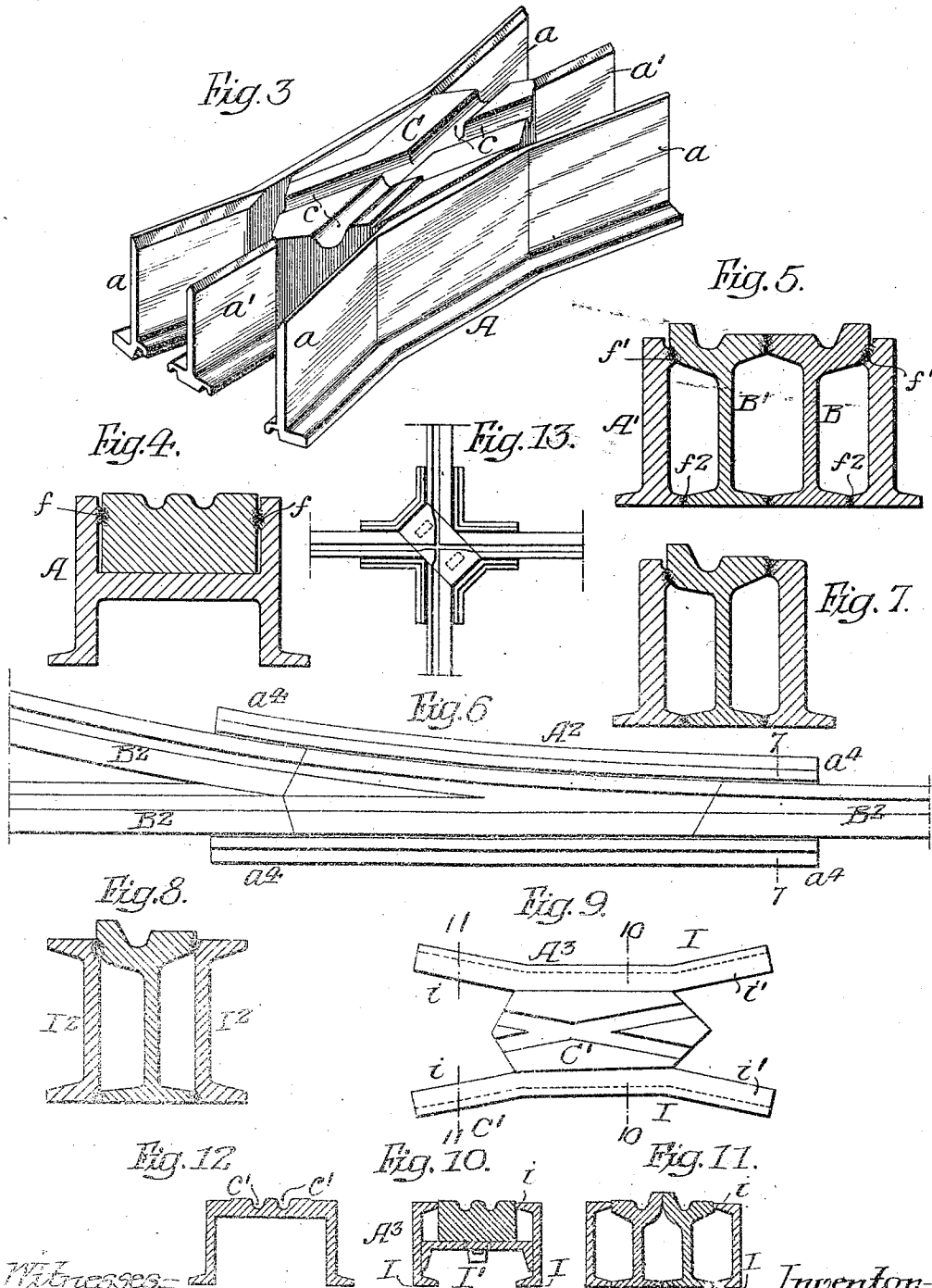


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 TRACK STRUCTURE.
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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

Patented July 2, 1912.

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To all whom it may concern:

Be it known that I, VICTOR ANGERER, a citizen of the United States, residing in Ridley Park, county of Delaware, State of Pennsylvania, have invented certain Improvements in Track Structures, of which the following is a specification.

This invention relates to certain improvements in railway track structures, such as frogs, switches, or crossings, which are composed of a body portion to which rolled rails are permanently united so as to form the arms of the structure to which the abutting track rails can be readily connected by the usual means.

