 are also employed, it is desirable to have the spring 33 relatively stiffer than the other springs in order to minimize any movement of chain 29 within the hem 27. Alternatively, the single spring 33 may have substituted for it a plurality of springs in series with sections of chain, the springs being disposed between points of connection between the chain 29 and the springs 35 and 39. This arrangement will also minimize movement of the chain within the hem and thus prevent tearing of the hem by the laterally and longitudinally extending springs 35 and 39.

The chair illustrated in Figure 1 is adapted to have a sitting position, as shown, and a reclining position wherein it is tilted back and finds support on the rearward flats 15 of the side supporting members 3 and 5. The construction of the chair is such that it is in stable equilibrium in either position, whether empty or occupied, and it is a simple matter for an occupant to shift from one position to another by a slight shift in his center of gravity such as would result, for example, from swinging the arm forward or backward over the head. In either position, the occupant is resiliently and comfortably supported on the cover 25 by the tubular metal framework of the chair. For a further description of the structural advantages of the chair as a whole, reference should be made to the copending application of John J. Waldheim, Serial No. 552,294, filed September 1, 1944, now Patent No. 2,482,306. It will appear that in its broader aspects, our invention may also be applicable to tables, as

illustrated, for example in Figure 5, or to other forms of chairs, as shown in Figure 4, for example, or to other kinds of furniture. Figure 4 indicates the applicability of a cover to the framework 47 of a chair 49 of different form and Figure 5 shows the covering of our invention applied to the framework 51 of a table 53. In both of these examples the cover 25 will be secured to the framework in the same fashion as that described above with respect to the chair of Figure 1. It will be apparent that the covers may be employed advantageously, even though they merely fit over an existing chair seat or table top and do not independently form the weight supporting surfaces.

We claim:

In a chair having a supporting framework defining the periphery of a generally rectangular area to be covered, and a covering thereon providing a weight supporting surface, the covering having a hem about its periphery and being of a size larger than the area covered by enough to dispose the edges of the covering over the edges of the framework with the edges of the hem terminating at the underside of the framework adjacent the framework, the improvement comprising the provision of a chain in the hem of the covering, the ends of said chain being connected together, three coil springs each disposed to the underside of the covering and each having its outer end passed through the material defining the hem of the covering inwardly of the outer edge of the hem and said chain, one of said springs being connected to the chain at one side of the framework and adjacent one end of the framework, a second one of said springs being connected to the chain at the opposite side of the framework and in substantial horizontal alignment with the point of connection of said one spring, the third spring being connected to the chain at the end of the framework substantially centrally thereof, the inner ends of said springs in the relaxed condition thereof terminating in spaced relation, and a ring of a size smaller than the spacing between the inner ends of said springs, said springs being stretched and having the inner ends thereof connected to said ring.

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