W. FERGUSON, JR. & A. W. BUEL.

RAILROAD TRACK.

APPLICATION FILED JUNE 5, 1911.

1,017,525.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.

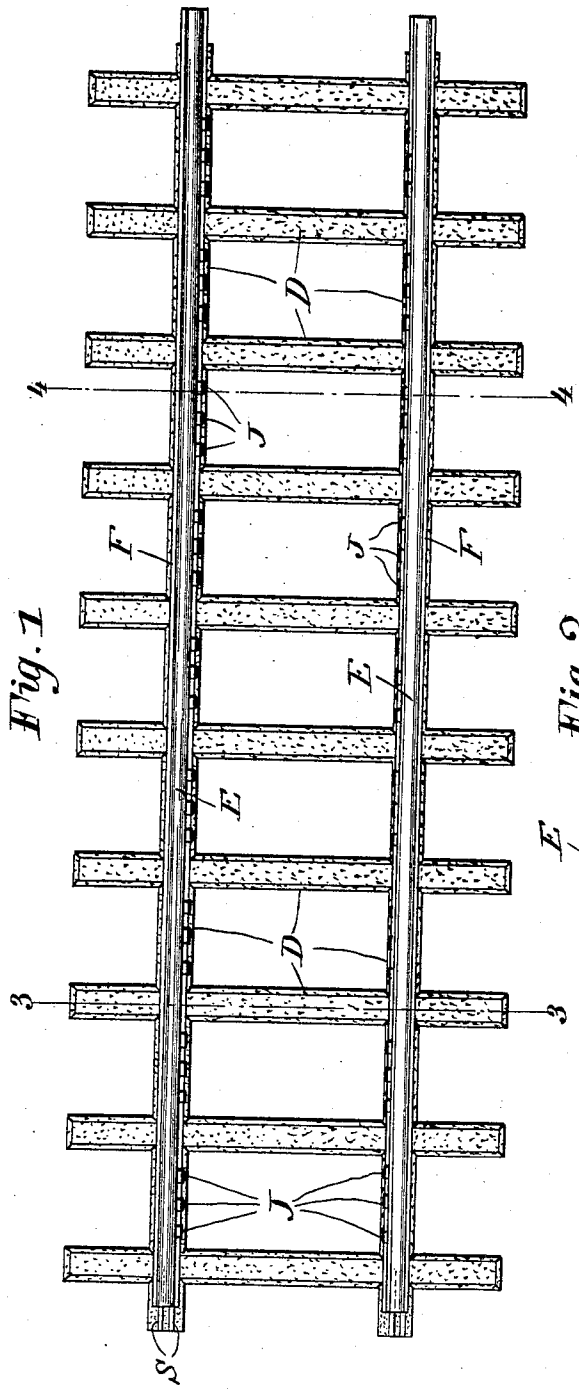

Fig. 1

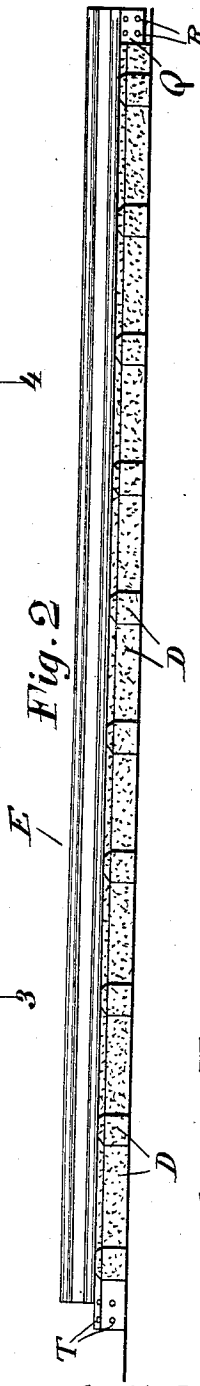

Fig. 2

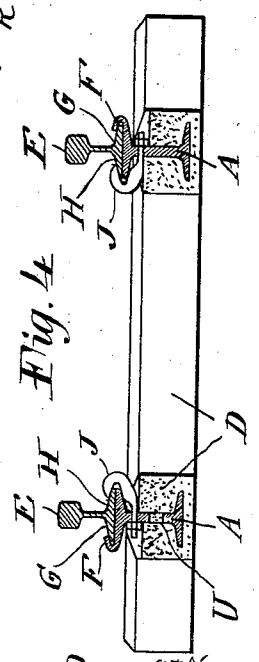

Fig. 4

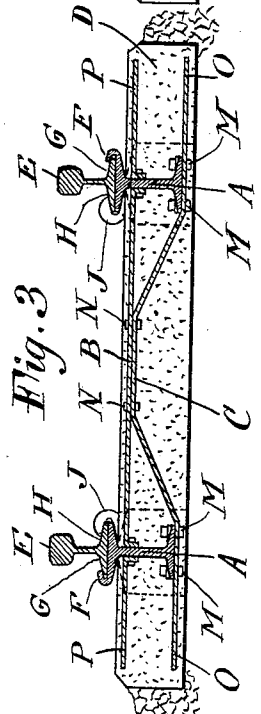

Fig. 3

Witnesses:
A. B. Parham
M. M. Riemann

Walton Ferguson Jr.
Albert W. Buel
Inventors
By their Attorney
