No. 812,734. PATENTED FEB. 13, 1906.

H. J. FRANK.

DUMPING WAGON.

APPLICATION FILED JUNE 5, 1903. RENEWED JULY 20, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

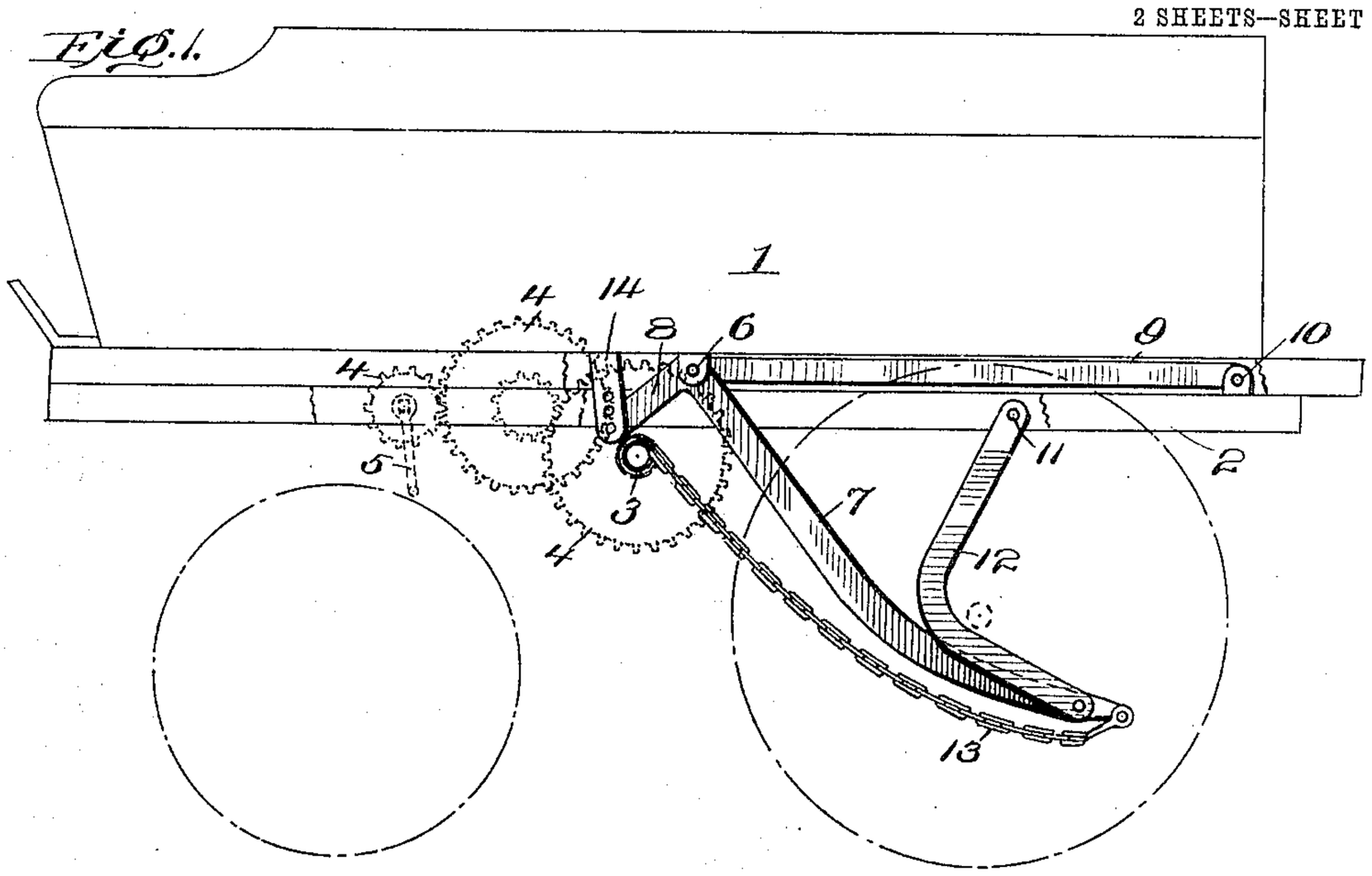
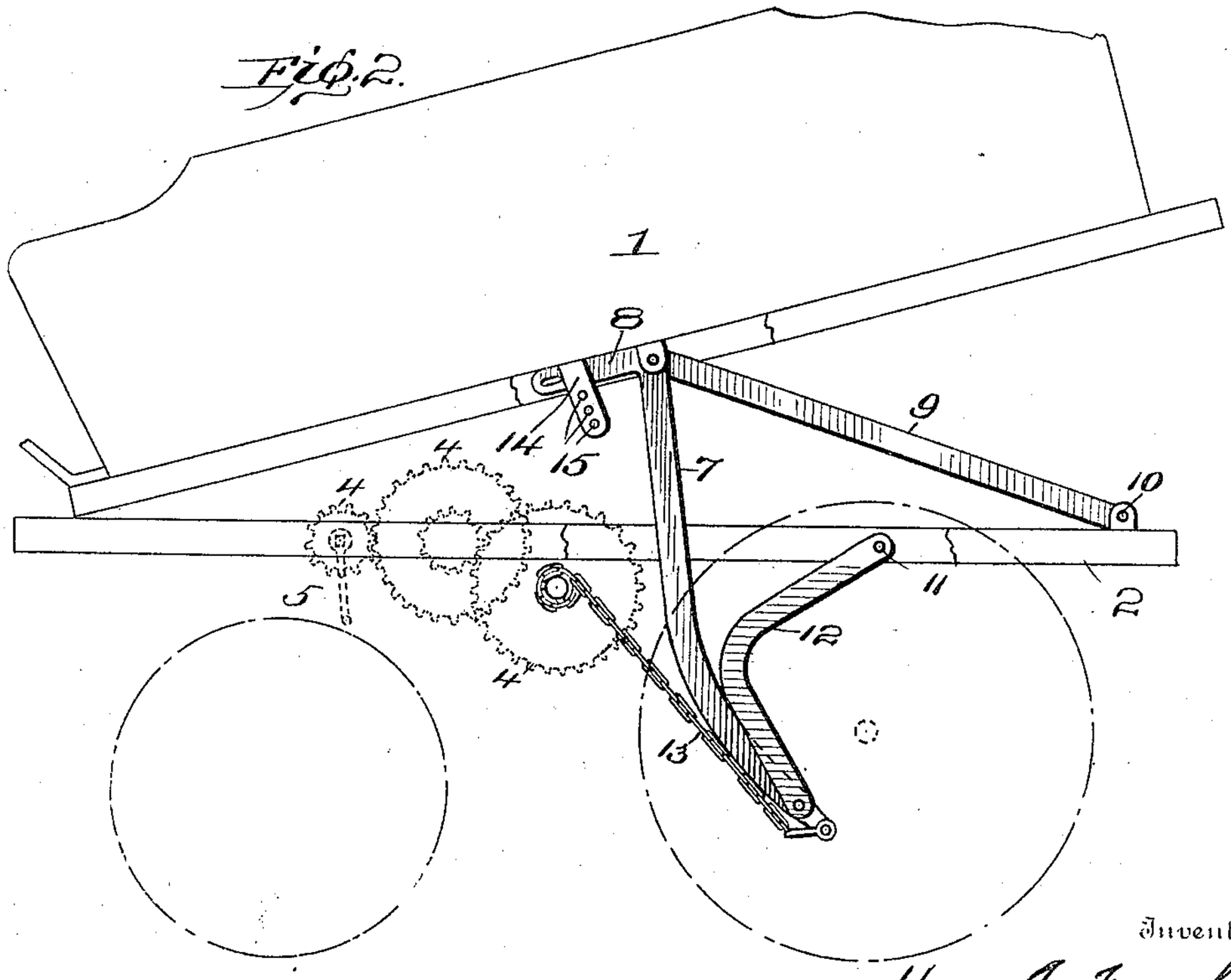


Fig. 2.



