April 19, 1932. W. A. ADAMS 1,854,241

MEANS FOR FASTENING BOARDS OR PIECES TO SUPPORTS

Original Filed June 19, 1925 2 Sheets-Sheet 1

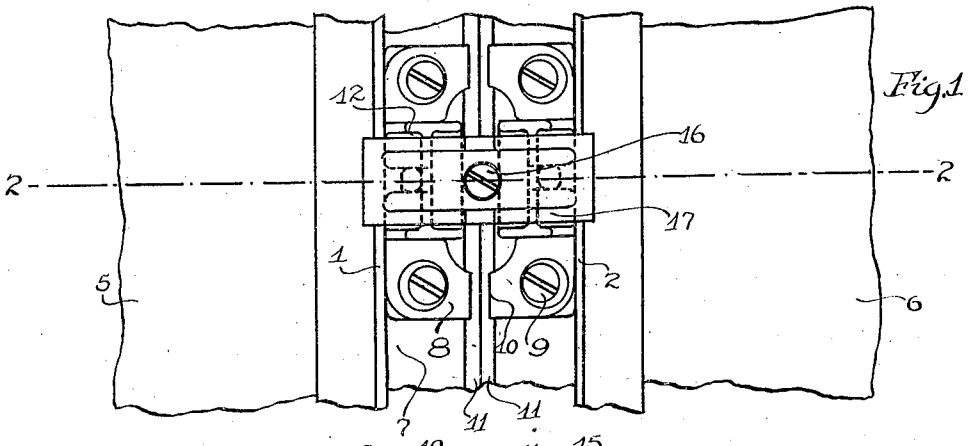


Fig.1

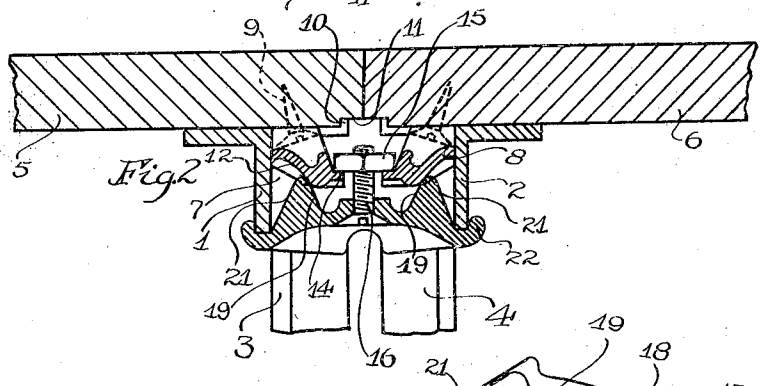


Fig.2

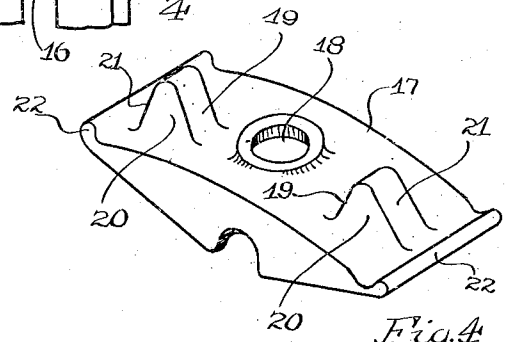


Fig.4

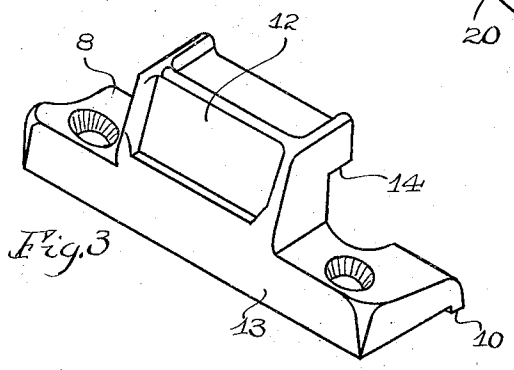


Fig.3

INVENTOR
Walter A. Adams
BY W. A. Adams
his ATTORNEY

April 19, 1932. W. A. ADAMS 1,854,241

MEANS FOR FASTENING BOARDS OR PIECES TO SUPPORTS

Original Filed June 19, 1925 2 Sheets-Sheet 2

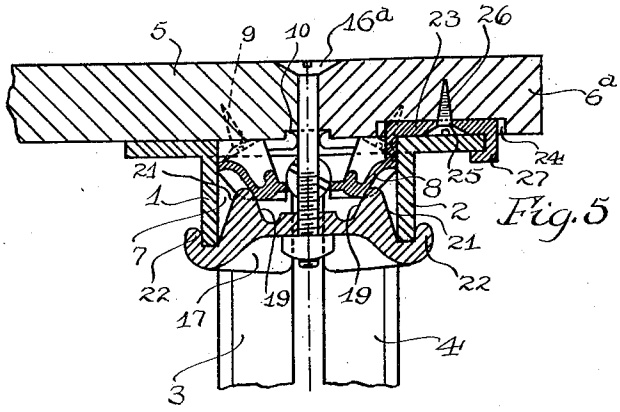


Fig. 5

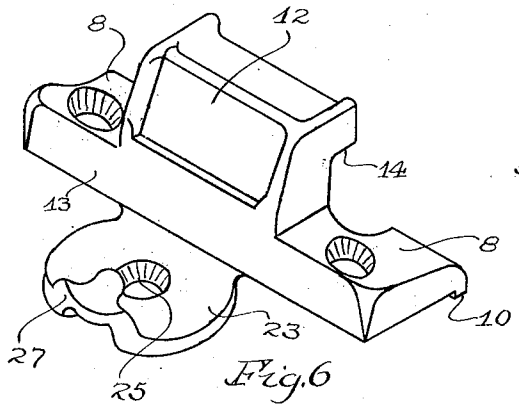


Fig. 6

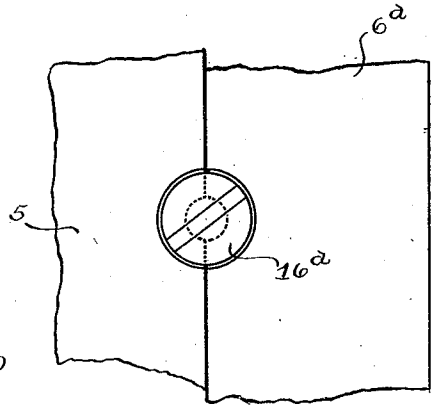
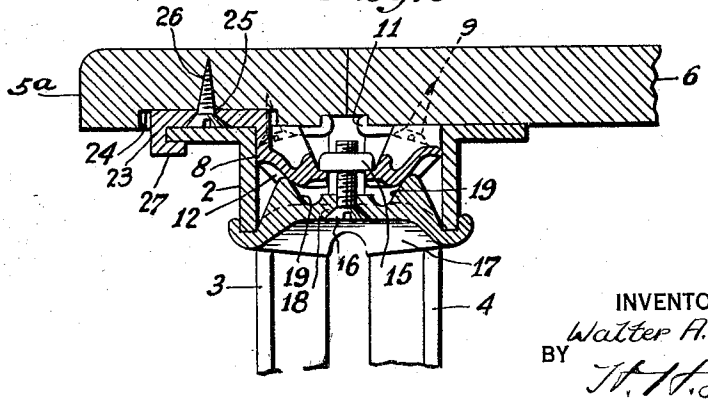


Fig. 7

Fig. 8.



INVENTOR
Walter A. Adams
BY
W. W. Simms
his ATTORNEY

Patented Apr. 19, 1932 1,854,241

UNITED STATES PATENT OFFICE

WALTER A. ADAMS, OF ROCHESTER, NEW YORK

MEANS FOR FASTENING BOARDS OR PIECES TO SUPPORTS

Original application filed June 19, 1925, Serial No. 38,361. Divided and this application filed November 7, 1929. Serial No. 405,500.

The present invention relates to means for fastening boards or pieces to supports, this application being a division of an application filed by me on June 19, 1925, Serial No. 38,361 on benches or tables. An object of this invention is to provide a construction in which the fastening means is arranged on the rear face of the boards or pieces. Another object of the invention is to provide a fastening means which will draw two pieces into abutment and at the same time toward the support. Still another object of the invention is to provide for holding a narrow finishing piece to a support in abutment with another piece also held to the support. A still further object of the invention is to provide a fastening means for two abutting parts having a camming means which not only draws the parts in firm engagement with the support but also draws the parts into abutting relation. Another object of the invention is to make it possible to attach a table or bench top made up of a plurality of strips glued together to a support in such a manner that the top may expand and contract transversely without producing a warped or a cracked condition in the top.

