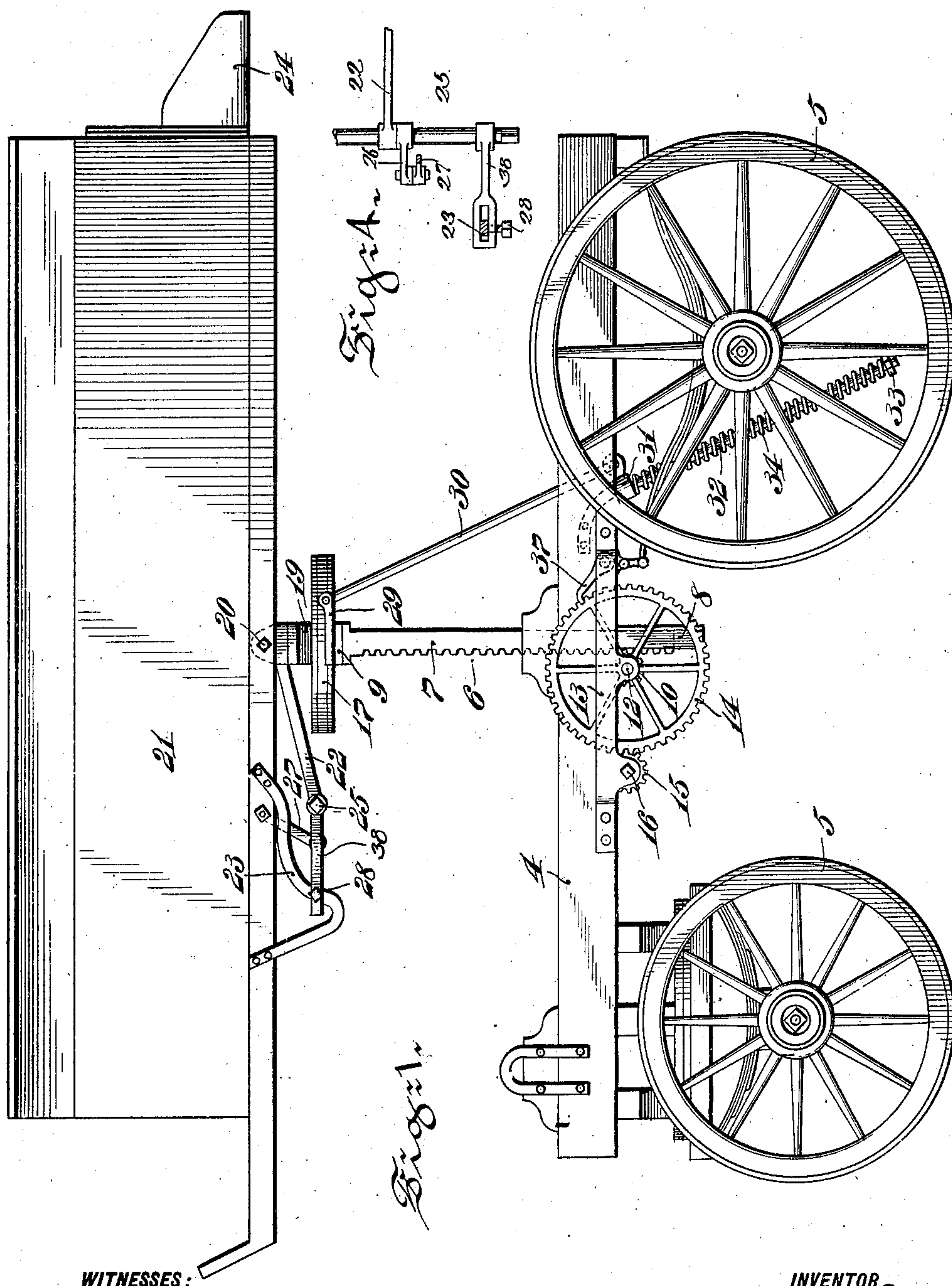


No. 844,480.

