

Nov. 17, 1953

S. HEYMAN

2,659,416

COLLAPSIBLE RECLINING CHAIR

Filed Oct. 14, 1950

2 Sheets-Sheet 1

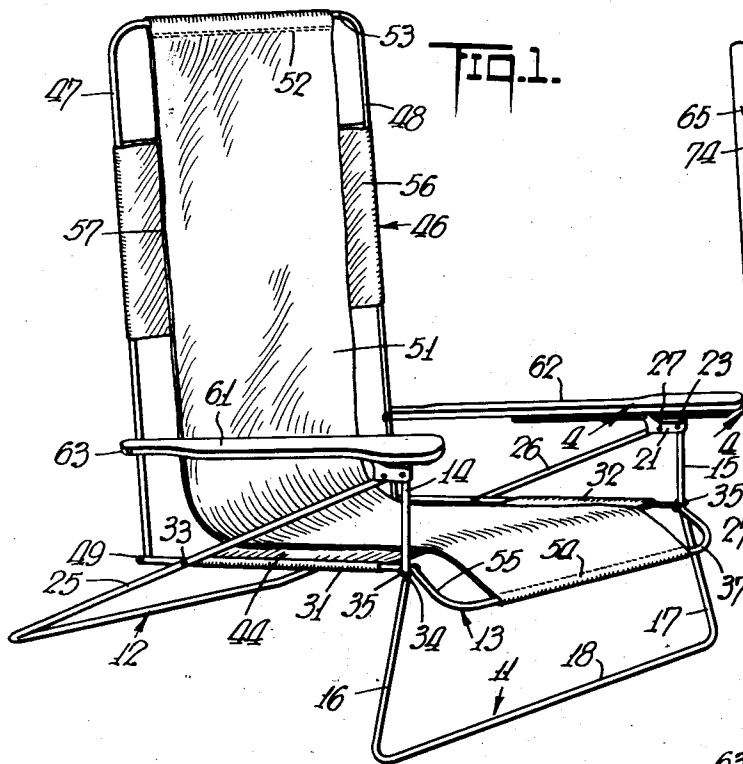


FIG. 1.

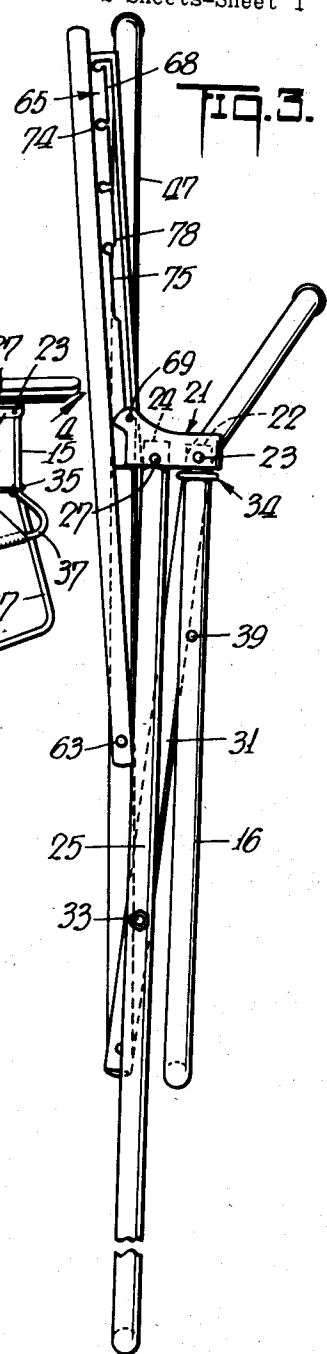


FIG. 3.

