June 4, 1929. E. C. AGAN 1,715,345

RAIL FASTENING DEVICE

Filed May 31, 1928

Fig. 1.

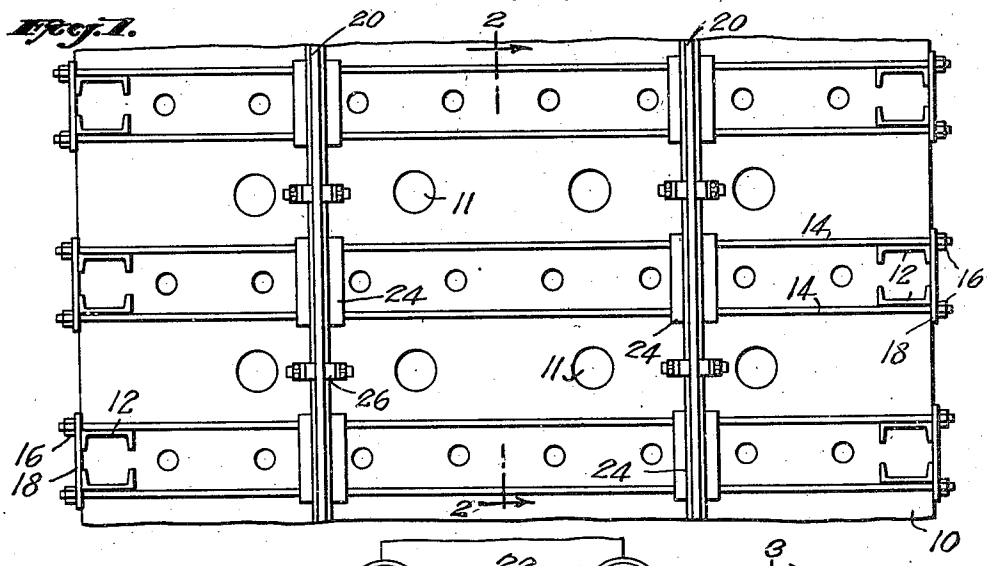


Fig. 2.

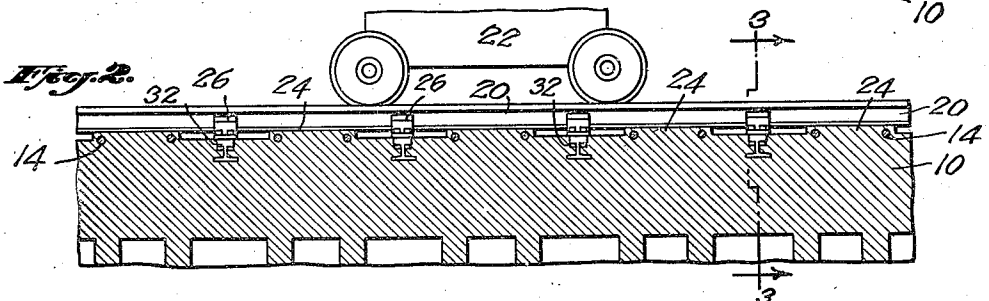


Fig. 3.

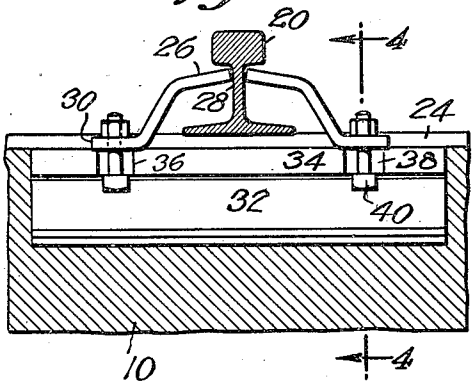


Fig. 4.

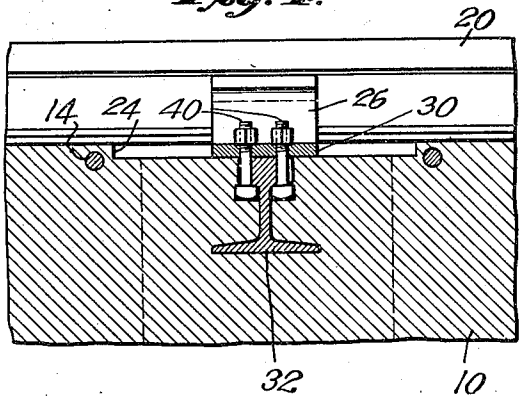
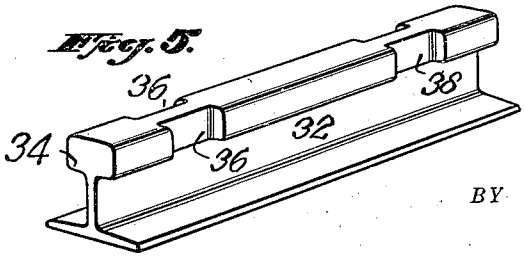


Fig. 5.



