

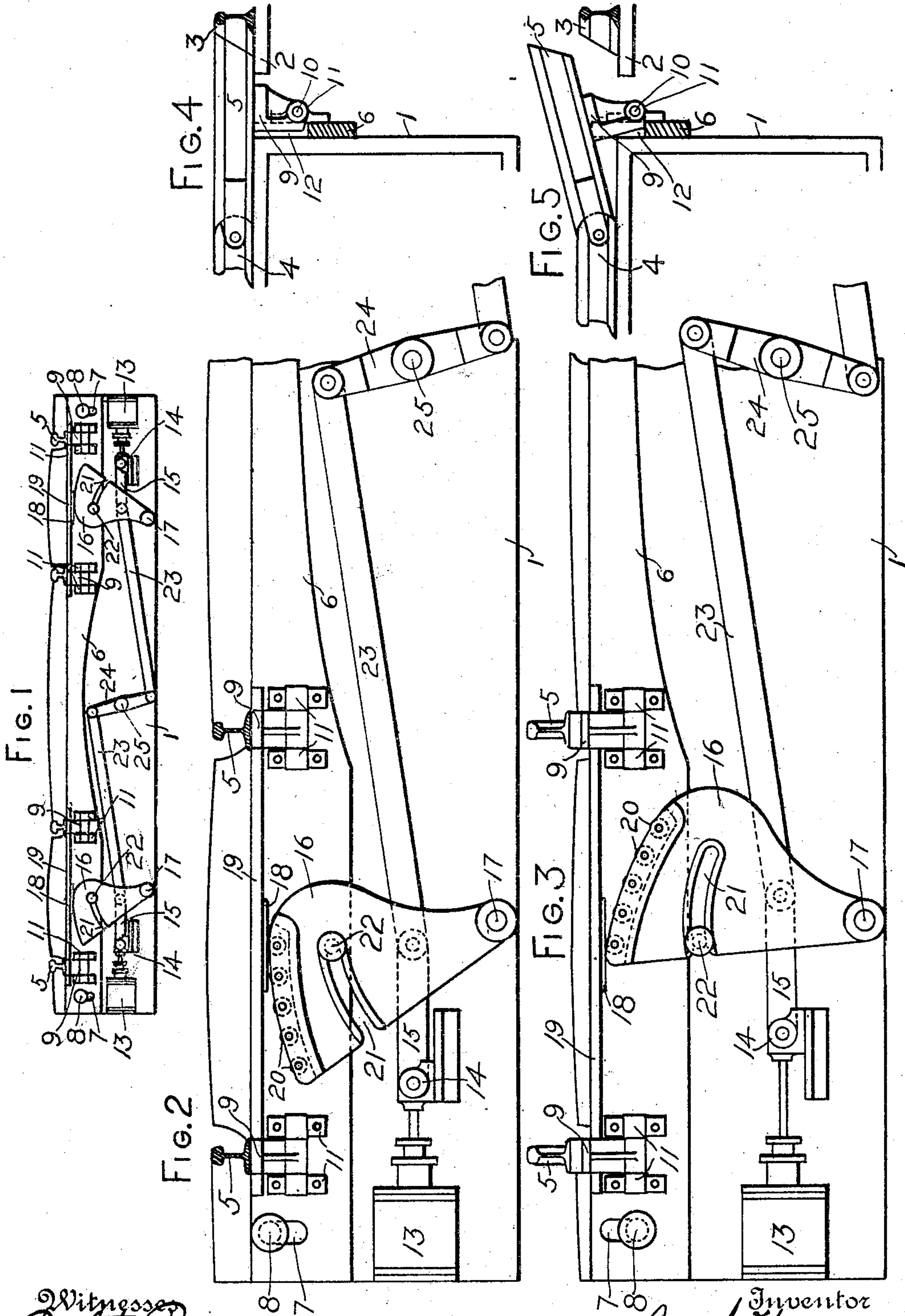
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J. HARSEN.

TRACK END ADJUSTMENT FOR DRAWBRIDGES.

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TRACK-END ADJUSTMENT FOR DRAWBRIDGES.

SPECIFICATION forming part of Letters Patent No. 788,400, dated April 25, 1905.

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To all whom it may concern:

Be it known that I, JACOB HARSEN, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Track-End Adjustments for Drawbridges, of which the following is a specification.

My invention relates to track-end adjustments for drawbridges. It is applied usually to the movable portion of a railway-bridge where the rails of the track upon the draw meet those upon the fixed structure. Substantial continuity of rails from movable to fixed part of the bridge is essential; but it is necessary that the close union required between the meeting ends of the rails should not endanger either themselves or other attachments of the bridge when the draw is swung open for passing craft. Another point of importance is that, assuming the rails to end exactly at the edge of the drawbridge and the rails upon the fixed structure to terminate just at the edge of that structure, under favorable circumstances the draw and fixed part might be so carefully arranged with respect to each other as to bring the rails accurately into alinement when the draw was closed; but when a heavy locomotive reaches the end of a drawbridge, particularly after the bridge has been erected for some time, that end will give more or less under the weight even when supported from below, as is customary, and the treads of the rails upon the draw will be forced below those of the fixed rails. Such a condition of things results in the delivery of a blow upon the ends of the rails of the fixed structure, with consequent disarrangement and damage to all elements concerned.

One object of my invention is to extend a portion of the rails of the draw upon the fixed structure to meet the rails thereof, which under such an arrangement must end short of the edge of the fixed part, and no difference in level is met with by the wheels in passing from draw to fixed structure, as hereinafter explained.

