A. P. WHITE.

METALLIC STRUCTURE.

APPLICATION FILED NOV. 13, 1909.

1,180,810.

Patented Apr. 25, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

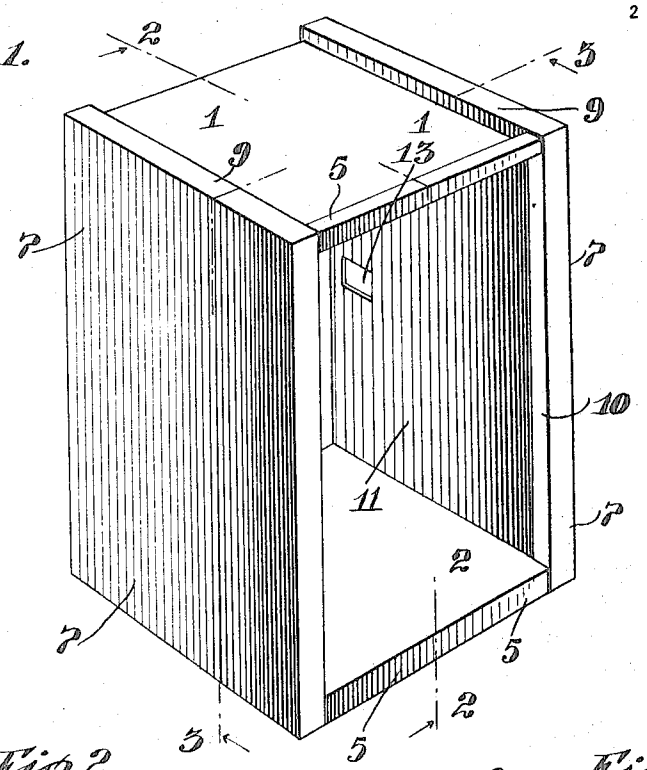


Fig. 2.

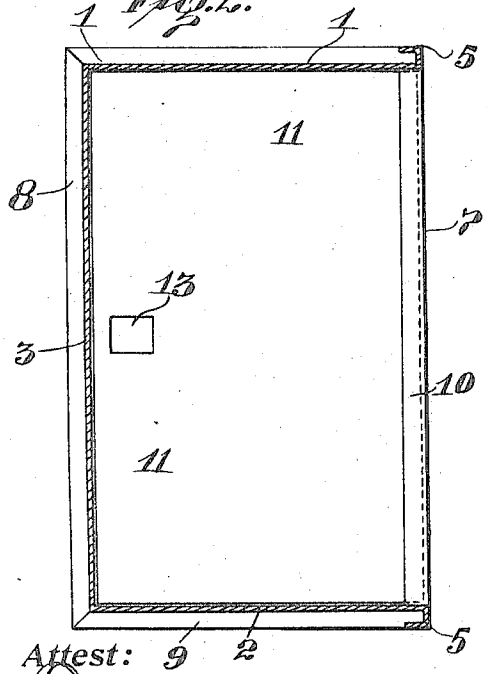
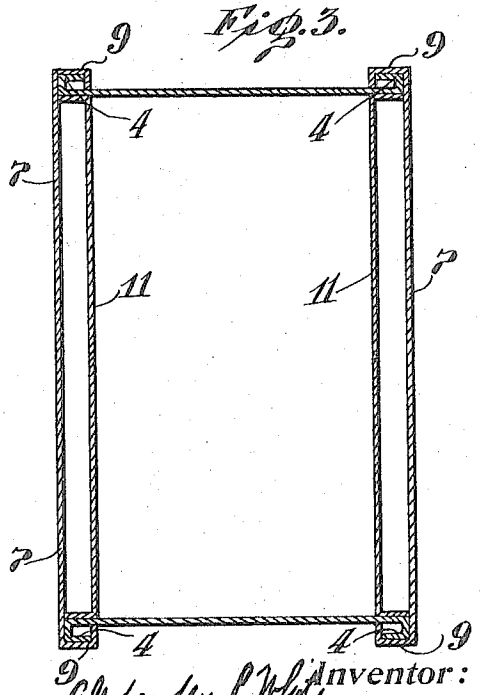


