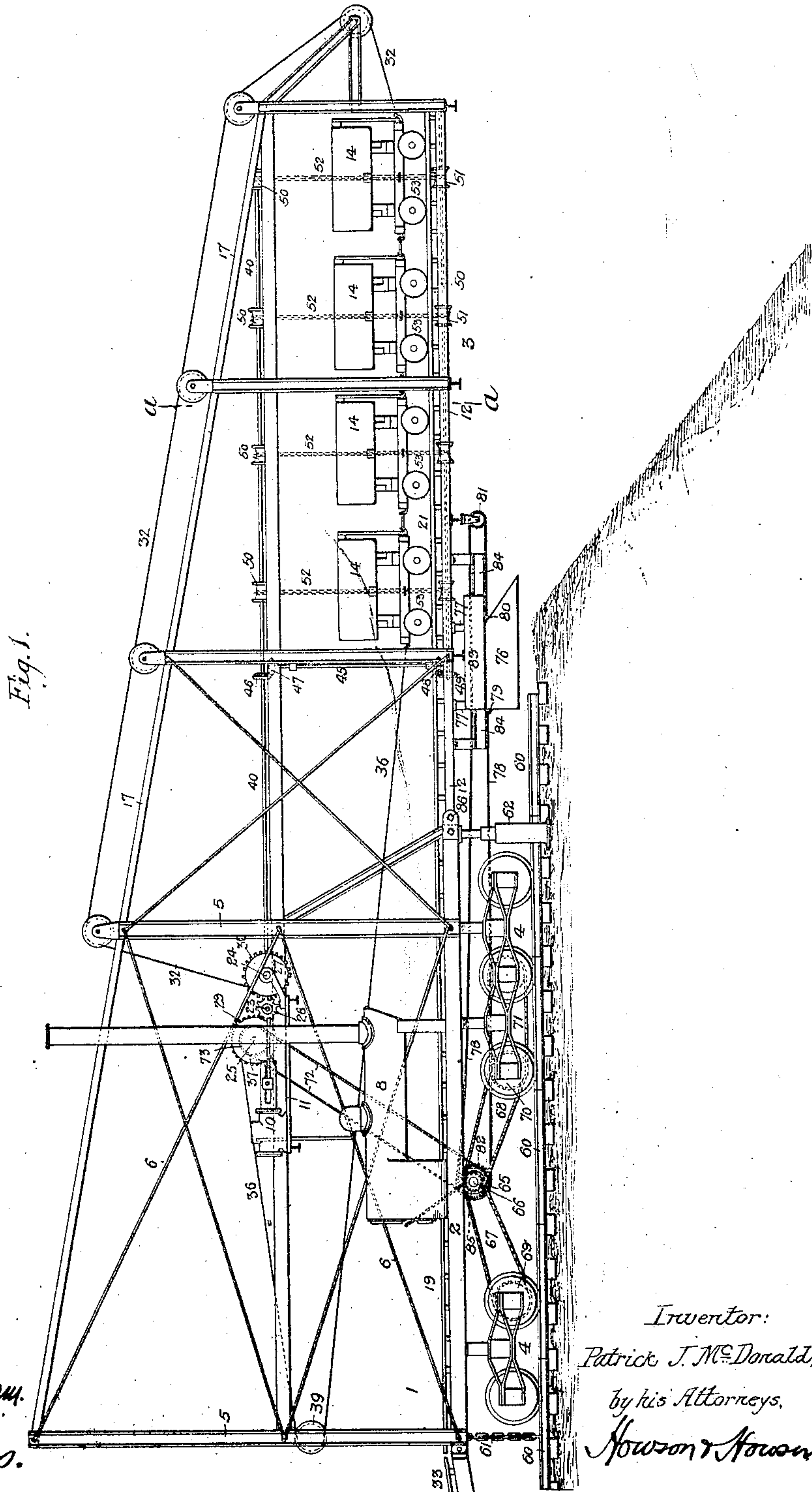


No. 859,238.

PATENTED JULY 9, 1907.

P. J. McDONALD.
EARTH FILLING APPARATUS.
APPLICATION FILED JULY 25, 1904.

2 SHEETS—SHEET 1.



Witnesses:
Frank L. Graham.
Titus H. Jones.

