CLAIMS

1. A longitudinal connecting structure of an assembled sleeper slab-type or track slab-type ballastless track structure, longitudinal steel bars being pre-embedded in two prefabricated sleeper slabs or prefabricated track slabs adjacent to each other and protruding from end surfaces of the two prefabricated sleeper slabs or prefabricated track slabs adjacent to each other, a first longitudinal steel bar of the longitudinal steel bars being spaced from a second longitudinal steel bar matched with the first longitudinal steel bar, and the first longitudinal steel bar and the second longitudinal steel bar being longitudinally connected with each other through an extrusion sleeve;

wherein an inner diameter of the extrusion sleeve is greater than an outer diameter of the longitudinal steel bar, coupling ends of the first and second longitudinal steel bars are respectively inserted into two ends of the extrusion sleeve, and the extrusion sleeve is deformed and performs a locking action under extrusion of a portable extruder, and

wherein a portion of each of the coupling ends of the first and second longitudinal steel bars, which is inserted into the extrusion sleeve, at least comprises three thread turns,

wherein a middle portion of each of the prefabricated sleeper slabs or the prefabricated track slabs is provided with a lightening hole, and the lightening hole is positioned so that the lightening hole is aligned with a drain arranged in the middle of a foundation under the track of the ballastless track structure.

2. The longitudinal connecting structure of the assembled sleeper slab-type or track slab-type ballastless track structure of claim 1, wherein the longitudinal connecting structure is provided with a hoop stirrup in a cross section plane.

3. A longitudinal connecting structure of an assembled sleeper slab-type or track slab-type ballastless track structure, longitudinal steel bars being pre-embedded in two prefabricated sleeper slabs or prefabricated track slabs adjacent to each other and protruding from end surfaces of the two prefabricated sleeper slabs or prefabricated track slabs adjacent to each other, the longitudinal steel bars in the two prefabricated sleeper slabs or prefabricated track slabs

adjacent to each other being spaced from each other, the longitudinal steel bars spaced from each other being longitudinally connected with each other through an extrusion sleeve;

wherein an inner diameter of the extrusion sleeve is greater than an outer diameter of the longitudinal steel bar, coupling ends of the longitudinal steel bars spaced from each other are respectively inserted into the extrusion sleeve, and the extrusion sleeve is extruded and deformed to lock the longitudinal steel bars which are inserted into the extrusion sleeve,

wherein a portion of each of the coupling ends of the longitudinal steel bars, which is inserted into the extrusion sleeve, at least comprises three thread turns,

wherein a middle portion of each of the prefabricated sleeper slabs or the prefabricated track slabs is provided with a lightening hole, and the lightening hole is positioned so that the lightening hole is aligned with a drain arranged in the middle of a foundation under the track of the ballastless track structure.

4. An assembled sleeper slab-type or track slab-type ballastless track structure, comprising prefabricated sleeper slabs or prefabricated track slabs, a cast-in-place layer, a foundation under a track, connecting filling portions and longitudinal connecting structures of an assembled sleeper slab-type or track slab-type ballastless track structure of any one of claims 1 or 3;

wherein a plurality of prefabricated sleeper slabs or prefabricated track slabs are longitudinally arranged at intervals, the prefabricated sleeper slabs or the prefabricated track slabs are assembled and connected, at two transverse ends, to each other in the intervals through the longitudinal connecting structures; in some or all of the intervals, the connecting filling portions are formed by reinforced concrete structures, to allow the connecting filling portions to form an assembled integrated structure with the prefabricated sleeper slabs or the prefabricated track slabs, and the prefabricated track slabs form a united stressed structure in the shape of a long slab unit.

5. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 4, wherein the connecting filling portions are provided at two transverse ends of each of at least some of the intervals, and a limiting member is provided on the foundation under the track in

each of at least some of the intervals; in the intervals each provided with both the connecting filling portion and the limiting member, the longitudinal connecting structures and the limiting member are embedded in the same connecting filling portion and formed integrally with the connecting filling portion to simultaneously achieve limitation and connection, such that the plurality of the prefabricated sleeper slabs or the prefabricated track slabs are assembled to form a track unit with a predefined length and form a united stressed structure.

6. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 5, wherein the limiting member is configured as a planted bar, a pre-embedded member for a sleeve of a limiting steel bar, a limiting boss or a preset steel bar on an upper surface of the foundation under the track.

7. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 5, wherein the limiting member is configured as:

a limiting steel bar, one end of the limiting steel bar being fixedly arranged on the foundation under the track, and another end of the limiting steel bar being vertically arranged between two prefabricated sleeper slabs or track slabs; or

a pre-embedded member for a sleeve of a steel bar, which is arranged on the foundation under the track; or

a limiting boss, which is arranged within the intervals.

8. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 6, wherein the longitudinal connecting structures are provided with a hoop stirrup in a cross section plane, the hoop stirrup being connected with the limiting member.

9. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 5, wherein each of two longitudinal ends of each of the prefabricated sleeper slabs or the

prefabricated track slabs is provided with a notch.

10. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 9, wherein a cover plate is placed on each of the lightening hole and the notch to form a smooth evacuation passage.

11. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 9, wherein the foundation under the track is equipped with the drain along its longitudinal direction.

12. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 5, wherein first limiting structures are arranged on both sides of the long slab unit, or a second limiting structure is arranged in the long slab unit.

13. The assembled sleeper slab-type or track slab-type ballastless track structure of claim 5 or 8, wherein there are slab gaps between a plurality of track units adjacent to each other, and third limiting structures are arranged in some or all of the slab gaps.

14. An assembly method for an assembled sleeper slab-type or track slab-type ballastless track structure of any one of claims 4-13, comprising the following steps:

S1: pouring a foundation under a track, successively placing prefabricated sleeper slabs at intervals on the foundation under the track along a running direction of the track, wherein a certain space is reserved between each prefabricated sleeper slab and the foundation under the track to perform initial adjustment and positioning of each prefabricated sleeper slab;

S2: correspondingly and matchingly connecting prefabricated sleeper slabs with each other through a plurality of longitudinal connecting structures to form one or more long slab

units, then correspondingly setting each long slab unit into a ballastless track structure, and positioning each prefabricated sleeper slab to make steel rails of the ballastless track structure overall horizontal;

S3: providing a limiting member on the foundation under the track in each of some or all of the intervals; on-site pouring a filler at each of two transverse ends of each of the intervals provided with both the longitudinal connecting structures and the limiting member, to wrap and cover the longitudinal connecting structures and the limiting member, and the filler forming a connecting filling portion after curing, wherein the longitudinal connecting structures, the limiting member and the connecting filling portion are integrally formed to simultaneously achieve limitation and connection; and on-site pouring a filler at each of two transverse ends of each of some or all of the intervals in which no limiting member is provided, to wrap and cover the longitudinal connecting structures,

wherein during assembly coupling ends of the longitudinal steel bars spaced from each other are respectively inserted into the extrusion sleeve, and the extrusion sleeve is extruded and deformed to lock the longitudinal steel bars which are inserted into the extrusion sleeve,

wherein a portion of each of the coupling ends of the longitudinal steel bars, which is inserted into the extrusion sleeve, at least comprises three thread turns,

wherein a middle portion of each of the prefabricated sleeper slabs or the prefabricated track slabs is provided with a lightening hole, and the lightening hole is positioned so that the lightening hole is aligned with a drain arranged in the middle of a foundation under the track of the ballastless track structure.