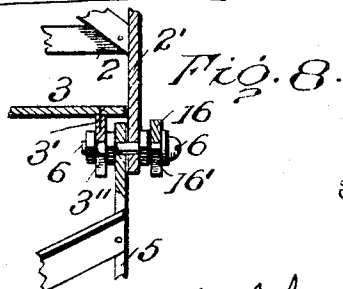
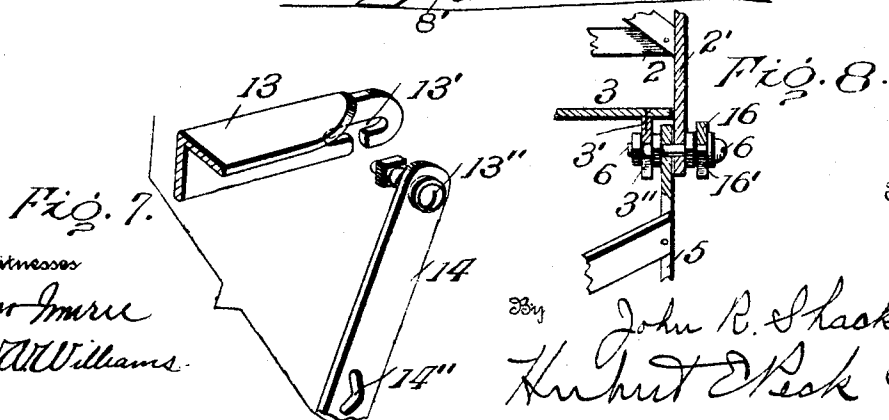
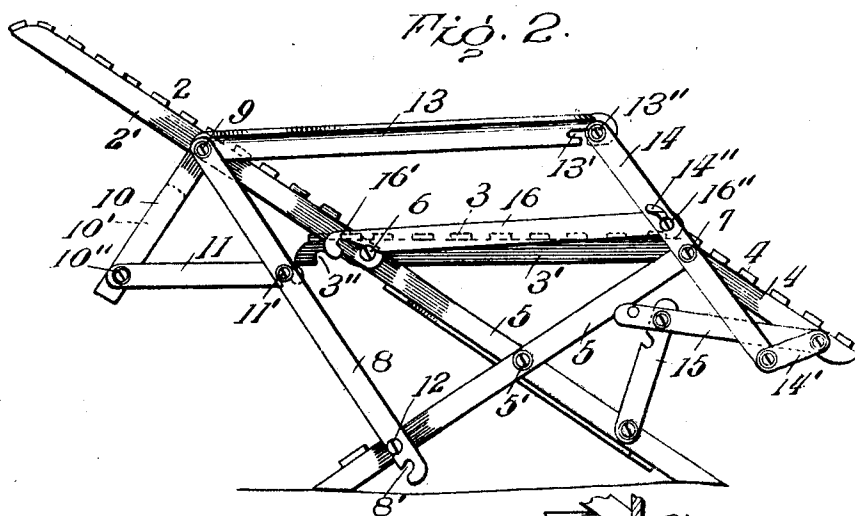
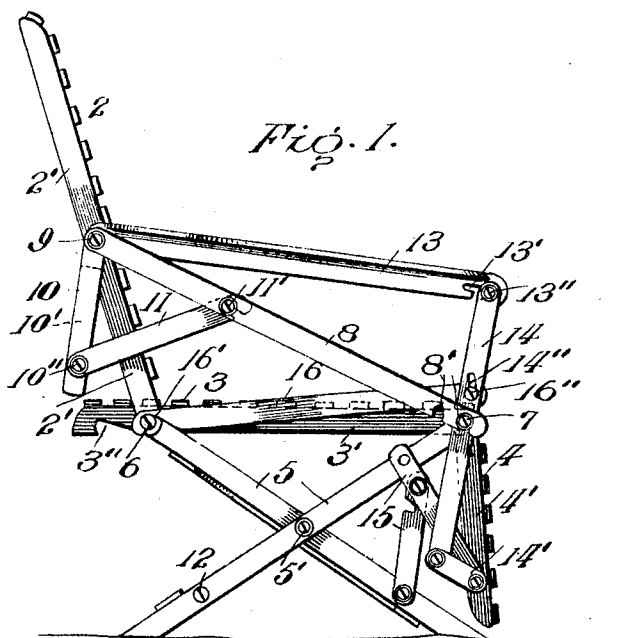


J. R. SHACKELFORD.
KNOCKDOWN CHAIR.

APPLICATION FILED JAN. 27, 1905.

