

Sept. 29, 1953

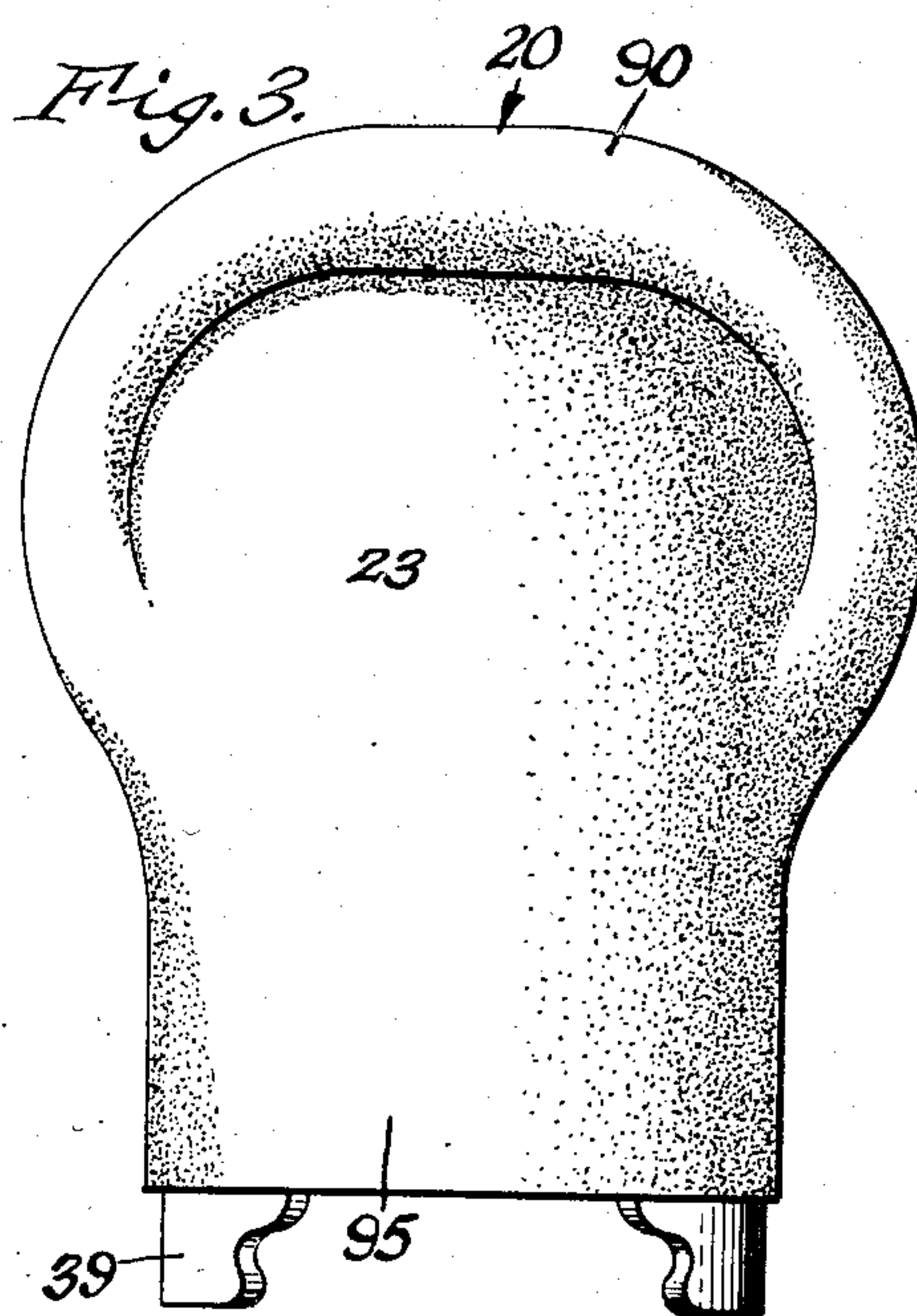
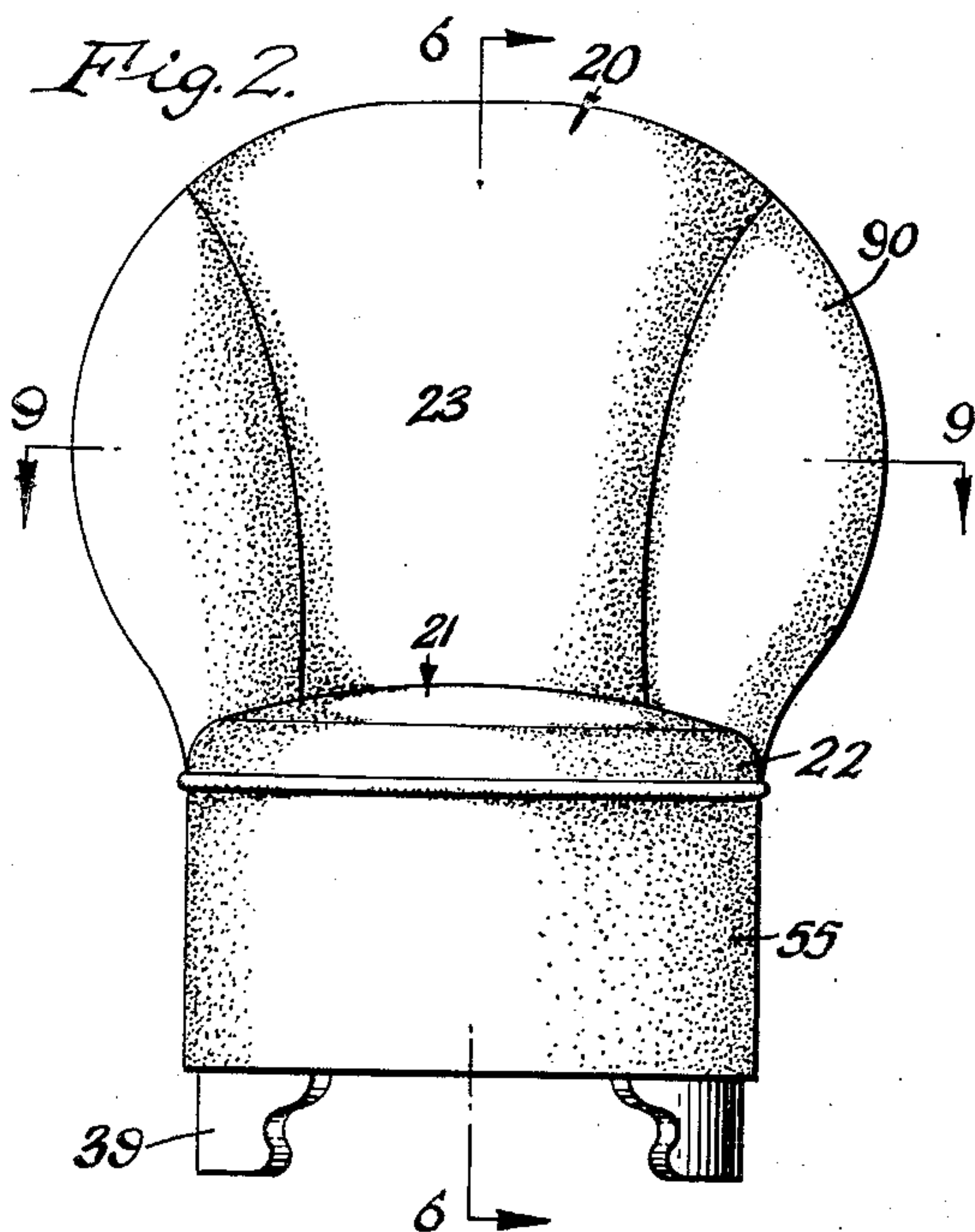
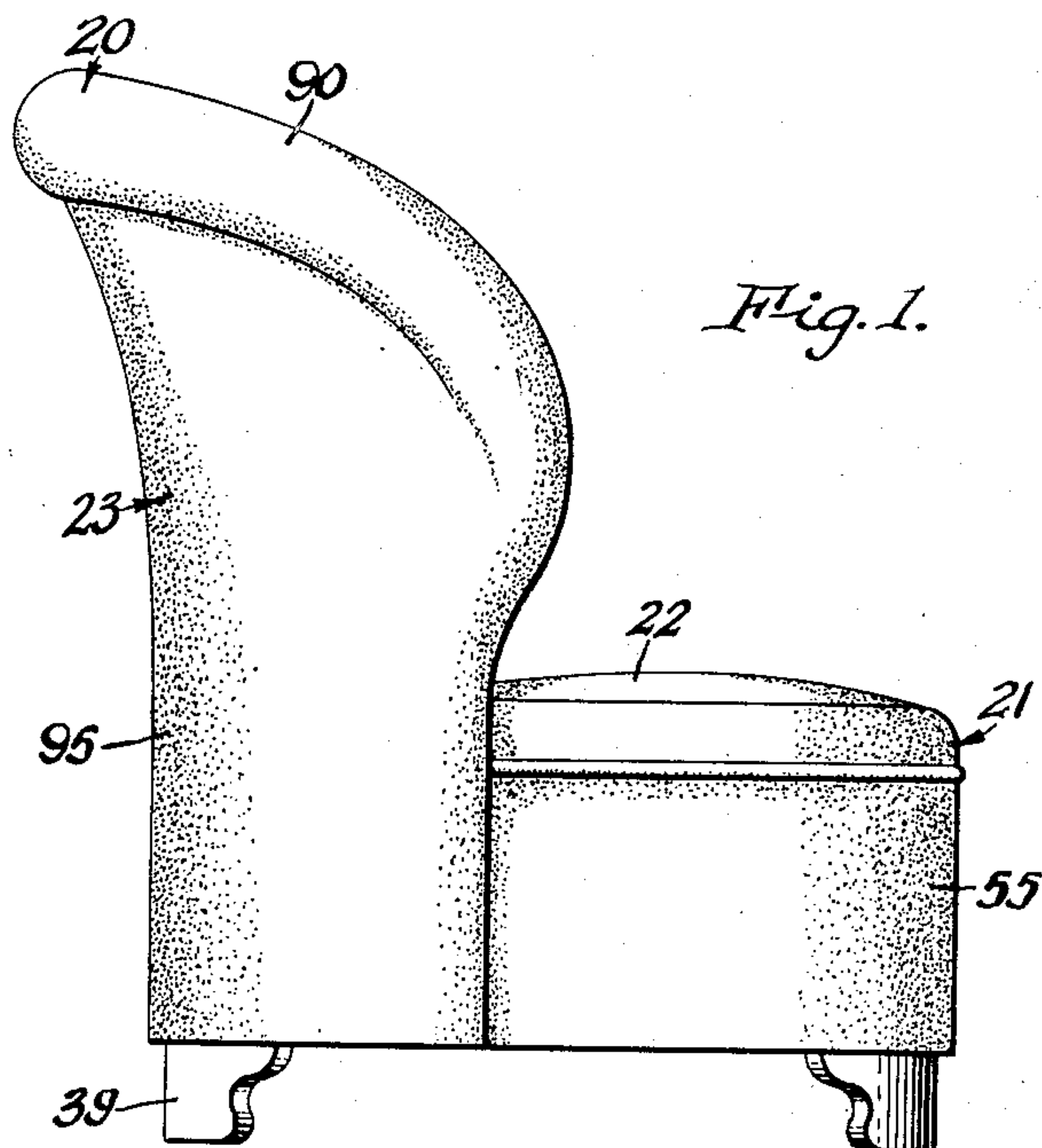
A. W. NEMMER

