

D. H. STENT.
MEANS FOR SECURING RAILS OR HEAVY BODIES TO CONCRETE SLEEPERS, WALLS, OR FLOORS.
APPLICATION FILED DEC. 15, 1920.

1,398,748.

Patented Nov. 29, 1921.

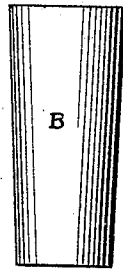


FIG. 1.

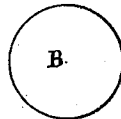


FIG. 2.

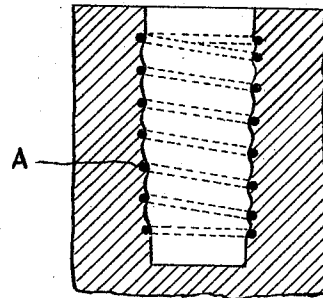


FIG. 3.

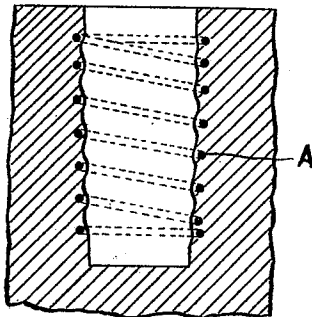


FIG. 4.

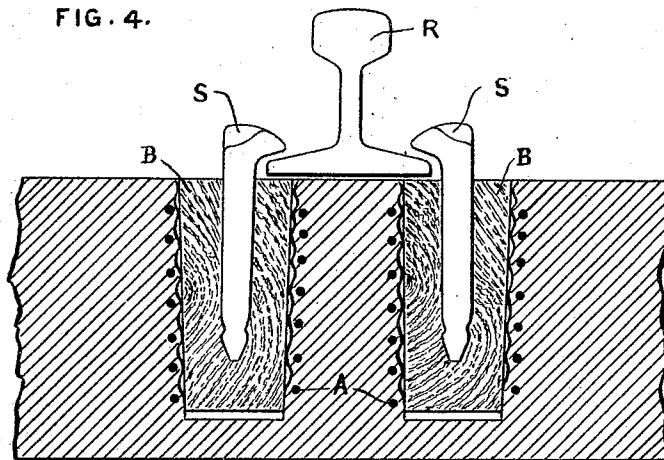


FIG. 5.

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MEANS FOR SECURING RAILS OR HEAVY BODIES TO CONCRETE SLEEPERS, WALLS, OR FLOORS.

1,398,748.

Specification of Letters Patent.

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(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, DUDLEY HEPBURN STENT, a subject of the King of Great Britain, residing at 16 Alipur road, Delhi, India, have invented new and Improved Means for Securing Rails or Heavy Bodies to Concrete Sleepers, Walls, or Floors, (for which I have filed applications in India, No. 3939, Oct. 21, 1918; Great Britain, No. 128851, Jan. 3, 1919; France, No. 506118, Nov. 15, 1919; Canada, No. 211,602, Feb. 4, 1920; Germany, No. St. 32842, Jan. 27, 1920; South Africa, No. 261/20, March 19, 1920; Italy, No. 31/288, May 25, 1920; Argentina, No. 21444, folio 292, Aug. 5, 1920,) of which the following is a specification.

This invention relates to improvements in the means of fixing rails to reinforced concrete or composite sleepers and other concrete supports for railways or tramways, or in fixing any heavy body such as machines to concrete walls or floors, of the kind in which a wooden plug to take a dog spike, is embedded in or driven into a hole in the concrete reinforced by a tubular, annular or other metal reinforcement, the wooden plug for instance being of such dimensions as to allow considerable freedom in positioning the spike.

According to the present invention the surface of the reinforced hole in the concrete presented to the wooden plug is corrugated and the reinforcement extends along the crests of the corrugations. The corrugations securely hold the plugs and the reinforcement provided to strengthen the concrete around the hole containing the plug takes all the stress, and none of the stress is applied directly to the concrete between the reinforcements.

The solid wooden plugs have parallel slightly tapered surfaces and are cast with the sleepers or driven into the holes provided in the sleeper, the walls of which holes are corrugated helically or annularly and are armored or reinforced with the metal binding as hereinafter described.

