Aug. 18, 1970 A. FERNANDEZ ET AL 3,524,216

HINGE STRUCTURE

Filed July 21, 1967

Fig. 1

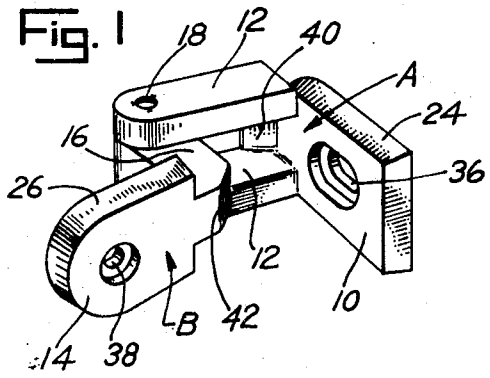
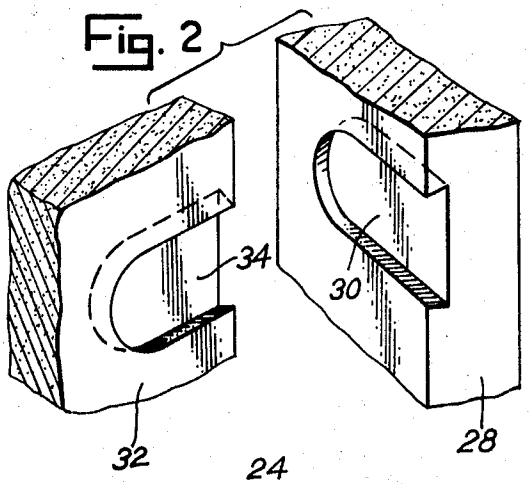


Fig. 2



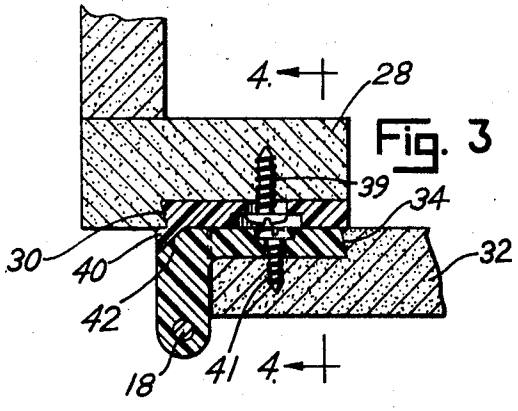


Fig. 3

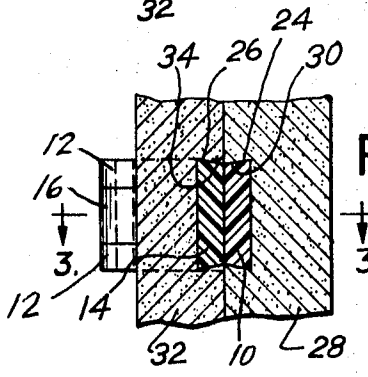


Fig. 4

Fig. 5

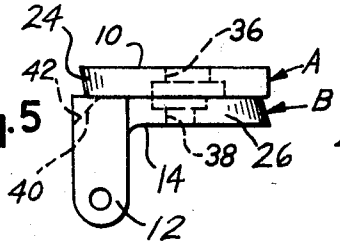
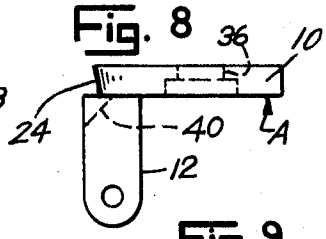


Fig. 8



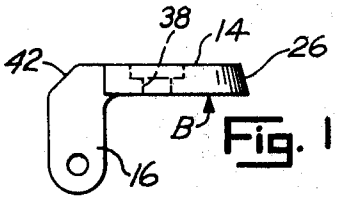


Fig. 11

Fig. 6

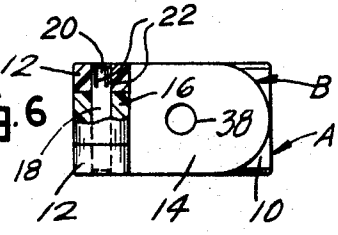
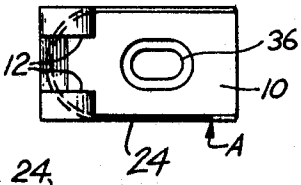


