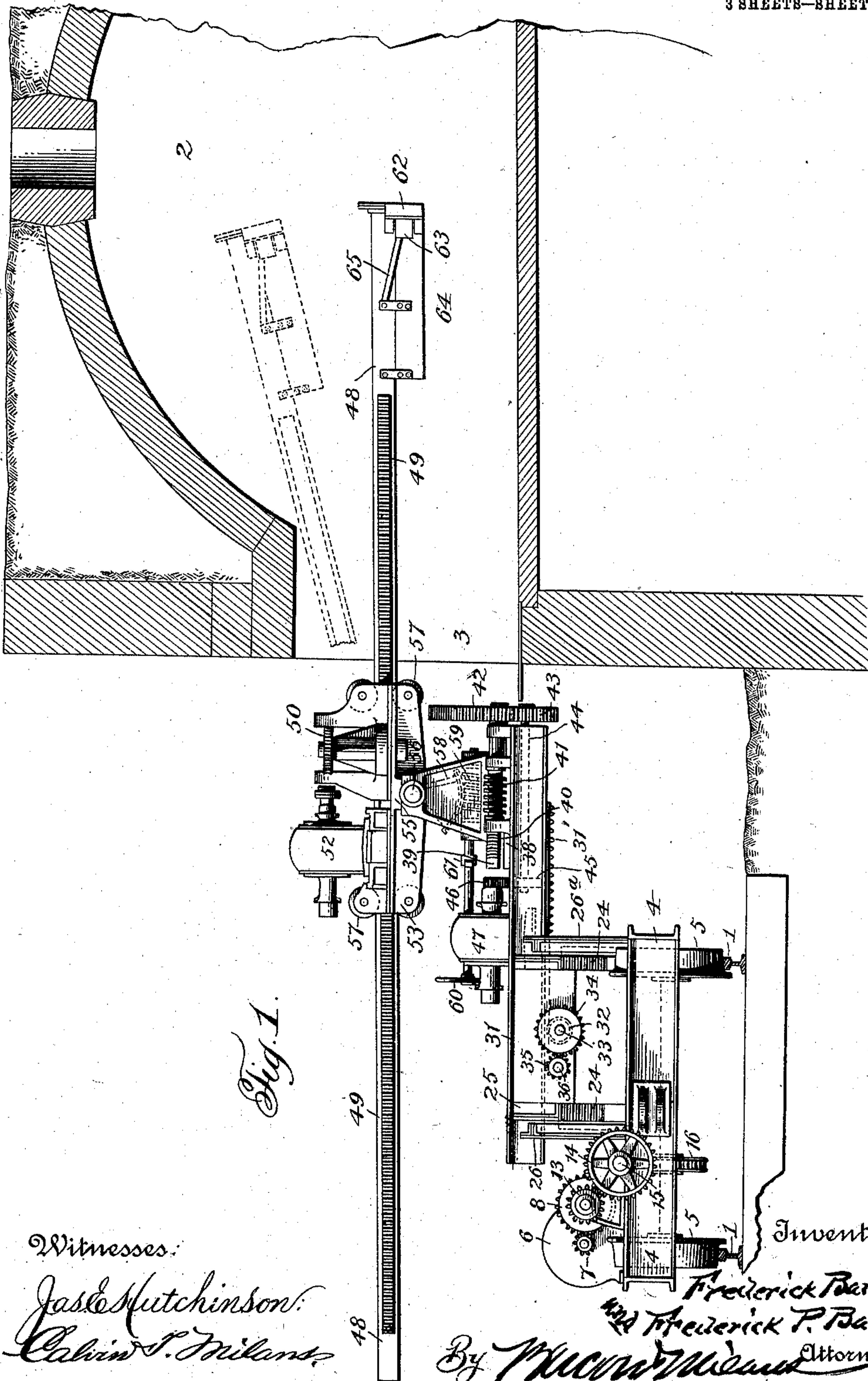


F. BARNETT & F. P. BAYLES.  
MACHINE FOR LEVELING COAL OR THE LIKE.  
APPLICATION FILED MAY 14, 1908. RENEWED JULY 1, 1910.

966,986.

Patented Aug. 9, 1910.

3 SHEETS—SHEET 1.



Witnesses:  
Jas. E. Hutchinson.  
Calvin S. Milans.