2,653,651

FURNITURE CONSTRUCTION

Filed Feb. 24, 1950

4 Sheets-Sheet 1



INVENTOR.
Albert W. Nemmer
BY
Popp and Sommer
Attorneys.

Sept. 29, 1953

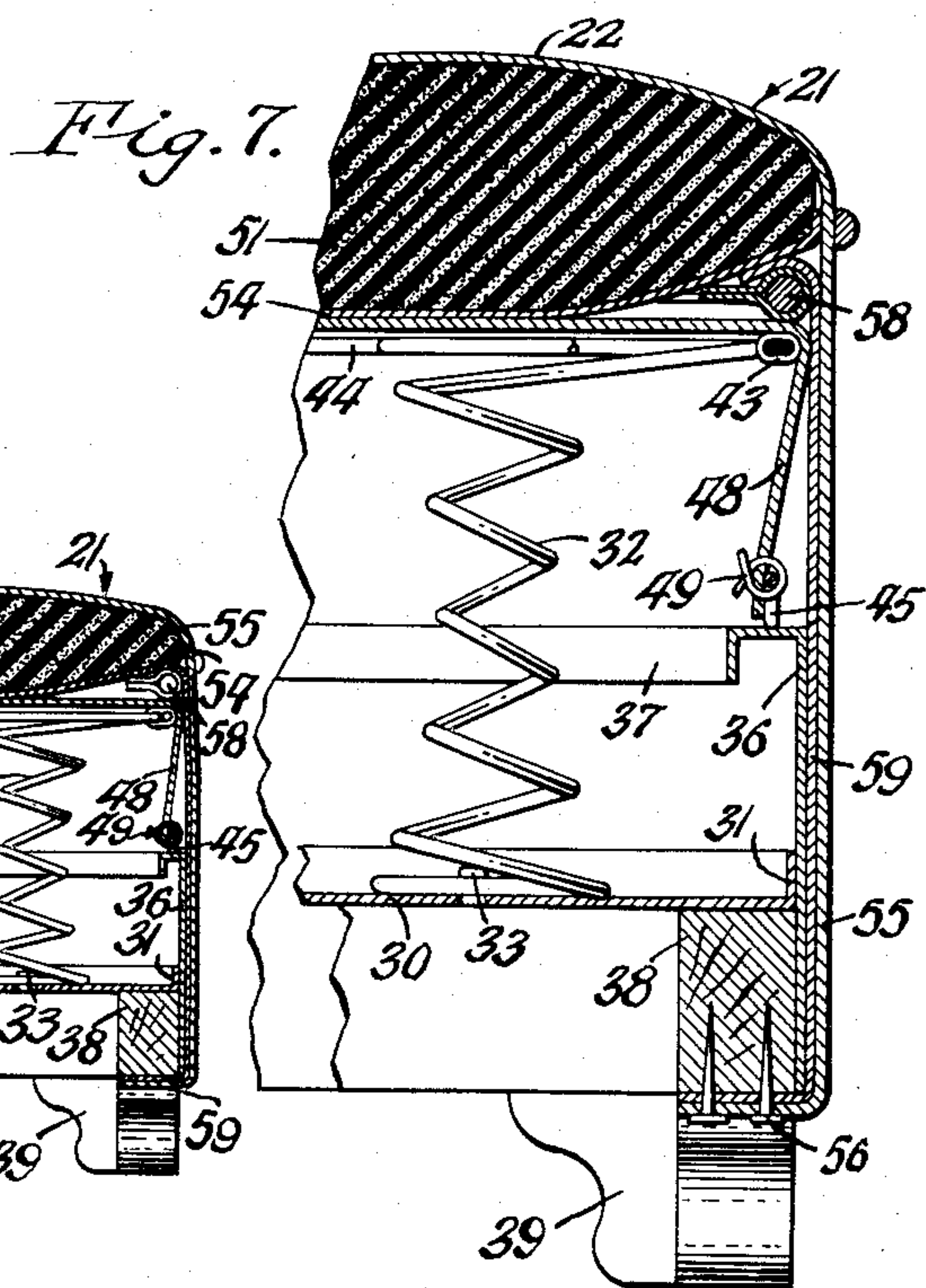
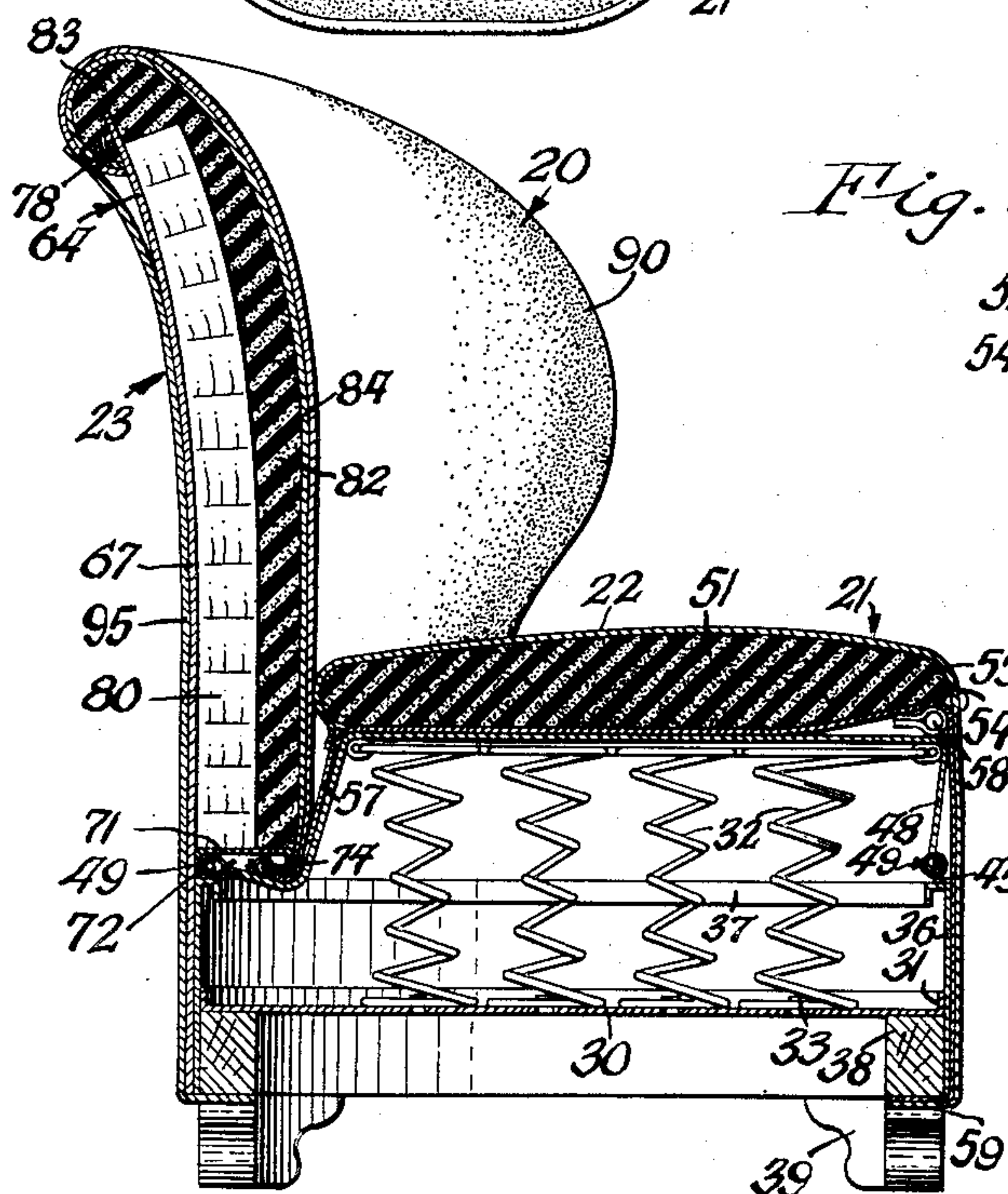
