

No. 768,024.

PATENTED AUG. 23, 1904.

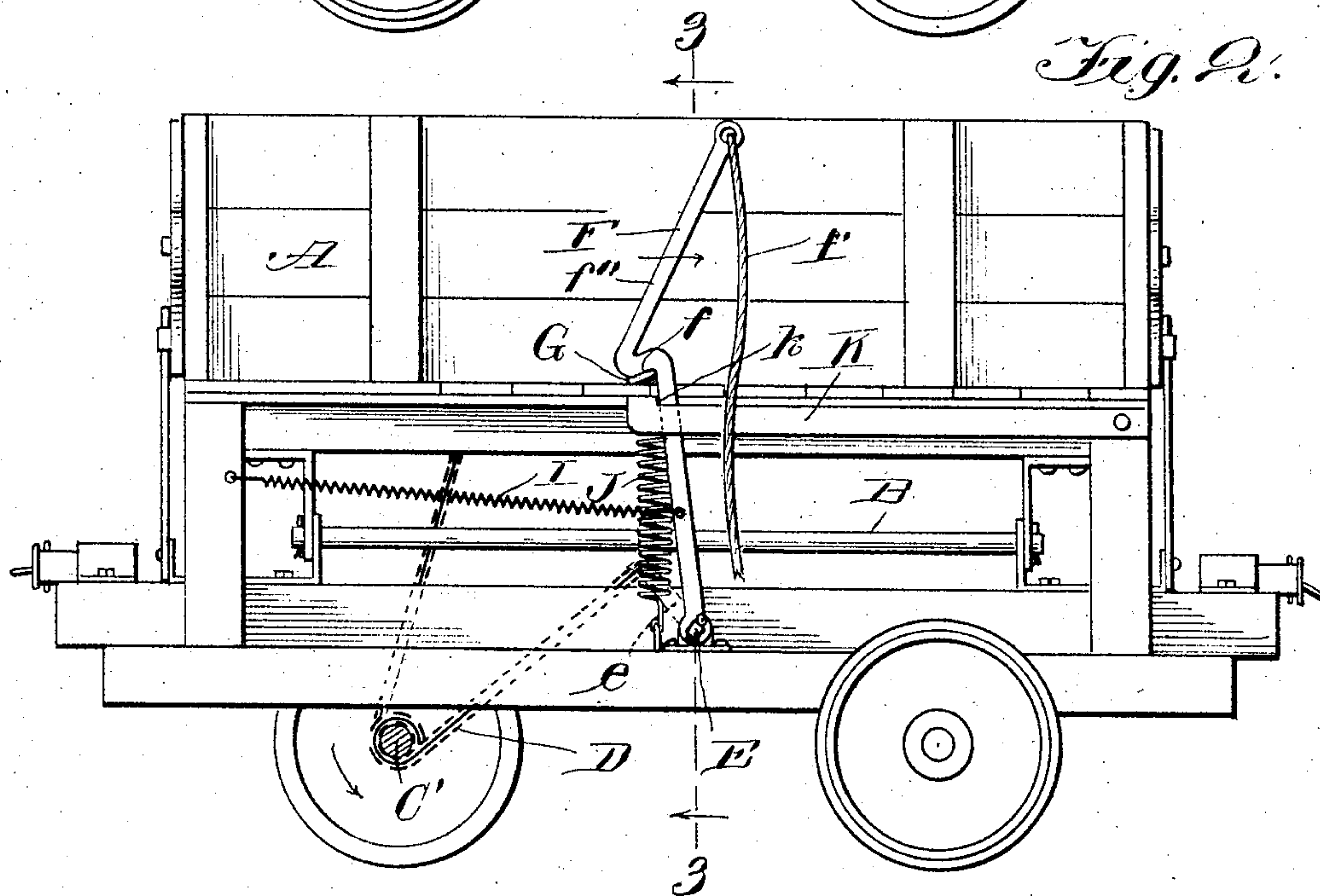
