

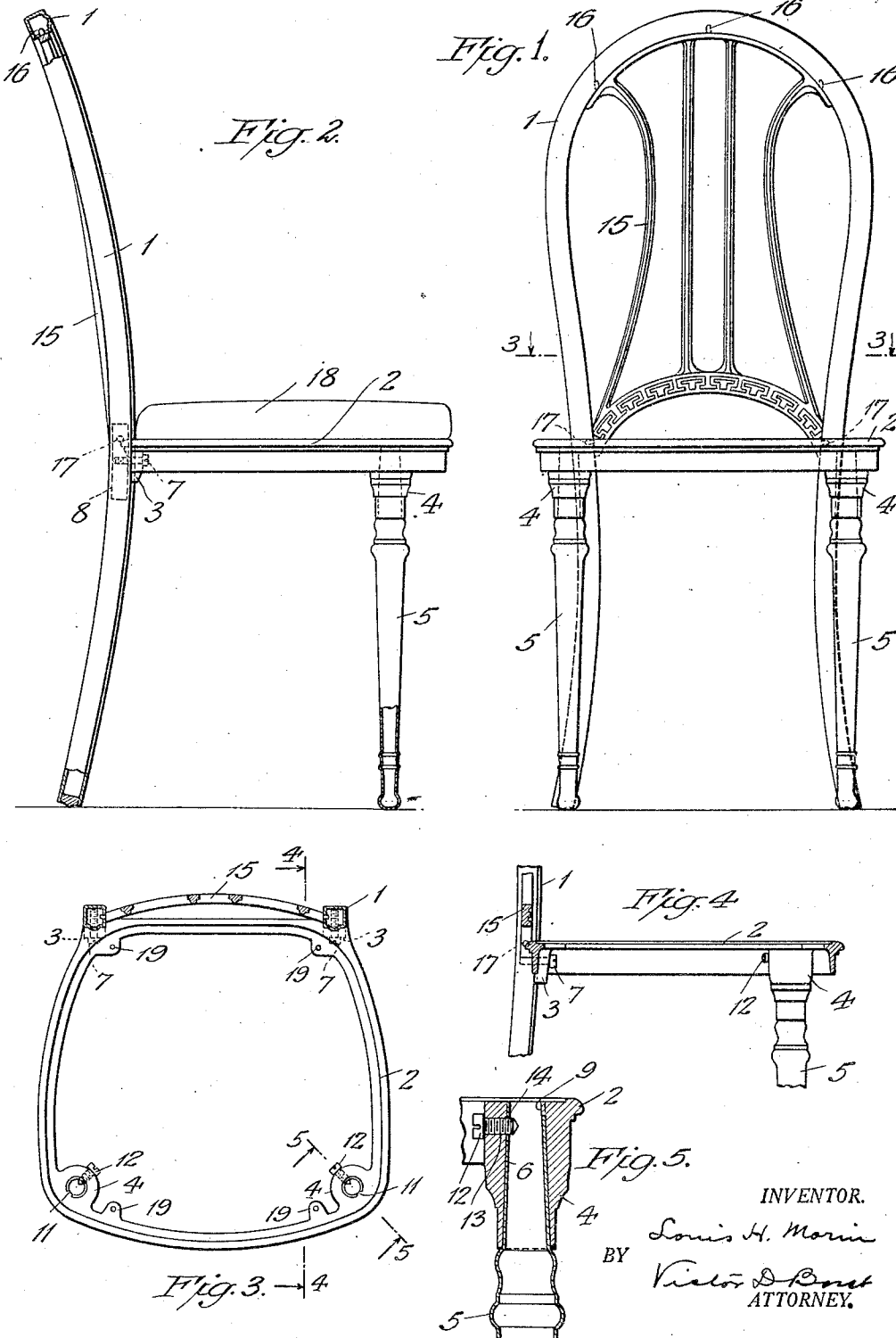
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CHAIR

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CHAIR.

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My invention has particular reference to articles of furniture which are intended to be sat upon, such as chairs or the like, although in certain respects my invention is applicable to other types of furniture. My invention is particularly advantageous as embodied in metal seats and since it is well illustrated in a metal chair, I shall use that embodiment as the illustration with which to explain my invention.

Furniture is by its nature, as a rule, of considerable bulk in proportion to its weight and it therefore occupies a considerable amount of space when packed for shipment in the erected condition. The trend has therefore been towards the construction of demountable, or knock-down, furniture, that is, furniture which may be dismantled without injury to the finish or fit of parts so that the various parts may be packed in much smaller compass, and upon receipt by the user may be re-assembled into a complete substantial article.

