

No. 837,900.

J. J. FLEMING.
COAL TIPPLE.
APPLICATION FILED SEPT. 11, 1906.

PATENTED DEC. 4, 1906.

2 SHEETS—SHEET 1.

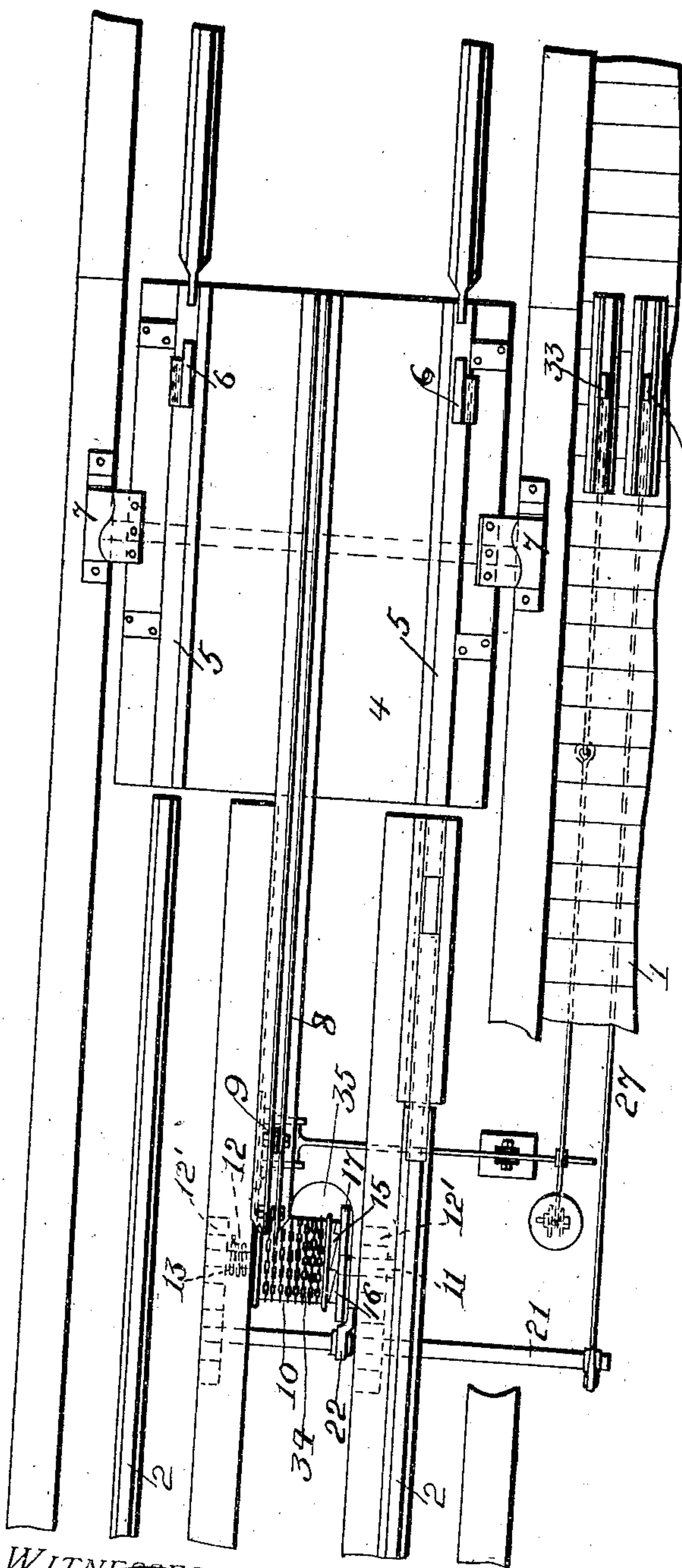
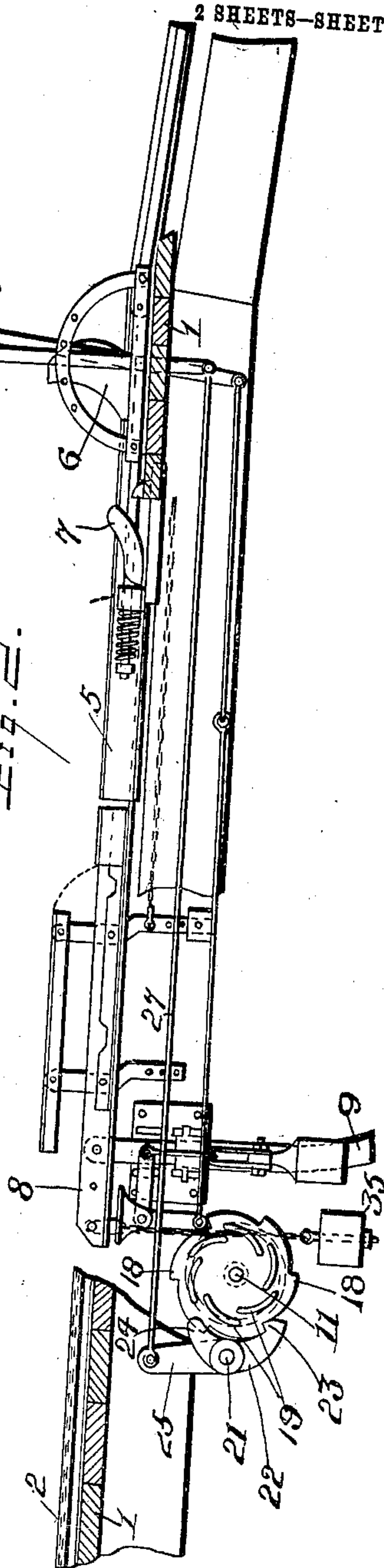