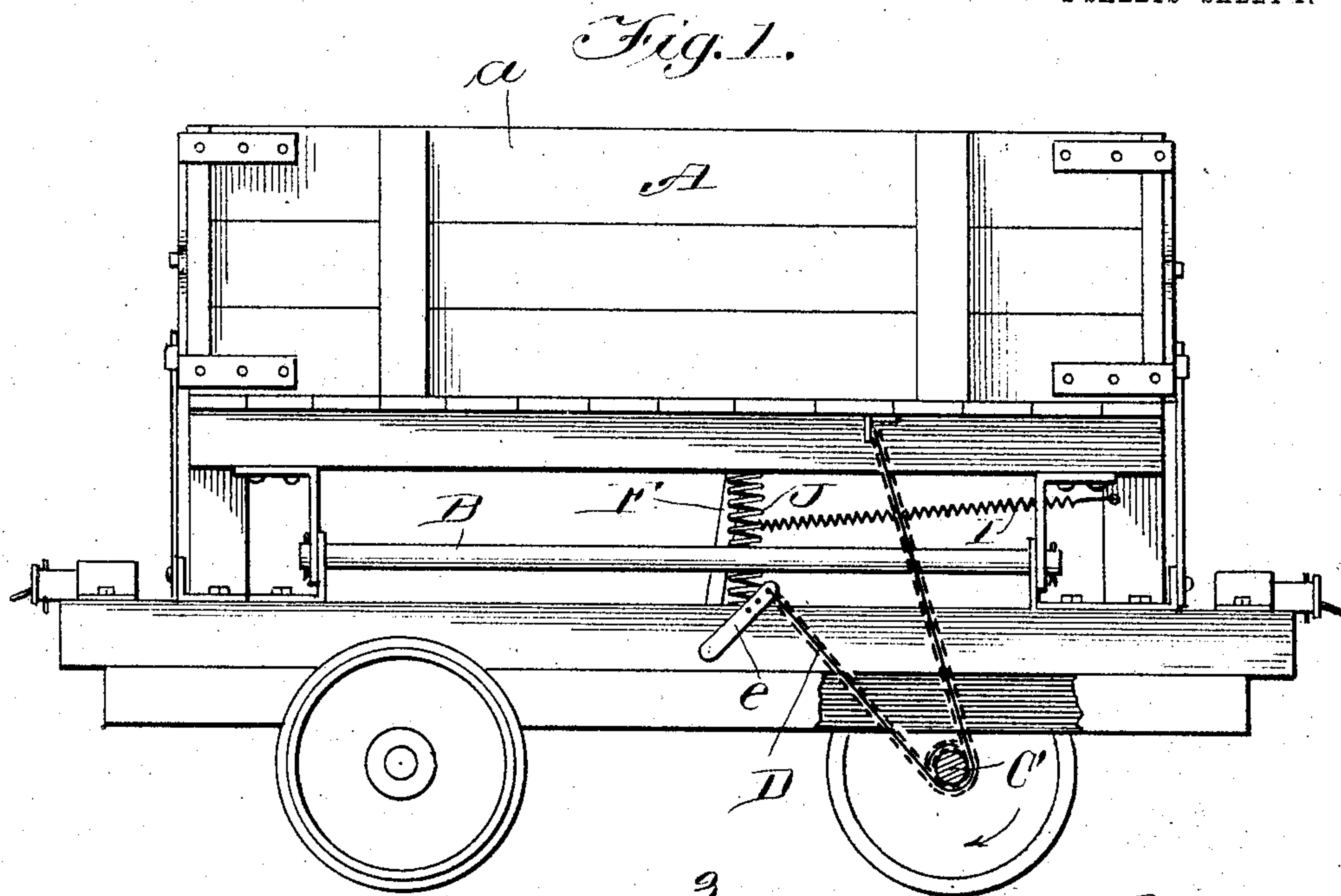
A. F. BERNARD.

