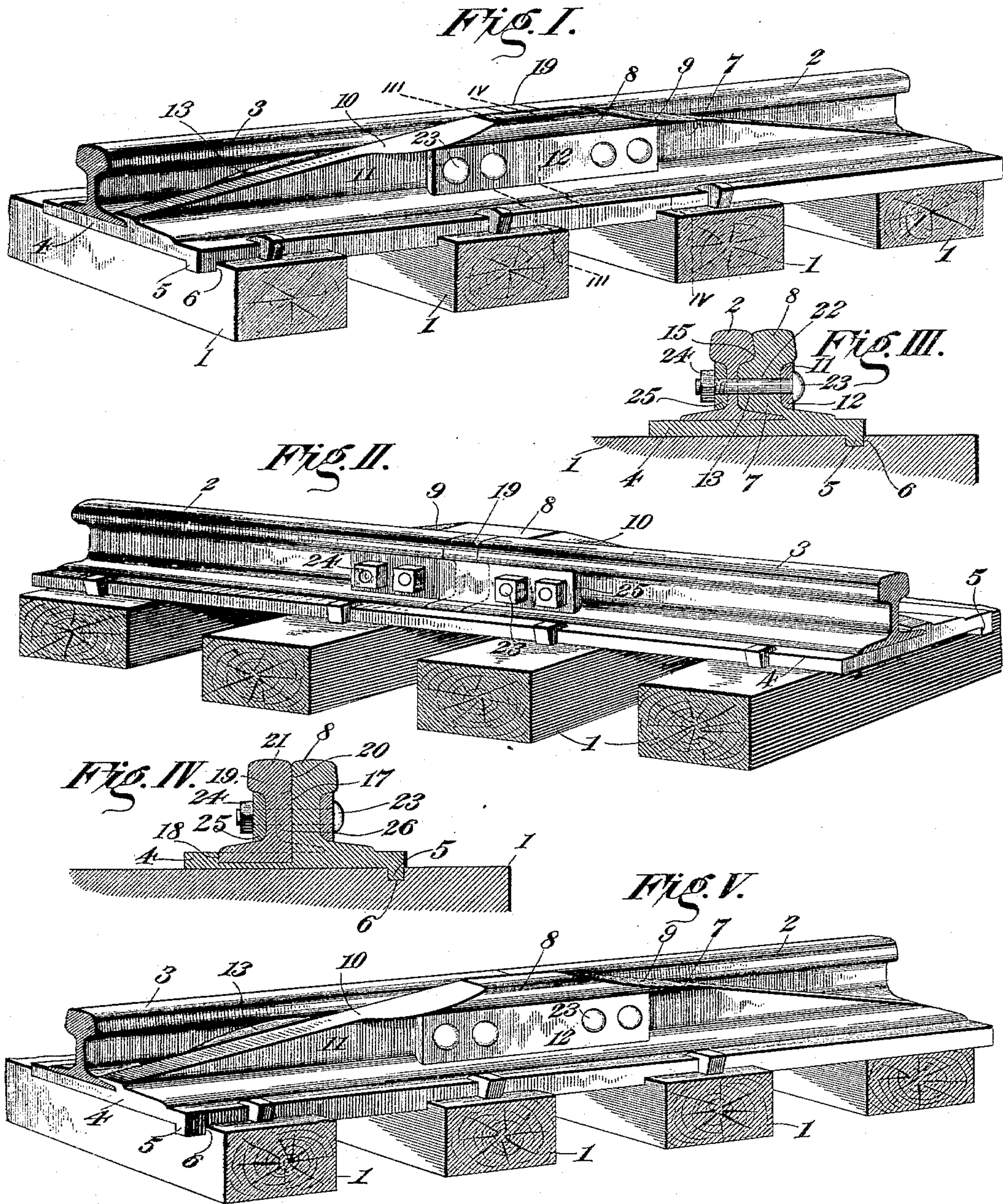


(No Model.)