2 SHEETS--SHEET 1.



Inventor

Witnesses

Joe Murie
W.A. Williams.

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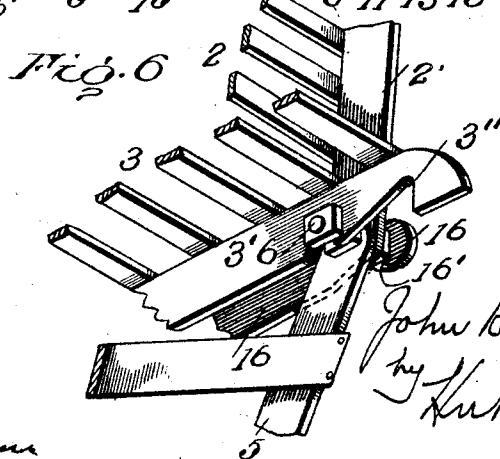
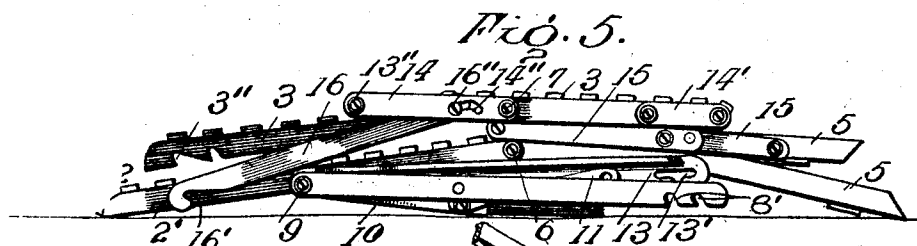
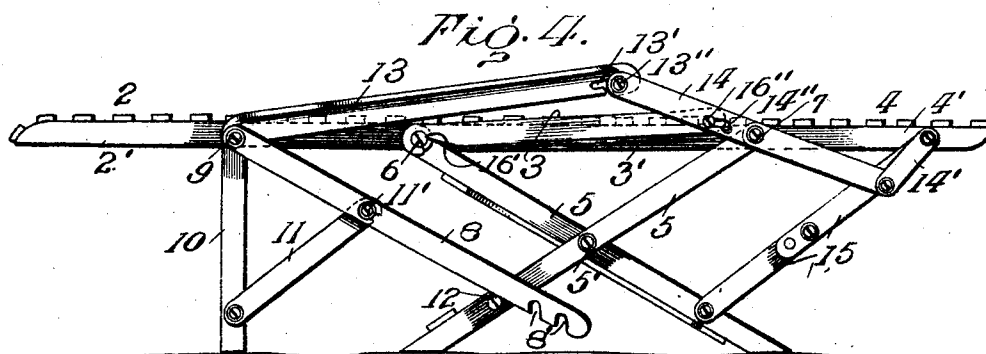
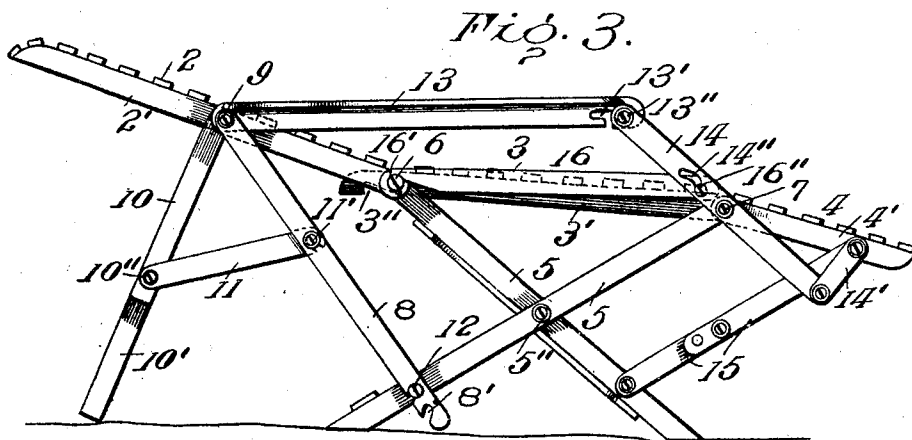
John B. Shackelford
Hubert E. Peak Attorney

