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M. B. VEITCH, ADMINISTRATRIX.
TILTING DEVICE FOR CINDER CARS.
APPLICATION FILED JAN. 10, 1908.

916,636.

Patented Mar. 30, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

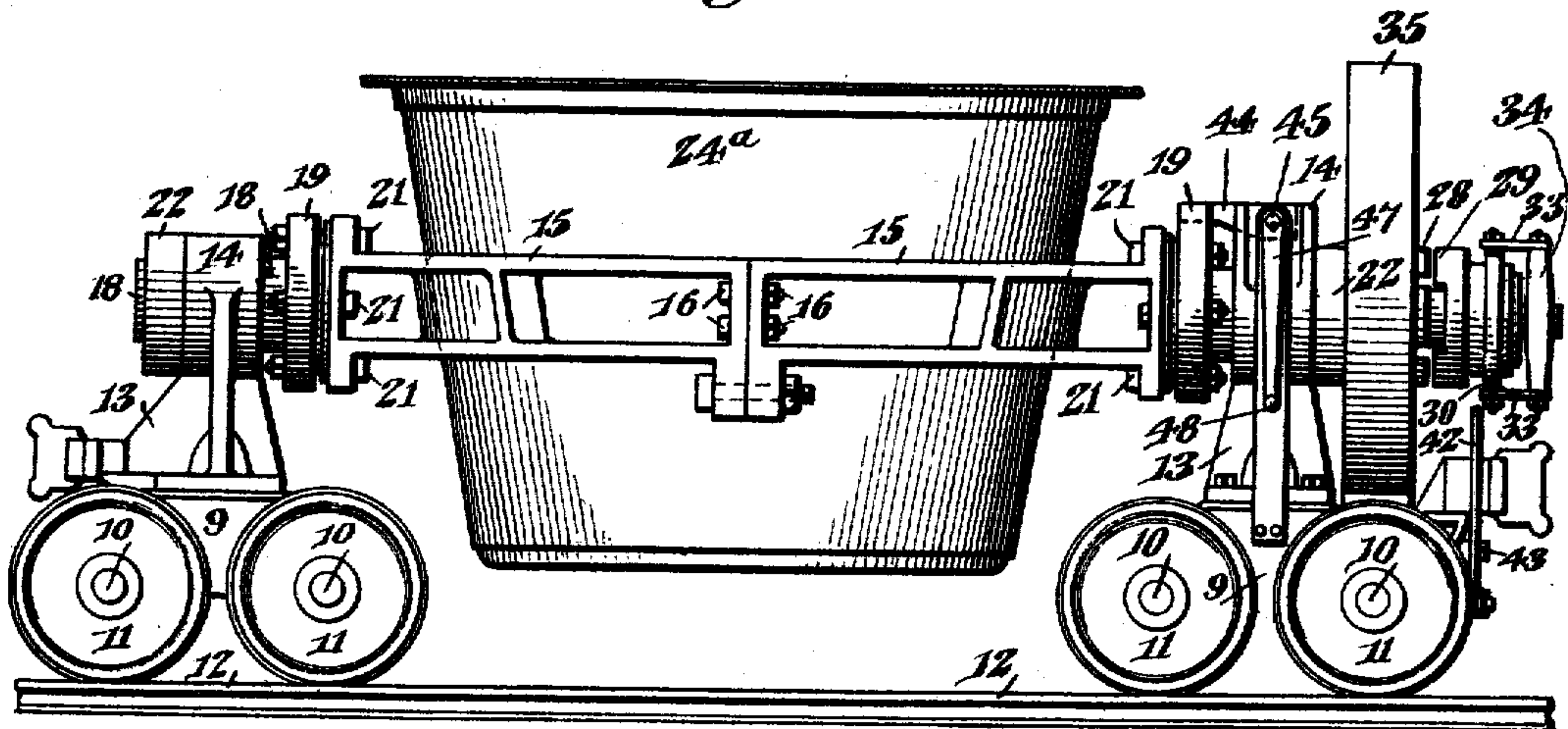
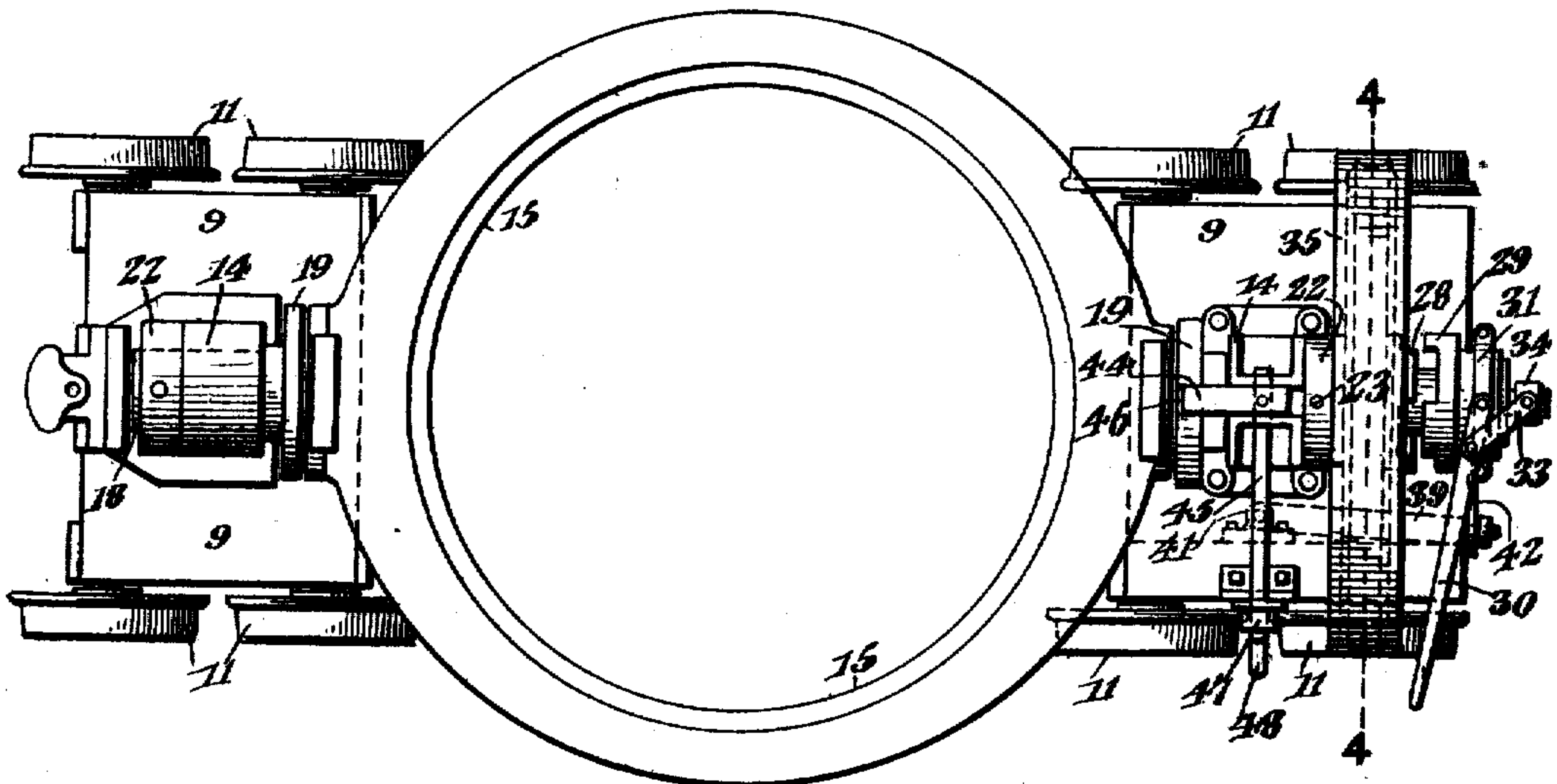