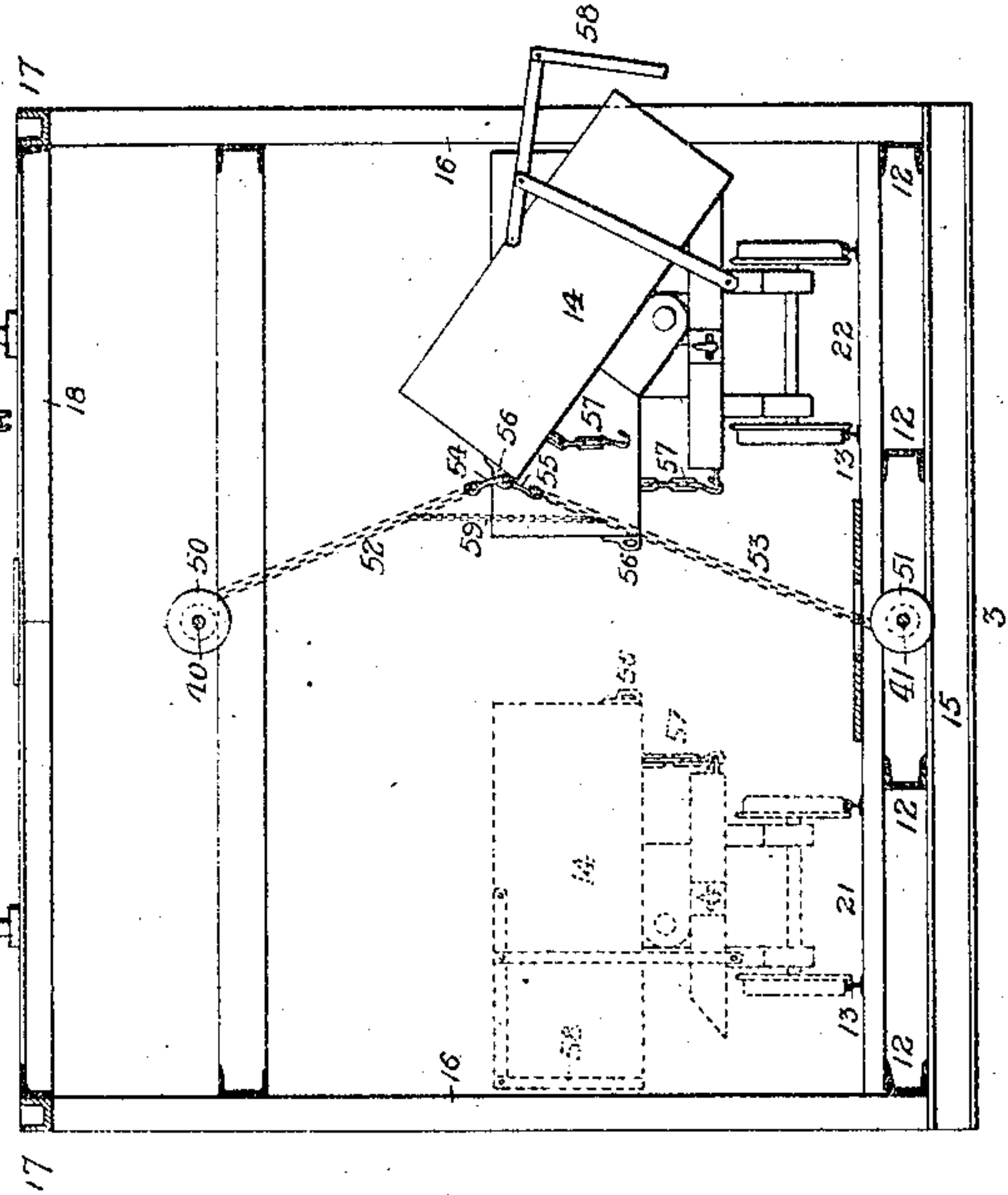
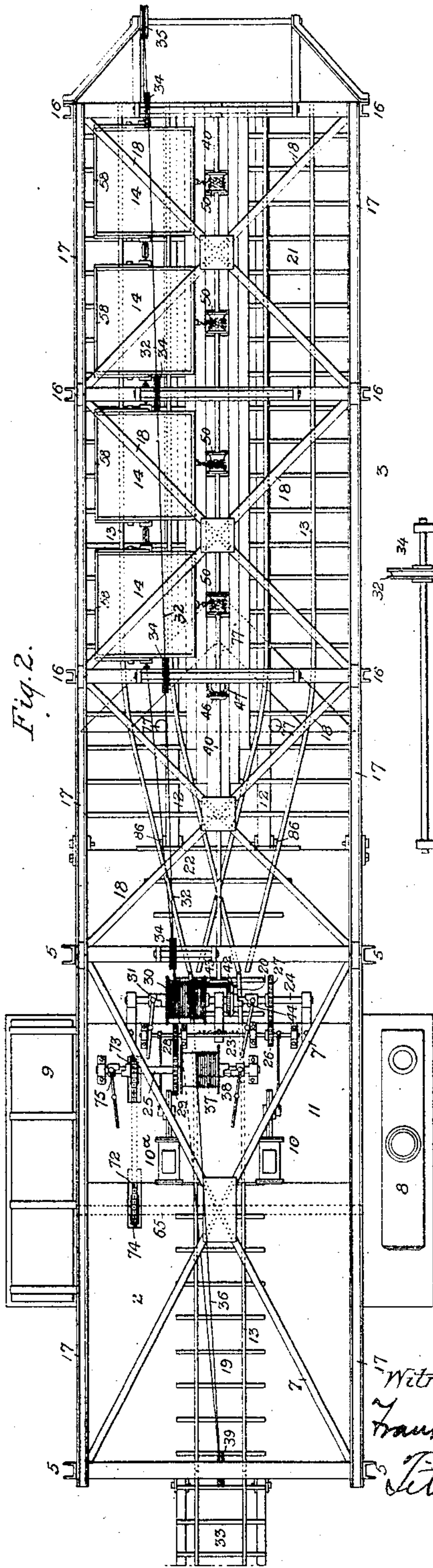
Inventor:
Patrick J. McDonald,
by his Attorneys,
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Witnesses:
Frank L. Graham.
Titus N. Groves

