(No Model.)

J. J. STEIGER.

TRACTION INCREASER FOR LOCOMOTIVES.

No. 332,298. Patented Dec. 15, 1885.

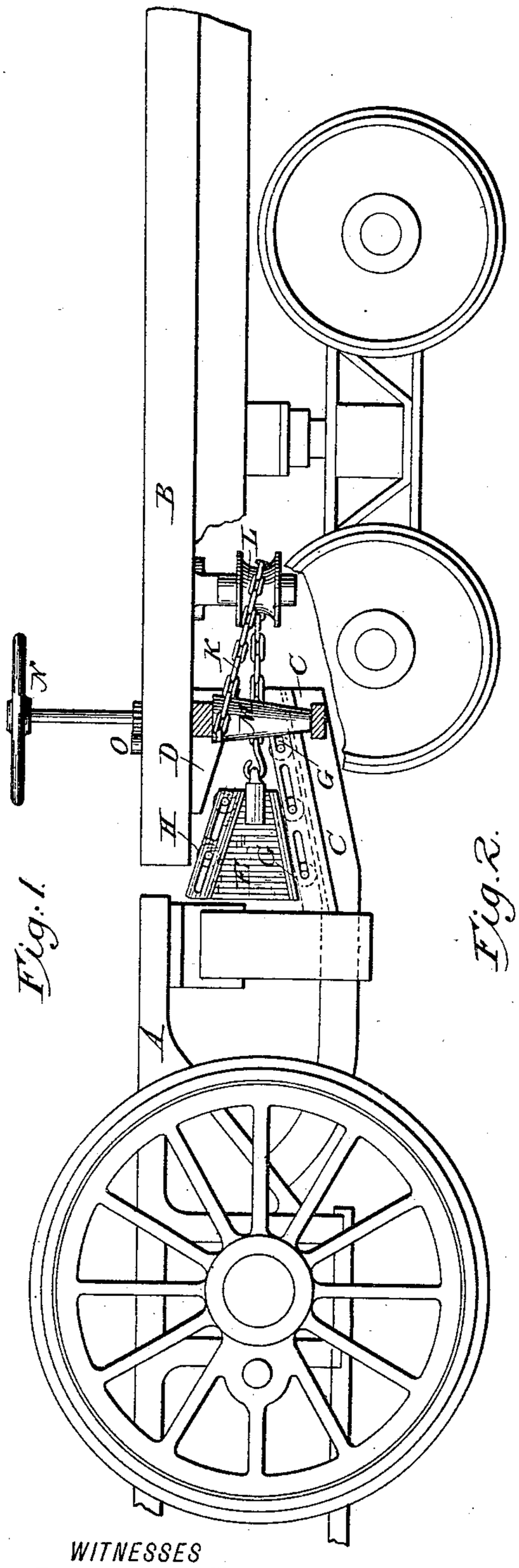

Fig. 1.

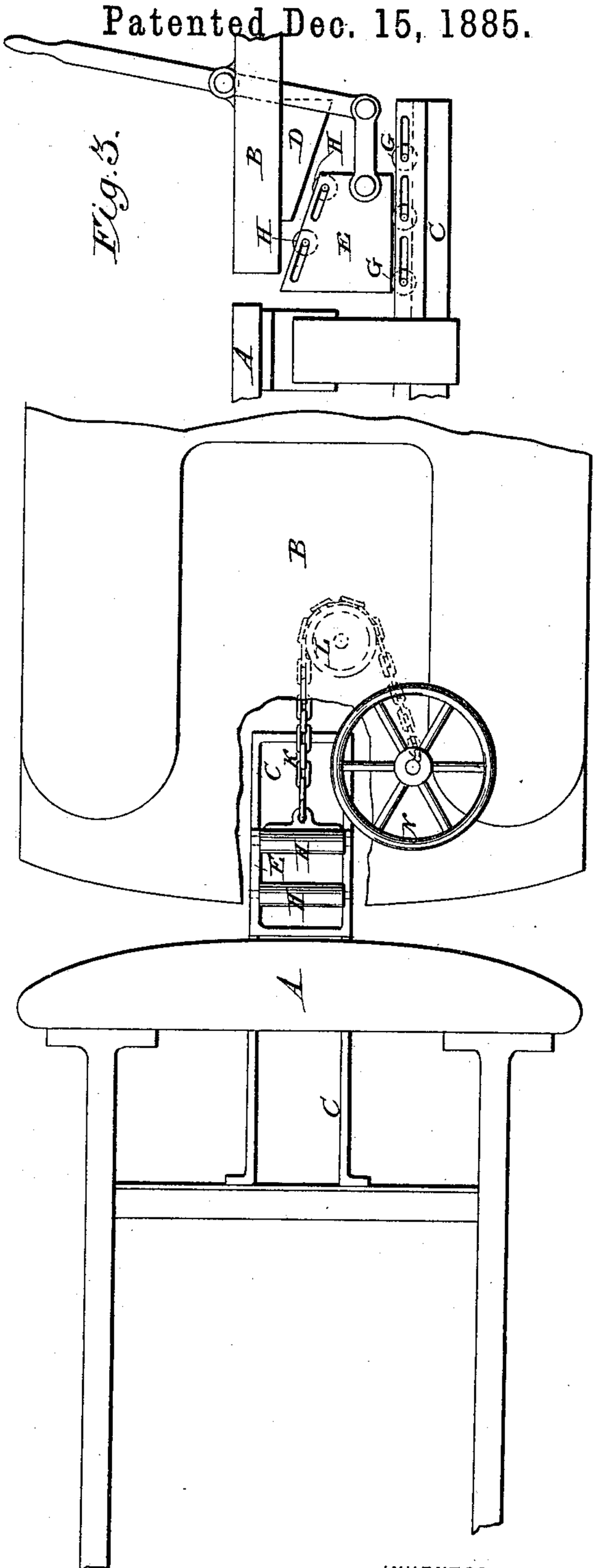

Fig. 2.