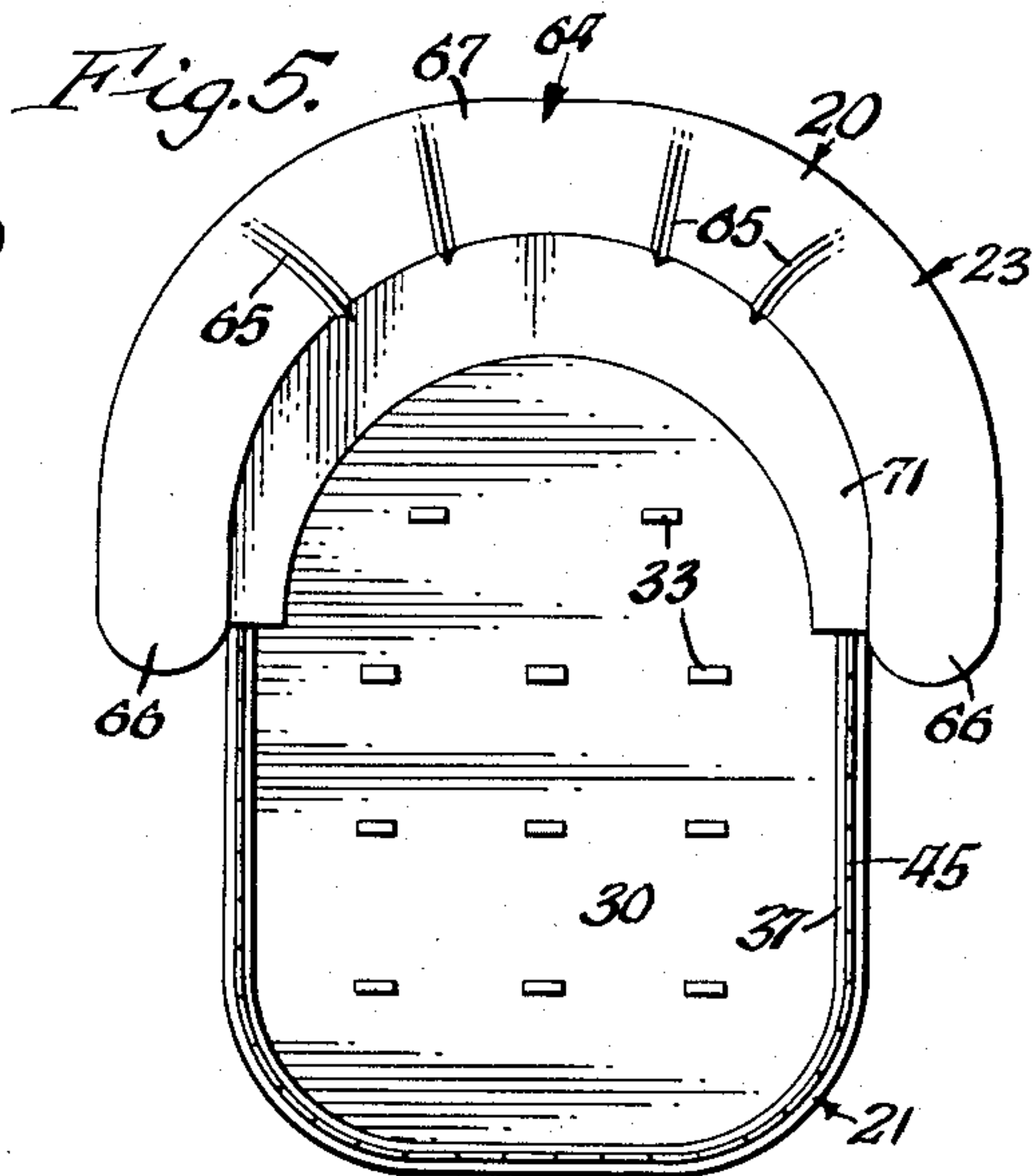
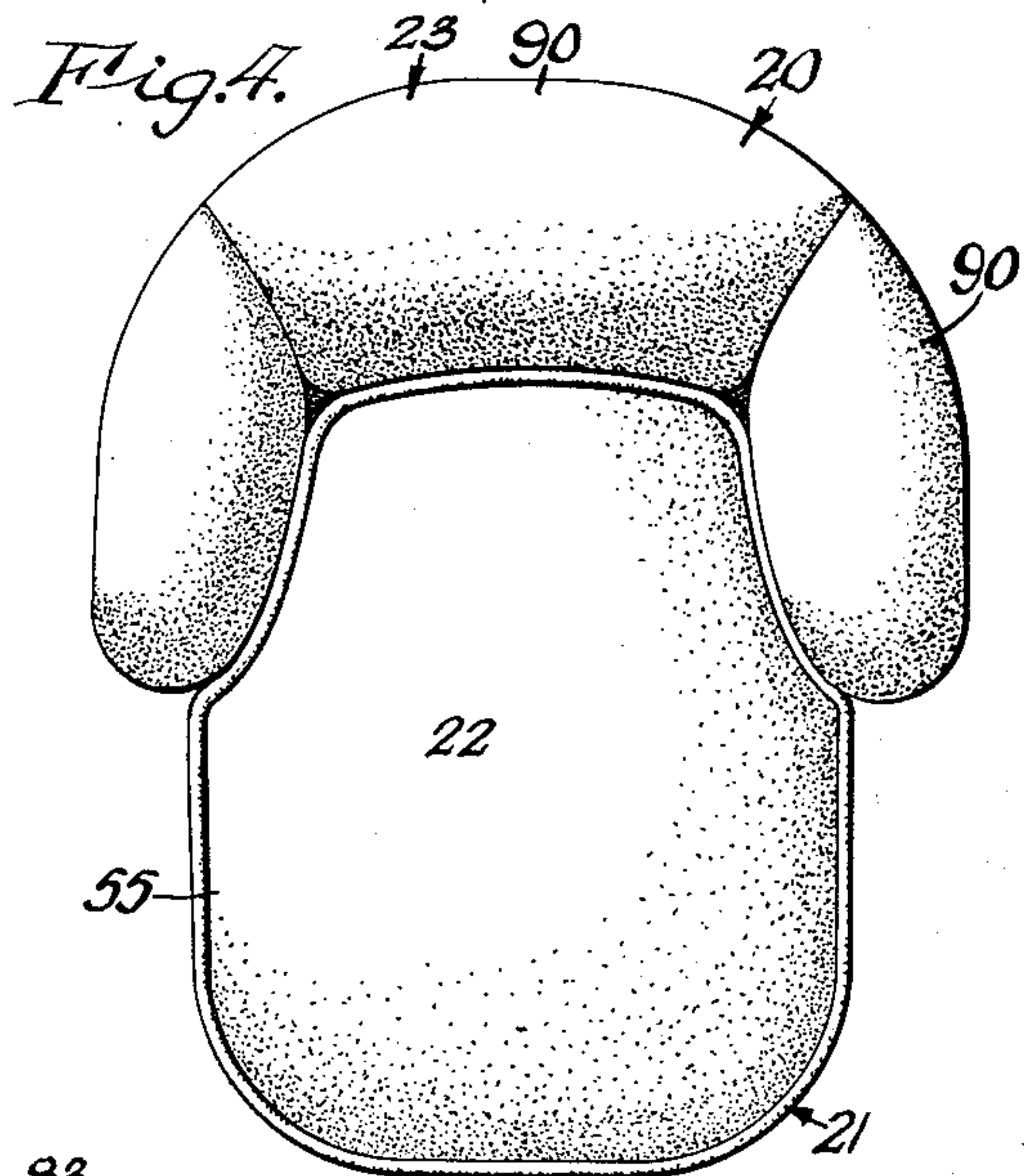
A. W. NEMMER

2,653,651

FURNITURE CONSTRUCTION

Filed Feb. 24, 1950

4 Sheets-Sheet 2



INVENTOR.
Albert W. Nemmer
BY *Popp and Sommer*
Attorneys.