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UNITED STATES PATENT OFFICE.

PATRICK J. McDONALD, OF MAHANOEY CITY, PENNSYLVANIA.

EARTH-FILLING APPARATUS.

No. 859,238.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed July 25, 1904. Serial No. 218,147.

To all whom it may concern:

Be it known that I, PATRICK J. McDONALD, a citizen of the United States, and a resident of Mahanoy City, Pennsylvania, have invented certain Improvements in Earth-Filling Apparatus, of which the following is a specification.

My invention relates to apparatus designed for the purpose of making fills in deep places, across ravines or valleys, for the purpose of establishing road beds for railway tracks or other purposes; the object of my invention being to provide a machine available for this work that will be self-propelling, and one that will project over the place to be filled so that it will be unnecessary to provide false work or staging for the dumping cars carrying the filling-in material.

My invention is fully shown in the accompanying drawings, in which:

Figure 1, is a side elevation of the earth filling structure made in accordance with my invention; Fig. 2, is a plan view of the same; and Fig. 3, is a sectional view on an enlarged scale of the projecting portion, taken on the line *a-a*, Fig. 1.

The apparatus forming the subject of my invention comprises a car 1 having a platform 2, from the front of which the overhanging structure 3 projects. The platform is preferably of extra width, and is mounted on the usual trucks 4; the forward truck being preferably provided with six wheels to increase the stability of the structure. This platform car supports a series of vertical standards 5, which are tied together by suitable truss rods 6 and cross bars 7, and is provided with a suitable steam boiler 8 mounted on one side, a water tank 9 mounted on the opposite side, and a pair of engines 10 and 10^a which latter are preferably carried by an upper platform 11.

Extending from the forward end of the car are a series of beams 12 forming the bed frame of the projecting portion 3 and supporting the rails 13, on which the dumping cars 14 are arranged to run. These beams are strengthened and braced by under cross bars 15, and carry vertical standards 16, which are tied together by the top beams 17, which extend the full length of the structure, the whole forming what is familiarly known as an A-frame truss. The top beams 17 are also braced by diagonal members or truss rods 18.

Carried by the car and the projecting platform are a series of tracks, the car 1 having a single track 19 with a switch 20, while the projecting frame is provided with a pair of tracks 21 and 22, to either of which said switch leads. The cars are coupled together in the usual manner, and they are moved back and forth on the tracks by means of rope draft.

The engines 10 and 10^a drive the main shaft 23, which in turn drives a pair of counter shafts 24 and 25 mounted parallel to the main driving shaft, power being transmitted to the shaft 24 by means of the gears 26 and

27, and to the shaft 25 by means of the gears 28 and 29. Carried by the counter shaft 24 is a drum 30, which may be driven in both directions, a suitable clutch 31 being provided for throwing it into and out of engagement with its shaft 24. This drum carries a rope 32 for pulling the train of cars from the foot of the inclined track 33 out to the end of the projecting structure 3. This rope passes over a series of idler sheaves 34 to the front of the machine thence over the end idler 35 to a point convenient for attachment to the first dumping car at the foot of the inclined track 33. When the drum 30 is thrown into engagement with its shaft and starts to wind the rope 32, the cars 14 will be carried out on the tracks 21 or 22, as the case may be, and they may then be dumped.