PATENTED FEB. 19, 1907.

D. STAHL.  
COAL DUMPING WAGON.  
APPLICATION FILED OCT. 26, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Wilhelm Vogt  
Thomas M. Smith.

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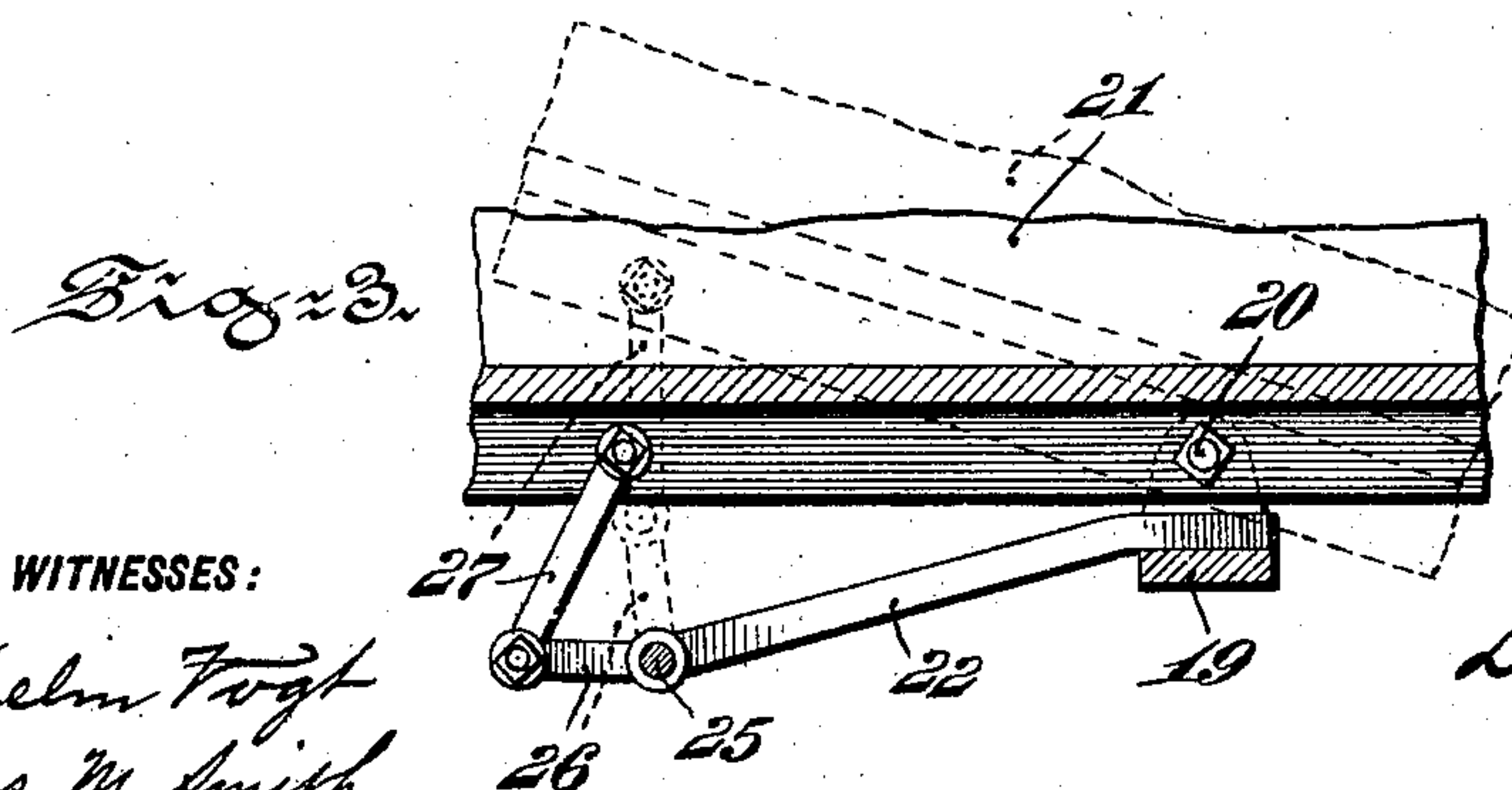
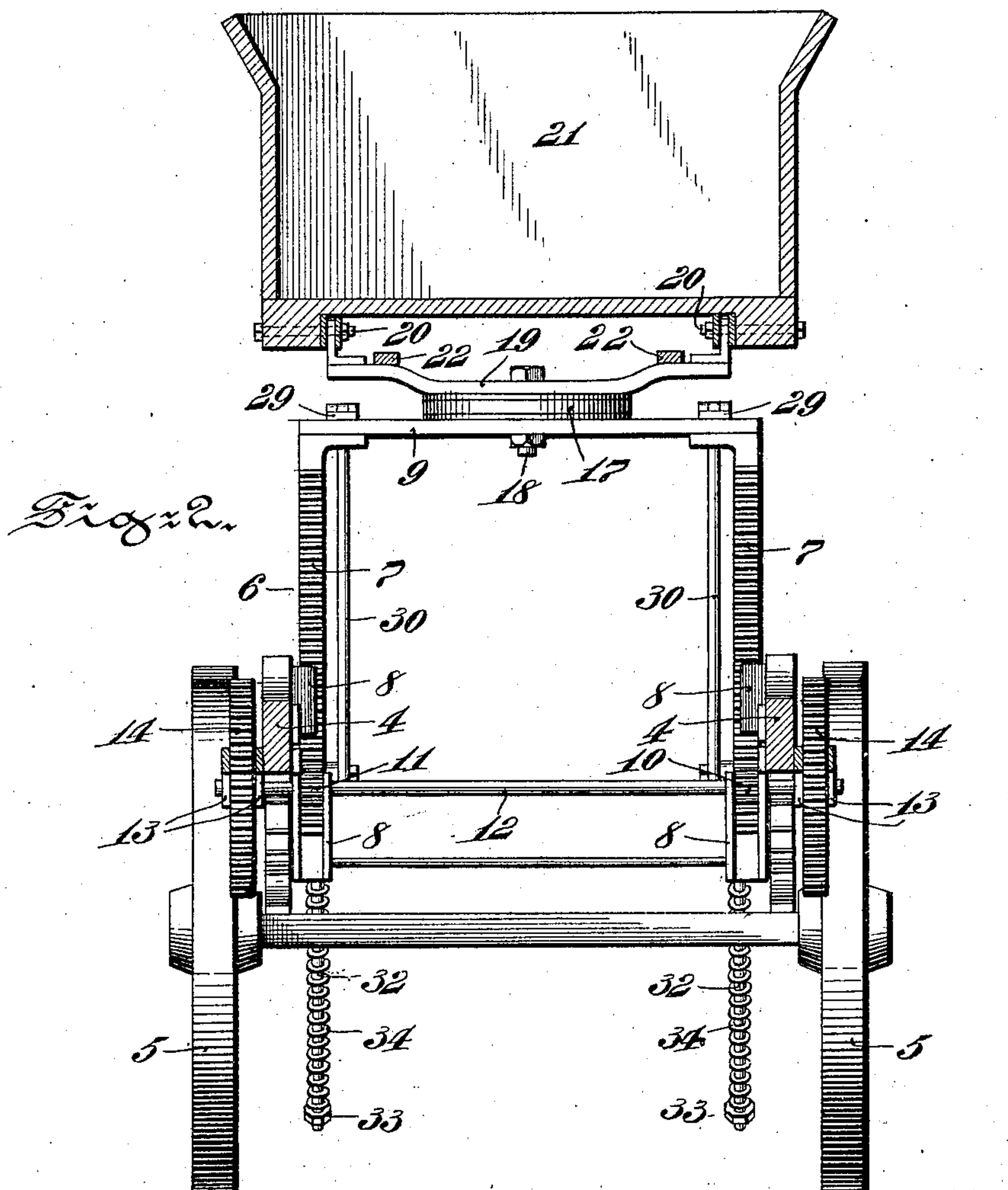
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

DANIEL STAHL, OF PHILADELPHIA, PENNSYLVANIA.