The object of my invention is to construct a track structure, of the type above described, so that the rail arms are integrally united to the body portion by welding and without the use of bolts or rivets, or other mechanical means; thus making a strong structure from which any one of the rail arms can be separated without distorting the rest of the structure in case such becomes desirable for repairs or re-alignment; the parts being so arranged that by cutting through the welds or at a point adjacent to the welds, a rail arm can be removed and another put in its place and welded to the structure. This object I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a plan view of a railway frog illustrating my invention; Fig. 2, is a transverse sectional view on the line 2—2, Fig. 1, drawn to an enlarged scale; Fig. 3, is a perspective view of the body portion; Fig. 4, is a sectional view on the line 4—4, Fig. 1 drawn on a reduced scale; showing the means for attaching the detachable center plate to the body portion; Fig. 5, illustrates a sectional view of a modification of the invention; Fig. 6, is a plan view of a switch or switch-mate made in accordance with my invention; Fig. 7, is a sectional view on the line 7—7, Fig. 6; Fig. 8, is a sectional view of a modification; Fig. 9, is a plan view of a track structure made from channel bars welded together; Fig. 10, is an enlarged sectional view on the line 10—10, Fig. 9; Fig. 11, is a sectional view on the line 11—11, Fig. 9, with the rails in position; Fig. 12,

is a view of a modification, showing the body portion having an integral center groove; Fig. 13, is a plan view of a corner of a crossing, illustrating my invention.

Referring in the first instance to Figs. 1 to 4 inclusive, A is the body of the track structure, preferably made of cast metal, having a central portion A' from which projects arms *a*, *a'* at each end and, in the present instance the arms are so spaced apart that short sections of rails B can be inserted between them and secured thereto by welding. C is a hard metal insert, in the present instance, made separate from the body portion and in this insert are grooves *c—c*, which aline with the grooves *b* in the rails B. This hard metal insert can be secured to the body portion in any suitable manner. In place of the insert, the body portion may be made as illustrated in Fig. 11 and the grooves *c'*, which aline with the grooves in the rails, may be formed in the body portion, but I prefer to make a separate insert, as indicated in Fig. 1. In the present instance, the ends of the body portion and the insert are made V-shaped for the reception of the beveled ends of the rails B and the heads *b'* of the rails have guard flanges *b²*. The parts are so proportioned that the head and flanged portion of the rails come in close proximity, or contact with the upper and lower edges of the arms *a—a'*, and, as illustrated in Fig. 2, the arms *a—a'* have longitudinal channels *a²* at their upper inner ends, as well as the central arm, being preferably V-shaped at the upper end, as illustrated in Fig. 2.

The heads *b'* of the rails B extend into the longitudinal channels *a²* in the arms *a* and these heads are preferably beveled, as shown, so as to form a cavity and the outer edges of the guard flanges *b²* are slightly beveled, as indicated, forming, with the V-shaped upper end of the arm *a'*, a V-shaped groove or recess. The guard flanges may contact with the central arm *a'*, or they may be spaced a distance from it, as illustrated in Fig. 2, as desired.

The arms *a—a'* are preferably so shaped as to form base flanges, as illustrated in Fig. 2, and the central arm *a'* in the present instance has an extended base *a³* and the

arms a have longitudinal grooves, as at $e-e$, while the base a^3 of the arm a' has longitudinal grooves e' . The bases of the rail sections B are preferably cut away and slightly beveled and extend into the grooved portion of the track structure, as clearly illustrated in Fig. 2. When the rail sections and the body portion of the structure are assembled the grooves are formed, as indicated, between the rails and the arms of the body portion. These parts are then held in proper position and the upper faces of the structure welded on the lines of the grooves; the scrap or other metal becoming an integral part of the rails and arms. The structure is then inverted and the grooves on the under side filled with scrap or other metal and the welding or soldering process repeated; making a homogeneous structure in which the projecting rail ends are rigidly secured to the body portion; dispensing with bolts, rivets, or similar fastenings.

While I preferably extend the welds the full length of the arms $a-a'$; they may be made at intervals, if desired. If the two rails should come in contact with each other, as in Fig. 5, then the rails may be welded together, as shown. The arms are so made and the welds are so located that if it is desired to renew any one of the rail portions, the same can be severed from the structure by cutting or sawing, or by other means, through the welded portions uniting the particular rail to the structure, without injuring or disturbing the other portions of the structure, after which a new rail can be inserted and united to the structure by a new weld at the upper and lower edges, as above described.

It will be noticed that I preferably so design the parts that the weld is made at a comparatively narrow part of the structure and preferably at an open space so that a saw or other cutting tool can readily saw through the weld when it is desired to remove one of the rail sections from the structure.

The insert C may be secured by welding or soldering or it may be secured to the body portion by any of the well known means.

In Fig. 4, I have illustrated a welded joint between the side walls of the insert and the walls of the structure. In the present instance ribs f are formed on the inner surface of the walls of the body portion and the welds are made at the junction of the ribs and the insert.

In Fig. 5, I have shown ribs f' on the arms of the body portion A' and the inner, lower flanges f^2 of these arms abut the flanges of the rails and the weld is made at the several points indicated in Fig. 5.

In Fig. 8, I have shown another modification, in which the body portion is made

in the form of two channel bars with the flanges extending outwardly; the weld being made between the inner walls of the angle bars at top and bottom and the head, guard flange, and base flanges of the rail.

