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R. K. DAWSON

FITTING FOR REVOLVING CHAIRS AND THE LIKE

Filed June 13, 1921

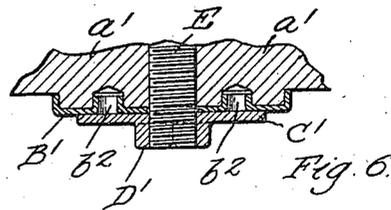
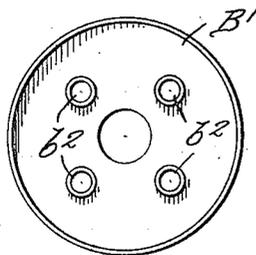
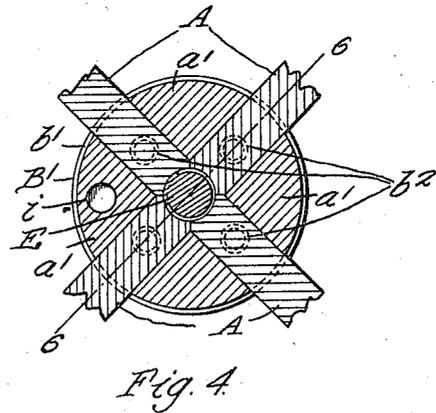
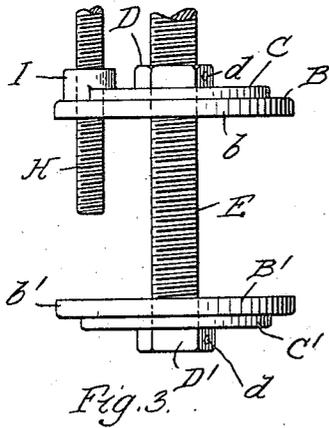
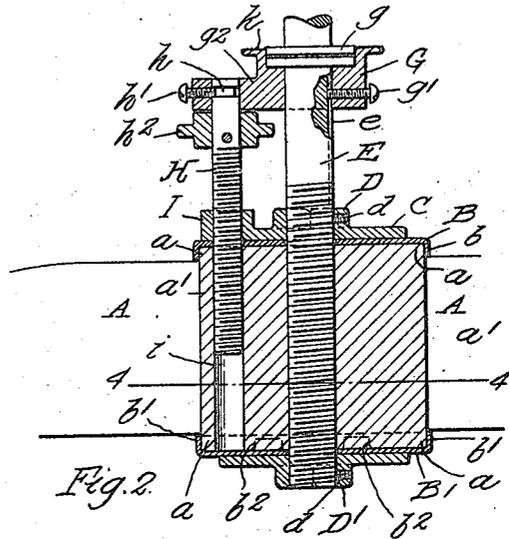
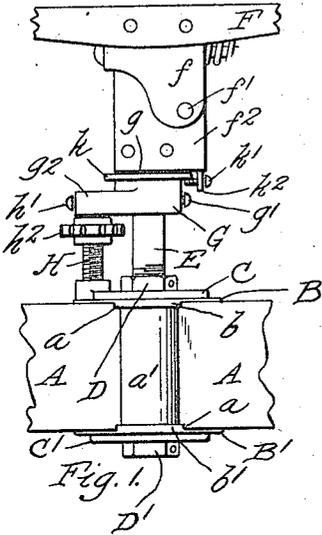


Fig. 5.

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UNITED STATES PATENT OFFICE.

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FITTING FOR REVOLVING CHAIRS AND THE LIKE.

Application filed June 13, 1921. Serial No. 477,073.

To all whom it may concern:

Be it known that I, ROBERT K. DAWSON, a subject of the King of Great Britain, residing at Guelph, in the Province of Ontario, Dominion of Canada, have invented a new and useful Improvement in Fittings for Revolving Chairs and the like, of which the following is a specification.

This invention relates to fittings for revolving chairs, and more particularly to the means for securing together the legs of a chair and to means for adjusting the height of the seat of the chair.

The objects of the invention are to provide in a chair base, means of improved construction for gripping or engaging the upper and lower edges of the legs so as to facilitate the assembling of the chairs; also to provide a chair base in which the legs of the chair are clamped together by means of the usual upright chair spindle; also to provide means of improved construction for adjusting the seat of the chair with respect to the base thereof; also to improve the construction of chair fittings of this kind in other respects hereinafter specified.

In the accompanying drawings:

Fig. 1 is a fragmentary side elevation of a chair fitting embodying the invention showing the same applied to the legs of a chair.

Fig. 2 is a fragmentary central sectional elevation thereof on an enlarged scale.

Fig. 3 is an elevation of the lower portion of the fitting detached from the chair legs.

Fig. 4 is a sectional plan view thereof on line 4—4, Fig. 2.

Fig. 5 is a top plan view of the lower leg engaging plate.

Fig. 6 is a fragmentary sectional elevation of the chair base on line 6—6, Fig. 4.

