(No Model.) 2 Sheets—Sheet 1.

I. N. DANN.

FOLDING CHAIR.

No. 249,905. Patented Nov. 22, 1881.

Fig. 1.

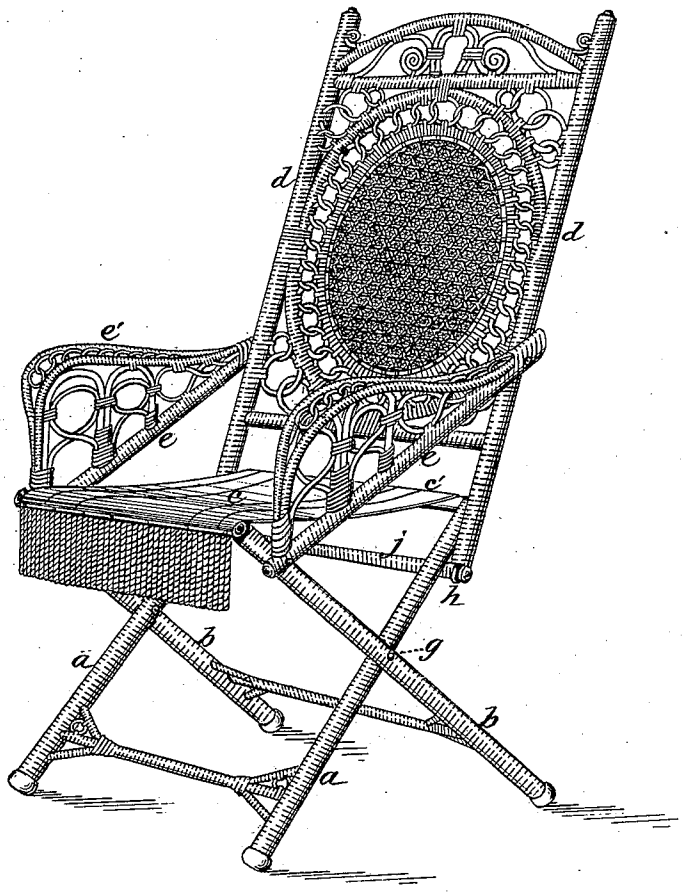
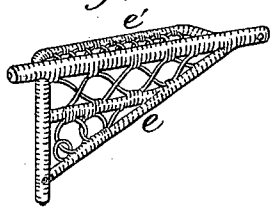


Fig. 1a.



Witnesses.
Jas. E. Hutchinson.
Edmond Brodhag.

Inventor.
Isaac N. Dann,
by Johnson and Johnson
his Attys.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

I. N. DANN.

FOLDING CHAIR.

No. 249,905. Patented Nov. 22, 1881.

Fig. 2.

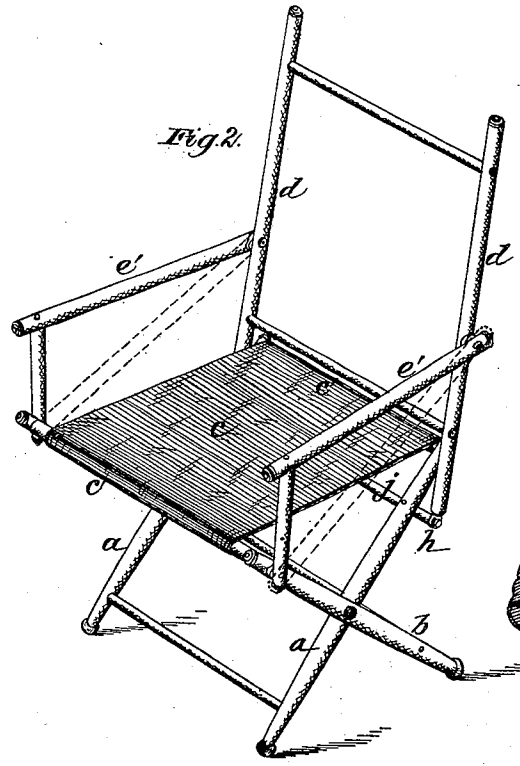


Fig. 3.

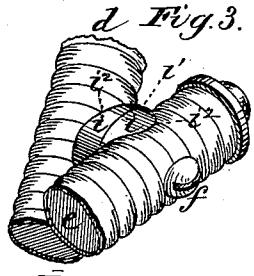


Fig. 4.

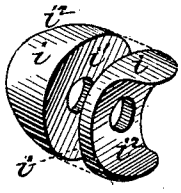


Fig. 5.

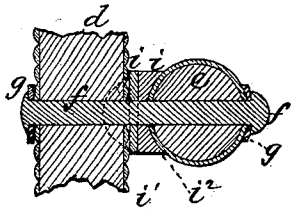


Fig. 6.