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UNITED STATES PATENT OFFICE.

ERNEST C. AGAN, OF BIRMINGHAM, ALABAMA.

RAIL-FASTENING DEVICE.

Application filed May 31, 1928. Serial No. 281,806.

This invention relates to improved means for fastening rails in locations where the same must be secured to refractory material such as masonry or brick structures which are subjected to abnormal temperatures. While not limited thereto, the invention is well suited for use in securing the larry car rails to the top of a coke oven structure. The invention will be apparent from the following specification when read in connection with the accompanying drawings in which—

Fig. 1 is a plan view of a portion of a coke oven having rails secured thereto by a device embodying the invention;

Fig. 2 is a longitudinal section on line 2—2 of Fig. 1;

Fig. 3 is an enlarged detail section on line 3—3 of Fig. 2;

Fig. 4 is a section on line 4—4 of Fig. 3;

Fig. 5 is a perspective detail view of a guard beam.

Referring in detail to the drawings, 10 represents a body of refractory material such as brickwork or masonry used in the construction of coke ovens. The coke oven is formed with the usual buck-stays 12 which are tied across the top of the furnace by means of cross rods 14 having nuts 16 thereon which engage plates or washers 18.

Rails 20—20 are secured, by my improved rail fastening device to be hereinafter described, to the top of the coke oven so as to guide the usual larry car 22 used in carrying the coal which is to be charged through openings 11 leading to the coke chambers of the oven.

Heretofore, it has been customary to secure the rails to the tie rods 14. In practice this is objectionable because it restricts the free expansion of the rail due to the abnormal heat of the coke oven. This frequently causes buckling or breaking of the rail and tends also to transmit objectional stresses to the tie rods and refractory material.

According to my improvement the rails 20—20 bear freely on pads or raised bosses of masonry 24 and the rails are held against displacement by clips 26 adapted to be engaged under the head of the rail as indicated in Fig. 3 so as to abut the web 28 near the fillet joining the head to the web. Each clip 26 is provided with a base portion 30 which is seated on the upper surface of a beam 32 buried in the masonry and disposed substantially at right angles to the length of the rails. In the embodiment of the invention illustrated, the beams 32 are formed of short sections of T-rail. The head 34 of each beam is notched at 36 and 38 for the reception of bolts 40 by means of which clips 26 are secured in place.

As thus arranged, it is apparent that the clips 26 are effective to maintain the correct gauge between the rails 20—20. Yet because of the relatively loose joint between the clips 26 and the web 28, each rail is free to expand independently under the influence of the terrific heat of the coke oven. Thus, elongation of the rails due to the heat, or contraction due to any change in temperature, will not set up destructive stresses in the oven structure. Each beam 32 as indicated clearly in Fig. 4 is spaced from the bottom flange of the rail 20 so that none of the load on the rails is transmitted to the beams 32, this load being transmitted to the pads or bosses 24 above referred to.

While I have described quite specifically the particular embodiment of the invention illustrated, it is not to be construed that I am limited thereto since modifications may be made by those skilled in the art without departing from the invention as defined in the appended claims.

What I claim is:—

1. A masonry structure formed with spaced integral bearing pads, rails seated thereon, means for positioning the rails on said structure comprising a beam whose top surface is below the level of said pads and clips secured to said beam.

2. A masonry structure having spaced bearing pads integrally formed thereon, rails seated on said pads, positioning means for said rails comprising transversely extending beams embedded in said structure at points between said pads and clips secured to said beams for positioning the rails against transverse displacement.

3. A masonry structure having rails seated thereon, means for holding said rails in position with freedom to expand and contract with respect to said masonry structure comprising transverse beams embedded in the masonry and clips secured to said beams and having offset portions spaced above the base flanges of the rail, the extremities of said clips being adapted to engage the web of the rail so as to prevent lateral displacement thereof.

4. A masonry structure having rails resting freely thereon, means for holding said rails against transverse displacement comprising

beams disposed transversely of said rails and located in a plane immediately below the bottom surface of said rails so as to provide a clearance, and clips secured to said beams having offset web engaging portions spaced above the base flanges of the rail.

5. A masonry structure, a rail supported loosely on bearing pads formed in said structure, and means for preventing lateral displacement of said rail comprising a beam extending transversely of the rail and embedded in said structure, bent clips having portions shaped to engage the web of the rail under the head thereof and also having bearing portions seated on said beam, the latter being notched and bolts extending through the notched portions of the beams and engaging the bearing portions of said clips.

In witness whereof, I have hereunto signed my name.

ERNEST C. AGAN.