To an increasing extent metal is replacing wood as the material from which furniture is made, and the problems which arise in devising demountable or knock-down furniture are best solved in metal. The greater strength of metal permits the construction of parts which are of relatively small size and may be of graceful proportions without the sacrifice of a maximum of strength and firmness. It is desirable also that the parts of the furniture be suitable to packing in flat containers, and metal parts are especially adapted for this purpose.

My invention utilizes these properties in a particularly advantageous way. By it, I provide suitable parts for the desired piece of furniture, such as a chair, and means at the joints between the various parts, such as between the legs and the seat, as well as between the back and the seat, whereby the various members are firmly attached in the cooperating relation and are especially adapted to support the strain which is applied to the joints during the course of usage. Another feature of my invention is the fact that the parts are very light, substantially as light as the corresponding parts of wooden furniture of the same type. This lightness I obtain by the use of parts of hollow section, formed

from such materials as tubes or angle members.

In a preferred embodiment of my invention, I provide a main back member which may desirably be formed of metal tubing bent into an inverted U-shape, with the plane of the U also curved, which member is adapted to form the back legs and the back uprights of a chair. This may be called the main member, since it is the principal and strongest piece of the chair. Cooperating with it is a second part, which is adapted to serve as the seat frame of a chair. This part may desirably be formed of a metal casting, with bracket members and bearing surfaces adapted to cooperation with the main member and with means for the attachment of front legs. Two front leg members are further provided, and a back rest member, which together comprise the essential parts of a chair. The various principal parts are held in proper relationship by means of pins, bolts or screws, or other suitable fastening means. The various joints are desirably strengthened in various ways, as by the inclusion of inserts or filler members within the tubular portions and the use of brackets at points of maximum stress, the use of extended sockets, etc.

The back rest member is desirably held in place in cooperation with the main member by pins entering openings in the tubular main back member, inserted in the openings provided, after springing the lower end portions apart. The elasticity of the back member, combined with the clamping effect of the bolts by which the seat members are attached, then exert sufficient pressure to retain the pins within the openings and thus hold it firmly in place.

Long and substantial tapered sockets, integral with the seat member are provided to support the leg members. A very stout, rugged, durable piece of furniture is thus constructed, which is light in weight, of graceful proportions, and readily demountable into relatively small flat parts, suitable for convenient packing for shipment, which further are adapted to be readily assembled at the destination by the user.

Other features, objects, and advantages of my invention will appear from the following description. I shall now describe and illus-

trate a preferred embodiment of my invention and shall thereafter point out my invention in claims.

In the drawings:

5 Fig. 1 is a front view of the assembled metal parts comprising the preferred embodiment of my invention, in the form of a chair;

10 Fig. 2 is a side view of the same embodiment;

Fig. 3 is a top view of the seat member of my invention with the main member and back member indicated in section;

15 Fig. 4 is a view in vertical section of the seat member of the same embodiment, as indicated by the line 4—4 on Fig. 3; and

Fig. 5 is a sectional view on a larger scale of the front leg and seat socket member of the same embodiment.

20 The illustrated chair is made of metal, the several sections being respectively of cast metal and of drawn metal. There are desirably six sections as shown, these being the main back member, the seat frame member, 25 two front legs, the back rest member, and the seat cushion member.

The main back member 1 is desirably made of drawn metal tubing which in the embodiment illustrated is of rectangular section 30 shown in Fig. 3, with a bead formed upon the face side. Alternatively the back member may be formed of tubing of other shapes or of other material by other convenient processes. In the embodiment shown, the back 35 member has the shape of an inverted U with the sides inwardly curved toward each other at a point somewhat below the middle, near the seat level, and then flaring outward from that point to the floor ends. This member 40 further has a substantial curvature in the plane of the sides, as indicated in the side view of Fig. 2, and the tubing is desirably bent in such way as to bring the bead upon 45 the forward face. This provides a very graceful back construction which is of great strength as well.

A seat frame member 2 is provided as indicated, with bearing plates or bracket members 3 at the back corners adapted to cooperate with the main member 1. Socket members 50 4 are provided at the front corners, adapted to cooperate with and support the leg members. The seat member is desirably formed of a casting, which preferably may be made of 55 a light metal alloy, such as an aluminum base alloy, by the so-called "die-casting" process. Alternatively it may, if desired, be made of sheet metal, drawn to shape. The seat member is desirably formed with rounded corners 60 and sides as indicated for the sake of the greater gracefulness and sightliness thereby obtained.