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

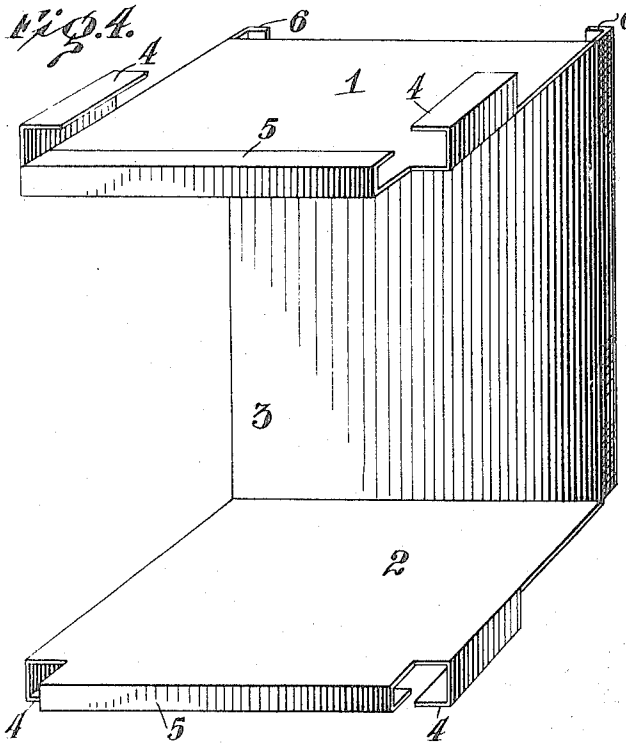


Fig. 8.

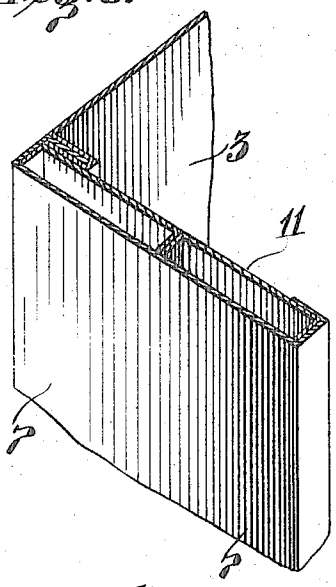


Fig. 6.

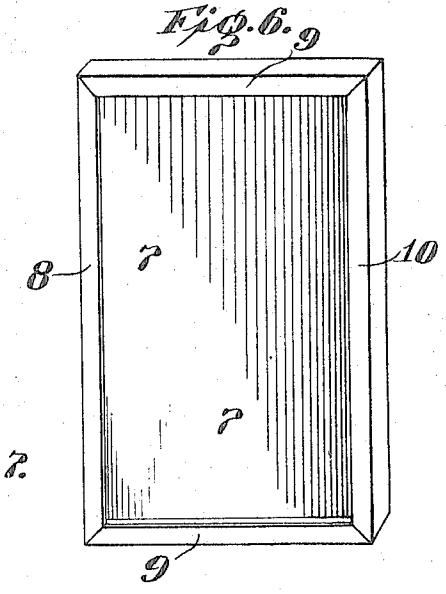


Fig. 5.

