

(No Model.)

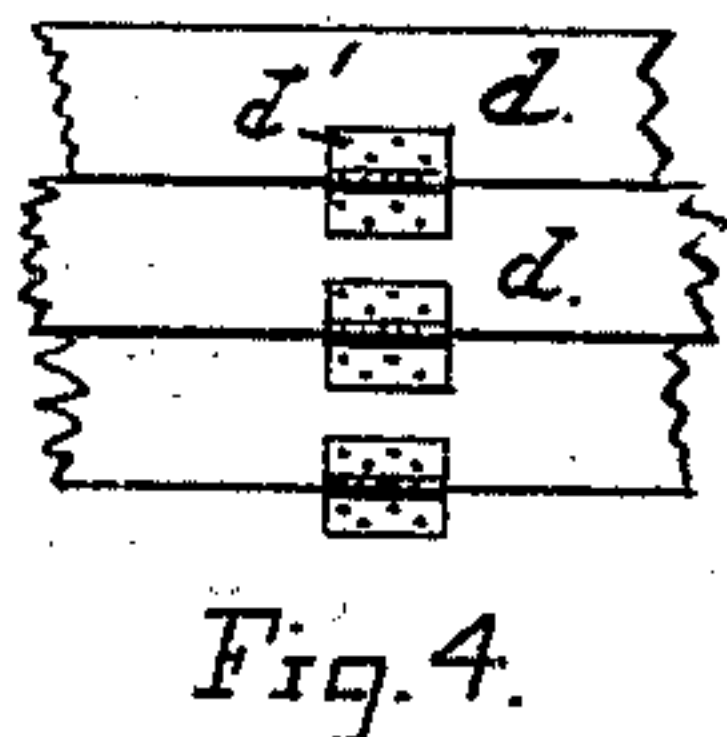