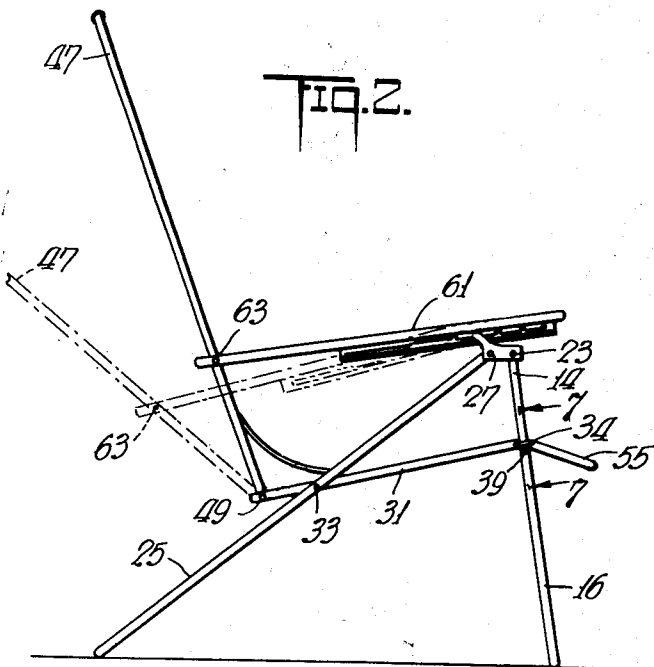


FIG. 2.

INVENTOR
Sam Heyman
BY
Dean Fankhauser & Hirsch
ATTORNEYS

Nov. 17, 1953

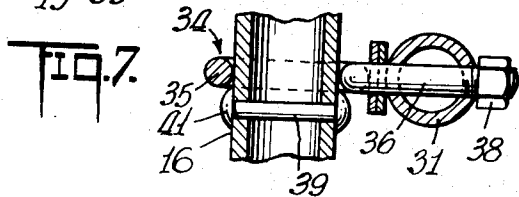
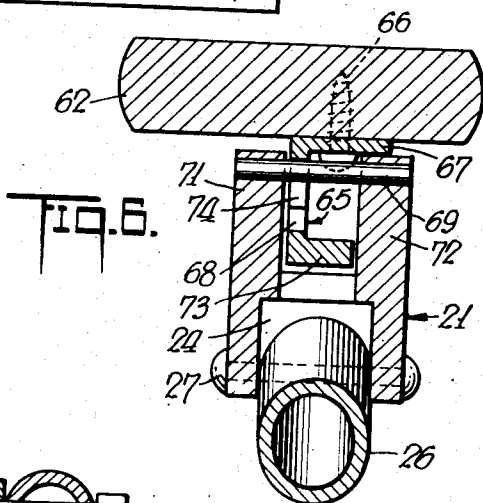
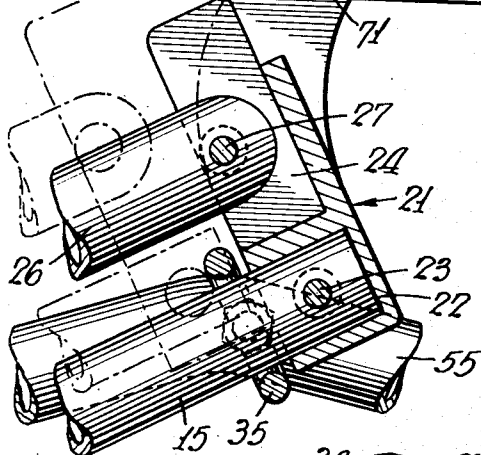
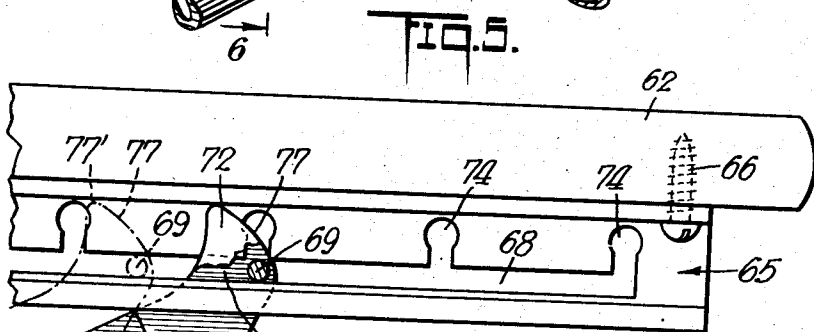
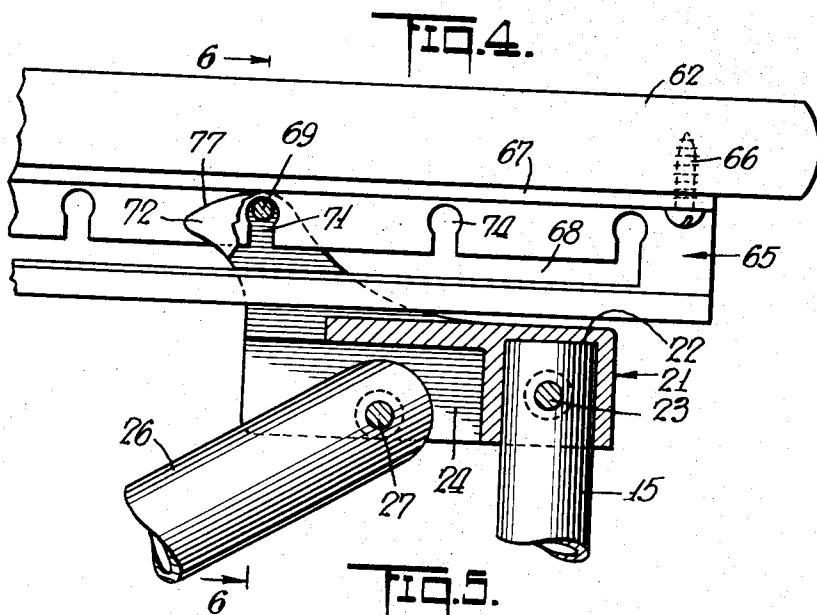
S. HEYMAN

