Aug. 19, 1924. 1,505,593

A. L. FRYER

FOLDING HINGE

Filed May 31, 1923

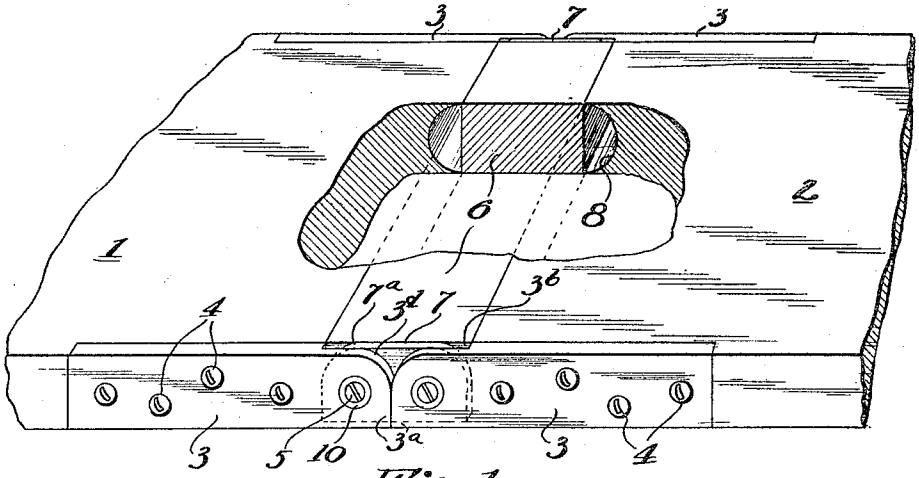


Fig. 1.

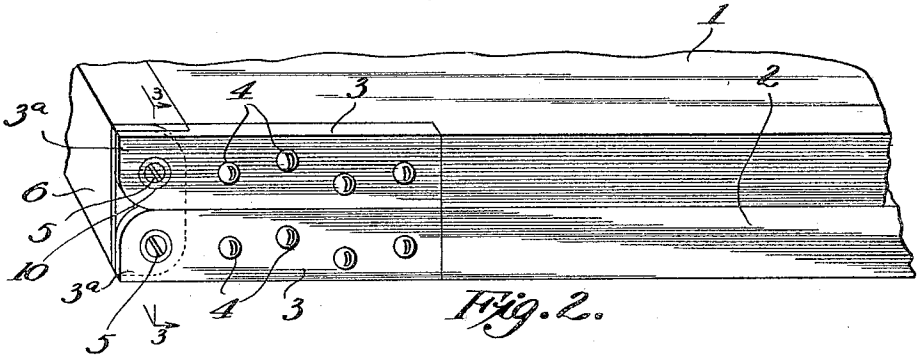


Fig. 2.

Fig. 3.

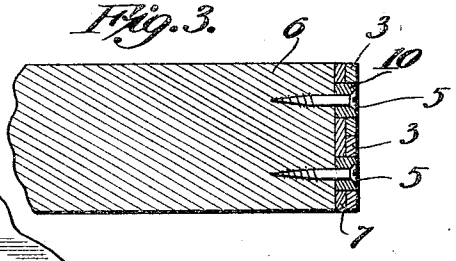
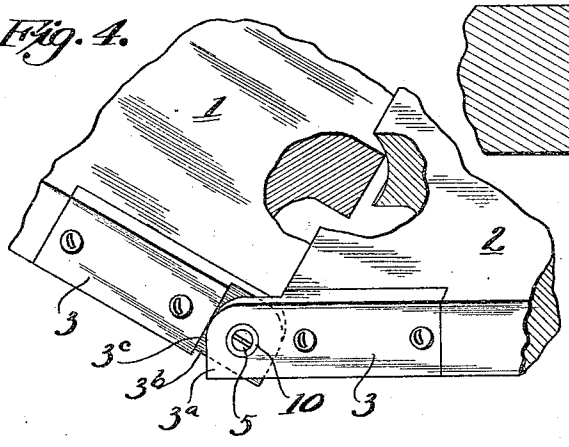


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARTHUR L. FRYER, OF GLENDALE, CALIFORNIA.

FOLDING HINGE.

Application filed May 31, 1923. Serial No. 642,653.

To all whom it may concern:

Be it known that I, ARTHUR L. FRYER, a citizen of the United States, residing at Glendale, in the county of Los Angeles and State of California, have invented new and useful Improvements in Folding Hinges, of which the following is a specification.

This invention relates to hinges.

An object of the invention is to provide a simple, substantial and very inexpensive form of hinge structure.

Other objects and advantages will be made manifest in the following specification of embodiments of the invention illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective of portions of members adapted to be folded flatwise one upon the other.