Sept. 29, 1953

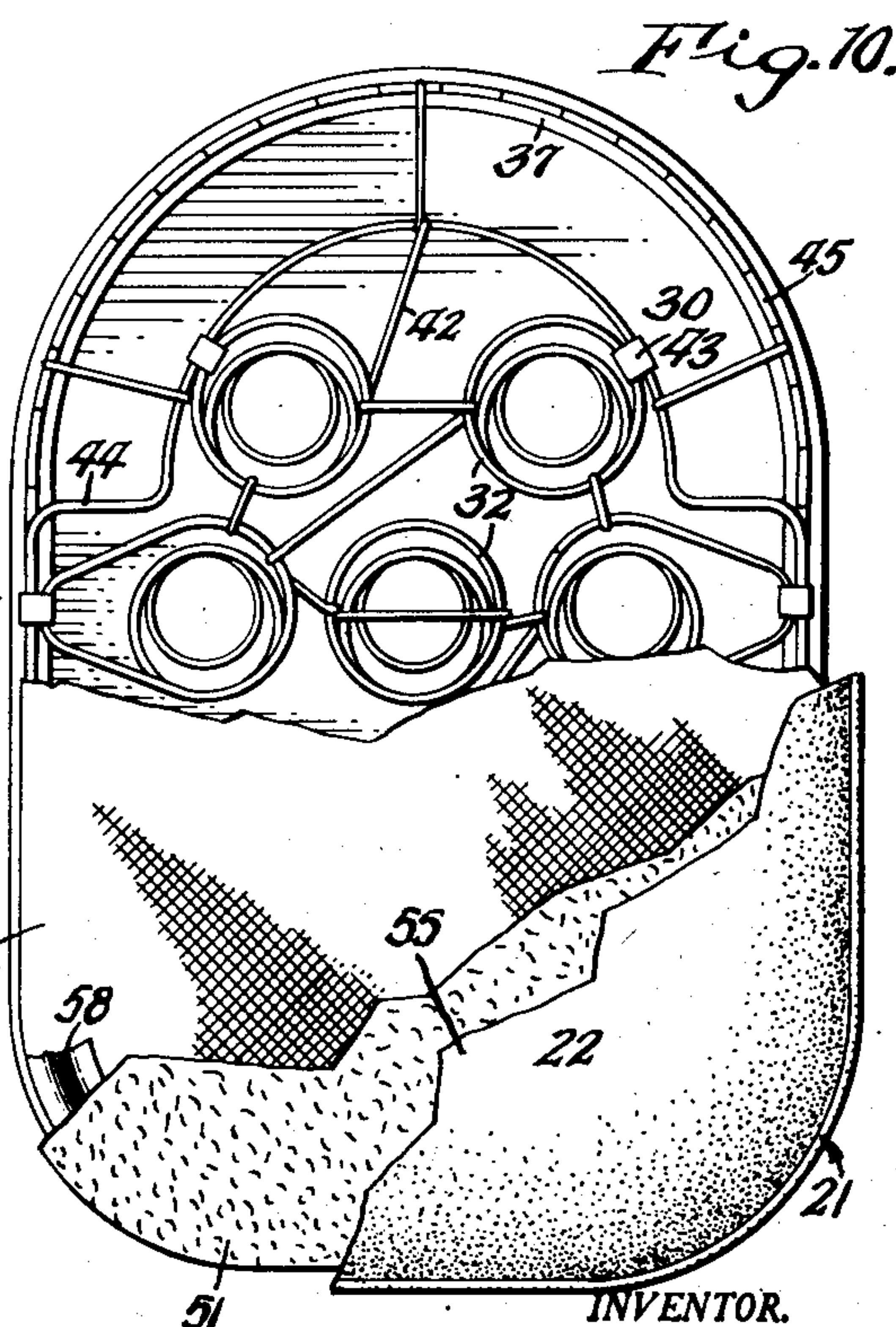
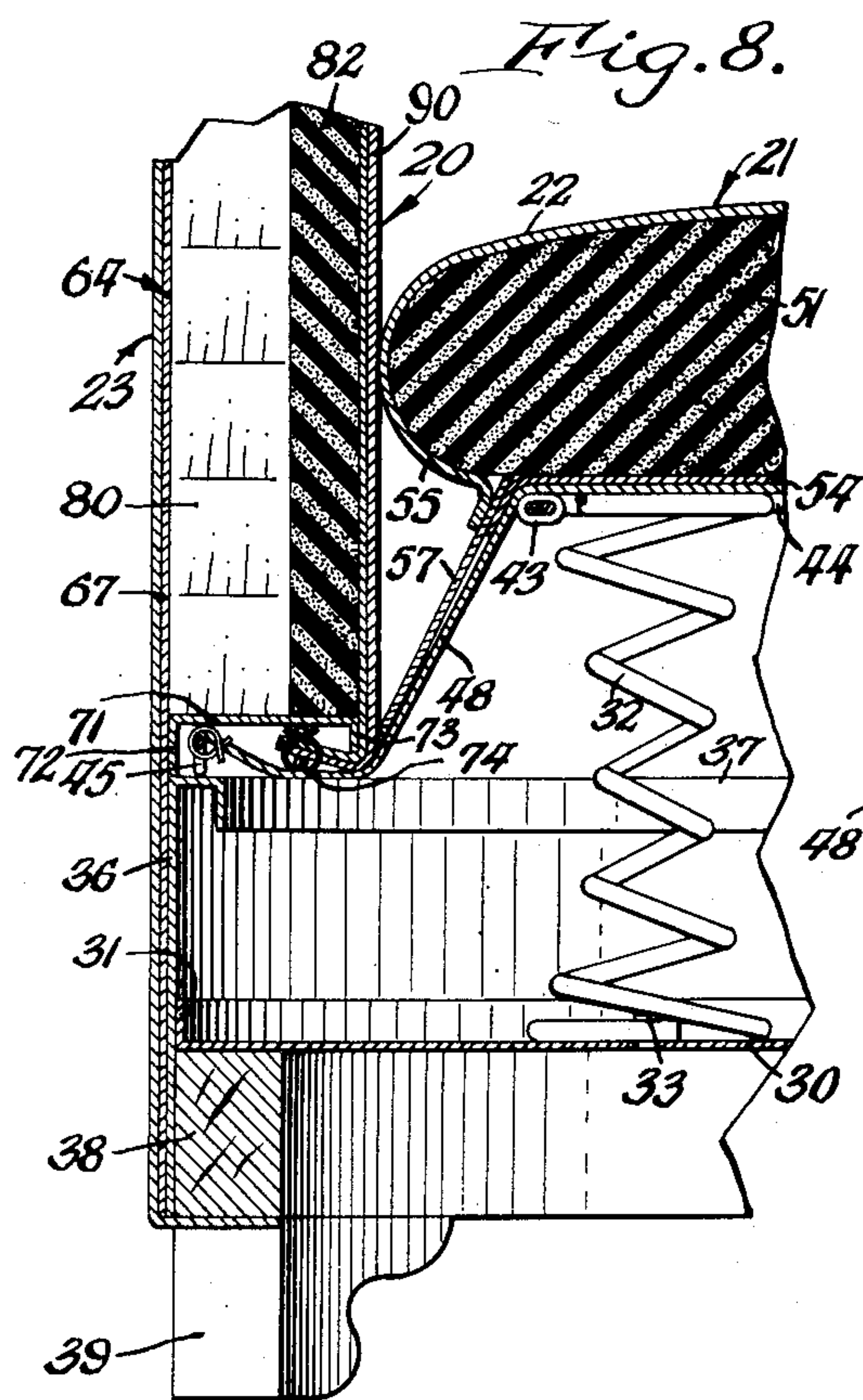
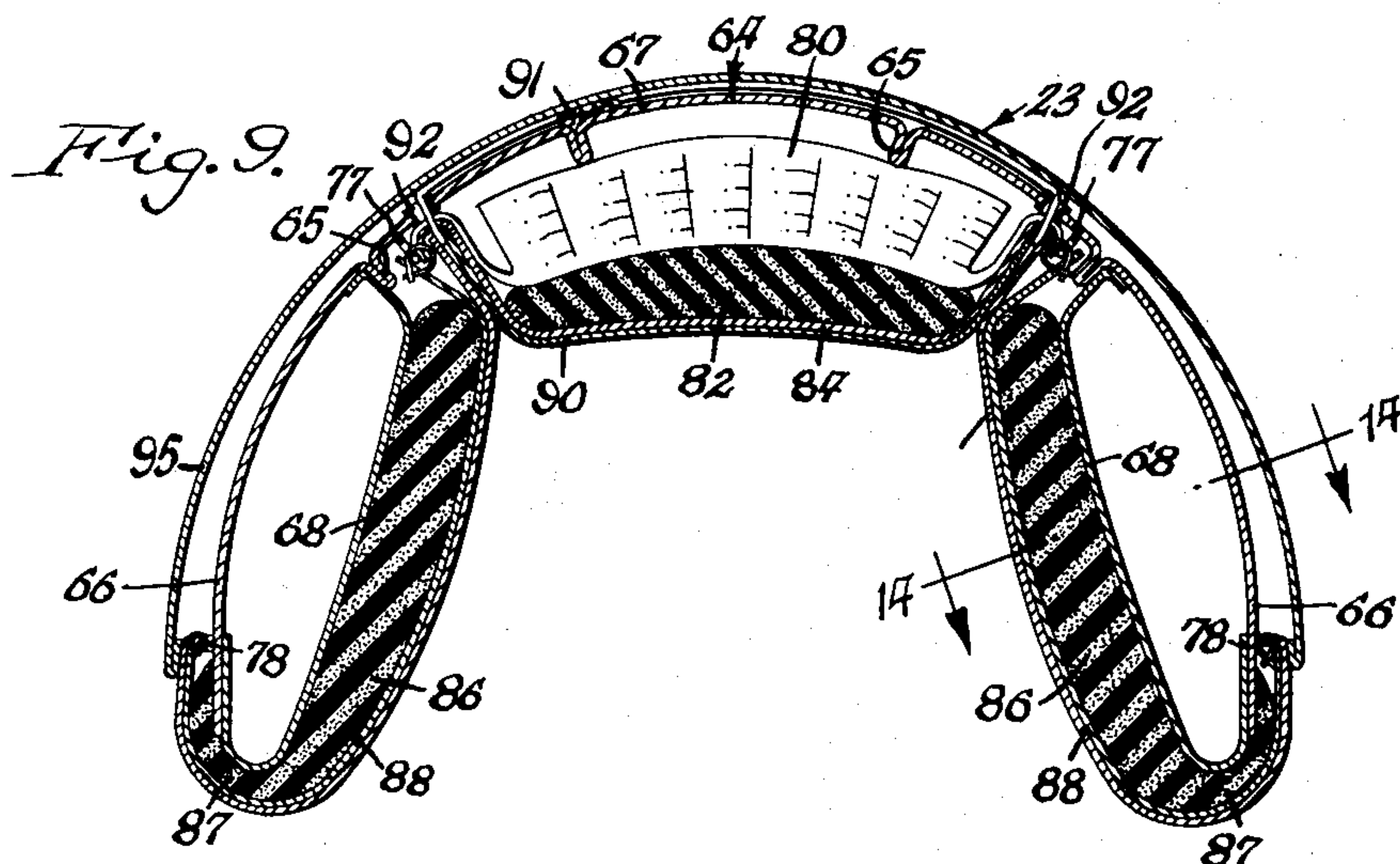
A. W. NEMMER