Witnesses
J. M. Fowler Jr
J. H. Burgess?

Inventor
Harry J. Frank
By Lacy B. Hille
Attorney

No. 812,734. PATENTED FEB. 13, 1906.

H. J. FRANK.

DUMPING WAGON.

APPLICATION FILED JUNE 5, 1903. RENEWED JULY 20, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

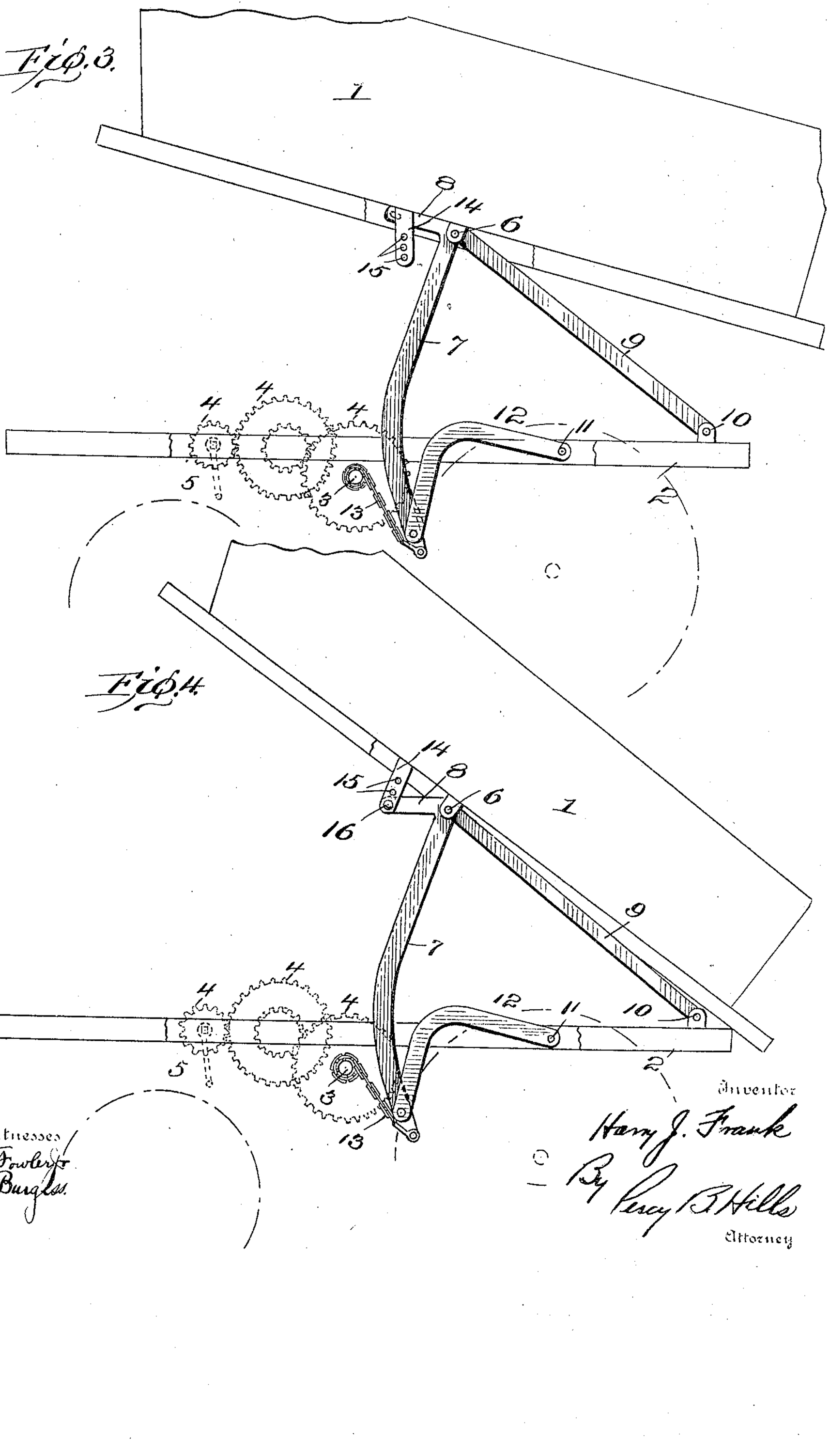


Fig. 4.

