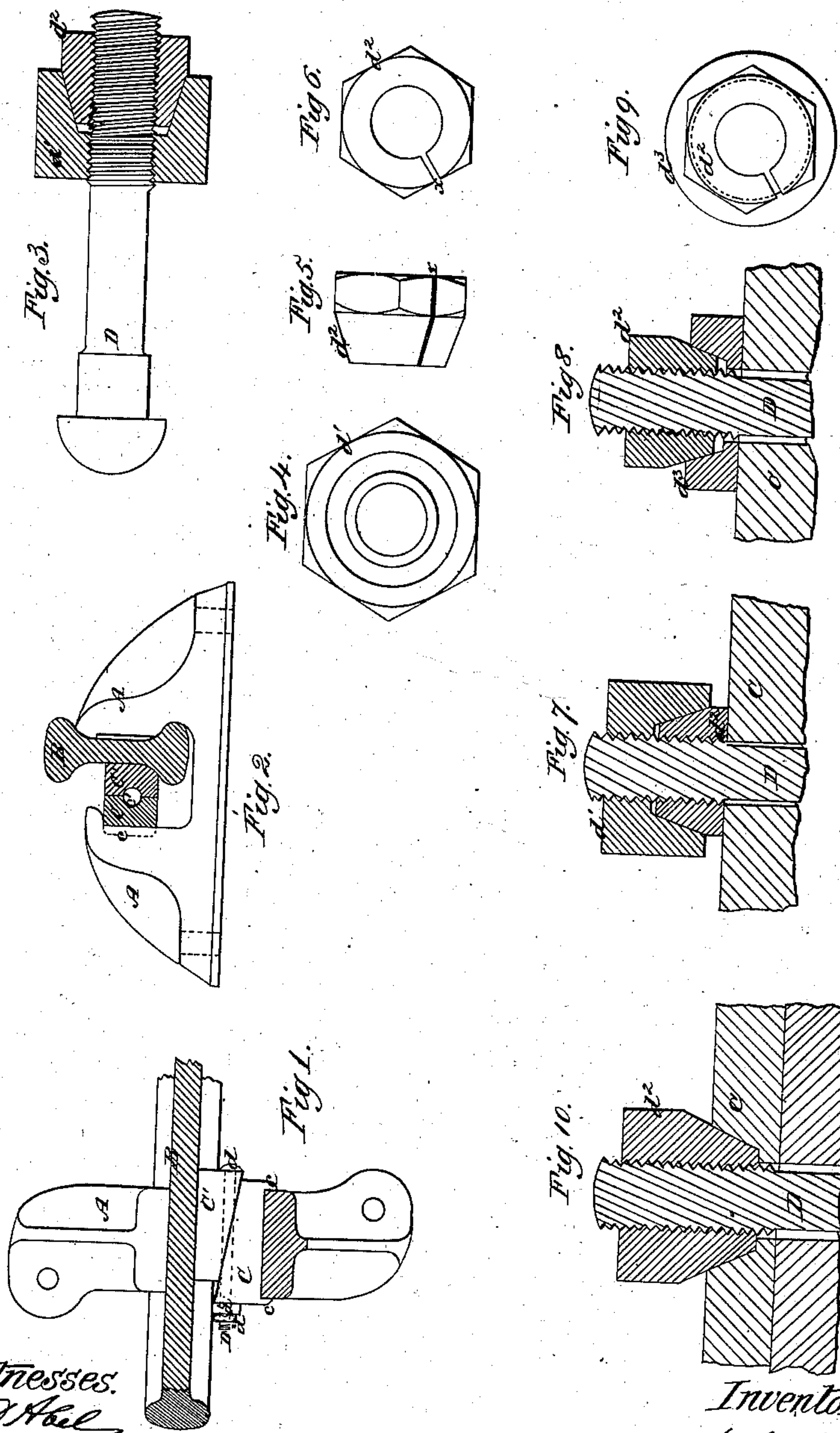


W. Palliser,
Railroad Chair,
N^o 99,587.
Patented Feb. 8, 1870.



Witnesses.
Chas. D. Abel,
J^m Shipwright.

Inventor.
W. Palliser.

United States Patent Office.

WILLIAM PALLISER, OF THE ARMY AND NAVY CLUB, PALL-MALL, ENGLAND, ASSIGNOR TO JOSEPH VALENTINE SMEDLEY.

Letters Patent No. 99,587, dated February 8, 1870.

