No. 882,050. PATENTED MAR. 17, 1908.

H. H. CLOUGH.

RAIL FASTENING FOR CONCRETE RAILWAY TIES.

APPLICATION FILED SEPT. 4, 1906.

Fig. 1.

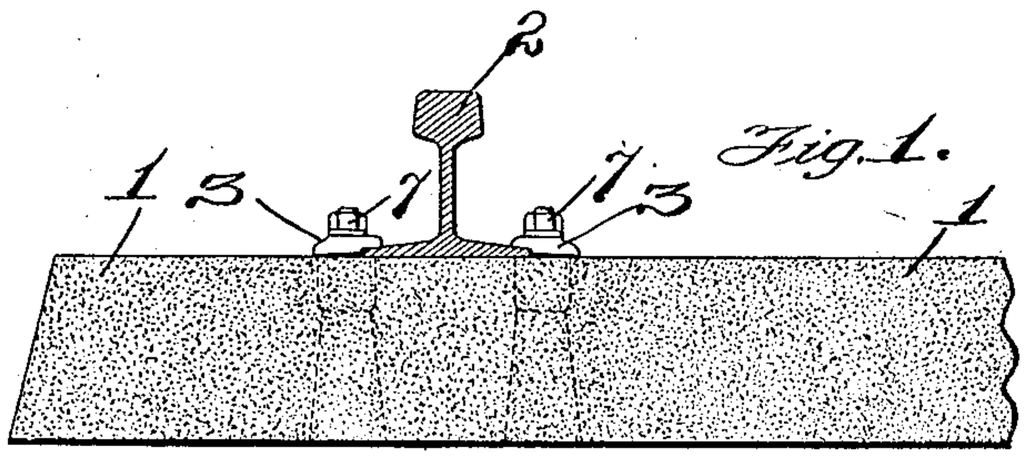


Fig. 2.

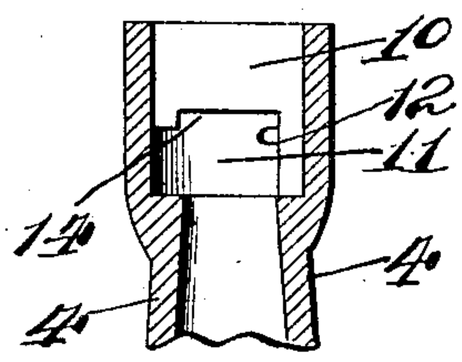


Fig. 2a.

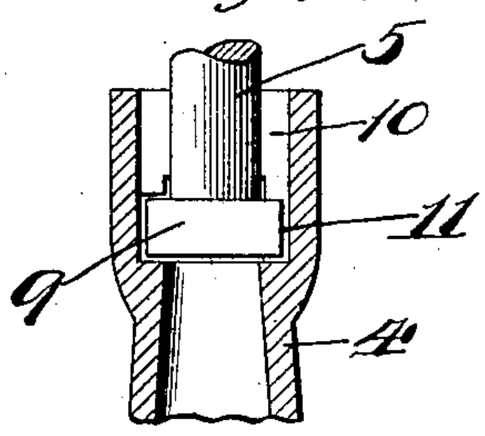


Fig. 5.

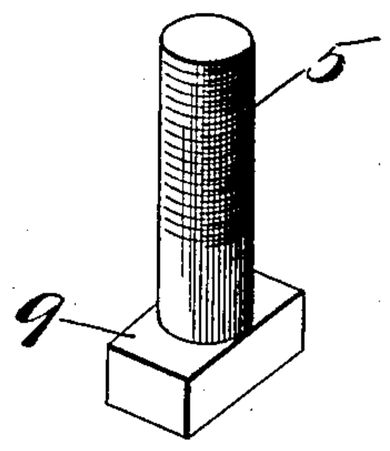


Fig. 3.