Another object of my invention is to provide suitable mechanism for adjusting the

portions of the draw-rails which extend upon the fixed structure and for raising those portions sufficiently to clear all parts of the fixed structure when the draw is swung around to open it.

I accomplish the stated objects by constructing and associating the elements, as illustrated in the accompanying drawings, of which—

Figure 1 represents an end view of a drawbridge to which my invention has been applied. Fig. 2 is an enlarged view of one-half of the end of the draw shown in Fig. 1 from the middle to the left-hand side, showing the track ends down; and Fig. 3 is a similar view showing the track ends raised. Fig. 4 represents a fragmentary side view of the end of a drawbridge, showing the portion of the rail that extends upon the fixed structure in its lowered or normal attitude; and Fig. 5 is a similar view showing the track end raised to clear all parts of the fixed structure when the draw is turned.

Like numbers are used to refer to the same parts throughout the drawings.

Numeral 1 marks the end face of a drawbridge, and 2 designates the interrupted portion of the fixed structure, having thereon rails 3, terminating short of the edge, as illustrated. Upon the draw the rigidly-attached rails are marked 4, and the pivoted track ends are designated by numerals 5. A transverse plate 6 is arranged against the end of the draw, and the uppermost edges of the plate and draw lie normally upon the same level. Plate 6 is movable vertically to the extent permitted by the slots 7, and the plate is prevented from leaving the surface of the end of the draw by the heads of studs 8, that pass through the slots 7 and are fixed in the end of the draw. Two of the slots 7 and studs 8 are illustrated, one at each end of the plate near each side of the draw; but I do not limit myself to any particular number of slots and guiding and retaining studs.

The numeral 9 refers to the brackets, shown in all the views as supporting the track ends 5 and to which they are rigidly secured. The brackets are provided with trunnions 10,

which engage bearings 11, and in such or other effective manner they are pivotally attached to the transverse movable plate 6. It is thought to be determinable by inspection
 5 from Figs. 4 and 5 that if plate 6 is raised the brackets being, as stated, rigidly secured to the track ends must tilt into the position shown in Fig. 5. At all times, however, the track end is firmly and adequately supported.
 10 To allow for the rearwardly-tilting movement of the brackets, the transverse plate 6 is formed with recesses 12 to receive them.

I will now describe the preferred construction of mechanism for raising and lowering
 15 the track ends.

Numbers 13 mark hydraulic cylinders. The piston-rods reciprocate the cross-heads 14 and by means of pivotally-attached links 15 may swing the harp-shaped cam-plates 16 back and
 20 forth in a vertical plane upon their pivots 17. When the cam-plates, of which there are two or more, are in the inclined positions, as shown in Fig. 2, the track ends are down; but as the cam-plates are turned toward their
 25 upright attitudes (illustrated in Fig. 3) the upper edges of the cam-plates meet the wearing-plates 18 upon the under sides of the lift-bars 19, attached along the upper edge of plate 6, and the plate partakes of the upward
 30 movement, which results in tilting the track ends, as shown in Fig. 5. In practice the operation of my invention is facilitated by the introduction of antifriction-rollers 20 along the uppermost edge of each cam-plate 16, and
 35 in order that the plate may always move in a vertical plane it is provided with an arc-shaped recess 21, extending from one edge and engaging a headed retaining-stud 22, fixed in the end of the draw. The right-hand cam-
 40 plate 16 is given an opposite movement to that of the left-hand cam-plate. To equalize the forces with which the cam-plates are moved and to insure simultaneous movement, connecting-rods 23 are pivotally joined to
 45 links 15 at the point where they are connected with the cam-plates, and the connecting-rods are pivotally attached to the ends of the rocking bar 24, supported upon pivot-stud 25.

I do not desire to be understood as limiting
 50 myself to the hydraulic cylinders for raising and lowering the cam-plates. It is believed to be apparent that other well-known mechanical appliances could be substituted.

It will be now seen that as the track ends
 55 project upon the fixed structure of the bridge as soon as the wheels of a locomotive reach them a portion of the weight is transferred to the fixed part of the bridge, and the tendency to depress the end of the draw is reduced and resisted correspondingly. Further-
 60 more, when the track ends have been raised by the machinery described they are free to

clear the adjacent tracks or ordinary projecting parts of the fixed structure.

Having thus described my invention and 65 explained the manner of its operation, what I claim is—

1. In track - end adjustments for draw-bridges, the combination with a drawbridge 70 and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, and mechanism including pivoted cam- 75 plates and means for operating them whereby the pivotal ends of the drawbridge-rails may be raised and lowered.

2. In track - end adjustments for draw-bridges, the combination with a drawbridge 80 and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the 85 end of the drawbridge, pivotal connections between said plate and the pivoted ends of said drawbridge-rails, and mechanism whereby said transverse plate may be raised and 90 lowered.

3. In track - end adjustments for draw-bridges, the combination with a drawbridge 95 and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the 100 end of the drawbridge, pivotal connections between said plate and the pivoted ends of said drawbridge-rails, and mechanism including pivoted cam-plates and means for operat- 105 ing them whereby the pivotal ends of the drawbridge-rails may be raised and lowered.

4. In track - end adjustments for draw-bridges, the combination with a drawbridge 110 and a fixed bridge structure, of rails secured upon said drawbridge and having pivotal end portions projecting beyond the end of said drawbridge, rails secured upon the fixed structure and terminating short of the edge thereof, a transverse plate movably secured to the 115 end of the drawbridge, brackets pivotally secured to the said plate and rigidly secured to the pivoted ends of said drawbridge-rails, and mechanism whereby said transverse plate may be raised and lowered.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB HARSEN.

Witnesses:

AUG. T. WILLINK,
 HERMAN BORSIG, Jr.