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F. S. BOLTZ

2,253,606

HINGE JOINT

Filed June 11, 1940

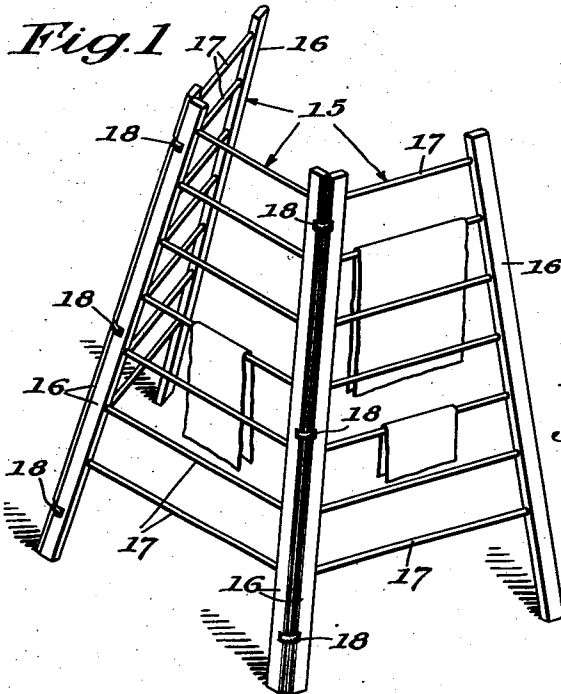


Fig. 2

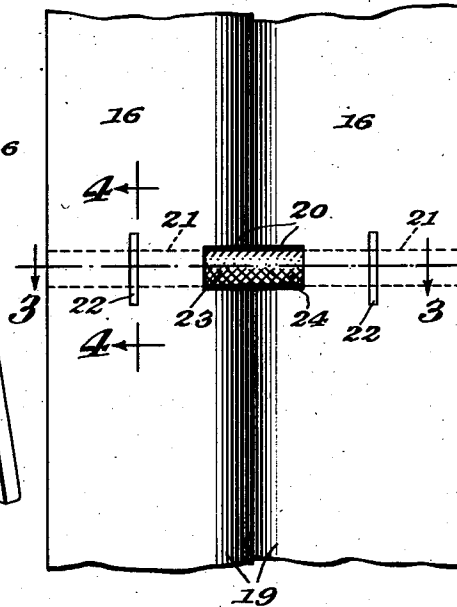


Fig. 4

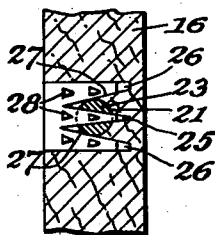


Fig. 3

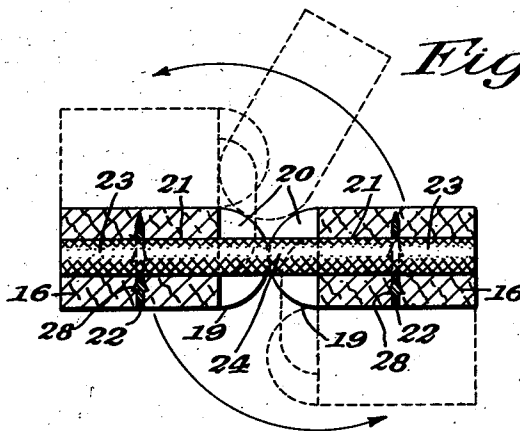


Fig. 5

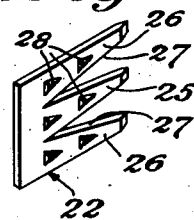
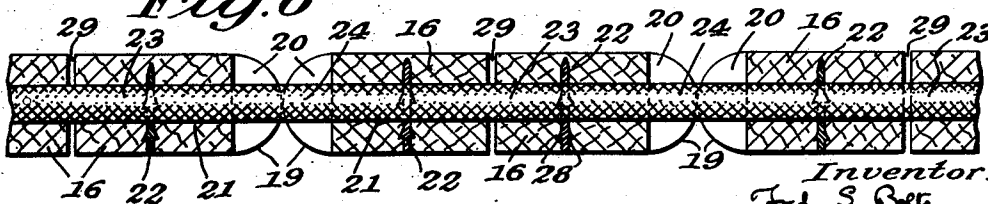


Fig. 6



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UNITED STATES PATENT OFFICE

2,253,606

HINGE JOINT

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Application June 11, 1940, Serial No. 339,915

4 Claims. (Cl. 16—150)

This invention relates to hinge joints especially adapted for clothes drying racks, folding screens, and similar structures comprising a plurality of pivotally connected frame units, although capable of use for other purposes.

It has for its objects to provide an extremely simple, inexpensive, and easily assembled hinge structure which, while substantially housed within the connected parts, so as to be very inconspicuous, does not, in its attachment, materially weaken said parts, and which will securely retain said parts against unnecessary looseness while readily permitting their required relative angular movements.

