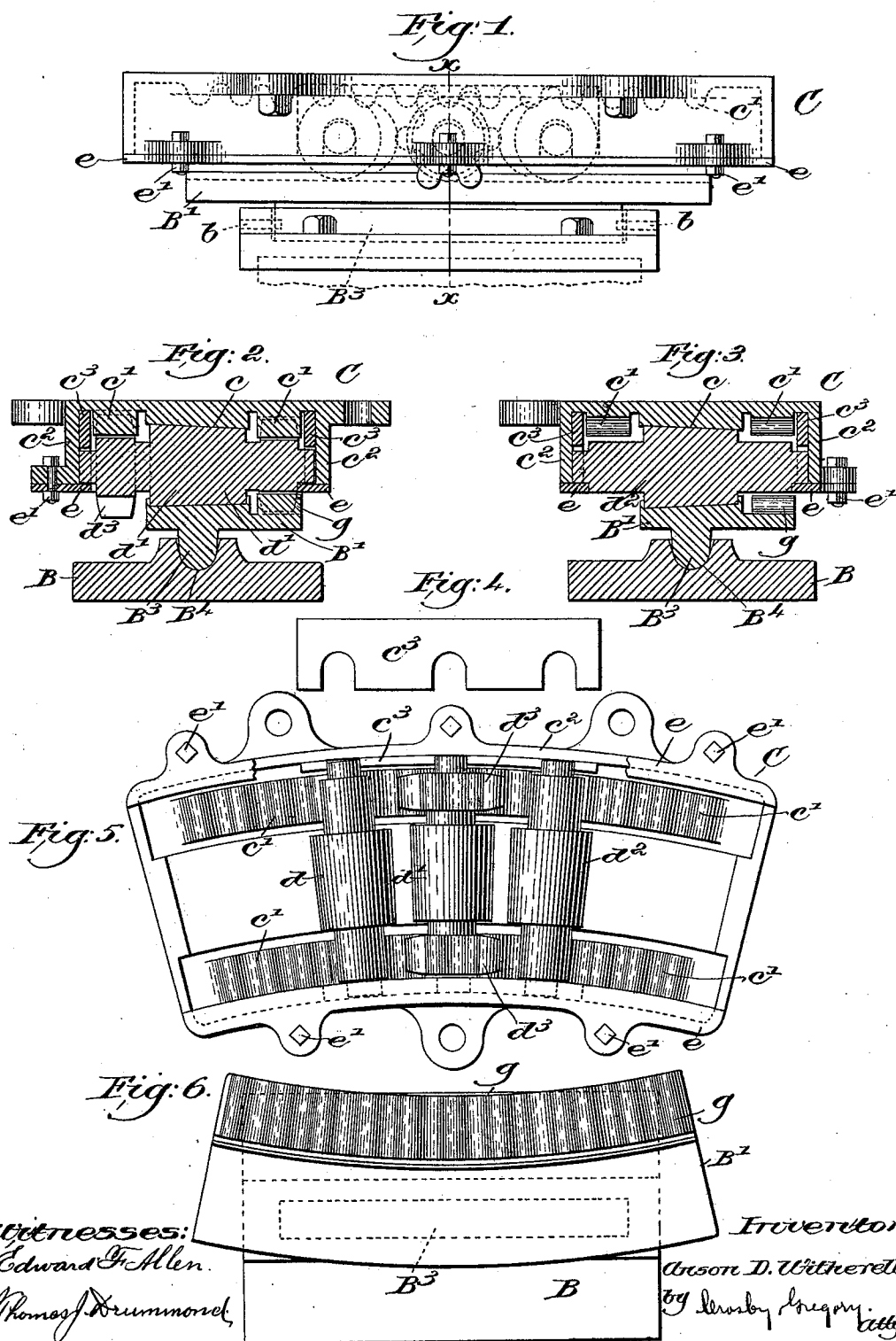


(No Model.)

A. D. WITHERELL.
ANTIFRICTION CURVE PLATE.

No. 582,594.

Patented May 11, 1897.



UNITED STATES PATENT OFFICE.

ANSON D. WITHERELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDWARD O. ELY, OF SAME PLACE.

ANTIFRICTION CURVE-PLATE.

SPECIFICATION forming part of Letters Patent No. 582,594, dated May 11, 1897.

Application filed July 27, 1896. Serial No. 600,579. (No model.)

To all whom it may concern:

Be it known that I, ANSON D. WITHERELL, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Antifric-
5 tion Curve-Plates, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the production of an improved antifric-
tion curve-plate adapted to be placed between the trucks and bodies of cars, whereby the friction between the bodies and trucks when going
15 about curves of a track is lessened and the wear on the wheel-flanges greatly reduced.

This invention is intended to be an improvement on the apparatus represented in United States Patent No. 440,711, dated No-
20 vember 18, 1890.