A pair of front leg members 5 are provided. These may desirably be formed of tubular material, spun or otherwise formed in suitable

graceful shape as indicated. Alternatively they may, if desired, be made by casting in a manner similar to the seat member, preferably of some light material such as an aluminum base alloy. Other structural methods may of 70 course be used for producing either the seat members or the leg members as desired. The leg members are desirably provided with a tapered top end 6 as indicated, having a taper adapted to cooperate with the taper in the 75 socket 4. The leg members are thus held in position by the bearing between the two tapered portions.

The seat frame 2 is desirably attached to the main member 1 by bolts 7 which pass 80 through the bearing plate portion 3 of the seat member, enter the tubular member 1 and engage with a filler member 8 therein. By this means the seat member 2 is firmly attached to the main member 1 and positioned 85 by the bearing surface on the seat and bracket 3. This construction provides an extremely rigid, stout and durable attachment between the seat member and the main member which is adapted to withstand successfully the 90 stresses imposed thereon by the uses to which a chair is commonly put. The filler members 8 may desirably be made sufficiently long, and so positioned within the tubular members, 95 that they extend upward, beyond the openings provided to cooperate with the pins 17. This construction makes it unnecessary that the filler member 8 be a tight friction fit within the tube, and simplifies both shipment and 100 erection. During shipment the filler members may be held in place by the temporary insertion of the bolts 7, which may remain until the back rest member 15 and the pins 17 are engaged. The pins then retain the filler 8 in 105 place, and the bolts 7 may be removed, the seat frame adjusted, and the bolts reinserted and tightened.

The leg members 5 are desirably held in place in their sockets 4 by the tapered ends 6 and also by auxiliary means other than 110 the wedge fit of the tapers. A notch 9 is desirably provided in the upper edge of the taper 6 and an integral rib or key member 11 is provided within the socket 4 at its upper 115 end. Cooperation between the notch and key prevents a turning of the leg in the socket. A locking screw 12 is also desirably provided entering through an opening 13 in the socket 4 and cooperating with an opening 14 120 in the tapered portion 6 whereby withdrawal is prevented. By this construction the leg members 5 are very firmly held in place and attached to the seat members 2 and are also thereby well adapted to withstand the stress 125 and strains to which a chair is subjected.

A back rest member 15 is also provided and positioned within the U of the main back member 1. The back rest member 15 may have any desired ornamental form such as a grille work, lattice work, caning either real 130

or imitated by a sheet metal stamping, or may be a padded cushion according to the likes of the purchaser. The back member is provided with pins 16 at its upper edge which
5 are adapted to enter cooperating openings in the member 1 whereby the upper end of the back rest member is firmly positioned with respect to the main member. Additional pins 17 at the bottom of the member 15 are
10 further provided and positioned with the axes thereof at right angles to the axes of the pins 16. The pins 17 are likewise adapted to cooperate with openings in the member 1 and when so adjusted serve to hold the mem-
15 ber 15 firmly and permanently in place within, and in relation to, the member 1, thereby forming a rigid durable, graceful and ornamental back rest member in combination with the main members.

20 The cooperation between the pins 17 and the openings in the main member 1 is maintained partly by the elasticity of the main member, since while the pins 16 are readily inserted, the pins 17 can be inserted only
25 after the back legs, the ends of the U, have been sprung apart, so that at the point of location of the openings for the pins 17, the inner faces of the main member are separated by a distance greater than over-all
30 width of the bottom of the back rest member, including the pins 17. This permits of the positioning of the back rest member with the pins 17 in line with the openings, and engagement therebetween occurs when the ends
35 of the U are released, and return to the normal position. The elasticity of the main member is then available to maintain this cooperation. The elasticity is also aided by the clamping effect obtained by the cross mem-
40 ber of the seat frame, when the main member is bolted to it, and the back rest member 15 is thus held very firmly in place.

A seat cushion 18 is desirably provided which may take any convenient form, such
45 as a padded cushion, a solid seat, formed in any desirable material such as shaped metal, wood, caning, either real or imitated by stamped metal, or other suitable form. Lug members 19 are desirably provided as a part
50 of the seat frame member 2 and cooperating lug members are desirably provided upon the cushion member 18 for the cooperation therebetween of suitable securing means such as bolts, screws, rivets, etc. Alternatively, the
55 cushion member 18 may be attached in place by suitable hooks and spring-catch members.