Fig. 2.



Mary B. Veitch Adminr. of the estate of
Richard C. Veitch Inventor Deceased

Witnesses

Jas. E. McLathran
B. J. [Signature]

By

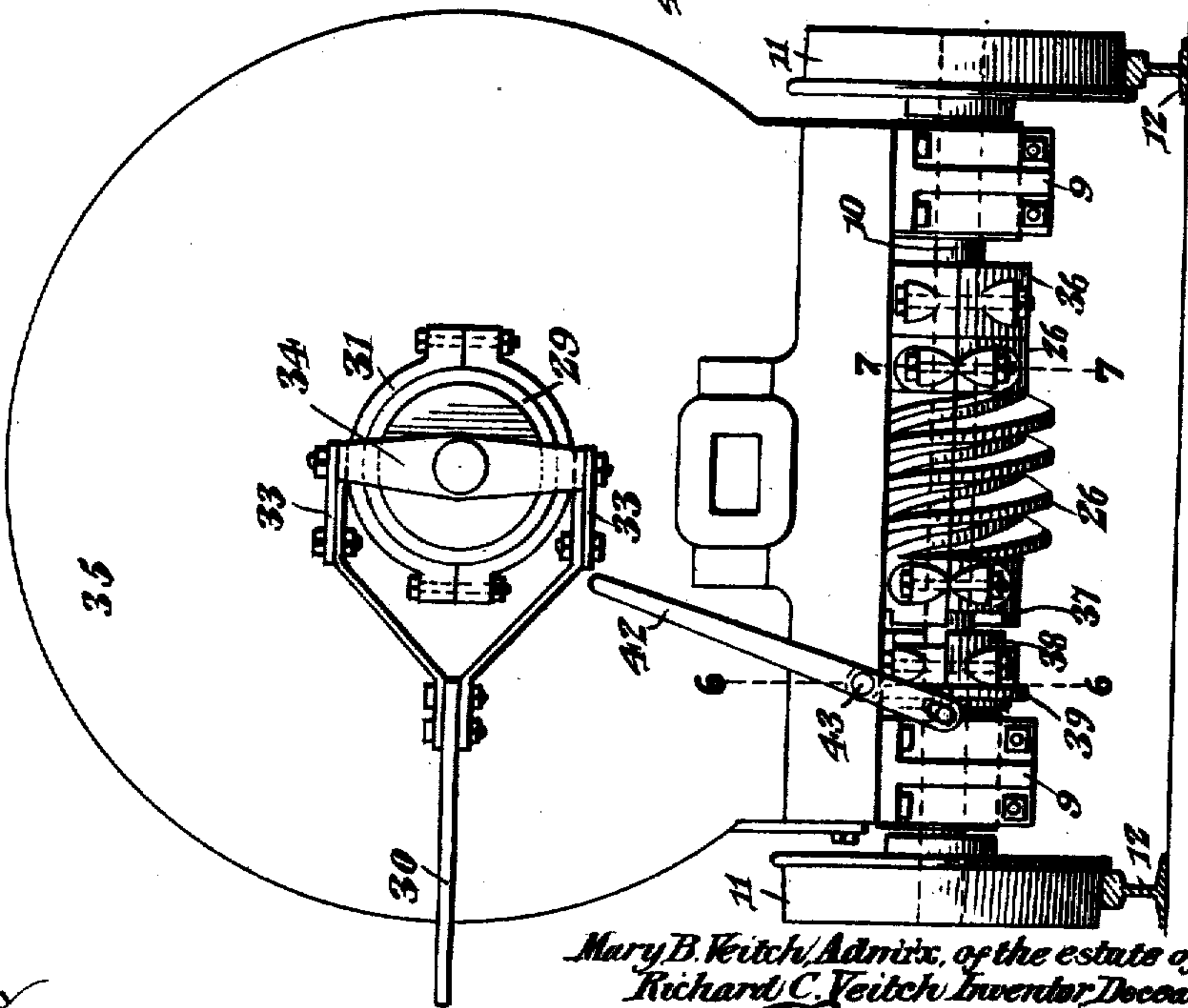
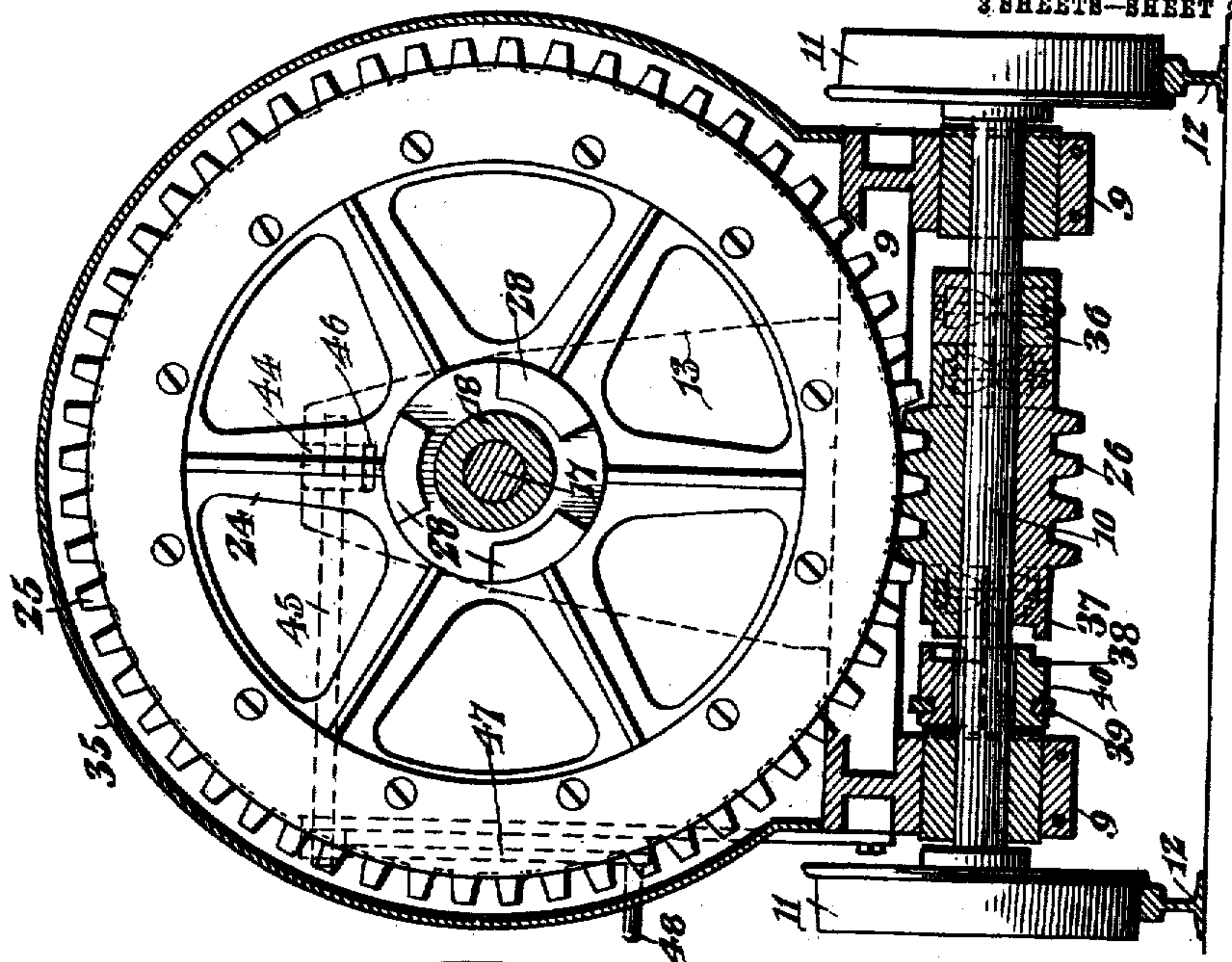
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3 SHEETS--SHEET 2.