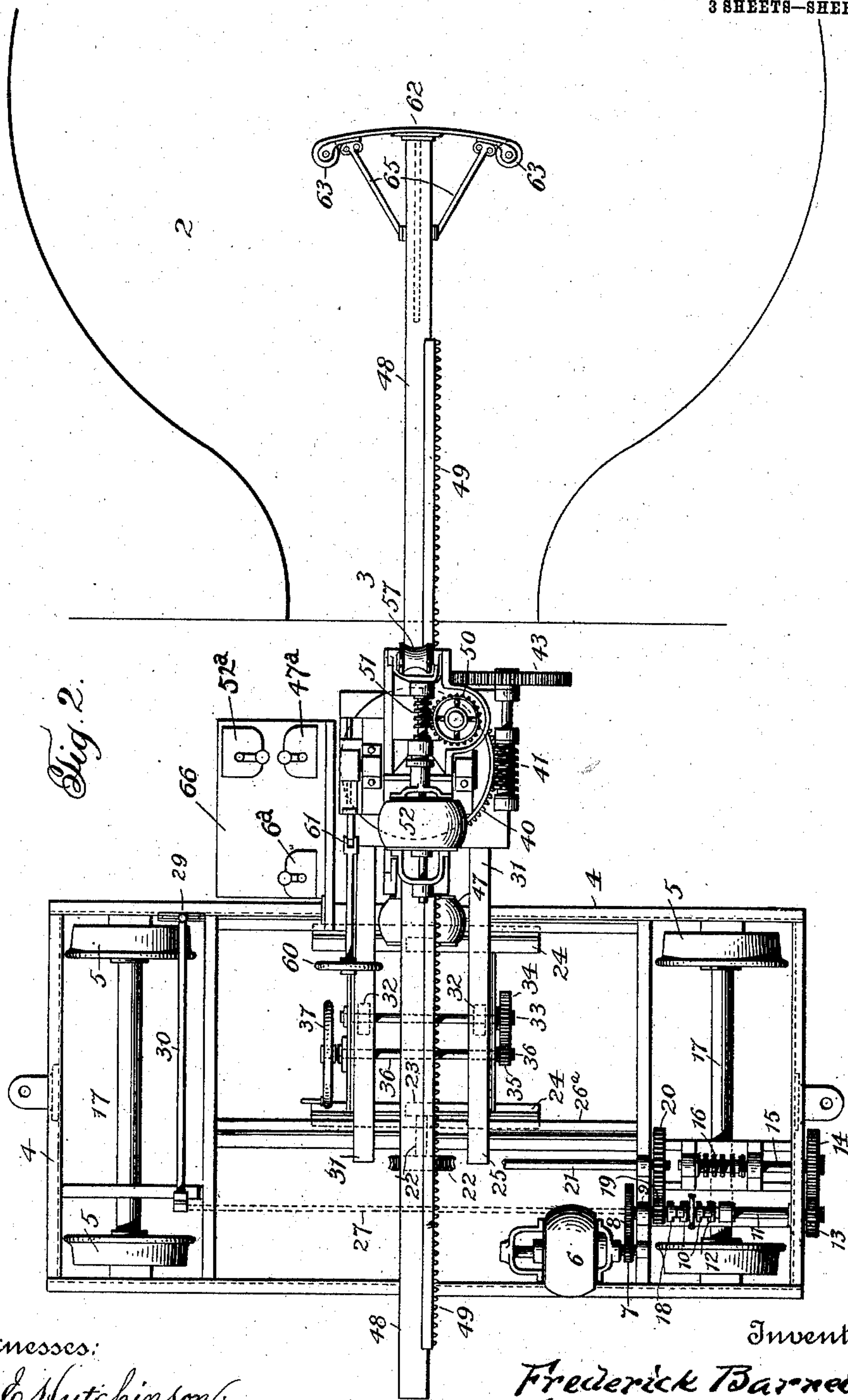
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By *Wm. W. McLean*

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3 SHEETS—SHEET 2.



