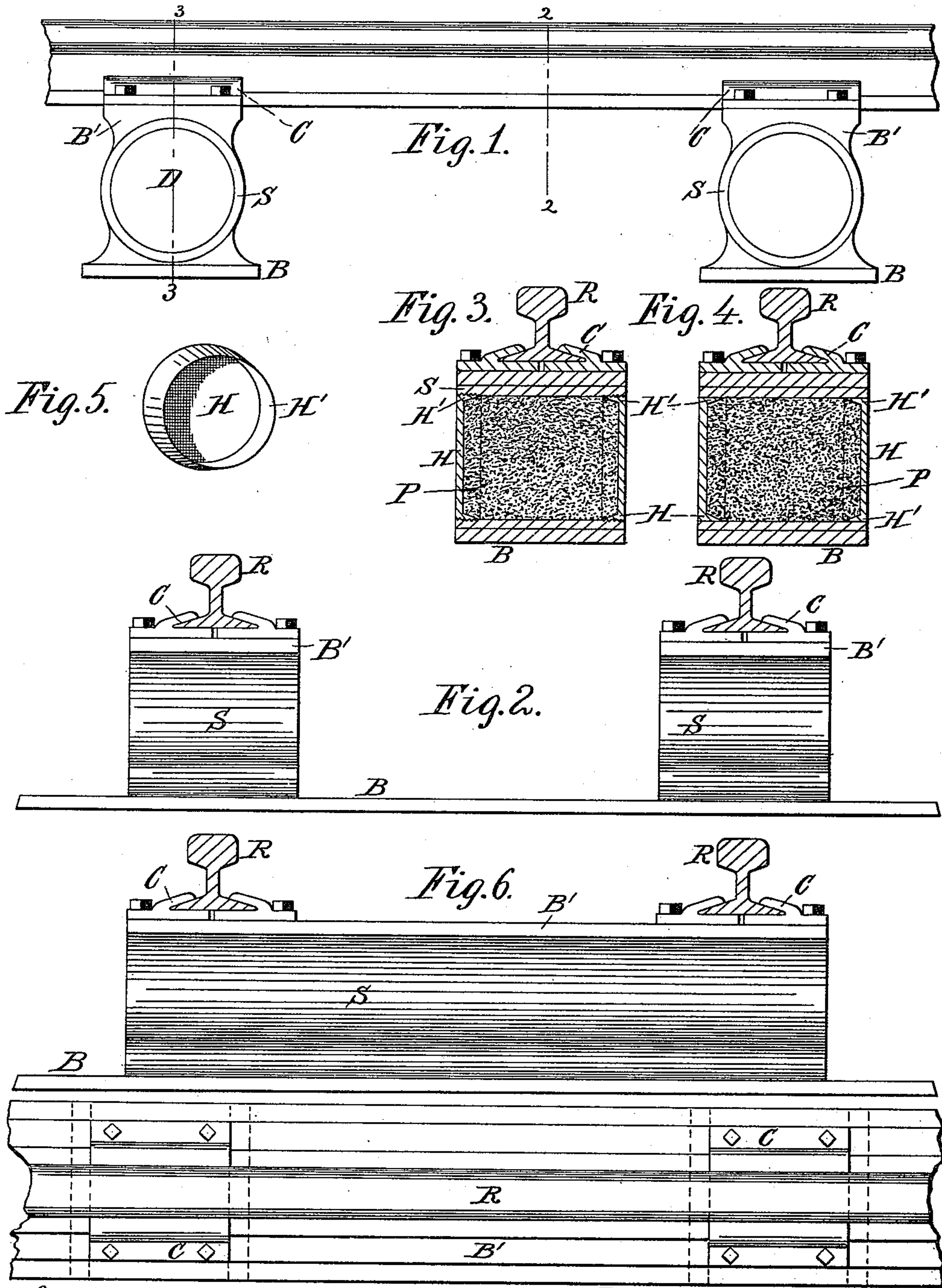


(No Model.)

A. G. WILLARD.
RAIL SUPPORTER.

No. 438,594.

Patented Oct. 14, 1890.



Witnesses:
H. Smith
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Fig. 7.

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UNITED STATES PATENT OFFICE.

ALBERT G. WILLARD, OF CINCINNATI, OHIO.

RAIL-SUPPORTER.

SPECIFICATION forming part of Letters Patent No. 438,594, dated October 14, 1890.

Application filed September 9, 1889. Serial No. 323,412. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. WILLARD, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Rail-Supporters, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use, conjointly or otherwise, will be apparent from the following description and claims.

