R. K. DAWSON.

FITTING FOR STOOLS OR THE LIKE.

APPLICATION FILED MAY 26, 1921.

1,416,693. Patented May 23, 1922.

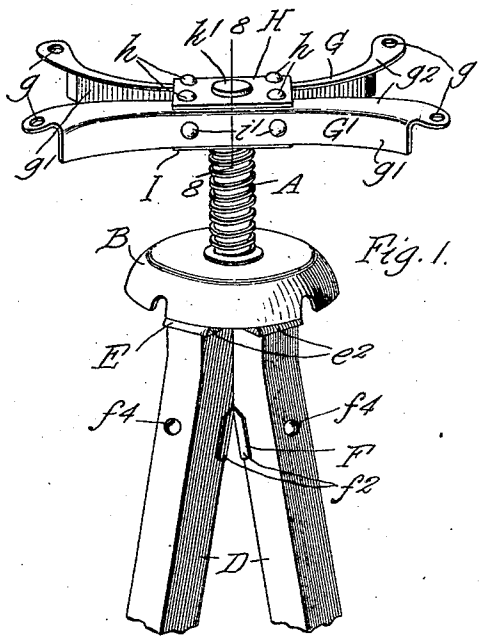


Fig. 1.

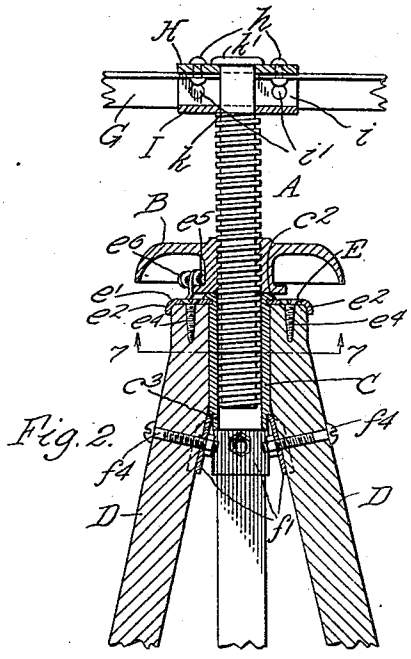


Fig. 2.

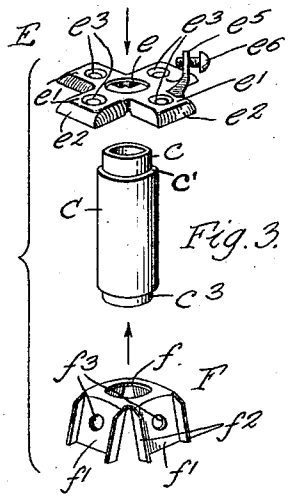


Fig. 3.

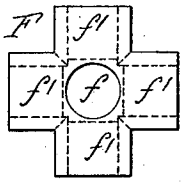


Fig. 4.

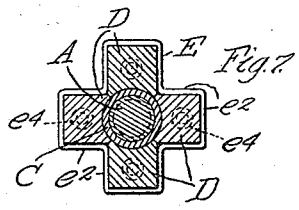


Fig. 7.

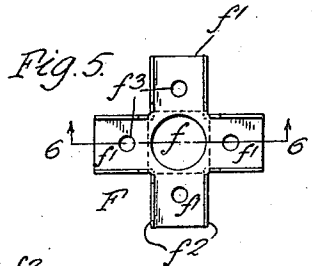


Fig. 5.

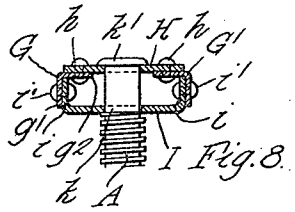


Fig. 8.

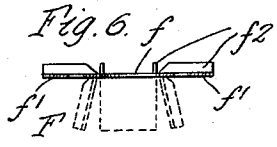


Fig. 6.

INVENTOR.