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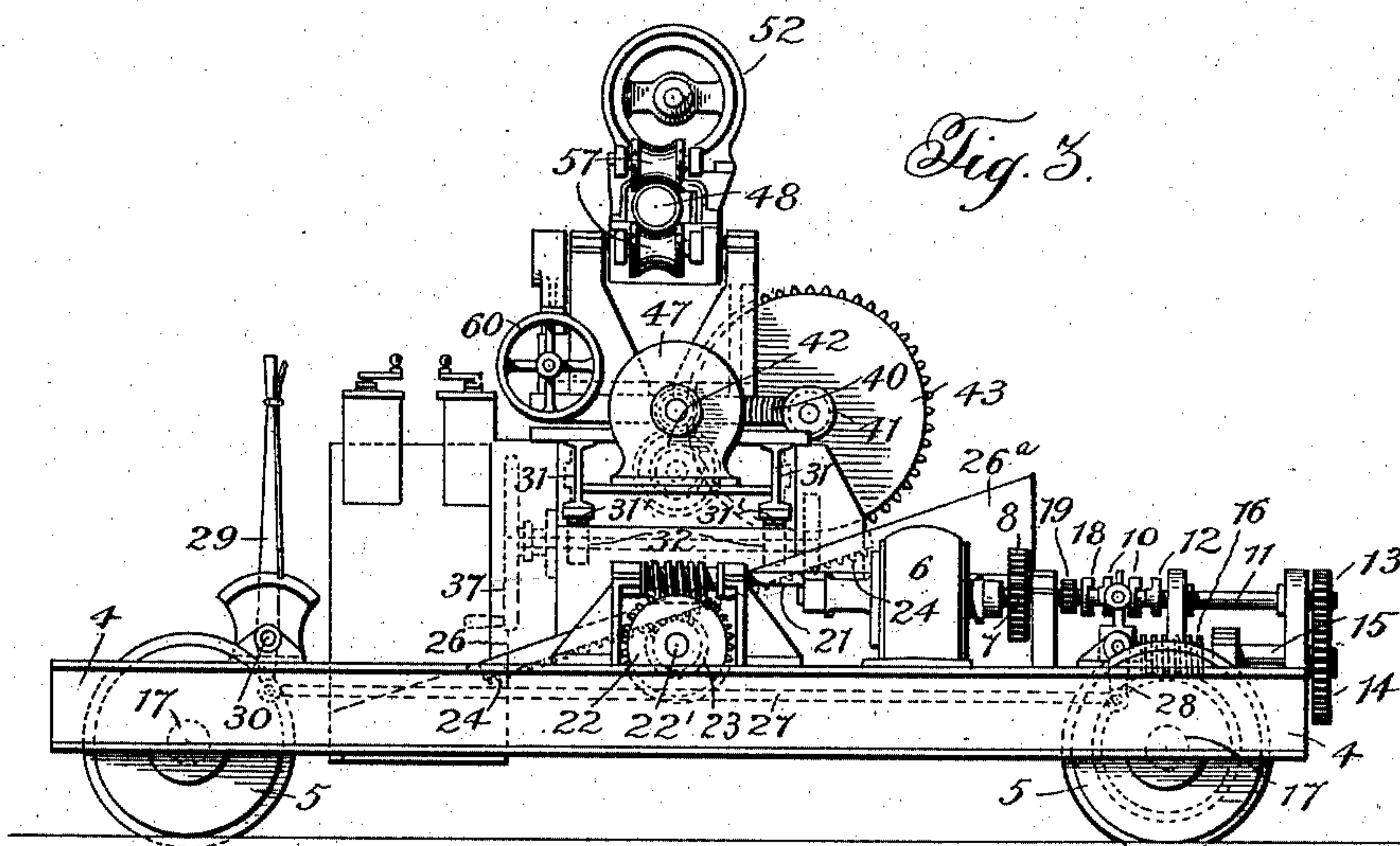


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3 SHEETS—SHEET 3.



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By *Wm. W. Milnes* Attorney:



# UNITED STATES PATENT OFFICE.

FREDERICK BARNETT AND FREDERICK P. BAYLES, OF TRINIDAD, COLORADO.

MACHINE FOR LEVELING COAL OR THE LIKE.

966,986.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed May 14, 1908, Serial No. 432,890. Renewed July 1, 1910. Serial No. 569,987.

*To all whom it may concern:*

Be it known that we, FREDERICK BARNETT and FREDERICK P. BAYLES, citizens of the United States, residing at Trinidad, in the county of Las Animas and State of Colorado, have invented certain new and useful Improvements in Machines for Leveling Coal or the Like, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a novel machine or apparatus for leveling coal and the like, the same being adapted to be mounted for bodily movement along a track arranged in front of a series of coke ovens or the like.

The primary object of the invention is to provide an apparatus which, while comparatively simple in construction and operation is adaptable to all the work necessary for the leveling of material uniformly within the oven. To this end, a machine is provided whereby the ram or operating tool support may sweep over all the parts of the oven necessary for leveling without requiring any movement of the truck after the same has been once placed in position relative to the oven door.

More particularly the invention includes a truck mounted for movement on a track or guideway arranged adjacent the ovens, a transversely movable platform carried on the truck by a vertically adjustable connection, a turn table on the platform, together with a ram so mounted on the turn table that it is capable of a longitudinal movement and also a swinging movement in a vertical plane.

The invention also contemplates a novel arrangement of motors transmission gearing and controlling devices for the several parts, whereby greater efficiency is secured, and whereby each of the parts may be readily operated by one man.

Other important features of the invention, including novel details of construction and arrangement of parts will be more particularly brought out hereinafter in the detailed description.