2,659,416

COLLAPSIBLE RECLINING CHAIR

Filed Oct. 14, 1950

2 Sheets-Sheet 2



INVENTOR
Sam Heyman
BY
Dean Fairbank & Hirsch
ATTORNEYS

UNITED STATES PATENT OFFICE

2,659,416

COLLAPSIBLE RECLINING CHAIR

Sam Heyman, New Bedford, Mass.

Application October 14, 1950, Serial No. 190,172

4 Claims. (Cl. 155—139)

1

It is among the objects of the invention to provide a collapsible reclining chair that is light in weight, strong and durable with but few structural parts all of which are relatively inexpensive to manufacture and are substantially solely of tubular metal stock, which chair is easily assembled and not likely to become deranged and has facility for adjustment at will by the seated occupant to a desired angle of inclination of the back rest and automatically locks it in such adjusted position, and yet admits of ready collapse of the chair by but a single motion into compact form to facilitate storage or transportation.

According to the invention, these objects are accomplished by the arrangement and combination of elements hereinafter described and particularly recited in the claims.

In the accompanying drawings in which are shown one or more of various possible embodiments of the several features of the invention,

Fig. 1 is a perspective view of the chair in open position,

Fig. 2 is a side elevational view of the chair in open position showing positions of adjustment of the back rest in dot and dash lines,

Fig. 3 is a side elevational view on a larger scale showing the chair in collapsed position,

Fig. 4 is a detail sectional view on a larger scale taken along line 4—4 of Fig. 1,

Fig. 5 is a view similar to Fig. 4 showing the chair in partly collapsed position,

Fig. 6 is a sectional view taken along line 6—6 of Fig. 4, and

Fig. 7 is a sectional view taken along line 7—7 of Fig. 2.

Referring now to the drawings, the chair desirably comprises a front support 11, a back support 12 and a seat frame 13, all substantially U-shaped members, preferably of tubular metal stock such as aluminum or the like.

The front support 11 is desirably conformed so that the upper portions 14 and 15 of the legs 16 and 17 thereof are substantially parallel to each other, the legs being bent so as to flare outwardly from such parallel portions 14, 15 to the cross piece 18 thereof. Mounted on each of the upper ends respectively of the parallel portions 14 and 15 of legs 16 and 17 is a connector member 21, desirably a block of metal, preferably cast from aluminum or the like and having a socket 22 near

2

the front end thereof which accommodates the upper end of the parallel portions 14 and 15 respectively, each of which is secured in place as by a rivet 23. Each of the connector members 21 also desirably has a longitudinal recess 24 in the bottom thereof to the rear of socket 22 in which is positioned the free end of the corresponding oblique leg 25, 26 of the back support 12, pivotally retained as by means of a loose rivet 27, associated pairs of legs of said front support and said back support lying in substantially the same vertical plane.

