PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Folding Chair

I, DAVID SEBEL, of D. Sebel & Co. Ltd., West Street, Erith, Kent, a British Subject, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a folding chair and has for an object to provide a folding chair of simple and sturdy construction which automatically assumes the folded position upon being lifted from the floor or like surface and which assumes the open position upon being placed upon the floor, the construction of the chair being such that the weight of a person seated thereon is effective to maintain the chair securely in its open or non-folded position.

Broadly, a folding chair according to the invention comprises a seat member supported upon a pair of front legs and a pair of rear legs connected together at each side of the chair solely by two links pivoted to the said legs, one of said links being the said seat member, and the arrangements being such that upon supporting the front legs in a substantially vertical position with the lower ends thereof vertically spaced from the floor or other surface, the chair assumes the collapsed position with the rear legs lying against the front legs and the seat member extending vertically upwards.

Conveniently the front legs are formed by the legs of an inverted U-shaped member pivoted to the seat of the chair and which extends upwardly from the seat of the chair to form a backrest. Likewise the rear legs of the chair may be formed by the legs of a U-shaped member, the base of which is adapted to engage the floor or other surface upon which the chair rests, each of the said legs of the U-shaped member peing pivoted near the upper end to the seat of the chair and pivotally supporting one end of a link the other end of which is pivoted to the corresponding front leg of the chair.

In this manner there is provided a chair construction in which the seat and the rear and front legs are freely pivoted together so that when the chair is lifted from the surface upon which it rests by gripping the backrest portion, the chair automatically assumes the folded position, the front portion of the seat swinging upwardly to lie within the inverted U-shaped member and the rear legs swinging downwardly to lie against the front legs.

By providing suitable friction caps or other form of non-slipping feet to the front legs and leaving the base of the U-member free to slide upon the floor, the chair will, when lowered vertically in the folded position on to the floor, automatically assume the open position through the rear legs sliding along the floor away from the front legs to lower the seat to a substantially horizontal position.

The invention will now be described with reference to the accompanying drawing in which:—

Figure 1 is a front elevation of a folding chair according to the invention when in the open position.

Figure 2 is a side elevation of the chair, when in the open position, and

Figure 3 is a side elevation of the chair when in the folded position.

As will be seen from the drawing, the chair comprises a pair of U-shaped members indicated generally at 1 and 2 respectively and formed of metal tubing for example, and a seat 3 which conveniently may be a sheet steel pressing painted or provided with a flock or other form of dressing to render it less cold to the touch. The U-shaped member 1 is assembled in inverted position, the leg portions of the member forming the front legs 4 and 5 of the chair and being pivoted intermediate their length as at 6 and 7 respectively to downwardly extending side projections 8 of the seat 3, the pivotal connection of the front legs to the seat thus being positioned below the level of the seat.

The lower ends of the legs 4 and 5 are provided with rubber caps or ferrules 9 adapted to prevent the legs slipping on the floor, and the upper end of the inverted U-shaped member 1 supports a back rest 10. The back rest conveniently is formed of a sheet steel pressing having a peripheral flange adapted to be secured to the tubular member by means of screws and is shaped as at 11 to provide a comfortable rest for the back of a person seated upon the chair.

The U-shaped member 2 rests upon the floor when the chair is in the open position and in order to reduce the resistance to sliding, the base of the member is formed with an upwardly bent portion 12 which is free from engagement with the floor. The upwardly directed legs of the member 2 form the rear legs 13 of the chair which legs are pivoted near their upper end as at 14 to the rear portion of the seat 3 so that in effect the seat constitutes a pivoted link connecting the front legs to the rear legs.

The front legs are also connected to the rear legs on each side of the chair by a further pivoted link 15 which link is pivoted at one end to the front legs at a point above the pivotal connection to the seat, and at the other end to the rear legs at a point intermediate the pivotal connection of the rear legs to the seat and the upper ends of the said legs. Conveniently each link 15 is formed of metal rod bent in the form of a U having legs of unequal length and the tubular member 1 is provided with diametrically opposed apertures in the wall thereof to receive the longer leg of the link, the end of the leg being riveted over on the inside of the member as at 16 to secure the link in the member. The tubular member 2 is provided with an aperture in the wall thereof to receive the shorter leg of the link which leg extends freely into the interior of the tube.

The links 15 are made of a length such that when the chair lifted upwardly from the floor by gripping the upper portion of the member 1, the member 2 drops freely downwardly to lie against the member 1 as shown in Figure 3 and causes the seat to swing upwardly to lie within the member 1.

