C. J. GADD.

FASTENING FOR RAILROAD OR OTHER STRUCTURES.

APPLICATION FILED OCT. 15, 1915.

1,199,743. Patented Sept. 26, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

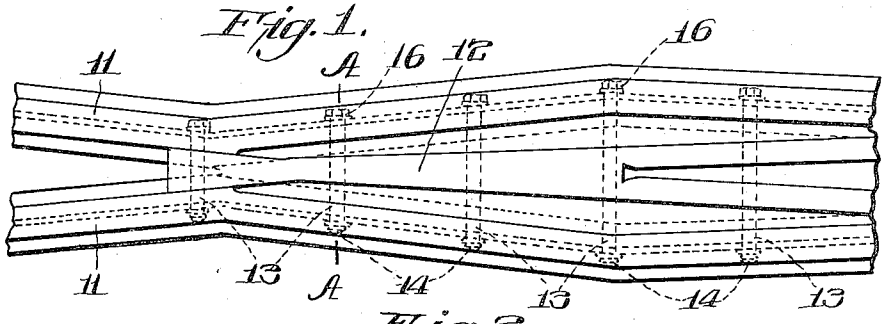
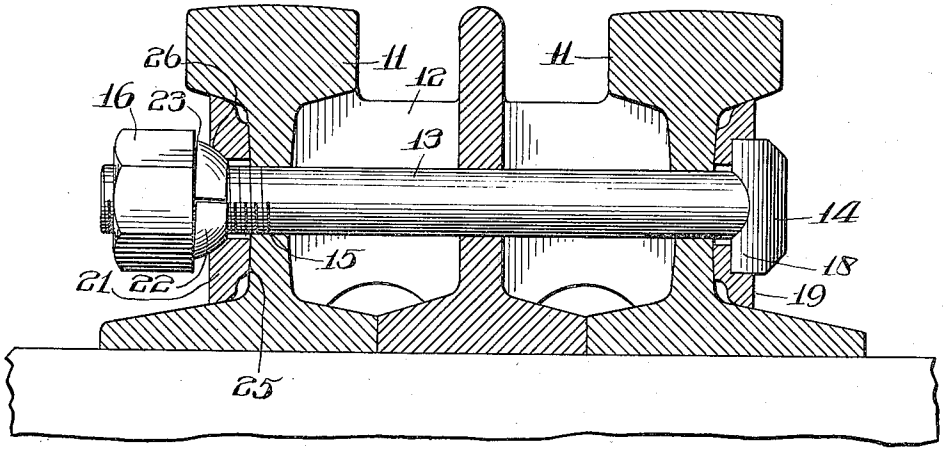


Fig. 2.



Inventor
Charles J. Gadd
By Chas A. Carter.
Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

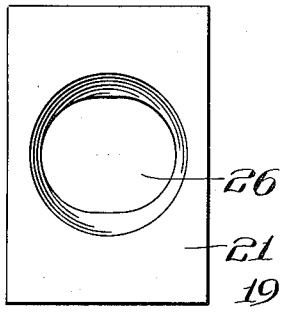


Fig. 4.

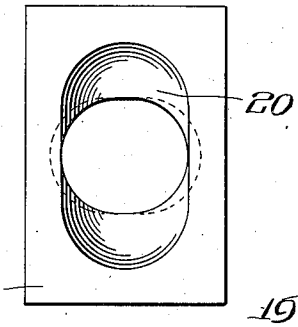


Fig. 5.

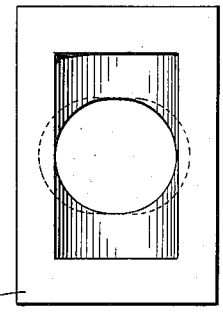


Fig. 6.

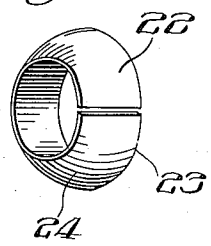


Fig. 7.

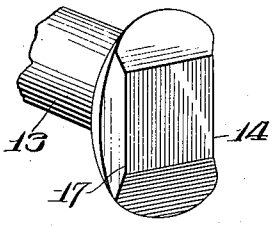


Fig. 8.

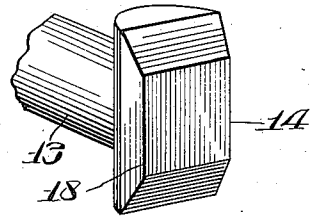


Fig. 9.

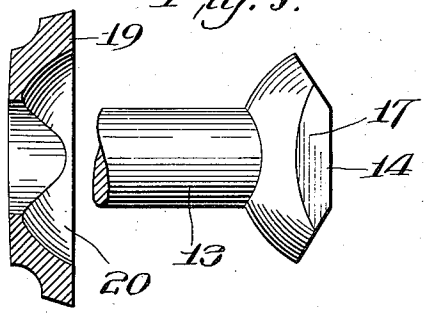
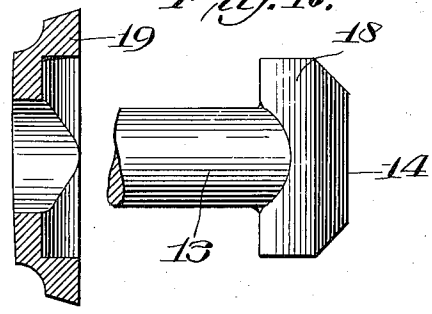


Fig. 10.



Inventor
Charles J. Gadd
By Chas A. Culler
Attorney

UNITED STATES PATENT OFFICE.

CHARLES J. GADD, OF LEBANON, PENNSYLVANIA.

FASTENING FOR RAILROAD OR OTHER STRUCTURES.

1,199,743. Specification of Letters Patent. Patented Sept. 26, 1916.