The legs 31 and 32 of the seat frame 13, which are straddled by the legs 25 and 26 of the back support, are desirably pivotally connected thereto near their free ends respectively as by bolts 33, substantially at the mid point of the legs 25 and 26. Means are desirably provided slidably to mount the seat frame near its front portion with respect to the legs 16 and 17 of the front support. To this end as shown in Figs. 1 and 7, a pair of eye bolts 34 desirably have their eye portion 35 encompassing the legs 16 and 17 respectively of the front support 11. As shown in Fig. 7, the stems 36 of the eye bolts 34 extend through the legs 16, 17 respectively of the seat frame to the rear of the cross piece 37 thereof, the eye bolts being rigidly connected to said legs by means of nuts 38. The eye bolts are movable along the parallel portions 14 and 15 of such legs with their downward movement limited, as by means of rivets 39 extending transversely through said legs illustratively at the lower ends of the parallel portions 14 and 15 with protruding heads 41 that serve as stops for said eye portions 35.

The chair is desirably provided with a back rest 46 which as shown in Fig. 1 desirably comprises a substantially U-shaped member also preferably of tubular stock, having a pair of substantially parallel legs 47 and 48, the free ends of which are straddled by the legs 31 and 32 of the seat frame and are pivotally connected to the ends thereof as by bolts 49. The back rest desirably includes a canvas strip 51, substantially equal to the combined length of the seat frame 13 and back rest 46, and affixed at one end as by a line of stitching 52 to the cross piece 53 of back rest 46 and at its other end to the cross piece 37 of the seat frame 13 as by a line

3
of stitching 54, the portion of the legs 31 and 32 of the seat frame between the eye bolts 34 and the cross piece 37 being downwardly bent as at 55. As shown in Fig. 1 the canvas strip 51 is superposed over seat 44, which desirably is a strip of canvas which extends across the legs 31 and 32 of the seat frame. Desirably a reinforcing strip 56 also of canvas, extends transversely across the legs 47 and 48 of the back rest 46 and is desirably affixed as by stitching 10 to the longitudinal edges 57 of strip 51.

Means are desirably provided to permit adjustment of the angle of inclination of the back rest 46 with respect to the seat frame and to lock the back rest 46 in any desired position of adjustment. To this end a pair of arm rests 61 and 62 are desirably provided, which, though they may be of any suitable material, in the embodiment herein shown are illustratively of wood. The arm rests are pivotally connected 15 at their rear ends respectively on the outer sides of legs 47 and 48 of the back rest 46 as by bolts 63 and the front portion of each arm rest is desirably adjustably connected to the corresponding connector member 21. For this purpose 25 each of the arm rests has an elongated longitudinally extending strip 65, preferably of metal, mounted on the undersurface thereof and depending therefrom in a plane at right angles thereto, the strips being secured to the associated arm rests as by means of screws 66 which extend through a lateral flange 67 on the upper edge of each of the strips.

As shown in Figs. 3, 4, 5 and 6, each of the strips 65 desirably has a longitudinal slot 68 35 therein through which extends a locking pin 69, fixed at each end to and extending transversely between a pair of parallel upstanding fingers 71 and 72 desirably formed integrally with the respective connector members 21 on the upper surface thereof and straddling the strip 65.

Each strip 65 also desirably has a lateral flange 73 along the lower edge thereof of substantially the same width as the space between the fingers 71 and 72 and straddled thereby, to prevent lateral displacement of the corresponding arm rest. Each pin 69 is of such diameter 45 that it may ride along the associated slot 68 and also may enter any of the plurality of spaced notches 74 formed in the upper edge of the slot 68 to lock the corresponding arm rest in any position of adjustment. Desirably the upper edge of each of the slots 68 has a longitudinal recess 75 adjacent and to the rear of the rearmost notch 74 in order to provide a guide for the associated pin 69 in the manner hereinafter described.

Means are desirably provided automatically to move the arm rests so that the notches 74 in the strips 65 may be moved clear of the associated locking pins 69 in order to unlock the arm rest as the chair is folded. To this end as shown in Figs. 4, 5 and 6 at least one of the fingers 71, 72 illustratively finger 72, has a cam conformation 77 at the free end thereof which is so conformed that when the blocks 21 extend substantially parallel to the arm rests as shown in Fig. 4, the cam 77 will rest against the undersurface of flange 67, with pin 69 locked in the associated notch 74, and when the connectors 21 are pivoted in a clockwise direction about bearing rivets 27 to the position shown in Fig. 3, in which they are at substantially right angles to the arm rests, each cam conformation 77 will lift the associated arm rest until the notches 75

clear the associated pins 69 to unlock the arm rest.