It will be apparent that in order for the legs to fall freely from the position of Figure 2 to the position of Figure 3, the length and spacing of the links must be such that the sum of the length of the link formed by the seat between the pivots 7 and 14, and the length of the front leg between the pivot 7 and the pivotal connection of the link 15 therewith, must be equal to the sum of the length of the link 15 and the length of the rear leg between the pivot 14 and the pivotal connection of the link 15 therewith.

When the chair in its folded position is lowered vertically on to the floor, the member 1 moves downwardly so that the caps or ferrules 9 of the front legs engage the floor and the base of the member 2 slides rearwardly along the floor until the upper ends of the legs 13 abut the legs of the member 1 as shown at 17 (Figure 2). Rearward movement of the member 2 causes the seat to swing downwardly to occupy a substantially horizontal position as shown in Figure 2 and it will be apparent that, by reason of the double link connection between the front and rear legs and the abutment of the upper ends of the rear legs with the member 1, the construction is such that the more weight that is placed upon the seat of the chair, the more securely is the chair held in its open non-folded position.

It will be understood that the invention is not limited to the above-described embodiment thereof and that, although the chair of the present invention lends itself more especially to the use of a tubular and sheet metal construction, it may of course be constructed of other suitable materials.

What I claim is:—

1. A folding chair comprising a seat member supported upon a pair of front legs and a pair of rear legs connected together at each side of the chair solely by two links pivoted to the said legs, one of said links being the said seat member, and the arrangement being such that upon supporting the front legs in a substantially vertical position with the lower ends thereof vertically spaced from the floor or other surface, the chair assumes the collapsed position with the rear legs lying against the front legs and the seat member extending vertically upwards.

2. A folding chair according to Claim 1 wherein the front legs extend upwardly from the seat member to support a back rest.

3. A folding chair comprising a seat member, a pair of front legs pivoted to said seat member and extending upwardly therefrom to support a backrest, a pair of rear legs pivoted to said seat member rearwardly of the pivotal connection of the front legs thereto, and extending upwardly from the seat member, the said seat member thus forming a first link pivotally connecting the front and rear legs on each side of the chair, a second link member at each side of the chair pivoted to the front and rear legs respectively above and spaced from the pivotal connection of the legs to the seat member, wherein the sum of the length of the first link and the said spacing of the pivotal connection of the second link to the upward extension of the front legs, is equal to the sum of the length of the second link and the said spacing of the pivotal connection of the second link to the upward extension of the rear legs of the chair.

4. A folding chair according to Claim 3 wherein the front legs are formed by the legs of a U-shaped member pivotally secured intermediate the length thereof to the said seat member, so that when the chair is in the open or non-folded position, the free ends of the legs of the U-shaped member engage the floor or other surface, the closed end of said U-shaped member supporting the back rest.

5. A folding chair according to Claim 4

The U-shaped member 2 rests upon the floor when the chair is in the open position and in order to reduce the resistance to sliding, the base of the member is formed with an upwardly bent portion 12 which is free from engagement with the floor. The upwardly directed legs of the member 2 form the rear legs 13 of the chair which legs are pivoted near their upper end as at 14 to the rear portion of the seat 3 so that in effect the seat constitutes a pivoted link connecting the front legs to the rear legs.

The front legs are also connected to the rear legs on each side of the chair by a further pivoted link 15 which link is pivoted at one end to the front legs at a point above the pivotal connection to the seat, and at the other end to the rear legs at a point intermediate the pivotal connection of the rear legs to the seat and the upper ends of the said legs. Conveniently each link 15 is formed of metal rod bent in the form of a U having legs of unequal length and the tubular member 1 is provided with diametrically opposed apertures in the wall thereof to receive the longer leg of the link, the end of the leg being riveted over on the inside of the member as at 16 to secure the link in the member. The tubular member 2 is provided with an aperture in the wall thereof to receive the shorter leg of the link which leg extends freely into the interior of the tube.

The links 15 are made of a length such that when the chair lifted upwardly from the floor by gripping the upper portion of the member 1, the member 2 drops freely downwardly to lie against the member 1 as shown in Figure 3 and causes the seat to swing upwardly to lie within the member 1.

It will be apparent that in order for the legs to fall freely from the position of Figure 2 to the position of Figure 3, the length and spacing of the links must be such that the sum of the length of the link formed by the seat between the pivots 7 and 14, and the length of the front leg between the pivot 7 and the pivotal connection of the link 15 therewith, must be equal to the sum of the length of the link 15 and the length of the rear leg between the pivot 14 and the pivotal connection of the link 15 therewith.

