

4 Sheets—Sheet 1.

No. 529,549.

Patented Nov. 20, 1894.

Fig: 1.

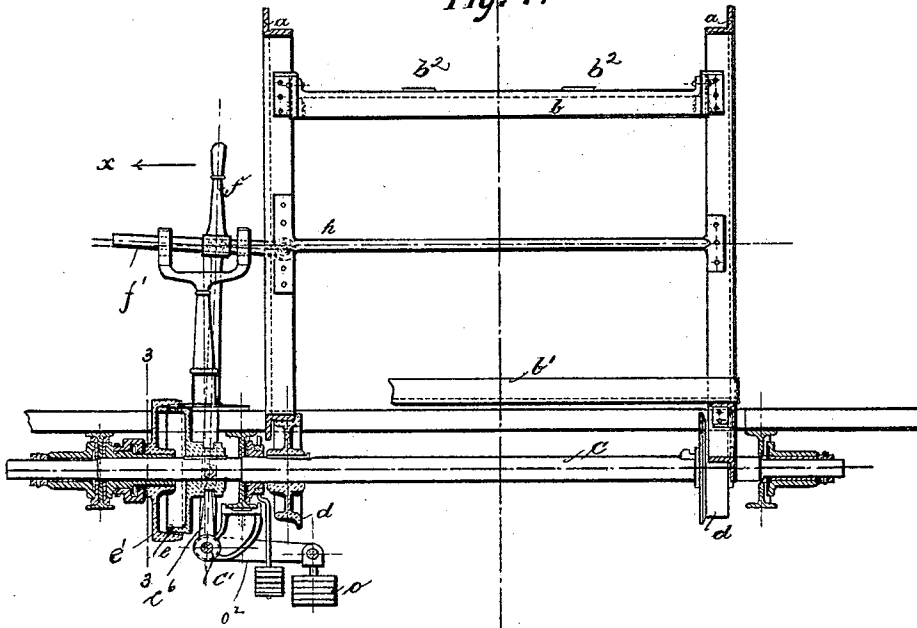
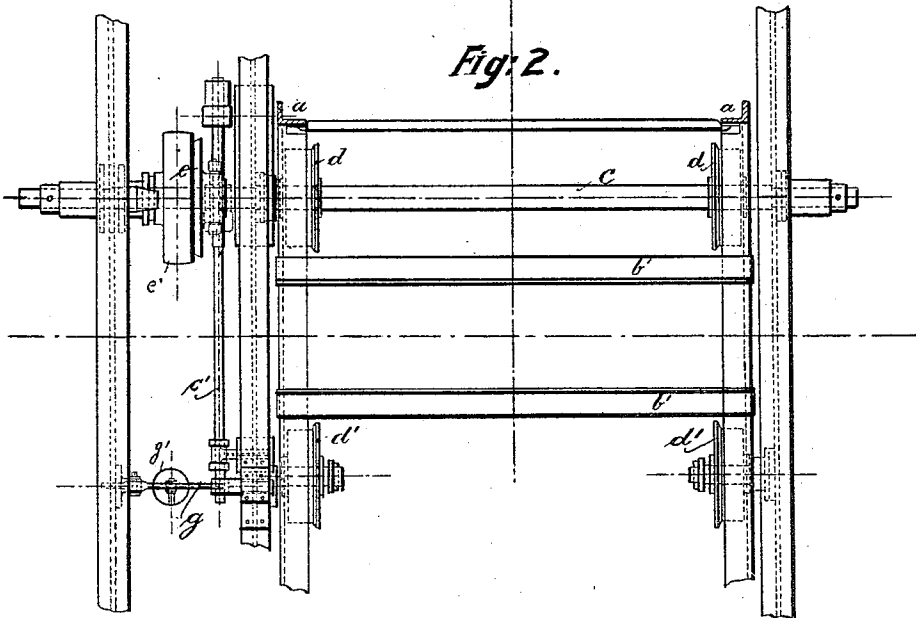


Fig: 2.