For a clear understanding of the invention, attention is called to the accompanying drawings which constitute a part hereof and wherein a preferable embodiment of the invention is disclosed for the purpose of illustration.

Figure 1 of the drawings is an end elevation of the apparatus complete showing the

parts in operative position relative to an oven, which latter is shown in section. Fig. 2 is a plan view of the machine complete. Fig. 3 is a side elevation.

Like reference numerals relate to corresponding parts throughout the several views of the drawings, 1 indicating a track or guideway extending longitudinally in front of an oven, for instance the ordinary form of bee-hive oven 2 having a door or opening 3, through which is adapted to be projected the leveling or other tool to be described hereinafter.

4 is a main support in the form of a truck mounted upon the guideway 1, for travel through the medium of the wheels 5. This truck may be of any ordinary construction preferably rectangular and adjacent one end thereof is a motor 6 having a drive pinion 7 meshing with a gear wheel 8 and arranged to drive a shaft 9 upon which is fixed a double-face clutch member 10.

11 is an auxiliary shaft having at one end a clutch face 12 arranged complementary to one face of the double face clutch 10 and having at its opposite end a pinion 13 meshing with a gear wheel 14 at one end of a shaft 15, which shaft 15 has a worm gear connection 16 with the drive shaft 17 of the truck. 18 is another auxiliary shaft having a clutch face arranged to engage the other face of the double face clutch 10 and carrying a pinion 19 meshing with a gear wheel 20 carried at one end of a shaft 21 extending longitudinally of the truck to a point substantially midway of the same and having a worm connection with a worm gear 22. The gear 22 is carried by a shaft 22' extending transversely of the truck which latter has at its opposite end a pinion 23 arranged to mesh with an inclined rack 24 extending downwardly from an auxiliary support or buggy 25. Complementary guides 26, 26<sup>a</sup> are carried respectively by the auxiliary truck or buggy and the main truck.

From the description thus far, it will be noted that the motor 6 is adapted, according to the position of the clutch 10, to operate either the drive shaft of the truck, or the rack pinion 23, whereby the auxiliary support or buggy is raised or lowered; the clutch 10 being shown in the drawings at a point intermediate and out of operative connection with the clutch faces 12 and 18. Any suitable connection may be employed for operating the clutch member 10, that



shown consisting of a clutch bar 27, clutch lever 28 and operating lever 29 mounted upon a lever shaft 30, connected at its opposite end with the lever bar 27. Mounted on  
 5 said auxiliary support or buggy 25 and extending transversely of the truck for movement over and beyond the side of the same are I-beams 31, connected to constitute a platform. Extending downwardly from the  
 10 I-beams are racks 31', driven through the medium of rack pinions 32 mounted upon a shaft 33 which latter carries at one end a gear wheel 34 meshing with a pinion 35 at one end of the shaft 36 carrying at its free  
 15 end a hand wheel 37.

Superimposed on the platform comprising the I-beams 31 is a turn table base 38 upon which is mounted a turn table 39 of ordinary construction. Upon the periphery  
 20 of the turn table is arranged a quadrant gear 40, in mesh with which is a worm 41 upon a shaft carrying a gear wheel 42 arranged to mesh with a pinion 43 upon one end of a shaft 44 carrying a gear 45 arranged to be  
 25 driven by a pinion 46 directly driven by a motor 47.

48 is a ram, shown in the drawings as projecting through the oven door or opening and carrying a rack 49, adapted to be operated to impart longitudinal movement to  
 30 the ram by a worm gear pinion 50 driven by a worm 51 and a motor 52. The ram support comprises a rocker frame 53 mounted on trunnions 55 in suitable bearings 56 on  
 35 the turn table 39. The reciprocating motion of the ram 48 through the medium of the rack 49 and motor driven pinion 50 is guided by the antifriction bearings 57 engaging the upper and lower surface of the ram. In  
 40 order to impart a vertical swinging movement to the ram, a quadrant gear 58 projects downwardly from the rocker frame 53 and arranged to mesh therewith is a quadrant worm 59 adapted to be rotated by the  
 45 hand wheel 60 through the medium of a knuckle jointed shaft 61.

62 is a suitable pushing head mounted intermediate upon the end of the ram 48 and having at its respective ends roller guides  
 50 63. The pusher head is preferably curved throughout.

While it is within the contemplation of applicants' invention to provide any shape or form of tool at the end of the ram 48,  
 55 they have shown for the purpose of illustration a leveling device 64, which is detachably mounted in any desired manner as by threaded bolts to the ram, so that when it is desired this particular form of leveler may  
 60 be removed and another substituted, or a discharging and pulling device of any of the usual forms applied in place of the leveling plate, it being noted in this connection that the invention is equally susceptible for use as a means for extracting or

pulling the coke from the coke oven, as any and all means necessary to this end are employed above in connection with the leveling apparatus.