When the chair in its folded position is lowered vertically on to the floor, the member 1 moves downwardly so that the caps or ferrules 9 of the front legs engage the floor and the base of the member 2 slides rearwardly along the floor until the upper ends of the legs 13 abut the legs of the member 1 as shown at 17 (Figure 2). Rearward movement of the member 2 causes the seat to swing downwardly to occupy a substantially horizontal position as shown in Figure 2 and it will be apparent that, by reason of the double link connection between the front and rear legs and the abutment of the upper ends of the rear legs with the member 1, the construction is such that the more weight that is placed upon the seat of the chair, the more securely is the chair held in its open non-folded position.

It will be understood that the invention is not limited to the above-described embodiment thereof and that, although the chair of the present invention lends itself more especially to the use of a tubular and sheet metal construction, it may of course be constructed of other suitable materials.

What I claim is:—

1. A folding chair comprising a seat member supported upon a pair of front legs and a pair of rear legs connected together at each side of the chair solely by two links pivoted to the said legs, one of said links being the said seat member, and the arrangement being such that upon supporting the front legs in a substantially vertical position with the lower ends thereof vertically spaced from the floor or other surface, the chair assumes the collapsed position with the rear legs lying against the front legs and the seat member extending vertically upwards.

2. A folding chair according to Claim 1 wherein the front legs extend upwardly from the seat member to support a back rest.

3. A folding chair comprising a seat member, a pair of front legs pivoted to said seat member and extending upwardly therefrom to support a backrest, a pair of rear legs pivoted to said seat member rearwardly of the pivotal connection of the front legs thereto, and extending upwardly from the seat member, the said seat member thus forming a first link pivotally connecting the front and rear legs on each side of the chair, a second link member at each side of the chair pivoted to the front and rear legs respectively above and spaced from the pivotal connection of the legs to the seat member, wherein the sum of the length of the first link and the said spacing of the pivotal connection of the second link to the upward extension of the front legs, is equal to the sum of the length of the second link and the said spacing of the pivotal connection of the second link to the upward extension of the rear legs of the chair.

4. A folding chair according to Claim 3 wherein the front legs are formed by the legs of a U-shaped member pivotally secured intermediate the length thereof to the said seat member, so that when the chair is in the open or non-folded position, the free ends of the legs of the U-shaped member engage the floor or other surface, the closed end of said U-shaped member supporting the back rest.

5. A folding chair according to Claim 4

wherein the rear legs are formed by the legs of a further U-shaped member pivotally secured intermediate the length thereof to the seat member so that when the chair is in the open or non-folded position, the closed end of the said further U-shaped member rests upon the floor or other surface and the free ends of the legs thereof abut the said first mentioned U-member.

6. A folding chair according to Claim 5 wherein the said first mentioned U-member is pivoted to the seat member upon an axis lying below and to the rear of the transverse centre line of the seat member, said further U-member is pivoted to the seat member upon an axis lying close to the rear edge thereof, and said U-members are further connected at each side of the chair by a link pivoted at each end respectively to the said U-members at points lying above the pivotal connections of the U-members to the seat member.

7. A folding chair according to Claim 6 wherein the seat member is provided with downwardly extending side projections adapted to receive a pivot pin pivotally connecting the first mentioned U-member thereto.

8. A folding chair according to Claim 5, 6 or 7 wherein when the chair is resting in the open or non-folded position upon a surface and is lifted therefrom by the upper or back rest portion of the first mentioned U-member, the said further U-member drops freely downwardly to lie against the first mentioned U-member and causes the seat member to swing upwardly about its pivotal connection to the said first mentioned U-member to lie in a plane substantially parallel to and adjacent the plane of the said first mentioned U-member.

9. A folding chair according to any of Claims 5 to 8 wherein the ends of the legs of said first mentioned U-member are provided with friction caps or ferrules of rubber or similar non-slipping substance to increase the contact friction of the said legs with the floor or like surface and the closed end of said further U-shaped member is formed with an upwardly curved portion free from ~~engagewith~~ with the floor or like surface to decrease the contact friction of the said further U-shaped member with the said surface.

10. A folding chair according to any of Claims 5 to 9 wherein the said U-members are formed of tubular metal and said seat member and back rest are formed of sheet metal pressings.

11. A folding chair substantially as herein described with reference to the accompanying drawing.

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