Robert K. Dawson,

By Parker & Prescott,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ROBERT K. DAWSON, OF GUELPH, ONTARIO, CANADA.

FITTING FOR STOOLS OR THE LIKE.

1,416,693. Specification of Letters Patent. Patented May 23, 1922.

Application filed May 26, 1921. Serial No. 472,627.

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 Stools or the like, of which the following is a specification.

This invention relates to metal fittings or parts for use on stools, chairs or the like and more particularly for stools or chairs having a revolving seat which is adjustable vertically with respect to the legs of the stool or chair.

The objects of this invention are to provide fittings of this kind with means of improved construction for securing the legs of the stool or chair to the hub portion thereof; also to so construct the metal parts connecting the stool legs with the seat that these parts may be light in weight, thus preventing the stool from being top heavy; also to improve the construction of stools or the like in other respects hereinafter specified.

In the accompanying drawings:

Fig. 1 is a perspective view of a fitting embodying the invention for use on stools, chairs or the like.

Fig. 2 is a fragmentary central vertical sectional elevation thereof.

Fig. 3 is a perspective view of the parts of the stool hub, showing the same in positions to be assembled.

Fig. 4 is a top plan view of a sheet metal blank from which the lower leg securing part of the hub is formed.

Fig. 5 is a similar view thereof after the flanges have been turned up.

Fig. 6 is a sectional view thereof on line 6—6, Fig. 5, showing in dotted lines the positions into which the arms of the lower leg securing part are bent.

Fig. 7 is a sectional view of the stool hub, on lines 7—7, Fig. 2.

Fig. 8 is a fragmentary sectional elevation of the stool on line 8—8, Fig. 1.

The seat (not shown) of the stool or chair is secured to a spider which will be hereinafter described and which is secured to the upper end of a screw stem or spindle A, which extends through the hub of the stool and which is adjustable relatively to the hub by means of the usual adjusting nut B. The hub portion of the stool is preferably constructed as follows:—

C represents a central upright member, which may, as in the construction shown form a tubular bearing portion or member in which the screw stem or spindle A is adapted to revolve and which is preferably made of a short length of standard tubing having a smooth inner bore. The tubular portion forms the central member of the hub of the stool and is provided with suitable means for securing the upper ends of the legs D of the stool to the tubular portion. The stool in the construction shown, is provided with legs which are so arranged or formed that the upper portions thereof are substantially upright or extend downwardly at an acute angle to the tubular member.

In order to secure the legs to the tubular portion C, upper and lower leg securing plates or members E and F are used which are suitably connected with the tubular portion C. The upper leg engaging plate E, in the construction shown, is provided with a central hole or opening e through which the upper end of the tubular member C extends, and outwardly extending arms e' which are provided with downwardly extending flanges e^2 adapted to embrace the edges of the upper ends of the legs to securely hold the legs in place. The arms are preferably also each provided with a hole e^3 adapted to receive a screw e^4 which extends downwardly into the upper end of a leg. The upper leg engaging plate E is preferably made of sheet metal so that the same can be stamped or formed into the desired shape, and the upper plate is preferably also provided with an integral upwardly extending stop member e^5 adapted to receive a screw or other part e^6 which engages with a part of the adjusting nut B to prevent the seat and threaded stem A from being separated when the chair or stool is lifted by the seat.

The upper leg engaging plate or member E may be secured to the tubular portion C in any desired manner. In the construction shown, the upper end of the tubular member is provided with a reduced end portion c forming a shoulder c' with the body of the tubular member. The reduced end portion c extends through the hole e in the upper leg engaging plate so that the plate abuts against the shoulder c' of the tubular member. The end of the tubular member is then turned or riveted over as shown at c^2, Fig. 2, thus forming a permanent connection between the tubular member and the upper leg engaging member. Any other means for

connecting the upper leg engaging plate with the tubular member may be employed.