To these and other ends, the invention consists of certain parts and combinations of parts all of which will be hereinafter described: the novel features being pointed out in the appended claims.

In the drawings:

Fig. 1 is a fragmentary under side view of a structure embodying the present invention;

Fig. 2 is a section on the line 2—2 Fig. 1;

Fig. 3 is a perspective view of one of the blocks which are secured to the under side of the pieces;

Fig. 4 is a perspective view of one of the anchoring cams;

Fig. 5 is a vertical section through another embodiment of the invention, in which, one of the pieces is in the form of a finishing strip;

Fig. 6 is a perspective view of a block designed for use with a finishing strip;

Fig. 7 is a fragmentary plan view of the form of the invention shown in Figs. 5 to 7 inclusive; and

Fig. 8 is a vertical section through another embodiment of the invention.

In both illustrated embodiments of the invention, 1 and 2 indicate two parallel angle iron pieces arranged so that a flange of each is in a plane with the other and extend outwardly with reference to the two spaced or parallel flanges. These angle irons may be supported at opposite ends by upright angle irons, 3 and 4, which are tied together in any suitable manner.

In the embodiment illustrated in Figs. 1 to 4, two boards or pieces 5 and 6, rest on the upper flanges of the support with abutting ends lying over the slot 7 between the flanges.

Arranged on the under side of each piece near the abutting ends and within the slot 7 is a block or casting 8 which is secured to its board or piece by screws 9 and which has laterally turned abutments 10 engaging in a groove 11 near the abutting end of each board or piece. Each block also has a bevelled or cam surface 12 on its outer side, the surfaces 12 on the two blocks converging downwardly or away from the pieces or boards. On the same side the block has a wall 13 for cooperating with the wall of the slot in the support. On its inner face the block has a lateral projection 14 forming a seat or rest for the nut 15 of a fastening bolt 16.

The fastening bolt is anchored in an anchoring member 17 having, in this instance, a central opening 18 through which the bolt 16 passes. This anchoring member also has two diverging cam surfaces 19 formed by the inner faces of two lugs 20 which project upwardly from the upper face of the member and which have outer faces 21 for cooperating with the inner faces of the depending flanges of the angle irons 1 and 2. Beyond the lugs the upper face of the anchoring member has upwardly turned ribs 22 which cooperate with the outer faces of the downwardly extending flanges of the angle irons 1 and 2, the edges of such flanges abutting the upper face of the anchoring member 17 between the lugs 20 and the ribs 22. As the bolt 16 is tightened, it draws the anchoring mem-

ber 17 upwardly and the boards 5 and 6 in firm engagement with the upper horizontal flanges of the angle irons. At the same time, the cam surfaces 19 of the anchoring member bear against the cam surfaces 12 on the blocks and draw the adjacent ends of the boards or pieces 5 and 6 into firm abutment. The fastening means lies within the longitudinal slot of the support, leaving the upper faces of the pieces free from any parts of the fastening devices and drawn into close abutment. The fastening device is operated entirely from the underside of the support. The anchoring member engages the flanges of the support in such a manner as to prevent the spreading or the drawing together of the flanges under the action of the fastening means.

The embodiment shown in Figs. 5 to 7 inclusive, is the same as that shown in Figs. 1 to 4, except that the bolt 16^a is arranged to be operated from the upper side of the boards or pieces 5 and 6^a. To this end the abutting ends of the boards or pieces 5 and 6^a are provided with registering grooves or notches to form a bolt opening between the abutting ends for the passage of the bolt 16^a which is anchored in the anchoring piece 17. The upper end of the bolt opening is countersunk to receive the head of the bolt which also acts to prevent lateral shifting of the abutting ends. In addition, one of the blocks 8 has a portion 23 projecting from one side thereof to fit within a pocket 24 formed in the underside of a piece 6^a and the projecting portion having a screw opening 25 through which a screw 26 is passed and said projecting portion resting on the upper flange of the angle iron 2. This projection 23 carries at its outer end on its under side a hook 27 which is adapted to engage about the free edge of the horizontal flange of the angle iron and to be drawn into such connection by the camming member 17. This construction is of particular advantage when the piece 6^a is in the form of a narrow finishing strip at one side of the structure unsupported at its other edge. The piece 5 is usually supported at its opposite edge as for instance, in abutting relation to another piece as shown in Fig. 1 or Fig. 5.

