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METHOD OF CONSTRUCTING METAL DOORS

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Fig. 1

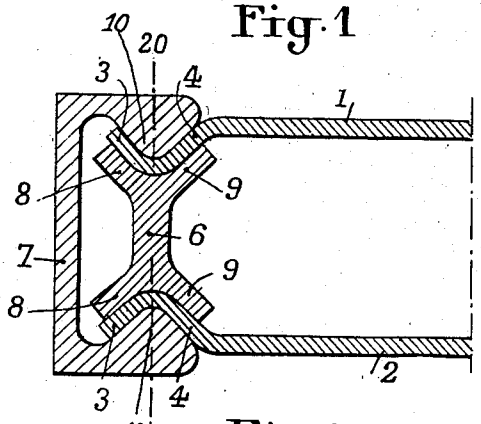


Fig. 2

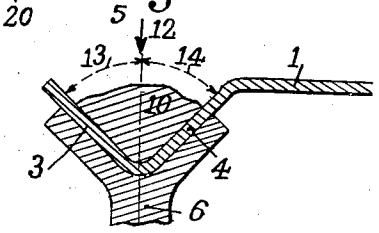
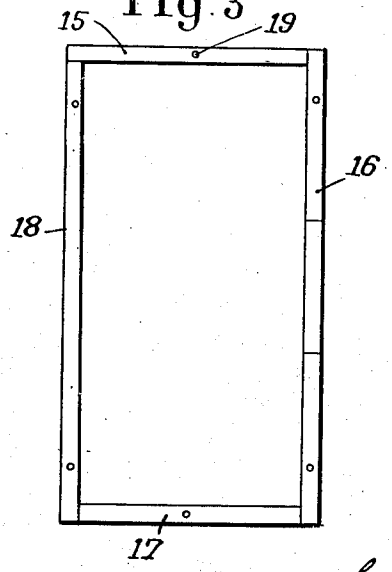


Fig. 3



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METHOD OF CONSTRUCTING METAL DOORS

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2 Claims. (Cl. 29—148)

The present invention relates to metal doors for railway trucks and like devices including a method of making such doors.

Metal doors, more particularly sliding doors, intended for metropolitan or other railway trucks usually comprise a frame of rolled iron sections, angle irons or other devices, on which sheet iron plates constituting the body of the door are fixed by riveting, soldering, or other means.

Such arrangement presents the disadvantage of necessitating a considerable amount of hand labour while the assembly thus obtained does not possess sufficient rigidity to provide a rugged door.

Moreover, in order to obtain as reduced a weight as possible in their construction, sheets of small thickness have been used in which the rivets have little anchorage. In such doors assembled with rivets, the anchorage of frame and metal panels is poor and accordingly the low rigidity after a relatively short period of use permits relative movements between the filling panels and the frame producing shearing of the rivets and frequently causing complete destruction of the door.

According to the present invention there is provided a method of making a novel door which overcomes these disadvantages. In carrying out the invention, the edges of the sheets forming the filling panels are bent or suitably formed. Thereafter the edges are clamped between an inside and an outside frame forming gripping members for the edges of the sheets. The clamping being effected between symmetrical surfaces, with the object of thereby ensuring a permanent gripping of the parts constituting the door while permitting a supplementary locking by one or more pins arranged axially in the clamping parts of the panels.

In the attached drawing there is represented by way of example an embodiment of a door constructed in accordance with the invention, including an illustration of the steps of making the same.

Fig. 1 is a view in section of an edge of the door,

Fig. 2 shows the manner by which one of the panels is secured,

Fig. 3 is a front view of a completed door.

The door according to the invention comprises as usual, panels 1, 2, which constitute the internal and external walls of the door and which are to be secured on a frame.

According to the invention on each of the edges of each panel 1, 2, a channel is arranged by forming (as shown in Fig. 2), a first bend 3 of which the edge 4 is bent back on the bend 3 in such a way that the parts 3, 4, form a right angle of which the bisector 5 is perpendicular to the plane of the sheet or panel 1. The channel may thus be regarded as being V-shaped.

The channel formed by the parts 3, 4 is then positioned between an inside bearing block 6 and an outside clamp 7 as shown in Fig. 1. For this purpose the inside bearing block 6 comprises on each of its longitudinal edges, flanges 8, 9, arranged perpendicular to one another and joined by suitable surfaces to provide V-shaped grooves between the flanges.

