

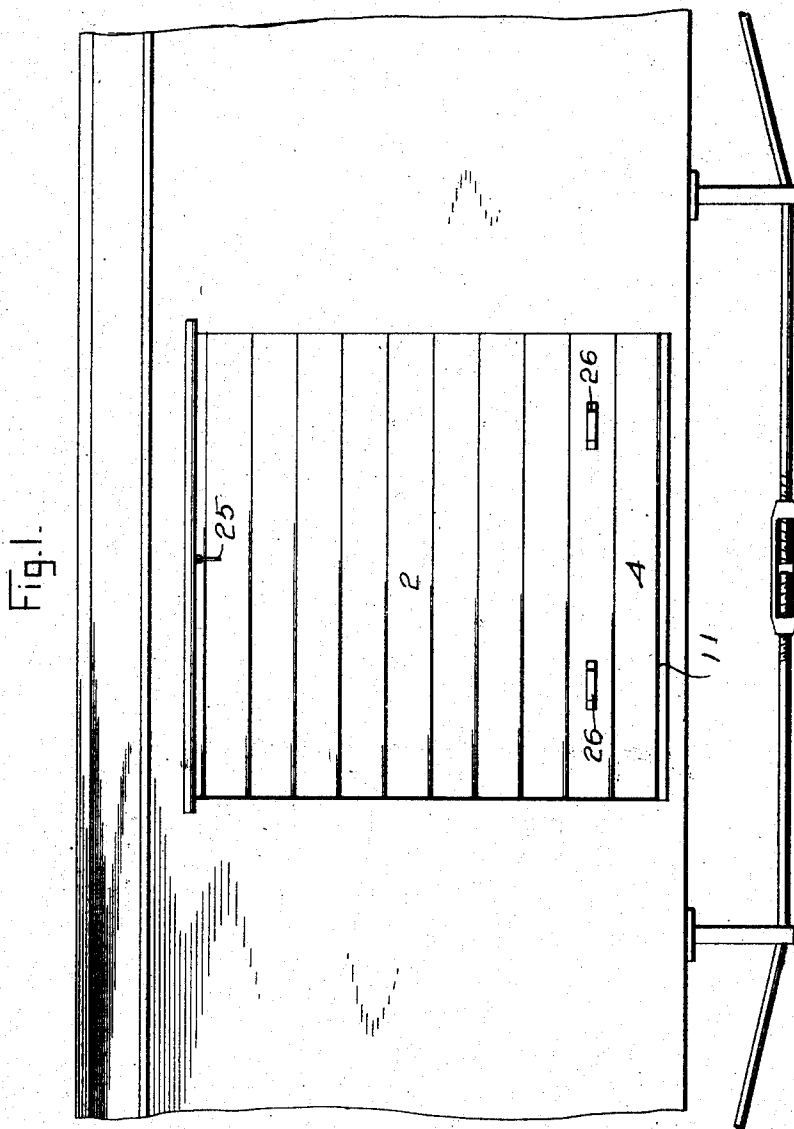
No. 878,876.

PATENTED FEB. 11, 1908.

J. E. FOX.
METALLIC DOOR.

APPLICATION FILED APR. 30, 1907.