Herbert G. Ogden

W. FERGUSON, JR. & A. W. BUEL.

RAILROAD TRACK.

APPLICATION FILED JUNE 5, 1911.

1,017,525.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 2.

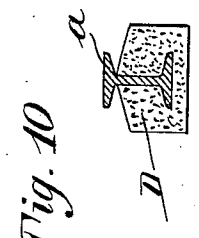

Fig. 10

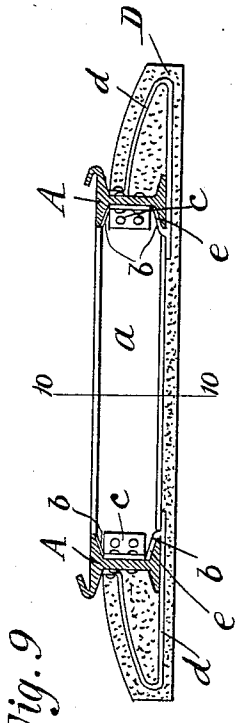

Fig. 9

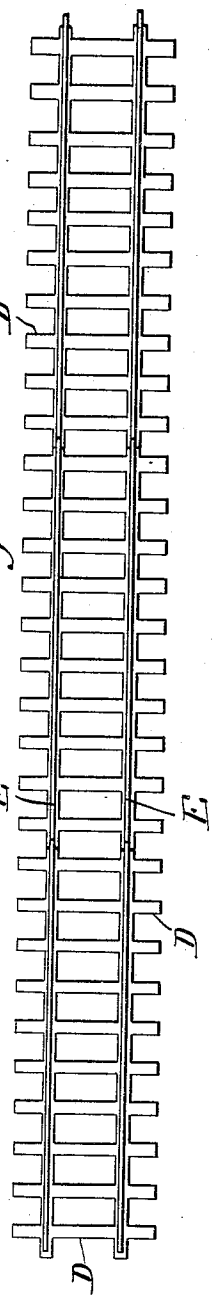

Fig. 7

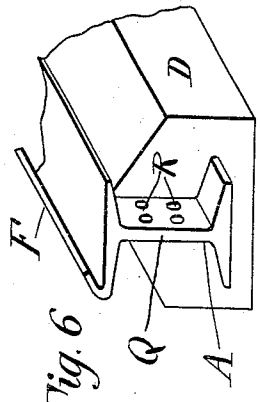

Fig. 6

Fig. 8

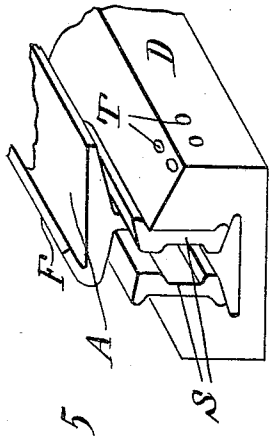

Fig. 5

Witnesses:
A. B. Parkes
M. M. Pinckney.