DUMPING CAR.

APPLICATION FILED SEPT. 14, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

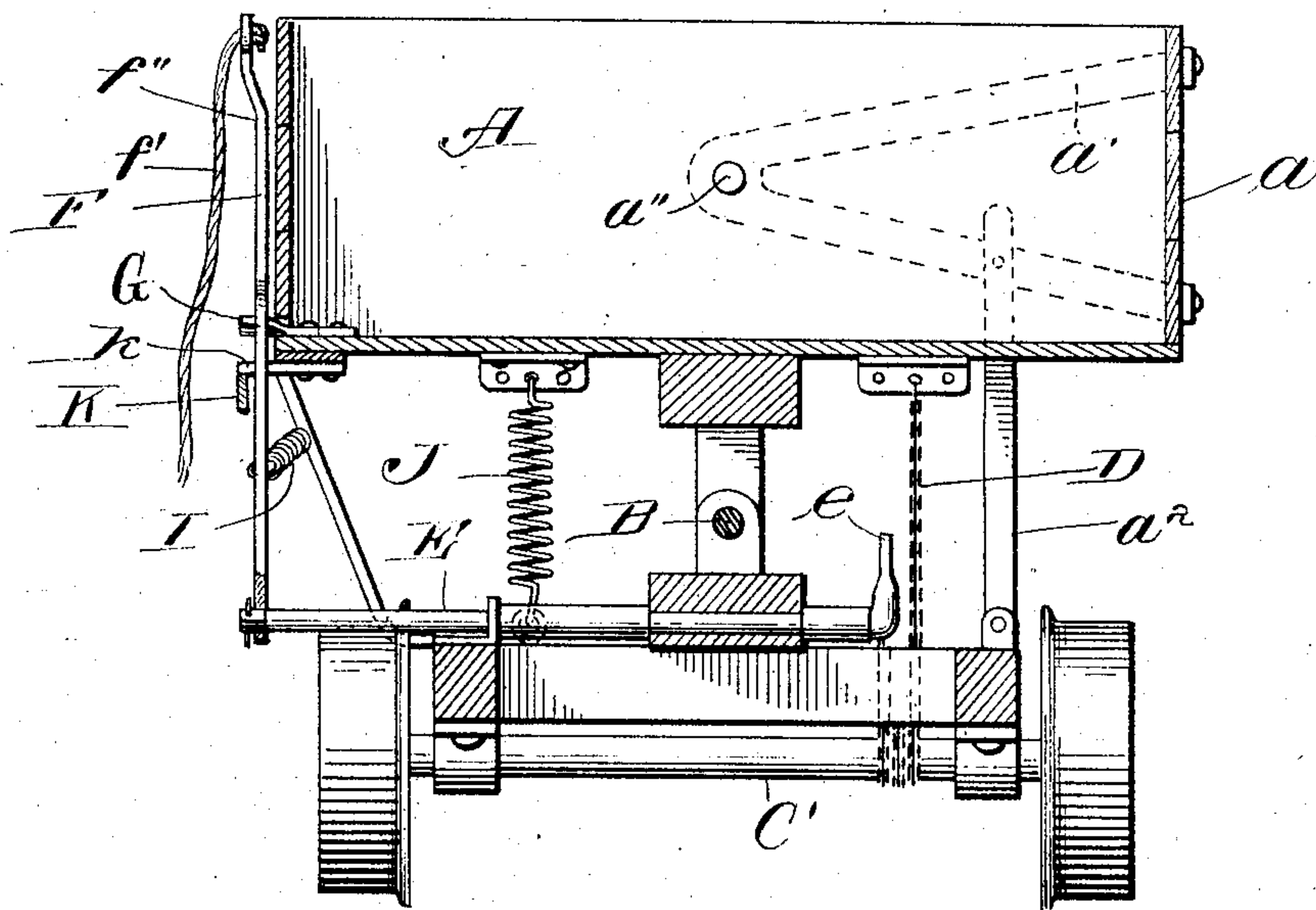
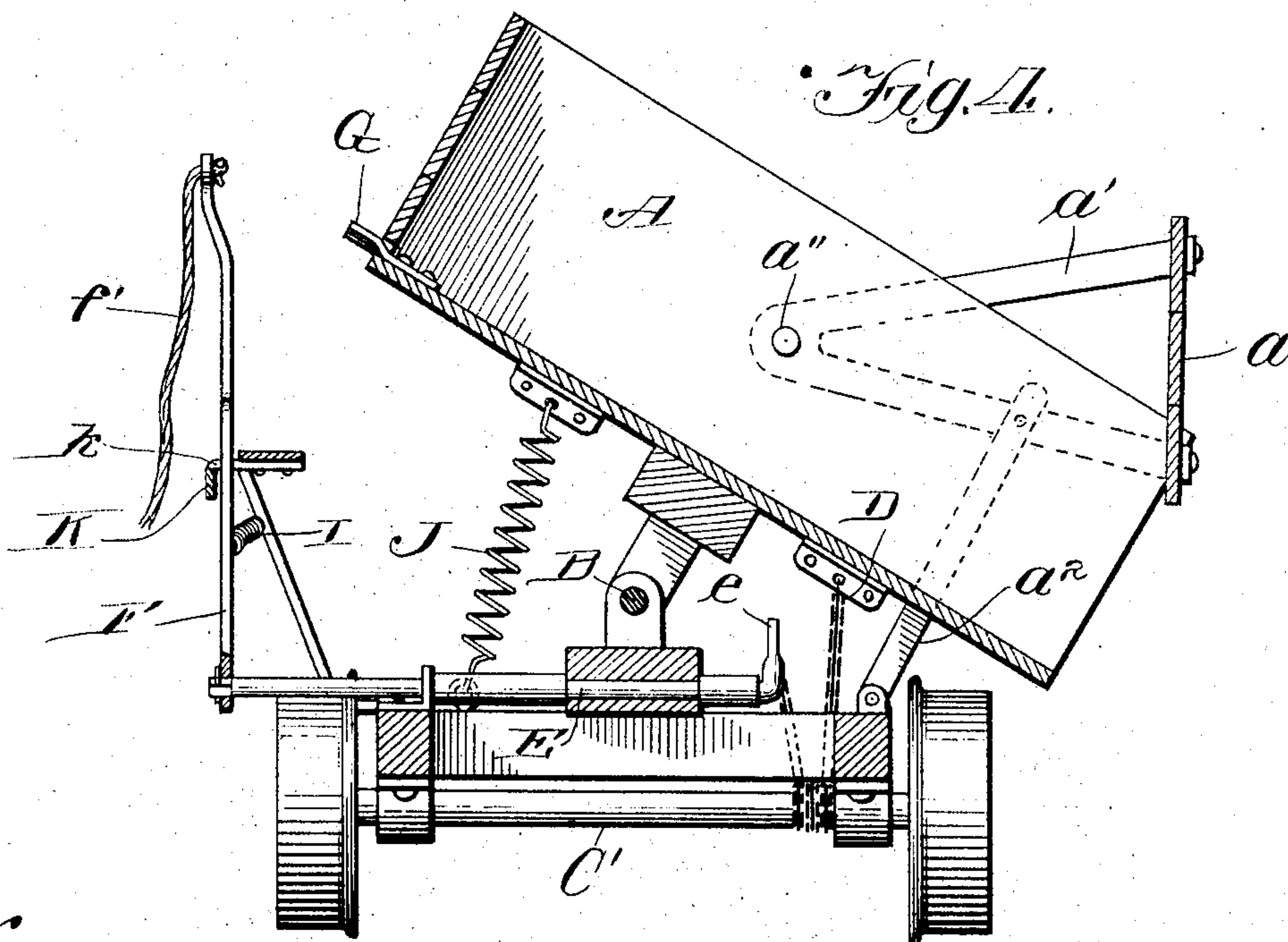


