

(No Model.)

2 Sheets—Sheet 1.

E. G. TOBEY.

RAILROAD AND VEHICLE FOR RAILROAD TRANSPORTATION.

No. 454,306.

Patented June 16, 1891.

FIG. I.

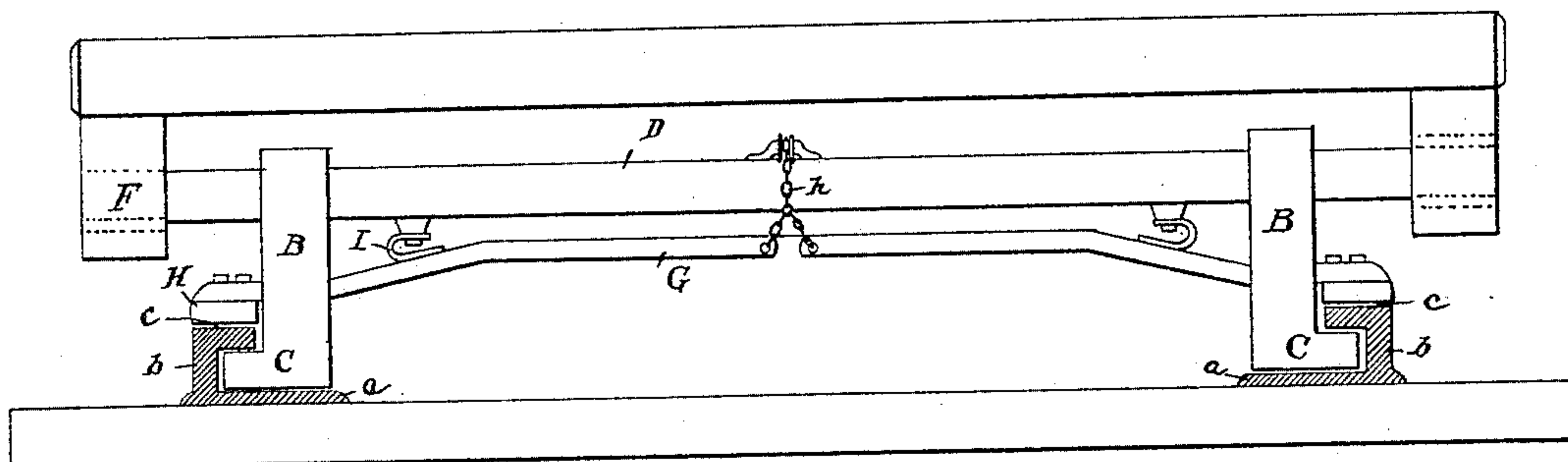


FIG. II.

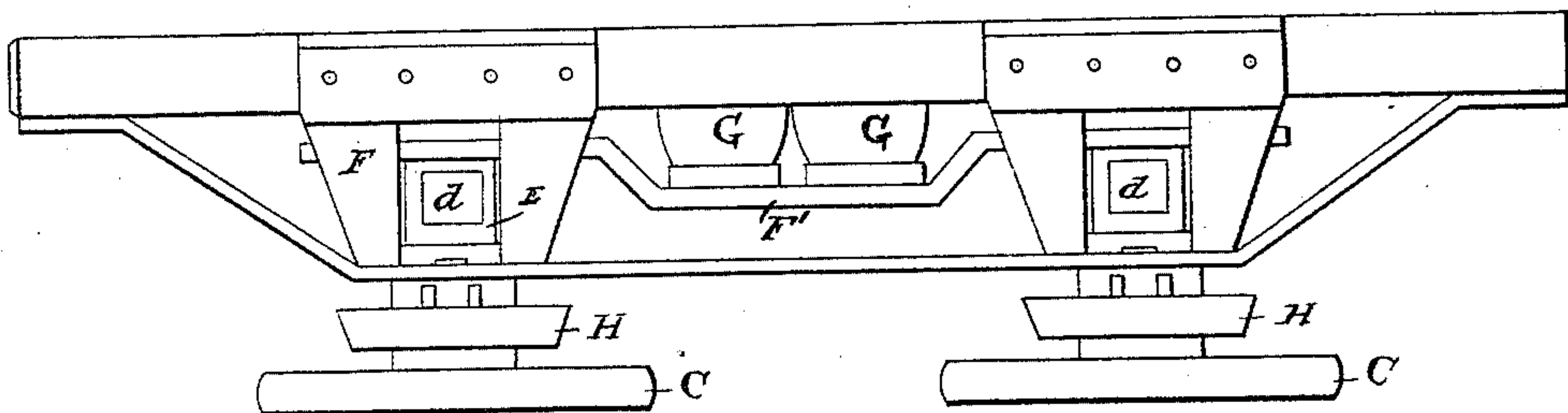


FIG. III.