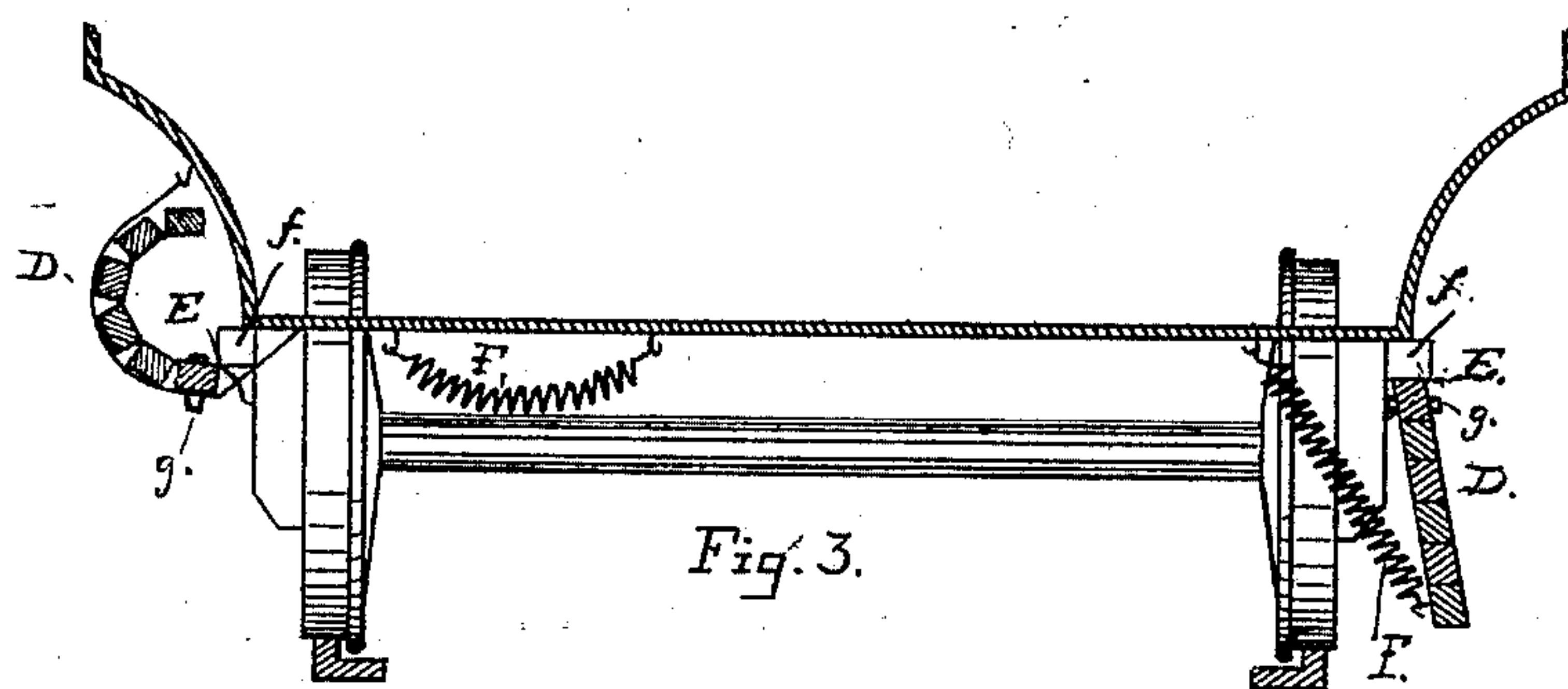
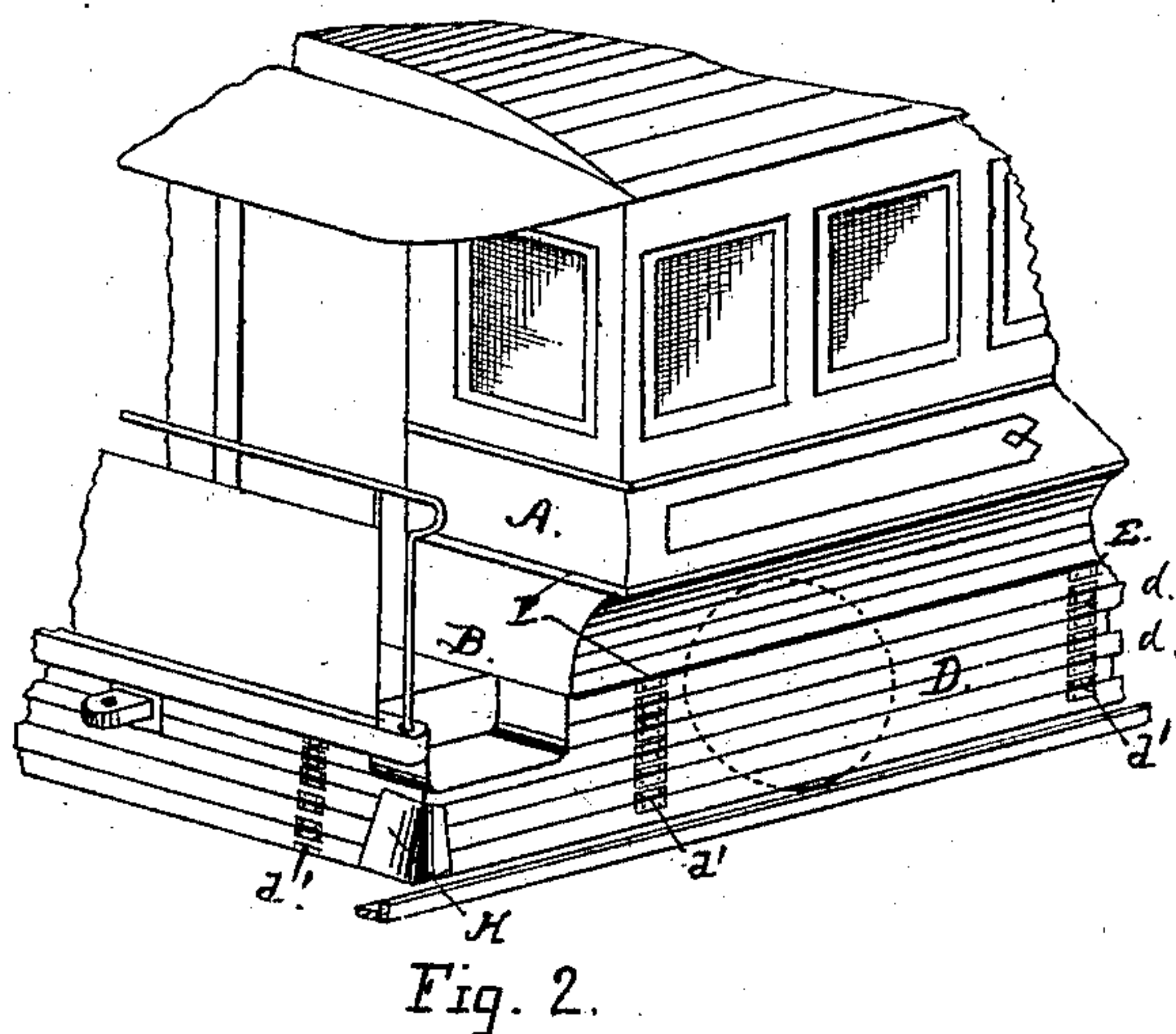