With the above construction, when the chair is occupied, the entire weight of the user will be supported by the front and back supports 11 and 12 and the seat frame 13. As the back rest 46 and arm rests 61 and 62 do not play any part in retaining the seat portion of the chair in horizontal position or in retaining the chair in open position, if the occupant of the chair desires to adjust the inclination of the back rest 46, he need merely lean forward slightly. It is then a relatively simple matter to raise the front ends of the arm rests 61 and 62 and slide the latter backward or forward as desired, as shown in dot and dash lines in Fig. 2 until the back rest 46 is at the desired inclination, and thereupon automatically lock the latter in position by pressing down on the arm rests so that the lock pins 69 may enter the corresponding notches 74 in the strip 65. Once the back rest is locked as above described, even if the occupant of the chair should lean forward or rise from the chair, the back rest will remain in set position so that the chair may again be used without need for readjustment.

By reason of the elongated recess 74, there is assurance that if the pins 69 should be riding on the upper edge of the slot 68 at the rear end thereof and not be locked in any of the notches 74, and the user should lean with his full weight against the back rest 46 while the latter is substantially forwardly inclined, the pins 69 will be guided by the recesses 75 to abut against the edges 78 of the rearmost notches 74 so that the pins will enter such notches thereby automatically locking the back rest to rearmost operative position so that the chair would not tilt backward and overturn under the weight of the user.

To collapse the chair from the position shown in Figs. 1 and 2 to the position shown in Fig. 3, the cross piece 37 need merely be raised, while holding one of the legs of back rest 46. Seat frame 13 in thereby pivoting on bolts 33 toward back rest 46 will slide at eye portions 35 of the eye bolts 34 upward along the parallel portions 14 and 15 of legs 16 and 17 of the front support, thereby causing the connector members 21 that are affixed to the upper ends of legs 16 and 17 to be pivoted on rivets 27 from the position shown in Fig. 4 to that shown in Fig. 5. In this movement the cam conformation 77, which abuts against the undersurface of flange 67 will raise the arm rests so that the notches 74 clear the locking pins 69. As a result the arm rests 61 and 62 will be free to slide forwardly on the connector members 21 as the pins 69 will ride in the slots 68 as shown in dot and dash lines in Fig. 5, becoming aligned therewith by reason of the abutment of the end 77 of cam conformation 77 against flange 67. As a result the legs 31 and 32 of the seat frame 13 may be moved against the legs 47 and 48 of the back rest as shown in Fig. 3 so that the chair is in compact, collapsed condition.

Thus the arm rests automatically become unlocked as the seat frame is pivoted upwardly, and but a single movement is required for complete collapse and folding of the chair and by pivoting the seat frame downwardly until the eye portions rest on rivet heads 41, the collapsed chair may just as readily be set up for use.

With the construction herein described, a lightweight collapsible reclining chair is provided which may readily be transported and

5

stored and by reason of its simple mechanical structure, may readily be set up for use and collapsed practically in an instant without any annoyance to the user. By reason of the facility with which the angle of the inclination of the back rest may be varied, it may readily be adjusted according to the desire of the user and once adjusted will remain in set position even if the user gets up from the chair.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A collapsible reclining chair comprising a front support, a back support and a seat frame, said supports and said frame each having a pair of spaced parallel legs, a pair of connector members each comprising a block affixed to the upper end respectively of one of the legs of the front support, means pivotally mounting the front end of each of the legs of the back support in said block, means pivotally connecting the legs of the seat frame adjacent the rear ends thereof to the legs of the back support, means slidably mounting the legs of the seat frame adjacent the front thereof on the legs of said front support respectively, stop means on the legs of the front support to limit the sliding movement of the front end of said seat frame thereon, a back rest comprising a pair of spaced parallel legs, means pivotally mounting the lower ends of said legs to the rear ends of the legs of said seat frame respectively, adjustable connections between said connector members and said back rest for setting the angle of inclination of the latter with respect to said seat frame, said adjustable connections comprising a pair of arm rests pivotally mounted near their rear ends to the legs of said back rest respectively and extending over said blocks, said arm rests each having a longitudinally extending strip affixed on the undersurface thereof and depending therefrom in a plane at right angles thereto, said strips each having a longitudinal slot therein with a plurality of notches in the upper edge thereof, and having a laterally extending flange along the lower edge thereof, said blocks each having a pair of spaced upstanding fingers rigid therewith straddling said flange, thereby preventing lateral displacement of said arm rests, said fingers having a pin rigid therewith extending transversely thereacross and positioned in said slot, said pin being adapted to coact with any one of said notches releasably to lock the arm rests in fixed position with respect to said blocks.