Fig. 1.



WITNESSES:

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Fig. 2.

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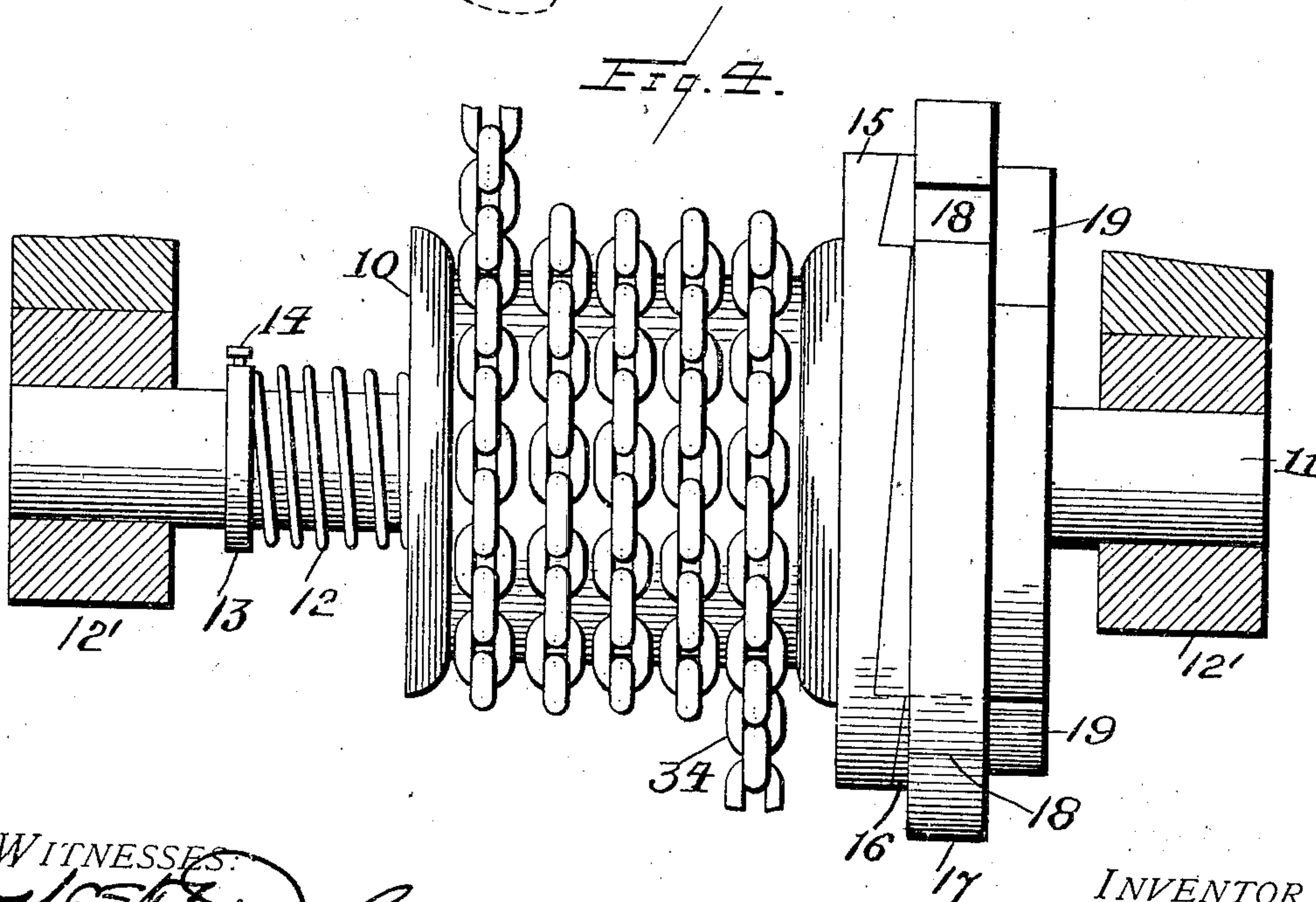
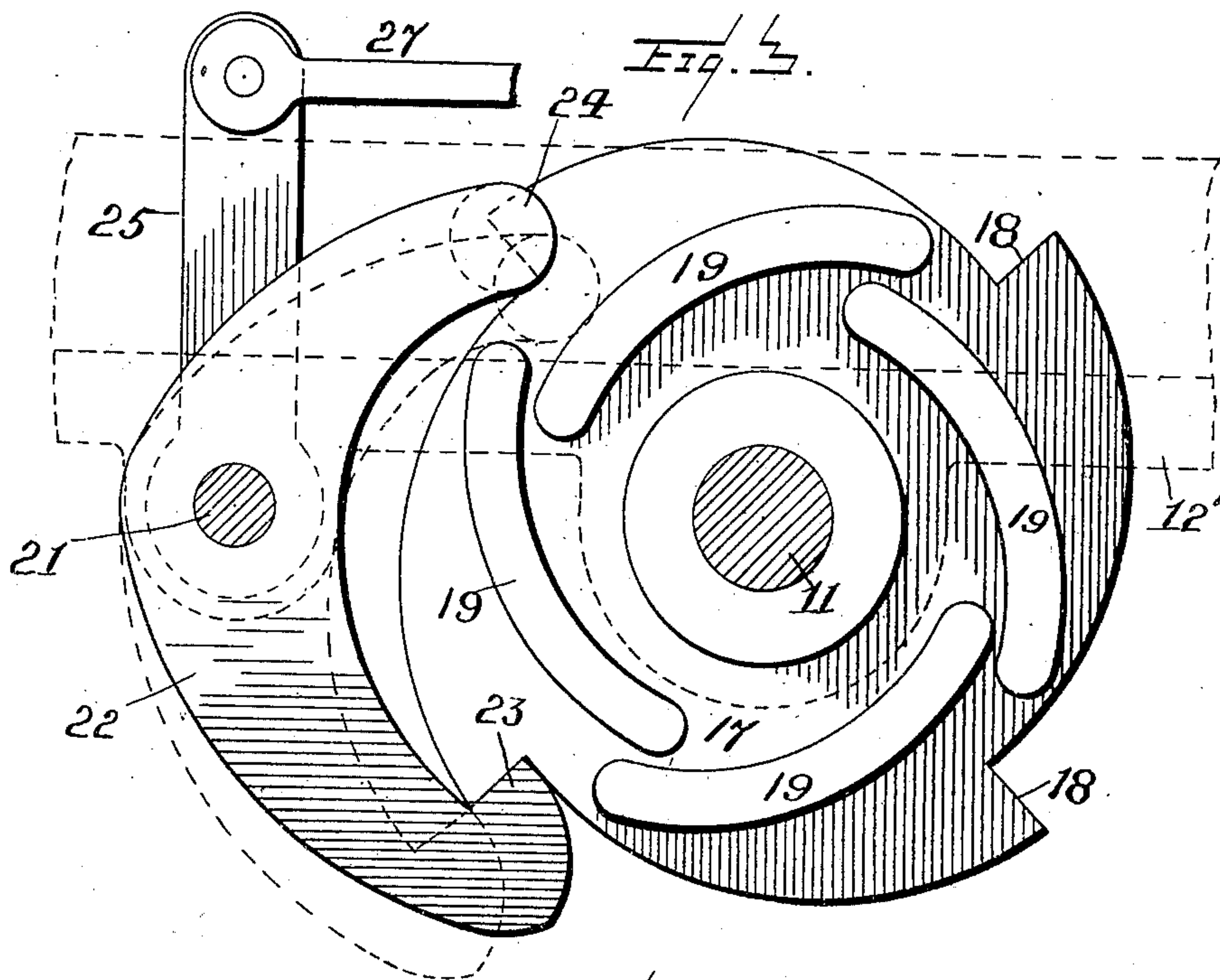
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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COAL-TIPPLE.

No. 837,900.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed September 11, 1906. Serial No. 334,101.

To all whom it may concern:

Be it known that I, JOHN J. FLEMING, a citizen of the United States, residing at Carrick, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coal-Tipples, of which the following is a specification.