3 SHEETS—SHEET 1.



Witnesses

E. H. Reichenbach.
J. E. Fox

Inventor

J. E. Fox

By

Charles Chandler

Attorney

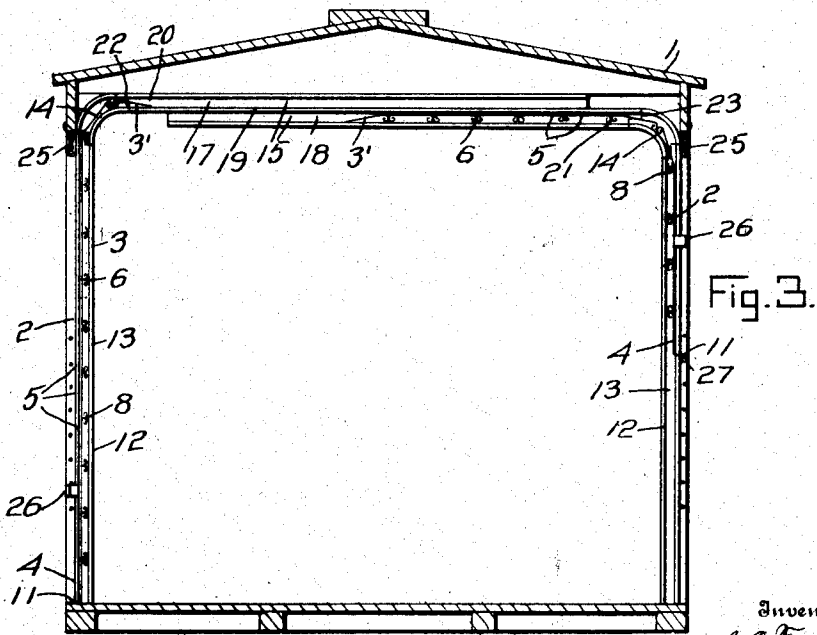
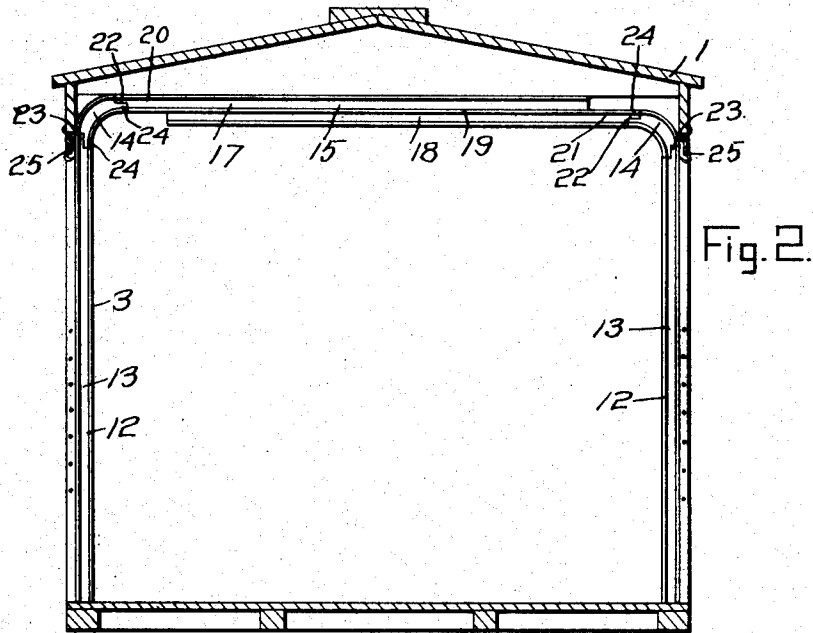
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Witnesses

