Oct. 4, 1927. 1,644,440

W. A. NOACK

TABLE LEAF HINGE

Filed April 29, 1925

Fig. 1.

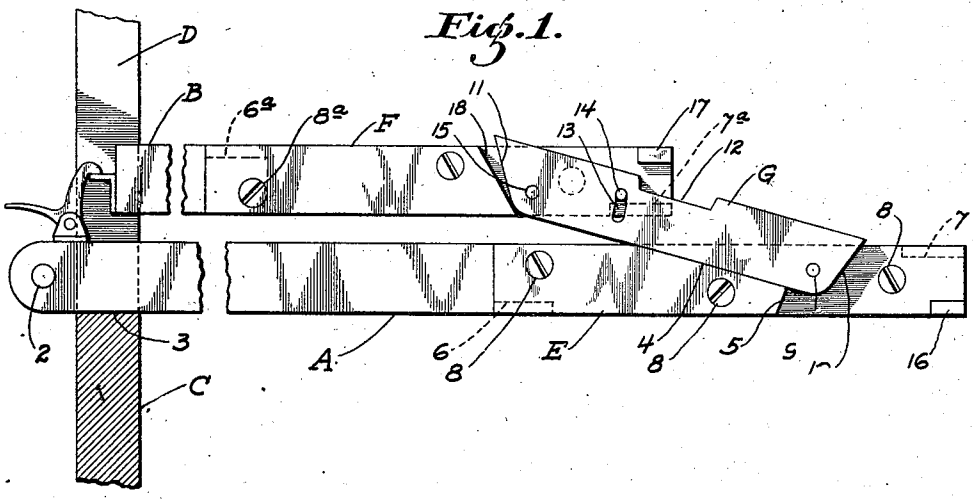


Fig. 2.

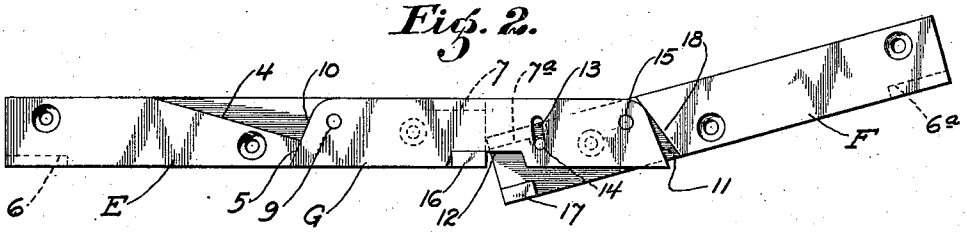


Fig. 3.

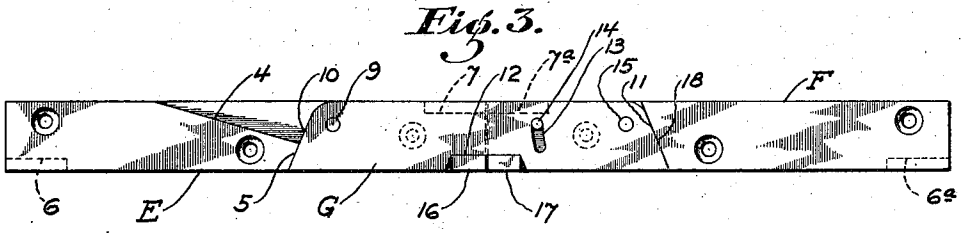
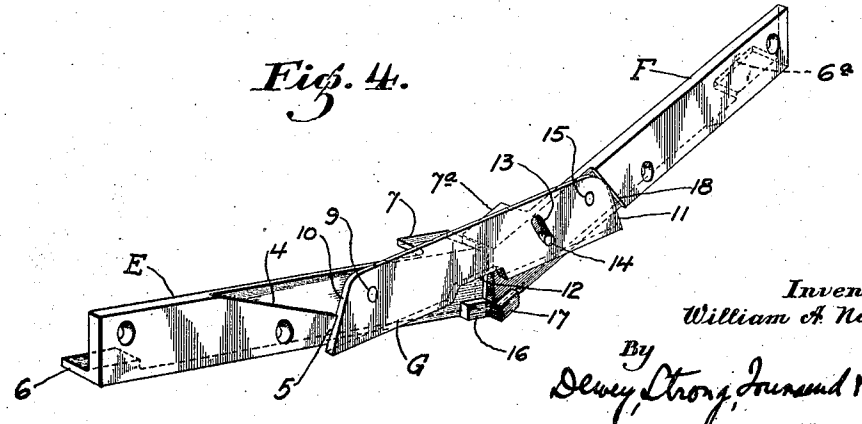


Fig. 4.



