

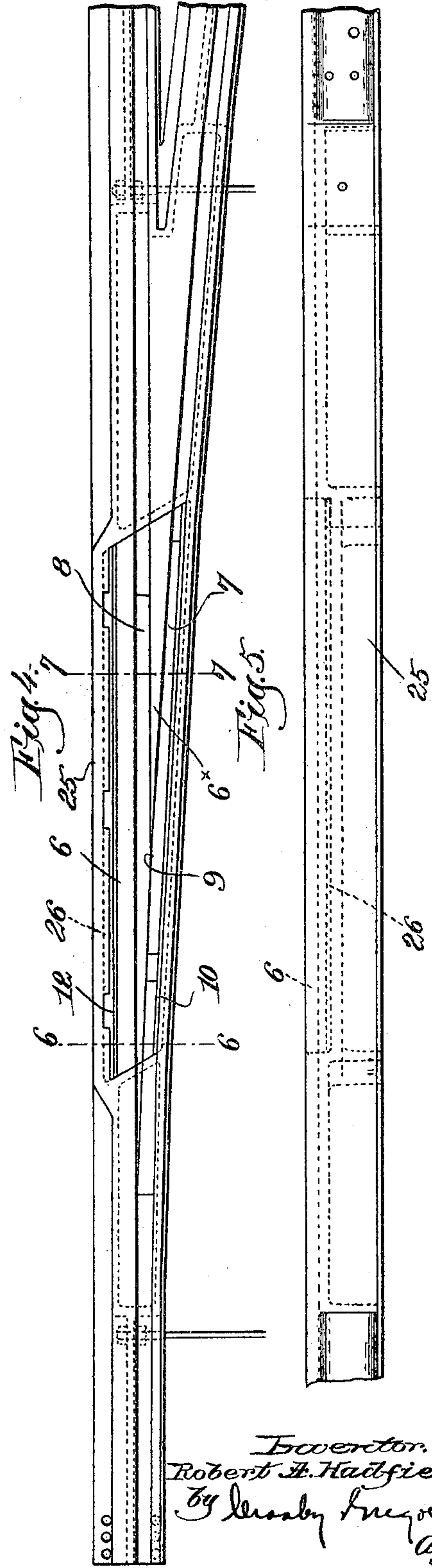
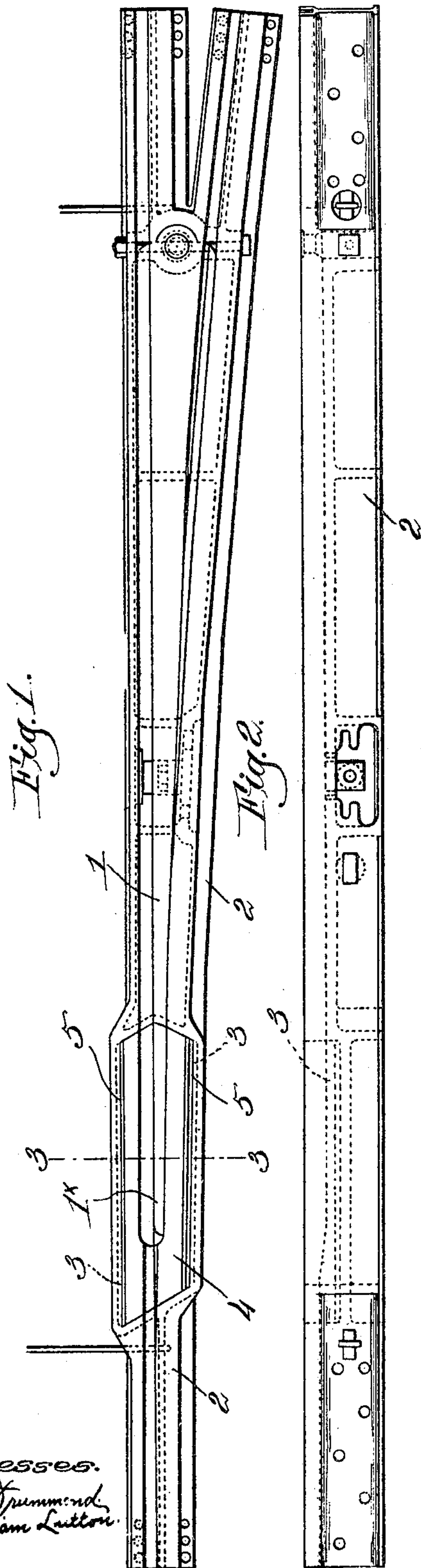
No. 798,099.