Suitable brace bars 65 extend from opposite ends of the pusher plate 62 and connection with the ram bar. 70

All of the motors 6, 47 and 52, are preferably electric, and in order that they may be operated and controlled by one man, we provide a suitable platform 66, at one side  
 75 of the truck 4, upon which are mounted controlling levers 6<sup>a</sup> 47<sup>a</sup>, and 52<sup>a</sup>, having any suitable connection with the motors 6, 47 and 52 respectively, the said connections not  
 80 being shown for the purpose of clearness, but being adapted, as is usual, to start, stop or reverse the operation of the motors. It is noted that not only these controlling  
 85 levers, but every other lever necessary to give the apparatus the desired movements is arranged at a point at the side of the truck opposite the oven and intermediate the  
 90 ends of the truck, whereby the operator can stand adjacent all of said controlling devices, and at the same time command a view of the interior of the oven through its door or opening. 95

The operation of the several parts may now be set forth. 95

The clutch lever 29 having been moved to couple the clutch members 10 and 12, power from the motor 6 is directly communicated to the drive shaft of the truck 4, whereby the latter is moved along the track 1 to a  
 100 point opposite the oven opening. It sometimes happens that the several oven doors are not in alinement and it being desirable for the best results to have the several parts positioned at a point relative to the oven  
 105 opening to take care of any possible difference in the amount of coal to be leveled, means are provided for imparting a slight vertical movement to the parts mounted upon the truck. To secure this operation  
 110 the clutch lever 29 will be moved to couple the clutch members 10 and 18 together, thereby imparting, through the motor 6 movement to the auxiliary support or buggy  
 115 25, which may be raised or lowered as the case may be, and carry with it the platform 31 and the parts mounted thereon. Movement is thereupon imparted to said platform  
 120 31 transversely of the truck and substantially centrally of the latter, thereby bringing the center of the horizontal and vertical movement of the ram to a point close to the oven door. The following movements may now be imparted to the ram; first a horizontally swinging movement through the  
 125 medium of the turn table 39 driven by the motor 47; second, a rocking movement in a vertical plane imparted by the hand wheel 18 and cooperating quadrant gear 58 carried by the rocking support for the ram; third, a 130



longitudinal movement governed by the motor 52 and coöperated pinion connection with the rack 49 on the ram. In this way the ram may sweep all of the parts of the oven necessary for leveling without requiring a movement of the truck, after the same has been positioned at the oven door.

What we claim is:

1. In a machine of the character described, the combination of a truck, of a movable support carried thereby, a tool bar or ram operatively connected with the support, an inclined rack carried by the support, a power shaft driven mechanism, an operative connection between said mechanism and the truck for imparting movement to the latter, and a gear connection between said mechanism and the inclined rack of the support for imparting movement to the latter.

2. In a machine of the character described, a truck, means for imparting movement thereto, a support mounted on the truck for vertical and longitudinal movement relative to the truck, a ram connected with the support, a clutch mechanism, and means governed by the clutch and operatively connected with said first mentioned means for imparting said movement to the support.

3. In a machine of the character described, a truck, means for imparting movement thereto, a ram, means for supporting the ram including a support mounted on said truck for vertical and longitudinal movement relative to the truck, and operating means for said support connected with said first mentioned means.

4. In a machine of the character described, a truck, a support carried thereby for independent movement relative to the truck, a motor mounted on the truck, gearing for the truck, gearing for the support including an inclined rack and pinion, and a clutch for operatively connecting either of said sets of gearing to the motor.

5. In a machine of the character described, a truck, a support carried thereby and movable vertically relative thereto, a motor mounted on the truck, gearing for imparting driving movement to the truck, gearing for the support, an interposed rack and pinion connection between the support and its gearing and a clutch for operatively connecting either of said sets of gearing to the motor.

6. In a machine of the character described, a main support, an auxiliary support or buggy mounted thereon for simultaneous horizontal and vertical movement, a ram movable with the support, a motor mounted on the main support having a driving connection with the auxiliary support or buggy, and independent means for imparting horizontal movement to the frame in a direction transverse to the horizontal movement of the auxiliary support.

7. In a machine of the character described,

the combination of a main support, an auxiliary support carried thereby and means for imparting movement to the auxiliary support vertically relative to the main support including gearing mounted on the main support, and an inclined rack carried by the auxiliary support, and an operative connection with said gearing.