Embodiments of the invention are illustrated by way of example on the accompanying drawings in which:—

Figure 1 is a side elevation and

Fig. 2 is a plan of a solid wooden plug

which is inserted in the corrugated walled hole in a concrete sleeper.

Fig. 3 is a vertical section of part of a concrete sleeper showing one method of arranging the reinforcement so as to form the top of the ridge of the helical corrugation around the hole.

Fig. 4 is a similar view showing an alternative method of arranging the reinforcement embedded in the ridge of the corrugation of the hole.

Fig. 5 is a part section of a concrete sleeper suitable for flat footed rails showing how the rail R is fixed by means of the dog spikes S. S. driven into the spike plugs B. B.

A is the reinforcement of the hole in the sleeper, and B is a round slightly tapered solid wooden plug, which is held in the hole.

As shown in Fig. 3 the reinforcement A is in the form of a stout helically wound wire or rod. The wall of the hole in the sleeper is helically corrugated and the reinforcement A is situated along the crest of the corrugation. On the plug B being driven into hole it bears against the reinforcement only and does not bear against the concrete wall in the trough of the corrugation between successive convolutions of the crest thereof.

Moreover when a spike is subsequently driven into the plug to secure a rail or chair on the sleeper, the wooden plug B expands into the trough of the corrugation and keys itself in the hole, without, however, exerting a bursting stress on the body of the concrete.

The metal reinforcement A may be embedded slightly beneath the surface of the concrete along the crest of the corrugation, as shown in Fig. 4. In this case the small overlying thickness of concrete merely transmits the bursting stress, exerted by the plug B, to the underlying reinforcement A without transmitting the same to the body of the concrete.

The concrete in the above examples is cast around the metal reinforcements of the holes.

Another method of arriving at the same result *i. e.* a reinforced corrugated hole, wherein the wooden plugs when they expand from any cause can expand into the troughs of the corrugation, is firmly and tightly to

bind the metal reinforcement around the wooden plugs, then to cover the surface of the wood between the bindings with oil, creosote or similar material, place them in the mold and cast the concrete around them. While the concrete is wet it will be held from the surface of the wood by the film of oil, creosote or the like, but when the concrete is set and dry it will absorb this film and leave a small space all around between the concrete and wood formerly occupied by the oil, creosote or the like. Into this space the wooden plug will expand on the spike being driven into same, whereby the plug becomes keyed in the so formed corrugated walled hole.

The wire binding or reinforcement may be either of round or flat section, and helically or annularly arranged, and the plug may be either tapered or parallel.

It is immaterial to my invention as to how the holes and corrugations are formed in the concrete so long as they are provided and the reinforcement arranged as described.

The wooden plugs are of a diameter that will allow of the position of the spike being varied to the extent that the gage is required to be varied on curves, or to enable different sizes of rails or chairs to be employed.

Four such spike plugs may be provided under each rail on a concrete sleeper though it may be only necessary to use two at a time, the other two are provided for use when the first two are worn out. If the spike holes in the plugs were larger the

holes can be refilled and the spikes redriven as the plug is held from spreading by the reinforcement, or when too bad for this the wooden plugs can be screwed or cut out and new plugs driven in so giving the sleeper in this respect a practically endless life.

I claim:

1. In a concrete support having a hole for the reception of a plug into which a hold fast is driven, a corrugated wall of said hole presenting corrugations to said plug, and a reinforcement extending along the crests of the corrugations of said wall.

2. In a concrete support having a hole for the reception of a plug into which a hold fast is driven, a corrugated wall of said hole presenting corrugations to said plug, and a reinforcement extending along the crests of the corrugations of said wall beneath the surface of the concrete.

3. In a concrete support having a hole for the reception of a plug into which a hold fast is driven, a corrugated wall of said hole presenting corrugations to said plug, and a helical wire rod extending along the crests of the corrugations of said wall.

4. In a concrete support having a hole for the reception of a plug into which a hold fast is driven, a corrugated wall of said hole presenting corrugations to said plug, and a helical wire rod extending along the crests of the corrugations of said wall beneath the surface of the concrete.

In testimony whereof I have signed my name to this specification.

DUDLEY HEPBURN STENT.