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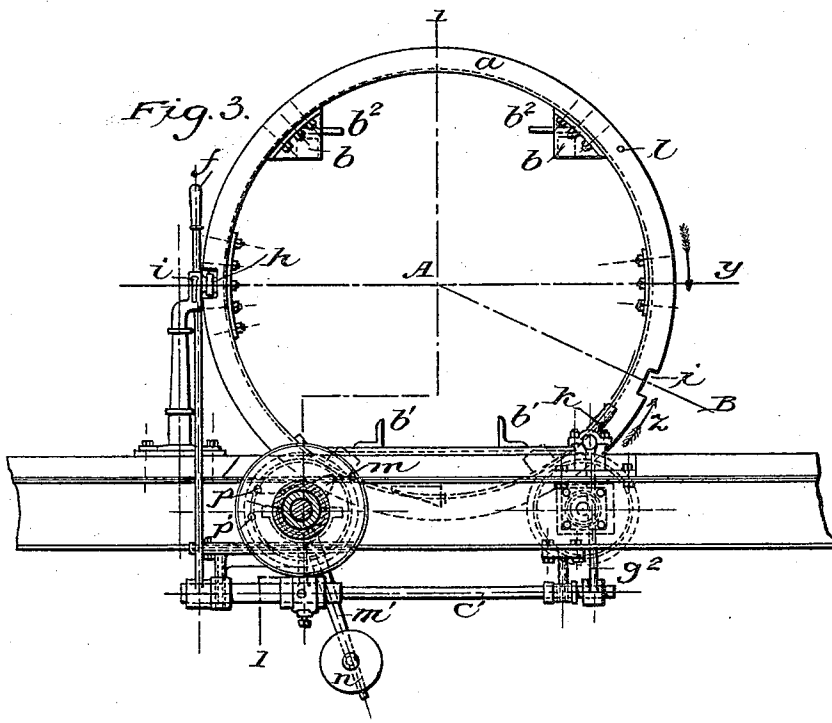
(No Model.)

4 Sheets—Sheet 2.

U. FRANTZ.
CAR TILTING DEVICE.

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4 Sheets—Sheet 3.

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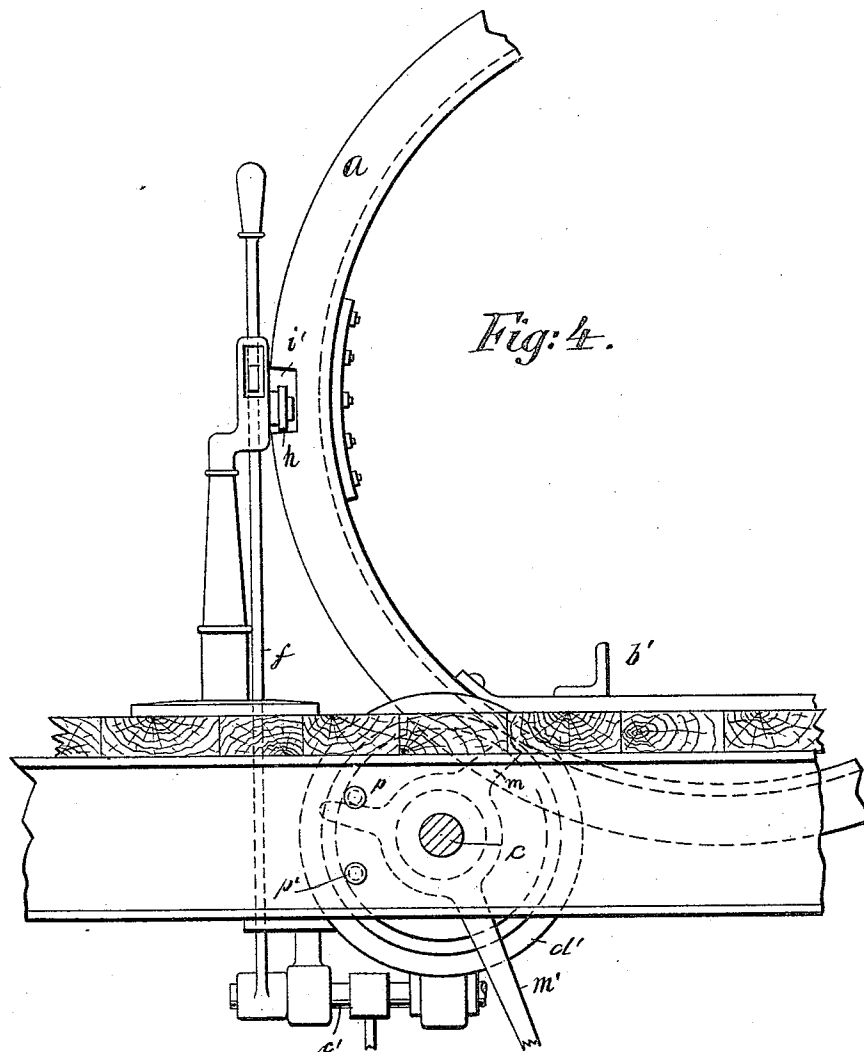
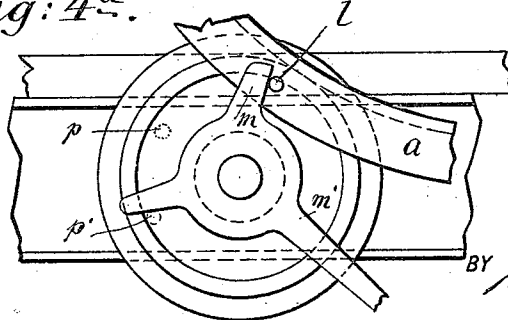


Fig: 4^a.