2. A collapsible reclining chair comprising a front support, a back support and a seat frame, said supports and said frame each having a pair of spaced parallel legs, a pair of connector members each comprising a block affixed to the upper end respectively of one of the legs of the front support, means pivotally mounting the front end of each of the legs of the back support in said block, means pivotally connecting the legs of the seat frame adjacent the rear ends thereof to the legs of the back support, means slidably mounting the legs of the seat frame

6

adjacent the front thereof on the legs of said front support respectively, stop means on the legs of the front support to limit the sliding movement of the front end of said seat frame thereon, a back rest comprising a pair of spaced parallel legs, means pivotally mounting the lower ends of said legs to the rear ends of the legs of said seat frame respectively, adjustable connections between said connector members and the back rest for setting the angle of inclination of the latter with respect to said seat frame, said adjustable connections comprising a pair of arm rests pivotally mounted near their rear ends to the respective legs of said back rest and extending over said blocks, said arm rests each having a longitudinally extending strip affixed on the undersurface thereof and depending therefrom in a plane at right angles thereto, said strips each having a longitudinal slot therein with a plurality of notches in the upper edge thereof, each of said blocks having a pin rigid therewith positioned in the slot of the corresponding strip and adapted to coact with any one of said notches releasably to lock the corresponding arm rest in fixed position with respect to its associated block, said blocks each having cam means associated therewith and coacting with the undersurface of said arm rests, said cam means being conformed to urge said arm rests upwardly so that said notches clear said pins when the legs of the front support are pivoted toward the legs of said back support thereby automatically to unlock said arm rests.

3. The combination set forth in claim 2 in which the upper edge of said slot adjacent the rearmost notch therein has a longitudinal recessed portion whereby said pin may be guided into said rearmost notch.

4. A collapsible reclining chair comprising a front support, a back support and a seat frame, said supports and said frame each having a pair of spaced parallel legs, a pair of connector members each comprising a block affixed to the upper end respectively of one of the legs of the front support, means pivotally mounting the front end of each of the legs of the back support in said block, means pivotally connecting the legs of the seat frame adjacent the rear ends thereof to the legs of the back support, means slidably mounting the legs of the seat frame adjacent the front thereof on the legs of said front support respectively, stop means on the legs of the front support to limit the sliding movement of the front end of the seat frame thereon, a back rest comprising a pair of spaced parallel legs, means pivotally mounting the lower ends of said legs to the rear ends of the legs of said seat frame respectively, adjustable connections between said connector members and said back rest for setting the angle of inclination of the latter with respect to said seat frame, said adjustable connections comprising a pair of arm rests pivotally mounted near their rear ends to the legs of said back rest respectively and extending over said blocks, said arm rests each having a longitudinally extending strip affixed on the undersurface thereof and depending therefrom in a plane at right angles thereto, each of said strips having a lateral flange on the upper edge thereof and having a longitudinal slot with a plurality of notches in the upper edge thereof, each of said blocks having a pair of spaced upstanding fingers rigid therewith on the upper surface thereof, said fingers having

a pin rigid therewith extending transversely thereacross and positioned in said slot, said pin being adapted to coact with any one of said notches releasably to lock the arm rests in fixed position with respect to said blocks, one of said fingers having a cam conformation at the end thereof adapted to abut against said flange, said cam means being conformed to urge said arm rests upwardly so that said notches clear said pins when the legs of the front support are pivoted toward the legs of said back support thereby automatically to unlock said arm rests.

SAM HEYMAN

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
246,465	Cotton	Aug. 30, 1881
795,535	Nabal	July 25, 1905
2,243,502	Freedman	May 27, 1941
2,333,761	Beeskow	Nov. 9, 1943

FOREIGN PATENTS

Number	Country	Date
10,095	Great Britain	July 11, 1888
475,275	Canada	July 17, 1951