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To all whom it may concern:

Be it known that I, CHARLES J. GADD, a citizen of the United States, and a resident of the city and county of Lebanon, in the State of Pennsylvania, have invented certain new and useful Improvements in Fastenings for Railroad or other Structures, of which the following is a specification.

My invention relates to an improved fastening for railroad or other structures and the object of my invention is to provide a simple, durable and efficient means whereby the separate parts of a structure, notwithstanding that they may be inclined at an angle to one another and to the main part of the fastening, may be firmly secured one to the other. Taking for purpose of illustration a railroad frog or crossing, in which the commercial sizes vary from about one degree 36 minutes to 53 degrees 8 minutes, and in connection with which the stock rails are necessarily bent to one or more angles, it will be observed that the fastening bolts passing through the stock rails will assume an endless number of angles to the face of the webs of the stock rails against which the head and nut of the bolt must exert the necessary pressure to hold the structure together. The same conditions, to a greater or lesser degree, are frequently found in other structures of metal and heretofore it has been the practice to make use of suitably beveled washers, or to bevel off the under side of the head of the bolt, and to place a beveled washer under the nut, so that the pull of the bolt would be properly applied to the parts which it was holding together. In practice this construction is far from efficient as eccentric stresses are set up in the bolts which cause them to presently loosen and often to break, in addition to this it will be seen that an endless assortment of angle washers or angle headed bolts must be maintained in order to suit the great number of angles that occur and this is not only troublesome but expensive.

I propose to furnish a standard head bolt, a standard nut, and standard washers which may be used universally for securing together members of structures which are inclined at angles to each other and to the bolt which will be so designed as to eliminate all eccentric stresses and in which the bolt will be under tension only and to furnish in connection therewith a means whereby the nut, once it is tightened and locked, cannot be loosened by vibration.

In the accompanying drawings forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views:—

Figure 1, is a plan view of a railroad frog or crossing showing the application of my invention thereto; Fig. 2, a section, enlarged, of Fig. 1 on line A—A; Figs. 3, 4 and 5, plan views of washers for my several forms of bolt heads; Fig. 6, a perspective view of split washer to be locked against bolt by screwing down nut; Fig. 7, a perspective view of bolt head having the form of part of a sphere; Fig. 8, a perspective view of bolt head having the form of part of a cylinder; Fig. 9, a side elevation of bolt head having a spherical form and a sectional view of washer adapted to receive this head; Fig. 10, a side elevation of bolt head having a cylindrical form and a sectional view of washer for receiving this head.

Referring to Figs. 1 and 2; 11 are the stock rails of a railroad frog or crossing, 12 the rolled steel separating or filling piece usual in such constructions, 13 are bolts passing through the stock rails and filling piece which are at one end furnished with heads 14 and at the other end with a thread 15 which carries a nut 16.

The under sides of the head of the bolt may be spherical with flattened sides 17 as shown in Figs. 7 and 9 or cylindrical with flattened sides 18 as shown in Figs. 2, 8 and 10 and these heads are adapted to be received by washers having pockets to correspond with the form of the head, that is to say, the heads shown in Figs. 7 and 9 are carried in washers 19 having pockets 20 which receive the flattened spherical head shown in Figs. 7 and 9 and those shown in Figs. 2, 5 and 10 have pockets corresponding to the cylindrical heads shown in Figs. 2, 8 and 10.

It will be observed that the heads of the spherical headed bolts may be moved around in the pockets in these washers so that the bolt itself can be inclined at any direction to the washer while the heads of the cylindrical headed bolts may be moved in a plane at right angles to the longitudinal axis of the cylindrical head and in no other direction.

The flattened sides of the spherical head prevent the bolt thus headed from turning upon its axis when the nut is being wrenched upon its threaded end while the same result is secured in the cylindrical headed construction by the peculiar T shape of the bolt seated in its socketed washer.

It will be observed that the spherical headed bolt shown in Figs. 7 and 9 has a greater diameter or radii upon its longitudinal axis than upon its transverse axis. This construction permits the head to rock in any direction in its socket, shown in Fig. 4, and prevents the bolt from turning axially when the head is seated in the socket.

16 is the nut which is carried by the threaded end of the bolt, 22 a split washer the face 23 of which adjacent to the nut is flat and the opposite face 24 of which is spherical, 21 a washer with one flat face 25 and upon the opposite side furnished with a spherical pocket 26, preferably of slightly less diameter than that of the spherical face 24 of washer 22. When the nut 21 is wrenched up on the threaded end of the bolt the spherical face 24 of washer 22 is forced into spherical pocket 26 in washer 21 and as this washer is split it will be closed down tightly against the bolt and one side of its flat face at the slit will be cocked up as shown in Fig. 2 presenting a sharp edge to the face of the nut which will prevent this latter from turning off the bolt prematurely.

Having thus described my invention I claim as new and desire to secure by Letters Patent:—

1. In a fastening for railroad or other structures having inclined members, in combination, a perforated socketed member, a threaded bolt adapted to pass through the perforation in said member and carrying a head adapted to rock in the socket but not to rotate therein, a member having a substantially hemispherical socket, a split washer having a substantially spherical face adapted to rest in said socket, and a nut, all substantially as and for the purposes set forth.

2. In combination, a bolt having a head oblong in plan the under side of said head being convex the radii or diameter upon the longitudinal axis being greater than that on the transverse axis, a perforated member furnished with a socket corresponding in form with and adapted to receive the under side of said head, a substantially hemispherical socket member through which the threaded end of said bolt passes, a washer having a substantially spherical side adapted to enter the socket in said socketed member, and a nut carried by the threaded end of said bolt adapted to engage said washer.

CHARLES J. GADD.

Witnesses:
J. N. MASON,
J. W. EDMONDS.