

(No Model.)

2 Sheets—Sheet 2.

F. M. SMILEY.
CAR BRAKE.

No. 412,935.

Patented Oct. 15, 1889.

Fig. 2.

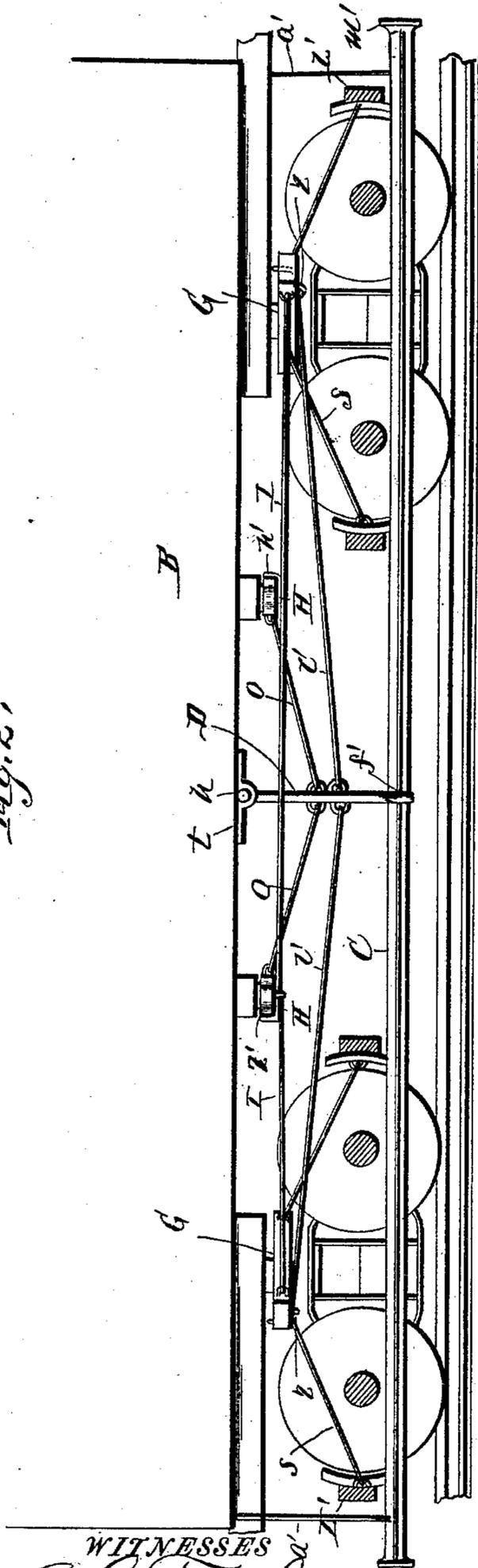
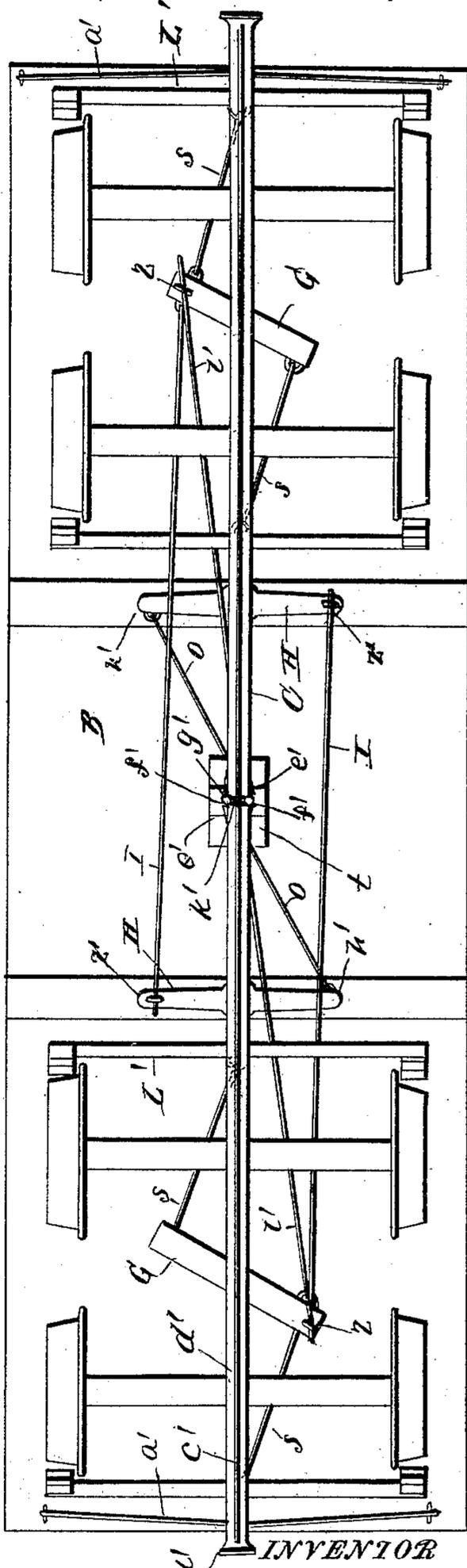


Fig. 3.