The lower leg engaging member is also provided with a central hole or aperture f into which the tubular member C is adapted to enter. In the construction shown the tubular member is provided with a lower reduced portion c^3 which fits into the hole f in the lower leg engaging member. This lower member is preferably made of sheet metal and is provided with outwardly extending arms f' which are bent downwardly from the central portion of the plate into position to engage with the inner faces or portions of the legs D. Each of the arms f' is provided at opposite sides with outwardly extending flanges or parts f^2 which are adapted to engage the sides of the legs D. The arms f' are also provided with holes f^3 for bolts or the like which connect the lower plate to the legs. In the construction shown, bolts f^4 are used to secure the legs to the arms f' of the lower member F and these bolts are arranged in substantially radial planes with reference to the tubular member C. By arranging the bolts with reference to the legs D so that the bolts extend in the direction in which the strains or forces act, the splitting of the legs is avoided, which might happen if the bolts extended at right angles to the direction of the forces.

In view of the construction described, it is not necessary to permanently connect the lower plate or leg engaging member F with the tubular member C since this member is held in operative relation to the tubular member. By holding the lower member in engagement with the tubular member in this manner, the assembling of the parts is facilitated since no great accuracy in the drilling of the holes for the bolts f^4 through the legs D is necessary and any slight inaccuracies in the location of these holes will not interfere with the rapid assembling of the stool. By means of this construction, the parts of the stool base can be so arranged that none of the vertical or downwardly acting forces or pressures, due to the weight supported on the seat, are transmitted to the lower member and the bolts f^4, so that these bolts will not tend to become loosened nor to enlarge the bolt holes in the legs, while the strains acting on the upper plate are in the same direction as the length of the screws e^4, so that these strains also have no tendency to loosen the screws securing the upper plate to the legs. The structure, therefore, produces an exceptionally durable stool or chair base. This arrangement of the parts also has the advantage that the parts can be manufactured at less cost and can be made entirely of sheet metal and steel tubing or the like, so that the metal portions of the hub are extremely light and thus avoid rendering the stool top heavy. By means of the construction described, the legs of a stool or chair can be rigidly secured together and to the tubular member by means of sheet metal members which can be readily secured to the legs of the stool or chair with the minimum amount of labor.

The spider which is secured to the lower face of the seat (not shown) and to the upper end of the stem or spindle A, is preferably constructed as follows:

G and G′ represent a pair of seat-supporting spider arms which, in the construction shown, are preferably substantially of angle shaped cross section having substantially upright flanges or webs g' which are adapted to support the weight or pressure transmitted thereto from the seat, and webs or flanges g^2 extending at an angle to the webs g'. The opposite ends of the arms extend upwardly slightly above the middle or intermediate portions of the arms and these ends are provided with holes g for screws or other fastening means for securing the seat to the arms. The two arms are connected at their intermediate portions by means of upper and lower plates H and I. The plate H is connected to the upper flanges g^2 of the spider arms by any suitable means such, for example, as rivets h, and the lower plate is provided at its ends with upwardly extending parts i, so that the lower plate I is substantially U-shaped in cross section. The upwardly extending parts i of this plate are secured to the upright legs or flanges g' of the spider arms by any suitable means, such, for example, as rivets i'. This construction produces a strong and rigid spider and is also inexpensive to manufacture since all of the parts may be made of sheet metal and require no expensive dies.

The two plates H and I form a means for supporting the spider from the stem or spindle A. For this purpose the upper end of the spindle is slightly reduced in diameter as shown at k and extends through holes in the plates H and I. The upper end of the spindle is riveted over as shown at k', thus forming a secure connection between the spindle and the spider.

This invention has been described as used in connection with a stool, but it is not intended to limit the invention to such use, since the same can be used in connection with chairs, stands and analogous devices.