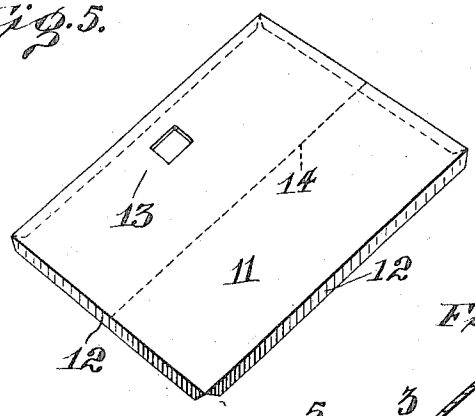
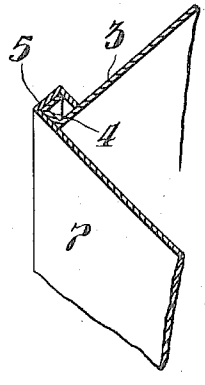


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALEXANDER P. WHITE, OF CALDWELL, NEW JERSEY, ASSIGNOR TO THE GENERAL FIREPROOFING COMPANY, A CORPORATION OF OHIO.

METALLIC STRUCTURE.

1,180,810. Specification of Letters Patent. Patented Apr. 25, 1916.

Application filed November 13, 1909. Serial No. 527,755.

To all whom it may concern:

Be it known that I, ALEXANDER P. WHITE, a citizen of the United States, residing in Caldwell, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Metallic Structures, of which the following is a specification.

My invention relates to metallic boxes, drawers, cases, cabinets, and the like, and particularly to metallic structures of this variety which are assembled and fastened together without the use of rivets or slots, and the object of my invention is to improve and cheapen the construction. The method of assembling and locking the parts together is so simple that the structures may be shipped in knock-down form and put together by the purchaser of user without requiring any particular skill or the use of special tools. I accomplish this object by providing the elements of the structure with flanges which may be interfitted when the structure is assembled and finally fixed in this position by key-pieces.

Referring to the accompanying drawings, Figure 1 is a perspective view of an assembled structure embodying my invention; Fig. 2 is a vertical section on the line 2—2 of Fig. 1; Fig. 3 is a vertical section on the line 3—3 of Fig. 1; Figs. 4, 5 and 6 are perspective views of the elements which are to be assembled; Fig. 7 is a detail view of the interfitting flanges; Fig. 8 shows a modification.

For convenience, the structure will be considered in the position shown in Fig. 1, so that the elements may be referred to as the top, bottom, back and sides. In carrying out the invention, a piece of metal is bent or formed into shape to constitute the top, bottom and back of the structure, these three elements being integrally united or merely hinged or otherwise joined together at their edges.

In the drawings (particularly Fig. 4) 1 is the top, 2 is the bottom, and 3 is the back. The top and the bottom are similar in construction, and each is provided with flanges 4, 4 bent as shown. Furthermore, the front edge of the top and bottom elements is turned back in the form of a flange 5, 5. This flange is merely for the purpose of giving finish and strength, but has no function in locking the parts. The back is provided with flanges 6, 6.

The sides are exactly alike, except that they are made right and left, and therefore I will confine myself to the description of the one shown in Fig. 6, in which 7 is the side proper, it being provided with a back flange 8 and top and bottom flanges 9, 9. It is also provided with a front flange 10, which, like the flange 5 on the top and bottom, is simply for finish and strength and does not interfit. In some cases only one side may be used.

The third element is a key-piece, shown in Fig. 5, which is a metal plate 11, having its edges 12 turned over so as to be in the form of a dish, and having an opening 13 into which any pointed instrument may be inserted for removing the key-piece after the structure has been assembled. This key-piece may be made in one piece of metal, or it may be made of two pieces which may be separate or hinged together along the dotted line 14. This key-piece is made of a size to fit snugly into position, and to facilitate this purpose the turned over edges 12, 12 may flare slightly so as to have a little spring.

In order to assemble the elements, the free ends of the top and bottom, that is to say, the flanges 5, 5, are forced toward each other sufficiently to allow the side or sides to be placed in position so that the flange 8 on the side interfits with the flange 6 on the back, and when the top and bottom are returned to their normal positions, the flanges 4, 4 will fit in back of the flanges 9, 9. The interfitting of these flanges prevents the sides from being pulled off, and they cannot slide back because the flange 10 abuts against the front edge of the top and bottom. So long, therefore, as the top and bottom are in their normal positions, the structure is securely locked, and the purpose of the key-piece is merely to prevent displacement of the top and bottom. Therefore, after the other elements have been assembled, the key-piece is forced into the position shown in Figs. 1 and 3, and if desired, a key-piece may be used on each side of the structure. This key-piece serves to further lock the sides against sliding back, because the over-turned edge 12 of the key-piece comes back of the flange 10 on the side 7.

