(No Model.)

J. A. KOCH.

FOLDING CHAIR.

No. 561,669. Patented June 9, 1896.

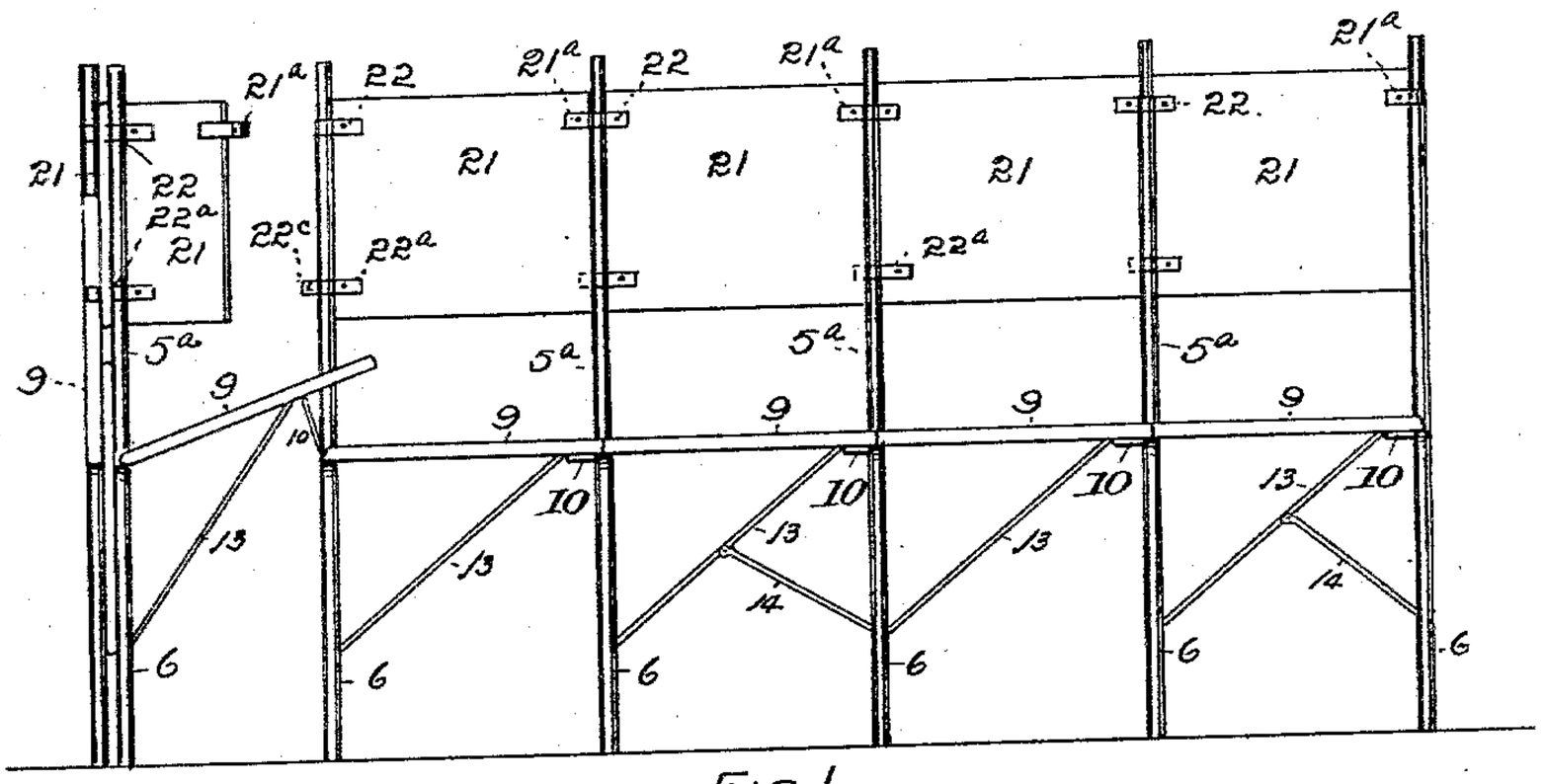

FIG. 1.