In Figs. 6 and 7, I have illustrated the invention as applied to a switch structure. In this instance, the body portion A^2 of the switch structure has arms a^4 , alining with the head and base flanges of the rails B^2 , and which are welded thereto at the top and bottom of the arms, as shown in Fig. 7.

It will be understood that the invention can be applied to a crossing, as illustrated in Fig. 13, without departing from the essential features of the invention, and this crossing can be made with or without a separate insert.

In Figs. 9, 10, and 11, I have illustrated a track structure made of channel bars. The structure A^3 consists of two longitudinal bars $I-I$, with inturned flanges i at the top and bottom and these channel bars are connected by a transverse horizontally arranged channel bar I' . The bar I' is connected to the said side bars by soldering, welding, or riveting, as desired. The flanges i , which aline with the head and base flange of the rails, are welded to the said head and base flanges, as illustrated in Fig. 12, and, in this instance, as illustrated in Fig. 10, the insert C' is held in position by welding.

In Fig. 8, I have shown a track structure made of channel bars, but, in this instance, the flanges of the channel bars I^2 project outwardly.

Thus it will be seen by the above construction that I am enabled to unite the rail arms and the body portion by longitudinal welds to form an integral structure and I also secure the metal insert to the track structure by similar longitudinal welds, if desired. The welds are so arranged that the parts of the structure can again be separated by cutting when it is necessary to repair or renew one or more of the parts without injury to the structure.

I claim:

1. A track structure, composed of a body portion having ways for wheel flanges on its upper face, horizontal arms extending from said body portion, rails located between said arms alining with the flanged ways of the body portion and united thereto by welding the upper and lower edges of the extensions to the head and base portions of the rails.

2. A track structure, composed of a soft metal body structure having a recess, a hard metal insert secured in said recess and having flange-ways for wheels on its upper face, horizontal arms extending from said body portion, rails located between said arms and alining with the flange-ways in the hard

metal insert, and longitudinal welds uniting the upper and lower portions of the rails to the arms.

3. A track structure, composed of a body portion having flange-ways for wheels on its upper face, horizontal arms extending from said body portion, rails mounted between said arms so that the head portion and the base portion of said rails are in contact only along the upper and lower edge of said arms, and longitudinal welds along said edges uniting the rails to the body portion.

4. A track structure, composed of a body portion having flange-ways for wheels on its upper face, horizontal arms extending from said body portion, rails located between said extensions of said arms and united thereto by narrow longitudinal welds along the upper and lower edges of the extensions so that the parts may be severed at the welds by cutting.

5. A track structure, composed of a body portion having a recess, a hard metal insert having flange-ways for wheels on its upper face and secured in position by narrow longitudinal welds near the upper edge of the walls of the body portion forming the recess and the contiguous edge of the hard metal insert.

6. A track structure, composed of a soft metal body portion, having a recess, a hard metal insert having flange-ways for wheels on its upper face, narrow horizontal ribs projecting inwardly from the walls of the recess near the upper edge, the hard metal insert being secured to the recess by welds between the ribs and the sides of the insert.

7. The combination of a body portion and a rail, a narrow integral web connecting the two parts permanently together, said parts being so designed as to form an open space on each side of the web so that it can be cut when it is desired to remove one part from the other.

8. The combination in a track structure, of a body portion having arms, with a rail having a head and a base flange; said head and base flange being welded to the arm forming a web at the top and bottom of the structure, with a space on each side of the web to allow the parts to be severed by cutting.

9. The combination in a track structure, of a body portion having horizontally extended arms, said arms being grooved longi-

tudinally at top and bottom, with rails located between the arms and welded to the arms at the grooves.

10. The combination in a track structure, of a body portion having arms, a rail having a head and a base flange, said rail being secured to the arms at their upper and lower edges, said arms and rails being spaced apart except at the joints to allow for cutting.

11. The combination in a track structure, of a body portion having arms, an insert resting on the body portion and connected thereto at each side by narrow webs, with rails connected to the arms by narrow longitudinal webs formed by welding the parts together.

12. The combination in a track structure, of a body portion having arms at each end, rails having a head and a guard flange at the upper end and a base flange at the lower end, the narrow webs connecting the head and the guard flange to the upper ends of the said arms and webs connecting the base flanges to the lower ends of the said arms, the intervening space between the upper and lower portions of the structure being open between the arms and the webs of the rails so as to permit of the removal of a rail section by severing the webs connecting the said rail sections to the arms.

13. The combination in a track structure, of a body portion having three arms projecting at each end, the central arm at each end being V-shaped at its upper edge and having a wide flange at its lower edge, said flange being recessed at its under side, the said arms being recessed at the under side and also recessed at the upper edge; with rails mounted between the said arms and the center arms, the base flange of the rails being cut away and extending into the recesses of the base of said arms and welded thereto, the head of each rail being beveled and extending into the recess at the upper end of the said arms and welded thereto, and the two guard flanges being welded to the V-shaped end of the central arm.

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

VICTOR ANGERER.

Witnesses:

JOS. H. KLEIN,

WM. A. BARR.