8. In a machine of the character described, the combination of a main support, an auxiliary support carried thereby, a ram operatively connected to said auxiliary support, coöperating inclined guides on both supports, and means for imparting a relative movement to the support along said guides including a rack carried by one member, co-operating gearing carried by the other.

9. In a machine of the character described, the combination of a truck mounted for longitudinal movement relative to a suitable guideway, a support on the truck, a platform on the support mounted for movement transversely of the truck, a turn table mounted on said platform, a tool ram or bar having an independent support movably mounted on said table, a common means for imparting vertical movement to all of said parts carried by the truck including a gear connection between the first mentioned support and truck.

10. In a machine of the character described, the combination of a truck, a movable platform, a turn table and a motor independently mounted thereon, a ram support mounted on the turn table for rocking movement, a segmental rack carried by the support, operative connection between the motor and turn table for rotating the same, a worm connected to the rack, and independent means for imparting movement to the worm.

11. In a machine of the character described, the combination of a movable platform, a turn table thereon, and a motor carried by the platform for rotating the table, a support, mounted on the turn table, a ram on the support, means for imparting longitudinal movement to the ram including a motor carried by the ram support, and means interposed between the turn table and support for rocking the support vertically.

12. In a machine of the character described, the combination of a movable platform, a turn table thereon, and a motor carried by the platform for rotating the table, a support mounted on the turn table, a ram on the support, means interposed between the turn table and ram support for imparting vertical swinging movement to the support, and means for imparting longitudinal movement to the ram including a motor carried by the ram support, the controlling means for both of said motors being arranged adjacent to each other.

13. In a machine of the character de-



scribed, the combination of a truck, a vertical movable support thereon, a turn-table movable with the support, means for rotating the turn-table relative to the support, a  
 5 ram, a ram support on the turn-table, means interposed between the turn-table and ram support for imparting vertical swinging movement to the ram support, and independent means for moving the ram relative  
 10 to the ram support.

14. In a machine of the character described, the combination of a truck, a vertically movable support thereon, and a ram support superimposed on said support, and  
 15 means for connecting the ram support to the vertically movable support, said means permitting longitudinal and vertical swinging movements to be imparted to the ram support relative to the vertically movable sup-  
 20 port.

15. In a machine of the character described, a truck, a platform mounted for movement transversely of the truck comprising oppositely disposed connected I-  
 25 beams, a vertically movable support for the platform, a turn table mounted on the platform having on its periphery a gearing and a worm for imparting rotatable movement to the turn table in a horizontal plane.

16. In a machine of the character described, a truck, oppositely disposed connected I-beams mounted upon the truck, rack and gear connections for the beams whereby the same may be moved trans-  
 30 versely relative to the truck, a turn table carried by the beams, a gearing on the periphery of the turn table, a motor on the I-beams, and a gear connection interposed between the motor and gearing of the turn  
 35 table.

17. In a machine of the character described, a truck, oppositely disposed connected I-beams mounted upon the truck, rack and gear connections for the beams  
 45 whereby the same may be moved transversely relative to the truck, a turn table carried by the beams, a gearing on the periphery of the turn table, a motor on the I-beams, and a gear connection interposed  
 50 between the motor and gearing of the turn table, pedestal bearings on the table supporting a rocker mounted on a rocker base, means for imparting rocking movement to the base and a ram connected with said  
 55 rocker for longitudinal movement.

18. In a machine of the character described, a truck, a vertically and horizontally movable platform on the truck, a turn table superimposed on the platform and  
 60 having movement independent of the truck and platform, pedestal bearings supporting a rocker base which carries a motor, a ram mounted on the rocker base, and gear connection between the motor and ram for im-

parting longitudinal movement to the lat- 65  
 ter, said longitudinal movement of the ram being in the same direction and constituting in effect a continuation of the horizontal movement of the platform, means for im-  
 parting tilting movement to the base in a 70  
 vertical plane comprising a quadrant gearing mounted on the trunnion of the rocker and a cooperating worm.

19. In a machine of the character described, the combination of a movable truck, 75  
 a vertically movable support on the truck, means for imparting movement to the support, a turn table superimposed on the support, pedestal bearings on the turn table supporting a rocker base carrying a ram, 80  
 mechanism for imparting rotatable movement to the table, and means movable with the support and independent of said first mentioned means for imparting rocking  
 movement to the rocker base. 85

20. In a machine of the character described, the combination of a truck, a vertically movable buggy on the truck, a turn table having connection with the buggy, pedestal bearings on the turn table support- 90  
 ing a rocker base which carries a motor, means interposed between the turn table and rocker base for operating the latter, a ram mounted on the rocker base, and gear con- 95  
 nection between the motor and ram for imparting longitudinal movement to the latter, and means movable with the buggy for imparting tilting movement to the base in a vertical plane.

