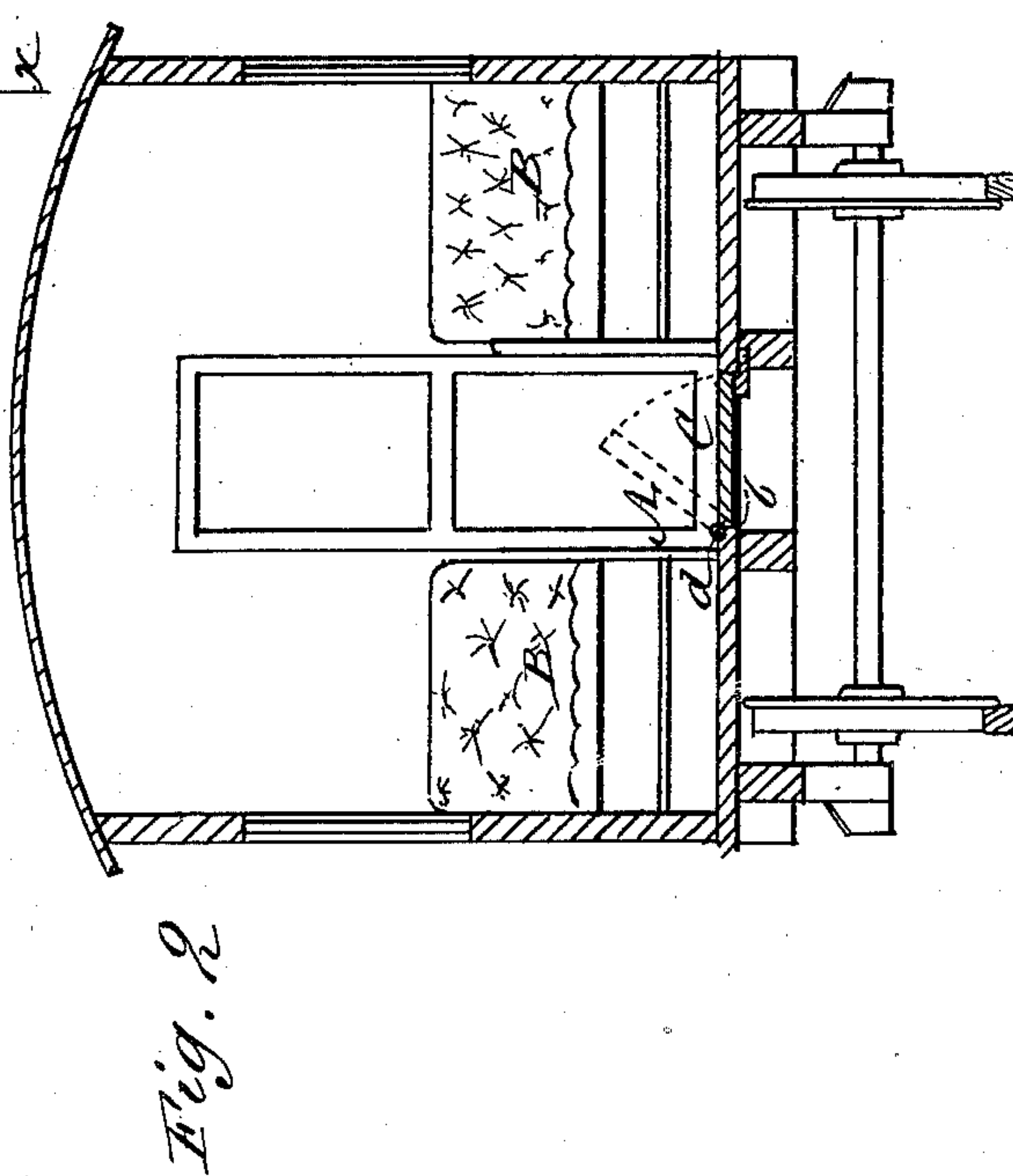
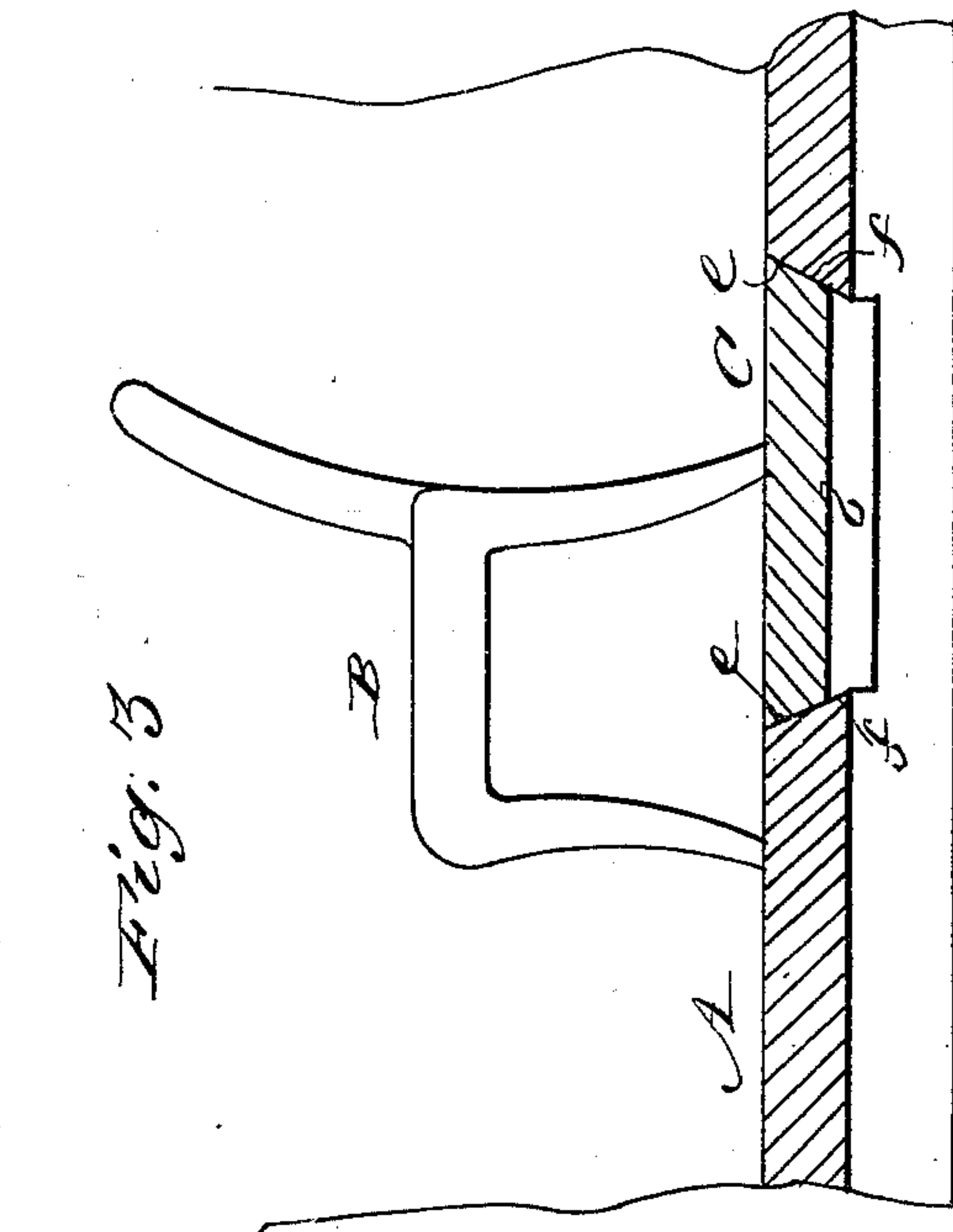
