Nov. 22, 1966 W. T. SCHEMBRI 3,286,405

ACCESS DOOR

Filed May 14, 1964

FIG. 1.

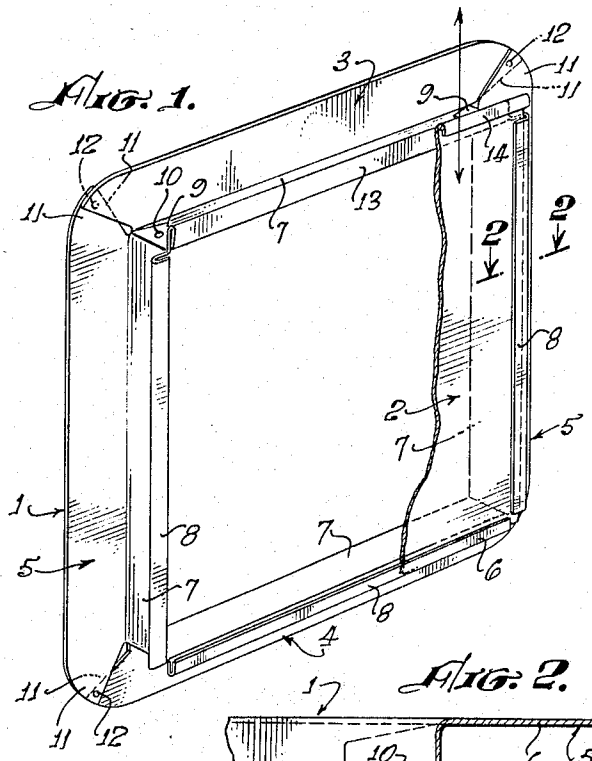


FIG. 3.

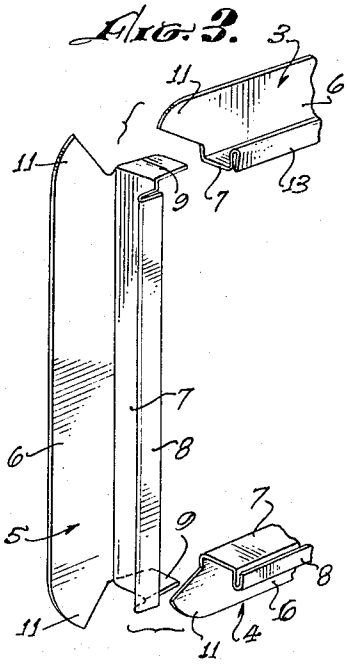


FIG. 2.

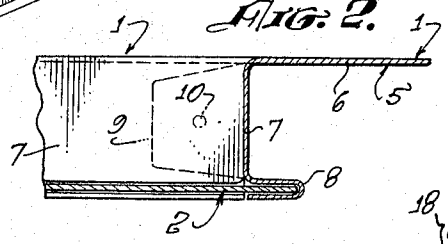


FIG. 4.

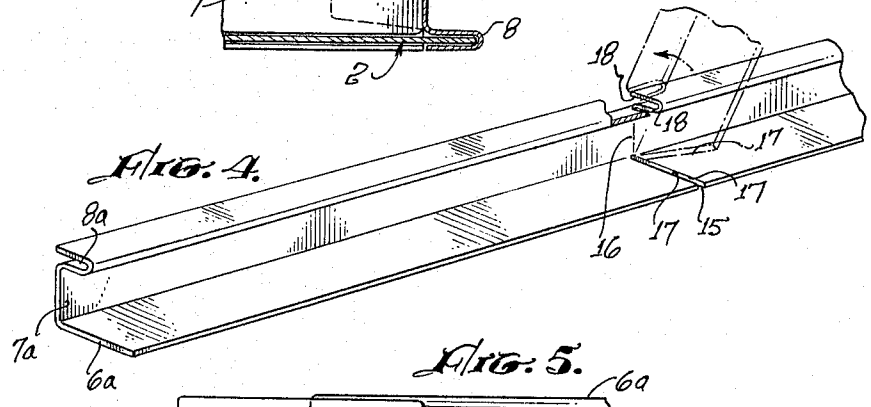
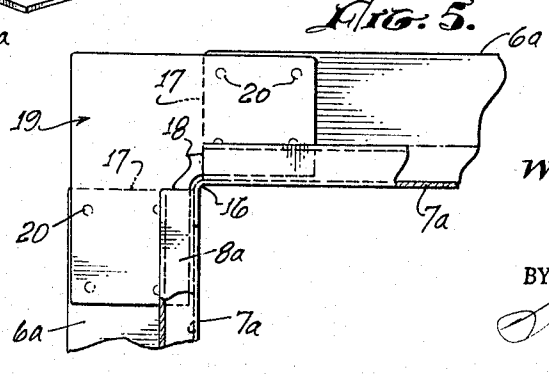


FIG. 5.