## COAL-DUMPING WAGON.

No. 844,480.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed October 26, 1906. Serial No. 340,631.

*To all whom it may concern:*

Be it known that I, DANIEL STAHL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Coal-Dumping Wagons, of which the following is a specification.

My invention has relation to coal-dumping wagons of the type in which the wagon-box is raised, turned, and tilted to discharge the contents of the wagon-box by gravity, and in such connection it relates particularly to means for raising the wagon-box, supporting the same by said raising means, and means for tilting and locking the box in the tilted position.

The principal objects of my invention are, first, to provide a dumping-wagon with raising means for the wagon-box which is so constructed as to permit of the secure support of the same in the raised position irrespective of the weight of the load the wagon-box has to carry; second, to provide for this purpose the dumping-wagon with a lifting-frame, certain portions of which form rack-bars to permit of the even raising of the frame by engaging the same from two sides; third, to provide the dumping-wagon with a fifth-wheel and with a bracket supported by the wheel, which bracket by being pivotally connected with the wagon-box and by the fifth-wheel with the lifting-frame permit of turning and tilting of the box on said frame; fourth, to provide the bracket supported by the fifth-wheel with arms carrying a shaft and links and the wagon-box with sectors engaged by the links to permit when the links are locked to the sectors of the holding of the wagon-box in a horizontal and tilted position; fifth, to provide the shaft of the arms with lifting means for the wagon-box to permit when actuated of the tilting of the same in the raised position, and, sixth, to provide the dumping-wagon with means to assist in raising the box thereof.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which —

Figure 1 is a view illustrating in side elevation a dumping-wagon with the wagon-box in a raised position, a frame, a fifth-wheel with a bracket for supporting the wagon-box, arms connected with the bracket of the

fifth-wheel, links connected with the arms, and sectors connected with the wagon-box for holding the same in a horizontal position and for locking in the tilted position, a shaft supported by said arm carrying the links and operatively connected with the wagon-box for tilting the same, and means connected with the lifting-frame and wagon-sill for assisting in the raising of the wagon-box, all embodying main features of my said invention. Fig. 2 is a vertical sectional view of Fig. 1. Fig. 3 is a detail view enlarged illustrating the mechanism for tilting the wagon-box, and Fig. 4 is a detail view of a portion of means for tilting the wagon-box.

Referring to the drawings, 4 represents the wagon-sill, which is supported in the usual well-known manner by wheels 5. Centrally and in the side portions of the wagon-sill 4 is arranged an inverted-U-shaped frame 6, consisting of rack-bars 7, sliding in brackets 8 of the sill 4 and united to each other at their upper ends by a cross-bar 9. The rack-bars 7 are engaged by gear-wheels 10 and 11, respectively, which are secured to a shaft 12, supported by brackets 13, carried by the sill 4. The shaft 12 is rotated by a gear-wheel 14, meshing with a gear-wheel 15, supported by a square-ended shaft 16, likewise carried by the bracket 13. When the shaft 16 is rotated by a hand-crank (not shown) engaging the projecting square end thereof, the gear-wheel 15, and by the same the gear-wheel 14, is rotated, which in turn by the shaft 12 and gear-wheels 10 and 11 raise and lower the frame, in the sill 4. A pawl 37, pivotally secured to the sill 4, when brought into engagement with the gear-wheel 14, prevents rotation of the same, and thus prevents rotation of the shaft 12 and gear-wheels 10 and 11, which by engaging the rack-bars 7 of the frame 6 hold the same in a given position. To enable the raising of the frame 6 from each side of the wagon-sill, the shaft 12 is provided with a gear-wheel 14 at each end thereof. Centrally upon the bar 9 of the frame 6 so raised and lowered is arranged a fifth-wheel 17, to which by means of a king-pin 18 is pivotally secured a U-shaped bracket 19, to the free ends of which by means of bolts 20 is pivotally secured the wagon-box 21. The wagon-box 21 by means of the fifth-wheel 17 can thus be freely turned in a horizontal plane upon the frame 6, while the bracket 19 permits of the tilting of the box in a vertical plane when the same is raised. In the low-



