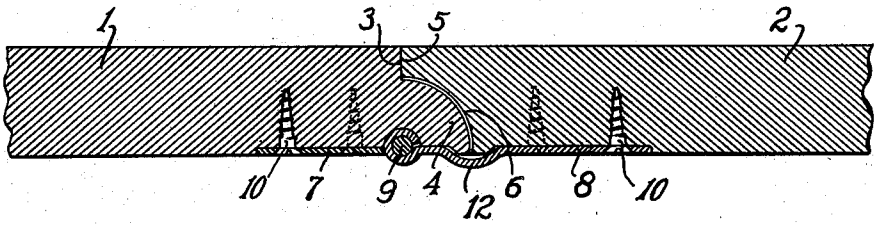
No. 847,717. PATENTED MAR. 19, 1907.

O. ALTHIN.

CONCEALED HINGE.

APPLICATION FILED MAY 28, 1906.

FIG. 1.



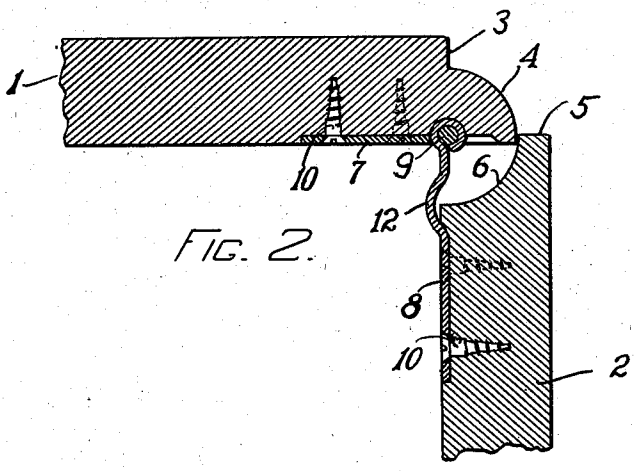


FIG. 2.

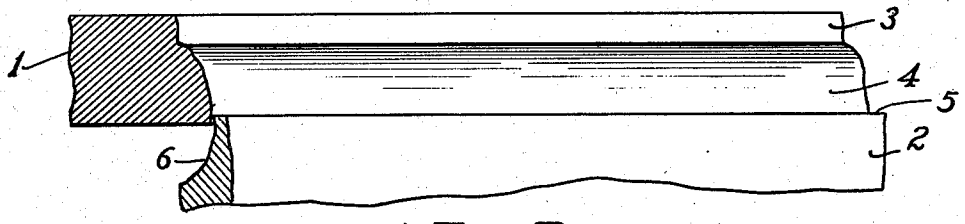


FIG. 3.

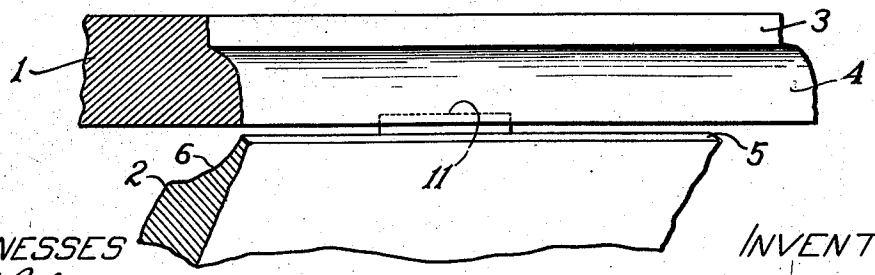


FIG. 4.

WITNESSES

A. T. Palmer

Arthur G. Lewis

INVENTOR

OLOF ALTHIN

BY HIS ATTORNEY

Everett S. Kent

UNITED STATES PATENT OFFICE.

OLOF ALTHIN, OF BOSTON, MASSACHUSETTS.

CONCEALED HINGE.

No. 847,717. Specification of Letters Patent. Patented March 19, 1907.

Application filed May 28, 1906. Serial No. 319,089.

To all whom it may concern:

Be it known that I, OLOF ALTHIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Concealed Hinges, of which the following is a specification.

This invention relates to improvements in concealed hinges.

More particularly it relates to the art of cabinet-making, in which two pieces are hinged together to produce a joint presenting to the eye a continuous appearance in all positions which the pieces may occupy of the general type shown in the drawings herewith. In joints of this type in work of the highest grade it is an important object to have the joint so arranged that one piece can swing through an angle of at least ninety degrees without exposing a crack or a broken surface of the other piece. The best joints of this type heretofore known so far as I am aware have been open to the serious objection that after being in use for some time the wood at the edge of one of the pieces splits off near the hinge. It has also been long desired as a point of good workmanship to devise a joint which can be made by ordinary workmen with uniformly satisfactory results. In the best joints previously made the hinge has been set into a recess or channel on the under side of the joined pieces, and the place where this channel intersects the edge presents an unsightly appearance. The effort to conceal the mutilation of the edge has caused the adoption of various expedients; but none of these expedients are reliable except when executed by a workman of special skill.

It is the object of the present invention to eliminate these difficulties, providing a joint which requires no mutilation of the table edge and which can be made by an ordinary workman without special skill, thus reducing the expense and increasing the expedition of manufacture, and a joint in which the hinge is so arranged that any number of years of use and wear will not cause further mutilation of the joint by splitting off or breaking out pieces.

