R. C. SMITH.

DOVETAIL INTERLOCKING MEMBERS.

APPLICATION FILED SEPT. 4, 1915.

1,181,934. Patented May 2, 1916.

Fig. 1a

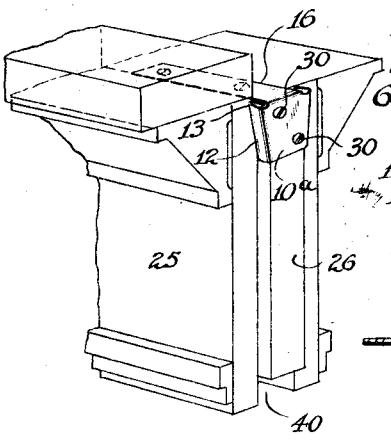


Fig. 4

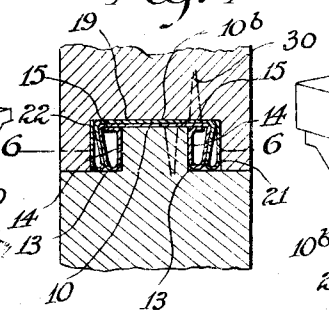


Fig. 1b

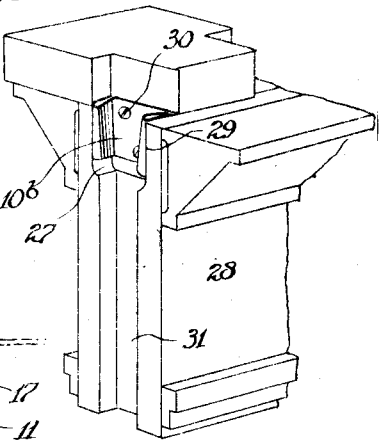


Fig. 5

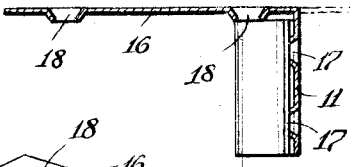


Fig. 2a

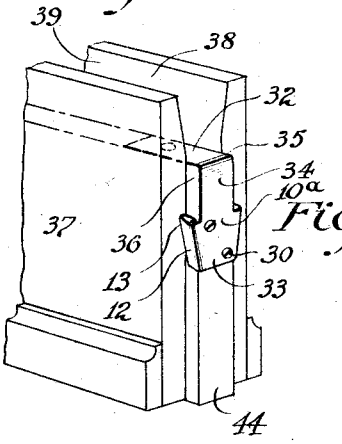


Fig. 1

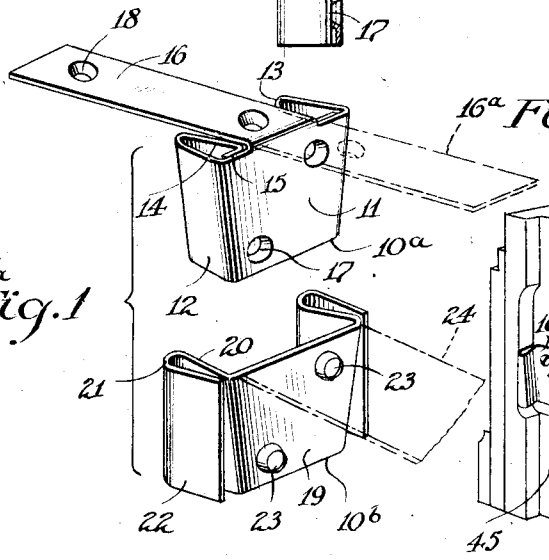


Fig. 2b

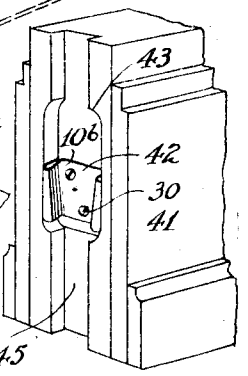


Fig. 6

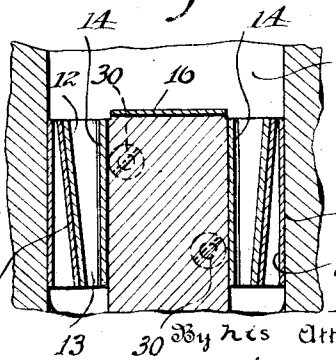


Fig. 3a

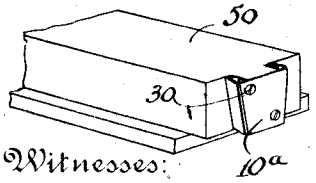
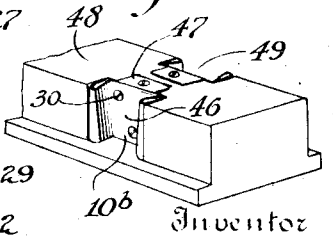


Fig. 3



Witnesses:

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Meyers, Cushman & Co

UNITED STATES PATENT OFFICE.

RAYBURN CLARK SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE UNIT CONSTRUCTION CO., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DOVETAIL INTERLOCKING MEMBERS.

1,181,934. Specification of Letters Patent. Patented May 2, 1916.

Application filed September 4, 1915. Serial No. 49,116.

To all whom it may concern:

Be it known that I, RAYBURN CLARK SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Dovetail Interlocking Members, of which the following is a specification.

This invention relates to builders' hardware, and particularly to such as used for forming interlocking connections. My interlocking members may be employed in practice for constructions of various kinds; for example, in constructing unit partitions, fixtures, cases, telephone booths, or other constructions involving the use of panels and posts, either or both made of wood, metal or other materials, the parts of which are preferably to be attached together without the use of special tools and without the use of fastenings such as screws, nails, glue, etc.

A principal object of the invention is to produce two very simply constructed members of complementary form which may be readily interlocked together.

A further object of the invention is to give such interlocking members a form which particularly adapts them for ready attachment to the parts which they are to connect together.

A further object of the invention is to give the interlocking members a construction in which the parts to which they attach fit into the members and operate to effect their proper alinement when attached in place.