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Richard C. Veitch Inventor Deceased.*

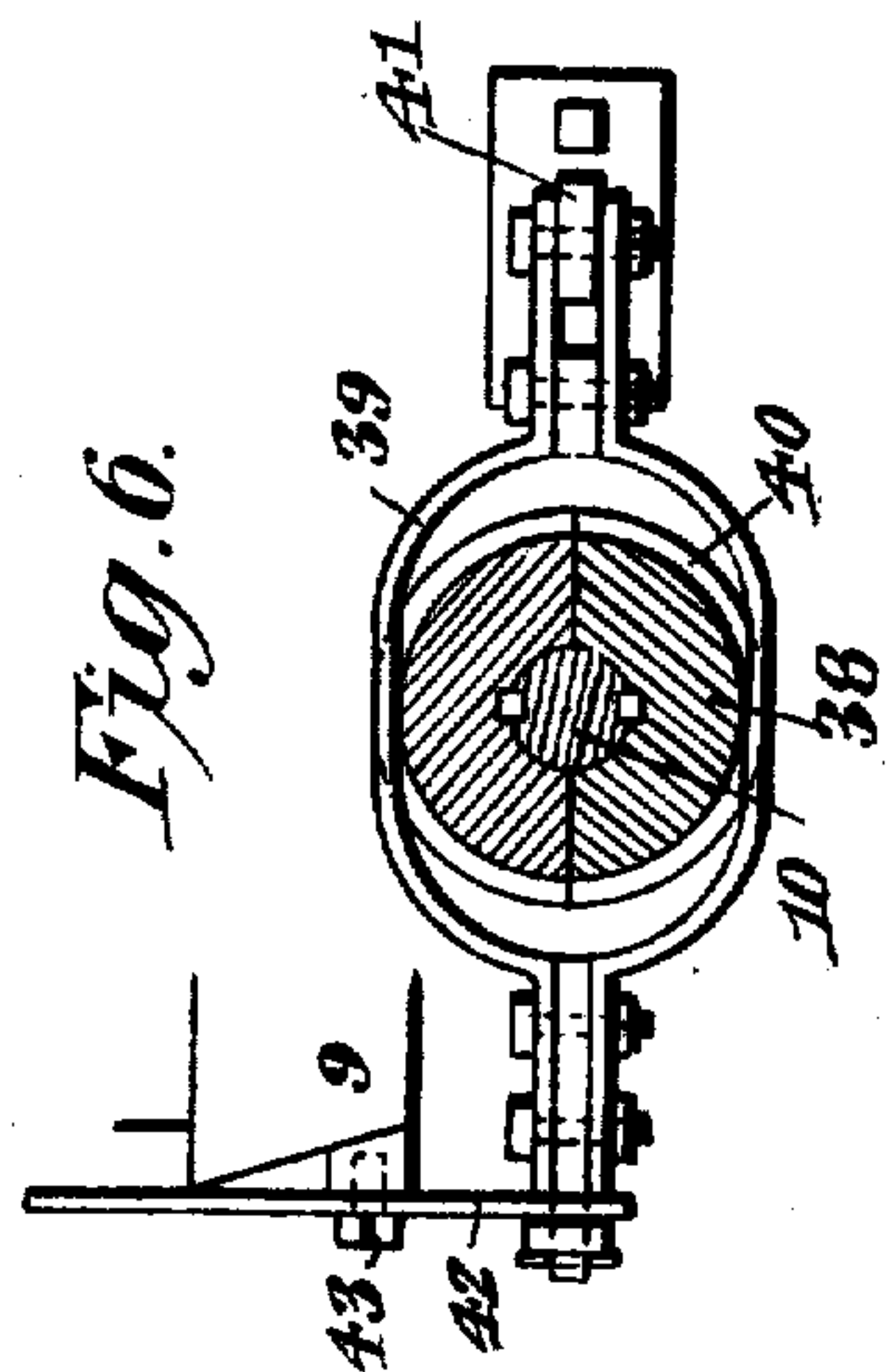