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ACCESS DOOR

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This invention relates to building construction and more particularly to a construction of an access door means.

The principal objects of the invention are to provide a sheet metal access door means for use in building and other construction characterized by simplicity of configuration, adaptable to economical manufacture in a wide range of sizes with inexpensive tooling, and which involves an especially economical use of metal.

With the foregoing objects in view, together with such additional objects and advantages as may subsequently appear, the invention resides in the parts and in the construction, combination and arrangement of parts described, by way of example, in the following specification of certain presently preferred embodiments of the invention, reference being had to the accompanying drawings which form a part of said specification and in which drawings:

FIG. 1 is a perspective front view of an access door assembly constituting one presently preferred embodiment of the invention, a portion of the door component of the assembly being broken away to disclose other details of construction,

FIG. 2 is an enlarged fragmentary sectional view taken on the line 2—2 of FIG. 1,

FIG. 3 is a fragmentary, perspective, exploded view of certain of the frame components of the first embodiment of the invention prior to the assembly thereof to form the frame component,

FIG. 4 is a fragmentary, perspective view of a component for forming a frame of the second embodiment of the invention, a portion being broken away for clearness of illustration, and

FIG. 5 is an enlarged front view of a corner of a frame component employing the structural element shown in FIG. 4.

Referring to FIGS. 1, 2 and 3, the illustrated embodiment comprises a frame component **1** and a door component **2**. Having reference to FIG. 1, for convenience in identification only of the parts, the frame comprises a top member **3**, a bottom member **4** which, except for a slight difference to be hereinafter noted, is identical with the top member, and two side members **5**, **5** which are identical to each other. The members are connected together in any suitable manner preferably by welding, soldering or riveting to form the rectangular frame component which when thus assembled constitutes a mounting flange **6**, an outwardly projecting portion **7**, and door receiving groove or channel means **8**. The frame components are generally identical in cross section including the mounting flange portion **6**, the body portion **7** projecting at right angles therefrom and the door receiving groove portion **8** formed by bending the metal at right angles to the body portion **7** to overhang the mounting flange and then bending it forward in a narrow return bend to form the groove. The means for connecting the frame members together comprise tongue portions **9** formed as extensions of the body portion **7** of the side members **5**, **5** which are bent at right angles to the length of the member to overlie the body portion **7** of the top and bottom members **3** and **4** to which the said tongue portions are secured by welds **10**, or any other appropriate means. Additionally, the ends **11** of the mounting flange portions of the frame members are beveled at angles slightly less than 45° to the length of the respective members so that they overlap each other to be secured

together as by welds **12**. The frame is completed by collapsing the return bend portion of the top member **3** as at **13** to allow the door component to move past it as shown in the upper right hand corner of FIG. 1.

The door component **2** is a rectangular sheet of metal or plastic which is slidingly guided in the groove portions of the side members **5**, **5** and having the lower edge thereof received in the groove portion **8** of the bottom member **4**. Any convenient handle means for grasping the door for manipulation thereof may be employed as, for example, the rebent top edge **14**.

While in the illustrated embodiment the door is shown as movable vertically it is obvious that the door receiving grooves might be arranged to allow the door to move sidewise. To achieve this, the door receiving groove portion **8** of one of the side members would be collapsed to allow the door to move past it and the corresponding groove **8** of the top member **3** would be left in its original condition. Alternatively, the frame component shown in FIG. 1 might be rotated a quarter turn from the position shown in that figure. It is particularly to be noted that there is a very slight waste of material in the formation of the frame component and no waste of material whatever in the formation of the door component. The only waste of material would be the material lost through the configuration of the ends of the frame members. Moreover, while special tooling may be more efficient, the various bends in the frame members are those which can be readily formed with standard bending tools found in any sheet metal shop and thus, the entire door assembly is one which can be produced with the utmost economy.