The foregoing and other objects of the invention, together with means whereby the latter may be carried into effect, will best be understood from the following description of an illustrative embodiment thereof shown in the accompanying drawing, in which:

Fig. 1 is a perspective view of a folding clothes drier the sections of which are connected by hinges embodying the invention.

Fig. 2 is an enlarged fragmentary elevation of one of the hinges.

Figs. 3 and 4 are sections taken substantially on the lines 3—3 and 4—4, respectively, Fig. 2.

Fig. 5 is a detail perspective view of one of the fasteners employed.

Fig. 6 is a transverse sectional view illustrating the convenient simultaneous assembly of a plurality of hinge units.

In Fig. 1 is shown a clothes drier of familiar form comprising a plurality of frame units 15 each including a pair of upright side rails 16 connected by cross members 17. The contiguous side rails of adjacent frame units are hinged together, as indicated at 18, said side rails constituting the leaf members of the hinges, each pair of rails being, as shown, preferably hinged together at a plurality of points, but the several hinge joints being identical, so that description of one will suffice for all.

In accordance with the invention, and as most clearly shown in Figs. 2, 3 and 6, the contiguous side rails or leaf members are formed with oppositely convex arcuate abutting edges 19, the circumferential extent of which depends upon the relative angular movement desired. Where, as in the present instance, it is desired to provide for an angular movement of 180°, to permit the frames to be folded into parallel relation, as shown in broken lines in Fig. 3, the cross sections of said edges are substantially semi-circular. Said abutting edges are formed with regis-

tering transverse slots 20 of a depth equal to the radius of curvature of said arcuate edges and whose bottoms are radial to the ends of the arcs, e. g., where said edges are semi-circular, as shown, said bottoms coincide with the diameters of the semi-circles. Intersecting the bottoms of the slots 20 substantially centrally thereof, i. e., at substantially the centers of curvature of the edges 19, the members 16 are formed with recesses or bores 21 in which are anchored, by means of transversely disposed driven fasteners 22, the ends of a flexible connecting member 23, preferably in the form of a relatively heavy cord.

The portion 24 of the cord 23 which extends between the bottoms of the two notches 20, i. e., between the centers of curvature of the edges 19, is fixed and equal to the sum of the radii of curvature of the two edges. Consequently, while said edges may freely roll upon one another in flexing the hinge, as indicated in broken lines in Fig. 3, they are held in firm engagement against unnecessary looseness.

The fasteners 22 are preferably of the three-pronged form shown in Figs. 4 and 5, including a central prong 25 and outer prongs 26 having oppositely inclined inner edges 27. When accurately positioned, as shown in Fig. 4, the central prong 25 pierces the cord 23, expanding the same against the sides of the bore 21, while the edges 27 of the outer prongs embrace and pinch the cord, thereby acting further to anchor the same. However, the three-pronged construction obviates the necessity of accuracy in driving, since the position of the fastener can vary within considerable limits while insuring the engagement of the cord by at least two prongs, thereby speeding production. The several prongs of the fastener are preferably formed with barbs 28, thereby enabling said fastener to act as a binding element tending to reinforce the rails 16 against weakening caused by the bores 21.

The hinge described readily lends itself to rapid quantity assembly as illustrated in Fig. 6. Thus a plurality of pairs of rails, each pair with the convex edges 19 in abutting relation, may be arranged side by side in a series, the bores 21 being formed either prior or subsequent to such arrangement, a continuous cord 23 passed through the aligned bores of all of the rails of the series, and the fasteners 22 driven at the proper points, after which the several pairs of rails can be separated by cutting the cord at the points 29 between said pairs. This method of assembly is not claimed herein, being covered by the claims of an-

other application filed January 2, 1941, Serial No. 372,802.

I claim:

1. A hinge joint comprising two leaf members having oppositely convex arcuate abutting edges formed with registering slots and a flexible member connecting said leaf members within said slots, intersecting the bottoms of said slots at substantially the centers of curvature of said edges, and having its ends anchored in said leaf members respectively.

2. A hinge joint comprising two leaf members having oppositely convex abutting edges substantially semi-circular in cross-section and formed with registering slots the bottoms of which substantially coincide with the diameters of the semi-circles and a flexible member connecting said leaf members within said slots substantially centrally thereof and having its ends anchored in said leaf members respectively.

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3. A hinge joint comprising two leaf members having oppositely convex arcuate abutting edges formed with registering slots and recesses communicating with the bottoms of said slots at substantially the centers of curvature of said edges, and a flexible member connecting said leaf members and having its ends anchored in said recesses.

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4. A hinge joint comprising two leaf members having oppositely convex arcuate abutting edges formed with registering slots and recesses communicating with the bottoms of said slots at substantially the centers of curvature of said edges, a cord connecting said leaf members, and three-pronged driven fasteners anchoring the ends of said cord in said recesses, each of said fasteners having a central prong piercing said cord and outer prongs having inclined edges embracing said cord.

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