No. 874,528. PATENTED DEC. 24, 1907.

J. McMULLEN.

DOOR AND HINGE.

APPLICATION FILED AUG. 15, 1907.

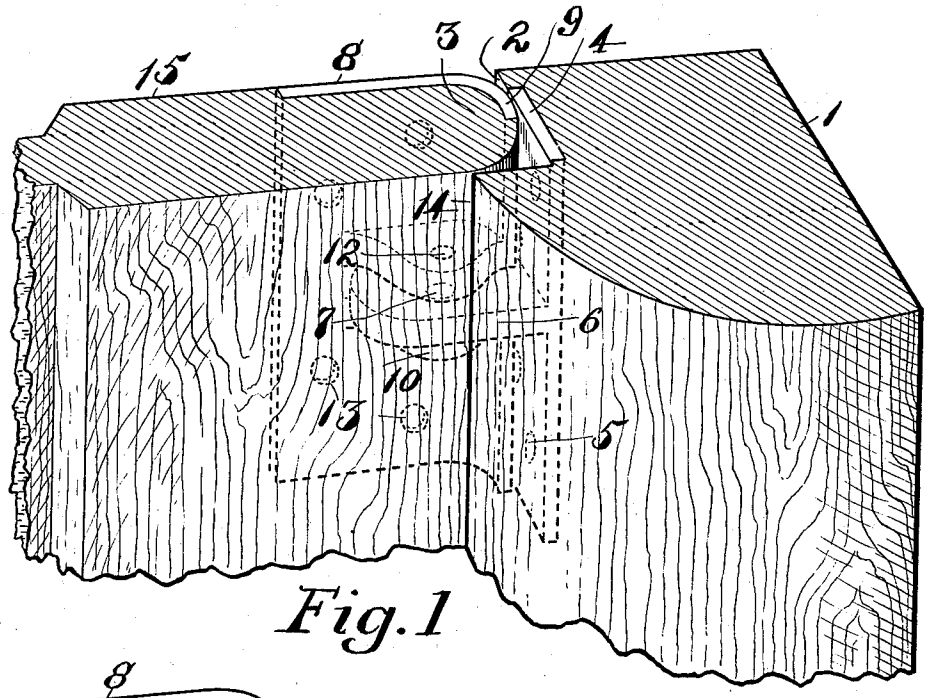


Fig. 1

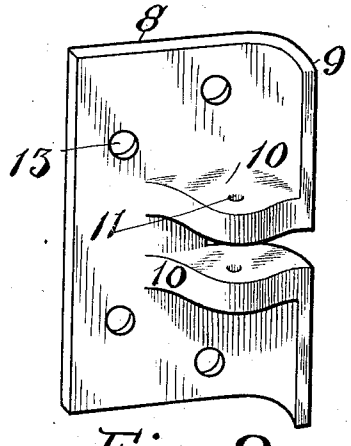


Fig. 2

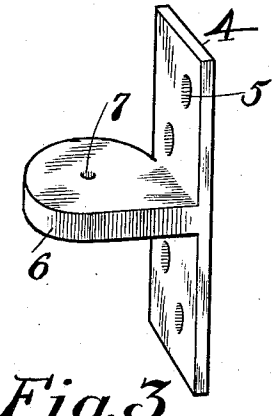


Fig. 3

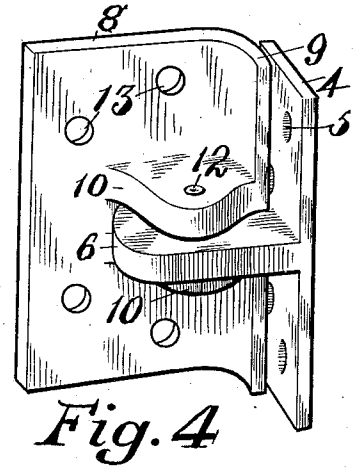


Fig. 4

Witnesses:

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UNITED STATES PATENT OFFICE.

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DOOR AND HINGE.

No. 874,528. Specification of Letters Patent. Patented Dec. 24, 1907.

Application filed August 15, 1907. Serial No. 388,706.

To all whom it may concern:

Be it known that I, JOHN McMULLEN, a citizen of the United States, residing at Kent, in the county of Portage and State of Ohio, have invented new and useful Improvements in Doors and Hinges, of which the following is a specification.

This invention relates to improvements in doors and hinges and the primary object thereof is to so construct a door and hinge that there will be no space intervening between the rear edge of the door when open and the portion of the door jamb which constitutes the abutment for the door, into which careless or inexperienced persons might get their fingers caught and injured by the sudden or unexpected closing thereof.