2,653,651

FURNITURE CONSTRUCTION

Filed Feb. 24, 1950

4 Sheets-Sheet 3



INVENTOR.
Albert W. Nemmer
BY *Popp and Sommer*
Attorneys.

Sept. 29, 1953

A. W. NEMMER
FURNITURE CONSTRUCTION

2,653,651

Filed Feb. 24, 1950

4 Sheets-Sheet 4

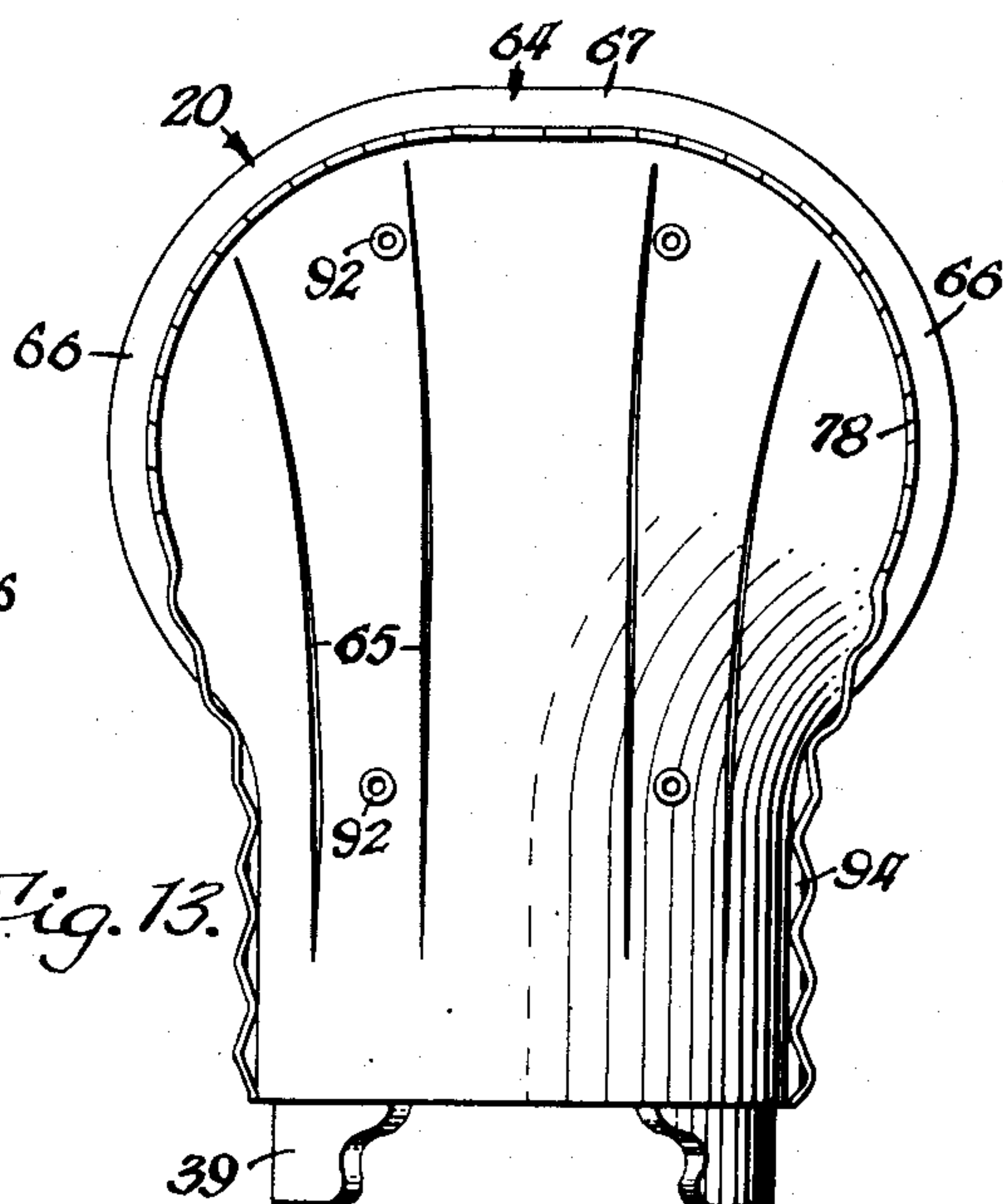
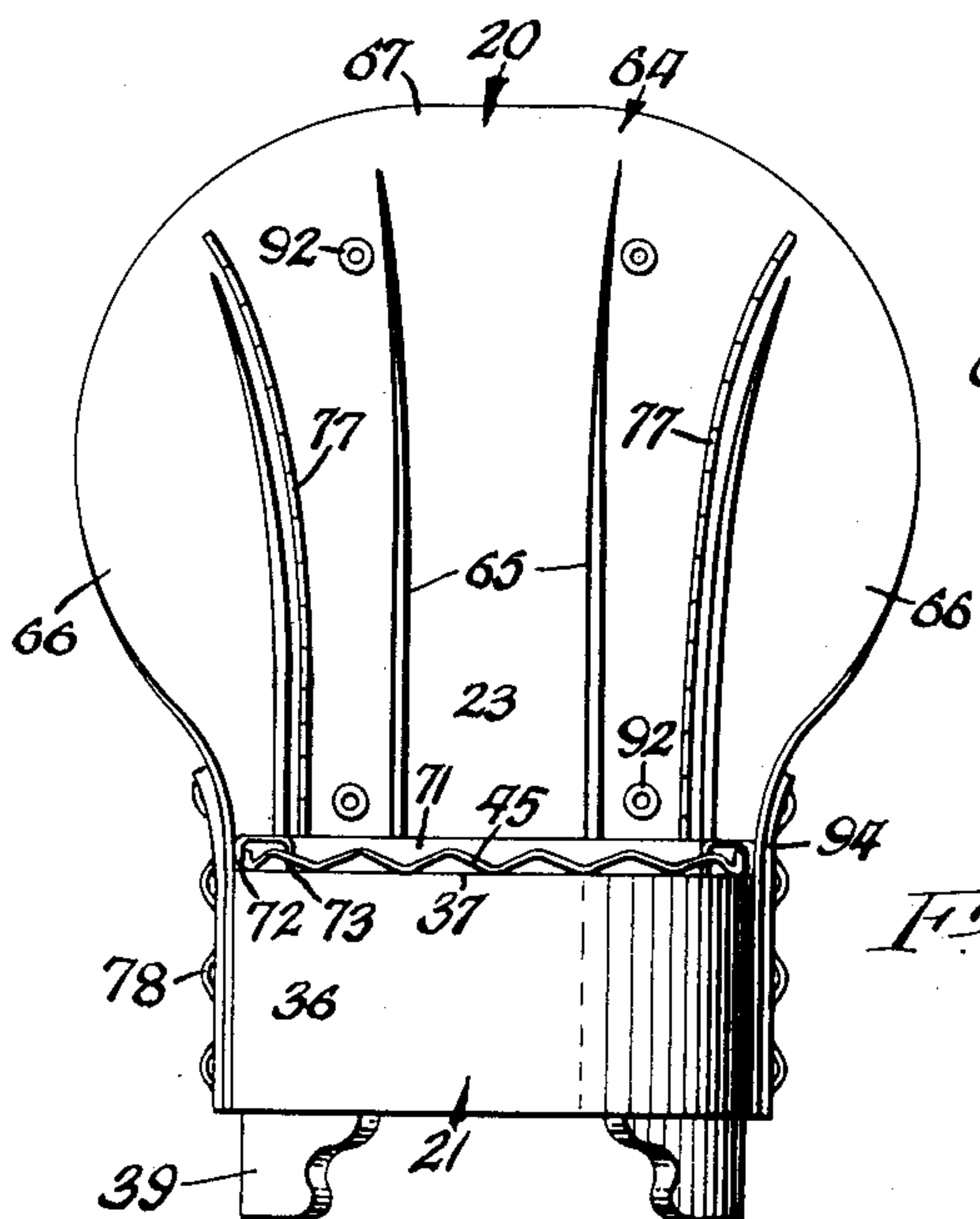
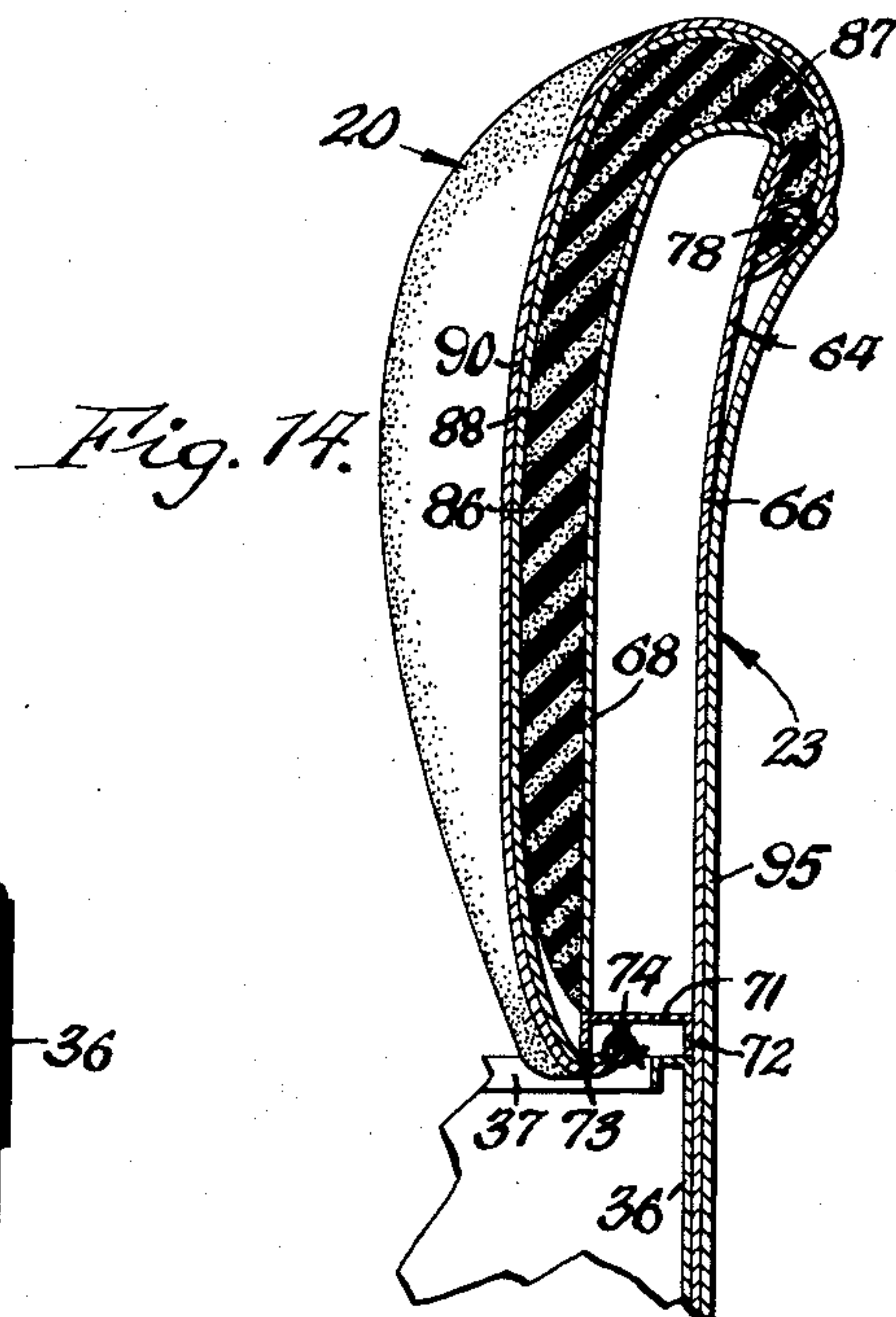
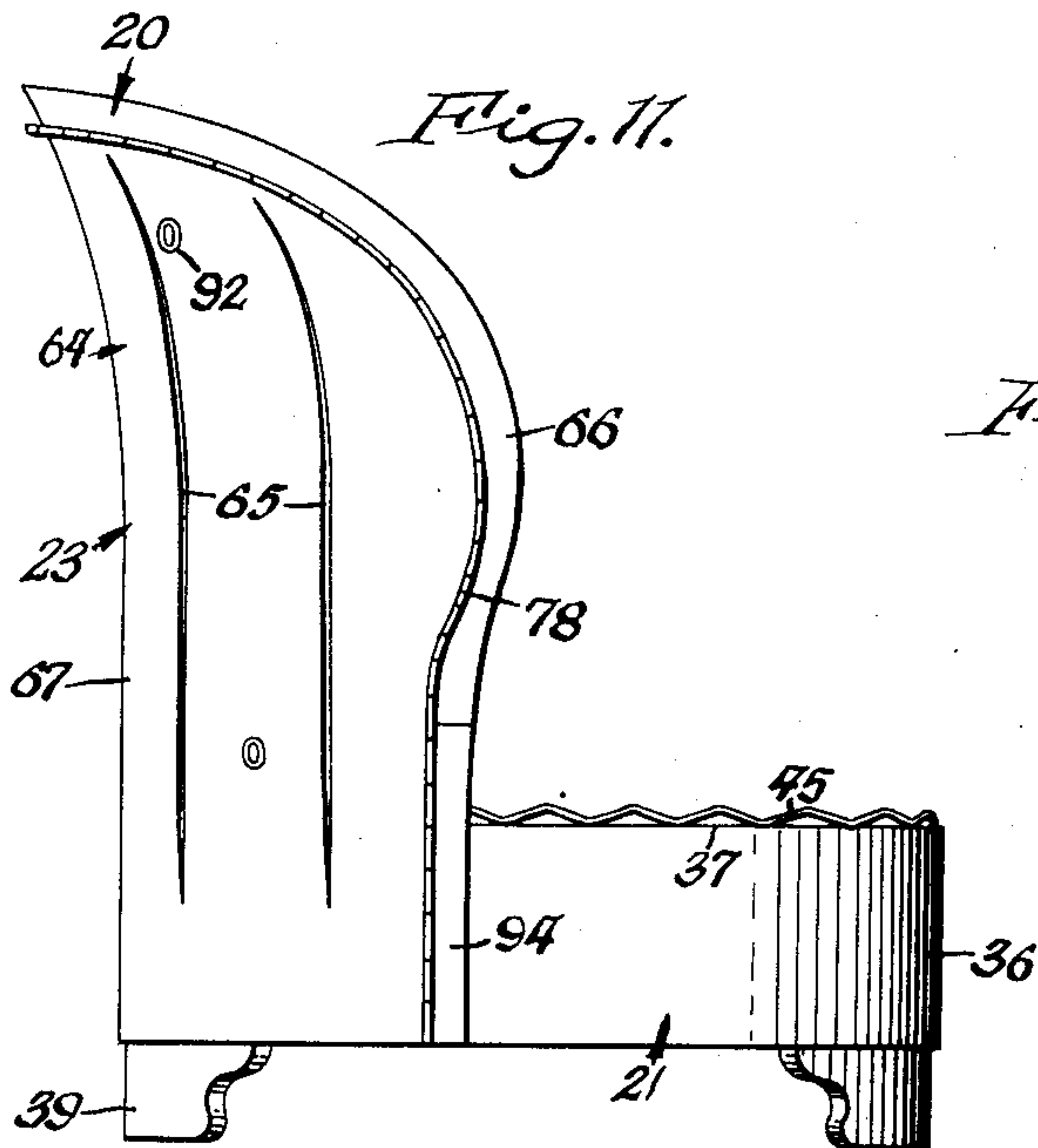


Fig. 12.