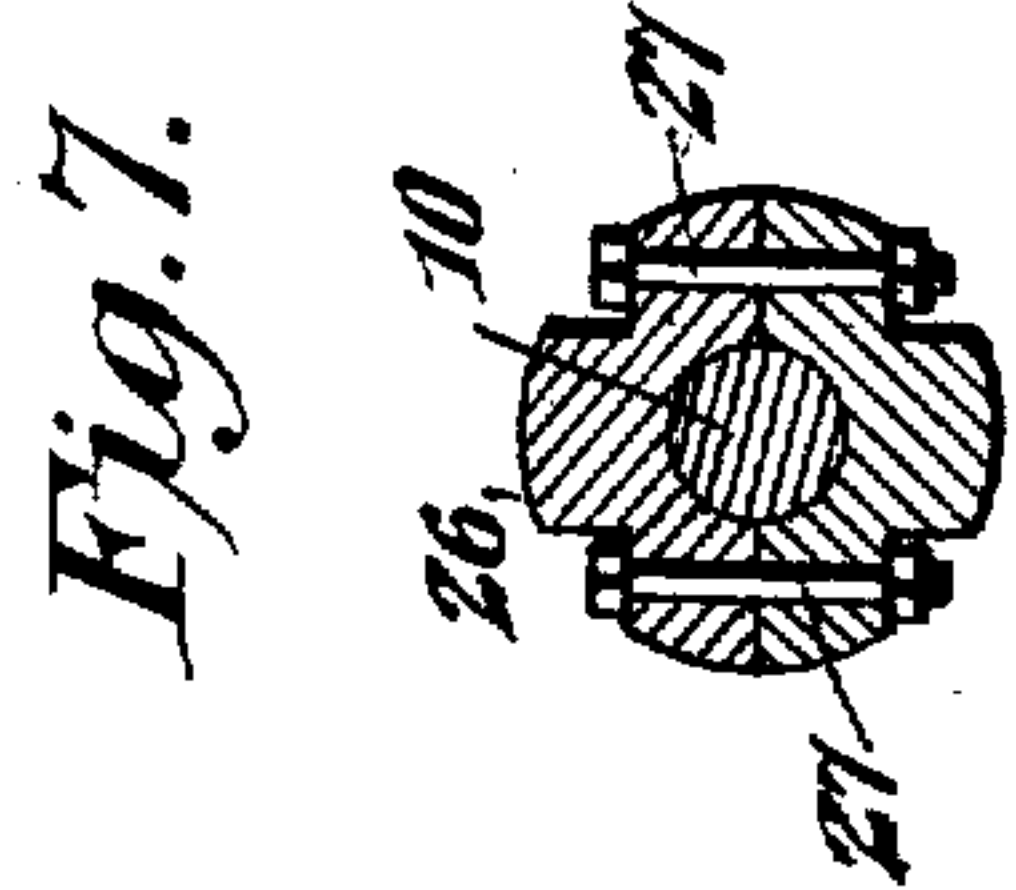
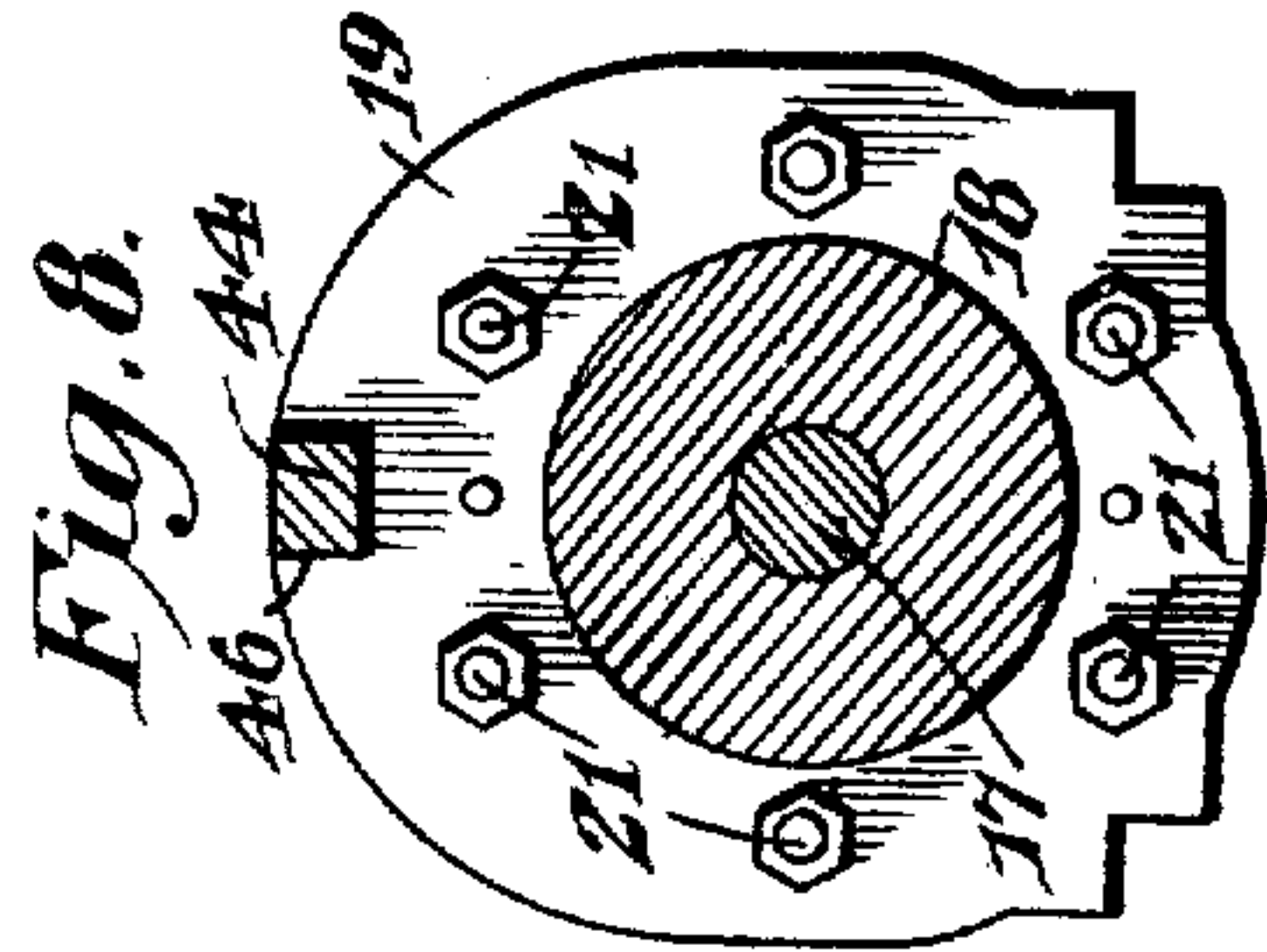