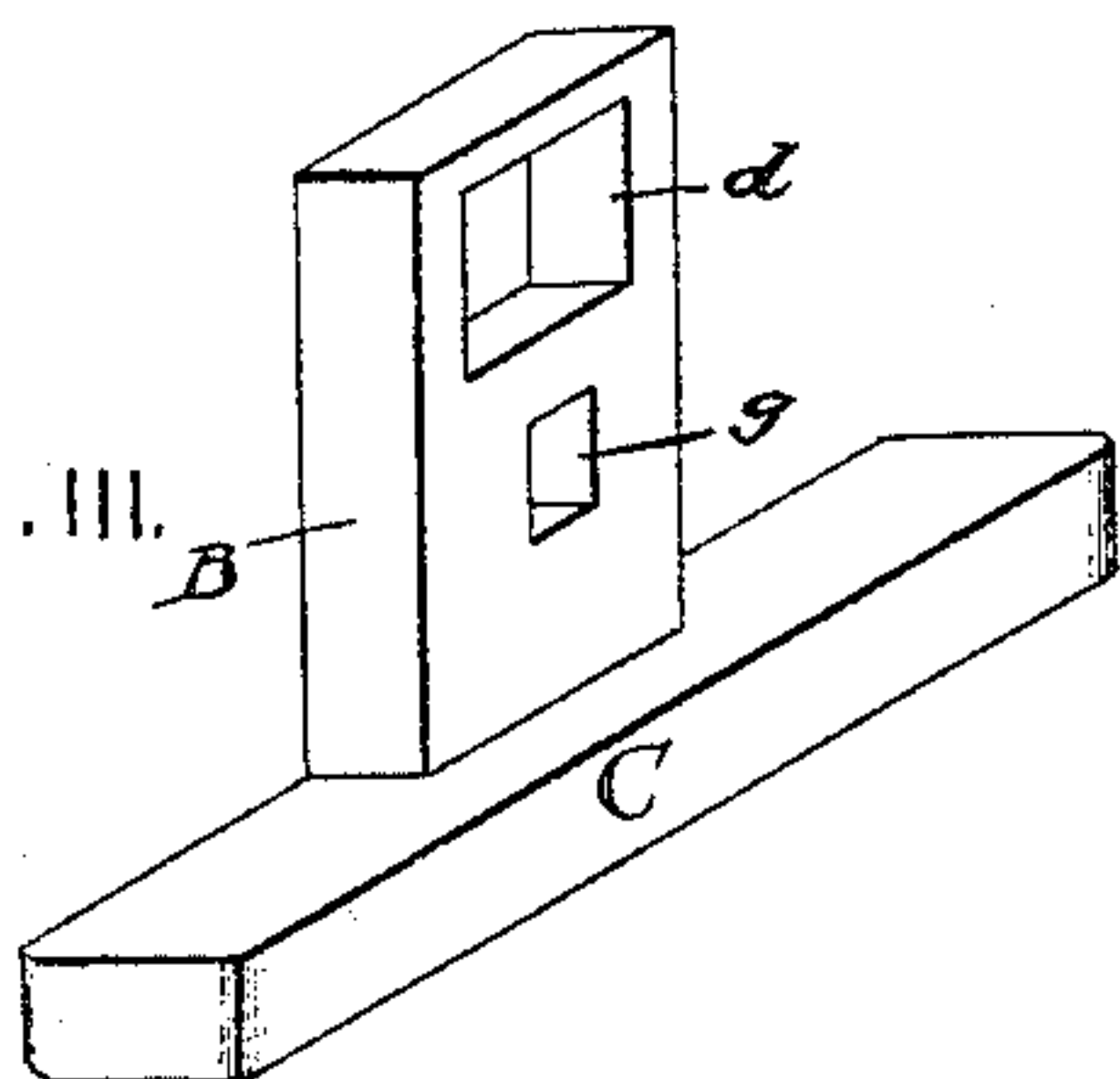


FIG. V.