ered position the wagon-box 21 rests directly upon the sill 4, and is thus supported by the same. In order to prevent the free tilting of the box 21 when the same is raised, the bracket 19 is provided with two horizontally-extending arms 22, to which by means of a shaft 25, carried by the arms 22, are secured crank-arms 38, which, by surrounding with their free ends sector-like brackets 23 and locked thereto by bolts 28, prevent the shaft 25 from turning, and thus holding the box 21 in a substantially horizontal position upon the frame 6. The box so held may now be freely turned on the fifth-wheel 17 of the frame 6 until the discharge-spout 24 thereof is brought into the required position to discharge the contents of the box, which position of the same may be set at a right angle to the sill 4, if desired.

After having reached the required position the wagon-box 21 is tilted by the following preferred mechanism: To the shaft 25, rotatably arranged in the arms 22, are secured outside of the crank-arms 38 crank-arms 26, connected by links 27 with the wagon-box 21. In order to tilt the wagon-box, the clamping-bolt 28, secured to each of the crank-arms 38, is first disengaged from the sector-brackets 23, after which the square-ended shaft 25 by means of a hand-crank, (not shown,) also suitable to turn the shaft 16 and bolts 28, is turned. The rotary movement of the shaft 25 by means of the crank-arms 26 is transmitted to the links 27, which turns the wagon-box on the bolts 20 into an oblique position, such as has been shown by the dotted lines in Fig. 3, which permits of the discharge of the contents of the box by gravity. During this movement of the wagon-box the crank-arms 38 are moved upon the sector-brackets 23 thereof, which turn in the arc of a circle, and after the box 21 has reached the required tilted position the same is locked therein by the bolts 28 being brought into reengagement with the brackets 23, thus locking the crank-arms 38 to the same. The shaft 25 being prevented from turning by the crank-arms 38 by means of the crank-arms 26 and links 27 holds the wagon-box 21 in a tilted position.

The arrangement of the frame 6, supporting the wagon-box 21 in the raised position, is such as to permit of a comparatively light construction of the same, as well as the sill 4 and actuating mechanism for the same. Moreover, the frame 6 by being supported in the manner shown will support a comparatively heavy load with safety and prevent any swinging or side movements of the box when the same is in a raised and tilted position.

In order to assist in the raising of the wagon-box 21 to the cross-bar 9 of the frame 6 are secured brackets 29, supporting rods 30, which by means of brackets 31 are held in

slidable engagement with rods 32, secured to the wagon-sill 4. Between the bracket 31 and nuts 33 of each of the rods 32 and upon the same are arranged springs 34, which by bearing against the brackets 31 tend to raise the frame 6 by means of the rods 32. When the wagon-box 21 is lowered, the springs 34 will be compressed upon the rods 32, and when the wagon-box is raised will by returning to their normal position naturally assist in the raising of the wagon-box.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a dumping-wagon, a wagon-sill, rack-bars slidably arranged in said sill, a cross-bar connecting the rack-bars with each other at their upper ends, a wagon-box, means carried by said cross-bar and means movably arranged intermediate of said rack-bars on said cross-bar and connected with said cross-bar means and wagon-box, both means adapted when said rack-bars and the cross-bar thereof are raised to permit the turning of the wagon-box in horizontal and vertical planes on said cross-bar.