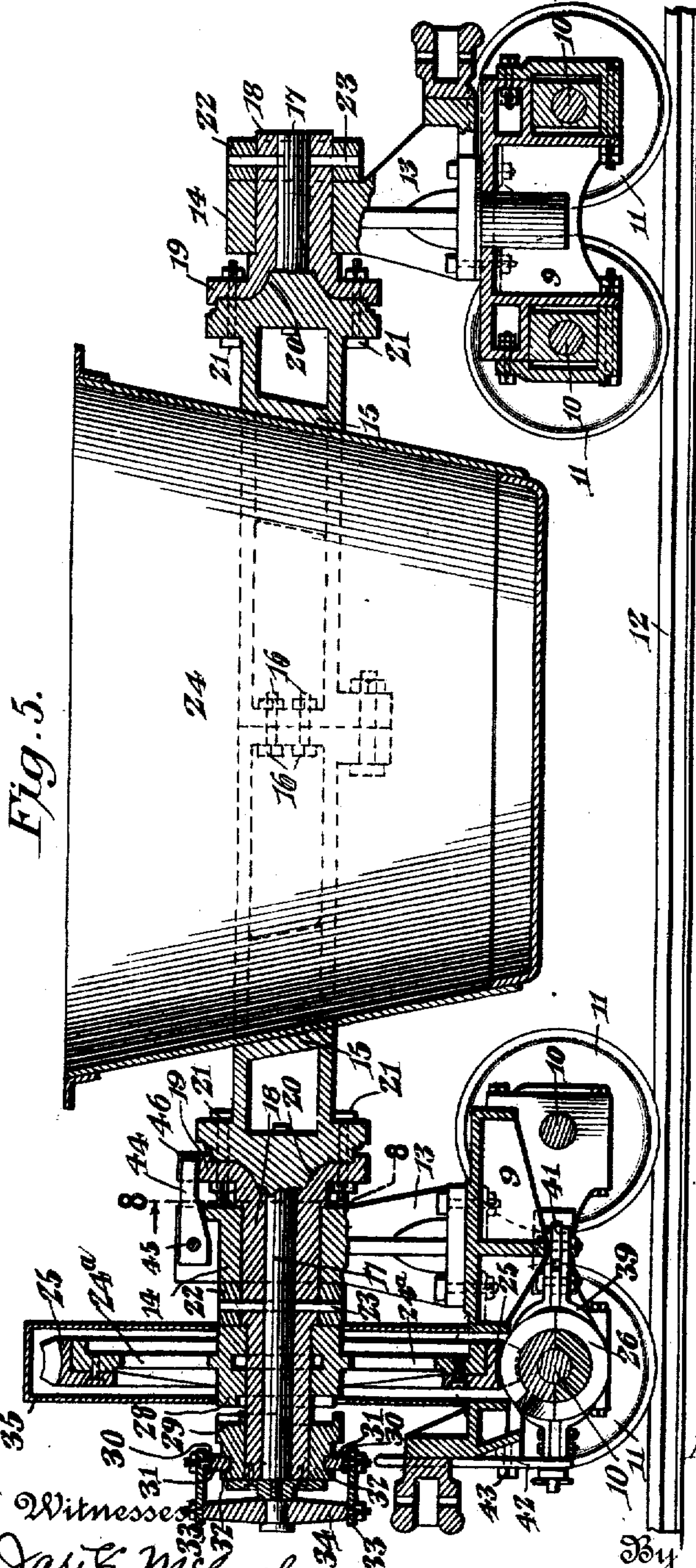
By *E. G. Siggers*
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3 SHEETS—SHEET 3.