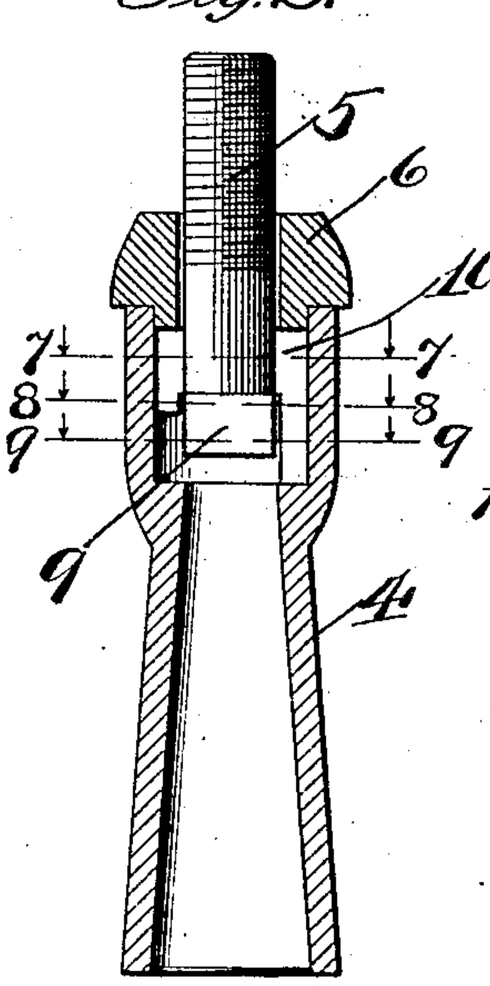


Fig. 4.

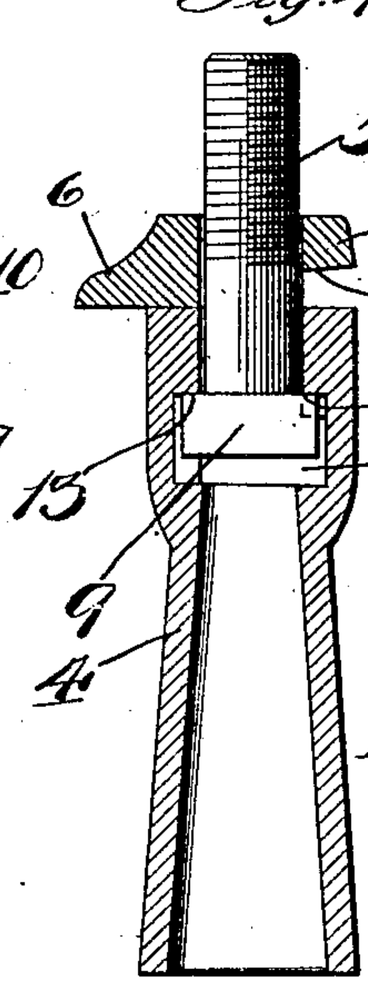


Fig. 6.

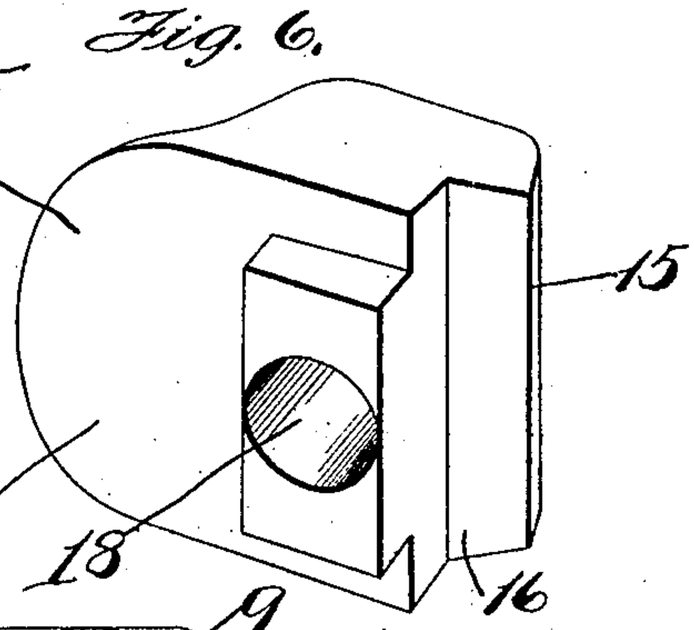


Fig. 7.

