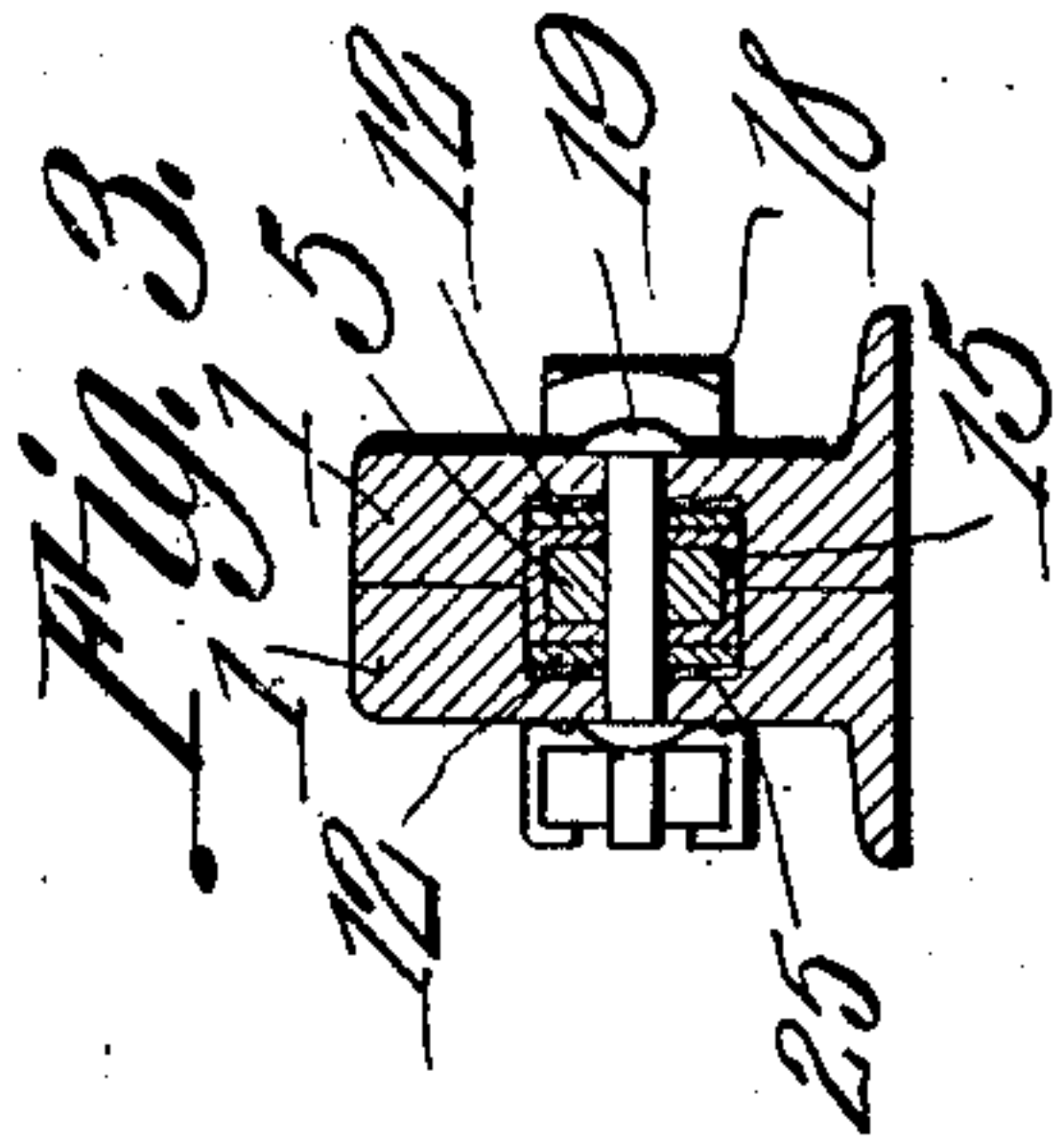
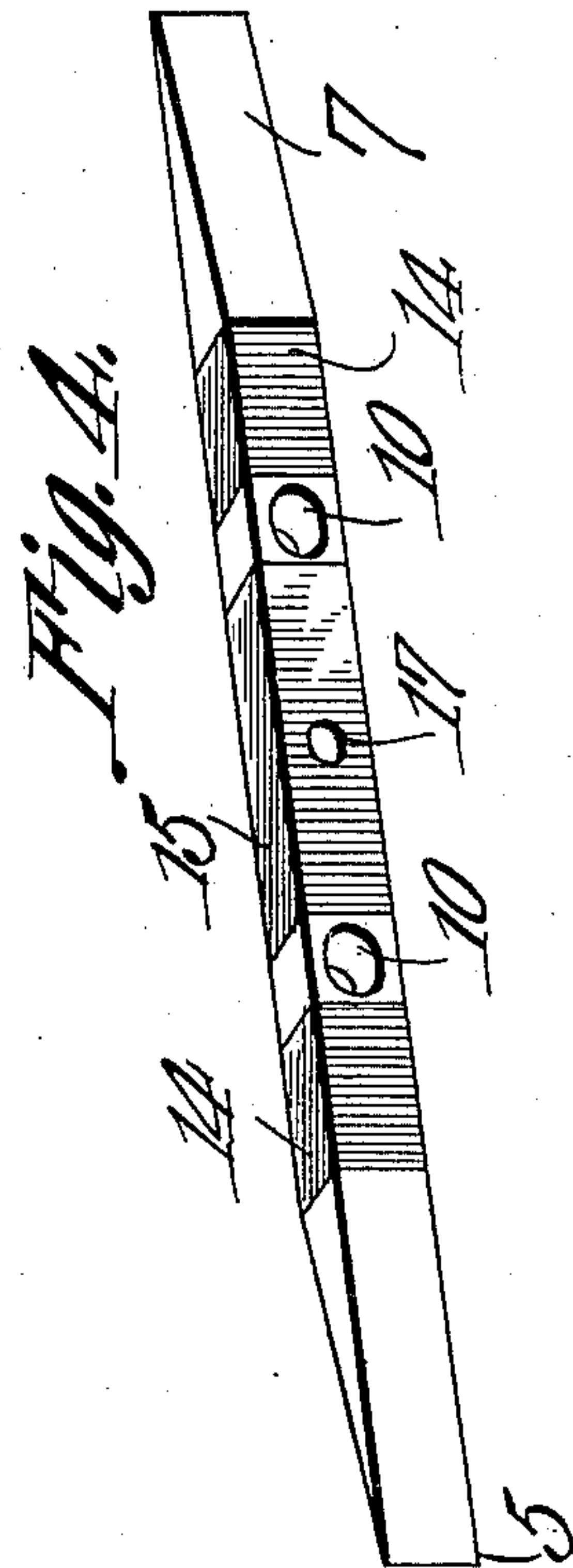
