Dec. 18, 1928. 1,696,131

E. F. L. VAGNEUX

WOODEN PLUG FOR ANCHORING RAILS ON CONCRETE SUPPORTS

Filed Nov. 11, 1926

Fig. 2

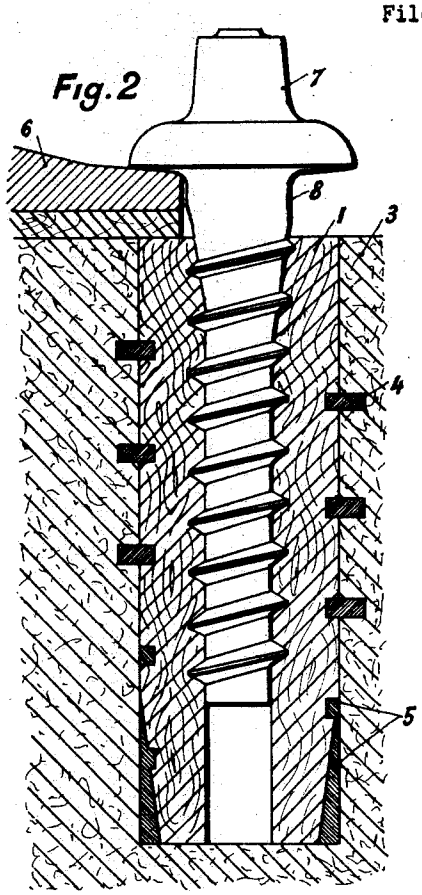
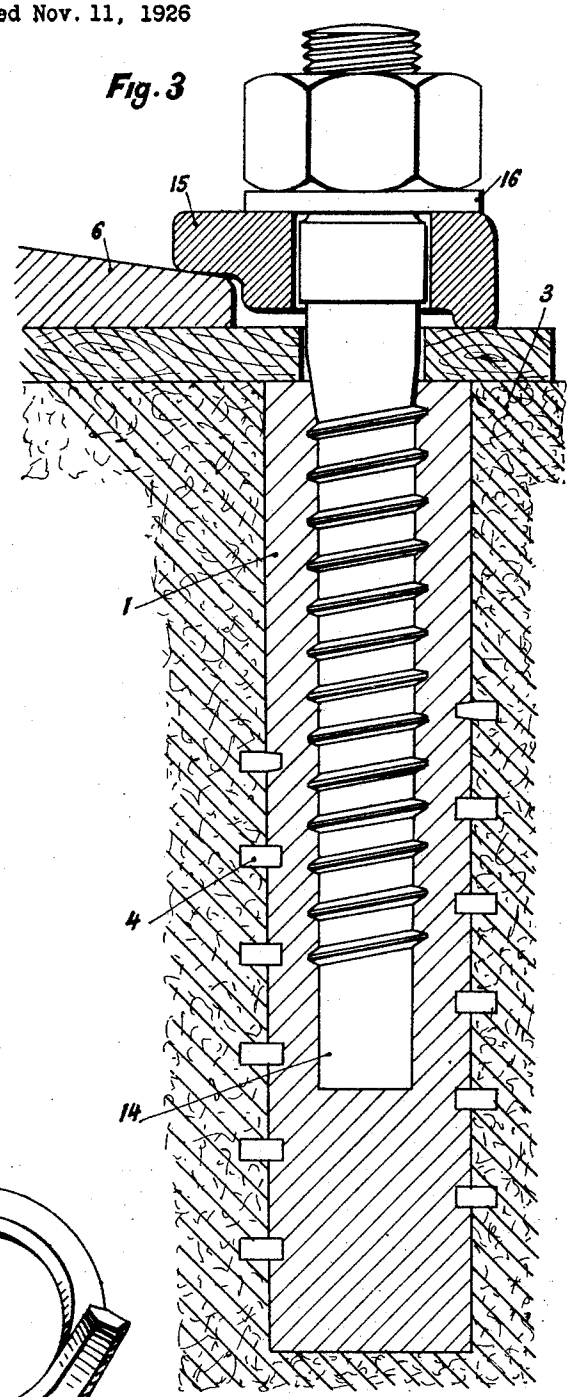


Fig. 3



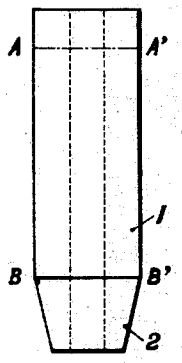


Fig. 1

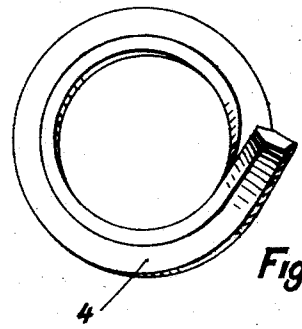


Fig. 4

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Patented Dec. 18, 1928. 1,696,131

UNITED STATES PATENT OFFICE.

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WOODEN PLUG FOR ANCHORING RAILS ON CONCRETE SUPPORTS.

Application filed November 11, 1926, Serial No. 147,769, and in Great Britain November 16, 1925.

Rails are most commonly anchored on concrete supports reinforced or not by means of a block of wood or other suitable material, wherein the securing means of the rail are screwed, these latter means being constituted by a suitable bolt or coach screw.