A still further object of the invention is to provide a pair of complementary interlocking members, each of which is formed from a strip or sheet of plate metal stamped or bent to form, and wherein the interlocking portions of the said members are formed by folding or doubling the metal upon itself so that the said portions may yield slightly when the complementary members are brought into interlocking engagement, thus the members will not only fit close or snug, but there will also be what may be termed a yielding "intergrasping" connection between the members whereby a firm and substantial structure is provided.

Further objects of the invention will appear more fully hereinafter.

The invention consists in the general combination of parts and details hereinafter described, all of which contribute to produce efficient dove-tail interlocking members.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawing, Figure 1 is a perspective showing the two interlocking members in juxtaposition. Fig. 1[a] is a perspective illustrating one of the ways in which the tongue member may be attached to the part to which it corresponds. Fig. 1[b] is a view similar to Fig. 1[a] but illustrating the way in which the socket member shown in Fig. 1 may be employed in practice. Fig. 2[a] is a perspective showing a tongue member of a slightly modified form adapting it for use in connecting parts of a slightly different nature from that of the parts shown in Figs. 1[a] and 1[b]. Fig. 2[b] is a view similar to Fig. 2[a] but showing a socket member of slightly modified form from that shown in Fig. 1 and showing the same attached to a supporting part which is attachable to the supporting part shown in Fig. 2[a]. Fig. 3 is a perspective showing another slightly modified form of the tongue member adapting it to another specific relation in which it may be employed. Fig. 3[a] is a perspective showing a corresponding part attachable to the part shown in Fig. 3[a] and carrying socket members of a slightly modified form. Fig. 4 is a cross-section through two connected supporting parts which are attached together by means of my complementary interlocking members. Fig. 5 is a substantially vertical section taken through one of the complementary members. Fig. 6 is a vertical cross-section taken about on the line 6—6 of Fig. 4.