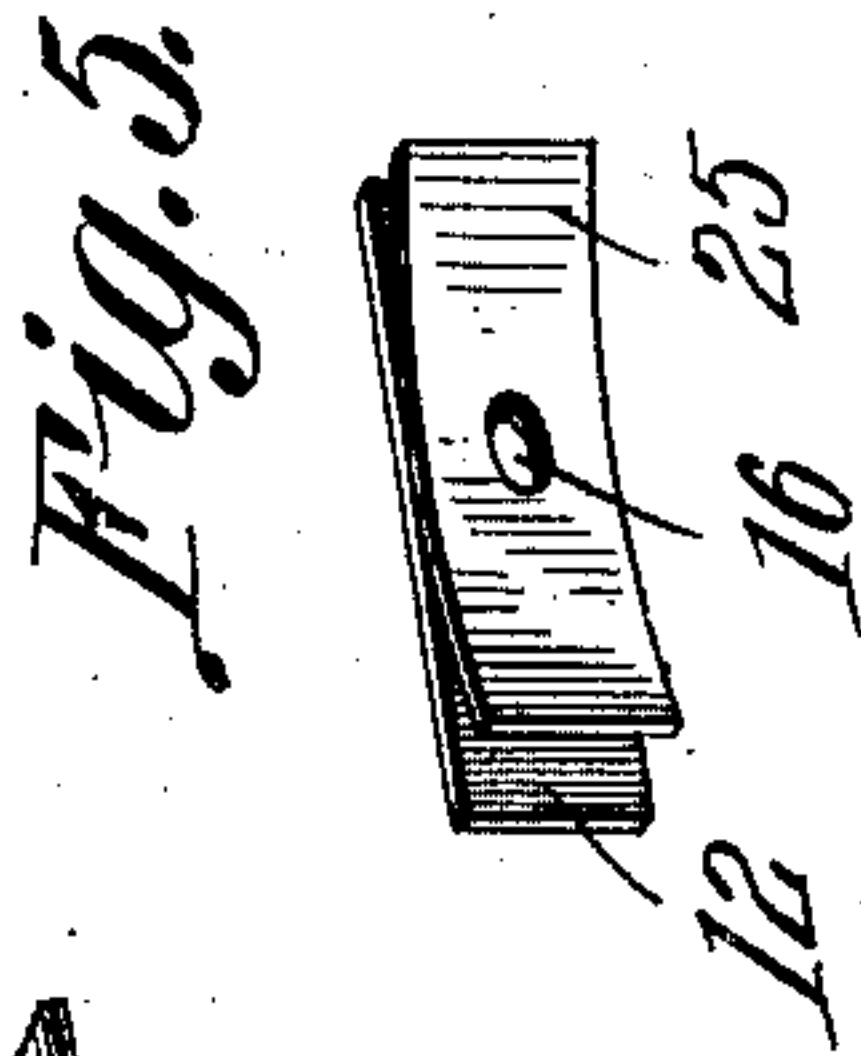