Witnesses
Jas. E. McLaughlin
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Mary B. Veitch, Adminr. of the estate of
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UNITED STATES PATENT OFFICE.

MARY B. VEITCH, OF BESSEMER, ALABAMA, ADMINISTRATRIX OF RICHARD C. VEITCH,
DECEASED.

TILTING DEVICE FOR CINDER-CARS.

No. 916,636.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed January 10, 1908. Serial No. 410,264.

To all whom it may concern:

Be it known that I, MARY B. VEITCH, a citizen of the United States, residing at Bessemer, county of Jefferson, State of Alabama, administratrix of the estate of RICHARD C. VEITCH, late a citizen of the United States, and a resident of Bessemer, in the county of Jefferson and State of Alabama, deceased, (as by reference to the duly-certified copy of letters of administration hereto annexed will more fully appear,) do hereby declare that the said RICHARD C. VEITCH invented a new and useful Improvement in Tilting Devices for Cinder-Cars, of which the following is a specification.

This invention relates particularly to means for transporting and dumping the cinder from blast furnaces, but is not necessarily limited to this use, as there are features capable of successful employment for other purposes of a somewhat analogous nature.

One of the principal objects of the present invention is to provide novel, simple and entirely practical means for operating the ladle or receptacle, to empty the same and return it to upright position, said means being automatic in its nature but being under the complete control of an operator, and being much less expensive and intricate than the mechanisms now in common use.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the car. Fig. 2 is a top plan view but with the ladle or receptacle removed. Fig. 3 is an end elevation. Fig. 4 is a sectional view on the line 4—4 of Fig. 2. Fig. 5 is a longitudinal sectional view. Figs. 6 and 7 are detail sectional views on the lines 6—6 and 7—7 of Fig. 3. Fig. 8 is a detail sectional view on the line 8—8 of Fig. 5.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, two spaced trucks are employed, comprising bodies 9 in which are journaled axles 10 carrying wheels 11 that run upon tracks 12. Mounted on the bodies 9 of the trucks are standards 13 that are held against lateral movement with respect to the trucks, and are provided at their upper ends with journal boxes 14.