A represents the legs of a chair which terminate at and are secured to the hub portion of the chair fitting. The chair legs are preferably provided at their inner ends with enlarged parts or shouldered portions a , projecting beyond the upper and lower edges of the legs, and corner pieces a' of usual construction are preferably arranged between the legs. The means for securing the legs together are preferably constructed as follows—

The upper faces of the legs A are adapted to be engaged by means of a sheet metal plate or disk B preferably having a peripheral downwardly turned flange b engaging the edges of the shouldered portions a of

the legs. These flanges also serve to hold the corner pieces a' in place between adjacent legs. The lower faces of the legs and the corner pieces are engaged by a corresponding plate B' having an upwardly turned flange b' , and this plate is preferably provided with a plurality of upwardly extending, substantially cylindrical bosses or portions b^2 extending into correspondingly shaped holes in the lower faces of the legs A. The cylindrical portions b^2 are preferably formed integral with the plate B' by stamping or forming in suitable dies. If desired, the upper plate B may also be provided with cylindrical projections of this type but these projections are preferably omitted from the upper plate as shown in the drawings. The projections are provided with cylindrical walls which in entering into the holes in the legs, securely hold the legs in place with regard to the plate B and which take the place of the usual wood screws heretofore provided for securing the legs to the plates of the chair hub. The plates B and B' may be made of comparatively thin sheet metal so that the cost of manufacture of the same is greatly reduced.

In order to prevent the plates B and B' from being bent or otherwise distorted, owing to the fact that they are made of relatively thin metal, suitable reinforcing flanges or members are provided which engage the upper and lower leg engaging plates to hold the same in correct relation to the legs and prevent the buckling or warping of the plates due to strains to which the plates may be subjected. In the construction shown for this purpose, reinforcing disks, flanges or members C and C' are provided which are adapted to engage portions of the leg engaging plates. These reinforcing members are preferably made somewhat smaller than the plates B B' and the lower reinforcing member is preferably made of sufficient size to cover those portions of the lower leg engaging plate which are provided with the bosses or projections b^2 , so as to hold these bosses securely in engagement with the chair legs.

The reinforcing members may be pressed into clamping engagement with the leg engaging plates by any suitable means, clamping nuts D D' being employed in the particular embodiment of the invention shown, which may be moved in any suitable manner into positions to cause the reinforcing mem-

bers to engage the leg engaging plates. In the particular construction shown in the drawings, these nuts engage an upright central hub member, which as shown, is in the form of a central spindle or stem E of the chair and which extends centrally between the legs and corner pieces a' . The lower portion of this central upright member is screw threaded and by turning either one of the clamping nuts thereon, these nuts, together with the reinforcing flanges or parts C C', are drawn into clamping engagement with the leg engaging plates and thus force these plates into clamping engagement with the upper and lower faces of the legs. The reinforcing disks or flanges C C' may, if desired, be formed integral with the nuts D D'. Any other means for pressing the reinforcing members into engagement with the plates B B' may be employed.

By means of this arrangement, the reinforcing disks or flanges clamp the plates against the legs, so that a change of shape of the reinforcing disks is entirely prevented, and in the case of the lower leg engaging plate, the cylindrical portions or bosses b^2 are securely held in engagement in the holes in the legs. This construction has the advantage of entirely eliminating the use of screws in securing the legs to the hub portion of the chair and thereby saves a considerable amount of time and expense in the assembling of the chairs. The construction has the further advantage that in case the legs of the chair shrink due to drying out or other causes, the nuts D D' can be easily tightened on the spindle so as to securely clamp the legs. In order to prevent the nuts from becoming loosened on the spindle, set screws d are preferably provided in the nuts which engage the spindle and prevent relative movement between the nuts and the spindle. By securing the spindle rigidly in the chair base, a very rigid chair construction is produced and lost motion between the seat of the chair and the base is considerably reduced owing to the fact that the looseness or lost motion can only be between the seat and the spindle and not between the base and the spindle. Since this lost motion will be closer to the seat by means of this construction, the amount of such motion is correspondingly reduced.

The seat (not shown) of the chair may be pivotally supported on the spindle E in any desired manner, for example the chair seat may be secured to a suitable spider including arms F rigidly connected to a central connecting member f . This connecting member of the spider is pivoted at f to swing on a revoluble member f^2 arranged to rotate about the axis of the stem or spindle E. In order to adjust these seat supporting parts vertically on the stem or spindle E the following construction is preferably employed:

The revoluble member f^2 bears on a vertically adjustable sleeve G arranged on the stem or spindle E, a ball bearing g being preferably, though not necessarily, interposed between the sleeve G and the revoluble member. The stem or spindle E is provided with a keyway e in which a part of the adjustable sleeve G engages to hold the sleeve against turning. In the construction shown, this sleeve is provided with a screw or stud g' adapted to extend into the keyway and thus prevent the turning of the sleeve on the spindle. The sleeve is provided with a lateral extension g^2 in which the upper end of an adjusting screw H is rotatably held, this screw, in the construction shown, being provided in its upper end with an annular groove h , Fig. 2, into which a screw or stud h' of the adjustable sleeve G extends so that the adjusting screw is free to turn about its axis relatively to the adjusting sleeve, but is held from endwise movement thereof. The adjusting screw is provided with a threaded portion which engages with a part of the chair base, for example, with an internally threaded stud I which, in the construction shown, is formed integral with the reinforcing flange or disk C. The lower end of the adjusting screw extends downwardly into the hub portion of the chair, preferably into a hole i in one of the corner pieces a' of the hub, the upper plate B being provided with a corresponding hole through which the adjusting screw passes. In order to turn the adjusting screw for raising or lowering the sleeve G on the spindle E, a hand wheel or the like h^2 is provided on the adjusting screw. In order to prevent the revoluble member f^2 and the parts connected therewith from moving upwardly out of engagement with the stem or spindle when the chair is lifted by the seat, the adjustable sleeve G is preferably provided with an annular outwardly extending flange k with which a screw or part k' extending through a downwardly extending lip or projection k^2 of the revoluble member f^2 , engages.

The construction described for adjusting this seat relatively to the base of the chair, has the advantage of requiring a comparatively small number of parts, this being accomplished by forming the threaded lug I, integral with the reinforcing member C. By providing the stem or spindle E with a keyway in which the screw or pin g' engages, the adjustable sleeve G is held against turning without subjecting the adjusting screw to the twists which result from the revolving of the seat on the spindle, due to friction between the adjusting sleeve G and the revoluble member f^2 . The construction described is simple and efficient and reduces not only the cost of the metal portions of the revolving chair but also reduces the cost of producing the chair owing to the fact

that the parts of the chair can be more readily assembled than with fittings for chairs or the like heretofore used.

I claim as my invention:

5 1. Means for connecting the legs of chairs and the like including a plate of relatively thin material adapted to engage said legs, cylindrical projecting parts extending outwardly from said plate and formed integral
10 therewith, a reinforcing member of thicker material adapted to engage said plate at the juncture of said projecting parts with said plate, and means for drawing said member into clamping engagement with said plate.

15 2. Means for connecting the legs of chairs and the like including a central seat supporting spindle, plates of relatively thin metal through which said spindle extends and which engage the upper and lower faces of
20 said legs, reinforcing members adapted to engage said plates, and means cooperating with said spindle to move said reinforcing members into clamping engagement with said leg engaging plates and to rigidly support
25 said spindle on said legs.

3. Means for connecting the legs of chairs and the like including a central upright part having an externally threaded portion, a plate of relatively thin material through
30 which said upright part extends, a reinforcing member including a nut portion having a threaded engagement with said spindle, whereby the turning of said reinforcing members relatively to said spindle causes said plates to
35 clamp said legs and causes said spindle to be rigidly supported on said legs.

4. In a chair, the combination of a base including a clamping member for securing
40 together the parts of the base, an upright member secured to said base by said clamping member and engaged thereby, a sleeve adjustable vertically on said upright member, and an adjusting screw connecting said
45 clamping member and said sleeve for adjusting said sleeve on said upright member.

5. The combination of an upright spindle, legs arranged about said spindle, a clamping
50 member having a threaded engagement with said spindle and adapted to be pressed against said legs for clamping said legs in operative relation to each other and for se-

curing said spindle rigidly to said legs, a vertically adjustable sleeve on said spindle, and an adjusting device engaging said sleeve
55 and said clamping member for adjusting said sleeve lengthwise of said spindle.

6. The combination of a chair base including an upright member arranged in said base, a clamping member secured to said upright member for securing together the parts of said base, a vertically adjustable
60 member, and an adjusting device connecting said adjustable member and said clamping member for adjusting said adjustable member vertically relatively to said base.

7. The combination of a chair base including an upright member arranged substantially centrally in said base, means for clamping together the parts of the base including a clamping member connected with
70 said upright member, a vertically adjustable member, and an adjusting screw connecting said clamping member and said vertically adjustable member for holding said adjustable member in any desired position.

8. Means for connecting the legs of chairs and the like, including a central upright part having an externally threaded portion, a plate of relatively thin material through
80 which said upright part extends, a reinforcing member including a nut portion having a threaded engagement with said upright part and an integral outwardly extending portion adapted to engage said plate to reinforce the same, a member adjustable axially with reference to said base, and an adjusting
85 screw connecting said member and said outwardly extending portion of said reinforcing member.

9. The combination of an upright spindle, legs arranged about said spindle, a clamping
90 member engaging said spindle and adapted to be pressed against said legs for clamping said spindle to said legs, said spindle having a keyway, a vertically adjustable member slidably arranged on said spindle and having a part engaging said keyway to hold
95 said adjustable member against turning, and means connecting said vertically adjustable member and said clamping member for adjusting said adjustable member lengthwise of said spindle.

ROBERT K. DAWSON.