In the modification shown in Fig. 8, the method of fastening the back and sides is somewhat different from that already de-

scribed, the difference being simply a matter of location and arrangement of the flanges, as will be readily seen, as the same numbers refer to the same parts as heretofore described, but with this arrangement of flanges, it is necessary to have the key-piece hinged or separated along the dotted line of Fig. 5, as it must pass under the flanges at both the front and the rear of the side 7.

Other forms of key-piece may be used without departing from the spirit of my invention, as I consider that my invention consists broadly in the use of flanges for connecting the sides to the top, bottom and back, in combination with a key-piece.

My metallic structure, the various parts of which are designed to interlock, and, when assembled, to comprise a rigid structure in which bolts and rivets need not be used to hold the parts together, possesses many advantages over structures heretofore in use because the wall members and frame being elastic and forced into severe frictional engagement, are under tension when they are in assembled position. When the wall members are thus tensionally held in position relative to the frame instead of being secured by rivets, bolts or like devices, the structure when assembled, is exceedingly rigid, and all strains to which it may be subjected in use will be distributed throughout the entire structure. While I prefer to make the frame in a continuous sheet, it is possible to so connect the walls when made separately as to secure sufficient tension and elasticity to serve, though less satisfactorily, the purposes of the invention. The parts are so shaped and arranged as to adjust themselves to slight variations in their dimensions, thereby avoiding the necessity of having the parts made to an accurate fit.

The device is so constructed as to enable it to be readily assembled by unskilled labor and at a very low cost. The manner in which the parts of my structure are held together by tensional and frictional engagement, enables it to be used to great advantage in fireproof cabinets and safes, and it possesses many advantages over such structures as are held together by bolts and rivets, for, in these latter, the bolts and rivets are apt to be sheared off by the expansion of metal when the cabinet or safe is subjected to extreme heat.

Having described my invention, what I claim is:

1. A metallic structure, comprising in combination a frame of sheet metal provided with interlocking flanges, wall members provided with flanges adapted to interlock with the flanges on the frame, and means for locking said wall members in position in said frame.

2. A metallic structure, comprising in combination a frame of sheet metal having a plurality of sides, each of which forms one of the walls of the structure, interlocking flanges on said frame, wall members provided with flanges adapted to interlock with the flanges on the frame, and means for locking said wall members in position in said frame.

3. A metallic structure comprising in combination a frame with a plurality of sides, each of which forms one of the walls of the structure, wall members adapted to fit into said frame and having a tension engagement with said frame, and a locking wall member constituting means for locking the other wall members in the frame.

4. A metallic structure comprising in combination a frame with a plurality of sides, each of which forms one of the walls of the structure, wall members adapted to fit into said frame, said wall members having a tension engagement with said frame, and a locking wall member constituting means for locking the other wall members in the frame, and means for locking said locking wall member in position in the structure.

5. A metallic structure comprising in combination a frame of sheet metal having a plurality of sides, each side forming one of the exterior walls of the structure, flanges on said frame, a plurality of sheet metal wall members adapted to fit into said frame, flanges on said wall members adapted to contact with flanges on the frame and to be under tension when said wall members are forced into the frame, and a locking wall member constituting means for locking the other wall members in position in the frame.

6. A metallic structure comprising in combination a frame of sheet metal having a plurality of sides, each side forming one of the outer walls of the structure, flanges on said frame, a plurality of sheet metal wall members adapted to fit into said frame, flanges on said wall members adapted to contact with flanges on the frame and to be under tension when said wall members are forced into the frame, a locking wall member constituting means for locking the other wall members in position in the frame, and flanges on said locking wall member adapted to contact with other wall members under tension.