In the accompanying drawings, making a part of this specification, Figure 1 is a side elevation of a portion of a railroad-rail and an end elevation of two track-supports embodying my invention. Fig. 2 is a vertical transverse section of a railroad-track supported by devices made according to my invention, the rails being shown in transverse section and the said supporting devices being shown in side elevation. Fig. 3 is a vertical section of one of the rails and of my improved device for supporting the same, said section being taken transversely to the rail at the dotted line 3 3 of Fig. 1, and showing the ends or heads united to the cylindrical portion of the device by a screw-thread. Fig. 4 is a similar section in all respects to that shown in Fig. 3, but showing the end or head held to the cylinder by means of the friction of the head with the cylinder, the screw-thread for uniting the head to the cylinder being omitted. Fig. 5 is a view in perspective showing the inner side end and a portion of the peripheral rim of the said head or cap shown in Fig. 4. Fig. 6 is a transverse section of a track and of one form of my device for supporting the same, my device being shown in side elevation. Fig. 7 is a top view of one form of my improved rail-supporter, showing its adaptation to longitudinally support the rail on the stringers or beams of a bridge or elsewhere.

B indicates the basal support. Upon this support is located the tube, box, or receptacle S. Surmounting the receptacle S is the chair-seat B'. Upon this chair-seat rests the chair C, in turn supporting the rail R. The rail R and the chair C may be of any suitable description and suitably united together. The rail R and the chair C and the manner in

which they are connected together, (shown in the accompanying drawings,) are common and well known. Further mention, therefore, of the rail and chair and their mode of jointure is unnecessary. The basal support B and the chair-seat B' are rigidly connected to the receptacle S, and are preferably integral therewith. The preferred material employed is wrought-iron, the basal support B and receptacle S and the chair-seat B' being welded together. The space inclosed by the shell or wall of the receptacle S may be of any conformation suitable to the requirements hereinafter mentioned. The shape of the space D of the receptacle S is, however, preferably cylindrical, such shape being economical of manufacture and very effective in use and affording greater elasticity and strength than an angular figure of the same capacity and dimensions.

Within the space D of the receptacle S, I place a body or core P, made of paper or papier-maché or pasteboard solidified to an extraordinary degree by hydraulic or equivalent pressure. This body or core P is very dense, of great elasticity, and is without grain or lengthened fiber, and is throughout of homogeneous material. The core fits closely within the receptacle S and its shape will conform closely to the conformation of the interior of the receptacle S. Therefore in case of the shape of the space D within the receptacle S being angular in cross-section, instead of circular, as shown in Fig. 1, the core P will be provided with angular faces and will present in cross-section a similar angular figure. The core P is held firmly in place in the receptacle S by suitable means. The core preferably fits the interior of the receptacle S so closely that it requires to be driven into place, the elasticity of the core thus serving to hold it, or assisting in holding it, in position within the receptacle S.

It will be ordinarily desirable to employ a precautionary means for retaining the core in position within its receptacle S. A novel description of such means consists of the head H, provided with the flange H'. In practice the free edge of this flange H' is placed within the edge of the chamber D and the head is then driven into place, the flange entering the receptacle between the inner surface of the

receptacle and the exterior surface of the core. Thus tightly wedged it assists in preventing the core from slipping out of the receptacle at the end where it is located. A
 5 similar head and flange are provided at the other end of the receptacle, and are applied to the latter in the same manner as the first-named head and flange. When found necessary or desirable, the exterior of the flange
 10 H' may be provided with a screw-thread adapted to engage a screw-thread upon the adjacent interior end portion of the receptacle S. The screw-cap H is then screwed into position within the receptacle S, as shown in Fig.
 15 3 of the drawings. Another important function of this head H is to preserve the paper from being attacked by the moisture of the atmosphere.