Fig. 3.

WITNESSES

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JOHN JACOB STEIGER, OF PEORIA, ILLINOIS.

TRACTION-INCREASER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 332,298, dated December 15, 1885.

Application filed June 23, 1885. Serial No. 169,533. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. STEIGER, of Peoria, in the county of Peoria and State of Illinois, have invented certain Improvements in Means for Increasing the Traction of Locomotive-Engines, of which the following is a specification.

This invention relates to that class of devices by means of which a portion of the weight of a locomotive-tender may be, at the will of the engineer, thrown upon the wheels of the locomotive, for the purpose of giving the same increased traction. Various devices for this purpose have been contrived; but, so far as I am aware, they have each and all been open to objections which rendered their use impracticable.

The essence of my invention consists in providing the tender and the engine, respectively, with opposing surfaces or bearings, and combining therewith an intermediate wedge and devices for adjusting the same at will, whereby a portion of the weight of the tender may be transmitted through the wedge to the engine-frame.

My wedge is susceptible of embodiment in various forms and of being operated by various devices, mechanical equivalents of each other.

In the accompanying drawings I have represented the construction which I find best adapted for general use.

Referring to the drawings, Figure 1 is a side elevation of the adjacent ends of the engine and tender with my devices applied thereto, portions of the frame being broken away to expose the attachments more clearly to view. Fig. 2 is a top plan view of the same. Fig. 3 is an outline view illustrating a modification.

A represents the rear end of the engine-frame, and B the forward end of the tender-frame. To the rear end of the engine-frame I bolt or otherwise secure firmly a secondary frame or arm, C, which extends rearward beneath the tender-frame, and which has its rear end inclined upward. To the forward end of the tender-frame there is bolted or otherwise secured firmly a plate or frame, D, which overlies the arm of the engine-frame, and which has its under surface inclined in the opposite direction. Upon the arm C of the engine I mount a tapered or wedge-shaped block, E, which is movable longitudinally thereon, and which may be forced backward, so as to wedge tightly between the overlying block of the tender and the underlying arm of the engine, in which position it serves to sustain a greater or less portion of the weight of the tender and transfer the same to the frame of the engine. The weight thus transferred from the wheels of the tender to the wheels of the locomotive serves to increase the traction of the latter.

In order to reduce the friction between the parts, to the end that the wedge may be readily adjusted, and that the engine and tender may adjust themselves easily in rounding curves, I provide the arm C with a series of anti-friction rollers, G, upon which the wedge is supported, and in the top of the wedge I mount like rollers, H, to act beneath the bearing on the tender. I prefer, as shown, to construct these rolls with journals mounted in slots, so that they may receive a rolling or progressive action, in order to reduce the friction to the lowest possible point. It is of course manifest that the rolls may be omitted or replaced by other anti-friction devices, or that they may all be mounted in the wedge, if desired.

For the purpose of adjusting and holding the wedge, I commonly make use of a chain, K, one end of which is engaged with the wedge, while the opposite end passes around a guide-roll, L, on the tender to the conical drum M on the shaft of a hand-wheel, N, provided, as shown, with an ordinary pawl-and-ratchet locking device, O. By turning the wheel the chain is caused to draw the wedge forcibly between the wearing-surfaces. Owing to the conical form of the drum and the arrangement of the chain to wind thereon toward its smaller end, the leverage is greatly increased as the movement of the wedge progresses, thus compensating for the increased resistance which arises during the adjustment. The end of the chain may be provided with a hook, as shown, or otherwise arranged to permit its ready disconnection when the tender and engine are to be separated.

In place of the adjusting chain and drum, a hand-lever or other equivalent device familiar to the skilled mechanic may be substituted as a means of adjusting the wedge, and instead of placing the winding-drum upon the tender,

as shown, it may be placed upon the engine, if preferred. It is also evident that the parts may be transposed or reversed without change of action—that is to say, the overlying arm or bearing formed upon the engine, and the underlying arm formed upon the tender.

While it is believed to be the better plan to have inclined surfaces both above and below the wedge, it is manifest that either surface of the wedge may be arranged in a horizontal position. Such arrangement is represented in Fig. 3, in which the arms C are shown in a horizontal instead of an inclined position, the action under this construction being substantially such as in the construction shown in the preceding figures. This view also illustrates the application of a hand-lever in place of the chain to adjust the wedge.

Having thus described my invention, what I claim is—

1. The combination of the engine and the tender having overlapping surfaces, an intermediate wedge, and means, substantially as described, for effecting the longitudinal adjustment of said wedge.

2. In combination with the engine and tender provided with inclined arms, the intermediate wedge, and means, substantially as described, for effecting the longitudinal adjustment thereof.

3. The combination of the engine-frame with the rearwardly-projecting arm C, the tender-frame having the overlying plate or arm D, the intermediate wedge, E, the adjusting-chain, and a winding device for said chain, substantially as described.

4. The engine-frame, provided with a rearwardly-extending inclined arm, C, having anti-friction rollers G therein, the wedge E, mounted upon said rollers and provided with rollers H, the tender, provided with plate D, the conical winding-drum, and the chain extending from said drum to the wedge.

In testimony whereof I hereunto set my hand in the presence of two attesting witnesses.

JOHN JACOB STEIGER.

Witnesses:
P. F. HARMON,
LAWRENCE W. JAMES.