This invention has relation to coal-tipples, and relates in particular to mechanism for facilitating the discharge of coal from the cars on a tippie of that class wherein the cars are run upon a pivoted platform and are dumped or their contents discharged by the tilting of the platform, which latter action is produced by the overbalancing of the outer end of the platform by the combined weight of the car and its contents, the platform automatically returning to its normal horizontal position as soon as the coal has been discharged.

The object of the present invention is to provide novel means for imparting a succession of jolts or jars to the platform during its tilting movement, which jolts or jars are imparted to the car on the platform, and the coal in the car is thereby induced to discharge itself in successive portions instead of all at once or practically all at once, as is the case in tipples of the ordinary construction.

In carrying my invention into effect I provide a rotating drum which is mounted on the tippie structure, and a chain which is wound around the drum has one end attached to the rearwardly-projecting brake tongue or beam of the tilting platform and has a weight attached to its other end, which serves to keep the chain taut and in engagement with the drum and serves also to assist the return of the platform to its normal position. The drum above referred to is in one direction of its movement clutched to an escapement-wheel, and a manually-operable escapement is arranged to alternately engage the escapement-wheel and release the same, so that the drum will be permitted to rotate by successive movements, each movement alternating with a sudden stoppage, whereby through the medium of the chain, the beam, the platform, and the car the coal in the car will be given a series of jolts or jars, and thereby caused to discharge itself in successive portions as the platform tilts.

Referring to the accompanying drawings, in the several figures of which like numerals of reference designate corresponding parts,

Figure 1 is a plan view of a tippie constructed according to my invention. Fig. 2 is a side elevation of the same with a portion of the tippie structure broken away. Fig. 3 is a detail in vertical section of a portion of the jolting or jarring devices; and Fig. 4 is a similar view of the same parts, taken at right angles to Fig. 3.

The tippie structure, the tilting platform, and the appurtenant parts thereof may be of any desired construction, preferably that or similar to that type of tippie shown and described in Letters Patent of the United States, No. 524,211, granted to J. M. Phillips, J. J. Fleming, and F. Browning August 7, 1894, and need not therefore be specifically described.

As shown in the accompanying drawings, the tippie comprises a rigid structure on which are mounted the floor 1, carrying the stationary tracks 2, on which the car is run from the mine to the tilting platform 4, which latter carries the tilting rails 5, the horn-stops 6, and the other necessary appendages. The platform 4 rocks or tilts on rockers 7 and carries the rearwardly-projecting brake tongue or beam 8, from which depends the curved brake bar or sword 9, which is controlled by any suitable braking mechanism, preferably that shown and described in the before-mentioned Letters Patent, and which, while it is illustrated in the accompanying drawings, does not require specific description herein.

The above-mentioned portions of the tippie constitute no part of my present invention except in so far as they are combined with my present invention, which latter I will more specifically describe.

Upon the tippie structure below the free end of the brake tongue or beam 8 I arrange a rotary drum 10, which is carried on a shaft 11, journaled in bearings 12, these bearings being attached to any suitable portion of the tippie structure. The drum 10 is loose on the shaft 11 and is impelled lengthwise in one direction by a spiral spring 12, which surrounds shaft 11, one end of this spring bearing against the end of the drum and the other end of the spring bearing against a collar 13, which is fixed on the shaft at any position necessary to give the required resiliency to the spring by means of a set-screw 14. The end of the drum 10 opposite to that against which the spring 12 bears is formed with a ratchet clutch member 15, which en-

gages a similar ratchet clutch member 16, carried by an escapement-wheel 17, that is carried by and preferably fixed on the shaft 11.

The escapement-wheel 17 is of peculiar form, and its construction will be best understood by reference to the detail views, Figs. 3 and 4. Said escapement-wheel is provided with any desired number of teeth 18, that shown in the drawings being provided with six teeth, and these teeth have each one side radial to the center of the escapement-wheel and the other side substantially tangential to the wheel and slightly curved, as shown. Upon the outer flat face of the escapement-wheel are formed or rigidly attached a series of curved cam-pieces 19 equal in number to the number of teeth 18. The cam-pieces 19 are provided with outer curved bearing-surfaces 20, which are at an angle to the tangential sides of the teeth 18 for a purpose hereinafter described.

Adjacent to the shaft 11 and mounted in the bearings 12' is a rock-shaft 21, which carries a curved escapement 22, that is rigidly fixed on rock-shaft 21, this escapement having a tooth 23 at one end that successively engages the radial side of each tooth of the escapement-wheel, and the other end of the escapement being rounded at 24, this rounded end of the escapement being out of vertical alignment with the tooth 23 and successively engaging the outer curved bearing-surface 20 of each of the cam-pieces 19 as the escapement-wheel 17 rotates.