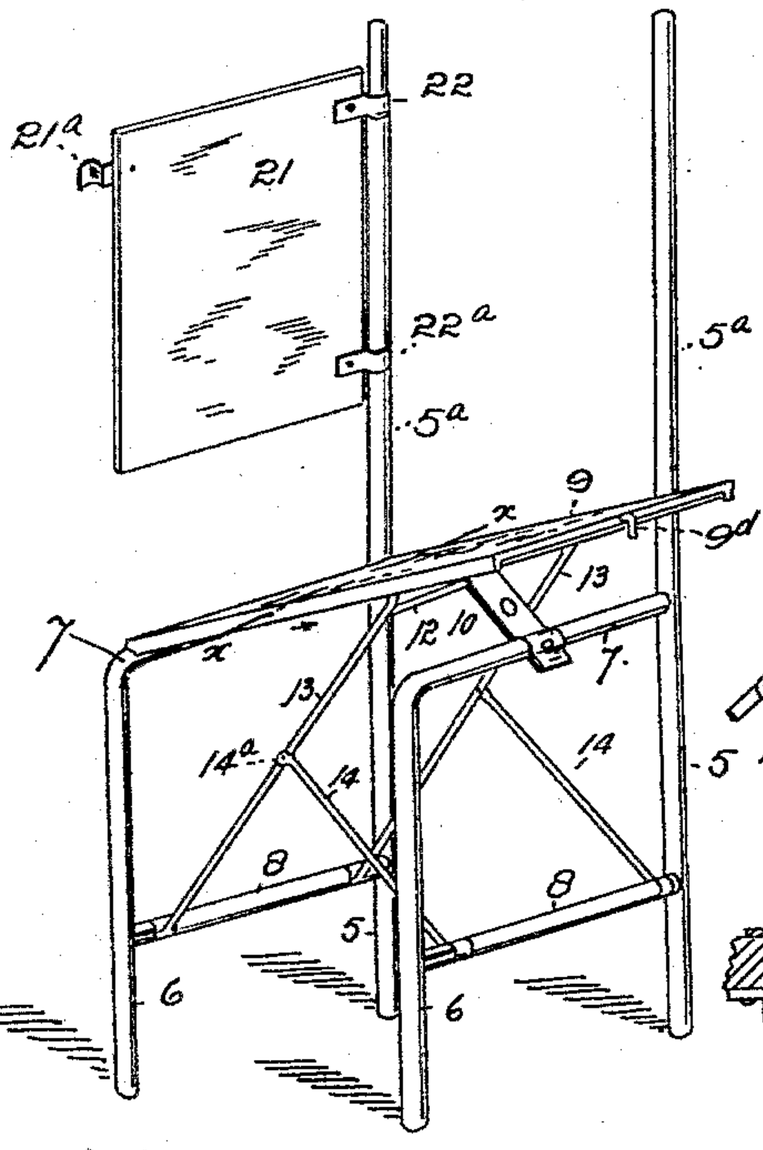

FIG. 2.

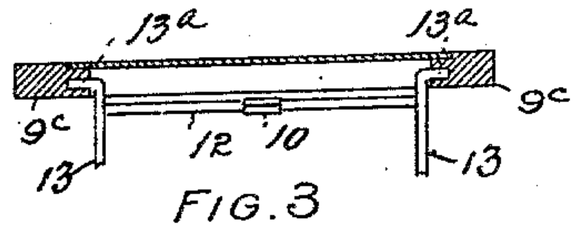

FIG. 3

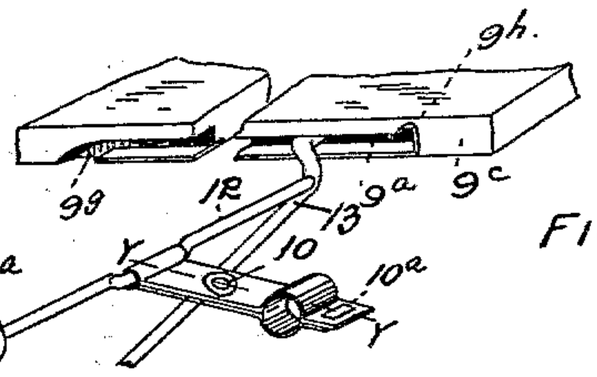

FIG. 4.