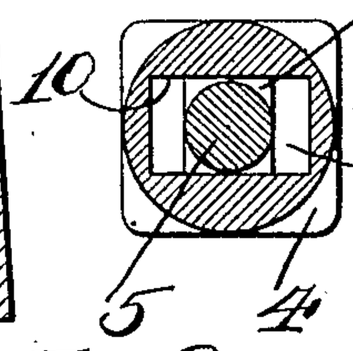


Fig. 8.

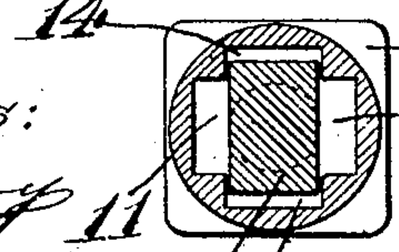
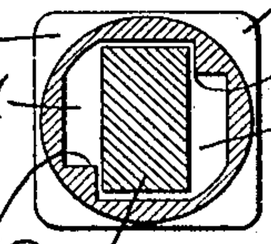


Fig. 9.



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Atty.

UNITED STATES PATENT OFFICE.

HENRY H. CLOUGH, OF ELYRIA, OHIO.

RAIL-FASTENING FOR CONCRETE RAILWAY-TIES.

No. 882,050. Specification of Letters Patent. Patented March 17, 1908.

Application filed September 4, 1906. Serial No. 333,211.

To all whom it may concern:

Be it known that I, HENRY H. CLOUGH, a citizen of the United States, and a resident of Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Rail-Fastenings for Concrete Railway-Ties, of which the following is a specification.

In the use of railway ties made of cement concrete, much difficulty has been experienced from the fact that the fastenings provided for securing the rails to the ties have been of such a nature as to render them likely to be broken off in handling and in use, difficult of replacement when broken or worn, and incapable of being applied to rail flanges of varying widths.

The object of the present invention is to provide an improved construction in such fastening devices by which the difficulties referred to are overcome, and to this end the invention consists in the matters herein set forth and particularly pointed out in the appended claims and will be fully understood from the following description of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of one end of a concrete railway tie provided with a form of fastening device constructed in accordance with my improvement, the rail being shown in section in its proper place on the tie. Fig. 2 is a sectional detail of the upper end of the sleeve. Fig. 2^a is a similar view, showing also the bolt head in the position occupied when dropped into the socket and turned at right angles to the entering slot. Figs. 3 and 4 are enlarged sectional details of the entire fastening device, except the clamping nut, taken on vertical planes at right angles to each other and showing the bolt as having been dropped into the socket, turned at right angles to the entering slot and drawn up by the clamping action. Fig. 5 is an enlarged perspective detail of the fastening bolt detached. Fig. 6 is an enlarged perspective detail of the rail engaging washers detached. Figs. 7, 8 and 9 are sectional details taken on lines 7—7, 8—8, and 9—9, respectively, of Fig. 3.

In said drawings, 1 designates the body of the concrete tie, and 2 the track rail which is secured to the tie by appropriate fastening devices 3, that form the subject matter of this improvement. These fastening devices each include a metallic sleeve 4 adapted to be embedded in the concrete tie body, and rail fastening bolts 5 arranged to be detachably interlocked with said sleeve, and having clamping collars or washers 6 that can be clamped down upon the flange of the rail by nuts 7 that are screw threaded upon the exposed ends of the bolts. The manner in which the bolts 5 are detachably interlocked with the sleeves 4 involves the formation in the upper end of each sleeve 4 of a socket 8 for receiving the head 9 of the bolt. The upper end or mouth 10 of this socket is made oblong in shape, or as a slot of greater length than width, and the head 9 of the bolt is made of similar shape but just enough smaller to freely enter the opening.