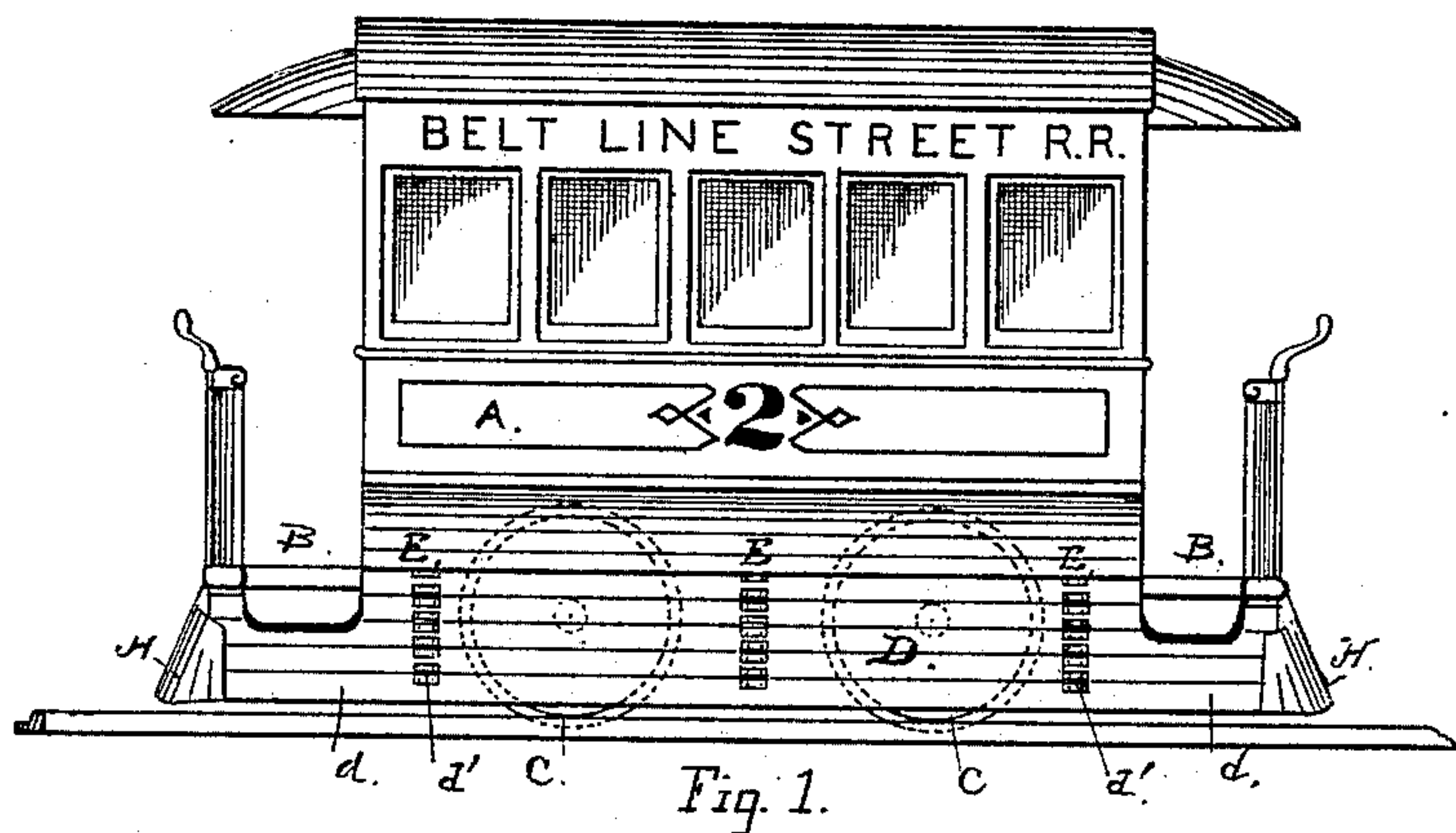
2 Sheets—Sheet 1.