PATENTED AUG. 29, 1905

R. A. HADFIELD.
POINT AND CROSSING FOR RAILWAYS.

APPLICATION FILED JAN. 27, 1903.

2 SHEETS—SHEET 1.



Witnesses.
Thomas Drummond
J. William Lutton

Inventor.
Robert A. Hatfield,
by Leroy Ferguson
Attys.

UNITED STATES PATENT OFFICE.

ROBERT A. HADFIELD, OF SHEFFIELD, ENGLAND.

POINT AND CROSSING FOR RAILWAYS.

No. 798,099.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed January 27, 1903. Serial No. 140,787.

To all whom it may concern:

Be it known that I, ROBERT A. HADFIELD, a subject of the King of Great Britain, and a resident of Sheffield, county of York, England, have invented an Improvement in Points and Crossings for Railways, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

It is well known that a considerable item in the cost of maintenance of electric and other tramways and railways is due to the frequent and costly renewals or repairs of certain portions of the points and crossings. These parts of the equipment are subject to great and rapid wear, particularly in large towns and in other places where a quick and very constant service is maintained, the wear increasing with the weight of the cars employed, their speed, and loads. Not only is the renewal of such worn portions of the roadway costly, but it is inconvenient, as traffic is more or less delayed thereby.

My present invention has for its object the improved construction of such points and crossings whereby not only is the resistance to wear very materially increased, but the necessary renewal is restricted to only such parts of the points and crossings as are subject to most rapid wear.

In accordance with my invention the point or crossing comprises a main or body portion, preferably made of manganese steel, and a readily-removable portion, also made of manganese steel, the removable portion constituting such part of the point or crossing as is subjected to the greatest and most rapid wear in use. The removable part is rigidly connected with or fixed within the body portion in such manner as to form practically one piece therewith; but the mode of connection is such that the wearing part can be removed when necessary and replaced by a similar new part of manganese steel.

Tramway-points have pivoted or fixed tongues, the latter being termed "open" or "dummy" points. In the former structure the part of the main portion or body of the point at each side of and below the free end of the tongue is made as a separate removable block or piece of manganese steel which is fixed within an opening or recess in the body portion in any convenient manner—as, for instance, by running molten and relatively readily fusible metal in between the body and the separate piece. In an open or dummy point

that portion which is subject to the greatest wear is constructed as a separate removable block or piece of manganese steel fixed in the body portion of the point, as described.

In one form of crossing constructed in accordance with my invention the central portion of the crossing, around the part where the wheel-flange grooves cross each other, is made as a separate removable block or piece of manganese steel, fixed within an opening or recess in the body of the crossing—as, for example, by readily-fusible metal. The upper surface of the renewable portion is made flush or continuous with the upper surface of the main or body portion.

As will be manifest, the renewable parts of points and crossings embodying my invention may be fixed within or secured to the body portions in various ways other than by running fusible metal in between them, as cot- ters, nuts, and other similar fastening means may be used, engaging parts of the renewable member of the point or crossing and bearing against parts of the main or body portion thereof.

Figure 1 is a plan view of a movable point provided with a removable wearing portion embodying one form of my invention. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged transverse section thereof on the line 3 3, Fig. 1, looking toward the left. Figs. 4 and 5 are plan and side elevation views, respectively, of an open or dummy point with a removable wearing portion or block in accordance with my invention. Fig. 6 is a transverse section thereof, enlarged, on the line 6 6, Fig. 4, looking toward the left. Fig. 7 is a similar view on the line 7 7, Fig. 4, also looking toward the left. Fig. 8 is a plan view of a leg-crossing with a removable wearing portion. Fig. 9 is a side elevation thereof; and Fig. 10 is an enlarged transverse sectional view thereof on the line 10 10, Fig. 8, looking toward the left.