21. In a machine of the character de- 100  
 scribed, the combination of a truck, a movable support or buggy, means for imparting vertical movement to the support a ram connected with the support, means for impart- 105  
 ing longitudinal movement to the ram, and means independent of said first mentioned means interposed between the ram and buggy and operatively connected with each whereby the ram may also swing horizon- 110  
 tally and vertically relative to the buggy.

22. In a machine of the character described, the combination of a truck, a ram mounted for sliding movement comprising an elongated bar, a curved head connected intermediate its ends to the end of the bar 115  
 and having rollers at its respective ends, a leveler projecting inwardly from the head and brace bars extending from the respective ends of said head adjacent the rollers and connected to the first mentioned bar. 120

23. In a machine of the character described, the combination of a truck, a ram mounted for sliding movement comprising an elongated bar, a curved head connected intermediate its ends to the end of the bar 125  
 and having rollers at its respective ends, and brace bars extending from the respective ends of said head adjacent the rollers and



connected to the first mentioned bar, and a leveling device arranged longitudinally of, and extending inwardly from the curved head at a point intermediate said rollers.

24. In an apparatus of the character described, the combination of a truck, a support thereon, means for moving the same vertically, a platform movable substantially midway of the truck in a direction transversely thereto, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, a hand lever for imparting movement thereto, a motor and ram mounted on said rocking support, the ram being operated by said motor.

25. In an apparatus of the character described, the combination of a truck, a support thereon, means for moving the same vertically, a platform movable substantially midway of the truck in a direction transversely thereto, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, a hand lever for imparting movement thereto, a motor and ram mounted on said rocking support, the ram being operated by said motor and controlling devices for said motors arranged to the side of the truck opposite the oven and adjacent to said hand lever.

26. In an apparatus of the character described, the combination of a truck, a support thereon, a motor on the truck, operating connection between the motor and support for moving the latter, a platform movable substantially midway of the truck and transversely thereto upon the support, a hand lever for imparting movement to the platform, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, a hand lever for imparting movement thereto, a motor and ram mounted on said rocking support, the ram being operated by the motor, and controlling devices for each of said motors arranged to the side of the truck opposite the oven and adjacent both of said hand levers.

27. In a machine of the character described, the combination of a truck having the usual wheels, a rotatable shaft for one pair of the wheels, a drive shaft having a double face clutch, a pair of auxiliary shafts arranged one upon each side of said clutch and extending longitudinally of the drive shaft, a clutch face upon each auxiliary shaft arranged to cooperate with one of the double faces of the clutch, a vertically movable ram support, gear connection between one of the auxiliary shafts and the ram support, and a gear connection between the other auxiliary shaft and the rotatable shaft.

28. In a machine of the character de-

scribed, the combination of a truck having the usual wheels, a rotatable shaft for one pair of the wheels, a worm gear on said shaft a drive shaft having a double face clutch, two auxiliary shafts each of which has a clutch face arranged to cooperate with one of the double faces of the clutch, gear connections between one of said auxiliary shafts and the worm gear of the rotatable shaft, a ram, a movable support therefor and an operating gear connection between the other auxiliary shaft and support.

29. In a machine of the character described, the combination of a truck having the usual drive wheels a rotatable shaft for a pair of said wheels, a drive shaft having a double face clutch, a pair of auxiliary shafts arranged one upon each side of said clutch and extending longitudinally of the drive shaft, a clutch face upon each auxiliary shaft arranged to cooperate with one of the double faces of the clutch, a movable ram support, a rack and pinion connection between one of the auxiliary shafts and the ram support, and a gear connection between the other auxiliary shaft and the rotatable shaft.

30. In a machine of the character described, the combination of a truck having the usual drive wheels, a rotatable drive shaft for the wheels, a movable ram support, a rack carried thereby, a pinion in engagement therewith, a clutch mechanism, gearing interposed between said clutch mechanism and pinion, and means for operating said clutch to operatively connect said pinion and auxiliary shaft to the drive shaft.

31. In a machine of the character described, the combination of a truck, a ram support mounted thereon, a drive shaft, an auxiliary shaft extending longitudinally of the drive shaft, a clutch mechanism interposed between the respective shafts, and a rack and pinion connection between the ram support and auxiliary shaft.

32. In a machine of the character described, the combination of a truck, a ram support mounted thereon a drive shaft, an auxiliary shaft extending longitudinally of the drive shaft, a clutch mechanism interposed between the respective shafts, a pinion on the auxiliary shaft, a shaft having a gear in mesh with such pinion, and a gear connection between said last mentioned shaft and a rack carried by the ram support.