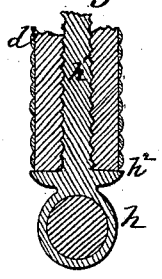
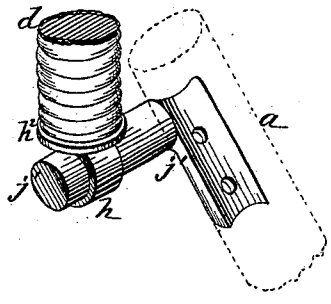


Fig. 7.



Witnesses.

Jas. E. Hutchinson.

Edmond Brodhag.

Inventor.

Isaac N. Dann,

by Johnson & Johnson

his Attys.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ISAAC N. DANN, OF NEW HAVEN, CONNECTICUT.

FOLDING CHAIR.

SPECIFICATION forming part of Letters Patent No. 249,905, dated November 22, 1881.

Application filed June 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, ISAAC N. DANN, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Folding Chairs, of which the following is a specification.

Stiff or non-folding, rocking, tilting, and swivel chairs have been constructed with wooden frames bound with rattan; but so far as I know and can learn a rattan-bound folding chair is not to be found in the trade. Moreover, chairs of stout wooden frames are stiff and rigid under the weight of the occupant.

In my rattan-bound folding chair the frame is a light wooden structure of turned parts rendered strong by the rattan binding, so that the chair-back has a slight spring or flexure upon its connections under the weight of the occupant, which, in connection with fabric or carpet seat, makes it easy and comfortable. Provision is made for preventing the cutting of the rattan binding at the joint-connections of the several parts, because, irrespective of the folding of the chair, its spring or flexing capacity, when occupied, will produce a slight movement of the parts at the joint-connections, especially at the back and arm-rest pivots, which would wear and cut the rattan under an abrading action and soon destroy the chair; but in the protection of the cane strands at the chair-joints a durable cane-bound folding chair is produced.

In a light chair of pivot-joined frame parts, depending almost wholly for proper strength upon the rattan binding, it is of vital importance to provide a proper and durable connection of the back and legs, and this I do by metallic eyes and corresponding bearing parts having the required pivotal function to allow of folding the chair, and to provide a finish-shoulder for the rattan wrapping of the back-frame.

A chair of light frame parts, depending for proper strength upon rattan binding, and provided at its pivot-joint connections with means for protecting the rattan binding, is an improved article of manufacture.

Referring to the accompanying drawings, Figure 1 represents, in perspective, a rattan-bound folding chair embracing my improvements; Fig. 1ª, the arm-rest and brace, detached; Fig. 2, the skeleton or unbound frame of the chair. Fig. 3 shows a detail of the separating concave washer-connection which protects the rattan binding; Fig. 4, the rattan-protecting washers, detached. Fig. 5 shows a section of the joint concave washer parts. Fig. 6 shows a detail section of the metallic eye and its bearing for the chair-back; Fig. 7, a modified construction of the parts shown in Fig. 6.

The organization of the chair shown is substantially such as folding chairs manufactured by the New Haven Folding Chair Company. The chair is of the style known as the "cross-legged;" but my improvements are applicable to cane-bound folding chairs having non-crossed legs, and to folding chairs differing in organization from that shown.

In Fig. 2 I have shown the skeleton or unbound frame, in which *a a* are the front legs, and *b b* the rear legs, which are crossed and connected by wrought-iron rivet-nails or screws. *c* is the flexible or carpet seat connecting the rounds *c'*, which connect the upper ends of the legs; *d*, the frame of the back, mounted by metallic eyes upon suitable bearings upon the upper portions of the front legs below the seat; and *e*, the arm-rest braces connecting the back frame above the seat with the upper portions of the rear legs, preferably below the seat. The side bars of the back and the lower ends of the legs are suitably connected by cross-rounds. These frame parts are of comparatively light solid-turned work, and are connected and secured by wrought-iron rivet-nails or screws. Such connections, however, would prove inadequate to sustain the chair in use for any length of time, but the rattan binding re-enforces every part and gives the connected parts the requisite strength, so that the chair has an agreeable flexing or elastic set to the occupant in the seat and in the back, combining an elastic back with a flexible seat, so conducive to the ease and comfort of the occupant. The ornamentation of the back may be of any desired design, and, with the upper and lower rounds, gives it the required strength and durability.