A ladle or receptacle carrying frame is

employed comprising semicircular sections 15 bolted together, as shown at 16 and carrying at their outer ends gudgeons. While these gudgeons may be constructed in any suitable manner, in the present form of construction, they comprise cores 17 surrounded by bearing sleeves 18, these bearing sleeves having heads 19 at their inner ends provided with seats that receive enlarged bosses 20 formed on the inner ends of the cores 17. Bolts 21, secure the sleeves to the frame. The gudgeons are held in place in the bearing boxes by suitable collars 22 mounted on their outer ends and secured by suitable transversely disposed fasteners 23. A ladle or receptacle 24 is detachably supported in the frame 15, and it will thus be evident that it can be tilted or rotated upon the trucks, being located between the same. It will thus be noted, particularly by reference to Fig. 5, that one of the gudgeons 17—18 is extended beyond its retaining collar 22, and loosely journaled on said extension is a worm wheel comprising a body 24^a and a detachable rim 25 having worm teeth. This wheel is located directly over one of the axles of the adjacent truck, and loosely journaled on said axle, is a worm 26 in mesh with the worm wheel, and preferably consisting of sections bolted together, as shown at 27. The worm wheel is adapted to be connected to and disconnected from the gudgeon, on which it is journaled, and to this end, the hub of said wheel is provided on its outer end with a clutch member 28. Another clutch member 29, feathered upon the gudgeon, is slidable into and out of coaction with the clutch member 28. A lever 30 is provided for actuating the member 29, the inner end of said lever being connected to a collar 31 that is engaged in a groove 32, in the member 29. The lever is fulcrumed between its ends on links 33 that are pivotally mounted on a cross head 34 secured to the end of the gudgeon. It will thus be evident that by operating the link 30, the clutch member 29 can be moved into and out of engagement with the clutch member 28 and thus the worm wheel can be connected to or disconnected from the gudgeon and consequently the ladle or receptacle. In practice the worm wheel, is preferably inclosed by a suitable casing 35, though this is not entirely essential. The worm 26, as already stated,

is loosely journaled on the axle 10. One end operates adjacent to a collar 36 fixed to said axle. The other end of said worm is formed into a clutch member 37. Another 5 clutch member 38, feathered or splined upon the axle, is movable into and out of coaction with the clutch member 37, and is engaged by a swinging yoke 39 operating in a groove 40 in said member. The inner end of the 10 yoke is pivoted, as shown at 41 to the truck, and the outer end is engaged with the lower end of an operating lever 42 fulcrumed between its ends, as shown at 43 on said truck. By operating the lever 42, it will be evident 15 therefore that the member 38 may be moved into and out of coaction with the worm, and said worm thus be connected to and disconnected from the axle.

In order to hold the rotatable frame 15 and the receptacle or ladle 24 against rotation when the operating means is disconnected therefrom, a latch 44 is provided. This latch is mounted on a rock shaft 45 journaled on the upper end of one of the stand- 25 ards 13, and is movable into and out of a notch or socket 46 formed in the adjacent head 19 of the bearing sleeve 18. The outer end of the rock shaft carries a depending crank arm 47 terminating at its lower end in a handle grip 48. 30

The manner of operating the apparatus is substantially as follows. If the clutch member 29 is out of coaction with the clutch member 28 and the clutch member 38 is out 35 of coaction with the clutch member 37, it will be evident that the ladle and its gudgeons are free. When the parts are so arranged the latch 44 is engaged in the socket 46, and consequently the ladle is effectively 40 held against movement. Assuming the ladle filled with cinder that is to be dumped, as the car approaches the dumping place, the two clutch members 38 and 29 are thrown into coaction with the clutch mem- 45 bers 37 and 28, while the latch 44 is moved out of the socket. It will thus be evident that as the car moves along, the worm 26 will be rotated, thus rotating the worm wheel, and causing the ladle or receptacle 50 to turn. After the same has turned a slight distance if the clutch member 29 is thrown out of coaction with the clutch member 28, said ladle will complete its movement, because it is overbalanced by the material therein, and the contents will be discharged. The car is then started back, and the clutch member 29 is again thrown into coaction with the clutch member 28. The result is a reverse rotation of the parts, and 60 the ladle is returned to its upright position, whereupon one or both of the clutch members 29 and 38 will move out of coaction with the members 28 and 37. The latch 44 is again dropped into the socket 46, and the 65 car is ready to receive another load.

It will be evident that this structure is exceedingly simple, and no delicate parts are liable to excessive wear or to become deranged. The provision of two clutch 70 members, one for the worm and the other for the worm wheel is important. By disconnecting the worm wheel from the gudgeon, the ladle is entirely free from the operating and power transmitting mechanism, so that it will revolve or tilt, as already ex- 75 plained. On the other hand, if the clutch member 29 remains in coaction with the clutch member 28 and the clutch member 38 is moved out of coaction with the clutch member 37, the operation of the worm is 80 stopped, but the said worm constitutes a lock for the worm wheel, and therefore the ladle can be held in any position desired.

From the foregoing, it is thought that the construction, operation and many advan- 85 tages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construc- 90 tion, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described the invention, what is claimed as new, and desired to 95 be secured by Letters Patent, is:—

1. In apparatus of the character set forth, the combination with a truck, including an axle and wheels, of a receptacle movably mounted on the truck, means mounted on the 100 truck and operated by the axle for moving the receptacle on the truck, and mechanism for connecting the moving means to and disconnecting it from the receptacle.

2. In apparatus of the character set forth, 105 the combination with a truck including an axle and wheels, of a receptacle pivotally mounted on the truck, means mounted on the truck and operated by the axle for moving the receptacle on the truck, said means 110 including a device having an axis of movement substantially coincident with the pivotal axis of the receptacle, and means for connecting the device to and disconnecting it from the receptacle. 115

3. In apparatus of the character set forth, the combination with a truck, of a tilting receptacle having a gudgeon journaled on the truck, and means operated by the truck on its movement and engaged with the gud- 120 geon for rotating the receptacle.

4. In apparatus of the character set forth, the combination with a truck, of a tilting receptacle mounted thereon, and means for moving the receptacle on the truck, said 125 means including a worm wheel, and a worm operated by the truck on its movement.