INVENTOR.
Albert W. Nemmer
BY Popp and Sommer
Attorneys.

UNITED STATES PATENT OFFICE

2,653,651

FURNITURE CONSTRUCTION

Albert W. Nemmer, Cheektowaga, N. Y.

Application February 24, 1950, Serial No. 146,113

12 Claims. (Cl. 155—179)

1

This application relates to furniture construction and particularly to the construction of upholstered furniture such as chairs.

It is an object of the invention to provide an upholstered chair having a sheet metal frame.

Another object of the invention is to provide an upholstered chair having a sheet metal frame in which preformed upholstered units may be easily and quickly assembled into completed chairs.

A further object of the invention is to provide an upholstered chair in which the base and back are separately formed units.

Still another object of the invention is to provide means for rapidly applying upholstery materials to the metal frame of a chair.

Additional objects of the invention are to provide a method of constructing upholstered chairs inexpensively in large numbers and to provide upholstered chairs with strong and rigid frames which will not warp or dry out and to which the upholstering materials are securely attached.

Still further objects of the invention will be perceived from the following specification when read in conjunction with the drawings, in which:

Figure 1 is a side elevational view of an upholstered chair constructed in accordance with the present invention.

Figures 2 and 3 are front and rear elevations, respectively, of the chair shown in Figure 1.

Figure 4 is a top plan view of the chair shown in Figure 1.

Figure 5 is a view similar to Figure 4 showing the frame of the chair with the covering, padding and springs removed.

Figure 6 is a sectional view on line 6—6 of Figure 2.

Figure 7 is an enlarged fragmentary view showing details of the construction illustrated in Figure 6.

Figure 8 is an enlarged fragmentary view showing more clearly the details of the attachment of the back of the chair to the base and the attachment of the cushion at the rear of the base.

Figure 9 is an enlarged sectional view on line 9—9 of Figure 2 showing the construction of the chair back.

Figure 10 is a top view of the base of a chair constructed in accordance with the present invention with portions broken away to show the interior construction.

Figures 11, 12 and 13 are side, front and rear elevational views, respectively, of the frame of the chair illustrated in corresponding Figures 1, 2 and 3.

2

Figure 14 is a vertical sectional view on line 14—14 of Figure 9.

In the above described drawings the numeral 20 is used to designate generally an upholstered chair which embodies the invention of the present application. The chair 20 comprises a base unit 21, upon which there is positioned a cushion 22, and a back unit 23.

The base unit 21, as best shown in Figures 6, 7 and 8, comprises a horizontal sheet of metal 30, the edges of which are turned upwardly as at 31 to form a spring pan which carries a plurality of coiled upholstery springs 32. The springs 32 are held in place in the spring pan by metal fingers 33 which are preferably formed integrally with the supporting sheet 30.

A metal frame or side rail 36 of generally rectangular shape in horizontal section but with rounded corners is provided around the sheet or plate 30 and the upturned edges 31 of the sheet 30 are attached thereto approximately midway of its height, preferably by welding. At its upper end the side rail 36 is bent inwardly and downwardly to provide an inwardly extending peripheral ledge 37. The side rail 36 may be formed of sheet metal and the ends of the strip from which it is made may be fastened together in any suitable way, such as by welding. A wooden inner frame 38 of shape similar to that of the side rail 36 fits within the side rail and its top abuts the outer edge of the horizontal spring supporting pan 30. Attached at suitable spaced points on the lower edge of the inner frame 38 or formed integrally therewith are wooden feet 39. The inner frame 38 is fastened to the side rail 36 by nails, screws or other suitable fastening means.

In accordance with conventional practice, the coiled springs 32 are tied together at their upper ends by a cord 42 so as to prevent shifting of the springs under compression when the chair is used. The outside springs of the group are also fastened at their tops, as with clips 43, to an edge wire or retaining frame 44 which surrounds the group of springs. As best shown in Figures 7 and 10, the edge wire 44 is located adjacent the vertical plane of the side rail or frame 36 at the front edge and the front portions of the sides of the base unit 21, but is spaced inwardly from the side rail 36 around the back of the base unit to provide space for mounting the back unit 23. Accordingly, the springs 32 adjacent the sides and front of the base unit 21 should be provided with enlarged top coils 34, as shown in Figures 6 and 7, to permit fastening to the edge wire.

3

There is provided on the top of the horizontal ledge 37 of the side rail 36 anchoring means comprising a crimped or corrugated heavy gauge wire 45 which is preferably welded at intervals to the ledge 37 with the corrugations extending in a vertical plane to provide a plurality of up-standing loops. The crimped wire 45 extends completely around the base unit 21. The cords 42 used in tying together the tops of the springs 32 are run out to and tied to loops of the crimped wire 45 and the retaining frame 44 is also tied at spaced intervals to the crimped wire 45 to keep it centered in the base unit 21.

Further following accepted practice, the springs 32 are covered with burlap or similar heavy duty fabric 48. The edges of the burlap, however, instead of being tacked to the customary wooden frame of the base, are attached at intervals, as clearly shown in Figures 7 and 8, to the crimped wire 45 by a plurality of wire loops or hog rings 49. Supported on the burlap covered springs is a cushion 22 which preferably comprises a shaped mass of sponge or foam rubber 51. The cushion 22, like the edge wire 44, extends to the edge of the base unit 21 at the front and the front portions of the sides thereof, but is spaced inwardly from the edge of the base unit at the back and rear corners thereof to permit mounting of the back unit 23.

The covering of the cushion 22 is preferably of upholstery fabric formed in two sections, an under section 54 and a top section 55. The top covering section 55 at the front and sides of the cushion forward of the back unit 23 is continued on down to the bottom of the side rail 36 and is brought around under the side rail and fastened to the wooden inner frame 38 as with tacks 56. At the rear end of the cushion 22 the two portions of the cushion cover are brought together and attached by sewing or other convenient means to fabric pull strips 57. Around the front and side edges of the cushion 22 over the retaining frame 44 and between the burlap 48 and the edge of the cushion there is inserted an edge roll 58 which is attached to the under section 54 of the cushion cover and is also attached to fabric pull strips 59 which are brought down under the cover 55 to the bottom of the side rail 36 and also fastened to the under side of the inner frame 38, preferably by tacks 56. The cushion 22 is thus secured firmly in position and the edge roll 58 provides protection from contact with the retaining frame 44.

The back unit 23 of the chair 20 comprises a vertically extending sheet metal plate or main frame 64 which is generally semicircular in cross-section and which flares outwardly from bottom to top. A plurality of substantially vertical ribs or beads 65 are provided on the back plate 64. The beads 65 extend inwardly from the back, toward the seat, and serve to stiffen the plate 64. The side edges of the back plate 64 extend forwardly to form a pair of wings 66 on either side of a center back portion 67.

As best shown in Figures 9 and 14, a metal reinforcing frame member 68 is provided on the inside of each of the wings 66. The frame members 68 are trough-like in shape and are preferably welded to the wings 66, one edge of each trough being attached to the back plate 64 adjacent one of the inwardly extending beads or ribs 65 and the other edge thereof being curved inwardly and attached, face to face, to the outer edge of a wing 66. At their tops the frame

4

members 68 are curved toward the wings 66 and attached thereto.

The back plate or main frame 64 is provided with an inwardly extending horizontal back rail 71 adjacent but spaced upwardly from its bottom edge. The back rail 71 is provided with a depending rear flange 72 which is preferably attached to the back plate 64 by welding and the inner edge of the rail 71 is turned downwardly to form a flange 73. On the lower side of the back rail 71 there is provided a crimped or corrugated heavy gauge wire 74 which is securely welded to the rail at spaced intervals to provide a plurality of downwardly extending loops.

Substantially vertical lengths of crimped wire 77 are similarly attached to the inner face of the back plate 64 adjacent the wing reinforcing frame members 68 and a crimped or corrugated wire 78 is also mounted on the lower face of the back plate 64. The wire 78 is preferably formed in a continuous length and extends from the bottom edge at one side of the plate 64 adjacent to but spaced slightly from the front edges and top thereof to the bottom edge on the other side of the plate. The outwardly extending loops provided by the crimped wire sections 74, 77 and 78 serve as anchoring means for elements of the chair construction in a manner to be hereafter described.

On the inner side of the center back portion 67 there are provided a plurality of individually encased coiled springs 80. The cover of each of the springs 80 is preferably stitched, stapled, or otherwise attached to the covering of adjacent springs and the covering of each of the springs in the outside vertical rows is pulled around and attached as by a hog ring to the adjacent vertical crimped wire 77 welded on the inside of the back plate 64. The springs 80 are thereby secured in position and prevented from shifting. Over the encased springs 80 there is placed a molded sponge or foam rubber pad 82 which is provided with an enlarged roll 83 at its upper end to fit over the springs 80 and extend outwardly over the back plate 64. The sponge rubber 82 is covered by a piece of burlap or other heavy fabric 84 which is drawn tight and fastened as by hog rings 49 to the crimped wire 77 on each side thereof and at its top and bottom to the crimped wires 78 and 74, respectively.