J. JACOBS.

WHEEL GUARD FOR RAILWAY CARS.

No. 277,490.

Patented May 15, 1883.



Witnesses:
L. B. Davis
F. M. Downey

Inventor:
Joseph Jacobs

By his Atty., Edward L. Osborn

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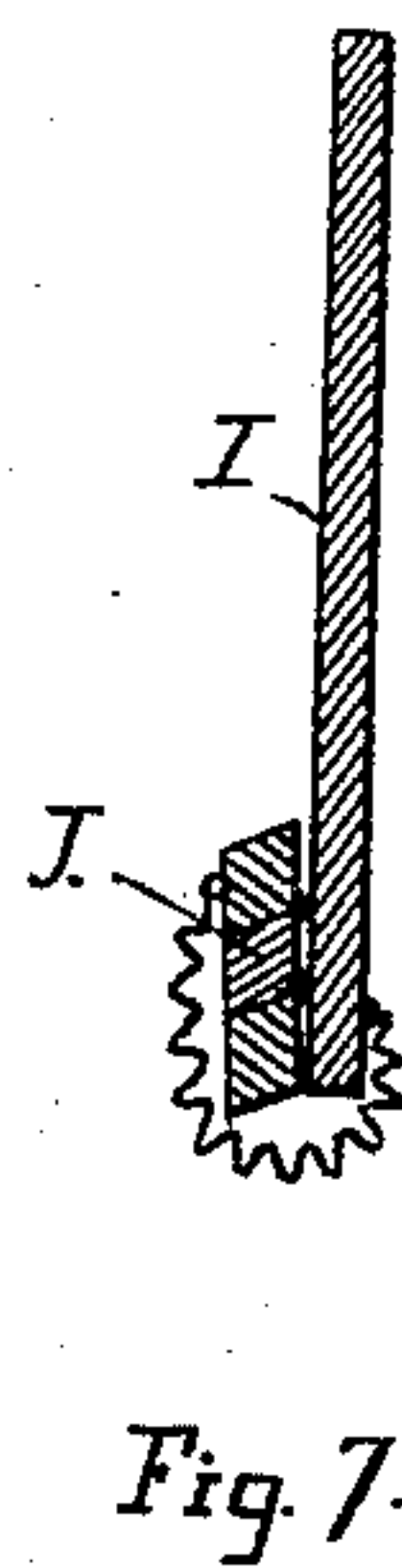
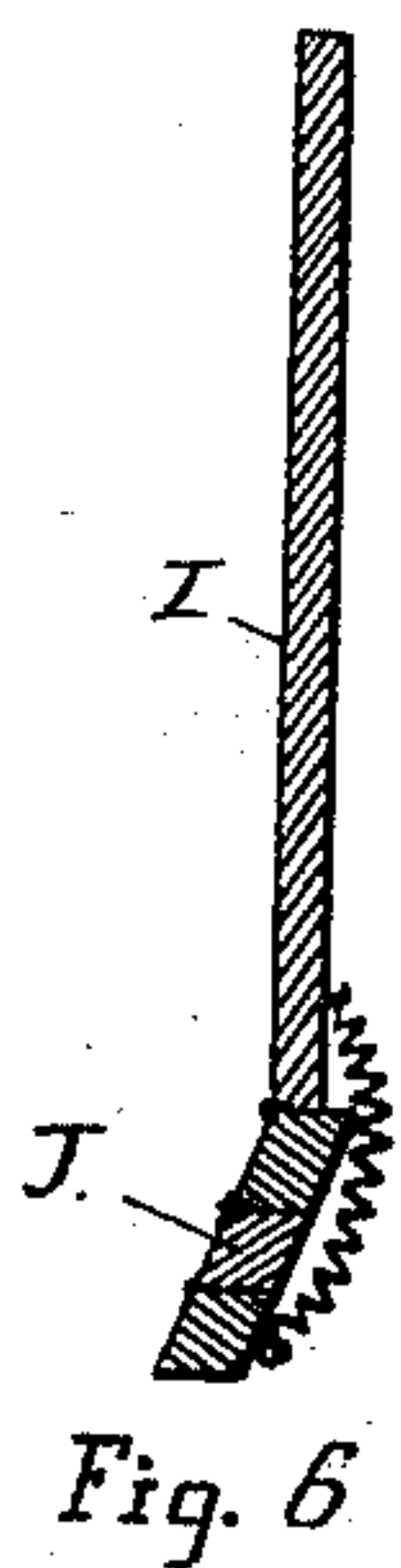
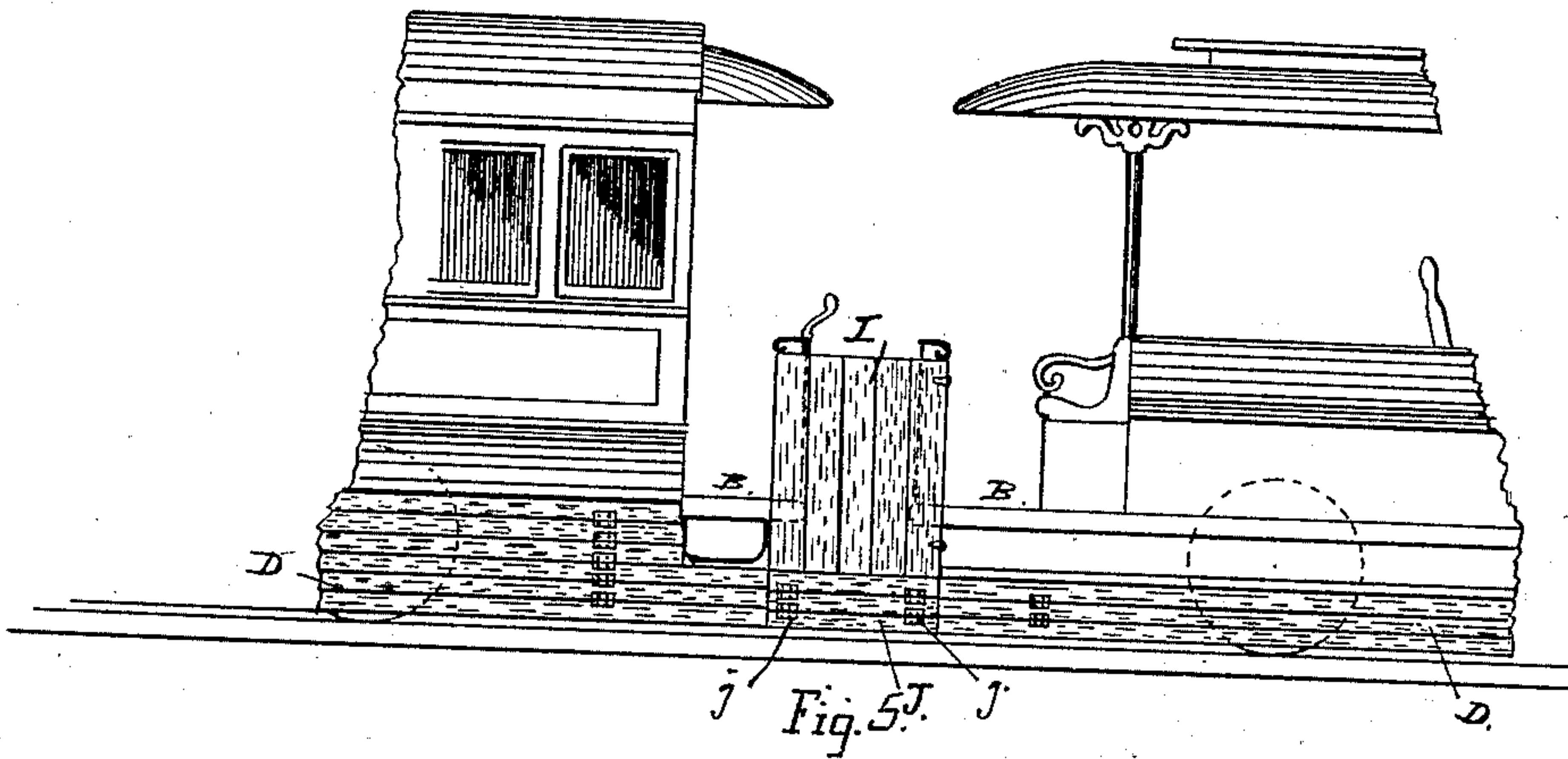
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UNITED STATES PATENT OFFICE.