As shown in Fig. 1, the inside bearing block 6 presents a similar arrangement on its two longitudinal edges, the appearance of which is thus symmetrical.

The channels 3, 4 provided on the edges of the sheets 1, 2, are applied on the corresponding flanges 8, 9 of the inside bearing block 6 by suitably shaped edges 10, 11, of the outside clamp 7.

As is seen more particularly in Fig. 2, each of the edges 10, 11, of the clamp 7 bears elastically on the channel 3, 4. Thus the inner ends of the clamp 7 may be regarded as being wedge shaped. This pressure is effected in the direction of the arrow 12 and is distributed in a substantially equal manner over each of the parts 3, 4 of the channel due to the fact that the angles 13, 14 are substantially equal.

These actions are exerted on each of the edges 10, 11 of the elastic clamp 7 which edges thus engage elastically the channels 3, 4 of the sheets 1, 2 and the corresponding flanges 8, 9 of the inside bearing block 6 to close the edge of the door.

For the mounting of a door, a clamp 7 represented in elevation at 15 (Fig. 3) for example, is first placed in position, the length of said clamp being equal to the width of the door diminished by the thickness of its profile. The grooves 3, 4 of the sheets 1, 2, forming the outside panels of the door being already applied respectively on the corresponding flanges 8, 9 of the inside bearing block 6. The clamp 15 is engaged by sliding on the marginal grooves of the plates 1, 2.

When the section 15 has been placed in the position Fig. 3, the longitudinal section 16 is then put in position by proceeding in a similar manner. The outside frame 17 is then slidably moved over the lower edges of the door after the inside bearing block 6 has been put into position. This frame 17 as well as the corresponding inside bearing block has a length equal to the width of the door diminished by twice the width of a frame.

The door is then completed by sliding the inside bearing block 6 into position between the sheets. Then the clamp or outside frame mem-

ber 18 is caused to slide over the bent edges until it takes up the position shown in Fig. 3.

In placing the outside frame in position by sliding any suitable means may be employed but the operation is preferably accomplished by hand. The frame is therefore caused to slide by blows of a hammer thereby permitting the frames to be put in place with the desired accuracy and precision. It is in fact essential to avoid, during the sliding operation, the production of any gripping action which will be capable of opposing in any positive manner the proper positioning of the frame. In order to prevent such gripping action the contacting surfaces can be lubricated for example, by means of soap. This precaution thus permitting a suitable rigidity and undeformable structure of the finished door to be obtained with the necessary relative locking action of the parts constituting the said door.

In order to ensure this locking in a more positive manner pins, pegs or keys such as for example 19 (Fig. 3) are preferably arranged at suitable points. Each of these pins or pegs is arranged along the axis 20 (Fig. 1), and opposes any sliding movement which would be capable of moving one or more of the channels 3, 4, with respect to the inside bearing block 6 as well as the outside clamp 7. The pins or transverse keys 19 can be of any desired shape. They can for example be simple rods traversing the assembled parts along the line 20 of Fig. 1, the rod being for example riveted on the outside faces of the edges 10, 11, at suitable recesses in these edges.

Each of the framed parts are preferably made in one single piece, but they may comprise any desired number of sections of any suitable length, (as shown at 16 in Figure 3) particularly the parts of the frame placed on the edge of the door which must receive a closing member such as a latch lock or other opposing member.

The invention is applicable to the construction of rotating or sliding doors particularly doors intended to be used for closing railway trucks.

What I claim is:—

1. The method of making a metal door which comprises bending each edge of sheets adapted to form the panels of the door into the shape of an angular channel so that the bisector of the angular channel is perpendicular to the plane of the sheet in which the same is formed, arranging the sheets adjacent each other with the angular channels in an opposite relation, inserting a bearing block between the inner faces of the channels and thereafter sliding an elastic clamp over the angular edges to cover the edges and yieldably urge the inner faces of the channels against the bearing blocks.

2. The method of making a metal door which comprises bending each edge of sheets adapted to form the panels of the door into the shape of an angular channel so that the bisector of the angular channel is perpendicular to the plane of the sheet in which the same is formed, arranging the sheets adjacent each other with the angular channels in an opposite relation, inserting a bearing block between the inner faces of the channels, lubricating the angular channels and thereafter forcibly sliding an elastic clamp over the angular edges to cover the edges and yieldably hold the panels in a spaced relation by urging the inner faces of the channels against the bearing blocks.

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