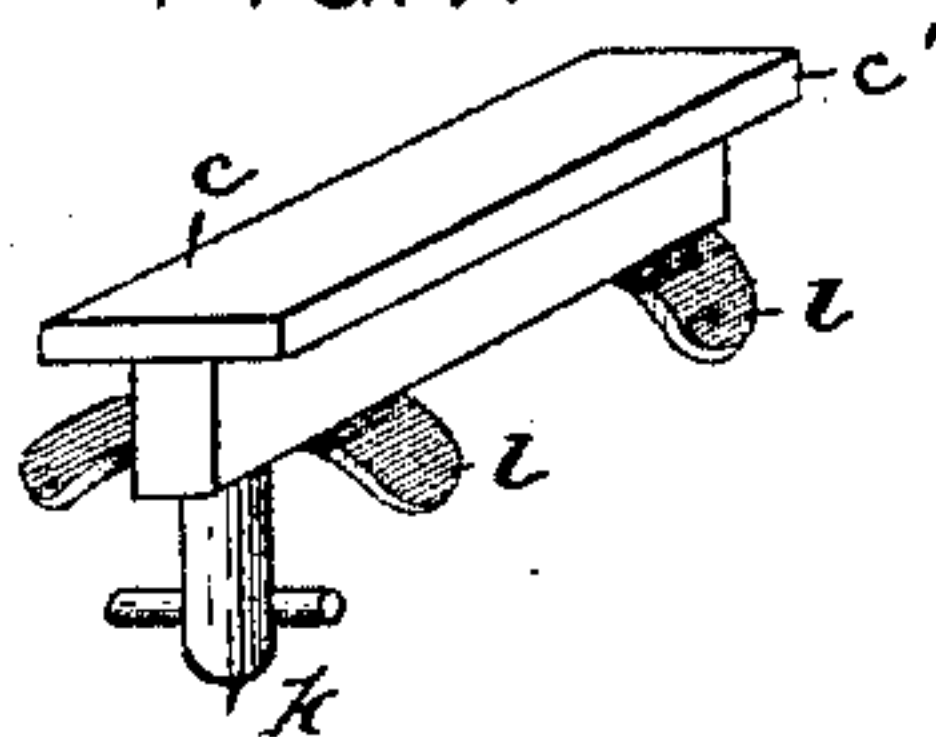
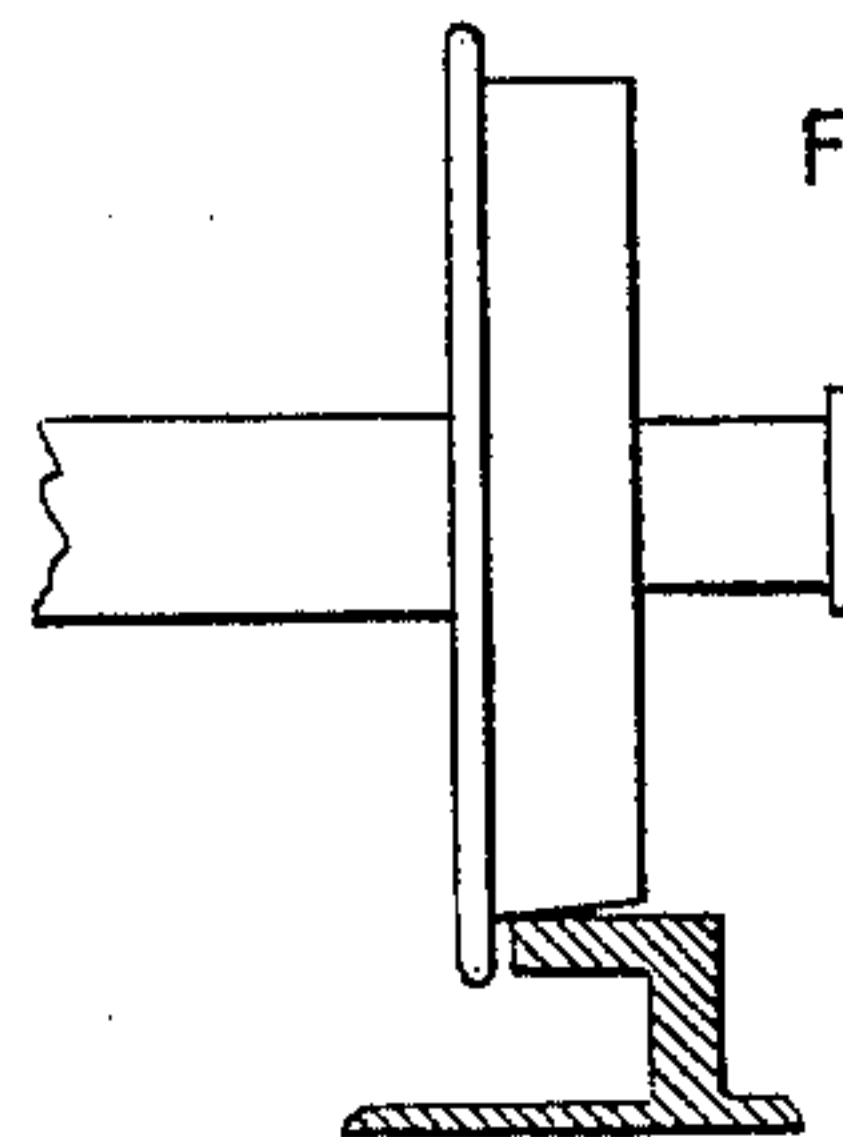


