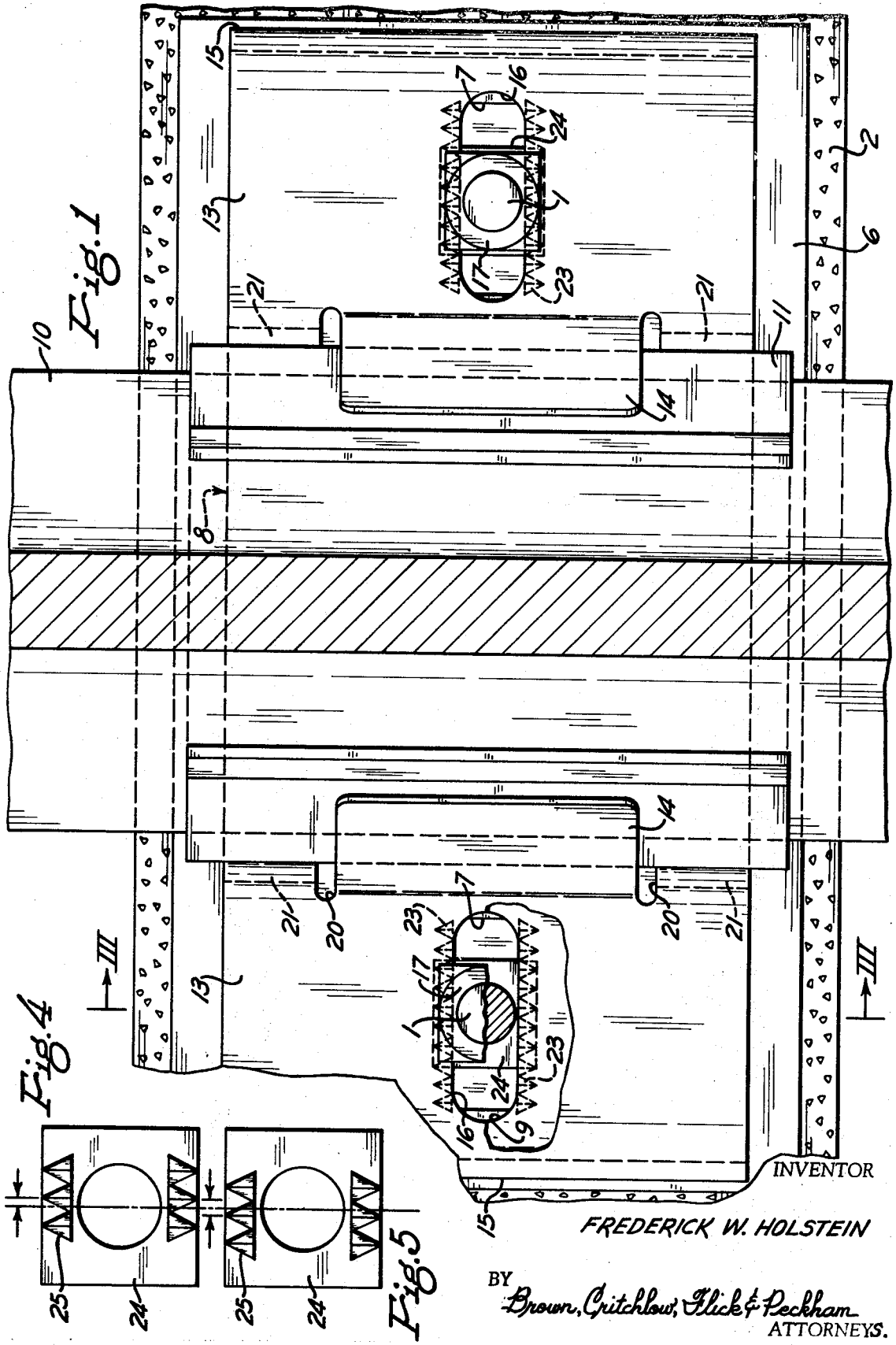
June 30, 1970 F. W. HOLSTEIN 3,517,883

ONE PIECE DOUBLE RAIL ANCHOR

Filed Oct. 16, 1968 2 Sheets-Sheet 1



June 30, 1970 F. W. HOLSTEIN 3,517,883

ONE PIECE DOUBLE RAIL ANCHOR

Filed Oct. 16, 1968 2 Sheets-Sheet 2

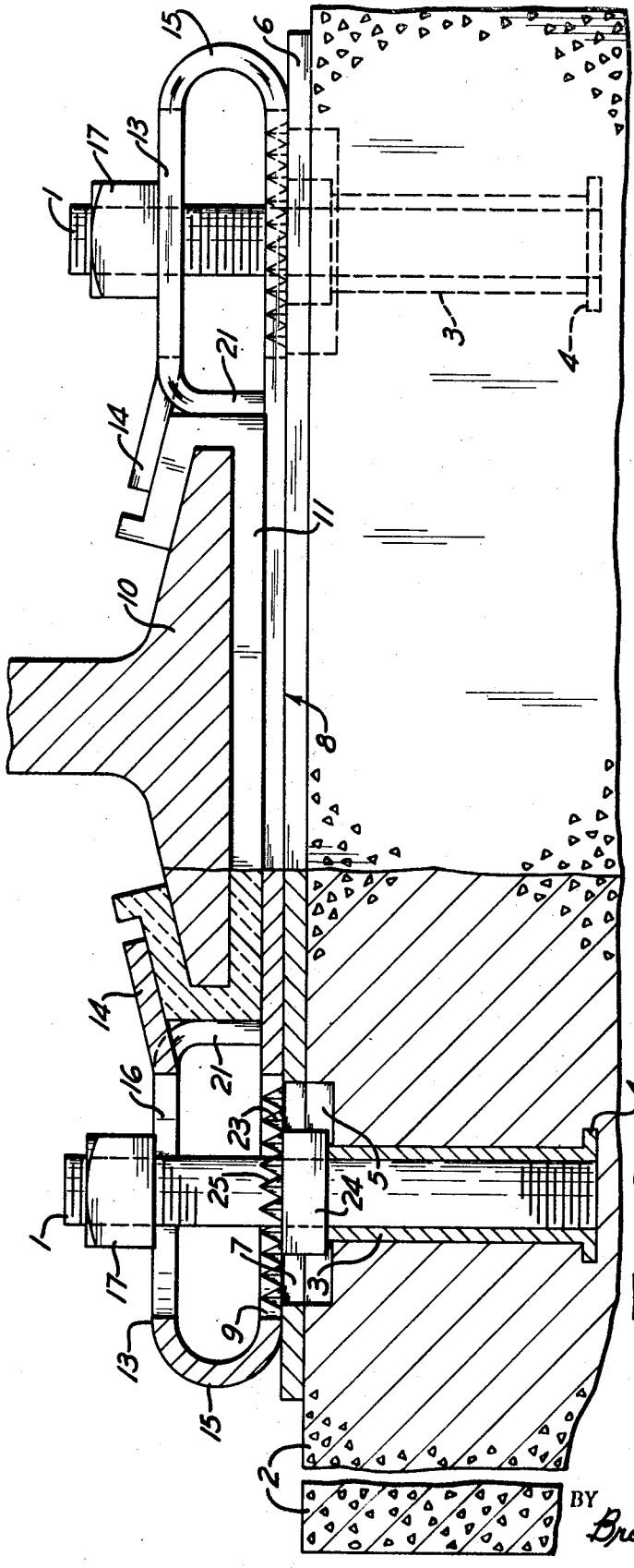


Fig. 2

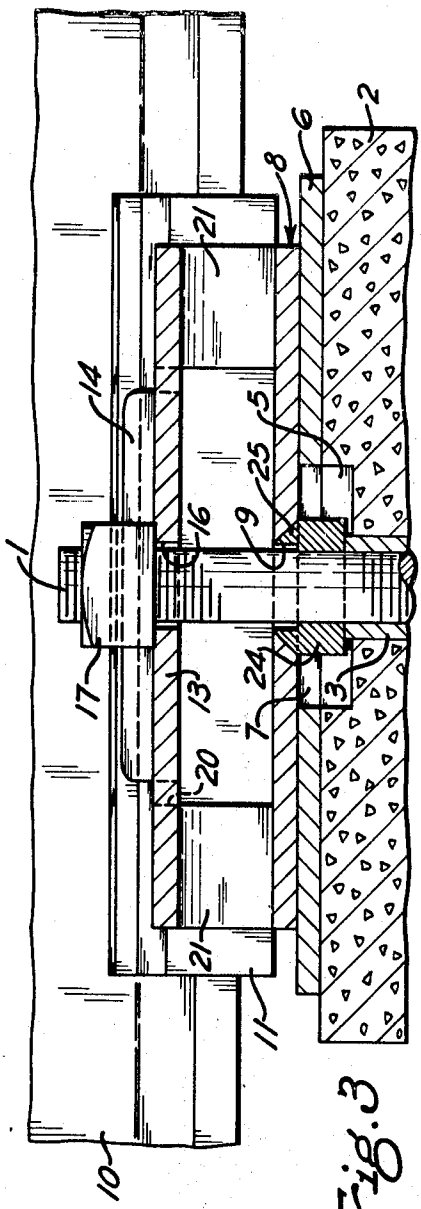


Fig. 3

INVENTOR
FREDERICK W. HOLSTEIN

BY Brown, Critchlow, Flick & Peckham
ATTORNEYS.

United States Patent Office 3,517,883 Patented June 30, 1970

3,517,883

ONE PIECE DOUBLE RAIL ANCHOR

Frederick William Holstein, Verona, Pa., assignor to Woodings-Verona Tool Works, Verona, Pa., a corporation of Pennsylvania

Filed Oct. 16, 1968, Ser. No. 767,957
Int. Cl. E01b 9/48
U.S. Cl. 238—346 5 Claims

ABSTRACT OF THE DISCLOSURE

A rail anchor for a concrete tie has a pair of laterally spaced rail clamps for overlying the opposite sides of a rail base between them, and a plate below the clamps and integral with