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALFRED F. BERNARD, OF CHICAGO, ILLINOIS.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 768,024, dated August 23, 1904.

Application filed September 14, 1903. Serial No. 173,042. (No model.)

To all whom it may concern:

Be it known that I, ALFRED F. BERNARD, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Dumping-Cars, of which the following is a specification.

Broadly considered, my invention contemplates a dump-car in which improved means are provided for converting the movement of the car as a whole into a tilting movement on the part of the body.

Dump-cars of the type to which my invention relates have heretofore been dumped manually, and when heavily loaded this requires the combined efforts of a number of men and sometimes necessitates the use of crowbars or like implements. Generally stated, the object of my invention is to provide improved and inexpensive means for obviating this difficulty and whereby the car may be dumped by power derived from the axle while the car is in motion or from any other member having movement relatively to the body. The arrangement includes, of course, controllable mechanism by which the operator may at will place the dumping mechanism in condition to operate. I claim to be the first to provide for the dumping of the car by power derived through a manually-controlled frictional device from the motion of the car, and while the mechanism hereinafter described and shown in the drawings is effective it will be understood that in its broadest aspect the invention is not limited thereto. It comprehends, as stated, a dump-car and means including a frictional power-transmitting device for causing the body of the car to dump as a result of the movement of the car along the rails.

The nature of my invention will, however, hereinafter more fully appear.

In the accompanying drawings, Figures 1 and 2 are side elevations viewed from opposite sides of a dump-car embodying the invention, one of the near track-wheels being omitted from each view. Fig. 3 is a transverse section thereof with the body in normal position. Fig. 4 is a transverse section thereof with the body in dumping position.

As thus illustrated my invention is not concerned with the construction of the body or with the construction of the truck or frame of the car, but is applicable to dump-cars generally, regardless of the details in the construction of these parts. A body A of suitable construction is shown mounted to oscillate about a horizontal axis B, suitably supported by the truck or frame C. The displacable side a of the body is held constantly at the same elevation by means of links a' , pivoted to the ends of the body at a'' , and by links a^2 , pivoted to the links a and to the truck-frame, this being a familiar construction in cars of this type.

The arrangement for tilting the body is as follows: Upon the discharge side of the center of oscillation a chain is attached to the body, preferably through the medium of a bracket secured to the bottom thereof, the other end of the chain being attached to a short arm e at one end of the rock-shaft E, which latter is arranged transversely and mounted to rock in suitable bearings carried by the frame C. At an intermediate point the chain is adapted to contact with the axle C', and to this end it is preferably wound several times around the axle. To the rock-shaft E is fixed a lever F, which extends upward and is provided with an inclined shoulder f , this shoulder being adapted to engage a lug G, carried by the body, so that when the shoulder is in engagement with the lug the car will be prevented from dumping. When it is desired to dump the car, the lever is moved in the direction indicated by the arrow in Fig. 2. The first effect of this movement is to free the lug G from the shoulder f . A continuation of the movement draws the slack out of the chain D and causes it to have frictional contact with the axle C'. Assuming the axle to be moving in the direction indicated by the arrow, a downward pull will be exerted on the body, whereby it is tilted and dumped, as shown in Fig. 4. In this way even a moderate force applied to the lever F may be caused to exert a powerful pull upon the chain, and it is easily within the power of one man to dump the car, even when heavily loaded, by this mechanism. In order to facilitate reaching and manipulating

the lever, a rope f'' is connected to its upper end and allowed to hang down within convenient reach. The load or contents of the car having been discharged, the lever F is released, and a spring I then restores it to normal position, as shown in Fig. 2. The tension of the chain being thus removed, a powerful coil-spring J, attached at one end to the body of the car and at the other end to the track C, will return the body of the car to its normal position. In so doing the lug G, which has a curved side, will engage the inclined or cam-like portion f^2 of the lever F, and thereby move the lever in opposition to the force of the spring I. This will permit the lug G to pass beneath the shoulder f , whereupon the spring I will return the lever to the position shown in Fig. 2. The lower portion of the lever works behind a guide bar or plate K, and a shoulder k on this plate limits the forward movement of the lever when under the influence of the spring I and arrests it in proper position to be engaged by the lug G while the body is returning to normal position.

In the foregoing description I have referred to the device D as a chain; but I desire to have it understood that all other suitable flexible connections—such as a rope, cable, or a band—are the equivalent of a chain so far as the present invention is concerned. I may use any of these devices.

The car can be made to dump while running in either direction. With the chain wound as shown the dumping arrangement will only work when the axle C' is rotated in the direction shown; but by detaching the chain and winding it around the axle in an opposite direction the car can then be made to dump while running in the opposite direction.