C. H. Reichenbach
J. E. Fox

Inventor

J. E. Fox

By

Charles Chandler

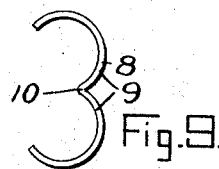
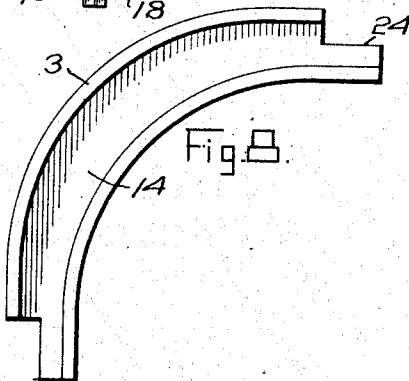
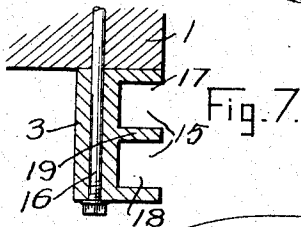
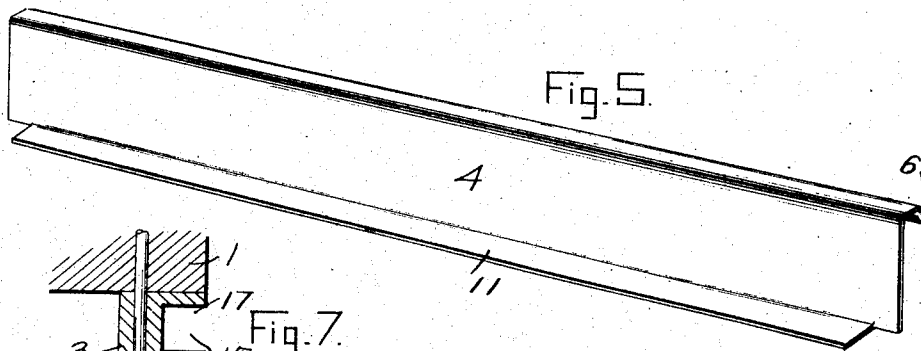
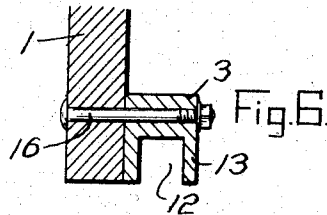
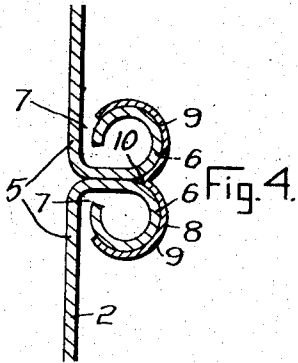
Attorneys

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3 SHEETS—SHEET 3.



Witnesses

B. H. Reichenbach
J. E. Fox

Inventor

J. E. Fox
Charles H. Fox

Attorneys

UNITED STATES PATENT OFFICE.

JOHN E. FOX, OF COURTENAY, NORTH DAKOTA.

METALLIC DOOR.

No. 878,876.

Specification of Letters Patent.

Patented Feb. 11, 1908.

Application filed April 30, 1907. Serial No. 371,044.

To all whom it may concern:

Be it known that I, JOHN E. FOX, a citizen of the United States; residing at Courtenay, in the county of Stutsman, State of North Dakota, have invented certain new and useful Improvements in Metallic Doors; and I do hereby 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.

This invention has relation to new and useful improvements in metallic doors for fireproofing and other purposes, and it has particular reference to a door of flexible construction and made in hingedly connected sections, capable of rolling at an angle between tracks or guides of suitable construction provided therefor.

In connection with a door of the above type, the invention aims as a primary object to provide a novel hinge joint between the door sections.

The invention aims as a further object to provide a track of novel construction including a curved section so proportioned with relation to the other sections that the binding which usually occurs in doors of this type is eliminated.

The detailed construction will appear in the course of the following description, in which reference is had to the accompanying drawings forming a part of this specification, like characters of reference designating similar parts throughout the several views, wherein:—

Figure 1 is a front view of a structure equipped with a door constructed in accordance with the present invention. Fig. 2 is a vertical transverse section of such structure which as arbitrarily shown, is a freight car, the door being removed. Fig. 3 is a similar view showing the door with its sections assembled for use. Fig. 4 is an enlarged vertical transverse section illustrating the connections between two adjacent sections. Fig. 5 is a detailed perspective view of the lowermost of the above mentioned door sections. Fig. 6 is a horizontal section of a vertical track or guide. Fig. 7 is a vertical section of a horizontal track or guide, which is constructed to accommodate two doors, one at each side of the car. Fig. 8 is a plan view showing a curved track section interposed between the vertical and horizontal sections illustrated in Figs. 6 and 7, and Fig. 9 is an

end elevation of a clamp forming an element of hinge joint between the sections.

Referring to the accompanying drawings, the numeral 1 indicates the structure in connection with which the door embodied in the present invention is used. Such structure as arbitrarily shown, is a car, although it will be understood that the door may be employed in connection with any type of building.