FIG. VI.



Witnessed,
J. M. Copenhaver.

Inventor:
Enoch G. Tobey
By
Hollis M. Mearns
attorneys

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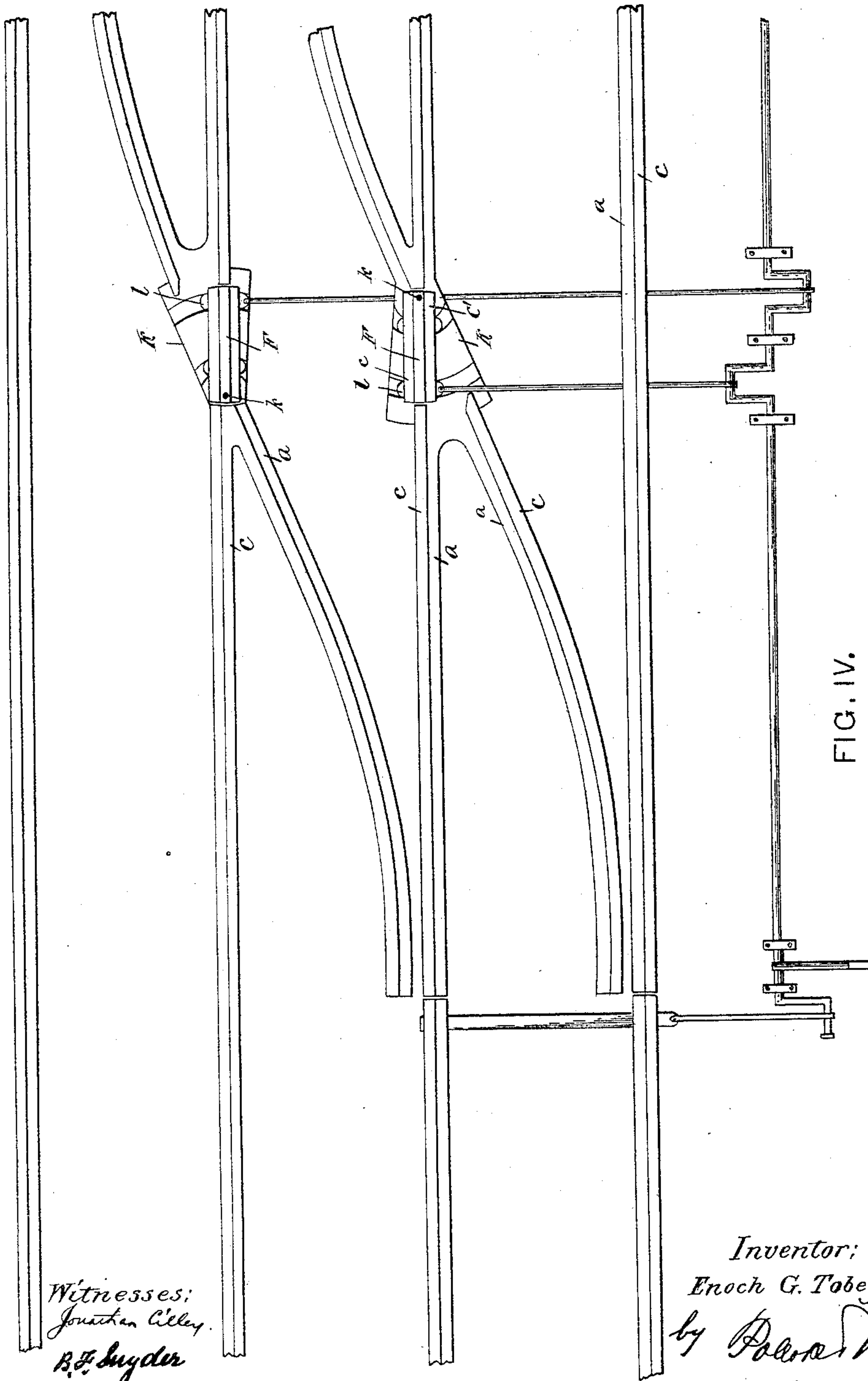