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Patented Oct. 4, 1927. 1,644,440

UNITED STATES PATENT OFFICE.

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TABLE-LEAF HINGE.

Application filed April 29, 1925. Serial No. 26,639.

This invention relates to a hinge structure and particularly to a hinge which is adapted for use in connection with folding tables, ironing boards and like devices.

A great number of built-in or concealed fixtures are coming into use in homes, flats, apartments, etc. A number of these fixtures, such as tables, ironing boards, seats, shelves and the like are of the folding type and hinges of one form or another must be employed. The object of the present invention is to provide an improved form of hinge which is particularly adapted for use in conjunction with fixtures of this character, to provide a hinge which is rigid and substantial in construction, a hinge which may be applied to opposite sides of the connected folding members, and, further, to provide a hinge which will form a predetermined spacing between the members when folded, thus preventing marring of the adjacent faces if painted or otherwise finished, and also providing a space for padding or the like; for instance, in conjunction with ironing boards. One form which the hinge structure may assume is exemplified in the accompanying specification and drawings in which—

Fig. 1 is a side elevation of a folding table or like structure showing application of the hinge, said structure showing the folding members in folded position.

Fig. 2 is a side elevation of the hinge proper showing it in substantially extended position.

Fig. 3 is a side elevation showing it completely unfolded or extended.

Fig. 4 is a perspective view of the hinge.

Referring to the drawings in detail, and particularly to Figs. 1 and 4, A indicates the main table leaf and B an auxiliary leaf which is adapted to be unfolded or extended with relation to the main leaf. The table illustrated is of the built-in or concealed type as it is adapted to be folded into a pocket formed in a cabinet or the like. C indicates the front wall of the cabinet and D the opening through which the table leaves swing. The main table leaf or section A is pivotally mounted in the side walls of the cabinet as indicated at 2. Both leaves will assume a vertical position within the cabinet when folded and they will assume a horizontal position shown in Fig. 1 when partially unfolded or extended. The main leaf or section A is supported by the pivots 2 and also by the bottom portion 3 of the opening through which it swings. The hinge forming the subject-matter of the present application consists of two flat sections E and F and an intermediate connection in the form of a link plate such as indicated at G. Two hinges are required in connection with a table leaf, ironing board, or like device, and they are attached to opposite sides of the folding members, to-wit—the leaves A and B. The hinges employed on the opposite sides are identical in construction and the description of one hinge should therefore suffice. The hinge plate E consists of an elongated strip of metal which may be cast, drop forged, or otherwise formed. The plate is elongated and rectangular shaped in side elevation and is fairly thin in cross section as shown in Fig. 4. The exterior face is reinforced to form an inclined shoulder 4 which supports the link plate G when the leaves are folded together as shown in Fig. 1. The forward end of the shoulder 4 is disposed on an angle as indicated at 5 and it forms a stop and partial support for the link plate G when fully extended as shown in Fig. 3. The inner face of the plate is provided with two lugs, one at each end, such as shown at 6 and 7 respectively, and these are fitted into the sides of the main table leaf extension A so as to reinforce and strengthen the sides and outer ends of the same. The plate E is otherwise provided with three or more drilled holes for the reception of screws 8 whereby the plate is secured to the side of the table and it is also provided with a pivotal pin 9 upon which the link plate G swings. Link plate G is a rectangular shaped, elongated metal plate provided with angularly disposed or inclined ends as indicated at 10 and 11 respectively. The bottom portion is recessed as shown at 12 and it is also provided with an arcuated slot 13 through which a pin 14 passes. The hinge plate F is almost identical in construction with the plate E. Its inner face is provided with reinforcing lugs such as shown at 6^a and 7^a. It is also drilled or perforated in three or more places as shown at 8^a to receive screws or other suitable fastening means, and it also carries a pivot pin 15 to which the opposite end of the link plate G is attached. Pin 14 is secured to the plate

F and it projects through the arcuated slot 13. The function of these members will hereinafter be described. The exterior faces and adjacent ends of the plates E and F are provided with outwardly extending supporting lugs 16 and 17 respectively. These are engaged by the recessed portion 12 of the link plate G and their function will also be later described.