No. 795,174.

PATENTED JULY 18, 1905.

J. R. SHACKELFORD.
KNOCKDOWN CHAIR.
APPLICATION FILED JAN. 27, 1905.

2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN R. SHACKELFORD, OF PETERSBURG, VIRGINIA.

KNOCKDOWN CHAIR.

SPECIFICATION forming part of Letters Patent No. 795,174, dated July 18, 1905.

Application filed January 27, 1905. Serial No. 242,861.

To all whom it may concern:

Be it known that I, JOHN R. SHACKELFORD, a citizen of the United States, residing at Petersburg, Dinwiddie county, State of Virginia, have invented certain new and useful Improvements in Knockdown Chairs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in adjustable furniture, and more particularly relates to adjustable chairs; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the construction shown in the accompanying drawings as an example of my preferred arrangement from among other constructions within the spirit and scope of my invention.

An object of the invention is to produce a comparatively simple, preferably knockdown, improved chair or the like durable and economical in construction and capable of adjustment to various positions, such as the upright-chair position, reclining positions, and the horizontal or couch position.

The invention consists in certain novel features in construction and in combinations or arrangements of parts, as more fully set forth hereinafter.

Referring to the accompanying drawings, Figure 1 is a side elevation showing the device in the upright-chair position. Figs. 2 and 3 are side elevations showing the device in different reclining-chair positions. Fig. 4 is a side elevation showing the device in the horizontal or couch position. Fig. 5 is a side elevation showing the chair knocked down and folded together for crating. Fig. 6 is a detail perspective view of a rear corner of the chair when the parts are in the position shown by Fig. 1, showing one side connection between the seat, back, leg, and leg-controlling link or brace. Fig. 7 is a detail perspective view showing the detachable connection between an arm-rest and front apron-controlling lever. Fig. 8 is a vertical detail cross-section at the connection shown by Fig. 6 and showing one

of the bolts at a rear corner of the chair and the parts connected by said bolt.

The device shown can be constructed of any suitable width to accommodate one or several persons, and I use the word "chair" herein in a broad sense to include devices of the general character such as shown, whether adapted for one or more persons.

The device shown comprises a swinging back 2, a seat 3, a swinging foot-piece or apron 4, two pairs of pivoted cross-legs 5, and various connecting and operating and controlling links or braces and levers, as hereinafter set forth. In the specific example illustrated, although I do not wish to so limit my invention, the back, seat, and apron are all of the same general construction—that is, each comprises a pair of longitudinal side bars to which cross-slats, as shown, are suitably secured. The cross-slats form the supporting-surfaces of said three sections of the chair, although the supporting-surfaces of said sections can be otherwise formed. The side bars of these three sections are approximately parallel with each other and overlap at the joints between the sections. For instance, I show the inner ends of the side bars 2' of the back extending beside the outer faces of the rear end portions of the side bars 3' of the seat-section 3 and mounted, respectively, to swing on the cross-bolts 6. These bolts 6 also uphold the rear end of the seat 3, as the lower edges of the bars 3' of the seat rest on the inner end portions of said bolts and project rearwardly between or beside the lower ends of the side bars 2' of the back. The seat is not directly coupled to the said bolts 6, but rests loosely thereon, so that the rear end of the seat can be lifted free of said bolts, the seat swinging on the pivotal connections at its front end. The rear portions of the under edges of the seat-bars 3' are formed each with several notches 3'' to receive the bolts 6, according to the adjustment of the pivoted cross-legs. The upper rear ends of the two upwardly and rearwardly extending cross-legs 5 are also confined on the bolts 6, respectively, as more clearly shown in Figs. 6 and 8, while the cross-legs of each