FIG. IV.

Witnesses:
Jonathan Alley.
B. F. Snyder

Inventor:
Enoch G. Tobey
by *Polson Mauro*
his Attorneys.

UNITED STATES PATENT OFFICE.

ENOCH G. TOBEY, OF TARRYTOWN, NEW YORK.

RAILROAD AND VEHICLE FOR RAILROAD TRANSPORTATION.

SPECIFICATION forming part of Letters Patent No. 454,306, dated June 16, 1891.

Application filed February 20, 1891. Serial No. 382,155. (No model.)

To all whom it may concern:

Be it known that I, ENOCH G. TOBEY, residing at Tarrytown, in the county of Westchester and State of New York, have invented
5 a new and useful Improvement in Railroads and Vehicles for Railroad Transportation, which invention is fully set forth in the following specification.

This invention relates to certain improvements in the construction of railway-tracks and to the form and structure of the cars, locomotive-trucks, and vehicles adapted for use on a railroad of any kind, whether surface,
10 underground, elevated, or on an incline plane.

This invention is specially adapted to the use of slide-tracks, upon which sliders may rest and travel. It also permits of the usage of flanged wheels, the shape of the rails being
15 such as to furnish a bearing both for the slider and for the wheels.

One of the objects of this invention is to enable slide-tracks to be used and sliders to be adapted to railroad-cars and locomotive-trucks as now constructed.

I am aware that the use of slide-tracks for railroads and sliders upon railroad-cars is not broadly new; but there are numerous objections to the use of sliders and slide-tracks as now constructed, on account of which a high
25 degree of speed cannot be attained with safety, and it is one of the objects of my invention to obviate these objections.

In my improved railroad-track the rail consists of a broad flat base, upon the outer edge
35 of which there is a web or column. Upon the top of this web or column is a flange turned inward. The portion of the base which is inside the web constitutes the slideway upon which the slider rests and travels.
40 The slider is kept in position by means of the flange. The slider attached to the cars has at its base a flange turned outward and adapted to fit into the groove formed by the base of the slideway and the flange above the
45 same. The latter flange is also adapted to support an ordinary flanged wheel.

For use in switches a special form of rail and of switch is desirable. The base of the rail, forming the movable part of the switch,
50 is provided with slideways and flanges on each side of the upright web. It is pivoted near one end, so that it can be readily turned

in the proper direction, and the movable portions of the rail are adapted to run in curved slots or ways in the switch-plate, as will be
55 readily seen by reference to the drawings. A somewhat similar arrangement is necessary where two tracks cross one another at an acute angle. The slider is attached to an upright post having an opening, through
60 which runs the brake-lever having a brake-shoe attached to one end. The brake-shoe is pressed down on the flanged top of the rail by drawing a chain attached to the other end of the lever, which chain is connected by well-
65 known means to the hand-brake on the car-platform, or to the steam, air, or electric brake appliances now in use. The method of connection may be varied, and it forms no part of my invention. The brake-shoe is ordinarily kept
70 away from the flanged top of the rail by a spring pressing upon the lever near the other end. The slider is carried by a supporting-bar passing through a hole in the upper portion of the slider-post. The bar is fitted at its ends
75 into blocks inclosed by guards or boxes on the truck-frame, and the blocks have a certain amount of play upward and downward in the boxes or guards. Strong springs are interposed between the blocks and the bottom of the car.
80 The other arrangements of the relations of the truck and the guard are those ordinarily used in railroad-cars at the present time.