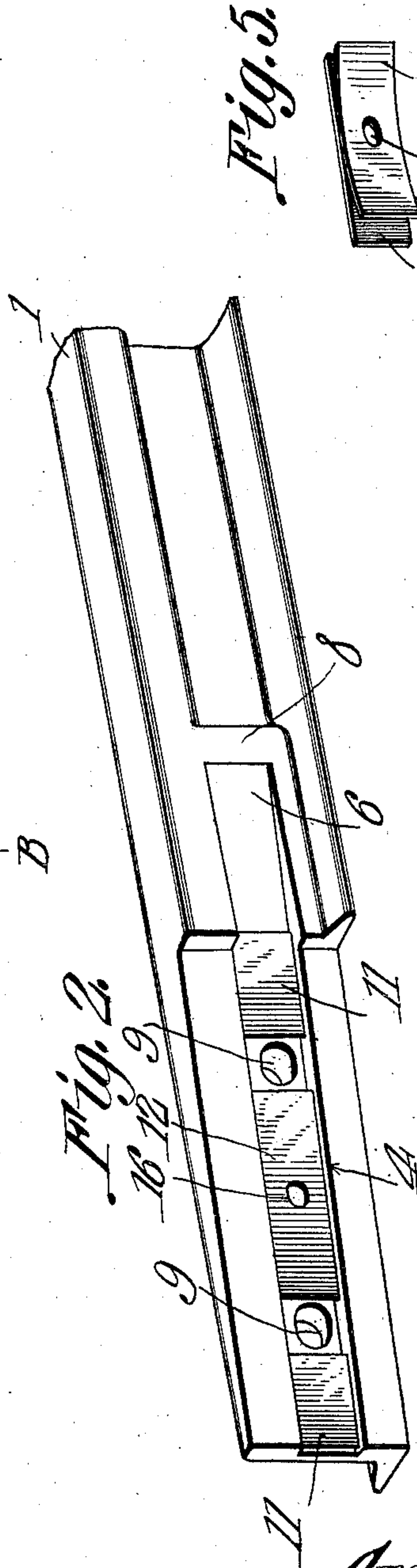
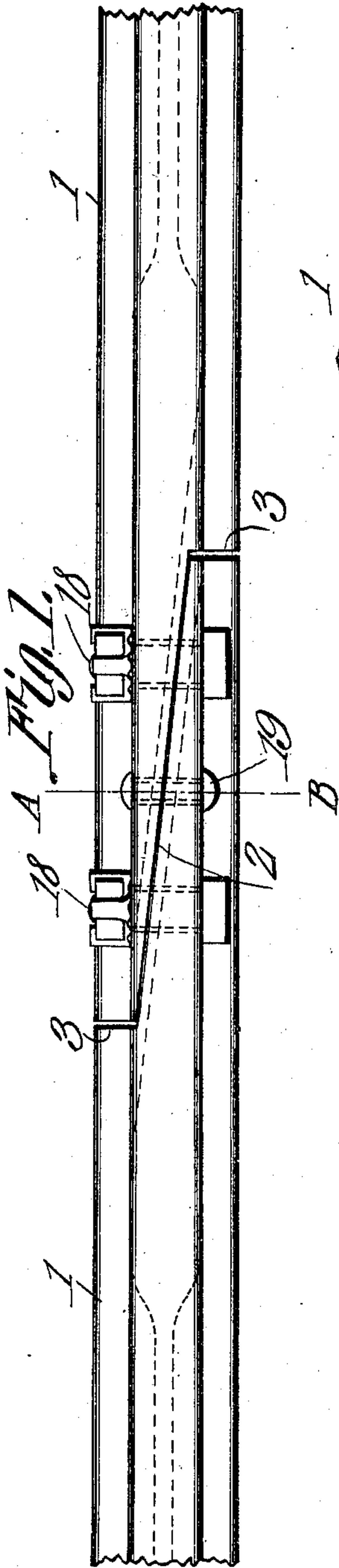