Below its upper end or mouth 10 the socket 8 is enlarged to form a chamber 11 (Fig. 4), which is of approximately the same width as length, except for two opposite corners where inwardly projecting lugs 12 are formed (Fig. 9). This enables the head of the bolt, after being dropped through the entering or slot portion 10 of the socket, to be turned at right angles so that its projecting ends enter beneath the shoulders 13 which form the roof, as it were, of the enlarged chamber portion 11 of the socket, such turning of the head of the bolt being limited to a right angle or ninety degree turn by the corner lugs 12 which form stops to prevent further rotation. When in this position the bolt will obviously be held from withdrawal and the nut on the bolt may be tightened up to clamp the washer 6 down upon the rail as tightly as desired. At the same time the bolt may be readily detached and removed from the sleeve whenever desired, by loosening the nut and turning it back so as to bring its head in line with the entering slot 10 once more. As a further improvement, also, and in order to prevent the bolt from being accidentally turned back by the jar and vibration to which the fastening is subjected, rectangular notches 14 are shown as provided in the side walls of the slot 10 so as to form narrow enlargements of the upper portion of the chamber 11 just wide enough to receive the ends of the bolt head. One side of each of these slots 14 is made coincident with the face of the corner lug 12 of the chamber 11, and consequently when the turning of the bolt head is stopped by its engagement with lugs, it will be guided by them up into the slots 14 as the bolt is lifted. And inasmuch as both the lifting and the turning of the bolt

will automatically occur when its nut 6 is screwed down upon it, it is only necessary to drop the head of the bolt into the socket, place the washer 6 in position and screw the nut 7 down upon it, in order to insure the complete interlocking of the head of the bolt with the sleeve, the screwing down of the nut serving first to turn the bolt so that its head extends at right angles to the entrance slot 10, and then to lift the bolt until the projecting ends of its head occupy the slots 14, whereupon the bolt will be locked against turning movement in either direction.

The washer 6 is preferably made with a rectangular side 15, which is cut away below at 16 so as to fit over the edge of the rail flange, and the washer is also provided on its under surface with a rectangular lug 17 which drops into the slot 10 of the sleeve so as to hold the bolt 5 centrally therein, the bolt aperture 18 of the washer extending upwardly through the middle of this lug. The rectangular jaw side 15 of the washer may be made to project laterally to any desired extent, and consequently by having washers of various sizes in this respect, the same fastening, except for the washer itself, may be employed for clamping either a wide or narrow flanged rail in place. The formation of the sleeve for the fastening may be anything which will insure its being tightly embedded in the concrete in such manner as to prevent its either being turned or pulled out by the strain put upon the fastening bolt, and in the present instance it is shown as made flaring or dovetailed towards its lower end, so as to resist withdrawal, and of generally rectangular cross section so as to resist turning. The lower end of the sleeve is also herein shown as made hollow to lighten the casting. Obviously, with this construction, the sleeve of the fastening will be molded into the tie at the factory, and the bolts will not be applied until after the tie is in place in the road bed and the track rails laid upon it. Consequently at no time during the handling or shipping of the tie will there be any projecting part of the fastening likely to be broken off or to interfere with the handling of the tie body. And since the fastening bolts may be readily removed from the sleeve at any time, by simply unscrewing the nuts so as to permit the head to drop down until it can be swung around into line with the slotted mouth of the sleeve, so as to be lifted directly out, said bolts may be replaced at any time in case the bolts may become broken or damaged, or in case it is desired to take up a piece of track for relaying.

I claim as my invention:—

1. A rail fastening for ties, comprising a socketed part secured to the tie, said socket being formed with an enlarged chamber below the mouth of the socket, a clamping bolt having its head inserted through said mouth portion and turned angularly in said chamber into non-withdrawable position, and recesses in the tops of the enlarged chamber for receiving the bolt head when drawn up by its clamping nut, substantially as and for the purpose set forth.

2. A rail fastening for concrete ties comprising a sleeve embedded in the concrete and formed with a socket in its upper end, the mouth of the socket being in the form of a slot with a wider chamber beneath, a clamping bolt having a T-head adapted to be inserted through said slot and turned into non-withdrawable position by the screwing of the nut on the bolt, and recesses in the top of the enlarged chamber into which the bolt head is lifted by the screwing down of its nut by which it is held against turning movement in either direction, substantially as and for the purpose set forth.

In testimony, that I claim the foregoing as my invention, I affix my signature in presence of two subscribing witnesses, this 29 day of July, A. D. 1906.

H. H. CLOUGH.

Witnesses:

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MARTHA B. CLOUGH.