JOSEPH JACOBS, OF SAN FRANCISCO, CALIFORNIA.

WHEEL-GUARD FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 277,490, dated May 15, 1883.

Application filed February 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH JACOBS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have made and invented certain new and useful Improvements in Wheel-Guards or Safety Devices for Railway-Cars; and I hereby declare that the following is a full, clear, and exact description thereof, reference
10 being had to the accompanying drawings.

My invention has reference to improvements in wheel-guards or devices for vehicles to prevent bodily injury to persons when falling or being thrown under the wheels.

15 My improvements as hereinafter described are more particularly designed for application to cars, engines, and other vehicles employed on street-railroad systems, to cover and close the spaces under the car and between the car
20 and the engine or motor. I form a fender by hinging along and beneath the sides of the vehicle a shield or guard, to extend from end to end along the sides outside of the wheels, and fill the vertical space between the vehicle-
25 body and the surface of the roadway beneath it. In order to give this apron a certain degree of flexibility, by which it can be turned up out of the way when not in use, and also to give it a yielding quality to pass over ob-
30 stacles on the roadway, I construct it of a number of narrow slats. Combined with such flexible guard I use adjustable stops to regulate its degree of outward inclination or flare, and springs to hold it down in place. When
35 drawn up or displaced by any obstacle on the track it returns to its position as soon as the obstacle is passed.

My improvement consists, also, in applying a gate or upright hinged section between the
40 rear of the dummy or motor and the front end of the car, and at each side, and then fastening to or hinging on this upright section at the bottom a length of apron to extend downward close to the ground in such manner that
45 the vertical space or gap between the two vehicles at the sides is closed. This upright gate is a practical extension of the sides of the car to the sides of the dummy.

50 The following description fully explains the nature of my said invention and the manner in which I proceed to construct, apply, and use it.

The accompanying drawings illustrate the application of my invention to a street-railway car.

Figure 1 is a side elevation of the car. Fig. 2 is a perspective view of one end and a portion of the body. Fig. 3 is a cross-section. Fig. 4 is a view showing details of construction. Figs. 5, 6, and 7 illustrate its particular
60 application to the train of a street cable road to close and guard the gap or space between car and dummy.

A represents the body, B B the platform, and C C the wheels and running-gear, of a
65 street-car.

D is the apron or guard, preferably constructed of narrow bars or slats *d d* by placing a number of them closely together in horizontal rows and attaching one to the other by
70 hinges or flexible connections *d'*, applied on the outside. This surface thus produced forms an apron or guard that is capable of bending or yielding in one direction or outward, but is rigid in the opposite direction, as when
75 pressed against from the outside. This apron or surface is provided in parts or sections of a length suited to the space to be covered, and these sections or lengths are attached at and along the top edge to the side of the car-body
80 by hinges E E or similar points of attachment, so that the lower end of a length of apron can be raised from the ground and turned outward and upward without interfering with its ad-
85 justment. It may also be attached to the running-gear, instead of directly to the body of the car, by hinging the top slat to a bar, *f*, secured to the axle-boxes just below the car-body, so that the apron is supported beneath but
90 independent of the body. This guard can be a single section or length of apron where it would be practicable, as in applying it to a street-railway car; but for use on cars of greater
95 length, as on steam-roads, the aprons for the sides can be in two or more separate parts or sections, the upright end or edge of one meeting or overlapping the other. When applied across the end of a car-body a single section or length of apron is used.

The slats *d* can be formed of some light
100 tough wood, and the lowermost slat should be shod with metal or be formed of a metal slat or plate to overcome the wear from contact with projecting particles on the road under it.