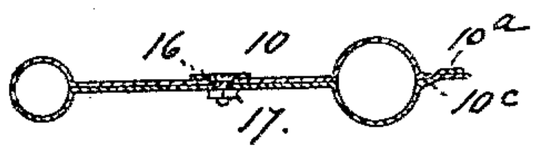

FIG. 5.

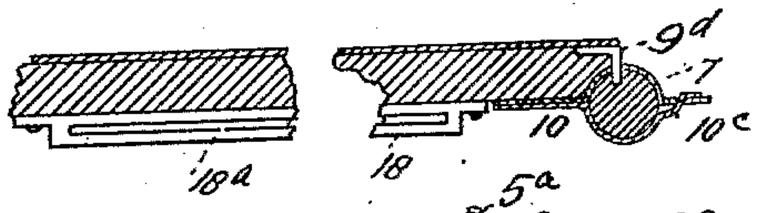

FIG. 6.

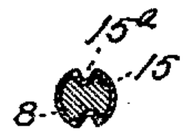

FIG. 10.

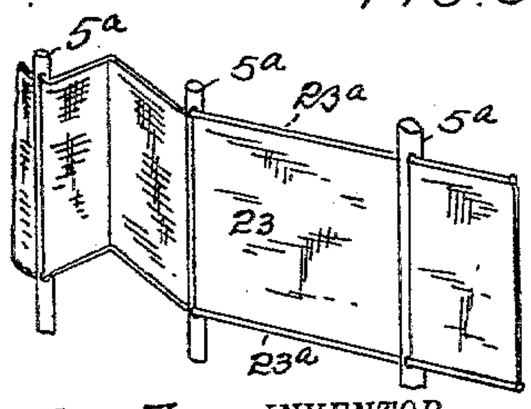

FIG. 7

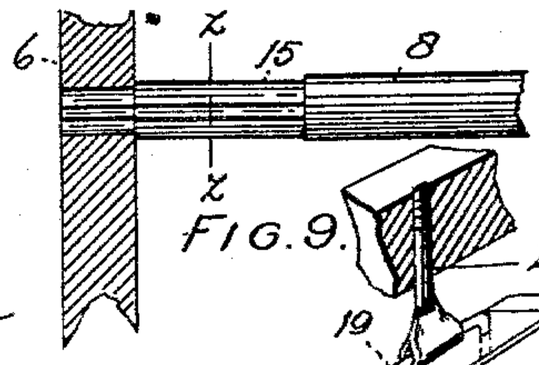

FIG. 9.

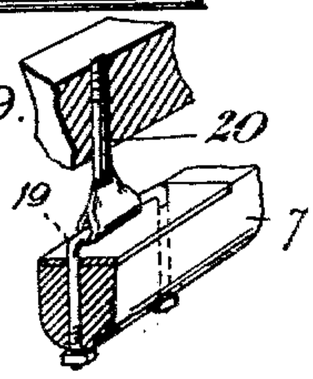

FIG. 8.

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JACOB A. KOCH, OF DENVER, COLORADO.

FOLDING CHAIR.

SPECIFICATION forming part of Letters Patent No. 561,669, dated June 9, 1896.

Application filed March 11, 1895. Serial No. 541,259. (No model.)

To all whom it may concern:

Be it known that I, JACOB A. KOCH, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Folding Chairs; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in folding chairs; and it consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a front view of a number of chairs constructed according to my invention and arranged in a connected series. In this view the chair farthest to the left is folded and the seat of the next is partly raised in the act of folding. Fig. 2 is a perspective view of one of my improved chairs. In this view the back is adjusted for folding and the seat is partly raised. Fig. 3 is a section taken on the line *x x*, Fig. 2. Fig. 4 is a fragmentary view in perspective illustrating the seat and the adjusting mechanism connected therewith. Fig. 5 is a section taken through the hinge on the line *y y*, Fig. 4, the parts being shown on a larger scale. Fig. 6 is a fragmentary section of the seat, showing a modified form of construction, the hinge being partly broken away. Fig. 7 is a perspective view illustrating the manner of connecting the back arms of a number of chairs, a continuous strip of flexible material being employed. This view shows a modified form of construction. Fig. 8 illustrates the manner of hinging the seat to one of the horizontal arms of the frame. Fig. 9 is a fragmentary view illustrating the bearing for the adjustable braces. Fig. 10 is a section taken on the line *z z*, Fig. 9.