Each of the wing frame members 68 is also covered with molded sponge rubber padding 86, the outer edges of which are curved as at 87 and extend around the front edges of the wings 66. The sponge rubber pads 86 are covered with burlap 88 which is preferably attached as by hog rings 49 to the crimped wires 74, 77 and 78. The burlap over the sponge rubber pads 82 and 86 is covered with upholstery fabric 90 which is fastened at its top edge and each of its side edges to the crimped wire 78 welded on the back of the plate 64. The fabric 90 is drawn tightly into the channels between the pads 82 and 86 by draw strings 91 attached thereto which pass through the burlap 88 and through grommets 92 in the back plate 64 and are pulled tight and tied. At its bottom the fabric 90 passes under the depending flange 73 of the back rail 71 and is attached by hog rings 49 to the crimped wire 74.

The back unit 23 thus assembled is combined with the base unit 21 which has previously been completed in the manner described above by fitting the back rail 72 of the back unit 23 around the rear of the base unit 21 outside of the cushion 22. The depending portion of the back plate

5

64 below the back rail 72 is shaped to fit closely to the side rail 36 of the base unit 21 and is preferably attached thereto by welding. On the front edges of the back frame 64 there are provided reinforcing strips 94 which extend from the bottom edge of the back plate 64 to a point somewhat above the ledge 37 of the side rail 36 and serve to stiffen the chair at the juncture of the base and back. The strips 94 are preferably attached to the back plate or frame 64 by welding.

The fabric cover 95 for the back of the back unit 23 is attached at its top, as shown in Figure 14, to the top of the cover 90 by sewing or other suitable method. After the back unit 23 has been mounted on and attached to the base unit 21 the fabric cover 95 is carried down over the back plate 64 and under the wooden inner frame 32 of the seat unit to which it is attached as by tacks 56. The edges of the cover 95 are preferably stitched to the cover 90 and the cover 55 of the seat unit 21, thus completing the chair and providing a wholly finished appearance.

It will be seen from the foregoing description that a chair made in accordance with the present invention is easily constructed and, because of the metal frame used in both the base unit 21 and the back unit 23, such a chair will be strong and rigid. Moreover, since the only wood used in the construction is in the inner frame 32 of the base unit 21, warping or drying out of the wood will not cause distortion of the chair or loosening of the parts.

Forming a chair in two units according to the present invention permits greatly increased speed of construction since a number of base units and back units may be built separately and the two may then be quickly combined. The metal frame employed in both the base and back units can be easily formed by mechanical methods, thus greatly reducing the amount of handwork required. Since the metal frames do not permit the tacking of the upholstery materials thereto, crimped wires are welded to the frames at suitable places. It will be obvious that the attachment of fabrics to the crimped wires by the hog rings which can be instantly applied by a small hand tool is quite efficient as a method of assembly.

The base unit, as will be seen from the drawings, is provided with rounded corners which add to the strength of the construction while the back unit is reinforced by the inwardly extending vertical beads or ribs 65 the welded wing frame members 68 and the back rail 71. The reinforcing strips 94 along the front edges of the back plate 64 where the plate is attached to the side rail 36 of the base prevent tearing or deformation of the metal at this juncture. Accordingly, chairs constructed in accordance with the present invention are able to withstand extremely hard service while the ample springs, padding and cushioning make them very comfortable. The wooden feet 39 attached to the wooden inner frame 32 provide a large bearing surface for the chair so as to prevent marring of the floor finish or undue matting or compression of a rug.

It will be understood that, although the method of constructing upholstered chairs above described, is adapted to materially decrease the cost of manufacture of such chairs, nevertheless the construction is durable and accordingly the padding and fabric covering employed may be of various materials and qualities, de-

6

pending upon the price range for which the chairs are intended.

I claim:

1. In an upholstered chair, a base unit comprising a sheet metal frame, a support mounted within said frame and enclosed thereby, a plurality of springs carried by said support and normally extending upwardly above said frame, a covering for said springs attached to said support, a cushion supported by said covered springs, and a second covering over said cushion and at least a portion of said frame, said frame being adapted to support a back unit.

2. In an upholstered chair, a base unit comprising a sheet metal frame, means carried by said frame presenting a plurality of outwardly extending loops, a support mounted within said frame and enclosed thereby, a plurality of springs carried by said support and normally extending upwardly above said frame, a covering for said springs attached to said means, a cushion supported by said covered springs, and a second covering over said cushion and at least a portion of said frame, said frame being adapted to support a back unit.

3. In an upholstered chair, a base unit comprising a generally rectangular metal frame, a wire attached at spaced intervals to the top of said frame and presenting a plurality of upstanding loops, a spring pan mounted within said frame, a plurality of coiled springs carried by said spring pan, a covering for said springs attached to said loops, a cushion supported by said covered springs, and a second covering over said cushion and at least a portion of said frame, said frame being adapted to support a back unit.

4. In an upholstered chair, a base unit comprising a generally rectangular metal frame, said metal frame having at the top thereof an inwardly extending peripheral flange, a wire attached at spaced intervals to the top of said flange and presenting a plurality of upstanding loops, a spring pan mounted within said metal frame, a wooden inner frame mounted within said metal frame below said spring pan, a plurality of coiled springs carried by said spring pan, a covering for said springs attached to said loops, a cushion supported by said covered springs, and a second covering over said cushion and at least a portion of said frame, said frame being adapted to support a back unit.

5. In an upholstered chair, a base unit as set forth in claim 4 in which said wooden inner frame is provided with spaced feet for supporting said base unit.

6. In an upholstered chair, a base unit as set forth in claim 4 in which said cushion is provided with an edge roll adjacent to the periphery of said cushion, said edge roll being below said cushion and above said springs and being held in place by means attached to said wooden inner frame.

7. In an upholstered chair, a back unit comprising a metal main frame, said main frame being generally semicircular in cross-section and having forwardly extending wing portions, a reinforcing frame attached to each of said wing portions on the inward side thereof, springs on said main frame between said wing portions, padding covering said springs and said reinforcing frames, said padding being held in place by a covering drawn over said padding and attached to said main frame.

8. In an upholstered chair, a back unit as set forth in claim 7 in which said main frame is pro-

7

vided with substantially vertical, inwardly extending reinforcing beads.

9. In an upholstered chair, a back unit comprising a metal main frame, a forwardly extending horizontal back rail carried by said main frame and spaced upwardly from the bottom edge thereof, a plurality of wires mounted on surfaces of said unit by being attached at spaced intervals thereto, said wires being crimped to present a plurality of loops, the front of said main frame, the back of said main frame, and said back rail each having one of said wires thus mounted entirely thereon, springs on the inner side of said main frame and above said back rail, padding covering said springs, said padding being held in place by a covering drawn over said padding and attached to said loops, and a second cover over said first mentioned cover and over the back of said main frame.

10. In an upholstered chair, a back unit comprising a metal main frame, said main frame being generally semicircular in cross-section and having forwardly extending wing portions, a reinforcing frame attached to each of said wing portions on the inward side thereof, a forwardly extending horizontal back rail carried by said main frame below said reinforcing frames, springs on the inner side of said main frame between said wing portions and above said back rail, padding covering said springs and said reinforcing frames, said padding being held in place by a covering drawn over said padding and attached to said main frame.

11. In an upholstered chair, a back unit as set forth in claim 10 in which there are provided on the front and back of said main frame and on said back rail lengths of wire attached at spaced intervals thereto and presenting a plurality of loops extending outwardly from the surfaces of said main frame and said back rail and in which said covering is attached to said loops.

8

12. In an upholstered chair, a back unit comprising a metal main frame, said main frame being generally semicircular in cross section and having forwardly extending wing portions, a reinforcing frame attached to the inward side of each of said wing portions, a forwardly extending horizontal back rail carried by said main frame below said reinforcing frames, springs on the inner side of said main frame between said wing portions and above said back rail, a plurality of molded sponge rubber pads covering said springs and said reinforcing frames, a length of wire attached at spaced intervals to said main frame adjacent to each of said reinforcing frames and bent to present a plurality of loops extending outwardly from the surface of said main frame, another length of wire attached at spaced intervals to the back of said main frame adjacent the side edges and top of said main frame and presenting a plurality of loops extending outwardly from the surface of said main frame, and a further length of wire attached at spaced intervals to the under side of said back rail and presenting a plurality of downwardly extending loops, a cover for said pads attached to loops of said wires and a second cover over said first-mentioned cover and over the back of said main frame.

ALBERT W. NEMMER.

References Cited in the file of this patent
UNITED STATES PATENTS

Number	Name	Date
1,282,687	Graves	Oct. 22, 1918
1,463,334	Popkin	July 31, 1923
1,478,640	Coverly	Dec. 25, 1923
1,495,335	Lichter	May 27, 1924
1,951,674	Saunders	Mar. 20, 1934
2,265,901	Greig	Dec. 9, 1941
2,342,388	Church	Feb. 22, 1944