To return the empty cars to the inclined track 33 after they have been dumped, I provide the rope 36, which is wound on the drum 37 carried by the counter shaft 25. This shaft is provided with a clutch whereby the drum may be thrown into and out of engagement therewith. This rope 36 passes from the drum 37 over the idler sheave 39 and thence to a point convenient for attachment to the rear dumping car. As the cars are pulled out, the drum 30 will be allowed to run free so that the rope 32 may unwind and be returned to a point convenient for release and subsequent engagement with the next train of filled cars brought to the foot of the inclined track 33.

Two tracks are provided, so that material may be dumped from each side of the projecting structure 3. Only one train of cars will be run out on this structure at a time, however, and hence I need only one set of draft ropes, the sheaves over which they pass being loose on their shafts so as to move laterally and accommodate the rope when attached to cars on either track. After the cars have been moved out on the projecting structure 3 they are dumped in the following manner: Line shafts 40 and 41 are mounted in suitable bearings on the projecting structure 3 above and below the cars and these shafts are driven from the counter shaft 24. The upper line shaft 40 is driven by means of the bevel gears 42 and 43, and the counter shaft 24 is provided with a clutch 44 to throw the gear 42 into and out of engagement therewith. To drive the lower line shaft 41, I provide the vertical transmitting shaft 45 which is driven from the upper shaft by means of the bevel gears 46 and 47, and transmits movement to the lower shaft by means of the bevel gears 48 and 49.

Carried by the line shafts 40 and 41 are drums 50 and 51, to which chains 52 and 53 are secured. These chains carry hooks 54 and 55, which may be connected to eyes 56 on the sides of the car bodies. When this has been done, the chain or link 57 holding each car body to its truck is then released, and by turning said shafts 40 and 41, the bodies will be tilted as shown in Fig. 3, and the material carried thereby will be dumped.

at the side. The bodies are preferably provided with movable sides 58, operating automatically when the cars are tilted. The chains 52 and 53 are connected together by a light chain 59 adjacent to the hooks so that they may be kept together and whereby the securing of the lower hook in the eye 56 may be facilitated. As soon as the cars are dumped, the shafts 40 and 41 will be turned in the reverse direction, and the bodies will be brought back to their normal position, and may be again secured to their trucks by connecting the chains or links 57.

The car 1 may be held to the main track 60 by means of anchoring chains 61 at the rear, and it is supported at the front on both sides by jacks 62. The weight of this car 1 is intended to be as great as possible in order to counterbalance the leverage exerted by the projecting structure 3, particularly when the latter is supporting a train of loaded dumping cars. As the filling progresses, the car 1 will be advanced on short sections of the main track 60, which sections may be of any desirable length.

The car 1 is driven in the following manner: Mounted in suitable bearings beneath the platform is a shaft 65 carrying sprocket wheels 66, from which chains 67 and 68 pass to sprocket wheels 69 and 70 on the axles of the front and rear trucks. In addition a chain 71 extends from the rear axle of the front truck to the middle axle of the same whereby the traction may be increased. The shaft 65 is driven from the counter shaft 25 by means of gearing and an intermediate shaft, or by means of a chain 72 connecting the sprocket wheels 73 and 74. A clutch 75 is mounted on the shaft 25 for throwing the sprocket wheel 73 into and out of engagement with the same.

To level or smooth and pack the upper surface of the filled in material in order to provide for the placing of sections of the main track 60 in advance of the car 1, I mount under the projecting structure 3 an adjustable plow 76. This plow is wedge-shaped with an inclined forward face and flaring sides. It has a solid top and bottom whereby it may be positively lowered to smooth and pack the filled-in material. It is supported by means of a series of jacks 77 mounted at the three corners and is arranged to be moved forward and back by means of a chain 78 extending from the car driving shaft 65. This chain is fixed to the plow at an points 79 and 80, its forward portion passing around the idler sprocket wheel 81 secured beneath the projecting structure 3, and its rear portion passing around a sprocket wheel 82 on the driving shaft 65. Mounted on top of the plow are vertical plates 83 forming a guide-way between which is disposed a short beam section 84 secured beneath the projecting structure. By this means the plow will be guided in its back and forth movement, when in the raised or lowered position. The supporting jacks or other means are arranged to slide with the plow so that it can be raised and lowered at any point in its line of travel. The shaft 65 is provided with a clutch 85 so that the sprocket wheel 82 may be thrown into and out of engagement therewith.