The interlocking members preferably comprise a tongue member 10[a] and a socket member 10[b]. These members 10[a] and 10[b] have a special form enabling them to interlock together and they are preferably constructed so that they may be very economi-

cally produced. To this end they are preferably formed of relatively long and narrow strips of plate material bent into the required form. This bending operation may be performed by means of dies which give considerable accuracy in the product, at the same time enabling the interlocking members to be produced at a very low cost. To this end the tongue member 10^a preferably consists of a body portion 11 in the form of a face plate and the side edges or end portions of this face plate are bent laterally from the plane of the plate 11 on transverse lines so as to form integral flange portions 12. The material which forms the oppositely disposed converging walls or flange portions 12 is then further bent upon itself by forming bends 13, and then extending the material toward the face plate 11 so that it presents integral leaves 14 which overlie and strengthen the flange portions; and the extreme ends of these leaves 14 may, if desired, be bent outwardly so as to form feet 15 which lie substantially against the inner face of the face plate, which face plate then forms an intermediate web connecting the converging walls.

Anticipating that it may be desired to attach the tongue member at a point where an angle is presented, I prefer to provide the same with an integral laterally extending wing plate 16 which lies in a plane substantially at right angles to the plane of the body portion 11.

The face plate 11 is preferably provided with means such as openings 17 for screws or other fastening devices, but the flange portions and leaves 14 are preferably devoid of any fastening means. Similar fastening means in the form of openings 18 may be formed in the wing plate 16.

The socket member 10^b has many features of similarity to the tongue member 10^a. It consists of a body portion or face plate 19, the side edges of which are bent so as to project laterally from the face plate and form flange portions 20 and these flange portions are formed with bends 21 beyond which the material extends forwardly again toward the face plate so as to form leaves 22 which overlie the flange portions. The face plate 19 is also preferably provided with means such as openings 23 which may receive fastening devices such as screws. The flange portions 20 and the leaves 22 are preferably devoid of any fastening means. If desired, the socket member may be provided with a wing plate 24 indicated in dotted lines, and furthermore, if desired, the wing plate 16 of the tongue member may be extended in the opposite direction so that it will occupy the position indicated at 16^a in Fig. 1.

I prefer that the flange portions 12 of the tongue member 10^a should converge toward each other in a longitudinal direction, and also in a transverse direction. By reason of the convergence in the longitudinal direction, the face plate 11 presents substantially the appearance of a "dove tail." By reason of the convergence in a transverse direction, the outline of the cross-section through the tongue member also presents the form of a "dove tail." However, I prefer that the leaves 14 should not converge but should lie substantially parallel with each other. The corresponding parts of the socket member 10^b converge and are similarly formed, that is, the face plate 19 should be of substantially "dove-tail" form and the cross-section through the socket member (see Fig. 4) should present the "dove-tail" form in outline, corresponding to and adapted to receive the tongue member. However, as in the case of the tongue member, I prefer that the leaves 22 should not converge, but should lie in substantially parallel planes. When the leaves of these members have a definite position or parallel relation such as described, they perform an important function in insuring the proper alinement of the two interlocking members when attaching them to their supports. For example, the tongue member may be attached to a construction part 25 of wood or other material having a tongue 26 which is received between the leaves of the tongue member 10^a. This tongue 26 should fit neatly into place with the parallel side faces of the tongue against the leaves 14; and this, of course, determines the proper alinement of the flange portions 12 which will then present a symmetrical relation with respect to the tongue 26. Similarly in applying the socket member 10^b, this member is preferably attached in a socket 27 formed in the construction part 28. The socket 27 is slightly enlarged and presents parallel side faces 29 against which rest the leaves 22 of the socket member. This, of course, determines the position of the socket member 10^b and insures that it will have proper alinement with respect to the tongue member 10^a. The positions of the interlocking members having been properly determined, they are secured in position by suitable attaching devices, such as screws 30 which are placed in the corresponding openings in the face plates. The socket 27 is preferably of enlarged width with respect to the groove 31 which is intended to receive and coöperate with the tongue 26.