them for spanning the space between them to form a seat for the rail. The clamps and the underlying portions of the plate are provided with pairs of vertically aligned openings for receiving anchor bolts embedded in the supporting cross tie. Serrations on the bottom of the plate engageable by teeth on rings on the bolts allow the plate to be locked in longitudinally adjusted positions.

Rail base clamps, which are held in place by anchor bolts extending down through them and into the underlying ties, are in common use. Some of these clamps engage the edges of the rail base to help prevent it from shifting laterally. When used with a concrete tie, the clamps generally can be mounted in only one position, so the rail gauge cannot be adjusted.

It is among the objects of this invention to provide a rail anchor which is specially designed for use with a concrete tie, which has a pair of integrally connected rail clamps, which can be adjusted lengthwise of a tie, and which will not allow the rail base to shift laterally relative to the anchor.

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

FIG. 1 is a plan view;

FIG. 2 is a side view and longitudinal section;

FIG. 3 is a cross section taken on the line III—III of FIG. 1;

FIG. 4 is an enlarged plan view of one of the toothed rings in the same position as shown in FIGS. 1 and 2; and

FIG. 5 is a plan view of the ring shown in FIG. 4, turned 180°.

Referring to FIG. 2 of the drawings, the lower ends of a pair of anchor bolts **1** are anchored in a concrete tie **2** at the opposite sides of the area that a rail is to cross. The anchoring is done by screwing the bolts into threaded sleeves **3** which have flanges **4** at their lower ends. The sleeves are embedded in the concrete tie when it is cast. The upper ends of the sleeves are located at the bottom of recesses **5** formed in the top of the tie for a purpose to be described later.