In this my present invention I have provided the track of the curve-plate on which the cones run with a convexed rib, forming an integral part therewith, which enters a
25 concaved seat in a fixed bed, so that the said track may tip in the direction of its width to enable the cones to come to a full and level bearing throughout on the said track, said construction avoiding wear and faulty action
30 of the curve-plate, means being also provided for keeping the said rib seated in the seat. I have also provided one of the rollers with a pin at each end, which engages teeth on the upper part or shell of the curve-plate, and I
35 have connected the axis of the rolls used by two independent notched slide-bars, thus dispensing with a four-sided cage which has heretofore been used.

Figure 1, in side elevation, represents a
40 curve-plate embodying my invention; Fig. 2, a section thereof on the dotted line x , Fig. 1; Fig. 3, a section on the dotted line x' , Fig. 5. Fig. 4 shows one of the roller-carrying slides detached. Fig. 5 is an under side view of the
45 cone-carrying part of the curve-plate, it being detached from the car-body and inverted. Fig. 6 is a top or plan view of the under track part of the curve-plate.

The truck (represented in part by dotted
50 lines in Fig. 1 and marked A) may be of any usual or suitable construction commonly used

on railways. The truck sustains the bed B, having a concaved groove B^4 , on which is mounted to tip in the direction of its width the lower track B' of the curve-plate, said
55 track, as herein shown, having a long rounded rib B^3 cast integral therewith, it entering the groove B^4 in the said bed, but it is obvious that this construction might be reversed, the said rib being kept in said seat by suitable
60 pins or pivots b . (Shown by dotted lines.)

The upper part or shell C of the curve-plate is to be suitably bolted to the under side of the car-body above the truck B' , said part C having a track c and a series of rack-teeth c' ,
65 one at each side of the track.

Inside the two flanges c^2 of the part C, I have mounted two independent sliding bars c^3 , having three notches, (see Fig. 4,) in which are placed the journals of three rolls or cones
70 d d' d^2 , the central cone having mounted on its journals two cog-wheels d^3 , which mesh with the rack-teeth c' c' .

The bars c^3 and the journals are maintained in the part C by flanges e , retained in place
75 by suitable bolts e' .

In practice the rolls or cones normally stand substantially out of contact with and above the track B' , and when said rolls or cones, by reason of the tipping or swaying of the
80 car on a curved part of the track, descend and meet the said track the latter by its freedom to tip readily adjusts itself to and forms a firm true support for said rolls or cones from tip to base, and the friction of the rolls
85 on the said track cause them to be turned or rotated, and in rotating the roll d' , having the cog-teeth in engagement with the two rows of rack-teeth c' , causes the said roll in its rota-
90 tion to be moved uniformly and equally at its opposite ends, it moving the two independent slide-bars c^3 , causing them to keep the rolls d and d^2 at the proper distance from the roll d' and prevent any binding or disarrangement of the said rolls or cones. 95

Were it not for mounting the track B' so that it could tip and adapt its level to the face of the rolls or cones, very great care would have to be maintained in mounting the part C and the track B, or else the surface of the
100 track and the rolls or cones would not contact properly, and without such proper con-

tact the benefits which it is the purpose of the antifriction curve plate to give to the car is in a great measure lost and the parts will not stand up to the great strain to which they are subjected.

I have shown the track B' as provided with a set of cog-teeth *g*, but they, while desirable, are not absolutely necessary in use, and, further, I desire it to be understood that this invention is not limited to the exact shape shown for the rib B³, as the same may be changed in cross-section and other well-known shapes be used without departing from my invention.

I do not herein claim a loose roll located between the under side of the track-plate and the bed.

The two separate independent bars *c*³ afford a light, simple, and most easily applied means for holding together the journals of the said rolls, so that they shall move uniformly, and by the use of a pin at both ends of one of the rolls, said pins engaging separate tracks, it is possible to better keep the entire system of rolls in parallel condition or relation.

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

1. An antifriction curve-plate composed of a shell having a track and two sets of rack-teeth, a series of rolls or cones, one of which has a cog-wheel at both ends to engage said

rack-teeth, and two independent disconnected sliding bars notched to embrace the journals of said rolls or cones, combined with a tipping track on which said rolls rest and run said track, having integral with its under side a convexed rib and a bed having a concaved seat, to receive the rib of said track and permit said track to tip under the action of the rolls or cones in seating themselves on said track, substantially as described.

2. An antifriction curve-plate composed of a shell having a track and two sets of rack-teeth, a tipping track having integral with its under side a convexed rib, a series of rolls or cones interposed between the said shell and tipping track, one of said rolls having a pinion at both of its ends in engagement with the two series of rack-teeth, two independent notched slide-bars embracing the journals of and connecting the said rolls together, a bed having a curved seat to receive the convexed rib of the tipping plate, and means to retain said rib in said seat to operate, substantially as described.

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

ANSON D. WITHERELL.

Witnesses:

GEO. W. GREGORY,
MARGARET A. DUNN.