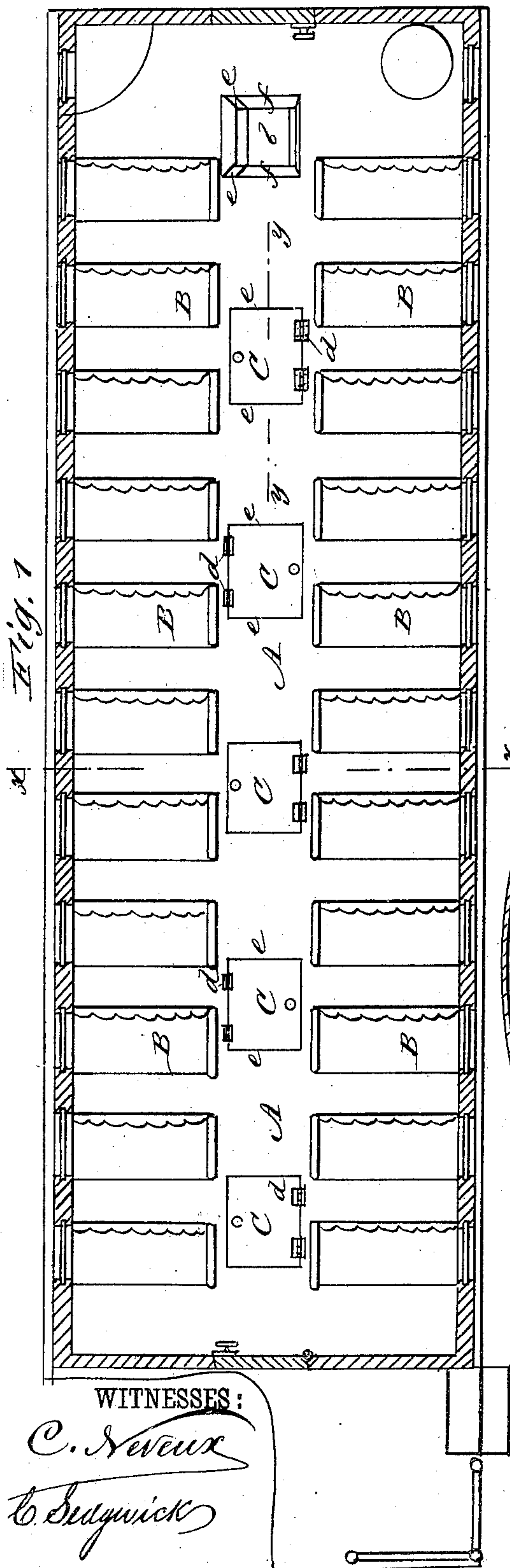