E. C. EDWARDS.
RAILROAD RAIL JOINT.

No. 597,271.

Patented Jan. 11, 1898.



Witnesses

McTowler
Chester A. Baker

Inventor:

Elbert C. Edwards
By Joseph L. Atkins
Attorney

UNITED STATES PATENT OFFICE.

ELBERT C. EDWARDS, OF EMPORIA, KANSAS.

RAILROAD-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 597,271, dated January 11, 1898.

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To all whom it may concern:

Be it known that I, ELBERT C. EDWARDS, of Emporia, in the county of Lyon, State of Kansas, have invented certain new and useful Improvements in Railroad-Rail Joints, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce simple and practicable means to be employed upon existing railroads without change of the rails themselves that will constitute, in effect, a continuous rail.

My invention, while adapted to permit of the necessary expansion and contraction of the rail, is at the same time adapted to present at the joints of a track at the point at which the ends of the contiguous rails meet a resistance against depression equal to or greater than the resistance offered at any other point on the rail.

The device most generally employed for uniting the abutting ends of rails is commonly known as a "fish-plate." This device, while meeting in many respects practical requirements, affords little or no resistance against depression under the weight of loads imposed upon the rails by the wheels of passing cars. Consequently it is found in practice, even with most careful attention to the road-bed, that a car in traveling over the track receives a slight jolt at each rail-joint. This jolt is perceptible in traveling over the best of roads and becomes a distinct source of annoyance to passengers on any road, no matter how thorough the effort may be to keep it constantly in perfect repair. Moreover, the passing of wheels over the joint formed by contiguous rails tends in a very little while to wear off the ends of the rails, thereby not only increasing the jolt which the cars receive at the joints, but also producing speedy destruction of the rails, to repair which requires constant attention and expenditure.

To overcome the practical difficulties suggested by the conditions above enumerated, various means have from time to time been devised. Among others may be mentioned railway-chairs and splice-bars of various kinds. Such instrumentalities, however, although in some instances adapted to measurably correct the evil, are in many respects

open to the same objections above recited as against the fish-plate joint—namely, that they permit some depression of the abutting ends of the rails. Therefore while they may retard the wear they do not altogether eradicate its cause and are for that reason objectionable.

By my invention a practically continuous, stiff, and unyielding rail may be provided throughout the entire length of a track and one adapted to perform its function under all conditions to which it is likely to be subjected.

In the accompanying drawings, Figure I is a perspective view of a section of a track, showing two abutting rails united by my continuous rail-section with the stop-block in place. Fig. II is a similar view of the same, looking at it from the opposite side. Fig. III is a section on the line III III of Fig. I. Fig. IV is a section on the line IV IV of Fig. I. Fig. V is a view similar to Fig. I with the stop-block omitted.

Referring to the figures on the drawings, 1 indicates the cross-ties as of an ordinary road-bed, four being illustrated in the drawings.

2 indicates one rail, and 3 another. They are supported upon a flat base-plate 4. It is preferably provided on one side with a vertical flange 5, which when employed may enter channels 6, provided for it in the ties 1.

Incorporated with or secured to the base-plate is a continuous rail-section 7, which is provided with a head 8, having preferably inclined ends 9 and 10. On its outer side the rail-section is preferably provided with a channel 11, corresponding to the channel defined by the web of a rail between its base and head and in that manner adapted to receive an ordinary fish-plate 12. The rail-section upon the side opposite the channel 11 is provided with a flange 13, shaped to conform to the shape of a rail which it is adapted to fit, being in that respect, as illustrated, formed with a concave upper surface 15 to fit snugly under the head of the rail illustrated and with a transversely-beveled surface to fit upon the base of the same rail. The flange 13 may be continuous; but I prefer to provide near its middle portion a recess 17, aligned with a socket or box 18 in the bed-plate in

order to accommodate a stop-block 19. The stop-block is in effect a short section of a rail provided with a flat side 20, that is adapted to be interposed between the abutting rails 2 and 3, for example, and to form a substantial continuation thereof, the head 21 of the stop-block being flush with the head 8 of the continuous rail-section. I prefer, but do not restrict myself to the employment of, a removable stop-block.

