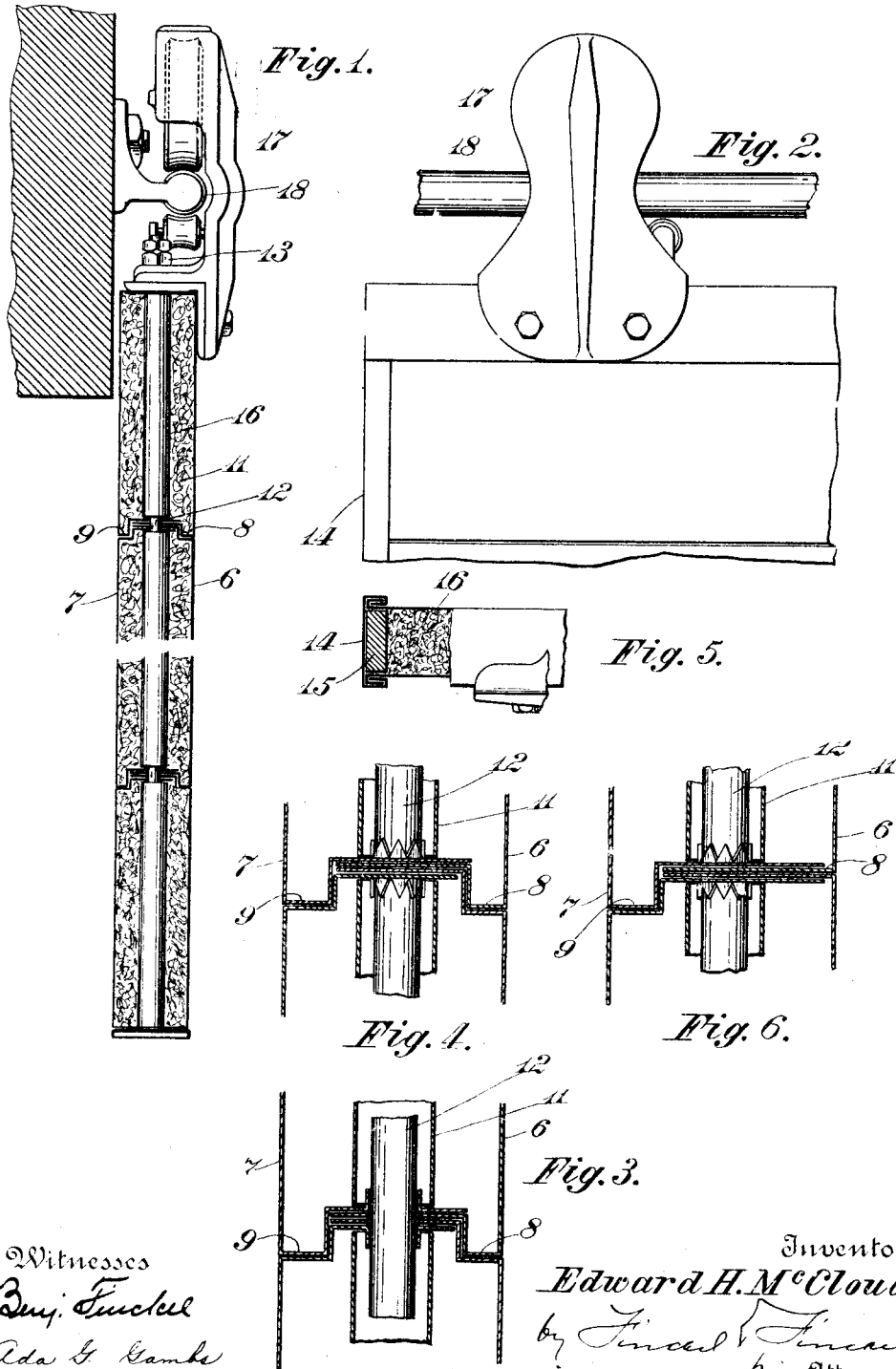


E. H. McCLOUD.
FIREPROOF DOOR OR SHUTTER.
APPLICATION FILED OCT. 21, 1908.

1,034,812.

Patented Aug. 6, 1912.



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UNITED STATES PATENT OFFICE.

EDWARD H. McCLOUD, OF COLUMBUS, OHIO.

FIREPROOF DOOR OR SHUTTER.

1,034,812.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed October 21, 1908. Serial No. 458,794.

To all whom it may concern:

Be it known that I, EDWARD H. McCLOUD, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Fireproof Doors or Shutters, of which the following is a specification.

The object of this invention is to provide an improved fire resisting door or shutter of the filled type.

The invention is embodied in the construction herein shown and described and then particularly pointed out in the claims.

In the accompanying drawings—Figure 1 is a vertical section of the door with a portion broken out about midway its height. Fig. 2 is a view in elevation of a corner of the door. Fig. 3 is a vertical section on the line of the axis of the tie rod exhibiting interior construction. Fig. 4 is a vertical sectional view taken on a plane somewhat removed from the axis of the tie rod. Fig. 5 is a plan view of the corner of the door or shutter at its end with a part of the metal removed. Fig. 6 is a section like Fig. 4 of a modification.