A flat pad **6** of suitable material may be placed on the tie, the pad being provided above recesses **5** with large openings **7**, through which the anchor bolts extend. Resting on this pad there is a rectangular metal anchor plate **8** that likewise is provided with openings **9** for the anchor bolts. The central portion of the plate between the bolts forms a seat for a rail base **10**. The rail may rest directly on the plate or be separated from it by a strip of insulating material **11** that also extends up past the opposite edges of the rail base and then inwardly over it for a short distance.

To clamp the rail in place on the anchor plate, a pair of clamps **13** are provided, one at each side of the rail. Each of these clamps is a plate-like member with an inner end portion or lip **14** that overlies the adjoining side

of the rail base. The outer end portions **15** of the clamps are curved downwardly and inwardly toward each other and are integrally joined to the ends of the flat anchor plate. The clamps therefore are continuations of the anchor plate and may be the same width. The clamps are provided with openings **16** above plate openings **9** for likewise receiving the anchor bolts. Originally, the clamps are inclined inwardly and upwardly so that their lips **14** will be spaced from the underlying rail base or the insulating strip **11** in case one is used. However, when nuts **17** are screwed on the upper ends of the anchor bolts and turned down, the clamps are sprung downwardly until their lips **14** tightly engage the insulating strip. This will clamp the rail on the anchor plate. In clamping position, the clamp bodies are substantially parallel to the underlying anchor plate **8**.

To help keep the rail base from shifting laterally along the anchor plate, the inner end portion of each clamp may be provided with one or more slits or slots so that one or more tongues can be bent downwardly. Preferably, there are two such slots **20** in each clamp, located near its sides as shown in FIG. 1, so that a pair of tongues **21** are provided, with lip **14** between them. These tongues substantially engage the opposite edges of the rail base or the insulating strip and therefore prevent the rail from moving lengthwise of the anchor plate.

In order to apply this anchor to a rail, the anchor must be slipped over the end of the rail and then moved along it to the desired position. Usually, all of the anchors for a rail will be applied to it at the same time and then spread out along it. Having two rail clamps integrally connected by an anchor plate so that they form a single unit is a great convenience in handling and applying the clamps.

Another feature of this invention is that the rail anchor can be adjusted lengthwise of the tie in order to adjust the spacing or gauge between the two rails that are mounted on each tie. This is done by making the openings **9** and **16** in the rail anchor in the form of longitudinal slots so that the anchor and rail can be moved lengthwise of the tie to the proper position before the nuts are tightened on the anchor bolts. It also is highly desirable to provide means in addition to nuts **17** for locking the rail anchor in the position to which it has been adjusted. This can be accomplished by providing the bottom of anchor plate **8** beside one or both slots **9** with rows of serrations. Preferably, both sides of each slot are serrated; i.e. provided with rows of notches **23**, preferably tapered both upwardly and laterally. To engage some of these serrations, a ring **24** is mounted on each anchor bolt. The ring rests on top of the underlying sleeve **3**, and the top of the ring engages, or nearly engages, the bottom of the overlying anchor plate at opposite sides of its slots as indicated in FIGS. 1 and 3. The top of the ring also is provided with parallel rows of upwardly and laterally tapered teeth **25** that register with the serrations above them as shown in FIGS. 2 and 3. In other words, the teeth and some of the serrations are in engagement with one another to prevent longitudinal movement of the anchor plate. To adjust the anchor along the tie, the anchor and the rail first must be lifted far enough for the bottom of the anchor plate to clear the top of the ring teeth. Then the anchor is moved lengthwise to the desired position and lowered onto pad **6** again, with the ring teeth projecting up into the serrations. When nuts **17** are tightened, the anchor is locked in place.