To increase the flexibility or yielding quality of the apron along its lower edge portion, the lower slats are made narrower than those at the upper part. For this purpose slats of graduated sizes are used. This construction will depend, however, upon the height of the opening to be closed, for where the car-body runs close to the ground, as in the ordinary street-car, the vertical space between the street-surface and the car-body may not be great enough to receive a slat-apron, and in such case a single apron or width of board hinged to the car-body, as before described, and with a heavy shoe or a flexible shod slat or section applied to its lower edge, will be used.

For use on cars where greater vertical space is afforded, however, as in cars on steam-roads, I employ as many slats or strips as will give the required flexibility, so that the apron can be rolled or folded up against the side of the car, like a curtain, when not in use. This apron is to be always hinged or otherwise similarly attached to the car-body, so that it is always in place, ready for use, and need not be detached except for repairs. It allows ready access at all times to the running-gear for inspection, cleaning, oiling, and repairs. To hold it down in place for operation, the springs *F* are attached at one end to the bottom slat, and are secured at the upper end to the car-body behind the apron. They operate to hold down the lower end of the apron to keep it in position and to bring it back into it whenever it is forced outward by obstructions. This position or inclination is controlled by the stops *g g*, applied at the back of the upper slat. They project from the inner side of the slat and bear against the side of the car-body. They are adjustable in and out to regulate the amount of outward slant or inclination.

Where the side and end aprons are brought together at the corners, as in the application shown in Fig. 2 of the drawings, it may be desirable to overcome the sharp angles at the corner. For this purpose I fix a curved metal shield or angle piece, *H*, to one of the sections in such manner that it extends over the edge and around upon the other apron, it being fastened to one but simply overlapping without being attached to the other section. A rounded edge is thus presented at the corners. These sharp corners may be overcome also by forming the end apron of two sections set at an acute angle, after the manner and form of a cow-catcher, and then carried back and joined to the ends of the side aprons at an obtuse angle. The shield may then be dispensed with.

To apply my guard to the space between one car and another, or between a car and a dummy, I hinge to the side rails or dash-board part of a dummy-body a vertical door or gate, *I*, of suitable width to turn over against the side rail of the car-platform and close the vertical space between the ends of the two vehicles from about the top of the hand-rail down

to the bottom of the platform, or about on a line with the car-bottom. To the lower edge of this gate or door I then fix, by means of hinges *j j*, a section of apron, *J*, of the required length to cover or close the horizontal space below the line of the car-bottom and the vertical space between the ground and the edge of the gate or door. This apron portion of the guard is then a continuation of the guard along the sides from the car to the dummy, and the whole space underneath the train is then closed by a continuous length of apron. In detaching car from dummy the gate or hatch *I* is unhooked from the car and turned back against the side of the dummy. The hinged or flexible extension or apron *J* is readily turned up out of the way. This application is clearly shown in Figs. 5, 6, and 7 of the drawings.

My device is also adapted for use as a dust-guard as well as a fender on ordinary trains.

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

1. In combination with a car, dummy, or other railway-vehicle, a wheel-guard consisting of an apron of suitable width to fill the vertical space between the vehicle-body and the roadway beneath, being attached to and along the bottom of the vehicle by means of hinge-connections, slips, and springs, the said apron being formed of united strips or slats any one or series of which can yield, substantially as herein described.

2. A wheel-guard or fender for railway-vehicles, consisting of an apron formed of horizontal slats or bars attached together by hinges, so as to be capable of turning outward and upward, having hinge-connection with the vehicle-body at points along its length, outside of the wheels thereof, and the stops and springs to permit said apron to yield and pass over obstructions and to cause it to return to position of itself, substantially as described.

3. The combination, with the flexible or yielding apron consisting of a series of slats or bars hinged together upon one side, so that the apron can be rolled upon itself or brought to a flat condition, of hinge-connection, stops, and springs, substantially as herein described, for the purpose set forth.

4. In combination with a railway-vehicle body, the side flexible or yielding section, the similar end section, and the angle-plates *H*, secured upon one length of apron and covering the ends of both, substantially as described.

5. The gate or vertical guard *I*, adapted to close the gap or space between car and dummy or motor, having the hinged or yielding bottom section *J*, applied to operate substantially as and for the purpose set forth.

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Witnesses:

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