Finally referring to FIGS. 4 and 5, there is shown a modification of the invention in which the frame component is proposed to be formed from lengths of suitably rolled material having the same cross sectional configuration as the frame components of the first embodiment of the invention. Since these portions are identical, they will be identified as mounting flange **6***a*, body portion **7***a* and door receiving groove portion **8***a*. To form a frame component for the door **2**, a suitable length of this rolled material is first cut to the combined length of the body portion defining the opening. Thereafter, at the points representing the corners of the frame, sawcuts **15** through the mounting flange and the rebent portions are made and the length of material is thereafter bent into the rectangular form by bends formed through the body portion **7***a* as at **16**. This, of course, brings the edges of the sawcut **16** apart from each other as shown at **17** in FIG. 5 and the edges of the groove portion **8***a* apart from each other at right angles as shown at **18**. The ends of the frame component forming member are united and the corners thus formed are both located at right angles to each other and reinforced by L-shaped plates **19** welded or otherwise secured thereto as indicated at **20** in FIG. 5. Alternatively, the frame component forming member instead of being partially cut through as indicated at **16** can be completely separated into the appropriate lengths to form the desired frame and the ends of the members connected together in right angle relationship by the L-shaped members **19** as shown in FIG. 5. When the frame is formed, the appropriate one of the rebent portions can be flattened to provide clearance for the door component to slide past it as in the first embodiment. This second embodiment of the invention is particularly useful for providing access door assemblies of non-standard sizes or for those occasions when the assembly must be formed at the site of installation. For such use, the frame forming components can be furnished in long lengths and can be readily cut to lengths and notched and assembled on the job since the corner or angle plates **19** will serve to hold the sides of the frame thus formed at right angles

to each other as an incident to welding or otherwise securing the frame. Also, the door component can readily be cut from sheet material on the job.

While in the foregoing specification there have been disclosed certain presently preferred embodiments of the invention, the invention is not to be deemed to be limited to the precise details of construction thus disclosed by way of example and it will be understood that the invention includes as well, all such changes and modifications in the parts and in the construction, combination and arrangement of parts as shall come within the purview of the appended claims.

I claim:

1. An access door assembly comprising a door component formed of a rectangular sheet of metal and including an end edge portion, a pair of parallel side edge portions, and a handle portion constituting the edge opposite said end edge portion, and a sheet metal frame component of complementary rectangular configuration and comprising parallel side and end members of identical cross sectional configuration including a mounting flange portion, a body portion projecting outwardly at right angles to the plane of said mounting flange portion and a rebent edge portion constituting a door edge receiving groove disposed in a plane parallel to said mounting flange portion with the open side of said groove disposed at the inner peripheral surface of said body portion; said side edges of said door component being slidably received in two parallel ones of said door edge receiving grooves and said end edge of said door component being received in another of said door edge receiving grooves, said groove portion opposite said door end edge receiving groove being collapsed to afford clearance for movement of said door in said grooves in which it is slidably received, and said handle portion of said door being disposed at the side of said door component remote from said mounting flange portion of said frame component.

2. An access door assembly as claimed in claim 1 in which said frame component is formed from four side forming members which are interconnected at the ends thereof to form said frame component.

3. An access door assembly as claimed in claim 1 in which said frame component is formed from four separate members, of identical cross section welded together at the ends thereof and in which the mounting flange portions of said members are shaped to overlap at the corners of said frame component affording means for connecting the mounting flange portions of said frame component together by welding said overlapping portions together.

4. An access door assembly as claimed in claim 1 in which at least two sides of said frame component are formed from a length of sheet metal having said cross sectional configuration and being bent at right angles through and transversely of the body portion only thereof to form a corner of said frame assembly.

5. An access door assembly as claimed in claim 3 in which certain of said members include tongue portions constituting extensions of the body portions thereof which overlie and are welded to the body portions of adjacent ones of said members.

6. An access door assembly as claimed in claim 4 in which said corners of said frame component are each reinforced and positioned by an L-shaped corner member welded to the mounting flanges of the portions of said length of sheet metal which form the sides of said frame component extending from said bend in said body portion.

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