IMPROVEMENT IN RAILWAY-RAIL FASTENING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM PALLISER, of the Army and Navy club, Pall-Mall, in the county of Middlesex, England, have invented an "Improved Fastening for the Permanent Way of Railways, partly applicable to other purposes;" and I do hereby declare that the following is a full and exact description of the said invention, reference being had to the accompanying sheet of drawings, and to the figures and letters marked thereon; that is to say—

My invention consists of an improved construction of and mode of securing metallic keys or wedges for fixing rails in chairs, wherein such wedges are forced in by the application of a screw-bolt, of peculiar construction, which effectually prevents the wedges from working loose by the jarring or vibrating action, occasioned by the passing of a train.

On the accompanying drawings are shown the various arrangements I employ for carrying my invention into practice.

Figure 1 shows a sectional plan, and

Figure 2 shows a side elevation of a railway-chair, A, and rail B, with one of my improved arrangements of metal wedges applied thereto.

C C' are two folding wedges, of which C is prevented from altering its position relative to the chair, by means of two projecting fillets or flanges c c, as shown.

Each wedge has a groove along its meeting-surface, which grooves together form a hole, e', through which the screw-bolt D is passed, the hole being so arranged that the head d of the bolt bears against the broad end of the wedge C', while the nut d' bears against the opposite end of the wedge C.

From this arrangement it will be seen, that by screwing up the nut d' of the bolt, after the wedges have been put in position, the wedge C' will be drawn in, and will be caused to hold the rail firmly in the chair, while any loosening of the wedges through vibrations, is prevented by the screw-bolt.

Figures 3 to 6 show my improved construction of the bolt which I prefer to employ, in order the more securely to hold the wedges.

For this purpose, the nut d' (shown in section at fig. 3, and in front view, at fig. 4,) is formed with a conical or tapering recess at its front end, into which fits a tapering or wedge-nut, d², (shown in section at fig. 3, and in detached side and front views at figs. 5 and 6,) which is split either wholly or only at the tapering part at x.

The incline or taper of the recess and wedge-nut is such, that when the nut d' has been screwed up tight, and the nut d² is then screwed into the recess, a jamming or wedging-action will take place, whereby the

nut d² (on account of its being split) is pressed forcibly against the screw-bolt D, so as to firmly nip the same, while the nut d', by being jammed or wedged upon the nut d², will prevent the latter from releasing its nipping hold on the bolt, even when, by any jarring or vibrating action, the pressure exerted by the nut d' against the wedge or key, held thereby, is, for certain short intervals of time, entirely or partially removed, and thus the unscrewing of the nut, which usually takes place with ordinary nuts, through such alternate applying and releasing the pressure in any vibrating action, is entirely prevented.

In place of arranging the split and recessed nuts, as shown at fig. 3, their position may be reversed, as shown at Figure 7, the split nut d², being screwed on first, so as to take a bearing against the object C, to be secured, and the recessed nut d', being screwed on over d²; or, in place of the nut d', a recessed washer, d³, may be employed, as shown in section and plan at Figures 8 and 9; or, again, a conical recess may be formed in the object C, to be secured, as at Figure 10, into which recess the split nut is screwed.

It will be evident that this improved construction of nuts to screw-bolts may be applied with great advantage in all cases where the bolts are subject to a jarring or vibrating action, such as for fish-plates, for rails, plummer-blocks of crank-shafts, the ends of wheel-axles, &c., I prefer to employ for the purposes of my invention, screw-bolts, with reduced shanks, as previously invented by me, and as shown in fig. 3, whereby the breaking of the bolt at the last thread, through undue strains, as occurs in ordinary screw-bolts, is prevented, any elongation of the bolt being made to take place in the reduced shank.

I am aware that wedges have been inserted toward each other, end to end, but not meeting, from opposite sides of the chair, and between inclined faces on the inside of the flange of the chair, and the web of the rail. But the lapping wedges described require less breadth of chair, and may readily be applied to the chairs in ordinary use, the inclined faces not being necessary in the flange of the chair.

I am also aware of the use, in connection with a recessed nut, of a conical washer, split through a part of its length, at several places, but I claim, as an improvement thereon, the washer described, split at one point, from end to end, since, by this construction, I secure a more perfect and more powerful spring-action in the washer, and on this feature it depends chiefly for its utility.

Having thus described the nature of my invention, and in what manner the same is to be performed

What I claim, and desire to be secured to me by Letters Patent, is—

1. The lapping or folding wedges C C', arranged between the chair and web of the rail, held in place by fillets c, or their equivalent, and tightened by bolt and nut, the bolt passing through a recess, c', in the inner inclined faces of the wedges, substantially as set forth.

2. The combination of nut and washer, one, at least, of which is conical, and split from end to end, and the

other recessed, substantially as and for the purposes described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of June, 1869.

Witnesses:

W. PALLISER.

CHAS. D. ABEL,
WM. SHIPWRIGHT.