None of the numerous arrangements proposed up till now for effecting this anchoring has proven quite satisfactory in view of the requirements which are a sufficient mechanical resistance of the recess provided in the concrete and a sufficient resistance of the plug against unfastening, splitting and drawing out.

My invention has for its object a novel anchoring means of the abovementioned type answering these requirements.

In view of this the anchoring plug (preferably of hard and very dry wood) is impregnated with creosote, or oil or any material preventing any subsequent swelling through dampness. This plug is screwed into a cylindrical recess provided in the concrete support and beyond the wall whereof projects a screw-thread bush of the Thiollier type embedded in the concrete, the recess appearing thus as a compound iron-concrete nut.

This plug has a smooth outer wall and when it is screwed into the abovedescribed compound nut, the metal bush enters into the wood of the plug by cutting or compressing and deforming the fibres of the wood.

I prefer to chamfer the top of the bush in that projecting part whereof which presses into the wood, in view of providing an easier penetration of the metal into the fibres of the wood.

The plug is immersed before it is screwed down, in a bituminous putty or in lubricating plastic material preventing dampness adapted to fill all the holes in the plug and to prevent any oxidizing of the bush.

The securing of the plug by a spiral bush of the Thiollier type allows it to resist drawing out.

It is necessary moreover in view of preventing the plug from unscrewing and splitting to bind it. The fact that the bush enters the wood of the plug provides a certain binding. It may be completed by a binding through the concrete, which is afforded by giving the plug a slightly frustoconical shape, the diameter increasing from bottom to top and being larger at the top than that of the recess by an amount sufficient for the plug to remain compressed even after any shrinking of the wood.

The plug can be screwed into its recess by any suitable means. It is generally necessary to give the plug a height greater than the depth of the recess so as to ensure an easy screwing down of the plug in spite of the effort required therefor and due on one hand to the penetration of the bush into the wood and on the other to the excess diameter of the plug with reference to that of its recess. The top of the plug is cleared above the tie after it is screwed down.

I have shown by way of example two forms of my invention.

Fig. 1 is a view of a double frustoconical plug according to my invention.

Fig. 2 shows this plug set in its recess and anchoring a rail by means of a coach screw.

Fig. 3 shows a modification wherein the plug appears as a simple frustocone and the coach screw is replaced by a bolt.

Fig. 4 is a detail view of the bush.

The smooth-walled plug 1 shown on Figs. 1 and 2 is slightly conical between the lines AA′ and BB′, its lower end 2 being a clear frustocone so as to allow an easier engagement of the plug in its recess. This recess is provided beforehand in the tie 3 and its walls comprise a spiral bush 4 of the Thiollier type, the spires of which project partly beyond the said walls, the top spire being preferably inwardly chamfered. The bituminous putty wherein the plug has been previously immersed fills all the holes including those necessarily provided at 5 at the bottom of the recess.

The fibres of the wood are cut or compressed and deformed and give the plug a great resistance against drawing out.

The rail 6 is secured to the plug 1 by means of the coach screw 7 showing a frustoconical collar 8.

As shown on Fig. 3 the lower receding part of the plug may be done away with and the said plug may appear as a simple frustocone. The rail may be secured by any other means than a coach screw for instance by a coach bolt 14 as shown on Fig. 3 with the insertion of a clip 15 and a spring washer 16 between the nut and the rail. Obviously a coach bolt may be used with the plug shown on Figs. 1 and 2 and reversely a coach screw may be used with the plug shown on Fig. 3.

Fig. 4 is intended to show the top cham-

fered edge of the bush, the latter being supposed seen from above.

What I claim is:

1. A device for anchoring rails on concrete sleepers comprising a steel spiral bush the outer part of which is securely held throughout its length in the wall of a cylindrical smooth-walled recess in the concrete and the inner part of which projects inside the said recess, a smooth walled wooden plug forced into the nut-shaped recess formed by the concrete of the sleeper and the steel of the bush and a rail clamping part adapted to engage said plug.

2. A device for anchoring rails on concrete sleepers comprising a steel spiral bush the outer part of which is securely held throughout its length in the wall of a cylindrical smooth-walled recess in the concrete and the inner part of which projects inside the said recess, a slightly frustoconical smooth walled wooden plug forced into the nut-shaped recess formed by the concrete of the sleeper and the steel of the bush, the diameter of the top of the plug being larger than that of the recess and a rail clamping part adapted to engage said plug.

3. A device for anchoring rails on concrete sleepers comprising a steel spiral bush the outer part of which is securely held throughout its length in the wall of a cylindrical smooth-walled recess in the concrete and the inner part of which projects inside the said recess, a slightly frustoconical smooth walled wooden plug the lower part of which recedes inwardly with reference to the wall of the top part adapted to be forced into the nut-shaped recess formed by the concrete of the sleeper and the steel of the bush and a rail clamping part adapted to engage said plug.

4. A device for anchoring rails on concrete sleepers comprising a steel spiral bush the outer part of which is securely held throughout its length in the wall of a cylindrical smooth-walled recess in the concrete and the inner part of which projects inside the said recess, a smooth walled wooden plug forced into the nut-shaped recess formed by the concrete of the sleeper and the steel of the bush, the top spire of the bush being inwardly chamfered and a rail clamping part adapted to engage said plug.

In testimony whereof I have affixed my signature.

EDMOND FRANÇOIS LEOPOLD VAGNEUX.