33. In a machine of the character described, the combination of a truck, a ram mounted for sliding movement comprising an elongated bar, a head connected intermediate its ends to the end of the bar and having rollers at its respective ends, and a leveling device arranged longitudinally of



the elongated bar and extending inwardly from the head.

34. In a machine of the character described, the combination of a truck, a ram mounted for sliding movement comprising an elongated bar a head extending transversely of the bar and connected intermediate its ends to the end of the bar, brace bars extending from the respective ends of said head and connected to the first mentioned bar, and a leveling device arranged longitudinally of the elongated bar and extending inwardly from the head at a point intermediate its ends.

35. In a machine of the character described, the combination of a truck, a ram mounted on the truck for relative sliding movement comprising an elongated bar a head connected intermediate its ends to the bar and extending transversely thereof, a leveling device arranged longitudinally of the elongated bar and extending inwardly from the head a rack on the bar to the rear of said leveling device, and an operating gear for the rack.

36. In an apparatus of the character described, the combination of a truck, a support thereon, means for moving the same vertically, a platform movable substantially midway of the truck in a direction transversely thereto, means for moving the platform including a rack and pinion connection between the support and platform, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, means for imparting movement thereto, a motor and ram mounted on said rocking support, the ram being operated by said motor.

37. In an apparatus of the character described, the combination of a truck, a support thereon means for moving the same vertically, a platform movable substantially midway of the truck in a direction transversely thereto, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, means for imparting movement thereto, a motor and a ram mounted on said rocking support, the ram being operated by the said motor and controlling devices for said motors arranged to the side of the truck opposite the oven and adjacent to the last mentioned means.

38. In an apparatus of the character described, the combination of a truck, a support thereon, means for moving the support relative to the truck, a platform movable substantially midway of the truck in a direction transversely thereto, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, a lever for imparting movement thereto, a motor and ram mounted on said

rocking support, the ram being operated by said motor.

39. In an apparatus of the character described, the combination of a truck, a support thereon, a motor on the truck, operative connection between the motor and support for moving the latter, operative connection between the motor and truck for moving the truck, a platform movable and transversely of the truck upon the support, a hand lever for imparting movement to the platform, a motor on the platform, a turn table on the platform movable by the motor, a rocking support on the table, means for imparting movement thereto, a motor and ram mounted on said rocking support, the ram being operated by the motor, and controlling devices for each of said motors.

40. In an apparatus of the character described, the combination of a truck mounted for movement longitudinally relative to an oven, a buggy, means carried by the truck for imparting vertical movement to the buggy, a platform on the buggy, means for imparting independent movements to the platform transversely of the truck, a ram, and means for imparting further movement to the ram transversely of the truck.

41. In an apparatus of the character described, the combination of a truck mounted for movement longitudinally relative to an oven, a buggy, means carried by the truck for imparting vertical movement to the buggy, a platform on the buggy, means for imparting independent movement to the platform transversely of the truck, a turn table carried by the platform, a rocking support on the turn table, a ram carried by the rocking support and a motor also carried by the rocking support for imparting further movement to the ram transversely of the truck.

42. In a machine of the character described, a truck, a platform mounted for movement transversely of the truck, a vertically movable support for the platform, a turn table mounted on the platform having on its periphery a gearing, means for imparting independent longitudinal movement to the ram in the same direction as the movement of the platform and a worm for imparting rotatable movement to the platform in a horizontal plane.

43. In a machine of the character described, a truck, a platform mounted on the truck, rack and gear connections for the platform whereby the same may be moved transversely relative to the truck, a turn table carried by the platform, a gearing on the periphery of the turn table, a motor on the platform, and a gear connection interposed between the motor and gearing of the turn table.

44. In a machine of the character de-



scribed, the combination of a platform, a motor superimposed thereon, a turn table mounted on said platform for rotary movement having operative connection with the  
5 motor, a rocking support on the turn table, bearings on the table for the rocking support, a gear extending downward from the rocking support, a worm for operating said gear to rock the ram support, a motor on the  
10 rocking support, a ram on the rocking support, and a connection between the ram and said last mentioned motor for imparting longitudinal movement to the ram.

45. In a machine of the character described the combination of a truck, a buggy,  
15 means for imparting vertical movement

thereto including a rack and pinion connection, a platform on the buggy movable relative thereto and transversely of the truck, a ram on the platform, means for imparting  
20 longitudinal movement to the ram, and means whereby the ram may also swing horizontally and vertically relative to the buggy.

In testimony whereof we affix our signatures in presence of two witnesses. 25

FREDERICK BARNETT.  
FREDERICK P. BAYLES.

Witnesses:

HENRY M. PHILLIPPS,  
MARJORIE COOLEY.