The accompanying drawings will serve to illustrate my invention.
85

Similar letters of reference in the different drawings indicate similar parts.

Figure I is a front view of a car-truck provided with the appliances constituting the present invention. Fig. II is a side view
90 thereof. Fig. III is a detail of the slider and its support. Fig. IV is a plan view of the switch. Fig. V is a detail of the same; Fig. VI; a detail showing a car-wheel resting on the rail.
95

The form of the rail is shown in section in Fig. I. It has a broad flat tread or base *a*, whose upper smooth surface constitutes a slideway, an upright web *b*, springing from
100 near the outer edge of the base, and an inwardly-projecting flange *c*, whose top surface is adapted to support an ordinary flanged car-wheel, as shown in Fig. VI, and is made comparatively rough.

B is an upright post or bar having at its base an outwardly-projecting flange or shoe C, which constitutes the runner or slide resting on the slideway *a* and fitting in the groove between the same and the overhanging flange of the rail. The post B has near its upper end a square opening *d*, through which passes the supporting-bar D. The latter extends across the truck, and is fitted at its ends in blocks E, inclosed by the guards or boxes F, bolted to the car-body. Blocks E have a certain play vertically in their boxes, and between them and the car-body are interposed powerful springs. These may be of various kinds and applied in various ways. A convenient arrangement is shown in Fig. II, in which a bar F' is supported at the ends upon the two cross-bars of the truck, the springs G being placed between this bar F' and the car-body. The body of the slider has another opening or slot *g*, through which passes the brake-lever G, carrying on its outer end the brake-shoe H, which hangs directly above and close to the flange *c* of the rail. The other end of this lever is connected with a brake-chain *h*, which runs to any ordinary hand or power device for operating the brakes. When chain *h* is tightened, the shoe H is forced directly down upon the rail, and, as the post B constitutes or carries the fulcrum of the brake-lever, the tendency is to grip or clamp the flange *c* of the rail between the brake-shoe and the slider C. Spring I lifts the brake-shoe off the flange when the chain is relaxed.

When two tracks diverge, a switch-rail such as shown in Figs. IV and V is provided. The rail has two flanges *c c'*, projecting in opposite directions, so as to guide the slider and wheels to either track. It is pivoted by means of a pin *k*, passing through a hole in switch-plate K. The latter has grooves curved on arcs struck from the center of the pivot-pin *k*, and in these grooves fit the slides *l*, attached to the base of the switch-rail.

The switches may be operated to guide the slides and car-wheels from one track to the other by means of ordinary switch-operating appliances, such as cranks and switch-levers, as indicated in Fig. IV, which being well known require no description.

The rail, which includes the slideway, should be constructed of steel, bronze, aluminium, or any material having the requisite strength and firmness and smoothness of surface. The surface of the slideway may be lubricated, if necessary. Similar qualities are necessary in the sliders.

The channels or grooves in which the switch-slides run, as well as the switch-plate, should be composed of metal having qualities similar to those stated.

Wheels of the ordinary type may be attached to the cars or locomotive-trucks, and by well-known methods, which need not here be described, the wheels can be so adjusted to the sliders, or the sliders so adjusted to the

wheels, that the one or the other will carry the car. I consider, however, that it is preferable that the cars should be carried in the smooth slideways, and that the flanged top of the rail, against which the wheel comes in contact, should not be smooth, and that the function of the wheel should be rather that of a brake.

The form of the slider and of the slideway protected by its flanged top keeps the cars upon the tracks.

One of the advantages of this invention is that the system of slides and slideways can be introduced without materially changing the ordinary wheeled railway-cars. In fact, wheeled cars and sliding cars can be used at the same time and form parts of the same train. These improved slides can be applied to the forward bearing of a locomotive, leaving the ordinary driving-wheels on the top surface of the track. Thus the driving-wheels will have a bearing-surface against which there is sufficient friction to enable the driving-wheels to take hold of the track, and at the same time all the other bearing-surfaces of the locomotive and all the bearing-surfaces of the cars will be upon a very smooth surface. It is believed that by this means facilities are offered for obtaining a high degree of speed accompanied with greater freedom from liability to accident.

