

No. 679,867.

Patented Aug. 6, 1901.

J. R. SMITH.  
RAILROAD BED.

(Application filed Oct. 14, 1899.)

(No Model.)

Fig. 1

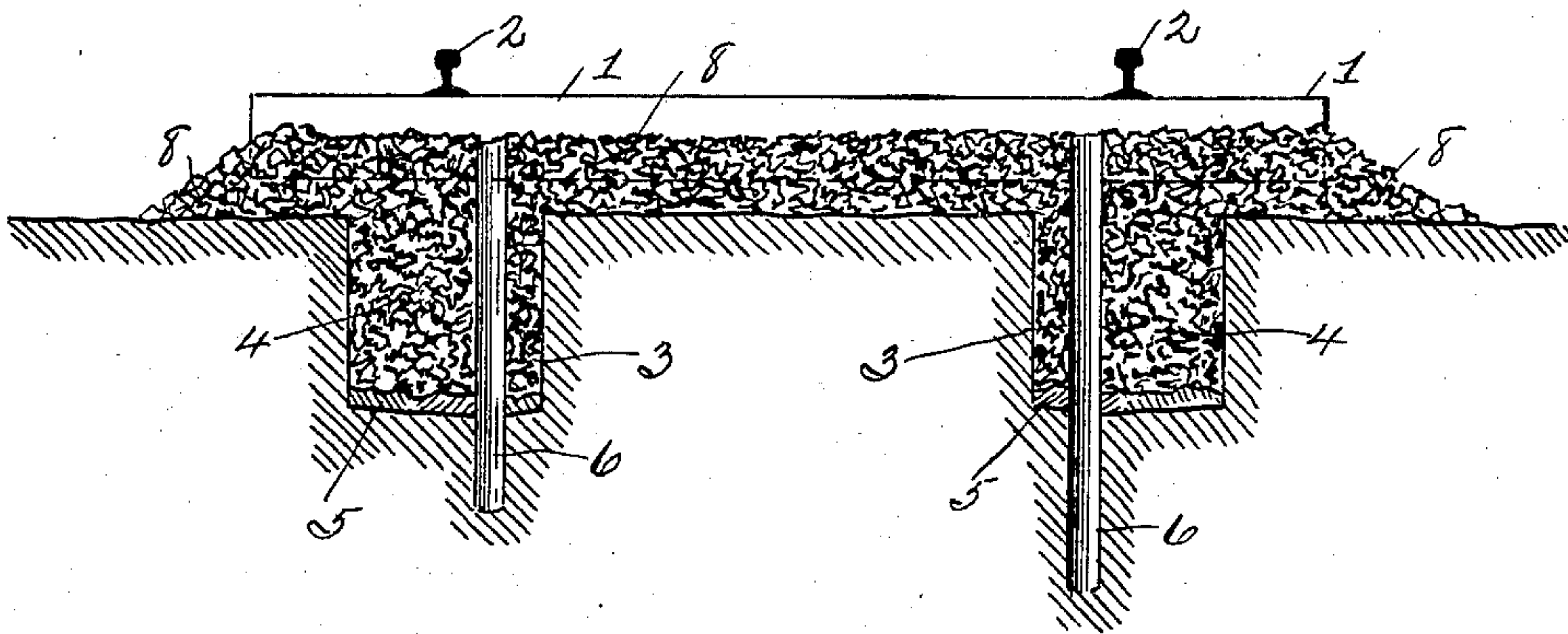
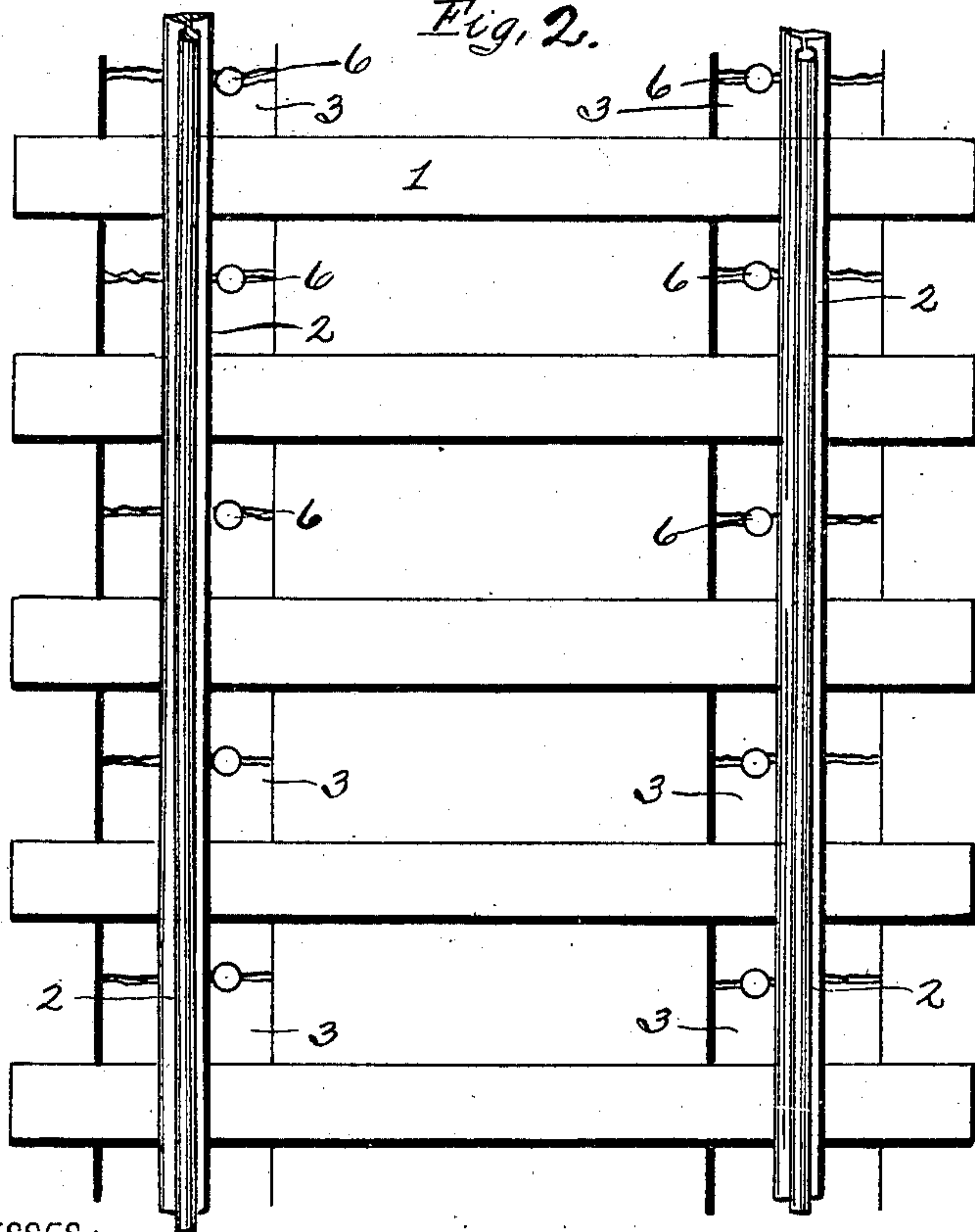