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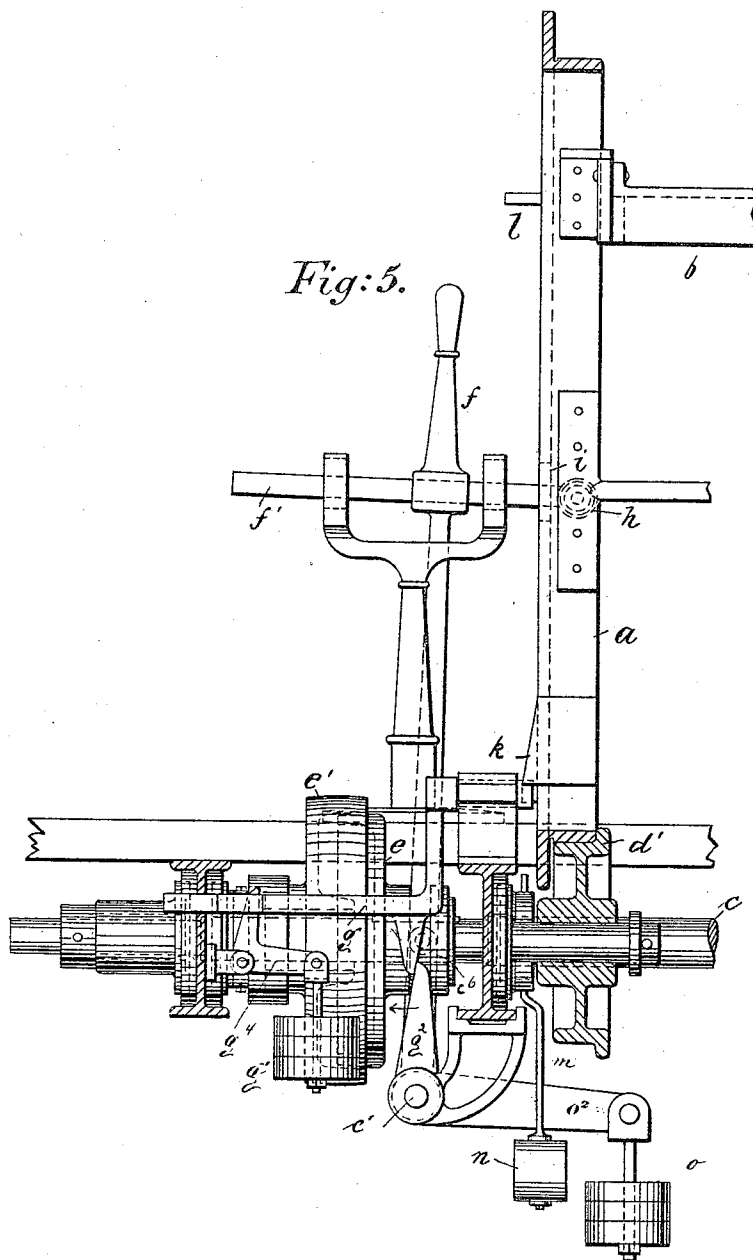
(No Model.)

4 Sheets—Sheet 4.

U. FRANTZ.
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UNITED STATES PATENT OFFICE

ULRICH FRANTZ, OF ZABIZE, GERMANY.

CAR-TILTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 529,549, dated November 20, 1894.

Application filed May 6, 1893. Serial No. 473,306. (No model.) Patented in England August 31, 1892, No. 15,625.

To all whom it may concern:

Be it known that I, ULRICH FRANTZ, a subject of the Emperor of Germany, and a resident of Zabize, Silesia, Germany, have invented certain new and useful Improvements in Car-Tilting Devices, (for which I have obtained Letters Patent in England, No. 15,625, dated August 31, 1892,) of which the following is a specification.

This invention relates to certain new and useful improvements in the tilting devices used in mines for the purpose of tilting loaded cars and returning empty cars to the original position.

The object of my invention is to provide a tilting device of this kind, which is operated by power for tilting the car and returns the car automatically to the original position, which device is simple in construction and operation, strong and durable.

In the accompanying drawings,—Figure 1 is a vertical central longitudinal section of my improved tilting device, on the line 1—1, of Fig. 3. Fig. 2 is a plan-view of the same. Fig. 3 is a vertical transverse sectional view of the line 3—3, of Fig. 1. Fig. 4 is an enlarged detail view, parts in section, showing the weighted three armed lever for checking and returning the rotary frame, in a position of rest. Fig. 4^a is a face view of Fig. 4, showing the said lever raised and about to turn the rotary frame back to its initial position. Fig. 5 is an enlarged detail side view of the driving, rocking and releasing mechanism.