Witnesses
J. M. Fowler Jr.
J. H. Burgess.

Inventor
Harry J. Frank
By Percy B. Hills
Attorney

UNITED STATES PATENT OFFICE.

HARRY J. FRANK, OF PHILADELPHIA, PENNSYLVANIA.

DUMPING-WAGON.

No. 812,734. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed June 5, 1903. Renewed July 20, 1905. Serial No. 270,598.

To all whom it may concern:

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

My invention relates to dumping-wagons, and has for its primary object to provide an improved means for lifting the wagon-body to the dumping position and for causing said wagon-body to assume any one of several dumping positions in order that the same may be adapted for use under all circumstances.

A further object of my invention is to so arrange the lifting mechanism beneath the wagon-body that the same when inactive will be positioned some distance above the ground, whereby danger of its being struck and broken when the wagon is passing over rough ground will be obviated. This object I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, partly broken away, of sufficient of a coal-wagon to illustrate my improvements, the wagon-body being shown in its lowermost position. Fig. 2 is a similar view showing the wagon-body partly raised, the parts being in position to raise it to the highest dumping position. Fig. 3 is a similar view showing the wagon-body raised to substantially the highest dumping position. Fig. 4 is a similar view showing the wagon-body with its rear end resting on the sills for a short steep dump.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the wagon-body, and 2 the sills forming part of the frame. Suitably mounted on said frame is the usual transverse operating-shaft 3, to which rotation is imparted by means of gearing 4 and operating-handle 5. Pivoted to the body 1 at 6 on each side of the wagon-body is a bell-crank lever the long arm 7 of which is curved slightly to the rear at its lower free end and which is formed with respect to its short arm 8 at an angle slightly less than a right angle, as shown. Also pivoted to the body 1 at 6 on each side is a straight arm 9, running rearward therefrom and pivoted at its other end at 10 to the sill 2. Pivoted to the sill 2 on each side at 11 is a curved arm 12, having its lower free end pivoted to the lower end of arm 7 of the bell-crank lever, while attached to said lower end of arm 7 is a cord or chain 13, the same being attached at its other end to shaft 3 and adapted to be wound thereon. Projecting downwardly from the under side of the body 1 on each side thereof and adjacent the free ends of the arms 8 is an arm 14 for a purpose hereinafter to be described.

From the above description the operation of my improved construction will be understood to be as follows: With the body 1 in the position shown in Fig. 1, and it being understood that the pivot-point 6 is located slightly to the rear of the center of gravity of body 1, an upward movement of the bell-crank levers imparted through winding-chains 13 on shaft 3 by means of crank-arm 5 and gearing 4 will first raise the rear end of body 1 until it reaches the position shown in Fig. 2, the straight arms 9 acting as guides for the body 6, while curved arms 12 act as guides for the lower ends of the bell-crank levers. When this position is reached, however, the short arms 8 of the bell-crank levers will come in contact throughout their length with the under side of the wagon-body 1, as shown in Fig. 2, the result being that during the further lifting operation the wagon-body 1 must be in the same plane with the short arms 8 of the bell-crank levers, and said body will thus be gradually tilted to the rear until it reaches the position shown in Fig. 3, which is the position for distance-dumping. When it is desired to shorten the dump and at the same time to increase the inclination of the wagon-body, I accomplish the same in the following manner: The short arms 8 of the bell-crank levers are apertured at their outer ends to register with any one of a series of similar apertures 15 in the arms 14. Now when the wagon-body is in its lowermost position (shown in Fig. 1) the apertures in arms 8 will register with the lowermost of the series of apertures 15 in arms 14, when by slipping pins 16 thereinto the two arms will be firmly united, so that when the long arms 7 are raised by winding up chains 13 on shaft 3 the body 1 being connected to the said bell-crank levers at two points will be raised bodily thereby on its rear end as a pivot until it reaches the position shown in Fig. 4, thus giving a short steep dump. By providing the series of holes 14 in the arms 15 the angle of inclination of the wagon-body may be va-