The manner in which the leaves 22 lie against the forwardly extending side faces 29 of the socket 27 appears fully from Fig. 6. At the same time this view indicates the manner in which the flange portions 20 converge in a longitudinal direction. As a

further example of the adaptability of these interlocking members, to particular requirements, attention is called to Figs. 2[a] and 2[b], in which a wing plate 32 is provided corresponding to the wing plate 16 but it is not formed at the edge of the face plate 33 of the tongue member, but face plate 33 is formed with a shank or extension 34 lying in a plane with it and carried up so that a bend or dihedral angle 35 is formed in the plate to attach to an angle 36 formed in the construction part 37 to which the tongue member is attached. Such an adaptation of the interlocking member is desirable where the construction part has the form shown in 37 which may be used for a base rail. In such a construction it is desirable to depress the position of the tongue member so as to bring it as near as possible to the mid-height of the rail. Such a construction part or base rail 37 may be provided with upwardly extending sides 38 which form a groove 39 between them to receive the lower edge of a panel, the upper edge of which may be received in a corresponding channel 40 formed in the lower edge of the construction part 25 which may constitute a cap rail. The corresponding interlocking construction part 41 which is to be attached to the construction part 37 needs no particular description except to say that above the point of attachment to socket member 42, the enlarged socket 43 extends upwardly to give clearance for the tongue member when it is being placed over the socket member 42 before it is dropped into interlocking position. The construction part 37 may have a tongue 44 to which the face plate 33 is attached and this tongue member is received in the groove 45 in the face of the attachable part 41.

In some circumstances, it may be advisable to omit any wing plate such as the wing plate 16; for example, see Fig. 3[a]; and if desired, the wing plate may be formed upon the socket member instead, for example, see Fig. 3, where the socket member 46 is represented as having an integral wing plate 47 which is attached to the upper face of a construction part 48 which may constitute an overhead rail. Such an overhead rail may have a second socket 49 on the opposite side of the rail thereby enabling two construction parts 50 to be attached to a common rail 48, so as to extend in opposite directions.

Owing to the fact that my improved interlocking members are made from strips of sheet or plate metal stamped or bent to form and the further fact that the interlocking flange portions of the members are formed by folding or doubling the metal upon itself, it will be seen that the said flange members are slightly yieldable, hence when the two complementary members are brought into interlocking engagement they will not only fit neat and close, but there will also be what may be termed an "intergrasping" connection between the parts whereby a firm and substantial structure is provided. This I consider to be an important feature of the invention.

It is understood that the embodiment of the invention set forth herein is only one of the many embodiments or forms the invention may take, and I do not wish to be limited in the practice of the invention nor in my claims to the particular embodiment set forth. And I may use any feature of my invention without the other features.

What I claim is:

1. The combination with two members to be locked together, one of said members having a groove and the other a tongue, of a wedge shape male member having converging resilient side flanges embracing the opposite side walls of the tongue, and a female member seated in the groove and having converging resilient side flanges embraced by the side walls of the groove, the male and female members being adapted when brought into interlocking engagement to draw the tongue member tightly into the groove member.

2. The combination with two members to be locked together, one of said members having a groove and the other a tongue, of interlocking connections consisting of a male member having spaced side flanges embracing the opposite walls of the tongue, and the other a female member having spaced side flanges embraced by the side walls of the groove, the male and female members having converging yielding walls and adapted when brought into interlocking engagement to draw the tongue member tightly into the groove member.

3. An interlocking device comprising a sheet metal male member having converging side portions bent inward and then laterally outward to form yieldable flanges substantially triangular in horizontal cross-section, and a sheet metal female member having converging side flanges forming a groove for the reception of the male member, said side flanges of the female member having outturned leaf portions adapted to bear against abutting surfaces.

4. A dovetail interlocking joint member adapted to interlock with a complementary joint member, consisting of a body portion in the form of a face plate having integral flange portions extending therefrom and converging toward each other in a longitudinal and transverse direction, a supporting part receiving the said interlocking member, said face plate being attached to said supporting part, said supporting part having side faces, said flange portions having bends at their rear edges and having leaves ex-

tending in from the said bends projecting toward said face plate and lying against the said side flanges to aline said flange portions within the sockets.

5. An interlocking device comprising a sheet metal male member having converging side portions constituting yieldable flanges and a sheet metal female member having converging side flanges forming a groove for the reception of the male member, the side flanges of the female member having outturned portions adapted to bear against abutting surfaces.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RAYBURN CLARK SMITH.

Witnesses:

H. ALLEN DALBY,

FUENTES PHIPPS.