5. In apparatus of the character set forth, the combination with a truck including wheels and an axle, of a tilting receptacle 130

mounted on the truck, a worm wheel connected to the receptacle, and a worm mounted on the axle and meshing with the wheel.

6. In apparatus of the character set forth, the combination with a truck including an axle and wheels thereon, of a tilting receptacle mounted on the truck, means for operating the receptacle including a worm wheel, a worm for transmitting motion from the axle to the receptacle, and means for disconnecting the operating means to permit the movement of the truck without operating the receptacle.

7. In apparatus of the character set forth, the combination with a truck including an axle and wheels thereon, of a tilting receptacle mounted on the truck, means for operating the receptacle including a worm wheel, a worm for transmitting motion from the axle to the receptacle, and a clutch connection between the worm and axle.

8. In apparatus of the character set forth, the combination with a truck including an axle and wheels, of a tilting receptacle having a gudgeon journaled on the truck, a worm wheel mounted on the gudgeon, a worm loosely mounted on the axle and meshing with the worm wheel, and a clutch connection between the axle and the worm.

9. In apparatus of the character set forth, the combination with a truck including an axle and wheels, of a receptacle movably mounted on the truck, mechanism operated by the truck axle on its movement for moving the receptacle thereon, and means for connecting the mechanism to and disconnecting it from the receptacle, said mechanism including relatively rotatable elements, one of which is fixed to the receptacle, and means for connecting and disconnecting the elements to respectively prevent and permit their relative rotation.

10. In apparatus of the character set forth, the combination with a truck including an axle and wheels thereon, of a receptacle movably mounted on the truck, mechanism for moving the receptacle on the truck, and a clutch for connecting the mechanism to and disconnecting it from the receptacle, said clutch comprising relatively movable elements, one of which is fixed to the receptacle.

11. In apparatus of the character set forth, the combination with a truck including an axle and wheels thereon, of a receptacle movably mounted on the truck, mechanism operated by the truck axle on its movement for moving the receptacle thereon, and a clutch for connecting the mechanism to and disconnecting it from the receptacle, said clutch comprising relatively movable elements, one of which is fixed to the receptacle, and means for relatively moving the elements into and out of coaction with each other.

12. In apparatus of the character set forth, the combination with a truck, of a receptacle having a gudgeon journaled on the truck, means for rotating the receptacle including a wheel rotatably mounted on the gudgeon, and a clutch for connecting the wheel to and disconnecting it from the gudgeon.

13. In apparatus of the character set forth, the combination with a truck including an axle and wheels thereon, of a receptacle movably mounted on the truck, a worm wheel rotatable with respect to the receptacle, a clutch for connecting the worm wheel and receptacle, and a worm mounted on the axle and meshing with the worm wheel.

14. In apparatus of the character set forth, the combination with a support, of a receptacle movably mounted thereon, an operating member, power transmitting mechanism, means for connecting and disconnecting the operating member and power transmitting mechanism, means for connecting and disconnecting the power transmitting mechanism and the receptacle, and mechanism for operating the connecting and disconnecting means.

15. In apparatus of the character set forth, the combination with a support, of a receptacle movably mounted thereon, an operating member, power transmitting mechanism including a worm wheel and a worm, means for connecting and disconnecting the operating member and the worm, and means for connecting and disconnecting the worm wheel and the receptacle.

16. In apparatus of the character set forth, the combination with a support, of a receptacle rotatably mounted thereon, an operating member, power transmitting mechanism including a worm wheel and a worm meshing with the wheel, a clutch for connecting and disconnecting the operating member and the worm, and a clutch for connecting and disconnecting the worm wheel and the receptacle.

17. In apparatus of the character set forth, the combination with a truck including an axle and wheels, of a receptacle having a gudgeon journaled on the truck, a worm wheel loosely journaled on the gudgeon, a worm journaled on the axle and meshing with the worm wheel, a clutch for connecting and disconnecting the axle and worm, and a clutch for connecting and disconnecting the gudgeon and worm wheel.

18. In apparatus of the character set forth, the combination with a truck including an axle and wheels, of a receptacle movably mounted thereon, means mounted on the truck for operating the receptacle, a clutch for connecting the operating means to and disconnecting it from the receptacle, said clutch comprising relatively movable ele-

ments, one of which is fixed to the receptacle, and means for locking the receptacle against movement when disconnected from the operating means.

5 19. In apparatus of the character set forth, the combination with a truck including an axle and wheels, of a receptacle having a gudgeon movably mounted on the truck, means mounted on the truck for operating
10 the receptacle, a clutch mounted on the gudgeon for connecting the operating means to and disconnecting it from the receptacle, and a latch movable into and out of coaction with the receptacle to hold the same
15 against movement when said receptacle and the operating means are disconnected.

20 20. In apparatus of the character set forth, the combination with spaced trucks having axles and wheels, of a ladle holding frame having gudgeons journaled on the trucks, a

worm wheel loosely journaled on one of the gudgeons, a clutch for connecting and disconnecting the worm wheel and gudgeon, a swinging latch mounted on one of the trucks for holding the ladle against rotation, a worm journaled on one of the axles and meshing with the worm wheel, and a clutch for connecting and disconnecting the worm and the axle.

In testimony, that I claim the foregoing 30 is the invention of RICHARD C. VEITCH, I have hereto affixed my signature in the presence of two witnesses.

MARY B. VEITCH,
Administratrix of the estate of Richard C. Veitch, deceased.

Witnesses:

A. J. KEELING,
F. J. TERRY.