The objects of the invention are accomplished by molding the face sides of the joined pieces as parallel concentric quadrants, respectively convex and concave, and arranging abutments adjacent thereto to receive the thrust when the two pieces are brought forcibly into a straight line and by arranging a hinge recessed into the back sides of both pieces having its pintle concentric with the quadrants, one leaf or strap of the hinge having an arch vaulting from the piece in which the pintle is set passing under the adjacent edge of the quadrant and back into the same plane in the joined piece. The arch makes it unnecessary to mutilate the edge by a channel and absolutely eliminates the thrust from the edge when the pieces are straightened, so that the tendency to split off portions of the edge no longer exists. The full ninety-degrees swing of the quadrant can therefore be enjoyed without exposing a channeled edge, and a safety-margin is provided in addition equal to the distance the pintle-axis is set into the piece, through which margin the piece may swing before a crack opens between the two pieces, and when the crack finally does appear its lines are straight and chaste.

In the accompanying drawings, Figure 1 shows a section through a joint to which the invention is applied looking in direction of the axis of the joint. Fig. 2 shows the same with the joined pieces in another position. Fig. 3 shows an elevation of the face of the joint when in the position of Fig. 2. Fig. 4 shows an elevation of the face of the joint when swung past the margin and exposing a crack.

Referring to the drawings, 1 represents a table, and 2 a table-leaf hinged thereto.

The invention is applicable to tables of various forms and to other kinds of cabinet-work, whether set horizontally, vertically, or otherwise; but its use as applied to two pieces comprising a horizontal table and a leaf hinged thereto sufficiently explains the same, and for that reason no other form is shown. In the drawing the table edge has two portions—a vertical abutment 3 in the upper part and a portion below molded in the form of a convex quadrant of a circle, (marked 4 in the drawing.) The adjacent edge of the leaf 2 has an abutment 5 counter to the abutment 3, and the remaining portion of the edge of the leaf is a concave quadrant 6 of a circle on a slightly-larger radius than that on the edge of the table. The table and leaf are hinged together by hinges having leaves or straps 7 and 8, pivoted on a pintle 9, the strap 7 being set into the table, the strap 8 set into the table-leaf, and the pintle located with its axis at the center of the quadrants 4 and 6, so that when swung

about the pintle these quadrant-surfaces slide past each other in close proximity, but not in contact, neither surface touching nor rubbing upon the other. Each of the straps of the hinge is set into the wood approximately flush with the surface of the wood, and the pintle is likewise set in, having its axis a little above the under surface of the table, the surface being recessed for this purpose. The abutment 3 of the table is vertically over this axis, and the abutment 5 of the leaf when the leaf is down is horizontally at the level of this axis. When the leaf is raised, thus throwing the table and the leaf into the same plane, the two straps 7 and 8 of the hinge lie in the same plane, forming a straight line. The abutments 3 and 5 come together at the top and prevent the table-leaf from being raised above the plane of the table.

It will be observed that the portion of hinge-strap 8 nearest the pintle lies adjacent to the under portion of the table edge. In all hinges known to me in which the table-leaf turns through only a quadrant this hinge-strap has heretofore projected straight from the table-leaf, to which it is securely fastened by screws 10 to the pintle lying close to the under side of the table edge, and in the best work the hinge has lain in a channel in the table edge, such as would be formed if the recess 11 (shown in dotted lines in Fig. 4) were cut as a channel to the very edge of the quadrant 4 instead of stopping short thereof, as it really does in the present invention, as clearly shown in Figs. 1 and 2.

It is a feature of the present invention to arch the hinge-strap 8 outward from the table-leaf to the pintle, so that the strap 8 vaults the edge of quadrant 4, as at 12. The result is that the wood in the edge of the quadrant need not be cut away, and, further, there is no possibility of the metal hinge-strap coming into contact with the wood of the table at such edge under the effects of continued use for any number of years no matter how much the adjacent parts may wear or loosen in their fastening. In joints of this type constructed according of the best previous form known to me in which the strap 8 has lain close to the under surface of the table at the edge of the quadrant 4, as above described, after a continued usage for a period the adjacent parts become worn, distorted, or compressed a little, with the result that when the table-leaf is lifted forcibly or carelessly the strap 8 comes hard against the under edge of the table and shortly causes a portion of said under edge to split off, owing to the long leverage and magnified stress which results when a table-leaf is lifted by the hand in ordinary use. By the construction here shown no looseness thus created, however great, can result in breaking out or splitting off the wood at the edge of the quadrant, first, because contact of the swinging hinge-strap with the under side of the table edge is impossible, owing to the arch, and, second, because the strain is received and sustained by the abutments 3 and 5. The arch also makes the hinge stronger and less likely to bend.

I claim—

A hinge, comprising a pintle and two flat straps lying in substantially the same plane when open; each of them having screw-holes and one of them being formed into an arch springing from and returning to its own plane between the screw-holes of such strap and the pintle, whereby the strap vaults the position occupied by the edge of the joined piece, without contact with such edge.

In testimony whereof I have affixed my signature in presence of two witnesses.

OLOF ALTHIN.

Witnesses:

OLIVER P. SCHOONMAKER,

EVERETT E. KENT.