In actual operation, two sets of hinges such as shown in Figs. 1 and 4 are employed. They are attached to opposite sides of the table leaf extensions A and B and are there secured by means of screws 8 and 8a. The folding operation of the leaves when the hinges are thus attached will be as follows: When the table leaf extensions are folded in the cabinet or like device they assume a vertical position with relation to the front of the cabinet indicated at C and they are supported by the pivot pins 2. When the table is to be used and extended it is only necessary to swing the leaves outwardly about the pivot 2 until they assume the position shown in Fig. 1. The upper or auxiliary leaf B is then grasped and lifted upwardly. During this lifting movement it will first swing about the pivot pins 15 and pins 14 will thus move in the arcuated slots 13 until the lower end of the slots are reached. When this position is assumed the leaf B will lie in parallelism with the link plates G. A continued lifting or outward movement will cause the leaf B and the link plates G to swing about the pivot pins 9 and they will continue to swing about the pins 9 until the link plates G and the leaf B assume the position shown in Fig. 3. The leaf B will here be supported entirely by the link plates G as the inner end of the link plates will engage the supported shoulder 5 and will also be secured against further downward movement by the outwardly extending supporting lugs 16.

Further movement of the leaf B will be prevented as the outer supporting lugs 17 engage the under side of the notches 12 and the shoulders 18 engage the outer ends 11 of the link plates G. When it is desired to refold the table the outer leaf B is grasped by the outer end and lifted upwardly. It will first swing about the pivot pins 15 and will assume the angular position shown in Fig. 2. Its movement about the pins 15 is limited by pins 14 engaging the lower ends of the arcuated slots 13. Further upward movement will cause the link plates G to swing about the pins 9 and the position shown in Fig. 1 will finally be assumed. It will be noted that the upper leaf B does not contact with the main leaf A when this position is assumed. It will further be noted that considerable space is formed between the two leaves. This is of considerable importance as it first of all prevents scratching or marring of the adjacent faces, particularly when painted, polished, or otherwise treated, and it also provides a space for padding; for instance, when the device is used as an ironing board or the like. The parallel interspaced position assumed by the table leaf sections when folded is obtained by limiting the inward swinging movement of the link plates G; that is, their inward swinging movement about the pins 9 is limited by the supporting shoulders 4. It will further be noted that the swinging movement of the leaf B about the pins 15 is also limited by the pins 14 and the arcuated slots 13, and as movement of the link plates G with relation to the hinge plates E is limited and movement of the leaf B with relation to the link plates G is limited by pins 15 a parallel and interspaced position may be obtained. This position may be increased or decreased by merely increasing or decreasing the inclination of the supporting shoulders 4.

From the foregoing it will be obvious that a hinge structure has been provided which may be readily and quickly applied to folding structures such as described. It forms a rigid and substantial connection between the folding members and it permits interspacing of the same when folded so that a padding may be interposed if desired.

While certain features of the present invention are more or less specifically described, I wish it understood that changes in form and proportion may be resorted to within the scope of the appended claims. I similarly wish it understood that the materials and finish of the several parts employed may be such as the experience and judgment of the manufacturer may dictate or various uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A hinge structure comprising an inner and an outer hinge plate, said plates adapted to be secured to the side edges of a pair of leaf members, a link plate pivotally attached at one end to the inner hinge plate, an inclined supporting shoulder formed on the inner hinge plate and limiting pivotal movement of the link plate in one direction, a second shoulder on the inner hinge plate limiting movement of the link plate in the other direction and supporting the same in a horizontal position, a pivotal connection between the opposite end of the link plate and the outer hinge plate, and cooperating means on the link plate and the outer hinge plate limiting pivotal movement of the outer hinge plate with relation to the link plate.

2. A hinge structure comprising an inner and an outer hinge plate, said plates adapted to be secured to the side edges of a pair of leaf members, a link plate pivotally at-

tached at one end to the inner hinge plate, an inclined supporting shoulder formed on the inner hinge plate and limiting pivotal movement of the link plate in one direction, a second shoulder on the inner hinge plate limiting movement of the link plate in the other direction and supporting the same in a horizontal position, a pivotal connection between the opposite end of the link plate and the outer hinge plate, said link plate having an arcuated slot formed therein, a pin on the outer hinge plate projecting through said slot and limiting pivotal movement of the outer hinge plate with relation to the link plate, a lug on the inner end of the outer hinge plate engageable with the under side of the link plate and supporting the outer hinge plate in a horizontal position, and a lug on the outer end of the inner hinge plate engaging the underside of the link plate and supporting the same in a horizontal position.

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