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RAIL BOND.  
APPLICATION FILED MAR. 19, 1910.

987,072.

Patented Mar. 14, 1911.



Witnesses

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# UNITED STATES PATENT OFFICE.

GRANVILLE A. HUMASON, OF SHREVEPORT, LOUISIANA, AND EDWARD F. ODELL, OF GREENVILLE, TEXAS; SAID HUMASON ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JAMES W. ATKINS, OF SHREVEPORT, LOUISIANA.

## RAIL-BOND.

987,072.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed March 19, 1910. Serial No. 550,366.

*To all whom it may concern:*

Be it known that we, GRANVILLE A. HUMASON, residing at Shreveport, in the parish of Caddo and State of Louisiana, and EDWARD F. ODELL, residing at Greenville, in the county of Hunt and State of Texas, citizens of the United States, have invented a new and useful Rail-Bond, of which the following is a specification.

It is the object of this invention to provide a device for uniting the ends of a pair of railway rails in such a manner that, although the rails are free to expand and contract, the said rails will be united against settling, and against shifting, transversely of the track; the device being so constructed, moreover, that the rail ends will be bonded together to provide for the passage of an electric current through the rails.

The drawings show but one form of the invention, and it is to be understood that changes, properly falling within the scope of what is claimed, may be made without departing from the spirit of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the several figures of the drawings.

In the drawings, Figure 1 is a top plan of a pair of rails connected in accordance with our invention; Fig. 2 is a perspective of one of the rail ends; Fig. 3 is a vertical section upon the line A—B of Fig. 1; Fig. 4 is a detailed perspective of the key which is inserted between the rail ends; and Fig. 5 is a perspective of one of the contact plates, together with its actuating spring.

In the drawings, a pair of rails are shown, and denoted generally by the numeral 1. These rails are beveled in a vertical plane, as denoted by the numeral 2, so that diagonally disposed faces are provided in the rails, adapted to fit against each other. The beveled faces 2 are not carried to the edges of the rails 1, but are terminated within the contour of the said rails, defining in each rail, a shoulder 3, against which the reduced end of the other rail may abut.

In the beveled, contacting faces of the rail

ends, there are longitudinally disposed grooves 4, which, as seen most clearly in Fig. 2, are extended at 6, beyond the shoulders 3. In these cooperating grooves 4, a key 5 may be slid, the ends 7 of the key being beveled, so that, when the said beveled ends are mounted in the extended portions 6 of the grooves 4, the outer faces of the ends 7 of the key will be flush with enlargements 8 in the webs of the rails, in which enlargements, the extended portions 6 of the grooves 4 are located; the construction above described being most clearly discernible in Fig. 2. There are openings 9 in the grooved portions of the rails, and these openings are duplicated by similar openings 10 in the key 5, the several openings 9 and 10 being slightly elongated, to provide for the expansion and contraction of the rails.

Located at spaced points in the grooves 4, are plates 11, and similarly located, between the plates 11, is an intermediate plate 12, the openings 9 being located between the adjacent ends of the plates 11 and 12. A band 15 surrounds the key 5, intermediate its ends, and other bands 14 surround the key between the band 15, and the ends of the key. There is an opening 16 in each of the rails, this opening being prolonged through the intermediate plate 12. Likewise, there is an opening 17 in the intermediate portion of the key 5, extended through the band 15 which surrounds the intermediate portion of the key.