pair are pivotally joined at their central portions by the transverse pivot-bolts 5'. The upper front ends of the upwardly and forwardly extending legs 5 are confined on the cross-bolts 7, respectively, which pass through and pivotally connect the front ends of the seat-bars 3' and the inner ends of the side bars 4' of the apron 4, so that the apron 4 swings vertically on the bolts 7 independently of the seat 3, which also swings on said bolts 7 as its rear end is moved vertically.

8 represents the back-controlling links or braces, arranged at opposite sides of the chair and at their upper ends pivotally mounted on the bolts 9, secured to the side bars 2' of the back about midway the length of the back. Each brace 8 is of the necessary length to extend forwardly and rest on a bolt 7, and the free end of each brace is formed in its under edge with one or more notches 8' to receive the bolt 7, so that when the chair is in the upright position (shown by Fig. 1) the braces 8 extend forwardly and downwardly from the back to and with their free ends resting on and removably confined to the bolts 7, thereby holding the back in proper position. By lifting the free ends of the braces 8 from the bolts 7 the back can be swung to a different angle and the braces can then be dropped on the bolts 7, which will be received in different notches 8' to hold the back in the different adjustment. The back during this operation swings on the bolts 6 independently of the seat.

10 represents back-supporting legs at their upper ends pivotally joined to the back by said bolts 9, and 11 represents braces from the free ends of the legs 10 to intermediate portions of the links 8 to hold the legs 10, projecting downwardly from and at an angle to said links and to cause said legs to normally turn on the bolts 9 with the links 8. Each brace 11 is preferably pivotally joined to its respective leg 10 and at its opposite end has an open slot removably receiving the bolt 11' on the link 8, so that the braces 11 can be detached from the links 8 when the chair is to be folded and knocked down, as shown in Fig. 5. When the back is to be dropped rearwardly below the position shown in Fig. 1, the back supporting or controlling links 8 are lifted free from the bolts 7 and are swung down outside of the cross-legs 5 and onto the bolts or other stops 12, rigid with and projecting laterally from the lower rear portions of the upwardly and forwardly extending legs 5. A notch 8' of each link 8 receives a bolt 12, as shown in Figs. 2 and 3, so that the links 8 extend downwardly from the back and support the same in an inclined position. When the back is dropped down to the position shown in Fig. 3, folding extensions 10' of the back legs 10 are swung down to rest on the floor, and hence, with links 8, form angular supports for

the back. The extensions 10' are mounted on the bolts 10'', which also secure the braces 11 to the back legs 10, and said extensions are normally folded up beside the legs 10, as shown in Figs. 1, 2, and 4. When the back is swung down to the horizontal position in continuation of the seat, as shown in Fig. 4, the links 8 can rest loosely on the bolts 12, while the legs 10 support the back.

13 represents the arm-rests, formed by links at their rear ends pivotally mounted on the bolts 9 and from thence extending forwardly about horizontally from the back and at their front ends pivotally joined to the upper ends of the vertically-rocking apron-controlling levers 14. At points about midway their lengths these levers 14 are fulcrumed on the bolts 7 and from thence extend downwardly at opposite edges of the apron, and the lower ends of the levers are pivotally joined to the free end of the apron, as by the loose-link connections 14'. 15 represents jointed or toggle-link braces pivotally joined to the free end of the apron and to the front end portions of the upwardly and rearwardly extending cross-legs 5. The back and apron are thus operatively connected through said system of links and levers, so that as the back drops the apron swings up, and vice versa. The arrangement is such that when the back assumes the horizontal position in continuation of the horizontal seat (see Fig. 4) the apron also assumes the horizontal position in continuation of the seat; but this last-named position is permitted by reason of the spreading or vertical adjustment of the cross-legs 5, causing the seat to drop to a lower horizontal plane, thereby lowering the upper end of the apron from the position shown in Fig. 3 to that shown in Fig. 4.