Fig. 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOSEPH R. SMITH, OF MANORVILLE, PENNSYLVANIA.

## RAILROAD-BED.

SPECIFICATION forming part of Letters Patent No. 679,867, dated August 6, 1901.

Application filed October 14, 1899. Serial No. 733,617. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH R. SMITH, a citizen of the United States of America, residing at Manorville P. O., in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Beds; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved railroad-bed and manner of draining the same; and it consists in the construction of ditches beneath the rails and in the direction of the length of the same, filling the said ditches with stone, and providing openings for the escape of water, whereby the bed of the railway is kept dry, together with the certain details of construction and arrangement of the openings and ditches, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a cross-section of a railway road-bed provided with a means for draining the same, the said means being constructed and arranged in accordance with my invention. Fig. 2 is a plan view of the same having the ballast and broken stone removed therefrom.

To put my invention into practice, with a railroad consisting of the ties 1 and rails 2, arranged in a manner well known in the art, I form beneath each rail 2 a ditch 3 of a suitable width and depth and extending in the direction of the length of the said rails. These ditches 3 are formed to drain toward predetermined points, and the said points are located to suit the topography of the country through which the railway passes. Each of these ditches 3 is filled with broken stone 4, the larger pieces 5 of which are arranged in the bottom to form a floor to conduct the water toward the exits or drainage-points above mentioned and toward and into drilled holes 6, extending from the top surface of the ballast 8 down through the broken stone 4 to points beneath the subsoil. The large or bottom pieces 5 extend from one opening 6 to the other, and the said openings are located

between each of the cross-ties 1 and at the intersection of the pieces 5, as shown at Fig. 2, and are formed with a drill or other suitable device, and are of varying depths owing to the nature of the soil, as it is necessary that the bottom of each should be in a stratum of a porous nature, such as sand, gravel, &c. These openings 6 are for the purpose of local drainage and prevent the accumulation of small pools of water in the bottom of the ditches 3, owing to faulty construction, such as an uneven bed, and also in keeping the ground dry in marshy or wet spots due to natural springs, &c. The drilled openings 6 will in time gradually fill with the broken stone and ballast; but the same will not interfere with the water draining into the said openings. The large ditches 3 will quickly drain the road-bed during heavy and frequent rains, and the water not carried off by the ditches will gradually drain into the openings 6 and be carried off through the porous subsoil.

By this construction of a road-bed the same is kept dry and free from swamps and soft spots, as all water will be drained from beneath and not be permitted to remain either in the ballast 8, the ditches 3, or the openings 6.

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

Road-bed for railways comprising in its construction, a pair of parallel right-angular U-shaped ditches arranged beneath and parallel with the rails of the track, a layer of stone forming a bottom for said ditches, a filling of ballast in said ditches extending above the top thereof, said ballast and bottom in said ditch provided with a perforation extending below the subsoil and flush with the top of the ballast, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOSEPH R. SMITH.

Witnesses:

H. J. LEVIS,  
JOHN GROETZINGER.