

UNITED STATES PATENT OFFICE.

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TRACTION-RACK RAIL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 772,731, dated October 18, 1904.

Application filed December 3, 1903. Serial No. 183,580. (No model.)

To all whom it may concern:

Be it known that I, EDMUND C. MORGAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Traction-Rack Rail for Railways, of which the following is a specification.

This invention relates to traction-rack rails for railways.

The object of the invention is to improve the construction of devices of this nature and to render the same more efficient in operation.

A further object of the invention is to provide means whereby a traction-rack is employed and is arranged to be engaged by gearing carried by the truck or car and operated by suitable motor thereon for causing the truck to move along the track and wherein such traction-rack is so arranged as to be placed in the road-bed without offering undue obstruction in the surface of the road-bed.

A further object of the invention is to provide a traction-rack in the road-bed of a railroad in which means are provided for preventing the traction-rack from becoming clogged with accumulated dirt.

A further object of the invention is to provide a traction-rack in the road-bed of a railroad wherein accumulations of dirt, dust, or the like may be readily removed.

Other objects of the invention will appear more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claim.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view in transverse section of a road-bed, showing the application thereto of a traction-rack embodying the principles of my invention. Fig. 2 is a broken top plan view of a section of traction-rack constructed in accordance with the principles of my invention. Fig. 3 is an

edge view of the traction-rack shown in Fig. 2. Fig. 4 is a broken view, in longitudinal section, on the line 4 4, Fig. 1, of a portion of a road-bed, showing the application thereto of a traction-rack in accordance with the principles of my invention.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In the construction of railroads, and especially street-car lines, mine-haulage roads, and the like, where heavy grades are encountered it frequently occurs that under ordinary conditions the weight of the car or truck is insufficient to afford the desired degree of traction for the motor or locomotive to haul the car or train up the grade. It is among the special purposes of my present invention to provide a traction-rack arranged to be engaged by gearing carried by the car or truck and operated from a motor mounted upon the car or truck, whereby the car, locomotive, or train may be propelled along the track-rails and up the grade. In providing such a traction-rack and arranging the same in the road-bed it is desirable that the traction-rack be so placed as to avoid offering undue obstruction to persons or animals using the street or to the wheels of vehicles or the like. It is also desirable to provide means whereby the traction-rack is prevented from becoming clogged or filled with accumulations of dirt, dust, snow, ice, or the like. It is among the special purposes of my invention to accomplish these desirable objects and in a simple and efficient manner.

In carrying out my invention I employ sheet-metal plates or bars A, having holes or openings B punched or otherwise formed therethrough and suitably spaced apart throughout the length of the bars or plates to form a rack to receive the teeth or cogs of a gear which is to be mounted upon the truck and driven in any suitable manner, whereby the truck is advanced along the road-bed. The plates or bars A are arranged end to end throughout the length of the road-bed or the track-rails and at their ends are joined to-

gether by means of fish-plates C, suitably lapped across the joint between adjacent bars or plates A and securely bolted or otherwise secured to each plate by means of bolts D or otherwise. In practice I place the fish-plates C upon the under side of the plates or bars A, and the securing-bolts D pass transversely through openings formed through said plate A and fish-plate C. Preferably, and in order to avoid the undue projection of the heads of the bolts above the surface of the plates or bars A, said plates or bars A, through which the securing-bolts D pass, are countersunk, as clearly indicated in Fig. 3, to receive therein the heads of the bolts D. I do not desire, however, to be limited in this respect.

E designates the track-rails of the road-bed, and the traction-rack bars A are placed in position to extend parallel with respect to the track-rails and in suitable relation with respect thereto. In the particular form shown, to which, however, I do not desire to be limited, the traction-rack is placed between the track-rails E and substantially flush, as shown in Fig. 1, with the filling F, forming the road-bed between the track-rails. In practice I propose to support the traction-rack upon the edges of suitably-spaced supporting plates or strips G, the latter resting on edge upon stringers H, lying upon the track-rail-supporting ties J. In this manner a box-like opening or conduit K is provided underneath the traction-rack, into which may fall any dirt, dust, snow, ice, stones, or the like which may be deposited upon the traction-rack, thereby affording means for preventing the traction-rack openings D from becoming clogged. The arrangement above described brings the traction-rack substantially flush with the top surface of the filling forming the road-bed between the traction-rails, thereby avoiding any undue raised obstruction in the surface of the road-bed.

While I have suggested in the foregoing that a traction-rack embodying the principles of my invention is especially adapted for use on roads encountering heavy grades in order to afford means for propelling the car, train, or the like up the grade, it is obvious that the principles of my invention may be equally well adapted for use in connection with level tracks.

In the case of the use of a traction-rack embodying my invention it may become desirable to clean out the accumulated dirt, rocks, stones, or the like which may in the course

of time become deposited in the box or conduit K. This cleaning out may be effected by flushing such conduit. In Fig. 4 I have indicated the use of a traction-rack embodying my invention in connection with a grade, and I have shown a catch-basin L, with which the conduit K communicates, said catch-basin being provided with a usual manhole plate or cover M and communicating through a grating N or otherwise with a sewer O. Thus by forcing a volume of water through the conduit K the same may be flushed out, and hence cleaned of accumulations of dirt, dust, and the like, if necessary.

It is obvious that a traction-rack system embodying the principles of my invention may be employed in any case for propelling a car, locomotive, or train along a track, with the traction-gearing constantly engaging the traction-rack and driven by the motor on the truck, car, or locomotive; but in the special uses of my invention for grades encountered in street-car, mine-haulage, or other roads it is obvious that the car, truck, or locomotive may be equipped to drive the ordinary traction-wheels on the track-rails along level places, while the traction-rack is employed only on grades. In such event the driving-gear which coöperates with the traction-rack may be arranged to be moved into and out of engagement with the traction-rack when the portion of the road which is provided with the traction-rack is encountered.

Having now set forth the object and nature of my invention and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

In an apparatus of the class described, a traction-rack comprising plates or bars arranged end to end, and having suitably-spaced openings therethrough, in combination with fish-plates lapped over the joint at the abutting ends of said plates or bars, and bolts for clamping said plates or bars and fish-plates, said plates or bars having countersunk-seats to receive the heads of said bolts, as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 1st day of December, 1903, in the presence of the subscribing witnesses.

EDMUND C. MORGAN.

Witnesses:

E. C. SEMPLE,
S. E. DARBY.