

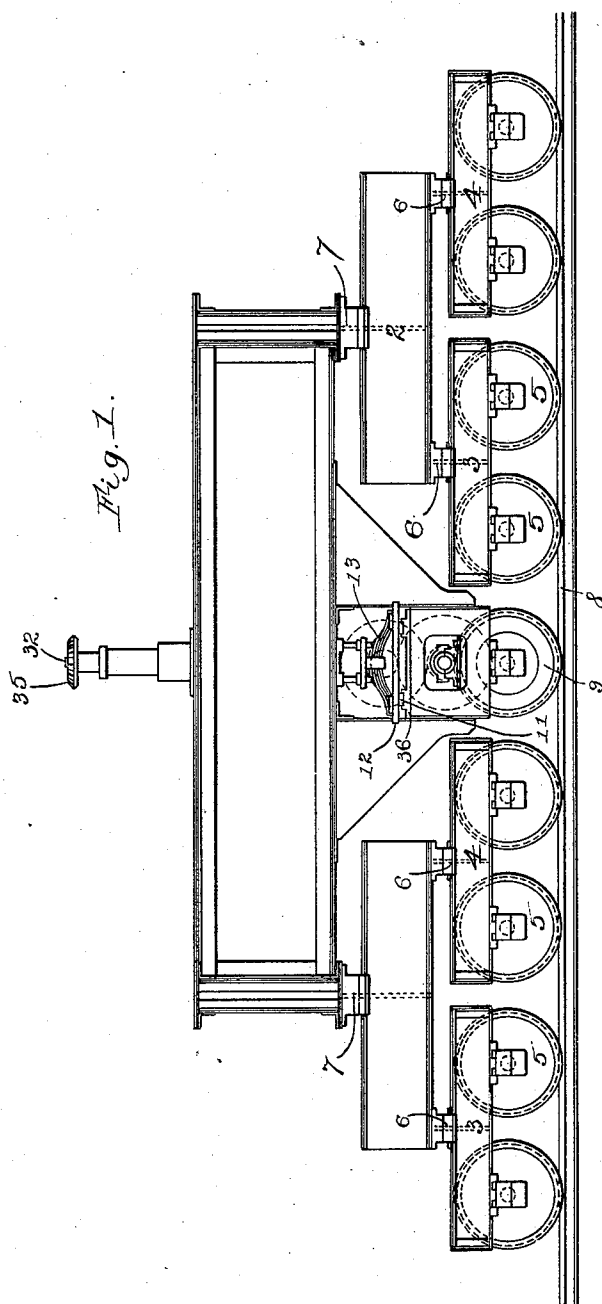
(No Model.)

4 Sheets—Sheet 1.

O. CROSBY.
LOCOMOTIVE CRANE.

No. 572,195.

Patented Dec. 1, 1896.



WITNESSES:

H. S. Broadbent
Kimie L. Phawald

INVENTOR

Oliver Crosby

BY

V. D. Merwin
ATTORNEY

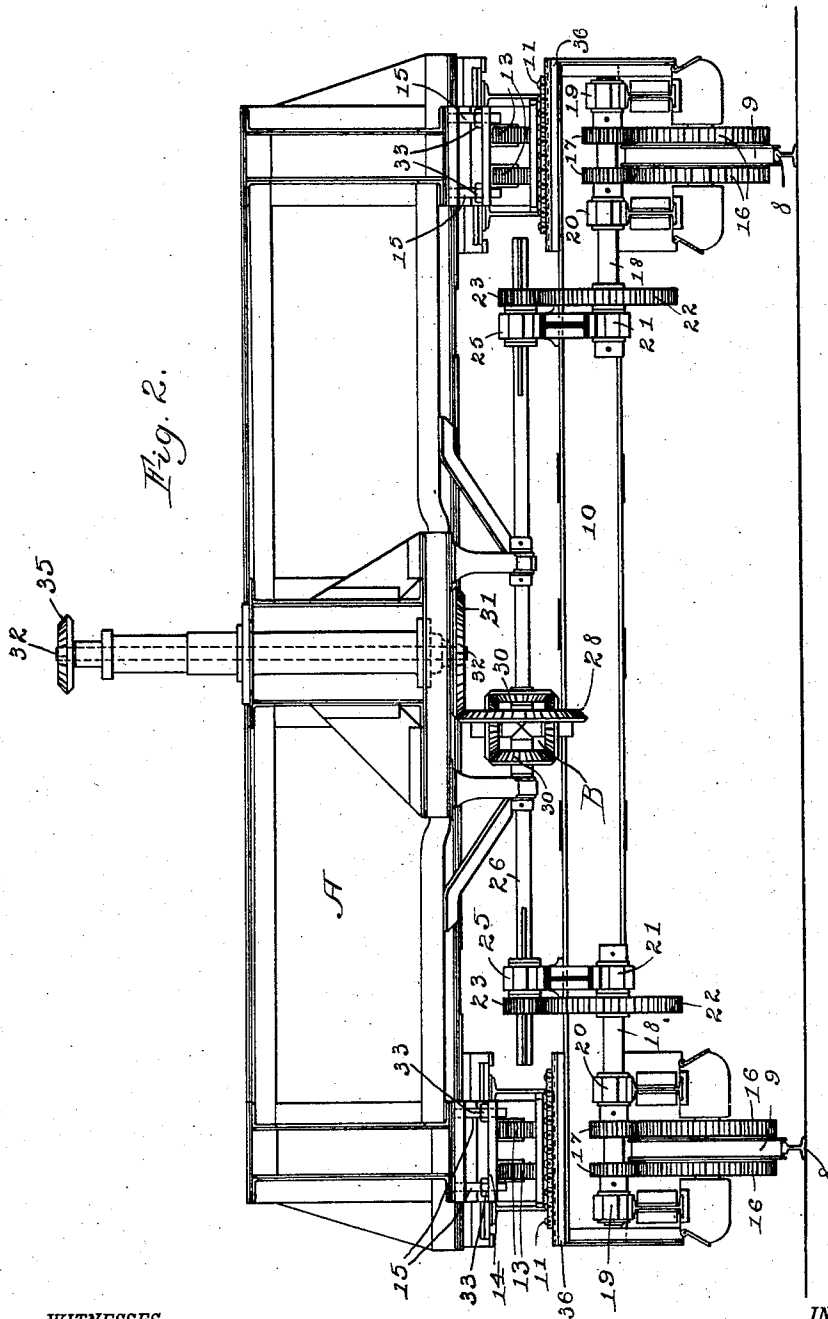
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WITNESSES:

H. C. Roadway
Minnie L. Thawwold

INVENTOR

Oliver Crosby
BY

T. D. Newman
ATTORNEY

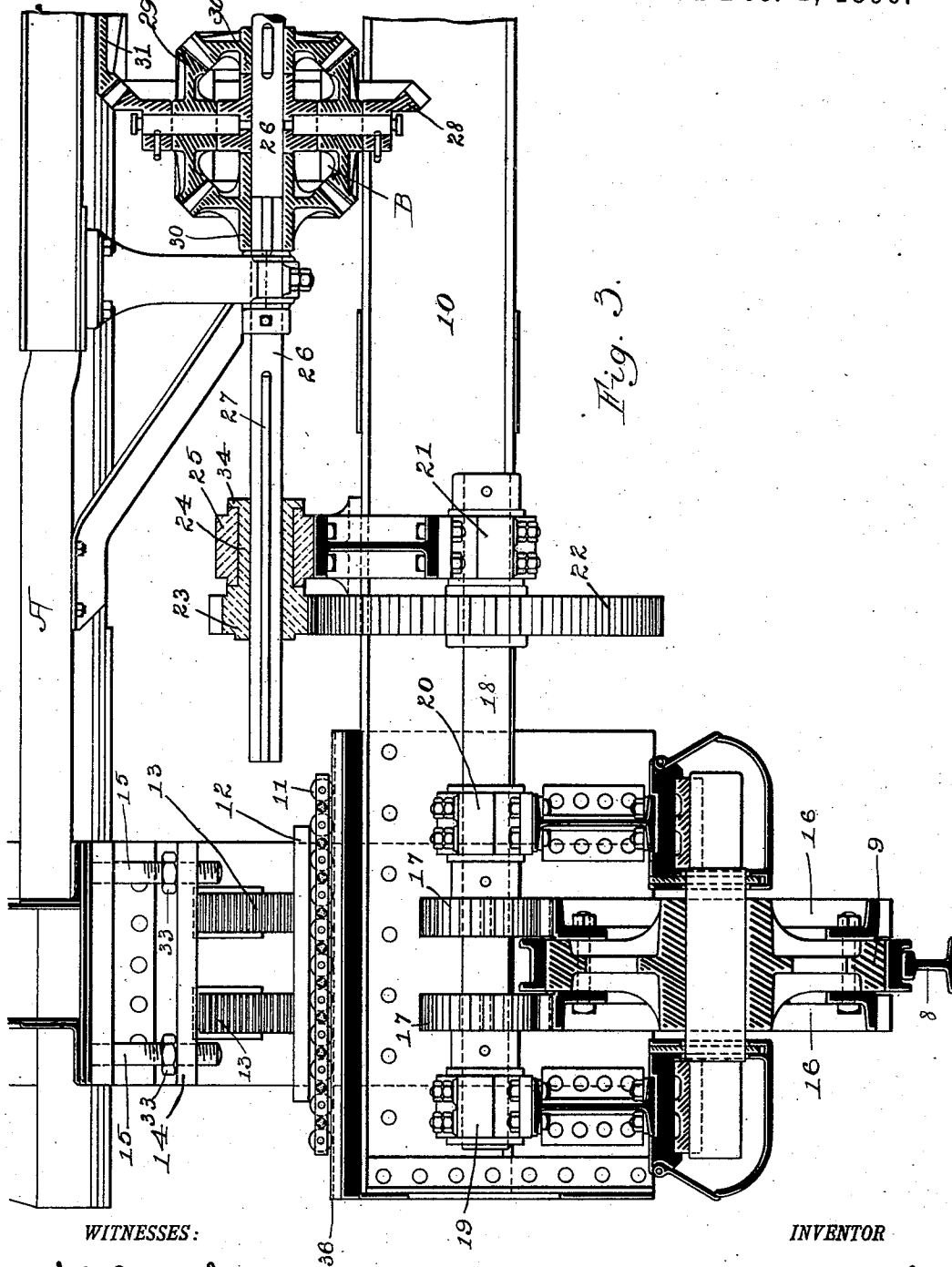
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WITNESSES:

W. S. Gooding.
Minie L. Thaw.

INVENTOR

Oliver Crosby
BY

W. S. Gooding
ATTORNEY

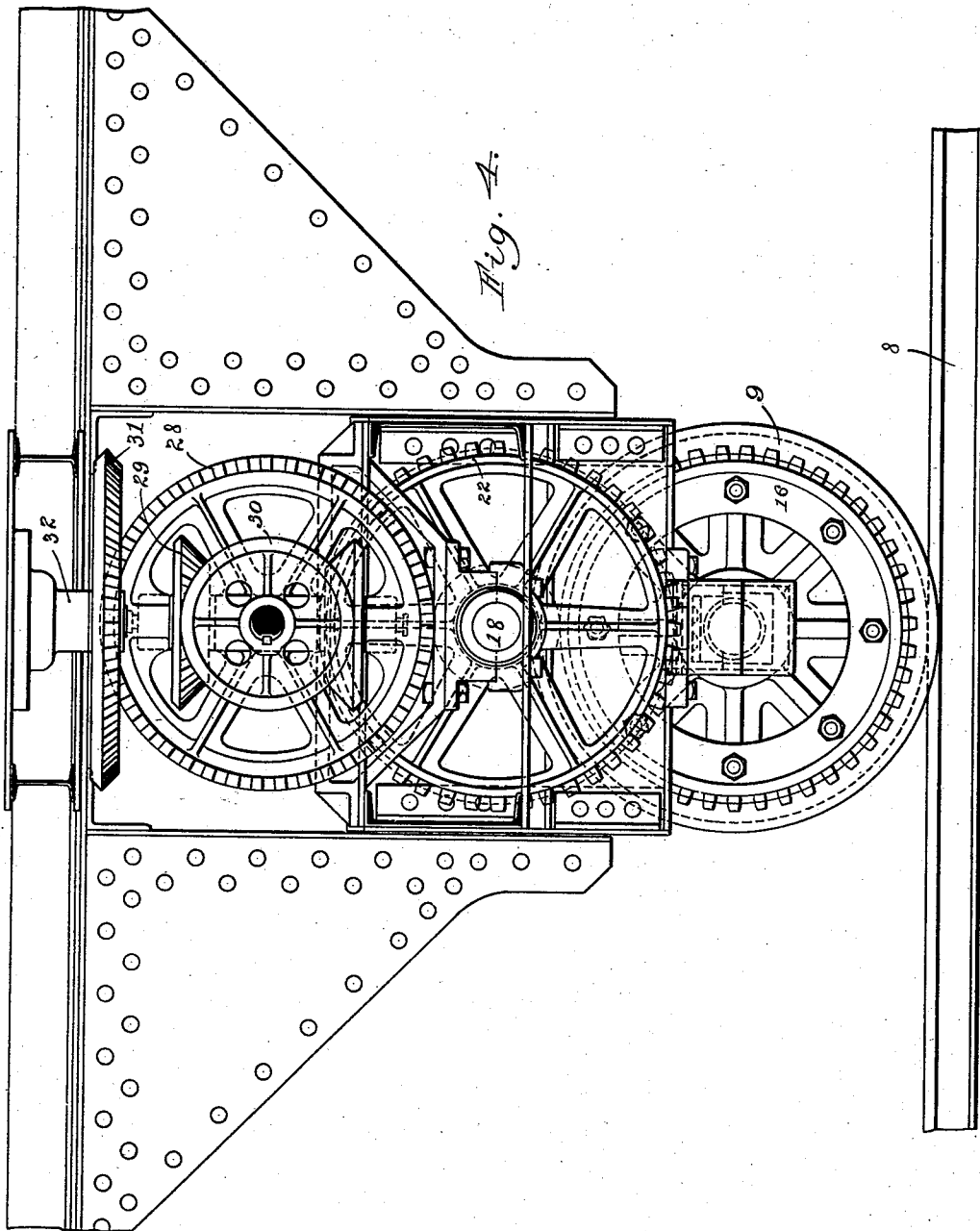
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WITNESSES:

H. S. Roadway,
Minie L. Thauwald.

INVENTOR

Oliver Crosby
BY

J. H. Munn
ATTORNEY

UNITED STATES PATENT OFFICE.

OLIVER CROSBY, OF ST. PAUL, MINNESOTA.

LOCOMOTIVE-CRANE.

SPECIFICATION forming part of Letters Patent No. 572,195, dated December 1, 1896.

Application filed April 6, 1896. Serial No. 586,419. (No model.)

To all whom it may concern:

Be it known that I, OLIVER CROSBY, of St. Paul, Ramsey county, Minnesota, have invented certain Improvements in Locomotive-Cranes, of which the following is a specification.

My invention relates to improvements in locomotive-cranes, its object being to provide an improved driving mechanism therefor so connected to traction-wheels on the opposite rails of the track whereby said wheels are positively operated so as to each do its proportionate work.

To this end my invention consists in mounting the platform of the crane upon four beams arranged one at each corner thereof, which beams in turn are supported each upon a pair of two-wheeled trucks, the connections between trucks and beam and beam and platform being pivotal to permit freedom of adjustment of the truck-wheels to the curvatures of the track. Intermediate of the front and rear trucks on each side I arrange a driving or traction wheel, the two being connected by a cross-beam or truck and each being double-flanged to prevent derailment. It is apparent that in passing around curves there is of necessity relative lateral movement between the driver-truck and the platform. This is provided for by an intermediate traveling connection. This consists of a secondary platform upon each of said trucks, directly over its wheel, fitted with antifriction rollers, upon which any desired part of the load or weight of the platform and crane is carried, a suitable plane-surfaced plate resting upon the platform, and between this plate and platform are arranged heavy springs with adjusting-screws, by means of which any desired pressure of portion of the load is applied to the plate and its carrying-rolls. The driving-wheels are operated from a common source of power, so as to be driven at a uniform combined speed by means of an interposed epicyclic train and connected gear. This train is mounted upon a counter-shaft having a sliding connection with the driving-gear which operatively engages the traction-wheels, so that the power is transmitted to these wheels no matter what their lateral position may be with relation to the platform, owing to the various curvatures of the track.

My invention further consists in the features of construction hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved apparatus shown with the crane removed. Fig. 2 is a cross-section of the same, looking toward the carrying-wheels and showing the means for driving the same from a central vertical shaft. Fig. 3 is a similar enlarged detail of one of the carrying-wheels and its connected parts; and Fig. 4 is a detail side elevation of the driving parts, looking toward the epicyclic train and driving-wheels beyond.

In the drawings, A represents the platform, each corner of which is mounted upon a beam 2, each beam in turn being mounted upon a pair of trucks 3 and 4, each of the trucks having carrying-wheels 5. The trucks turn about vertical pivots 6, and the beam 2 also turns upon a vertical pivot 7, connecting it to the platform, whereby the truck-wheels run freely upon the rail 8 without regard to its curvatures. Arranged between the front and rear trucks on each side of the platform is a driving or traction wheel 9. This is double-flanged, as shown best in Fig. 3, so as to prevent derailment or lateral slip in either direction upon the rail. These wheels carry and are rigidly connected together by the cross beam or truck 10. Upon the top and at each of the cross-beams is arranged a secondary platform 36, carrying series of antifriction-rolls 11, and upon these rests the plane-surfaced plate 12. Upon the plate 12 are supported the springs 13 and upon these springs the bar or plate 14, which in turn is connected to and partially supports the platform by means of the adjusting-screws 15, the nuts 33 of which bear upon the plate 14. By the turning of these nuts downward upon the screws any desired pressure may be applied to the springs and consequent load placed upon the driving-wheels.