The numeral 2 designates the door proper and the numeral 3, the track therefor, considered as an entirety.

The door 2 is constructed of an upper section 3', a lower section 4, and intervening sections 5. The sections 5 are counterparts in construction, and the sections 3' and 4 are similar thereto with the exception of their outer edges which are not constructed for hinge connection. The sections 5 are bent longitudinally along their upper and lower edges into annular conformation, as at 6, so as to afford a hollow projecting bead, the extremities of such beads terminating short of or in spaced relation to the material of the section adjacent thereto. It will thus be seen that an open recess 7 of arcuate outlines occurs between the upper and lower ends of the sections and the edges of the beads 6 adjacent thereto. The lower edge of the section 3' and the upper edge of the section 4 are similarly constructed. The door sections thus constructed are united in hinged relation by clamps 8, preferably coextensive therewith in width. The clamps 8 illustrated in Fig. 9, conform in shape to the adjacent beads which abut one another and are accordingly formed with interrupted loops 9, of annular outline between which an inwardly projecting rib 10 occurs, the rib 10 being afforded by the conformation of the loops 9. The latter loosely surround the beads 9 concentrically thereof, and it is to be noted that this construction of hinge connection permits of a free rotation of the beads 6 within the loops 9, the ends of said loops being adapted to enter the spaces 7 in such movement. The lower section 4 has its bottom portion cut away a distance from the sides and bent forwardly at a right angle to engage the floor, as clearly shown at 11, in Fig. 5. The upper edge of the section 3 is unbeaded.

The door thus constructed is guided in its movement by tracks arranged at each side of the door frame. Such tracks are designated

generally by the numeral 12, and comprise a vertical section 13, a curved section 14, and a horizontal section 15. The sections 13 and 14 are of U- or channel-shape in cross section, and together with the section 15 are held to the frame of the car by fastening bolts 16. The section 15 embodies upper and lower channels 17 and 18, defined by the side walls of said section and a longitudinal partition 19, parallel to said side walls. The partition 19 defines the width of the section 15 and the side walls terminate at opposite ends short of the ends of said partition, thereby affording upper and lower projecting portions 20 and 21, which are continuations of the respective channels 17 and 18. Said projecting portions are formed at their ends with upper tenons 22, and the sections 13 are formed at their upper ends with tenons 23. Each section 14 is likewise provided at its ends with tenons 24, designed to bear against the tenons 22 and 23, and to afford a seat for said section in its imposed relation. It is to be noted that the channel of the section 14 gradually increases in width from its ends to its central portion, in order to prevent the door sections from becoming frictionally jammed therein.

It is to be noted that the door on one side of the car will move into the channel 17 when said door is raised, and that the door on the other side of the car will in like manner move into the channel 18. This arrangement permits of both doors being sustained in raised position at the same time, the one door overlying the other as will be readily understood. For the purpose of holding said doors in their raised position, hooks 25 are provided which pivotally depend from the ceiling adjacent the door

openings, and are designed to engage the extension 11, the cut away portions of said extension serving to prevent the same from interfering with the tracks 12. One of the sections 5 of each door is provided on its outer surface with handles 26, by means of which the doors may be raised or lowered.

If desired, suitable catches 27 may be provided on the door frames for engagement with the extensions 11 to prevent the same from wholly closing the door opening, as in the operation of unloading coal.

From the foregoing description, it will be seen that simple and efficient means are provided for accomplishing the objects of the invention, but while the elements herein shown and described are well adapted to serve the purposes set forth, it is obvious that various minor changes may be made in the proportions, shape and arrangement of the several parts without departing from the spirit and scope of the invention, as defined in the appended claims.

What is claimed is:

A door of the type set forth comprising sections provided along opposite parallel edges with bent portions forming projecting hollow annular beads, the edges of said bent portions being spaced away from the material adjacent thereto, and clamps, each comprising a pair of interrupted annular loops conforming to said beads and surrounding the same in juxtaposed pairs.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN E. FOX.

Witnesses:

LORAN NICHOLS,
C. E. DAVIS.