The embodiment illustrated by Fig. 8 is substantially the same as that shown in Figs. 1 to 4, except that one of the blocks 8 has a portion 23 projecting from one side thereof to fit within a pocket 24 formed in the underside of a piece 5*a*. This projecting portion 23, the same as a like projecting portion such as shown in Fig. 5, has a screw opening 25 through which a screw 26 is passed for securing the member 8 in place and said projecting portion 23 rests upon the upper flange of the angle iron 2. Also, as in the case of the structure of Figs. 5 to 7, this projecting portion 23 carries at its outer end on its underside a hook 27 which is adapted to engage the free edge of the longitudinal and horizontal flange of the angle iron to draw the latter into proper position in the connection by the camming member 17. The construction of this Fig. 8 particularly adapts the specific clamping arrangement of Figs. 1 to 4 for use when one of the pieces 5*a* is in the form of a narrow finishing strip at one side of the structure and which strip is unsupported at its outer edge.

What I claim as my invention and desire to secure by Letters Patent is:

1. The combination with a support embodying two horizontally extending angle iron pieces, each formed with an outwardly presented flange, and a downwardly presented flange, of two pieces resting on said outwardly extending flanges and abutting between the angle iron pieces, each piece having on its abutting portion a block depending into the space between the angle iron pieces, and an anchoring member cooperating with the depending flanges of the angle iron pieces and also with said blocks to draw the portions of the pieces together.

2. The combination with a support having a longitudinally extending opening, of two pieces resting on the support and each provided with a block arranged to lie in said longitudinally extending opening, and an anchoring member cooperating with the blocks of the two pieces to draw the pieces together, and cooperating with the side frame of the support to hold the connecting pieces to the support.

3. The combination with a support having two horizontally extending angle irons, each having a flange extending outwardly and lying in a horizontal plane with the flange of the other angle iron, of pieces abutting above the space between the angle iron pieces, two blocks secured adjacent the abutting portions of the two pieces depending into the space between the two angle irons and each provided with a camming surface, and an anchoring member connected to the two angle irons, and having camming surfaces cooperating with the camming surfaces on the two blocks to draw the two pieces together.

4. The combination with a support having a longitudinally extending slot, of two pieces abutting over said slot and each provided with a block formed with a shoulder and with a camming surface, an anchoring member engaging the support on opposite sides of the slot and having cam portions cooperating with the cam portions of the blocks, and a bolt seated on said shoulders of the blocks and also connected to the clamping member.

5. The combination with a support provided with a longitudinally extending slot, of a finishing strip resting on the support to one side of the slot and a piece abutting said finishing strip, two blocks, one secured to the

finishing strip and the other to the piece, one of said blocks having a hook for engaging the support, and an anchoring member cooperating with both of said blocks to draw the finishing strip and the piece together and the hook in connection with the support.

6. The combination with a support formed with two horizontally arranged angle pieces with flanges presented outwardly, of a finishing strip and a piece each resting upon the said flanges, two blocks, one secured to the piece and the other to the finishing strip, said last named block having a hook for engaging in an outwardly turned flange on the support, and an anchoring member cooperating with both of said blocks to draw the piece and the finishing strip together and the hook into connection with the support.

7. The combination of a support having a portion formed of two angle irons with horizontally extending flanges in the same plane, the horizontally extending flanges being presented outwardly and the vertical flanges being spaced apart, a piece resting on said support, one end of the piece having its edge lying over the slot between the angle iron pieces, a finishing strip having its edge in abutment with the aforementioned edge of the piece over the slot, a hook carried by the underside of the finishing strip and engaging the horizontally presented flange of one of the angle iron pieces, and means arranged within the slot and cooperating with the finishing strip to hold the hook of the latter in engagement with the flange and the edge of the finishing strip in abutment with the piece in the same plane therewith, and also engaging the support to hold the piece and the finishing strip to the support.