Each of the wheels 9 is provided with a pair of gears 16, one upon each end of the same, by means of which it receives its driving power. These mesh with the pinions 17, carried by the shaft 18, turning in bearings 19, 20, and 21. This shaft also carries the gear 22, which meshes with the pinion 23. This

pinion has an extended hub 24, which serves as a journal therefor, turning in the bearing 25 and having an end flange 34, preventing longitudinal or sliding movement in the bearing. The connected member of the compound driving-shaft 26 slides freely through the hub of said pinion, but is held from turning by means of the spline of feather 27. The two members of the compound shaft are connected by the epicyclic train B, made up of the beveled gear 28, carrying the beveled pinions 29, which mesh with the pinions 30, keyed on the shaft 26. The gear 28 is driven by means of the gear 31 upon the vertical driving-shaft 32, which is connected to the source of power by any suitable means, such as the gear 35.

In operation the nuts 33 of the screws 15 are set to apply any desired and requisite load to the traction-wheels. Power then being applied to the driving mechanism the traction-wheels are both positively and uniformly driven, and on equal speeds on a straight track, but on meeting a curve in the track the epicyclic train distributes the power to the wheels, so as to drive them without slipping around curves, the traction-wheels and their cross-beam moving laterally with relation to the platform, the antifriction-rolls permitting of this movement and the pinions 23 sliding on the shaft 26.

I claim—

1. In a locomotive-crane, the combination with the main platform and its groups of carrying-wheels arranged at each corner thereof, of the traction-wheel on each rail intermediate of the forward and rear carrying-wheels, their connecting beam or truck, the laterally-slidable connections between said cross-beam and platform, the driving-shaft, and the epicyclic train for transmitting power therefrom to both said traction-wheels.

2. In a locomotive-crane, the pair of connected traction-wheels therefor arranged one on each rail, the antifriction-rolls carried by said wheels, the bearing-plates resting upon said rolls, the adjustable connection between said plates and platform whereby any desired load may be applied to said traction-wheels, and the epicyclic train and connected source of power.

3. In a locomotive-crane, the combination with its platform and carrying-wheels, of the pair of traction-wheels arranged one on each track, their connecting beam or truck, the antifriction-rolls carried by said truck, the bearing-plate resting upon said rolls, and partly supporting said platform, the cushion-springs, the adjusting-screws interposed between said bearing-plate and platform for varying the pressure upon said antifriction-

rolls, the epicyclic train, and its connected driving mechanism carried by said platform, and the slidable driving connection between said train and each of said traction-wheels.

4. In a vehicle of the class described, the combination with the front and rear carrying-wheels, of their intermediate traction-wheels, the rigid connection between said traction-wheels, means for driving said wheels, and the laterally-traveling connection between said wheels and said vehicle.

5. In a vehicle of the class described, the combination of the medially-arranged traction-wheels on both rails, their rigid connecting-bar, the common driving mechanism for said wheels, the interposed epicyclic train, and the laterally-traveling connection between said traction-wheels and vehicle.

6. In a vehicle of the class described, the combination with the front and rear carrying-wheels, of the intermediate traction-wheels, the bar connecting said wheels, the bearing-plates and antifriction-rolls constituting a laterally-traveling connection between said traction-wheels and the vehicle, means for applying any desired load to said traveling connections, the driving-shaft upon said vehicle, the pinions having hub-journals carried upon said shaft permitting relative sliding movement, and the operative driving connection between said pinions and traction-wheels.

7. In a vehicle of the class described, the combination of the flanged traction-wheels on opposite rails, their rigid connecting-bar, the laterally-traveling connection between said bar and vehicle, consisting of the series of antifriction-rolls, the plate bearing upon the same, and the springs and tension-screws interposed between said plate and the body of the vehicle, the common source of power, the epicyclic train connected therewith, the driving-gear for the opposite traction-wheels, and the interposed slidably-connected driving-shaft and pinion for operating said traction from said train.

8. In a vehicle of the class described, the combination with its main body or platform, the vertically-swiveled carrying-trucks at the corners thereof, the intermediate driving-wheels, their rigid connection, the source of power carried by said vehicle, and the laterally-slidable driving connection between said source of power and said traction-wheels.

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

OLIVER CROSBY.

Witnesses:

T. D. MERWIN,

MINNIE L. THAUWALD.