The dumping arrangement pulls the body down and holds it until the load is dumped. Suppose the body tilts suddenly, thereby causing slack in the chain between the body and the axle. In such case the operator or attendant pulls promptly on the rope f' , thereby immediately taking up the slack in the chain and thus preventing a premature return of the body to its normal position.

The frictional power-transmitting device, consisting of a frictional engagement of the chain with the axle, permits the car-body to be dumped in this manner with safety and without danger of breakage, as this frictional device is sufficiently positive in character to insure the dumping action, but is at the same time of a sufficiently-yielding character to preclude all possibility of breakage, thus making it safe to dump the car without stopping its forward movement.

What I claim as my invention is—

1. A dump-car, comprising a truck and body, a flexible connection attached at one end to the body and adapted to contact with the

axle, a shaft having an arm to which the flexible connection is attached, and devices for turning the shaft for effecting an operative engagement between the flexible connection and axle.

2. A dump-car, comprising a truck and body, a flexible connection attached at one end to the body and adapted to contact with the axle, a rock-shaft having an arm to which the flexible connection is attached, and a lever on the shaft for turning it and thereby effecting an operative engagement between the flexible connection and axle.

3. A dump-car, comprising a truck and body, a flexible connection attached at one end to the body and adapted to contact with the axle, a rock-shaft having an arm to which the flexible connection is attached, a lever attached to the shaft for turning it, said lever having a shoulder, and a lug carried by the body and adapted to be engaged by said shoulder.

4. A dump-car, comprising a truck and body, devices deriving power from the axle for dumping the body, devices including a lever under the control of the operator for controlling the dumping devices, said lever having a shoulder and an inclined cam portion, a lug carried by the body and adapted to contact with said cam portion and thereby move the lever and permit the lug to pass below the shoulder, and a spring engaging the lever for moving the shoulder into engagement with the lug.

5. A dump-car comprising a suitably-wheeled truck, a tilting body on said truck, means for converting the motion of the car into a tilting movement on the part of the said body, and a spring connecting the body with the truck and tending normally to hold said body in its horizontal position.

6. A dump-car, comprising a truck and body, a flexible connection attached to the body and extending around the car-axle, and manually-operated devices for effecting a frictional engagement between said axle and flexible connection.

7. A dump-car, comprising a truck and tilting body, a flexible connection attached at one end to said body and having its other end portion wrapped around the car-axle, and a manually-controlled device for causing said flexible connection to bind upon the said car-axle.

8. A dump-car, comprising a truck and tilting body, manually-operated devices on the car for converting the rotary motion of the car-axle into a tilting movement on the part of the car-body, said devices including a manually-controlled frictional power-transmitting device, and the said car also comprising a spring connecting the body with the truck and to restore the body to its normal position after being tilted.

9. A dump-car, comprising a truck or body, and suitable devices for converting the rotary

motion of the car-axle into a tilting movement on the part of the body, said devices including a manually-controlled frictional power-transmitting device.

5 10. The combination of a wheeled truck, a tilting body on said truck, the truck being adapted for movement along rails, and a suitable arrangement for converting the movement of the truck along the rails into a tilting movement on the part of the body, said
10 arrangement including members adapted to be brought into a frictional or rubbing engagement to tilt the body.

11. A dump-car, comprising a wheeled
15 truck and tilting body, frictional power-transmitting connection between the wheels and the body, and a controller for rendering said power-transmitting connection operative or inoperative at will, whereby the motion of the
20 wheels may be utilized for tilting said body.

12. A dump-car, comprising a truck and

body, a suitable connection for converting the rotary movement of the car-axle into a tilting movement on the part of the body, and manually-operated devices for effecting a frictional
25 engagement between said connection and the axle.

13. A dump-car comprising a suitably-wheeled truck, a tilting body on said truck, a frictional device for tilting the body without
30 stopping the car, and a spring connecting the body with the truck, said spring tending to hold said body in its normal position and operating to automatically return said body to its normal position after being tilted.
35

Signed by me at Chicago, Cook county, Illinois, this 10th day of September, 1903.

ALFRED F. BERNARD.

Witnesses:

A. F. DURAND,
WM. A. HARDERS.