16 represents cross-leg controlling or locking links arranged at opposite sides of the seat and extending from the apron-controlling levers 14 to and detachably engaging the bolts 6, secured to the upper rear ends of the rear cross-legs 5. These links 16 are notched at 16' at their rear ends to detachably receive said bolts 6. At their front ends each link 16 is loosely coupled to a lever 14 a distance above the lever-fulcrum by a headed pin or bolt 16'', loosely confined to slide in an angular slot 14'', arranged in and longitudinally of the lever 14. These slots 14'' in the levers 14 permit the free swinging movement of the levers notwithstanding the variation thereby caused in the distance between the upper portions of said levers and the bolts 6. Except for said links 16 the pivoted cross-legs are locked together or held from spreading only by the seat 3. Hence when the rear end of the seat is raised from bolts 6 to permit adjustment of said legs to vary the vertical position of the seat said legs would drop down or fold together. How-

ever, the links 16, hooked on or engaging the bolts 6, prevent such accidental collapse or spreading of the cross-legs, and when the rear end of the seat is thus held elevated the operator can, by swinging the back upwardly or forwardly, cause the links 16 to draw the upper ends of the cross-legs 5 toward each other to hold the seat in a higher position, or by permitting the back to drop to a lower position the links 16 will be forced rearwardly, thereby permitting the cross-legs to spread to support the seat in a lower position.

In order to permit folding of the chair into knocked-down position for crating, (see Fig. 5,) the two bolts connecting the toggle-braces 15 and the links 14' to the side bars 4' of the apron are removed, the upper ends of the levers 14 are disconnected from the outer ends of the arm-rests 13, and the braces 11 are disconnected from the bolts 11'. The cross-legs then fold together and the seat and apron rest above the back with the various links and braces resting beside said parts. The chair thus folds into compact form and requires a crate only a few inches deep and in width equal to the width of the chair. The arm-rests can be detachably coupled to the levers 14 in a manner to allow a certain degree of free play or looseness. For instance, each arm-rest can be formed with a longitudinal slot 13', having a lateral opening through the edge of the rest through which the pivot-bolt 13'', rigid with the lever 14, can slip into and from the slot 13'. (See Fig. 7.)

It will be observed that the links 8 not only hold the back in position, but through the medium of the operative connections between the back and apron said links also hold the apron in adjusted position.

I do not wish to limit all features of my invention to the employment of the arm-rests, levers 14, and the apron and its braces 15.

The bolts or other pivotal connections or stops described are usually provided with washers or bushings to separate the various members mounted thereon and to permit the bolts being drawn up tightly; but I do not wish to limit all features of my invention to the use of bolts for pivotal connections or stops or projections to receive the various links, braces, and the like.

It is evident that various changes and modifications might be resorted to without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact constructions shown.

What I claim is—

1. An adjustable chair comprising pivotally-joined cross-legs, a seat pivotally joined to one set of legs to swing vertically at its opposite and free end, means detachably coupling the free end of the seat to the opposite set of legs, leg-controlling links to hold said legs against spreading when the seat is raised,

a swinging back hinged to one set of said legs, and means holding the back at the desired angle independently of the adjustment of the seat.

2. An adjustable chair comprising pivoted cross-legs, a seat pivotally joined to the front legs, whereby the free rear end of the seat can move vertically, the free end of the seat having series of notches to engage with the rear legs to detachably couple the free end of the seat to said legs, and whereby the seat can be supported in different horizontal planes by swinging the legs to vary the distance between their upper ends, and leg-controlling means detachably engaging the rear legs to prevent the legs from spreading when said seat is raised.

