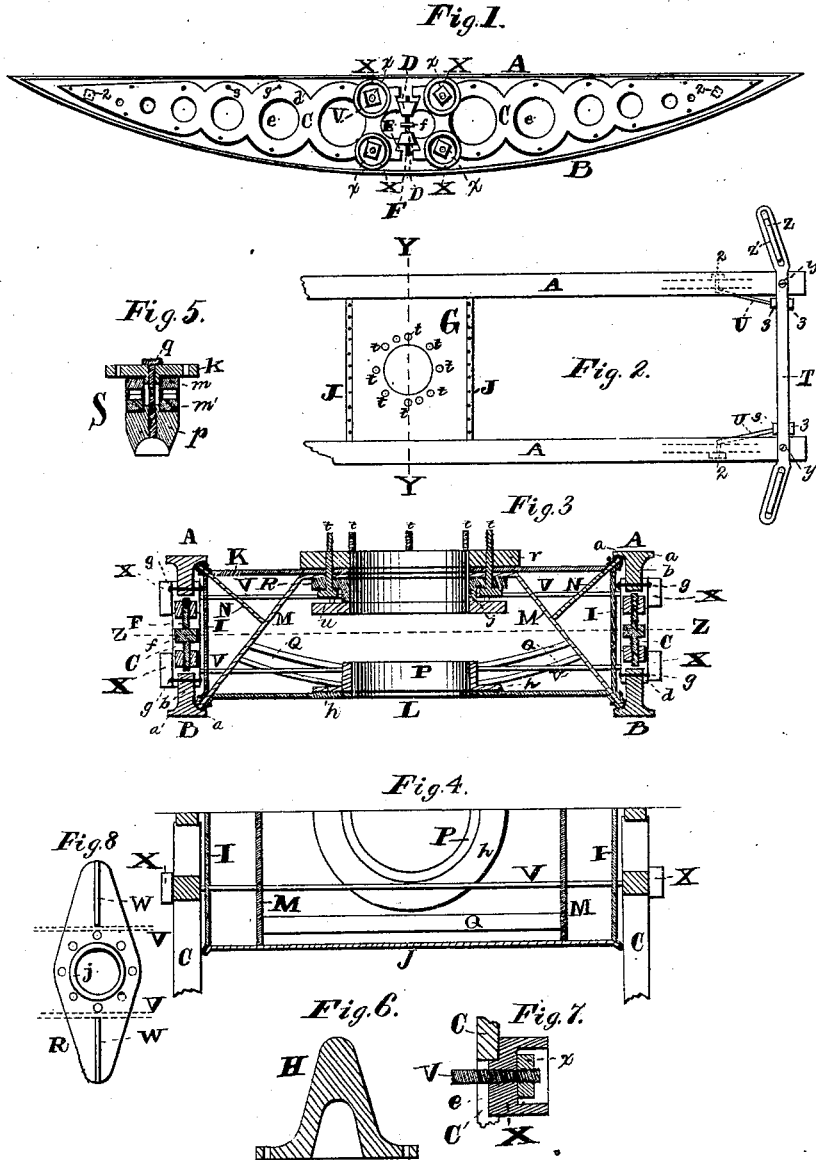


C. A. GREENLEAF.
Turn-Table.

No. 204,722.

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ATTEST :

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CLEMENTS A. GREENLEAF, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN TURN-TABLES.

Specification forming part of Letters Patent No. 204,722, dated June 11, 1878; application filed March 22, 1878.

To all whom it may concern:

Be it known that I, CLEMENTS A. GREENLEAF, of the city of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Turn-Tables for Railroads, of which the following is a specification:

My improved turn-table is composed of two beams, one central frame or box, two cross-bars, and one central pintle, the construction thereof being such that it consumes less material, and is at the same time much stronger and more serviceable, than those now in use. The cost of the manufacture of same is also lessened to a considerable extent.