The rock-shaft 21 carries an upwardly-projecting arm 25, that is rigidly attached to the shaft, and this arm is connected by a rod 27 to a pivoted lever 32, that projects through the floor of the tippie structure adjacent to the tilting platform alongside a lever 33, which latter is connected to and serves to operate the braking devices hereinbefore referred to, both the levers 32 and 33 therefore being within easy reach of an operator stationed on the tippie structure.

A strong chain 34 is wound around the drum 10 a number of times, so as to have a firm grip of the drum, and the upper end of the chain is attached to the brake tongue or beam 8, while a weight 35 is attached to the other end of the chain and serves to maintain the chain taut and in gripping engagement with the drum 10, this weight also serving in some measure to assist in returning the tilting platform to its normal horizontal position after the coal has been dumped from the car.

Operation: The loaded car is run out upon the tracks of the tilting platform, and the brake mechanism being released by manipulating the brake-lever 33 an impulse in one direction is given to the escapement 22 by moving the lever 32 so as to throw the tooth 23 out of engagement with the particular tooth of the escapement-wheel with which it

happens at this time to be engaged. The throwing of the tooth of the escapement out of engagement with a tooth of the escapement-wheel permits the latter to turn the distance between two teeth, and the rounded end of the escapement being thrown into contact with one of the cam-pieces on the face of the escapement-wheel by the outward movement of the opposite end of the escapement the progressive rotary movement of the escapement-wheel causes the rounded end of the escapement to ride on the curved surface of the cam-piece and impart a movement to the escapement which will throw the tooth on the same into position to be engaged by a second tooth of the escapement-wheel. As soon as the first tooth of the escapement-wheel is released from engagement with the tooth of the escapement in the manner above described the upward traction of the chain 34 produced by the tilting of the platform 4 imparts rotary movement to the drum 10 and through the clutch members 16 17 to the escapement-wheel, and the movement of the escapement-wheel causes the escapement to be returned to its first position by reason of the rounded end of the escapement riding on one of the cam-pieces of the escapement-wheel. As the movement of the escapement-wheel is somewhat rapid, the engagement of the tooth of the escapement with the second tooth and with each succeeding tooth of the escapement-wheel brings that wheel to a sudden stop, and at each such stop the drum, the chain, and the tilting platform are similarly brought to a sudden stop, and this sudden stopping of the parts jolts or jars the car and its contents during the tilting movement of the platform, so as to cause the coal to be discharged in separate portions, this method of discharging the coal being highly conducive to proper and efficient screening of the coal by means of screens arranged in the usual manner on the tippie.

When the tilting platform has reached the extremity of its downward movement and the coal has all been discharged from the car, the tilting platform will automatically resume its normal horizontal position, and during this return movement of the platform the drum 10 will be rotated in a direction the reverse of that in which it was rotated by the tilting of the platform, this reverse movement being effected by the weight 35 and permitted by the ratchet clutch members on the drum and escapement-wheel.

Having described my invention, I claim—

1. In a coal-tippie, the combination with a tilting platform of a rotary drum, connected to the platform and rotated by the tilting of the platform, and means for successively stopping the rotation of said drum.

2. In a coal-tippie, the combination with a tilting platform and a rotary drum mounted on the tippie structure, of a chain connected

to the platform and winding around the drum, and means for successively stopping the rotation of the drum.

3. In a coal-tipple, the combination with a
5 tilting platform and a rotary drum carried by the tippie structure, of a chain winding around the drum and connected to said tilting platform, a shaft on which said drum is mounted, an escapement-wheel turned by
10 said drum, an escapement engaging said escapement-wheel, and means for operating said escapement.

4. In a tippie, the combination with the
15 tippie structure, a tilting platform mounted on said structure, a shaft journaled on the said structure, a drum mounted on said shaft, an escapement-wheel fixed on said shaft, and rotatable by said drum, a chain

connected to said drum and connected to
said platform, an escapement mounted adja- 20
cent to said escapement-wheel, a tooth carried by the escapement and adapted to successively engage the teeth of the escapement-wheel, means for manually disengaging the
25 tooth of the escapement successively from the teeth of the escapement-wheel and means for automatically restoring the tooth of the escapement into engagement with the teeth of the escapement-wheel.

In testimony whereof I have signed my 30
name to this specification in the presence of
two subscribing witnesses.

JOHN J. FLEMING.

Witnesses:

JOSEPH B. CONNOLLY,
THOS. A. CONNOLLY.