Feb. 19, 1924. 1,484,070

W. E. MAST

METAL STRUCTURAL MEMBER

Filed May 9, 1923

Fig. 1.

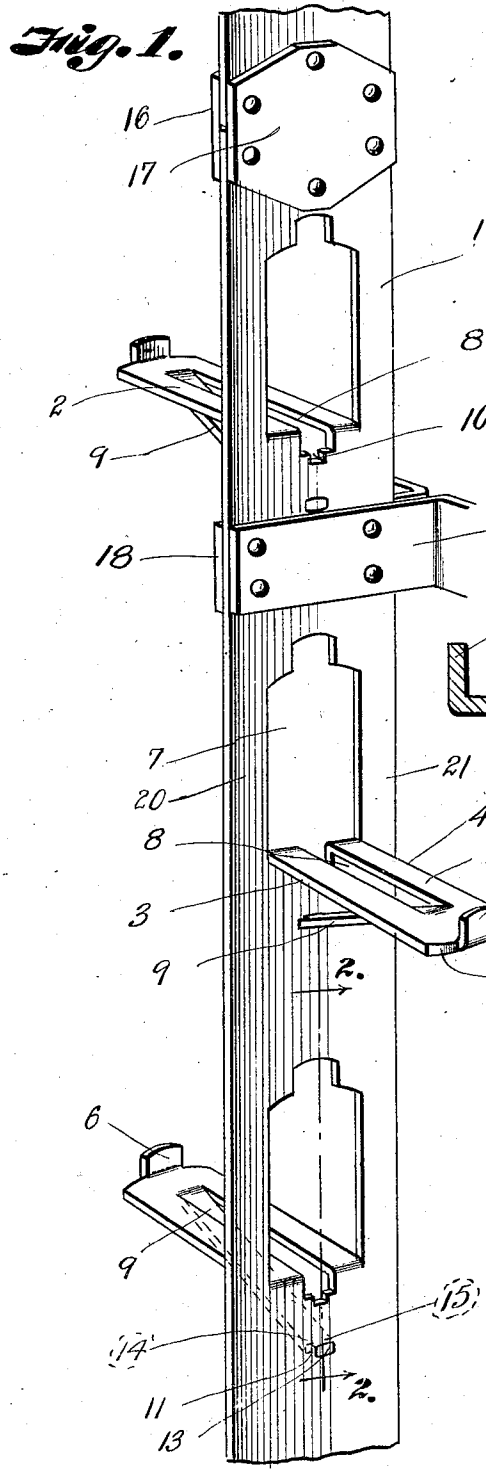
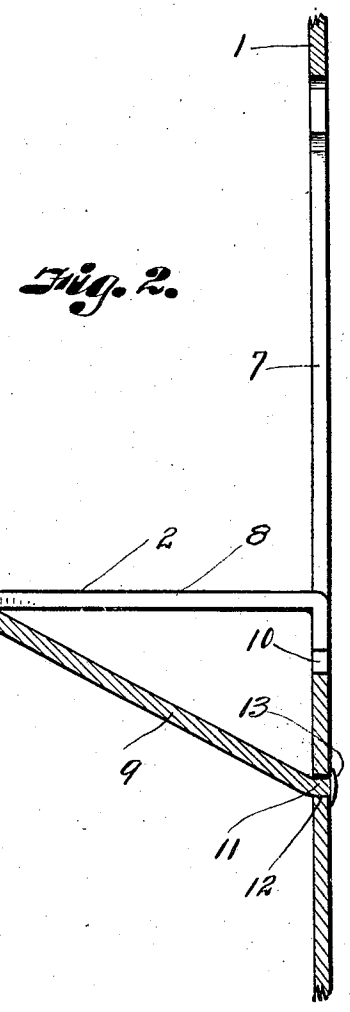


Fig. 2.



INVENTOR
William E. Mast
BY Munn & Co.
ATTORNEY

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UNITED STATES PATENT OFFICE.

WILLIAM E. MAST, OF KANSAS CITY, MISSOURI.

METAL STRUCTURAL MEMBER.

Application filed May 9, 1923. Serial No. 637,700.