The first feature of my invention consists in novel and useful manner of connecting the two beams of the turn-table to the box, which rests on the pintle, whereby the tendency of the trusses to give, spread apart, or bend in toward each other when a heavy weight is placed on them, and which cause what is known as "end-thrust," is prevented, and the beams are prevented from deflecting, and are held securely in place.

The second feature of my invention consists in a novel and improved form of box, which connects the beams together and at the same time forms the portion which turns upon the central pivot.

The third feature of my invention consists in a device for securing the cross-bar, which is located at the end of the beam and contains the usual sustaining-rollers, firmly to the beams, and also for adjusting its position thereon.

In the accompanying drawings, Figure 1 is a side elevation of one of the many styles of truss which can be employed with my invention, the truss herein shown being of my invention, and the subject of a separate application for Letters Patent. Fig. 2 is a partial top view of a frame-work of a turn-table embodying my improvements. Fig. 3 is a cross-section on an enlarged scale, taken through the line Y Y of Fig. 2. Fig. 4 is a half-top view of the box, the upper portion above line Z Z of Fig. 3 being removed. Fig. 4 is a view of the opposite lateral half of the box from that shown in Fig. 3. Fig. 5 is a vertical cen-

tral section of the friction-roller box, the rollers being removed. Fig. 6 is a vertical central section of the pintle. Fig. 7 is a central cross-section of one of the washers X shown in Fig. 1. Fig. 8 is a view of the bottom of plate R.

A indicates the upper chord of one of the two truss-beams, and B the lower chord of same. These chords are preferably of the shape in cross-section shown in Fig. 3—that is to say, they are provided with flanges *a a* and a vertical portion, *b*, and thus strength and lightness are secured. The adjacent ends of these chords are welded together, and the cast-iron braces C are then cast between the same. These braces are provided on both top and bottom (see cross-section, Fig. 3) with flanges *d*, which embrace a portion of the sides of vertical part *b* of each chord, and prevent the braces from slipping out laterally from between these chords.

The braces are preferably cast with spaces *e*, of a disk shape, or of any other appropriate shape, at points where metal is not needed, and where the absence of the latter contributes to the lightness and economical construction thereof.

For tightening the braces—that is, for forcing them toward the ends of the chords, and thereby wedging them between the opposing chords—the following device is employed, viz: Two wedges, D, placed so that their broader portions point toward the chord to which they are next adjacent, are set into recesses E, provided for them in the ends of the braces. A right and left hand screw, F, passes vertically through and engages a screw-thread in each wedge, such screw being operated by one head, *f*. By turning this head *f* in one direction the wedges are drawn together and the braces tightened. By turning the head *f* in the other direction the wedges recede from each other and the braces are loosened.

Obviously the wedges and their recesses E may be reversed, so that the broad parts or backs of the wedges face each other, and the principle of this portion of my invention be unchanged.

The braces C are riveted or bolted to the chords, as shown at *g*, Figs. 1 and 3.

The box or frame-work G, which rests and turns upon the central pivot H, and to which the truss-beams are attached, is constructed as follows, viz: The sides I, ends J, top K, and bottom L are constructed of wrought-iron or steel plates flanged at the edges and riveted together thereat. A wrought-iron plate, M, extending from end to end of the box, is so placed that its lower edges are interposed between the side flanges of the bottom and the lower flanges of the side plates, and are riveted together with the same, and so that, extending from the point where it is riveted obliquely upward, it is bent at the point where it touches the under side of the top plate K, and extends under the greater portion of the top plate, and aids in supporting the latter.

To prevent the oblique sides of plate M from buckling or spreading apart, when the box receives the pressure of the locomotive, a diagonal brace-plate, N, of wrought-iron, its upper edge secured between the side flange of top plate K and the upper flange of side plate I by rivets passing through all three plates, and its lower edge resting against the side of M, is employed at each side, as shown in Fig. 3.

To prevent the buckling of the sides of plate M in a direction opposite to that prevented by plate N, an I-beam, Q, is located on and near either end of the bottom plate L, and is curved upwardly from center toward either side till it meets the sides of plate M at nearly a right angle to the plane of the latter.