Similar reference-characters indicate corresponding parts in the views.

The framework of the chair comprises the rear legs 5, the front legs 6, the horizontal top bars 7, and the horizontal rungs 8, connecting the front and rear legs. The seat 9 is hinged to one of the top bars 7. To the other top bar is attached a hinge 10, connected with a rod 12, to which are made fast two braces 13 at points near their upper extremities, which are fashioned, as shown at 13^a, to slide in grooves or ways 9^a, formed in the seat-bars 9^c. The lower extremities of the braces 13 are movably attached to one of the rungs 8. Other braces 14 are suitably attached to the other rung 8 at one extremity and pivotally connected with the braces 13 at the opposite extremity. The rungs to which the braces are attached are provided with metal sleeves 15, which form satisfactory bearings for the engaging brace extremities. The sleeves 15 are provided with interiorly-projecting tongues 15^a, which engage counterpart grooves formed in the rungs, whereby the sleeves are prevented from turning on the rungs. The grooves in the rungs 8 are continued through the parts which engage the legs 5 and 6. These grooves form receptacles for glue and thus facilitate the fastening of the rung extremities in the legs of the chair.

The hinge 10 is composed of two plates having semicircular counterpart bends adapted to engage the connected parts. One of these plates is provided with an aperture 10^a, through which a tongue 10^c, formed on the other plate, is passed, thus locking the plate extremities together. The hinge-plates are centrally connected by a screw 16, passed through coinciding apertures formed in the plates, and fastened by a nut 17, applied to the screw and engaging the lower plate. The screw 16 also passes through a washer applied to the upper plate. One edge of the seat 9 is provided with a depending projection 9^d, which passes through an aperture formed in the hinge and enters a recess in the top bar 7 of the chair, whereby the latter is locked from folding until the seat is raised.

The braces 14 are provided with apertured lugs 14^a, through which are passed the pivots which connect these braces with the braces 13. The braces 14 are also provided with shoulders 14^c, which form bearings for the braces 13 when the chair is in position for use. These shoulders thus lock the braces from further movement upon each other. It is

evident that instead of forming grooves in the seat-bars 9^c, the seat may be made of the same thickness throughout as these bars, while special metal bars 18, having grooves 18^a formed therein, may be attached to the under surface of the seat. (See Fig. 6.) In this view the hinge is shown provided with an aperture engaged by the projection 9^d of the seat.

One construction for hinging the seat to the top bar of the chair-frame is shown in Fig. 8, and comprises a staple 19, passed through the bar 7, and an arm 20, movably attached to the staple at one extremity and adapted to be made fast to the edge of the seat at the opposite extremity. In this case the bar 7 is formed angular in cross-section, its top being flat or lying in a horizontal plane.

The back of the chair may be formed as shown in Figs. 1 and 2, or as shown in Fig. 7, as may be desired.

Referring to Figs. 1 and 2, the back 21 is hinged to one of the rear bars 5^a, which project above the seat of the chair and are continuous with the legs 5. In forming this connection between the back 21 and the bar 5^a, hinges 22 and 22^a are employed. The hinge 22^a is provided with a tailpiece 22^c, against which the lower part of the back 21 of the adjacent chair rests when the chairs are connected in a series, as shown in Fig. 1. The upper part of the back 21 is provided with a stop 21^a, which bears against the adjacent bar 5^a when the chair is in position for use.

The form of construction shown in Fig. 7 comprises a piece of flexible material 23 passed through slots formed in the bars 5^a. The upper and lower or longitudinal edges of the part 23 are provided with cords 23^a, which engage the extremities of the slots in the bars 5^a, the slot extremities being enlarged to receive the cords. An integral piece of flexible material may thus be made to form backs for any desired number of connected chairs. When this style of back is employed, it is only necessary to raise the seats of the chairs to fold them, in which event a number of them may be folded into small compass.