Walton Ferguson Jr
Albert W. Buel Inventors

By their Attorneys
Herbert H. Ogden

UNITED STATES PATENT OFFICE.

WALTON FERGUSON, JR., OF STAMFORD, CONNECTICUT, AND ALBERT W. BUEL, OF NEW YORK, N. Y.

RAILROAD-TRACK.

1,017,525. Specification of Letters Patent. **Patented Feb. 13, 1912.**

Application filed June 5, 1911. Serial No. 631,310.

To all whom it may concern:

Be it known that we, WALTON FERGUSON, Jr., a citizen of the United States, and a resident of Stamford, county of Fairfield, State of Connecticut, and ALBERT W. BUEL, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Railroad-Tracks, of which the following is a specification, accompanied by drawings.

This invention relates to a monolithic railroad track superstructure constructed in monolithic unit sections or elements of any suitable length adapted to be laid end to end on ballast for supporting the rails.

The objects of the invention are to improve upon the construction of the usual track superstructure, avoid the use of wooden ties, and provide a sectional construction in which each section is a complete built-up interchangeable rail supporting unit adapted to be laid in track or removed at will.

The construction is designed to be practical and will not break down under heavy loads. The units may be brought to grade by tamping the ballast under them as is the practice in the present form of track, and turn-outs, cross-overs, switches and the like, may be introduced at will, by removing a given section or sections of the superstructure.

The preferred form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a unit section embodying the invention, with the rails in place, Fig. 2 is a side elevation of Fig. 1, Fig. 3 is a transverse sectional view on line 3—3 of Fig. 1, Fig. 4 is a transverse sectional view on line 4—4 of Fig. 1, Fig. 5 is a detail perspective view of one end of one unit, Fig. 6 is a detail perspective view of the other end of said unit, Fig. 7 is a plan view of a track showing several units or sections laid on ballast, Fig. 8 is a detail view showing one of the clips, Fig. 9 is an elevation partly in transverse section of a modified form of track, and Fig. 10 is a sectional view on line 10—10 of Fig. 9.

Referring to the drawings, the unit sections or elements for the track superstructure comprises suitable metallic stringers A, connected at intervals by reinforcing bars B and C, the whole being incased in concrete or other cementitious material D and adapted to be laid on ballast. The sections, one of which is shown in Fig. 1, may be of any suitable length, a convenient length having been determined to be about thirty feet and means are provided for suitably securing the rails E upon the stringers A. The stringers may be in the form of I beams, the outer flanges of which are preferably bent upwardly and inwardly along their length to form the rail securing portions F, under which the outer rail flange G is held. Suitable means are provided for securing the inner rail flanges H to the stringers, in this instance clips J being used for this purpose, having shanks K passing through the webs of the stringers A and tightened by nuts L.

The concrete D preferably incases the bases and webs of the stringers A, without incasing the heads or rail supporting portions of the stringers for convenience in handling. The reinforcing bars B are preferably bolted to the webs of the stringers A, while the reinforcing bars C are preferably arched as shown, and extend underneath the bases of the stringers, to which they are suitably bolted by bolts M. The central portions of the reinforcing bars C may also be bolted by bolts N to the reinforcing bars B. The ends O of reinforcing bars C preferably extend outwardly beyond the stringers to form reinforcements for the ends of the ties, which are monolithic with the unit sections, and additional reinforcements P are provided for the ends of the ties suitably bolted to the stringers.

The concrete D incases the reinforcing bars B and C and reinforcements O and P to form ties at intervals throughout the length of the section and monolithic therewith, and the stringers A are incased throughout their length, except for short portions Q at one end which are left uncased and provided with bolt apertures R, for securing the sections together end to end. The other ends of the sections are provided with suitable fish plates S incased in concrete and extending beyond the ends of the stringers A. The ends Q of one section or element are adapted to be inserted between the fish plates S of the meeting section, and the two meeting sections may be secured together by suitable bolts, apertures

T being provided in the concrete for the insertion of the bolts through the fish plates and through the apertures R in the stringer. The rails E may be laid along the lengths of the sections as shown in the drawing, or the rails may break joint with the meeting ends of the sections as desired. The webs of the stringers may be provided with apertures U at intervals if desired, through which the concrete forms a lock, to additionally bind the concrete to the stringers.