I claim as my invention:

1. Means for connecting the legs of stools and the like, including a central upright part, a sheet metal member having its middle portion secured to said upright part and having a plurality of radially extending arms provided with downwardly extending flanges at the edges of said arms, said flanges being adapted to embrace the upper

ends of the legs, a lower leg engaging member having a hole through which said upright member extends, and means for securing said legs to said lower member.

2. Means for connecting the legs of stools and the like, including a central upright part, a sheet metal member having its middle portion secured to said upright part and having a plurality of radially extending arms provided with downwardly extending flanges at the edges of said arms, said flanges being adapted to embrace the upper ends of the legs, a lower leg engaging member having a hole through which said upright member extends loosely, said lower member being made of sheet metal and having downwardly bent arms adapted to engage the inner surfaces of said legs, means for securing said legs in said flanged portions of said first mentioned sheet metal member, and means for securing said legs to said downwardly bent portions of said lower member.

3. Means for connecting the legs of stools and the like, the upper ends of which extend substantially upright, including a central upright tubular member, a sheet metal member having its middle portion secured to the upper portion of said tubular member and having parts adapted to engage the upper ends of the legs and parts adapted to engage the sides of said legs to hold the same against lateral displacement, and a lower leg engaging member having a central portion provided with a hole through which said tubular member extends and having laterally and downwardly extending arms adapted to be secured to the inner surfaces of said legs.

4. Means for connecting the legs of stools and the like, including a central tubular part having reduced upper and lower portions forming shoulders, a plate secured to said tubular part by an integral turned over end of said tubular member which presses said plate against the upper shoulder, said plate having parts to which the upper ends of said legs may be secured, and a lower member which has a central portion into which said reduced lower end of said tubular member enters and which has downwardly extending arms connected with the inner sides of said legs, whereby said legs may lie closely against said tubular parts, said lower plate being held in engagement with said tubular part only by said legs.

5. In a stool or the like having legs, the upper ends of which extend substantially upright, an upright member about which the upper ends of said legs are arranged, a plate secured to the upper end of said upright member to which the upper extremities of said legs are secured, a lower member loosely engaging the lower portion of said upright member and having downwardly extending parts adapted to be secured to the inner sides of said legs, and fastening devices securing said parts to said legs, said fastening devices extending radially with respect to said upright member.

6. In a stool or the like having legs, the upper ends of which extend substantially upright, a tubular member about which the upper ends of said legs are arranged and having reduced upper and lower end portions forming shoulders, a plate at the upper end of said tubular member and to which the upper extremities of said legs are secured, and a lower member having a central opening through which the lower end of said tubular member extends and having radial downwardly extending arms adapted to be secured to the inner surfaces of said legs for holding said legs in correct relation to each other and to said tubular member and for holding said lower plate in operative relation to said tubular member.

7. A spider for the seats of stools and the like comprising a pair of members of angle shaped cross section, the opposite ends of which may be secured to the seat, a substantially flat plate connecting one of the webs of said angle shaped members at the intermediate portions thereof, and a plate of substantially U-shaped cross section to the flanges of which the other legs of said angle shaped members are secured, said two plates being arranged in substantially parallel relationship to each other, and a spindle secured to said plates.

8. A spider for the seats of stools and the like comprising a pair of members of angle shaped cross section arranged with their upper webs extending substantially horizontally, the opposite ends of said webs being secured to said seat, a substantially flat plate secured to said upper webs at the intermediate portions of said members, a lower plate having its opposite ends turned upwardly and secured to the other flanges of said members, and a spindle secured to said plates.

9. A spider for the seats of stools and the like comprising a pair of oppositely disposed arms, the opposite ends of each of said arms being adapted to be secured to a seat, said arms having substantially upright webs adapted to support the weight of the seat, and stiffening webs extending at an angle to said first mentioned webs, a plate connecting said stiffening webs, a plate connecting said upright webs, said plates being arranged substantially midway between the ends of said arms and spaced apart, and a spindle secured to said plates.

ROBERT K. DAWSON.