An important feature of this invention is that the anchor is adjustable lengthwise by increments of approximately one-eighth inch. However, serrations and ring teeth formed for such small increments of movement would not be large enough to have sufficient engagement with one another to securely lock the anchor in place. There-

fore, the serrations are spaced on one-quarter inch centers but the teeth, which likewise are on one-quarter inch centers, are located one-sixteenth of an inch off center relative to the center line of the ring as shown in FIG. 4. Therefore, if it is desired to move the anchor lengthwise only one-eighth of an inch, it is raised and the underlying rings are turned 180°. As shown in FIG. 5, this has the effect of moving the rows of teeth lengthwise one-eighth inch. The teeth then will fit in plate serration that have been moved only one-eighth of an inch, even though the notches that form the serrations are one-quarter inch apart. Of course, a one-quarter inch adjustment, or a multiple thereof, can be obtained without turning the rings. Whatever the extent of the adjustment the interengaging ring teeth and anchor plate serrations will hold the plate securely in place.

I claim:

1. A rail anchor for use with a concrete tie, comprising a pair of laterally spaced plate-like rail clamps having inner end portions adapted to overlie the opposite sides of the base of a rail between them, the outer end portions of the clamps curving downwardly and inwardly toward each other, an anchor plate below the clamps and spanning the space between them to form a seat for a rail base, the plate being integrally connected to the lower ends of said curved outer end portions of the clamps, each of said clamps and the underlying portion of said plate being provided with a pair of vertically aligned slots extending lengthwise of the anchor plate for receiving an anchor bolt, the bottom of said plate at opposite sides of a plate slot being provided with rows of serrations, and a ring adapted to be mounted on an anchor bolt and having upwardly projecting teeth registerable with some of said serrations to lock said plate in place.

2. A rail anchor according to claim **1**, in which said ring is rotatable and its teeth are off center a distance equal to one-quarter of the distance between the peaks of adjoining teeth, whereby upon rotation of the ring 180° the anchor plate can be moved lengthwise a minimum of one-half the distance between said peaks.

3. A rail anchor according to claim **1**, including an anchor bolt extending through each of said pairs of slots,

a sleeve threaded on the lower portion of each bolt and adapted to be anchored in a concrete tie, one of said rings mounted on each bolt substantially in engagement with the upper end of its sleeve and the bottom of said plate, and means on the upper ends of the bolts for pressing said clamps downwardly and pressing the anchor plate against said rings.

4. A rail anchor according to claim **3**, in which said rings are rotatable and their teeth are off center a distance equal to one-quarter of the distance between the peaks of adjoining teeth.

5. A rail anchor according to claim **4**, in which each clamp has downturned tongues beside its inner end portion to restrain lateral movement of a rail base on said anchor plate.

References Cited

UNITED STATES PATENTS

746,918	12/1903	Bline	238—300
1,031,938	7/1912	Kummer	238—300
1,465,324	8/1923	Wilke	238—305
1,512,086	10/1924	Finley et al.	238—305
1,579,157	3/1926	Singelary	238—305
1,881,937	10/1932	Preston	238—305
1,887,457	11/1932	McGrew	238—338
2,426,137	8/1947	Asselin	238—338
3,358,927	12/1967	Hein et al.	238—338
3,436,018	4/1969	Alexander	238—349
3,476,317	11/1969	Gassner	238—349
1,005,390	10/1911	Will	238—346
1,082,433	12/1913	Miller	238—346
1,132,354	3/1915	Kirch	238—346
1,550,584	8/1925	Snyder	238—346
2,579,373	12/1951	Edee	238—346
3,206,123	9/1965	Baker	238—349
3,282,506	11/1966	Holstein	238—349

ARTHUR L. LA POINT, Primary Examiner

R. A. BERTSCH, Assistant Examiner

U.S. Cl. X.R.

238—283, 300, 305, 338, 349