2. In a dumping-wagon, a wagon-sill, an inverted-U-shaped frame having rack-bars slidably arranged in said wagon-sill, a shaft and a train of gears, certain of which mesh with said rack-bars and adapted when actuated to raise and lower said frame in said sill, a fifth-wheel mounted on said frame, a bracket secured thereto, a wagon-box pivotally connected with said bracket, means connected with said bracket and means connected with said wagon-box and adapted to hold the same in a horizontal or tilted position on said frame, and said fifth-wheel and bracket arranged to permit of the free turning of the wagon-box on said frame.

3. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by the same on said fifth-wheel, arms connected with said wheel, brackets connected with said wagon-box and means carried by said arms and engaging the brackets of said wagon-box adapted to hold the same in a horizontal or tilted position.

4. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by



the same on said fifth-wheel, arms connected with said bracket and sector-like brackets connected with said wagon-box, a second shaft carried by said arms, and means connected with said second shaft and wagon-box, said second shaft and the means connected therewith, when actuated, adapted to tilt the wagon-box in said bracket.

5. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by the same on said fifth-wheel, arms connected with said bracket and sector-like brackets connected with said wagon-box, a second shaft carried by said arms, means connected with said second shaft and wagon-box, said second shaft and the means connected therewith, when actuated, adapted to tilt the wagon-box in said bracket and means carried by said second shaft and engaging said sector-brackets adapted to lock said wagon-box in a horizontal or tilted position.

6. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by the same on said fifth-wheel, arms connected with said bracket and sector-like brackets connected with said wagon-box, a second shaft carried by said arms, crank-arms connected with said shaft and links connecting the crank-arms with said wagon-box, said crank-arms and links, when actuated by said shaft adapted to tilt the wagon-box in said bracket, means carried by said shaft engaging said sector-brackets and adapted by preventing the turning of said shaft, when clamped thereto of locking of said wagon-box in a horizontal or tilted position by said crank-arms and links.

7. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by the

same on said fifth-wheel, arms connected with said bracket and sector-like brackets connected with said wagon-box, a second shaft carried by said arms, two sets of crank-arms connected with said second shaft whereof one set engages the sector-brackets of said wagon-box, links connecting the second set of crank-arms directly with said wagon-box, and means for clamping the first set of crank-arms to said sector-brackets, said first set of crank-arms when clamped to said sector-brackets adapted to prevent the turning of said second shaft, and said second shaft when held in the given position adapted to lock said wagon-box in a horizontal and tilted position in said bracket by said second set of crank-arms and said links.

8. In a dumping-wagon, a wagon-sill, a frame having rack-bars slidably arranged in said sill, a shaft, means connected with said sill and carrying said shaft, gears carried by said shaft and adapted when actuated to raise said frame in said sill, a fifth-wheel carried by said frame, a bracket carried by said fifth-wheel, a wagon-box pivotally connected with said bracket and supported by the same on said fifth-wheel, arms connected with said bracket and sector-like brackets connected with said wagon-box, a second shaft carried by said arms, two sets of crank-arms connected with said second shaft whereof one set engages the sector-brackets of said wagon-box, links connecting the second set of crank-arms directly with said wagon-box, and means for clamping the first set of crank-arms to said sector-brackets, said first set of crank-arms when clamped to said sector-brackets adapted to prevent the turning of said second shaft, and said second shaft when held in the given position adapted to lock said wagon-box in a horizontal and tilted position in said bracket by said second set of crank-arms and said links, means connected with said wagon-sill, springs mounted thereon and means connected with said frame and slidably connected with spring-carrying means and engaged by said springs, said springs arranged when said frame is lowered to be compressed by said frame means, and when said frame is raised to assist in the raising thereof, by pressing against said spring means.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

DANIEL STAHL.

Witnesses:

J. WALTER DOUGLASS,  
THOMAS M. SMITH.