Fig. 9



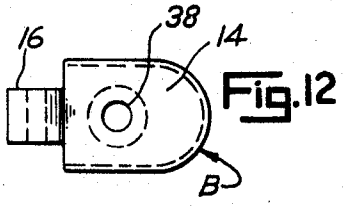


Fig. 12

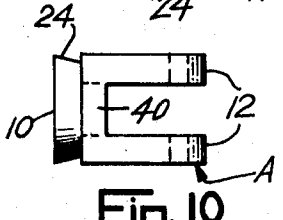


Fig. 10

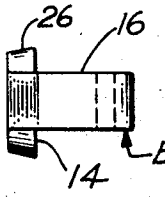


Fig. 13

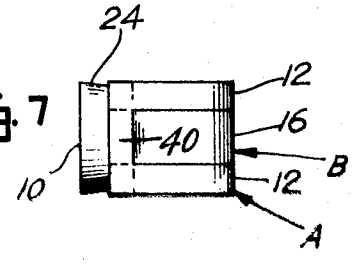


Fig. 7

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HINGE STRUCTURE

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ABSTRACT OF THE DISCLOSURE

A hinge structure particularly designed for fiber boards, chip boards, particle boards and the like, and having dove tail mounting feet adapted to slide into dove tail grooves of stiles, doors and the like for strong anchorage. Screws are used to prevent the mounting feet from sliding out of the dove tail grooves.

This invention relates to a hinge structure which has firm anchorage in particle boards and the like by utilizing a mounting foot for each hinge member which has dove tail edges and sliding the mounting feet into dove tail grooves of stiles, doors and the like on which the hinge members are mounted.

One object of the invention is to provide a comparatively simple and inexpensive hinge structure which may be formed of plastic material and is in the form of a pair of hinge members, each having a mounting foot and pivot ear means, the pivot ear means being pivoted together to provide the desired hinge action.

Another object is to provide dove tail connections between the mounting feet and stiles, doors and the like on which the mounting feet are mounted so that efficient mountings of considerable area are provided for strength of connection as between the particle board and the mounting feet of the hinge structure.

Still another object is to provide perforations in the mounting feet so that screws can be utilized to prevent dislocation of the mounting feet relative to the dove tail grooves in which they are received.

A further object is to provide a quickly operable but efficient means for pivoting the hinge members together in the form of metal pivot pins having enlarged ends provided with frictional engagement means in one ear of one hinge member and free pivoting in the remaining ears of the hinge members so that once the pin is installed it will remain in installed position without objectionable binding action in the hinge structure.

With these and other objects in view, our invention consists in the construction, arrangement and combination of the various parts of our hinge structure, whereby the objects above contemplated are attained, as hereinafter more fully set forth, pointed out in our claims and illustrated in detail on the accompanying drawing, wherein:

FIG. 1 is a perspective view of a hinge structure embodying our invention and showing it in door-open position;

FIG. 2 is a perspective view of a door and a stile in the relative positions they assume if the hinge member of FIG. 1 were installed to connect them together;

FIG. 3 is a horizontal sectional view through the hinge structure and the adjacent stile and door, showing the hinge structure in mounted position and the door in closed position;

FIG. 4 is a vertical sectional view on the line 4—4 of FIG. 3, the line 3—3 of FIG. 4 indicating where the section for FIG. 3 is taken;

FIG. 5 is a plan view of our hinge structure in closed position;

FIG. 6 is a front elevation thereof looking upwardly at FIG. 5;

FIG. 7 is an end elevation thereof looking at the left end of FIG. 6;

FIGS. 8, 9 and 10 are plan views, front elevation and end elevation (similar to FIGS. 5, 6 and 7, respectively) showing one of the hinge elements and FIGS. 11, 12 and 13 are plan view, front elevation and end elevation of the other hinge element similar to FIGS. 5, 6 and 7 respectively.