In Fig. 2 I have shown a desirable mode of
 20 using my invention. Here the rail, with its accompanying chair on one side of the track, is supported by chair-seat B', the receptacle S embracing core P, and located on the basal support B, and the rail, with the chair on the
 25 other side of the track, is supported in like manner by the chair-seat B', receptacle S embracing core P, and located upon the basal support B. The basal support B on the one side of the track is extended over and rigidly
 30 connected to the basal support B at the other side of the track, and for purposes of convenience and economy these two basal supports are integral, and in manufacture will be formed out of the same piece of material.
 35 The basal support B rests upon the road-bed, and the space between the receptacles S is filled with slag, dirt, or other suitable material forming the upper surface of the road-bed, and the ends of the basal supports which
 40 respectively project beyond the respective adjacent receptacles S are also covered with the material forming the upper surface of the road-bed. The upper surface of this material will extend upward to a point a little
 45 below the line of the chairs C C. The rail at suitable intervals will be supported by pairs of the receptacles S, chair-seats B', and united basal supports B. It will be frequently desirable in certain descriptions of track to
 50 extend out the receptacles S toward each other (see Fig. 2) so that they will meet. In such event the preferred form of construction is to form the receptacles S in one piece, making a single receptacle extending from
 55 the outer edge of one side of the track to the outer edge at the other side of the track, as shown in Fig. 6, the chair-seat B' being also for the purpose of giving strength to the structure, likewise extended, and the basal
 60 support B being likewise extended.

The cores P within the receptacles S will be preferably likewise extended and form one single core extending from end to end of the lengthened receptacle S. Another use of
 65 the receptacle S and core and chair-seat B' and basal support B is seen in Fig. 7, and such use is especially applicable for bridges

and the like. In such instance my supporting device will lie lengthwise with the rail, and the latter by its chair rests immediately
 70 thereon. (See Fig. 7.) In case the supporting device is a long one, one or more rails may be supported by a single one of these devices; otherwise the rail will be supported
 75 by two or more of them. These supporting devices may be in turn supported by similar supporting devices, their outline being indicated by dotted lines in Fig. 7. The lower supporting devices may extend across the
 80 track and aid in supporting the opposite rail.

The extended form of my device will also be especially desirable for supporting the rail or rails in the case of switch-connections.

My invention is economical of manufacture and of great efficiency. Furthermore, it is
 85 exceedingly durable. The wooden cross-ties used in most instances to support the rail rapidly decay. When metallic cross-ties are employed, they soon deteriorate. The continual pounding and vibration to which they
 90 are subjected by the rapid passage over them of trains following in quick succession causes the metal of which they are composed to become crystallized and consequently very brittle. As soon as they become brittle they are
 95 of course not only useless for the purposes for which they were employed—namely, as cross-ties—but also positively dangerous. My invention obviates these disadvantages attending the use of iron ties or cross-ties. The
 100 paper core by the blows and vibrations to which it is subjected does not become crystallized and brittle, but, on the contrary, continues to be as strong and tough as when first applied. Being protected from the attacks
 105 of moisture, it possesses great durability, and will resist for a long period the ordinary causes of decay—namely, oxidation, which so rapidly attacks metals. Furthermore, my
 110 invention while firmly upholding the rail is to a desired degree elastic. This elasticity assists in preventing the rail from being mashed or otherwise injured by the tremendous downthrust or blows communicated to
 115 the rail by the heavily-loaded and rapidly-moving rolling-stock passing over it. Thus the durability of the rails is enhanced. Furthermore, the jolting of the cars or coaches passing over said rails is greatly lessened and
 120 the comfort of the passengers of said vehicles is greatly increased.

In case the core P is employed as a cross-tie, it may be employed as such divested of the metallic shell hereinbefore mentioned. In such event, however, it is desirable that
 125 the paper tie be coated with a suitable material for preventing the ingress of water or moisture to the paper, thereby keeping the cross-ties dry.

While the various features of my invention
 130 are preferably employed together, one or more of said features may be used without the remainder, and in so far as applicable one or more of said features may be used in connec-

tion with devices for supporting rails other than the specific combined device hereinbefore described.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. A rail-supporting device consisting of a pair of receptacles S, each provided with a core composed of material substantially as hereinbefore set forth, each of said receptacles being provided with its own chair-seat and united together at the bottom by the basal support B, extended across the track from rail to rail, the space between the respective receptacles S and above the basal supports B being filled with material forming the upper surface of the road-bed, substantially as and for the purposes specified.

2. A rail-supporting device consisting of a pair of receptacles S, each provided with a

core composed of material substantially as hereinbefore set forth, each of said receptacles being provided with its own chair-seat and united together at the bottom by the basal support B, extended across the track from rail to rail, each end of the basal support extending out beyond the outer portion of its respective receptacles S, and the spaces above the extended ends of the basal supports and the spaces between said receptacles S and above said basal supports being occupied by the material forming the upper surface of the road-bed, substantially as and for the purposes specified.

ALBERT G. WILLARD.

Attest:

A. L. HERRLINGER,
G. A. W. PAVER.