To all whom it may concern:

Be it known that I, WILLIAM E. MAST, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Metal Structural Members; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to metal structural members and particularly to a metal structural member adapted for a multiplicity of uses. The invention comprehends a relatively thin sheet of metal from which may be struck an outstanding step member, appropriately placed with respect to the sheet from which it is struck having a brace, the brace, the step member, and the sheet being integral, and while the invention is primarily intended for use as a ladder, it is capable of serving as a bracket or rest for supporting beams, shelves, or the like. I, therefore, do not wish to be limited to any particular application of my invention, and I would have it understood that by relatively thin sheet I contemplate any thickness of metal capable of having the step member struck therefrom.

The novel construction of the invention will be apparent by reference to the following description in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a sheet or strip from which the steps have been struck in accordance with my invention, and Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Referring now to the drawings by numerals of reference, 1 designates a sheet or strip of appropriate dimensions from which the step members 2 are struck. The step members are formed by punching or shearing two longitudinal side edges, 3 and 4, and a transverse end member, 5, the transverse end member preferably having a lug or projecting portion 6 formed thereon. The opposite end of the step member forms a connection between the step member and the sheet or strip 1 so that the step member can be bent outwardly away from the orifice 7 formed by bending the step member outwardly. A slot 8 is formed longitudinally of the step member 2 to provide a diagonal brace, 9, the free end of which consists of metal removed from the sheet beyond the attached end of the step member, providing a reduced portion 10 of the slot 8 and a tongue 11 of less width than the brace member 9, so that when the tongue is introduced into the opening 12 in the sheet or strip, it can be riveted by upstanding the end to provide the head 13. The shoulders 14 and 15 at the end of the brace 9 bear against one face of the sheet or strip, the head 13 forming a rigid connection with the sheet or strip. Consequently, the strip member is rigidly fastened or braced with respect to the sheet or strip of metal from which it is struck. The end lug or projection 6 acts as a stop to prevent slipping of the object resting upon the step.

In one aspect of my invention, I may bend the step members outwardly in alternately opposite directions to provide right and left step members for the purpose of forming a ladder. In that event, the device will be constructed from strips or sheets of appropriate length which may be fastened together by splice plates, 16 and 17, or other appropriate connections, it being observed that any number of strips may be fastened end to end to provide the requisite length, and if the ladder is relatively long, sections will be braced with suitable brackets as indicated at 18 and 19, Fig. 1.

If the device is to be used as a bracket for supporting shelves, scaffolding, or the like, the step may be cut at one length so that only one step member will be provided at each length of the strip, and it will be apparent that other obvious modifications will be made without departing from the spirit of the invention.

It is to be observed that the step member and its brace may be punched or struck out from the sheet of metal without waste, the only unused part of the strip being that struck out to form the hole 12 for the rivet end 11.

As above indicated, I do not wish to be limited to any particular use of the invention, although it is primarily intended as a ladder to provide an inexpensive fire escape or an inexpensive ladder for the interior of buildings, ships, for the outside of large tanks, about machinery, and, in fact, anywhere where an inexpensive means is desirable and where space is a factor, it being

obvious, if used as a ladder, that the device will take up comparatively little room. The portions 20 and 21, constituting the side bars of the opening 7, will constitute hand holds to assist in the ascent and the descent of the ladder.

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

1. A metal structural member consisting of a sheet of metal having an outstanding step member struck therefrom, the outstanding step member having a diagonal brace struck from it, provided on its end with a means for fastening it to the sheet.

2. A metal structural member comprising a sheet having an outstanding step member struck therefrom with an upstanding lug on its end and a diagonal brace integral with the step and engaging the sheet.

3. A metal structural member comprising an elongated sheet, having outstanding step members on opposite sides in alternate relation, the step members being struck from the sheet, and a brace between the ends of the step members and the sheet.

4. A metal structural member comprising an elongated sheet having outstanding step members struck therefrom and arranged in alternate relation on opposite sides of the sheet, and upstanding lugs on the ends of the step members, the side bars of the respective openings resulting from the struck-out step members constituting hand holds.

5. A metal structural member comprising a sheet having step member struck therefrom, one end of the step member being integral with the sheet, a brace struck from the step member, the brace being integral with the step member and having a constricted end rigidly secured to the sheet.

In testimony whereof I affix my signature.

WILLIAM E. MAST.