WITNESSES

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FRANK M. SMILEY, OF GOSHEN, INDIANA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 412,935, dated October 15, 1889.

Application filed May 20, 1889. Serial No. 311,376. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. SMILEY, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Car-Brakes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical longitudinal section showing the brake-operating gear. Fig. 2 is a part section and side view of the brake mechanism of a car, and Fig. 3 is a bottom plan view of the brake mechanism of a car.

This invention relates to car-brakes designed to be operated from the engine; and it consists in the novel construction and combination of parts, as hereinafter set forth.

In the accompanying drawings, the letter A designates the tender of an engine having the brake-operating gear beneath. This gear preferably consists of a steel shaft E, provided with a worm-thread at *v*, and said shaft turns in braced bearings *b b'*, projecting downward from the bottom of the tender. In said bearings the shaft E is movable longitudinally, motion being communicated by bevel-gearing N, operated from above by means of a crank-shaft *h*. By the engagement of the worm-thread of the shaft with the interior thread of the pinion *e* the shaft is moved when said pinion is turned by the gear N. The rear end *l* of the shaft E is angular in cross-section to fit in a correspondingly-shaped bearing *b'*, to prevent rotary motion. The angular end of this shaft is provided with a steel buffer-head *m*, of greater diameter than the shaft, to prevent the same from slipping out of the brace and to engage a similar buffer-head *m'* on the end of the brake-bar C of the adjoining car.

B designates a car coupled to the tender A, and provided with a steel brake-bar C, extending horizontally under the car throughout its length below the trucks.

The bar C is suspended from the under side of the car by means of stay-rods *a'*, which

have a swinging action in the direction of the length of the car.

The brake-bar C is preferably made in ribbed form, having the vertical ribs *c'* and lateral wings *d'*, so that it possesses great strength and is not very heavy. At each end of the said brake-bar is a buffer-head *m'*, designed to engage a similar buffer-head on the brake-bar of the next car, each car of the train being provided with similar braking devices.

At the middle of the bar C lateral extensions *e'*, having notches *f'*, are provided to engage projections *g'* of the lever D. This lever is located under the middle of the car, hanging downward in a vertical manner, and it is pivoted above by means of its transverse arms *h'*, having their journals in bearings *t*. Its lower portion is bifurcated to form angular projections *g'*, to engage the lateral notches *f'* of the brake-bar C, and the recess *k'*, between the projections *g'*, engages the vertical rib *c'* of the said brake-bar.

The lever D is connected in front to a centrally-pivoted horizontal lever G, located under the car over the forward truck by a horizontal rod *l'*, having a sliding connection with said lever at *z*, and in rear of said lever D is connected to the end *h'* of a pivoted horizontal lever H by the rod *o*. By means of this reversing-lever the brakes are put in, when pressure is brought to bear on the other end of the longitudinal brake-rod. Connected in a slide-bearing *z'* at the other end of the lever H is a horizontal rod I, which extends lengthwise to the forward lever G, and is connected thereto at its end *r*, near the slide-bearing connection *z* of the rod *l'*.

The horizontal lever G is connected at opposite ends by short rods *s s* to the transverse brake-beams L of the forward truck. The brake-beams L' of the rear truck are similarly connected and operated.

To apply the brakes, the steel shaft E of the main gear under the tender A is moved by the bevel-gear longitudinally against the end of the brake-bar C by turning rapidly the crank-shaft of the wheel N, which causes the sleeve-pinion *e* to engage the thread on said shaft. A reverse motion releases the brakes. When the shaft E is moved against the brake-bar C of the adjoining car, the said rod is

pressed backward to operate the vertical lever D, which in its turn operates the horizontal rod *l'*, thereby bringing into action the horizontal lever G and its brake-connecting rods *s s*, to put on the brakes.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In car-brake-operating mechanism, the sliding bar of the engine-tender having a worm-thread, and the internally-threaded pinion, the squared bearing, and the operating gear-wheel engaging said pinion, substantially as specified.

2. In car-brake mechanism, the combination, with the reciprocating operating-bar of the engine-tender, of the reciprocating longitudinal brake-bar under the car engaging the vertical brake-lever, the horizontal transverse lever of the truck connected to the brake-

beams, its sliding connection with said vertical lever, the middle transverse lever of the car, its connection to said vertical lever, and its sliding connection to the transverse lever of the truck, substantially as specified.

3. The car-brake-operating mechanism, consisting of the worm-threaded bar of the tender and its operating-gear, the swinging longitudinal brake-bars under the cars abutting against each other in series, their vertical swinging levers, the transverse levers connected to the brake-beams, the transverse reversing-levers, and the sliding connection of said levers, substantially as specified.

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

FRANK M. SMILEY.

Witnesses:

MYRON E. MEADER,
CHARLES A. WEHMEYER.