When the form of back shown in Figs. 1 and 2 is employed, the back 21 of each chair of the series must be adjusted to occupy the position shown in Fig. 2 before the chairs can be folded. The manner of folding is apparent in view of the construction set forth in the description and drawings.

During the adjustment of the chairs the brace extremities 13^a slide easily in the grooves or ways with which the seat of each chair is provided. One extremity of this way (see Fig. 4) is provided with an upward enlargement 9^h, into which the bent extremity 13^a of the brace is adapted to slip when the chair is in position for use. This recess forms a lock for the brace against movement in the groove until the seat is raised. The groove 9^a is also provided at its opposite extremity with an opening 9^g for the entrance of the brace extremity. This entrance is so located, however, that the brace is not allowed to escape from the groove when the parts are assembled and connected in operative relation.

It must be understood that the construction is operative without the braces 14. These braces, however, give additional strength to the structure; but it is not necessary to use them with every chair of a connected series. They should be used with the end chairs of the series, and it may be advisable to use them with every alternate chair.

Having thus described my invention, what I claim is—

1. In a folding chair, the combination with the front and rear legs, the horizontal top bars, and the rungs connecting the front and rear legs, of the braces 13 and 14 movably connected with the rungs and with each other, a rod connecting the two braces 13, the seat hinged to one of the horizontal top bars and provided with grooves or ways adapted to receive the extremities of the braces 13 which are fashioned to slide therein, and the hinge connecting the rod with the other horizontal top bar, substantially as described.

2. The combination with the front and rear legs, the connecting-rungs, and the horizontal top bars, of the seat hinged to one of said bars and provided with grooved ways, braces 13 and 14 movably attached to the rungs and to each other, the braces 13 being adapted to engage the grooved ways of the seat, the rod connecting the braces 13, the hinge connecting the rod with the other top bar, the vertical bars extending above the seat, and a suitable back connected with said bars, substantially as described.

3. The combination of a number of chairs arranged together and adapted to fold, each chair comprising the front and rear legs, the connecting-rungs, the horizontal top bars, the seat hinged to one of said bars and provided with ways, the braces 13 movably connected with one of the rungs, the rod connecting said braces whose extremities are adapted to slide in the ways of the seat, and a hinge connecting the rod with the other horizontal top bar, substantially as described.

4. The hinge composed of two plates having semicircular counterpart bends adapted to engage the connected parts, one of these plates being provided with an aperture through which a tongue formed on the other plate is passed, thus locking the plate extremities together, the said plates being centrally connected by a screw passed through coinciding apertures formed in the plates and fastened by a nut, substantially as described.

5. The combination with a series of folding chairs, of a continuous back comprising a piece of flexible material having cords attached to the upper and lower edges, slotted bars projecting above the seats of the chairs and adapted to receive the said flexible piece, the

extremities of the slots being enlarged to receive the cords, substantially as described.

6. In a folding chair, the combination with the frame, the seat hinged thereto the front and rear legs, and the top bars 7, of the rungs connecting the legs and having metal sleeves provided with interiorly-projecting tongues engaging counterpart grooves formed in the rungs, braces movably connected with said rungs and engaging said sleeves, said braces being slidingly connected with the seat a rod connecting the braces, and a hinge connecting said rod with one of the top bars, substantially as described.

7. In a folding chair, the combination of the front and rear legs, the connecting-rungs, the top bars 7, the seat hinged to one of the bars 7 and having grooves or ways provided with a locking-recess at one extremity and an entrance at the opposite extremity, braces movably attached to one of the rungs and engaging the ways or grooves in the seat, a hinge attached to the other bar 7, and a suitable connection between the hinge and said braces, substantially as described.

8. In a folding chair, the combination with the front and rear legs, the connecting-rungs and the top bars 7, of the seat hinged to one of the bars and having grooved ways and a depending projection, braces movably connected with one of the rungs and engaging the ways in the seat, a hinge embracing one of the bars 7 and suitably connected with the braces, said hinge having an aperture formed in the part which embraces the bar said aperture coinciding with an aperture in the bar, these apertures being adapted to engage the depending projection on the seat when the chair is in position for use, substantially as described.

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

JACOB A. KOCH.

Witnesses:

CHAS. E. DAWSON,

ALFRED J. O'BRIEN.