In the structure shown in Figs. 1, 2, and 3, in which a pivoted tongue 1 is used, the main or body portion 2 of the point is constructed of manganese steel and provided with a recess or pocket 3, Figs. 1 and 3, in which is secured a separate removable block or wearing portion 4. This block 4, also made of manganese steel, is so constructed that it forms the bottom and sides of that portion 4^x of the point in which the free or toe end 1^x of the tongue works. As best shown in Fig. 3, the upper surface of the wearing portion 4 is flush with and forms a continuation of the grooved up-

per surface of the main or body portion of the point. I have shown the recess 3 as slightly undercut or enlarged from its top downward, and the wearing portion 4 is made with flared sides, as shown in Fig. 3, but it is of such dimensions that it can be dropped into the recess or pocket 3. It is held in position by suitable packing material 5, Fig. 3, which may conveniently be a readily-fusible metal run into the space between the block 4 and the body portion 2 while molten. When it is desired to remove a worn block and insert a new one, the fusible metal can be either melted or cut out.

In the structure shown in Figs. 4 to 7, inclusive, the removable block or wearing portion 6, made of manganese steel, has its upper face formed with the fixed point portion 6^x and is provided with two grooves 7 and 8, merging into a single groove at 9. The main or body portion 25 of the point is provided with a pocket or recess 26 for the block 6, the side of the latter adjacent the grooves 7 and 9 being beveled, as at 10, Figs. 6 and 7, to rest against a correspondingly-beveled face 27 of the recess 26. These beveled faces are held in firm contact by filling material 50, such as a suitable fusible metal, as above referred to, poured into the space between the opposite side of the block 6 and the adjacent side of the recess 26, as shown very clearly in Figs. 6 and 7. As shown therein, the filling 50 extends beneath the block and the block has a longitudinal rib or projection 12, while the side wall of the recess 26 is shaped to present an undercut shoulder 11, assisting in firmly retaining the block in place when the filling has been run in.

In the leg-crossing illustrated in Figs. 8 to 10, inclusive, the main or body portion 30 is provided with a recess or pocket 31 to receive the removable block or wearing portion 40, made of manganese steel, said block forming the central portion of the crossing around the part where the grooves for the wheel-flanges cross each other. As shown in Fig. 8, the upper face of the block is provided with the crossed grooves 41 and 42, the wedge or point portions 43 and 43^x being formed integral with the block. The recess 31 has its sides undercut to present undercut shoulders 32, (best shown in Fig. 10,) and I have also shown longitudinal ribs or projections 44 on the sides of the block at or near its under face, the shoulders and projections assisting the filling

material 50 in holding the block securely in position. The block may also be cast with pockets 45 in its sides, (see dotted lines, Figs. 8 and 10,) into which some of the filling flows to aid in locking the parts securely together. Core-holes 46 are made in the floor of the recess 31, through which the fusible material 50 may be charged when fixing the removable block 40 in place, the crossing at such time being inserted and placed upon a suitable flat support.

It will be manifest that the angle which the intersecting rails of the crossing make with each other may vary from that shown in Fig. 8 up to a right angle, for instance, and in the latter case what is termed a "star" crossing would be formed. In either case it is preferred to make the ends of the removable block or wearing portion beveled or wedge-shaped, as shown in Fig. 8.

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

1. A point or crossing comprising a main or body portion having a recess therein with elongated, straight and opposite undercut sides and beveled ends, a separate wear-resisting portion of manganese steel having downwardly and outwardly flared sides and adapted to be readily inserted in the recess, and a readily-fusible metallic connection run into the recess between its sides and the sides of the wear-resisting portion, to detachably connect it in operative position with the main or body portion, the beveled ends of the wear-resisting portion fitting against the correspondingly-beveled ends of the pocket.

2. A point comprising a main or body portion of cast manganese steel provided with a recess or opening, a separate wear-resisting portion of cast manganese steel having a part to enter the opening or recess, and a readily-fusible metallic connection between and to detachably connect said portions, said wear-resisting portion having a point-receiving recess presenting a bottom and sides of manganese steel to resist wear of the point.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT A. HADFIELD.

Witnesses:

LUTHER J. PARR,
BAIN L. CAMPBELL.