In regard to the comforts of passengers the system of slideways and sliders introduces great improvements. The vibration is very much less, and this decreased vibration also tends to make the wear and tear, especially upon bridges and elevated structures, much less than is at present caused by the pounding of the wheels upon the rail in the rapid motion of the train. The noise and the jar and the wear and tear upon roadway and stock are all decreased, thereby increasing the comfort of the passenger and decreasing the cost of maintenance.

The application of the improvements to the car-trucks heretofore described can be readily made either by a new form of truck or they can be adapted to the frame of an ordinary railroad-car truck by adopting the improvements made in the box or guard F. This box or guard is so arranged in relation to the block E that the latter can move up and down in the guard and thus furnish side and top bearings for springs which are placed on the end of the bar, as more particularly described in another application of even date herewith, numbered 382,156. This introduces an improved method whereby the side motion of the vehicle is relieved. The spring placed, as before described, above the supporting-bar or its slide-block, in combination with the smooth gliding motion of the slides, affords still further protection from jar, whether caused by the up-and-down movement of the cars or the side motion in going around switches or unevenness of the track.

The brake hereinbefore described will serve to keep the movements of the car entirely under control.

The placing of the sliders under the forward end of the locomotive will hold the engine more perfectly to the track, and will enable greater speed to be made with safety, especially when going around curves.

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

1. A rail adapted to be used in a railroad-track containing a slideway adapted to be lubricated or made smooth and a flange overhanging the slideway, substantially as described.

2. A rail adapted to be used in a railroad-track switch containing on each side thereof a slideway adapted to be lubricated or made smooth and two flanges, one overhanging each slideway, substantially as described.

3. A rail adapted to be used in a railroad-track containing a slideway adapted to be lubricated or made smooth and a bearing-surface for wheels above the slideway and substantially in the same line perpendicularly.

4. A rail adapted to be used in a railroad-track containing a slideway adapted to be lubricated or made smooth and having a comparatively rough bearing-surface for wheels above the slideway.

5. The combination of a railroad-track containing a slideway adapted to be lubricated or made smooth, having a flange overhanging the slideway, with the railroad-car or locomotive-truck containing sliders provided with a flange adapted to fit in between the slideway of the rail and the overhanging flange thereof.

6. The combination of a railroad-track containing a slideway adapted to be lubricated or made smooth, having a flange overhanging

the slideway, with a railroad-car or locomotive-truck containing sliders provided with a flange adapted to fit in between the slideway of the rail and the overhanging flange thereof and being provided with a brake-bearing against the overhanging flange of the rail.

7. In combination with a system of slideways in railroad-tracks and sliders upon railroad-cars or locomotive-trucks, a brake adapted to bear upon the top surface of the rail.

8. A switch-rail adapted to be used in a railroad-track switch containing on each side thereof a slideway adapted to be lubricated or made smooth and two flanges, one overhanging each slideway and pivoted near one end, with the other portions of the rail moving in curved grooves.

9. In a railroad-car or locomotive-truck adapted to be run upon a slideway, a brake adapted when in operation to bear against the top surface of the rail, and a spring so adjusted as to lift the brake from the rail when power is not applied to the brake to press it against the rail, substantially as described.

10. In a railroad-car or locomotive-truck adapted to turn upon a slideway, a supporting-bar passing into or through the slide-post secured at its ends in guards or boxes, in which there is a certain amount of upward and downward play, and springs interposed between said bar and the bottom of the car, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ENOCH G. TOBEY.

Witnesses:

R. A. PIPER,
CHARLES H. SCHAEFER.

Correction in Letters Patent No. 454,306.

It is hereby certified that in Letters Patent No. 454,306, granted June 16, 1891, upon the application of Enoch G. Tobey, of Tarrytown, New York, for an improvement in "Railroads and Vehicles for Railroad Transportation," an error appears in the printed specification requiring the following correction, viz.: In line 66, page 3, the word "turn" should read *run*; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 30th day of June, A. D. 1891.

[SEAL.]

GEO. CHANDLER,
First Assistant Secretary of the Interior.

Countersigned:

C. E. MITCHELL,
Commissioner of Patents.