In assembling the device, the beveled faces 2, of the rails 1 are brought together, substantially as shown in Fig. 1 of the drawings, and the key 5 is then slid longitudinally to occupy the cooperating grooves 4. When the key is thus positioned, the band 15 will bear against the plates 12, and the bands 14 will bear against the plates 11. The several bands 14 and 15, and the several plates 11 and 12 are preferably fashioned of copper, of other metal having a higher electric conductivity than the rails and key. Any suitable securing devices, nuts and bolts 18, or the like, are extended through the openings 9 in the rails, and through the



openings 10 in the key, to secure the several parts of the device together, the openings in the rails and in the key, owing to their elongated shape, permitting the necessary expansion and contraction. A securing device, a bolt, rivet or the like, is extended through the openings 16 in the rails and through the opening 17 in the key. This bolt 19 is preferably fashioned from copper, or other metal which is a good electric conductor. This connecting element 19 serves to unite the plates 12 and the band 15, and since the several elements 19, 12 and 15 are all fashioned from some good conducting material, it will be seen that the ends of the rails will be bonded electrically, without interfering with the expansion and contraction of the rails. This securing device 19, together with the bolts and nuts 18, serves to draw the several plates 11 and 12 into contact with the bands 14 and 15 respectively, so that, although the rails may expand and contract, with temperature changes, the circuit through the rails will not be broken.

Springs 25 of any desired form, and in the present instance delineated as bowed spring strips, may be provided for actuating the plates 11 and 12 away from the rail section in which they are mounted, and toward the contact elements 14 and 15, which are carried by the key 5. These springs 25 may be rigidly connected with the plates 11 and 12, or they may be introduced loosely between the said plates and the rail section in which the plates are carried. By providing these springs 25, the plates 11 and 12 will be maintained in contact with the elements 14 and 15 which are mounted upon the key 5, even though the securing elements 18 and 19 should work loose in their mountings. Thus the electric current will be prevented from being broken by a loosely assembled rail joint.

Having thus described the invention, what is claimed is:

1. A device of the class described comprising rails having their ends disposed in close relation and provided with contact elements; a key arranged to be inserted between the rail ends to bear against the contact elements; and resilient members disposed between the contact elements and the rail; the contact elements and the portions of the key bearing thereagainst, being of higher electric conductivity than the rails.

2. A device of the class described comprising rails having their ends disposed in close relation; and a key arranged to be inserted between the rail ends and provided with a contact element arranged to bear against both rails; the contact element and the portions of the rails bearing thereagainst, being of higher electric conductivity than the key.

3. A device of the class described comprising rails having their ends disposed in close relation; a key arranged to be inserted between the rail ends; contact elements upon the rails and a contact element upon the key arranged to bear against the rail carried contact elements; the several contact elements being of higher electric conductivity than the rails and the key; and a securing device uniting the rails, the contact elements and the key.

4. A device of the class described comprising rails having their ends disposed in close relation; a key arranged to be inserted between the rail ends; contact elements upon the rails and a contact element upon the key arranged to bear against the rail carried contact element; and a securing device inserted through the rail ends and through the contact elements; the securing device and the contact elements being of higher electric conductivity than the rails and the key.

5. A device of the class described comprising rails having their ends overlapped and having cooperating grooves in their overlapping faces; contact elements mounted upon the rails within the grooves; a key arranged to be inserted in the grooves; and a contact element upon the key arranged to bear against the rail carried contact elements, the several contact elements being of higher electric conductivity than the rails and the key.

6. A device of the class described comprising rails having their ends overlapped and having cooperating grooves in their overlapping faces; contact elements mounted upon the rails within the grooves; a key arranged to be inserted in the grooves; a contact element upon the key arranged to bear against the rail carried contact elements; and a securing device inserted through the rail ends and through the contact elements; the securing device and the contact elements being of higher electric conductivity than the rails and the key.

7. A device of the class described comprising rails having their ends overlapped and having cooperating grooves in their overlapping faces; plates mounted upon the rails within the grooves; a key arranged to be inserted in the grooves; a band surrounding the key and arranged to be brought into contact with the plates; and a securing device inserted through the rail ends and through the plates and through the band; the securing device and the plates and the band being of higher electric conductivity than the rails and the key.

8. A device of the class described comprising rails having their ends disposed in close relation; a key arranged to be inserted between the rail ends; contact elements upon the rails and a contact element upon the key arranged to bear against the rail carried



contact elements; the several contact elements being of higher electric conductivity than the rails and the key; and springs constituting a means for pressing the contact  
5 elements upon the rails and the contact element upon the key together.

In testimony that we claim the foregoing

as our own, we have hereto affixed our signatures in the presence of two witnesses.

GRANVILLE A. HUMASON.

EDWARD F. ODELL.

Witnesses:

F. L. CAMPISI,

J. A. DOSTER.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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