ried, for by first raising arms 7 and body 1 from its rear until the holes in short arms 8 register with the second holes 15 from the bottom of arms 14 and then inserting the pins 16 the result will be that when arms 7 are fully raised the body 1 will be in a position in respect to its angle of inclination intermediate those shown in Figs. 3 and 4, though necessarily nearer that shown in Fig. 4. So, also, by postponing the insertion of pins 16 until the uppermost of the series of holes 15 is reached the ultimate angle of inclination of the body 1 will be lessened, though still greater than that shown in Fig. 3.

By referring to Fig. 1 it will be observed that by reason of the curving of arms 12 and the lower ends of arms 7 the lower connected ends of the same are brought forward horizontally beneath the rear axle of the wagon, and thus well lifted from the ground, in practice leaving a clearance of about fourteen inches, thus reducing to a minimum the danger of said arms striking an underlying object while traveling over rough ground.

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

1. In a dumping-wagon, the combination with the frame, and the wagon-body, of a common means for lifting said body from said frame and for simultaneously tilting said body to a predetermined angle of inclination during its upward movement.

2. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of levers for lifting said body having a fixed point of connection therewith and also a variable point of connection therewith, whereby the ultimate angle of inclination of said body may be varied.

3. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers for lifting said body having a fixed point of connection therewith at the intersection of the two arms composing the same, and means for variably connecting one pair of arms of said bell-crank levers with said body, whereby the ultimate angle of inclination of said body may be determined.

4. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers for lifting said body and pivoted thereto at the intersection of the two arms comprising the same, said pivot-points being to the rear of the longitudinal center of said body, one arm of each of said levers extending rearward of said pivot-point and adapted to have the lifting power applied thereto, the other arm extending forwardly and adapted to be variably connected to said body forward of the longitudinal center of the same, whereby said body, when lifted, will assume a predetermined but variable angle of inclination to the rear.

5. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers for lifting said body and pivoted thereto at the intersection of the two arms comprising the same, said pivot-points being to the rear of the longitudinal center of said body, one arm of each of said levers extending rearward of said pivot-point and adapted to have the lifting power applied thereto while the other arm extends forwardly therefrom, and an arm or arms extending downwardly from said body in proximity to the free end of one or both of said forwardly-extending arms and adapted to be variably connected therewith, whereby said body, when lifted, will assume a predetermined but variable angle of inclination to the rear.

6. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers pivoted to said body for lifting the same, means for causing said body to assume a predetermined angle to the rear when lifted, and levers pivoted to said frame to the rear and to said body at the pivot-points of said bell-crank levers for guiding said body with respect to said frame during its lifting and returning movement.

7. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers pivoted to the body for lifting the same, each having a downwardly-extending arm to which the lifting power is applied, and an arm for each lever pivoted at one end to the frame and at its other end to the end of said bell-crank-lever arm for guiding the latter in its movement.

8. In a dumping-wagon, the combination with the frame, and the wagon-body, of a pair of bell-crank levers pivoted to the body for lifting the same, each having a downwardly and rearwardly extending arm to which the lifting power is applied, said arm being curved upwardly at its lower end, and a curved arm for each lever pivoted at one end to the frame and at its other end to the end of its said bell-crank-lever arm, whereby the latter is guided in its movement to the inactive position to a position wherein its lower curved end is substantially horizontal and raised from the ground.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HARRY J. FRANK.

Witnesses:
GEO. E. GRIFFIN,
MIAMI GRIFFIN.