The bottom plate L is pierced to admit of the entrance of the central pivot or pintle, (for latter see Fig. 6,) and is further provided with a ring, P, having a flange, h, projecting outwardly from its lower edge. The ring is riveted fast to the bottom plate, and serves to steady the lower portion of the box G as the central pivot passes up through this ring.

Immediately beneath the top plate K is a plate, R. (See Fig. 8.) This plate and top plate K are both provided with a central opening, and the plate R has a downwardly-projecting annular flange, j, at the edge of said opening, (see Fig. 3,) for the purpose of steadying the ordinary friction-box S. (See Fig. 5.) The latter consists of a disk, k, and an upper and lower annular casting, m m', each having an annular channel, n, in which and between castings m m' revolve a series of frusto-conical rollers, the upper casting being attached to the disk k, and the lower one resting on the upper side of the collar p, which rests on the central pivot. A small annular projection from the top of the collar fits into the central orifice of casting m', and a like projection on the under side of the disk k fits into the central orifice of casting m, these projections serving to hold the castings m m' in position. A screw-bolt, q, passing loosely through the center of disk k and castings m m', engages a female screw in the collar p. This friction-box is introduced from above

downward through the opening in top plate K, the edges of the disk k resting on a ring, r, resting on the top plate K, the friction-box being steadied and laterally supported by the inner surfaces of the ring r, top plate K, plate M, plate R, and its flange j. The outer portion of the disk k and the ring r, the top plate K, and the plates M and R are all vertically pierced with holes at intervals. Screw-bolts t are passed up through these holes and secured by nuts screwed thereon above the disk k. The bolts are prevented from dropping out of these holes when the nuts are removed by a ring, u, bolted or otherwise attached directly beneath their heads. (See Fig. 3.)

The box is attached to the truss-beams by four bolts, V, two of which pass through the end of each brace near the center of the truss and through the box G. The ends of ribs W on the under side of plate R prevent the upper bolts from bending outward, and the bolts t prevent said bolts from bending inward.

The ends of the bolts receive countersunk washer X doweled into the braces, and also nuts x, which secure the bolts in place and hold the beams firmly to the box.

Each end of the turn-table is provided with a cross-bar, T, through which extend the ends of the beams, the cross-bar being kept in position by the screw-bolts y. Each end of the bar projects laterally beyond its adjacent truss, and has a roller, Z, pivoted at Z', and free to rotate in a vertical slot therein. These rollers rest upon the ordinary concentric track, and serve the purposes they are introduced to effect on all turn-tables.

Experience has demonstrated that the screws y are liable to break and the bar T to slip out of position and cause mischief. To avoid this liability I have introduced the device for securing the cross-bar, so that the latter cannot be moved even if the screw-bolt y break. This device consists of a bolt, U, preferably lying inside of the beam, and one end of which passes through the beam, and is secured thereto by a bolt, Q, and the other end passed through the cross-bar near the beam, and has a nut, 3, on either side of the cross-bar, whereby the latter is secured in position, and its distance from the ends of the beams can be adjusted as desired.

I purpose frequently employing steel instead of wrought-iron for the wrought-iron plates of the box. I claim them as my invention wherever applied.

What I claim as my invention is—

1. In combination with the bolt and nut for securing the sides or trusses to the mechanism supporting the turn-table upon the central pivot, the washers fitted to recesses in the said trusses, and countersunk to receive said securing-nuts, substantially as and for the purposes specified.

2. In combination with suitable side trusses, provided with appropriate cross-bars, the box

G, composed of the external plates, in combination with plate M and braces N Q, substantially as and for the purposes specified.

3. The bolt U and nuts 2 3 3, combined with a beam, and the cross-bar T, substantially as and for the purposes set forth.

4. The combination of the bolts V, bolts t,

rib W, whereby the deflection of the bolts is prevented, substantially as and for the purposes specified.

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Attest:

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