7. A metallic structure comprising in combination a frame of sheet metal having a plurality of sides, each side forming one of the outer walls of the structure, flanges on said frame, a plurality of sheet metal wall members adapted to fit into said frame, flanges on said wall members adapted to contact with flanges on the frame and to be under tension when said wall members are forced into the frame, and a locking wall member constituting means for locking the other wall members in position in the frame,

flanges on said locking wall member adapted to contact with other wall members under tension and means for locking said locking wall member in position in the structure.

8. A metallic structure comprising in combination a frame of sheet metal provided with interlocking flanges, wall members provided with flanges adapted to interlock with the flanges on the frame and a wall member constituting means for locking the other wall members in position in the frame.

9. A metallic structure comprising in combination a frame of sheet metal having a plurality of sides, each of which forms one of the walls of the structure, interlocking flanges on said frame, wall members provided with flanges adapted to interlock with the flanges on the frame, and a wall member constituting means for locking the other wall members in position in the frame.

10. A metallic structure comprising in combination a frame of sheet metal having a plurality of sides, each side forming one of the walls of the structure, flanges on said frame, a plurality of sheet metal wall members adapted to fit into said frame, flanges on said wall members adapted to contact with flanges on the frame and to be under tension when said wall members are forced into the frame, and means for locking said wall members in position in the frame.

11. A metallic structure the various parts of which are designed to interlock and when assembled to form a rigid structure without the aid of bolts, rivets, or the like, comprising in combination a sheet metal frame having a plurality of sides, made from a continuous piece of sheet metal, each of which forms one of the walls of the structure, interlocking or interfitting flanges on said frame, wall members provided with interlocking or interfitting flanges adapted to interlock with the flanges of the frame when forced under tension into their positions relative to the frame, and locking means for maintaining the integrity of the structure.

12. A sheet metal cabinet safe the various parts of which are interlocked with each other in such a manner that the walls of the completed structure are held under tension without the aid of bolts, rivets, or the like, comprising a frame made from a continuous piece of sheet metal, interlocking flanges on said frame, wall members provided with interlocking flanges adapted to interlock with the flanges of the frame when forced under tension relative thereto and a locking member for maintaining the integrity of the structure.

13. A sheet metal cabinet the elements of which are held in their relative positions without the aid of bolts, rivets, or the like, comprising a frame with a plurality of flanged sides each side forming one of the walls of the structure, flanged wall members, the flanges of which are designed to engage the flanges of the frame when forced under tension relative to each other and a locking member or key-piece for maintaining the integrity of the structure.

14. A metallic structure comprising in combination an elastic frame of sheet metal provided with interlocking flanges, elastic sheet metal wall members provided with flanges adapted to interlock with the flanges of the frame and means for locking said wall members in position relative to the frame.

15. A metallic cabinet or similar structure the elements of which are designed to interlock under frictional tension and when assembled to constitute a rigid structure, comprising a frame with a plurality of flanged sides, each side forming one of the walls of the cabinet, wall members provided with flanges adapted to interlock with the flanges of the frame when forced under tension into their intended relative positions and a locking member or key-piece for maintaining the integrity of the structure.

16. A metal cabinet or similar structure comprising in combination a back and a top and bottom member, each of which is provided with flanges, and so arranged that the top and bottom member may be moved toward each other to receive wall members, flanged wall members adapted to engage the flanges of the back member and the flanges of the top and bottom member when they are so forced to their normal position in such a way that the back, top and bottom wall members are held under frictional tensional engagement, key-pieces forming inner walls of the structure for locking the back, top and bottom and wall members against displacement under abnormal strains, means for holding the key-pieces against displacement, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALEXANDER P. WHITE.

Witnesses:

GERTRUDE W. MARTLING,

OLIVE B. KING.