It is to be noted that provision is made in the construction of the chair for unusual
60 strength. The back member 1 consists of a tubular structure of maximum lightness and strength, which is reinforced at the point of maximum stress. It provides a very strong foundation member for the chair construction which is extremely resistant to deformation
65 of any sort. The seat frame member is

also a unitary part, formed of material having a section adapted to the production of maximum strength and lightness. The seat member is attached by large and stout bolts to the reinforced point of the back member.
70 Additional strength is provided in the seat member by the brackets 3 which are of sufficient length to minimize the effect of leverage at the point of attachment. The front members likewise are of a shape providing
75 the maximum strength and lightness, and are very firmly attached.

My device has been described and shown in the assembled condition. It is however
80 readily dis-assembled or dismantled by the removal of the screws, etc. and then consists of a plurality of substantially flat parts which are readily packed flat and then comprise a package of minimum bulk, most desirable
85 for shipment. Upon receipt of the package by the user, the device is readily re-assembled. The back member 15 is readily inserted in place by spreading the ends of the main member apart, the pins 16 are readily inserted in the proper openings at the bend of
90 the U and the pins 17 are then readily brought into alignment with the provided openings at the side of the U whereafter by releasing the tension upon the ends of the U, it returns to its proper dimensions, the pins 17 enter
95 the cooperating holes, and thereby the back member 15 is there firmly held in place. The leg members 5 are readily attached by inserting the tapered portion 6 within the seat sockets 4 with the key and notch in suitable
100 engagement. Thereafter the set screws 12 are readily inserted, completing the attachment of the front legs. The seat member portion is then readily attached to the main member 1 by insertion of the bolts 7 which,
105 when firmly tightened, produce the desired solid, substantial, rugged and durable chair frame construction. To this frame, the cushion 18 is then readily attached by the insertion of the appropriate screws or catches ac-
110 cording to the construction.

I am thus enabled to manufacture the principal parts of a piece of furniture which are adapted to be packed in a very small compact
115 package for shipment, which are adapted to be assembled by an unskilled user after shipment, and which when so assembled produce a solid, rugged, durable, graceful, ornamental piece of furniture, or chair, which is adapted
120 to long life, and to hard usage without injury. The device of my invention thus provides a piece of metal furniture comprising a plurality of substantially flat members, readily packed for shipment and readily assembled into a device of exceptional utility.
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It is furthermore obvious that various modifications may be made from the construction shown in the drawings and above particularly described, without departing from the principle and scope of my invention. I have
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therefore positively claimed my invention in the following claims, and I desire that only such limitations shall be imposed thereon as are required by the prior art or indicated in the appended claims.

I claim as my invention:—

1. A chair or the like composed of a plurality of demountable members, one thereof comprising an elastic tubular U-shaped main member having the arms of the U inwardly curved, and having a plurality of perforations on the opposing faces thereof, a back rest member having a plurality of projecting pins, some thereof being adapted to cooperate with the main bend of said U-shaped main member, others thereof being adapted to cooperate with perforations at the curved sides of said main member at right angles to the direction of cooperation of said first mentioned pins, whereby disengagement thereof is prevented, said second mentioned pins being further retained by elastic engagement of the sides of said main member, a seat member, and cooperating front leg members, said seat member engaging said front leg members and said main member, to hold said side portions more firmly in engagement with said second mentioned pins.

2. A chair or the like composed of a plurality of demountable members, one thereof comprising an elastic tubular U-shaped main member, having the arms of the U inwardly curved, and having a plurality of perforations on the opposing faces thereof, a back rest member having a plurality of projecting pins, some thereof being adapted to co-

operate with the main bend of said U-shaped main member, others thereof being adapted to cooperate with perforations at the curved insides of said main member at right angles to the direction of cooperation of said first mentioned pins, whereby disengagement thereof is prevented, said second mentioned pins being further retained by elastic engagement of the sides of said main member, a seat member and cooperating front leg members, said seat member engaging said front leg members and said main member, to hold said side portions more firmly in engagement with said second mentioned pins, and a filler member positioned within said tubular main member and cooperating with the point of attachment of said seat frame member and also with said second mentioned pins.

3. In a chair, an inverted U-shaped back frame, a back rest comprising upper and lower transverse members and vertically extending means for uniting the same, the upper transverse member being fitted to the under surface of the inverted U frame, a plurality of vertical pins for uniting said member to said U frame, the ends of the lower transverse member abutting against the inner surfaces of the sides of said U frame, laterally extending pins for uniting said member to said U frame, a seat member, and means for detachably securing same to the sides of said U frame, said seat member acting to hold said U frame sides against spreading.

In witness whereof, I hereunto subscribe my signature.

LOUIS H. MORIN.