On the accompanying drawing we have used the reference character A to indicate in general one hinge member of our hinge structure, and B the other hinge member thereof. The hinge member A comprises a mounting foot **10** and a pair of pivot ears **12** while the hinge member B comprises a mounting foot **14** and a single pivot ear **16**. The ear **16** is located between the ears **12** as shown in FIG. 1 and a pivot pin **18** pivots them together.

The hinge members A and B are preferably formed of plastic material but the hinge pin **18** is preferably formed of metal. It has an enlarged end **20** for frictional engagement in the perforation of the upper ear **12**, and the enlargement may be effected by grooves **22** pressed into the surface of the pin so that the raised edges of the grooves frictionally engage in the perforation of the upper ear **12** whereas the perforations of the ear **16** and the lower ear **12** are substantially the same diameter as the portion of the pivot pin **18** passing therethrough for free pivoting action of the ear **16** on the pin **18**.

The mounting foot **10** is provided with dove tail edges **24** and the mounting foot **14** with dove tail edges **26**. These are adapted to be slid into a dove tail groove **30** of a stile **28** and a dove tail groove **34** of a door **32** respectively, which door may be made of particle board, chip board, fiber board or the like.

The dove tail grooves **30** and **34** are formed of suitable size to receive the mounting feet **10** and **14** snugly without play and thereby a very rigid mounting is provided as between the hinge member and the part of a board or the like on which it is mounted. This is very important in particle boards and the like which are relatively weak as compared to solid wood construction, and a hinge of the character disclosed therefore permits the use of cheap materials in the construction of cabinets and the like.

To prevent the mounting feet **10** and **14** from sliding out of the dove tail grooves **30** and **34**, the foot **10** is provided with a slot-like perforation **36** and the foot **14** with a perforation **38** adapted to receive the screws **39** and **41** respectively, as shown in FIG. 3. The slot-like character of the perforation **36** permits (when the screw is loose) some longitudinal adjustment of the foot **10** in the groove **30**, which adjustment may then be retained by tightening the screw. This permits aligning the door **32** properly with the frame in which the door is mounted.

To reinforce the ears **12** a cross bar **40** is provided between the ears **12** adjacent the foot **10** and to accommodate it a cut-off corner **42** is provided on the ear **16**. This arrangement provides for maximum strength in plastic hinge members of the type disclosed when formed of plastic material.

From the foregoing specification it will be obvious that we have provided a relatively simple and inexpensive hinge structure with means for solidly anchoring it to particle board cabinet constructions and the like.

Some changes may be made in the construction and arrangement of the parts of our hinge structure without departing from the real spirit and purpose of our invention, and it is our intention to cover by our claims any modified forms of structure or use of mechanical equivalents which may reasonably be included within their scope.

We claim as our invention:

1. In a hinge structure, a pair of hinge members each having a mounting foot and pivot ear means projecting therefrom and means for pivoting said pivot ear means

together, each of said mounting feet being provided with support means for engagement within complementary support means, one of said mounting feet being adapted to be slid into the complementary support means of a stile or the like and the other of said mounting feet being adapted to be slid into the complementary support means of a door or the like, and cooperating means on said hinge members for limiting relative rotation of said hinge members relative to one another comprising crossbar means on one hinge member and a cut-off corner means on the other hinge member, said hinge members each being formed of plastic material, said mounting feet having openings for the reception of screws or the like to prevent said mounting feet from sliding out of said complementary support means, one of said mounting feet having a slot-like opening to provide adjustment of the said one mounting foot within its complementary support means.

2. A hinge structure according to claim 1 wherein said means for pivoting said pivot ear means together comprises a metal pin through perforations of said ear means, said metal pin having frictional engagement means in the ear means of one of said hinge members and pivotal relationship to the ear means of the other of said hinge members.

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U.S. Cl. X.R.

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