This invention is particularly adapted for use on doors of railroad coaches, although equally applicable for other places. The ordinary doors employed upon railroad coaches are hung upon common hinges and consequently when opened a wide space intervenes between the rear face of the door and the rabbet in the door jamb into which the same seats. These doors are customarily maintained in an open position by means of a catch placed on the floor of a car. Experience has shown that the catches used for maintaining the door in open position are frequently inoperative, or the door is not opened far enough to cause them to properly engage the same and passengers, more especially very careless or inexperienced ones, entering or leaving the coach, frequently rest their hands on the door jamb for support and in so doing the fingers often enter the rabbet into which the door seats and it is a very ordinary occurrence to have the door suddenly closed by the stoppage of the cars, usually resulting in such serious injury to the ends of the fingers of the passengers as to require amputation; hence, by employing such a device as is herein described, such injuries to passengers are absolutely prevented and the danger connected with the use of a door entirely eliminated.

A practical embodiment of my invention is illustrated in the accompanying drawings, in which similar reference numerals indicate like parts in the different figures.

In the drawings, Figure 1 is a perspective view of a door and jamb in section at a line drawn across the top of one of the hinges of the door; Fig. 2 is a view of one member of the hinge; Fig. 3 is the opposite or coöperating member of the hinge; and, Fig. 4 is a perspective view of my improved hinge complete.

In the drawings, the reference numeral 1 indicates a door jamb such as is commonly employed upon railroad coaches, provided with the usual rabbeted portion 2 into which the rear edge of the door 15 seats. In order to make the door so that it will absolutely close the rabbeted portion 2 and prevent any opening into which careless or inexperienced persons might get their fingers caught, the rear end of the door, designated by the reference numeral 3, is made semi-circular as shown in Fig. 1. The hinge which I preferably employ in connection with this form of door is so constructed as to be readily applied to the ordinary door and jamb without materially altering the shape thereof, so that it can be readily applied to those doors now in common use upon railroad coaches and consists of a member 4 comprising a plate provided with openings 5 through which may be passed holdfast devices, such as screws, for maintaining it in a properly positioned recess in the rabbet 2.

Preferably integral with the member 4 is a laterally-projecting ear 6 provided centrally with an opening 7. The other member of the hinge which is adapted to be positioned in a suitably-formed recess in the rear and side face of the door consists of a member 8 having a curvilinear configuration at one end, designated by the reference numeral 9, to correspond to the outer surface of the semi-circular portion of the door. This member 8 is provided approximately centrally with a pair of inwardly-extending ears 10 spaced apart and both provided with central registering perforations 11 through which may be passed a pin 12 constituting a pivot for the hinge. The member 8 is also provided with openings 13 through which may be passed holdfast devices, such as screws, for effectually maintaining the member 8 in its appropriate recess in the door. The ears 6 and 10 extend inwardly sufficiently so that the perforations 7 and 11 are in alinement and are positioned centrally with respect to the semi-circular portion of the rear face of the door, so that the axis of revolution of the rear face of the door will constantly keep the outer face thereof in contacting relation or approximately so with both the bottom of the rabbet 2 and the inner angle 14 thereof, so that no matter in what position the door

is, whether open or closed, the angle 14 of the jamb will approximately engage the face of the door and no opening can occur between them, thereby eliminating all danger to the passengers by preventing a person's fingers from being accidentally inserted therebetween. It will be noted that the ears 6 and 10 project into the body portion of the door sufficiently so that the pin 12, constituting the pivot of the door is centrally disposed in the circle of which the rear face of the door is a fractional portion. As ordinarily constructed, the majority of car doors are only adapted to swing a quarter of a revolution, so that the opening between the edges of the rabbet 2 and the rear curvilinear face of the door will be constantly in contacting relation to prevent the occurrence of any opening between them, whether the door is open or closed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

1. The combination with a rabbeted door frame, of a hinge member provided with a laterally-extending perforated portion, the perforation being in alinement with the edge formed by the intersection of said rabbet with one side of said frame and also equidistant from both of the side edges of said rabbet, a door provided with a convex edge, the axis of curvature of which is approximately coincident with the axis of revolution of said door, a hinge member carried by said door provided with an extended portion lapping the laterally-extending portion of the other member, provided with an opening registering with the opening in the opposite member, the convex portion of said door being of such a thickness as to approximately constantly contact with one of the side edges of said rabbet whereby no open space exists between said rabbet and said door when said door is open.

2. The combination with a door frame provided with a rabbet and a door positioned therein provided with a convex rear edge, a hinge member mounted in said rabbet, a hinge member carried by said door, said members being provided with lapping portions having registering openings, a pintle constituting an axis for said door, the position of said pintle being in alinement with the edge formed by the intersection of said rabbet with one side of said frame and equidistant from both side faces of said rabbet, the convex side of said door extending into said rabbet and arranged to constantly contact with one face thereof when said door is moved.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN McMULLEN.

Witnesses:
GLENARA FOX,
C. E. HUMPHREY.