As the entire surface of the solid wood parts

is wrapped with rattan, it is of primary importance that the pivot-joint connections of the several parts should be without abrading or frictional contact, else the wrapping at these points would soon be worn and cut and give an unsightly appearance. To avoid this I protect the wrapping of cane by washers *i i*, (shown in detail in Figs. 3, 4, and 5,) having their joining faces *i'* flat and forming disk joint bearings, while the faces i^2, which join the cane covering, are concave, which thereby prevents them from turning when bound hard upon the convex wrapped surfaces by wrought screws or nails *f*, riveted upon outside washers, *g*, Fig. 5.

As there is a slight spring or flexing of all the wrapped parts at their pivot-joint connections when the chair is occupied, it will be seen that the abrading action is not alone active when the chair is folded and unfolded, and without these concave washers or their equivalents it would not be possible to make a durable rattan-bound folding chair.

It is also of primary importance to provide a strong and durable pivotal connection of the back with the legs, and for this purpose I use metallic eyes *h*, adapted to fit upon cylindrical bearings, as a means of pivoting the side bars of the back with the legs. This metallic-eyed connection may be made in several ways. I prefer, however, eyes having screw-shanks *h*, so that they may be screwed into the ends of the side bars of the back and be fitted upon the ends of the round *j* of the front legs, the said round being riveted or otherwise secured to said legs.

A flat shank may be used with the eyed bearing, and secured by rivet within a mortise instead of the screw.

Instead of the eyed bearings embracing the round *j*, bearing-brackets *j'*, Fig. 6, may be riveted to the legs, and the back may be mounted upon their bearing ends; or bearing-brackets may be secured to the back-frame and to the legs and fastened by strong rivets. As the wood parts are too light to admit of being joined by bearing-tenons, the metallic connections give strength and the required bearing upon which the back turns in folding and unfolding the chair.

The braces for the back are formed with rattan arm-rests *e'*, and they are pivotally connected with the side bars of the back and with the upper portions of the rear legs. These pivot-connections at the back are above the seat, and at the front they are preferably a little below the seat, and the brace *e* proper extends diagonally in relation to the seat from the front to the back pivots and relieves the arm-rest of undue strain. In Fig. 1 the brace forms the solid wood part for the pivotal connection, and the arm-rest *e'* is built upon it, of rattan-work of any desired design, while in Figs. 1^a and 2 the solid wood part forms the rest *e'* proper for the pivotal connections, and the brace *e* is of rattan-work, strongly secured to the wood part at or near the pivots. In either case the braces give support to the back in direct lines from pivot to pivot.

The legs are suitably braced by rattan at their lower round connections to stiffen them laterally. The ends of the wood parts are provided with knobs, which serve to retain the rattan wrapping.

The frame parts forming the back may be secured together by tenoning and gluing instead of by wrought nails.

In folding the chair the tops of the front legs are brought forward and the back falls down, turning upon its eyed bearings and its brace-pivots, and closes with the legs.

The spring or flexure of the back will extend to its metallic bearing connections with the legs, but will be principally above the brace-connections, and the chair of pivoted parts wrapped with rattan, and adapted for use as a durable structure, is an improved article of manufacture.

I have stated that the eyed bearings have shanks by which they are fastened into the ends of the side bars of the back, and it will be noticed that such shanks are also formed with flat seats or bearings h^2, upon which the ends of the said frame-bars make a flush joining, and are thereby prevented from being split, as would be liable if the ends of said bars rested directly upon the round eyed bearings. This shank-seat or flat bearing h^2 serves also the important function of a finish-shoulder, in the same manner as the knobs of the wood parts before mentioned, and serves to retain the rattan-wrapped strands, the shank-seats for this purpose being of a diameter sufficiently greater than the wrapped surface to form such finish-shoulder.

I claim—

1. The combination, in a folding chair bound and strengthened by rattan wrapping, of the concave washers secured in pairs upon the convex wrapped surface and forming a joint-bearing, substantially as described, with a binding-rivet for the joined parts, whereby the wrapped cane strands are protected from wear at the joint-connections of the chair parts.

2. As a means for protecting the cane-wrapped surface at the pivot-joint connections of a folding chair, the device of double washers having concave faces and flat, or approximately flat, contact-faces, bound together and upon the convex strand-wrapped surface by a rivet passing through said joining-washers and the cane-wrapped parts, the said double washers, by their concave faces, serving to prevent their turning upon the rivet independent of the wrapped parts.

3. The combination, in a folding rattan-bound chair having a pivoted back-frame, of a casting formed with an eyed bearing, a fastening-shank, and a flat seat or bearing, substantially

as described, whereby to provide a pivotal support for the chair-back and a finish-shoulder for rattan wrapping.

4. As an improved article of manufacture, a rattan-bound folding chair provided at its pivot-joint connections with means, substantially as described, for protecting the rattan binding.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ISAAC N. DANN.

Witnesses:
FRANCIS F. PREUDHOMME,
G. SUMNER CAMMACK.