The rails are provided with usual or suitable bolt-holes that register with bolt-holes 22 in the rail-section 7 and are adapted to receive bolts 23, which, as by means of nuts 24, are adapted to secure the fish-plate 12 on one side of the continuous rail-section to a second fish-plate 25, lying against the webs of the rails 2 and 3 in the usual manner.

By the employment of the fish-plates in connection with the other elements of the joint previously described an exceedingly stiff and durable union of the parts is secured. Moreover, the fish-plate 25, lying against the web 26 of the stop-block, serves to secure that firmly in position within its socket.

The stop-block is employed to prevent creeping of the rails, as when they are laid upon an incline, and may be employed or omitted, as occasion requires. All that is necessary to accommodate the same continuous rail-section for use without the introduction of the stop-block is to remove the latter from its socket and to cause the ends of the rails to abut directly against each other, in which position they may be fastened together in the manner similar to that already described, as shown in Fig. V of the drawings.

An important feature of my invention is found in its longitudinal extent, and this is not a mere difference in degree, but is a distinctly novel recognition of and adaptation to the conditions under which it may be used in practice and the objects sought to be accomplished by its use.

In practice the cross-ties of a railroad-bed are spaced at regular intervals, differing somewhat more or less in different localities. It is essential to the successful employment of my continuous rail-section that it should be of a length sufficient to span not less than three cross-ties in order that the opposite ends of the base-plate may have secure terminal supports upon the ties and intermediate support independent of those ties. Heretofore rail-chairs stretching between adjoining ties have been used, but their failure in part to correct the evil which they were designed to remedy has been due to the fact that the ties do not afford sufficient support to prevent depression at the joint of the rails.

In my continuous rail-section I not only provide cross-ties as terminal supports for the base-plate and the parts secured thereto, which constitute, in effect, a bridge as well as

an intermediate support underneath the joint, but I also provide a head 8 of limited extent that is located opposite to the joint between abutting rails. The ends 9 and 10 of the continuous rail-section are inclined away from the heads of the abutting rails, so that while they contribute strength to the rail-section as a bridge they are not required to support the weight imposed by a wheel directly above or approximately above the terminal supporting-ties.

In practice the tread of the wheel in passing over abutting ends of the rails is sustained by the head 8 of my continuous rail-section, so that the joint of the rails is practically entirely relieved of the weight of the wheel, which, on the contrary, resting but lightly upon the intermediate supporting member or cross-tie, is distributed in oblique directions toward the terminal supporting members or cross-ties. When the stop-block is in place, it affords an additional support for the tread of a passing wheel.

What I claim is—

1. The combination with a base-plate, and continuous rail-section adapted to be secured to abutting rails, and provided with a head adapted to lie flush with the ordinary heads of the rails to which it is secured, of inclined walls extending substantially between the ends of the base-plate and the head of the continuous rail, whereby the weight imposed upon the head of the continuous rail is distributed throughout the extent of the base-plate, as upon a bridge, substantially as set forth.

2. The combination with a base-plate provided with a flange adapted to enter channels in the cross-ties, of a continuous rail-section adapted to be secured to abutting rails and provided with a head designed to be flush with the tops of the rails secured to the rail-section, substantially as set forth.

3. The combination with a base-plate and continuous rail-section, of a flange upon the rail-section, a socket in the base-plate, and a recess in the flange in alignment with the socket, both adapted to receive a removable stop-block, substantially as and for the purpose specified.

4. The combination with a base-plate, a continuous rail-section and flange upon the rail-section, of a socket in the base-plate, a recess in the flange, alining with the socket, and a stop-block provided with a web for the reception of a fish-plate, substantially in the manner and for the purpose specified.

In testimony of all which I have hereunto subscribed my name.

ELBERT C. EDWARDS.

Witnesses:

M. WARREN,
W. W. JONES.