In accordance with this invention, the monolithic sections or elements are first built up out of the stringers A, reinforcing bars B and C and the reinforcements O and P, and the fish plates S are secured at one end of the stringers. The sections are then incased in concrete and are ready to be shipped to the place of use. The sections may be loaded on suitable flat cars and transported to their destination to be placed in track.

Referring to the modifications shown in Figs. 9 and 10, A represents the metallic stringers as before, it being understood that this modification is also constructed in sectional or unit form. Instead of connecting the stringers A by reinforcing bars, metallic cross ties *a* are used, preferably in the form of sections of I-beams cut away at the ends at *b* as shown, in order that the ends of the cross ties may enter between the flanges of the stringers A. The webs of the cross ties *a* are suitably secured to the webs of the stringers A as by means of the angles *c* bolted in position. Reinforcing members *d* are preferably provided for the outer portions of the monolithic construction and these reinforcements may be curved or bowed, as shown in Fig. 9, and suitably secured by bolts to the webs of the stringers and also, if desired, to the base flanges of the stringers, (the latter bolts not being shown). The reinforcing members *d* are preferably provided with the clamps *e* fitting over the inner ends of the base flanges of the stringers A and lying between said base flanges and the ends of the metallic cross ties *a*. The concrete D incases the stringers A, the reinforcing members *d* and the metallic cross ties *a*, except that the upper flanges of the stringers and cross ties project through the concrete for a part or all of their length, thus forming a metallic support for the rails adapted to be laid on ballast.

We claim and desire to obtain by Letters Patent the following:

1. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising longitudinal and transverse metallic members incased in concrete or other cementitious material, the longitudinal metallic members being adapted to afford a practically continuous support or bearing for the rails throughout their length.

2. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising metallic stringers adapted to afford a practically continuous bearing for the rails throughout their length and reinforcing bars connecting said stringers, the whole being incased in concrete or other cementitious material and adapted to be laid on ballast.

3. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising metallic stringers and reinforcing bars connecting said stringers, the whole being incased in concrete or other cementitious material and adapted to be laid on ballast and means for holding the rails on said stringers.

4. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising metallic stringers adapted to form a practically continuous support for the rails, relieving the rails of the bending stresses, and reinforcing bars connecting said stringers, said stringers and reinforcing bars being incased throughout their length in concrete or other cementitious material.

5. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising metallic stringers, and reinforcing bars connecting said stringers, said stringers being incased throughout their length and partly through their height in concrete, the reinforcing bars being wholly incased in said concrete.

6. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising flanged metallic stringers incased in concrete or other cementitious material throughout their length and having one edge of the upper flanges bent upwardly and inwardly to form rail retaining portions, reinforcing bars incased in concrete connecting said stringers at intervals and forming cross ties, the said monolithic section being adapted to be laid on ballast.

7. A monolithic railroad track superstructure, comprising flanged metallic stringers incased in concrete throughout their length and having the outer edges of the upper flanges bent upwardly and inwardly to form rail retaining portions and reinforcing bars wholly incased in concrete connecting said stringers at intervals and forming cross ties, the said monolithic superstructure being adapted to be laid on ballast.

8. A monolithic railroad track superstructure, constructed in interchangeable unit sections or elements, each section comprising metallic stringers and reinforcing bars incased in concrete or other cementi-

tious material, the sections being laid in track end to end, and means for securing the meeting ends of the sections together.

9. An interchangeable monolithic unit section or element for a railroad track superstructure, comprising metallic stringers and metallic cross ties attached to and connecting said stringers, the whole being incased in concrete or other cementitious material, except that the upper flanges project through the concrete for a part or all of their length to form a metallic support for the rails, and adapted to be laid on ballast.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

WALTON FERGUSON, JR.
ALBERT W. BUEL.

Witnesses:
HENRY SHELDON,
HERBERT G. OGDEN.