Similar letters of reference indicate corresponding parts.

The tilting device is constructed of two angle-iron rings *a*, which are connected by the top and bottom angle-bars *b*, *b'*, so as to form a cylindrical frame. The lower angle-bars or rails *b'* form the tracks upon which the wheels of the car can run, and the upper angle-bars hold the car in place when tilted, by means of lugs or clips *b²* riveted to said top angle-bars. The rotary frame, formed of the two angle-rings *a* and the four connecting-bars *b*, *b'*, rests upon the flanged wheels *d* fixed on the shaft *c* and also upon the wheels *d'* mounted on the frame of the apparatus. The shaft *c* is provided at one end with a sliding clutch-member *e*, which can pass into and engage the loose clutch-member *e'* on said shaft *c*,

which clutch-member *e'* is shaped as a belt-pulley for a driving-belt for rotating it. At right angles to the shaft *c* and below the same a shaft *c'* is arranged, one end of which is rigidly connected with a handle-lever *f* and the other with an arm *g²* that can bear against the lug of a sliding-bolt *g* suitably guided in the frame, on which bolt a weight *g'* acts by means of a pivoted angle-lever *g⁴*, so as to press the bolt *g* toward one of the flanged rings *a*.

For the purpose of starting the tilting device, the handle-lever *f* is moved in the direction of the arrow *x*, Fig. 1, whereby the roller *h* on the end of a bar *f'* connected with the handle-lever passes through the notch *i'* in the flange of one ring *a* and rests against the face of said flange. At the same time the sliding-clutch-member *e*, which is operated by an arm *c⁶* of the shaft *c'*, is pressed into the clutch-member *e'* and engaged by the same. At the same time also the arm *g²* of the shaft *c* is thrown in the direction of the arrow in Fig. 5, whereby the bolt *g* is withdrawn from below the beveled lug *k* on the ring *a*, thus releasing the tilting device. As the shaft *c* is now rotated, the movement is transmitted by the wheels *d* to the rotative tilting frame, which is turned in the direction of the arrow *y* in Fig. 3. The load drops out of the car and the empty car must now be returned by a return movement of the tilting device in the direction of the arrow *z*, Fig. 3. When the notch *i'* in the flange of one of the rings *a* has arrived at the roller *h* on the end of the bar *f'* said roller is moved through the notch *i'*, so as to be at the inner side of the flange, by the action of the weight *o* suspended from a fixed arm *c²* of the shaft *c'*. By this movement of the shaft *c'* the clutch-member *e* is disengaged from the clutch-member *e'*. During the movement of the tilting device in the direction of the arrow *y*, (Fig. 3,) a pin *l* projecting from one of the flanged rings *a* strikes the projection *m* of a three armed pivoted lever *m'*, weighted by a weight *n* and presses the same to the left, as shown in Figure 4^a whereby the weight *n* is raised. As soon as the bar *f'* is moved in the manner described so as to move the roller *h* through the notch *i'*, the weight *n*, acting by the projection *m* of the lever *m'* on the pin *l*, starts the tilting

device in the direction of the arrow *z*, Fig. 3. After the tilting device has been started, it completes its movement in the direction of the arrow *z* under the action of gravity, as the center of gravity is to the left of the center of the tilting frame, and said frame swings around until it is in a position of rest. Shown in Fig. 3. Before the tilting frame arrives at the position of rest the beveled lug *k* presses back the bolt *g*, which thus acts as a break, shortly before the tilting frame comes to the position of rest, and then said bolt snaps back under the lug and locks the device in place and the tilting frame is held securely while the car is being run on or off the same. The pins *p, p'* serve to limit the throw of the weighted lever *m'*. With this construction the car can be slowly turned to an angle of one hundred and fifty degrees and rapidly returned to its original position. Thereby the screens or conveyers below the tilting device are not subjected to severe shocks and strains and a greater number of cars can be tilted in a given time.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car tilting device, the combination, with a rotary-frame for receiving the car to

be tilted, rollers on which said frame rests, the three armed lever *m*, the stops *p, p'* adjacent to one of said arms, a pin on the rotating frame on which the second arm of the lever *m* can act, a weight on the third arm of said lever, and a lever by means of which the rotating-frame can be locked in place or released, substantially as set forth.

2. In a device for tilting cars, the combination, with a rotary-frame, of wheels on which said frame rests, a shaft carrying two of said wheels, a clutch-device for engaging said shaft with a driving-mechanism, a lever for operating said clutch-device, a sliding-bolt, a weight acting on the same, a beveled lug on the rotating frame, which lug can be engaged by the sliding-bolt, and an arm connected with the lever for operating the clutch-device, which arm acts on said sliding-bolt to withdraw the same and release the rotary-frame, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ULRICH FRANTZ.

Witnesses:

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F. LANGCY.