Fig. 2 is a perspective of the folded members connected by the improved hinge.

Fig. 3 is a section on line 3—3 of Figure 2.

Fig. 4 is a modifield form of the hinge providing for a quarter turn.

The hinge is shown as connecting board members 1 and 2 in such manner that they can be laid flatwise one on the other.

The hinges are preferably of right and left hand form, and each hinge includes a pair of flat leaves 3, perforated to receive screws 4 by which the leaves may be secured in a common plane along the edges, which may be countersunk, of the boards 1 and 2. Each leaf 3 has a square corner 3^a, and the leaves are pivoted on pins or screws 5, driven into an intermediate folding block 6, extending transversely between the contiguous ends of the boards 1—2 and abutting the end edges of the boards when the latter are extended, as in Figure 1, into a common plane.

On each end of the intermediate block 6 is secured a flat link member 7, with upper, curved corners 7^a. Each link 7, through which the screws 5, forming the hinge pivots, pass into the ends of the block 6, is partially countersunk in the contiguous ends of the leaves 3, which are rebated at 3^b a depth equal to the thickness of the link 7, which thus connects the leaves 3 of each hinge. The leaves have upper, rounded, contiguous corners 3^b, adapted to substantially roll gear-fashion about their pivot screws 5 when the board members 1—2 are swung open or closed.

During the unfolding action, the intermediate block 6 swings on one coaxial set of pivot screws until the block is in the plane of one of the board members, and the other member is further moved on its own pivot screws until the board members assume a position, as in Figure 1, in a common plane, at which time the corner shoulders 3^a, whose edges are tangent to the curves 3^d, abut each other and thus sustain the unfolded members in a common plane.

Since the intermediate block has a relative pivotal action on each coaxial set of screws 5 of the hinge, the inner, transverse edges of the board members 1 and 2 are cylindrically concaved as at 8, so that the transverse corners of the block can sweep in an arc on the axis of its pivot screws.

The screws are shown as provided with bushings 10, fitting the apertures in the leaf ends, and providing sbstantial supports and ample area of contact for an efficient bearing.

A modified form of the device is shown in Figure 4, wherein the leaves 3 are connected directly one on the other by a pivot screw 5; the contiguous ends of the leaves being rebated at 3^b so that the leaf ends overlap. Each leaf end has a tangential corner 3^a which will turn into engagement with a transverse shoulder 3^c, formed by the rebate 3^b. Thus, when the members 1 and 2, connected by the hinge leaves, are unfolded, they will lie in a common plane and be sustained by the abutting edges of the complementary leaf ends. In this type of construction, the members 1 and 2 can only be turned through an arc of ninety degrees.

Further embodiments, modifications and variations may be resorted to within the principle of the invention.

What is claimed is:

1. A hinge structure comprising hinge leaves having tangential, abutting end edges merging into rounder corner edges, pivots for the contiguous leaf ends arranged in parallelism and so disposed that the tangential edges of the hinge leaves will abut when the leaves are moved into alignment in a common plane, and an intermediate link mortised into the contiguous ends of the leaves, said leaves being adapted for attachment to opposite, parallel edges of foldable members, and a folding, intermediate

block adjacent the contiguous ends of the hinges and to which said links are attached by said pivots.

2. A hinge structure comprising hinge leaves having tangential, abutting end edges merging into rounded corner edges, pivots for the contiguous leaf ends arranged in parallelism and so disposed that the tangential edges of the hinge leaves will abut when the leaves are moved into alignment in a common plane, and an intermediate link mortised into the contiguous ends of the leaves, said leaves being adapted for attachment to opposite, parallel edges of foldable members, and a folding, intermediate block adjacent the contiguous ends of the hinges and to which said links are attached by said pivots, the said block forming a folding connection between the leaves of a hinge to permit the leaves to be folded edge to edge.

3. In combination, a pair of plane, foldable members adapted to be folded flatwise one on the other, an intermediate block disposed transversely to said members and adapted to occupy an intermediate position between the members when they are extended into a common plane, and pairs of hinges attached to opposite, parallel edges of said members and pivotally attached to sets of pivots in the ends of the intermediate block, so that the latter forms a folding connection between said members and also between said hinges.

4. In combination, a pair of plane, foldable members adapted to be folded flatwise one on the other, an intermediate block disposed transversely to said members and adapted to occupy an intermediate position between the members when they are extended into a common plane, and pairs of hinges attached to opposite, parallel edges of said members and pivotally attached to sets of pivots in the ends of the intermediate block, so that the latter forms a folding connection between said members and also between said hinges, the contiguous ends of said members being concaved to permit the corners of the intermediate block rotating on aligned axes of the pivots.

In testimony whereof I have signed my name to this specification.

ARTHUR L. FRYER.