3. A folding knockdown chair comprising pivoted cross-legs, a seat pivoted at one end to one set of legs and at its rear end formed to removably drop into locking engagement with the opposite set of legs, pivoted leg-controlling links, a swinging back pivoted to the rear set of legs, and back-supporting links arranged to detachably couple with the front set of legs, substantially as described.

4. A folding knockdown chair comprising pivoted cross-legs, a seat at its front end pivotally joined to the upper front ends of the legs and at its rear formed with a series of recesses adapted to removably receive projections from the rear upper ends of the legs, a swinging back mounted on said projections, and swinging back-supporting links pivoted to the back above the plane of the seat and detachably coupling with the upper portions of the front legs.

5. A folding knockdown chair comprising pivoted cross-legs, a seat to the front end of which the upper front ends of said legs are pivotally joined, whereby the rear end of the seat can move vertically, a back, means pivotally joining the rear upper ends of said legs to the back, the rear portion of the seat adapted to loosely rest on said means, and swinging back-supporting links.

6. A folding knockdown chair comprising pivoted cross-legs, a seat, pivot-bolts connecting the front end of the seat to the upper front ends of the legs, a swinging back, means connecting the lower end of the back to the rear upper ends of said legs, the rear end of the seat resting loosely on and upheld by said means, and swinging back-supporting links free at the outer ends and adapted to removably couple with said bolts.

7. A folding knockdown chair comprising supporting - legs, a seat, a swinging front apron, a swinging back, swinging back-supporting links having free outer ends, back-supporting legs connected to and movable with said links, and links and levers operatively connecting the back and apron to swing together and constituting arm-rests.

8. A folding knockdown chair comprising supporting - legs, a seat, a swinging back, swinging back-supporting links having free outer ends and at their inner ends pivoted to the back, the free ends of said links adapted to removably engage the front portion of the chair to hold the back in certain positions, and stops at the rear portions of the legs with which said free ends of the links removably engage to hold the back in lowered positions.

9. A folding knockdown chair comprising supporting-legs, a swinging back, stops at the front portion of the chair, stops at the lower rear portions of the legs, and freely-swinging back-supporting links pivoted to the back and shouldered at their free ends to removably engage either set of said stops in supporting said back at different inclinations.

10. A folding knockdown chair comprising supporting-legs, a seat, a swinging back, back-supporting swinging links pivoted to said back and at their free ends adapted to removably engage various portions of the chair in supporting said back at different inclinations, and back-supporting legs pivoted to said back and connected to swing with said links, substantially as described.

11. A folding knockdown chair comprising folding cross-legs, a seat at one end pivotally joined thereto and at its opposite end free to move vertically and rest loosely thereon, a swinging back at its lower end pivotally joined to said legs, swinging back-supporting links

free at their outer ends to detachably engage parts of the chair, a swinging apron pivotally connected with said legs, arm-rests pivotally joined to the back, apron-controlling levers detachably joined to said arm-rests and pivotally joined to said legs, and means detachably connecting said levers with said apron.

12. A folding knockdown chair comprising folding pivoted cross-legs, a swinging seat at its front end pivotally joined to the upper front ends of said legs, the upper rear ends of said legs having stops, the rear end of the seat loosely resting on said stops, and leg-controlling links engaging said stops, for the purpose, substantially as described.

13. An adjustable chair comprising pivoted cross-legs at their rear upper ends having stops, a swinging back, arm-rests joined thereto, front swinging levers connected to said arm-rests, a seat pivotally connected to the upper front ends of the legs and at its rear end supported by and free to move vertically from the upper rear ends of said legs, and leg-controlling links loosely coupled with said levers and at their rear ends removably engaging said stops to control the swinging movement of said legs.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. SHACKELFORD.

Witnesses:

CHARLES T. LASSITER,
C. N. COGBILL.