The door is made up largely of sections or tubes of sheet metal of oblong form generally in cross section. Referring to Figs. 1, 2, and 4, the main body of the section comprises two strips 6 and 7 of sheet metal, each having its longitudinal margins 8 and 9 bent first inward then upward and then inward to form a step-like projection from the side of the strip, so that when two of the strips are placed with their inner sides facing each other the margins lap and the section has a tongue at its upper edge and a groove at its lower edge. The sections thus constructed are united to form the shutter by inserting the tongue of one in the groove of the other, which insures a closed joint between the sections and prevents the formation of gaps for the passage of flame when the structure is subjected to high heat. Both the margins are perforated. The perforation of the inner margin 9 is formed by making a number of equal radiating slits and bending up the teeth thus formed. The margin 9, in the instance shown forms a seat for the end of the tube 11. The tube 11 extends from edge to edge of the section and internally braces it. The tubes 11 are held from dislodgment and in line by the serrations, and said tubes are so located in

the several sections that when the sections are properly placed together, edge to edge, they aline and form a continuous passage. Through this passage is passed a long bolt or rod 12 that unites all the sections to form the body of the door or shutter, and said bolt is secured by a nut 13 turned tightly down on its threaded end. The number of passages and bolts or rods 12 employed in a door or shutter may be varied according to the width of the door or shutter. At the upper and lower ends of the door or shutter the margins are themselves unbent and merely lap as shown, but said ends can be suitably reinforced by added strips if desired.

The vertical edges of the door or shutter as a unit, or the ends of the several sections separately can be closed by a strip 14 suitably secured thereto, as by seaming, as shown in Fig. 5. The vertical edges may also, as shown, be strengthened or reinforced by inserting a metallic bar 15 extending the entire length of the structure, the aforesaid margins at the ends of the sections being removed to permit this.

It is desirable that the sections be filled with a suitable fire-resisting material, or a poor conductor or radiator of heat as indicated at 16. The material 16 can be put in before the vertical edges of the structure are closed.

The door or shutter as thus constructed can be mounted for closing the opening of a building in any desired way. The instance of mounting shown consists of a hanger bracket 17 in which are mounted suitable rollers for suspending and guiding the door or shutter on a suitable track 18 secured to the building.

In Fig. 6 the construction is the same except that one of the strips constituting one side of the section is provided with margins that are not twice bent or step-like, but are left plain, but perforated, and standing at right angles to the body or central portion of the strip. This latter construction forms in effect a tongue and groove on the section but not so efficient perhaps in its effect. The construction of the shutter of sections thus formed can be otherwise the same as already set forth.

It will be observed that in both forms shown the margins 8 at one side of the structure are inserted between the margins 9 at the opposite side. This construction

prevents the formation of open gaps should buckling draw up the metal of the sides.

In applications for patent of the United States filed concurrently herewith Serial Numbers 458,791—458,792 and 458,793, I have claimed other matters herein shown and described.

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

10 1. A fire resisting door or shutter comprised mainly of sections placed edge to edge in a plane, each section consisting of two strips of sheet metal having their margins similarly bent to form a step-like projection and said margins being in lapped
15 relation to each other across the edge of the section so as to lie between the sections and provided with perforations, said margins also forming at one edge of the section a tongue and at the other a groove, and means
20 passed through said margins in the plane of the structure for securing the margins and the sections together.

25 2. A fire resisting door or shutter comprised mainly of sections placed edge to edge in a plane, said sections each including an inclosing shell of sheet metal having margins terminating between the contiguous
30 edges of the sections, the margins on one section parallelly bent together to form a tongue and the margins on the other parallelly bent to form a groove to receive the aforesaid tongue and means passed through
35 said margins to secure them and the sections together.

3. A fire resisting door or shutter comprised mainly of sections placed edge to edge in a plane, said sections each including an inclosing shell of sheet metal having margins terminating between the contiguous
40 edges of the sections the margins on one section parallelly bent together to form a tongue and the margins on the other parallelly bent to form a groove to receive the aforesaid tongue, the margins of one section
45 being interposed between the margins of the other and means passed through said margins to hold them and the sections together.

4. A fire resisting door or shutter comprised of sections of sheet metal bent to form hollow tubes open at their ends, a strip
50 of sheet metal secured to said sections at their ends to close the same, a bar extending through the sections near their ends to stiffen the shutter or door at its edge, and
55 means for tying the sections together.

5. In a fire resisting door or shutter, a plurality of sections placed edge to edge, the metal of each section bent to tubular or hollow form and with inwardly extending
60 margins at the meeting edges of the sections the two margins extending from one side of the shutter lying between the margins of the opposite side, and means extending through
65 the sections for binding the sections together.

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