(No Model.)

A. A. STARR.
SAFETY CAR.

No. 256,757.

Patented Apr. 18, 1882.



INVENTOR:
A. A. Starr
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALFRED A. STARR, OF WESTFIELD, NEW JERSEY.

SAFETY-CAR.

SPECIFICATION forming part of Letters Patent No. 256,757, dated April 18, 1882.

Application filed January 26, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALFRED A. STARR, of Westfield, Union county, New Jersey, have invented a new and Improved Safety-Car for
5 Railroads, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a horizontal section of a railroad passenger-car in part, with my invention applied, said section being taken at a short distance beneath the roof of the car. Fig. 2 is a
15 vertical transverse section of the same on the line *x x* in Fig. 1; and Fig. 3, a vertical section in direction of the length of the car, on the line *y y*, through one of the trap-doors used in my invention, upon a larger scale.

20 The many lamentable accidents which have occurred by reason of the inability of passengers and others in railroad-cars to extricate themselves or to be rescued, in cases of collision and derailling or falling of the car, make
25 it highly desirable that better means than are at present afforded should be furnished to meet this difficulty. The ordinary doors and windows of a car are generally insufficient for the purpose, and are either blocked by falling debris, or otherwise inaccessible; hence the frequent loss of life by the ravages of fire in
30 wrecked railroad-trains.

The object of this invention is to provide an improved means of escape under these circumstances; and the invention consists in constructing a railroad passenger-car with one or
35 more trap-doors in its floor. It is proposed to construct each car with two or more of such trap-doors, and to arrange and hinge them so
40 that they open inward, toward opposite sides, within the aisle of the car.

A in the drawings indicates the aisle portion of the floor of a railroad passenger-car, and B B the seats on opposite sides thereof.

45 Arranged within the aisle A, at suitable distances apart along the same, are any number of trap-doors C, closing apertures *b* in the floor of the car. Each of these trap-doors may be
50 nearly the whole width of the aisle and of any desired length, and when closed are preferably flush on their upper surfaces with the

floor of the car, so as to present no obstruction to the walking-surface of the aisle. For this and other reasons also it is desirable to hinge them in close proximity to the seats B, 55 under which arrangement their hinges *d* offer little or no obstruction. Said trap-doors C open upward or inward, and it is proposed to hinge them alternately, or otherwise, on opposite sides of the aisle of the car, and preferably not to secure them by bolts or other fastenings, so that
60 said doors will not only open of their own weight when a car is inverted, but the same tendency to open will apply to one or more of them in case of the car falling on either of its sides. 65 Such different opposite opening arrangement of these trap-doors also will be less likely to expose them all to being blocked against opening by falling debris, and will afford a readier means of escape for the passengers on both
70 sides of the car than if they were all hinged to open from one and the same side of the aisle. To facilitate the automatic opening of these trap-doors in case of a collision having a tendency to telescope or crush the cars, said
75 doors are made beveling downward on their opposite sides or edges, *e e*, in meeting directions toward the ground, and the corresponding sides *f f* of their seats are made beveling
80 or inclining in reversed directions, whereby in case of violent end pressure being brought to bear upon the ends of the car the sides *f f* of the seats will act as wedges on the sides *e e* of the trap-doors to ease and open said doors. The front and back sides or edges of these
85 trap-doors and their seat-surfaces may also be made beveling or inclining, if desired.

A car thus constructed or provided with trap-doors in its floor, which are preferably self-opening in case of accident, as described, 90 or may be conveniently opened, either by the passengers in the car or by others from the outside of it, combines in an eminent degree simplicity with safety.

In some cases it may be desirable to construct the trap-doors otherwise than as described. Thus among other changes they might be made in half-sections hinged respectively on opposite sides of the aisle of the car, or they may not be hinged at all, but be mere
100 covers or lids fitting within suitable openings in the floor, still, as a means of egress, virtu-

ally forming doors. It is preferred, however, to hinge or attach such covers to the escape-openings in the floor of the car.

I am aware that cars have been provided
5 with doors in the sides and roof for the escape of passengers; and I am also aware that a freight-car has been provided with trap-doors in its floor opening into a compartment under the floor; and I therefore do not claim such;
10 but

What I do claim, and desire to secure by Letters Patent, is—

In a railroad passenger-car, the combination,

with the seats arranged on or along opposite sides of the car, of two or more trap-doors 15 hinged respectively to opposite sides of the aisle of the car, and arranged to open inward and to cover escape-openings in said aisle, whereby, on whichever side the car may turn or be upset, one or more of said doors will 20 have a tendency to open of their own weight, essentially as herein set forth.

ALFRED A. STARR.

Witnesses:

E. M. CLARK,
C. SEDGWICK.