8. The combination with a support having a slot, of two members supported thereby in abutment, of two cams each rigidly secured to one of the supported members adjacent the abutting portions and projecting into the said slot, a movable cam member engaging the support and also both of said first mentioned cams, an adjustable means connecting the movable cam member with the two supported members to draw the last mentioned cam member into engagement with the cams on the supported members in order to hold the abutting members to the support and also to force the abutting portions of the two supported members into close engagement.

9. The combination with two pieces having notches in abutting portions, of blocks secured to said pieces adjacent their abutting ends, a support having a longitudinally extending slot receiving said blocks, an anchoring member engaging said support on opposite sides of said slots and also cooperating with said blocks, and a bolt passing through the notches of the abutting portions of the pieces and also through said clamping member.

10. The combination with a support having a slot, of two members supported thereby in abutment, of two cams each rigidly secured to one of the supported members adjacent the abutting portion and projecting into the said slot, a movable cam member engaging the support and also both of said first mentioned cams, an adjustable means connecting the movable cam member with the two supported members to draw the last mentioned cam member into engagement with the cams on the supported members in order to hold the abutting members to the support and also to force the abutting portions of the two supported members into close engagement, said adjustable means comprising a bolt connected with the movable cam member and extending between the abutting ends of the two supported members its head being exposed for operation, the said bolt serving to prevent the lateral shifting between the abutting ends.

11. The combination with a support having a longitudinally extending opening, of two pieces resting on the support and each provided with a block arranged to lie in said longitudinally extending opening, such block having a camming surface thereon, and an anchoring member cooperating with the camming surfaces on the two blocks to draw said pieces into abutment, said anchoring member also cooperating with the support on opposite sides of the longitudinally extending open slot to hold the pieces to the support.

12. The combination with a support having an opening, a piece resting on the support, and a finishing strip for the end of the piece, of an anchoring member abutting the support, means on the finishing strip and the piece engaged by such anchoring member for drawing the finishing strip and piece together, and an adjustable connection between the anchoring member and the piece and the finishing strip.

13. The combination with a support having a portion provided with a slot and two pieces resting on the support and having abutting ends positioned over the slot, of fastening means for securing the abutting ends in abutment and also securing said pieces to the support, said fastening means engaging the support, being arranged in the slot and engaging with the pieces between the side walls of the slot.

14. The combination with a supporting member provided with a slot, of two members supported by said supporting member and arranged in abutting relation over the slot, and fastening means holding said two members in abutting relation and also securing both members to the supporting member, said fastening means engaging the supported piece and being arranged in the slot and engaging both of the other members.

15. The combination with a supporting member having two outwardly extending

flanges and a slot between the flanges, of two abutting members supported on said supporting member with their points of abutment lying over said slot, a hook carried by the under side of one of said members and engaging one of the flanges, and means engaging the supporting member arranged within the slot and engaging both of said other members to draw the said abutting members into abutting relation and to hold the hook in engagement with one of the flanges.

16. The combination with a support having an opening, of two members supported on said support side by side, and a common fastening means for said members embodying two cam devices each projecting from one side of the support into the opening and an adjustable cam member lying in the opening and engaging the support on opposite sides of the opening and also the two cam devices on the supported members to draw the latter together.

17. The combination with a support formed of two angle iron pieces, a flange on one of said pieces being parallel and in a plane with a flange on the other piece, said angle irons being spaced apart to provide a slot, of a member for fastening a suitable device to said angle iron pieces comprising a bolt having connection with both pieces, and an anchoring plate through which the bolt passes, said anchoring plate abutting the aforesaid angle irons and having ribs at opposite ends for cooperation with the angle irons to prevent spreading between the angle irons.

18. The combination with a support embodying a pair of spaced members, of two members arranged so that each has a portion lying over the space between the spaced member, and securing means for the latter two members to the support embodying a member having a portion engaging the two spaced portions of the support to hold the two members against movement toward or from each other.

19. The combination with a support having a slot extending longitudinally thereof, of two pieces supported with adjacent portions over the slot in the support, said portions having abutments on their under ends, and fastening means for the adjacent portions operating in the slot and engaging said support for holding the under side of the adjacent portions of the pieces in adjacent positions.

20. The combination with a support provided with a slot, of two members resting on the support with their ends adjacent each other over the slot, abutting on the under ends of said members at the slot, and fastening means arranged in said slot engaging the support and connecting with the abutments on the under side of said members.

WALTER A. ADAMS.