All of the parts of the frame are sectional and readily detachable so as to fold in a small space to be carried by the main car 1, and the beams 12 are pivotally hung to said car by means of pins 86 so as to be readily removed and slid onto the bottom of said car when the apparatus

is dismantled. This arrangement also permits the raising or lowering of the projecting structure 3 whereby the same may be disposed at an angle with respect to the car 1.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. The combination of a car, a forwardly projecting and overhanging structure hinged to the front end of the same, independent supporting means for the car adjacent said hinge joint, rails on said car and overhanging structure, means for carrying material across said car and overhanging structure on said rails, and means for dumping such material at both sides of the latter.

2. The combination of a car, anchoring means therefor, a forwardly projecting and overhanging structure hinged to the front end of said car, independent supports for the car adjacent the hinge joint, rails on said car and overhanging structure, means for carrying material across said car and overhanging structure on said rails, and means for dumping material from both sides of the latter.

3. The combination of a car, an overhanging structure hinged thereto and projecting therefrom, tracks mounted on said car and overhanging structure, dumping cars, a supplemental platform carried by the main car, and means carried by said platform for moving said dumping cars back and forth on the tracks.

4. The combination of a car, an overhanging structure hinged thereto and projecting therefrom, tracks on said car and overhanging structure, dumping cars, a supplemental platform carried by the main car, motive power apparatus mounted on said supplemental platform, and means operated therefrom for moving the dumping cars back and forth.

5. The combination of a car, an overhanging structure hinged thereto and projecting therefrom, tracks on said car and overhanging structure, dumping cars, a supplemental platform carried by the main car, motive power apparatus mounted on said platform, drums mounted on said platform and driven thereby, and ropes connected to said drums and attachable to each end of the train of dumping cars for moving the latter back and forth.

6. The combination of a car, an overhanging structure projecting therefrom, tracks mounted on said car and overhanging structure, the latter having two sets, dumping cars adapted to said tracks, means for moving said dumping cars back and forth, and means disposed between said tracks for emptying the dumping cars.

7. The combination of a car having self propelling means, means for anchoring said car, an overhanging and projecting structure carried by the car, tracks mounted on said car and overhanging structure, a series of dumping cars adapted to said tracks, a supplemental platform carried by the main car, an engine mounted on said platform, means connected to said engine for moving the dumping cars back and forth on the overhanging structure and main car, and means disposed between the tracks on the overhanging structure for dumping said cars.

8. The combination of a car, a projecting and overhanging structure connected thereto, a series of tracks mounted thereon, dumping cars arranged to move on said tracks, an engine carried by the main car, ropes controlled by said engine to move the cars back and forth, sheaves for guiding said ropes carried by the overhanging structure, and shafts on which said sheaves are mounted, the latter being loose on the shafts so as to be capable of movement along the same to accommodate the ropes when attached to cars on either track.

9. The combination of a car, a main track of separate sections for the same, a projecting structure carried by said car, a series of dumping cars carrying excavated material adapted to run on said car and projecting structure, and means carried by said platform for smoothing and packing the upper surface of the filled-in material to receive sections of the main track.

10. The combination of a car, a main track of separate sections for the same, means for anchoring said car, an overhanging structure projecting therefrom, means for conveying material onto the platform and dumping it from the latter, a plow carried by said platform and serv-

ing to smooth and pack the upper surface of the material for the reception of sections of the main track, and means for raising, lowering, and moving said plow back and forth.

5 11. The combination of a car, anchoring means therefor, an engine carried thereby, a trussed frame structure projecting from said car, tracks mounted on said car and projecting structure, dumping cars adapted to run on said tracks, a pair of shafts journaled on said platform in line
10 with the latter, said shafts being driven by the engine, and chains carried by said shafts and adapted to be attached to the dumping cars whereby the latter may be tilted to dump and then returned to their normal positions.

12. The combination of a car, a projecting and over-
15 hanging structure connected thereto, a pair of independent tracks mounted thereon, a supplemental platform carried by the car, an engine mounted on said platform, dumping cars arranged to move on said tracks, ropes controlled by said engine to move the cars back and forth, sheaves for
20 guiding said ropes carried by the frame of the overhanging structure, and shafts on which said sheaves are mounted, the latter being loose on the shafts so as to be capable

of movement along the same to accommodate the ropes when attached to cars on either track.

13. The combination of a car having an overhanging 25 structure projecting therefrom, a plow carried by said overhanging structure, means for positively raising and lowering said plow, and means for moving the same back and forth.

14. The combination of a car having an overhanging 30 structure projecting therefrom, a plow carried by said overhanging structure, means for moving said plow back and forth, jacks for positively lowering and raising said plow, and guides for said plow.

15. The combination of a car platform arranged to re- 35 ceive dumping cars, line shafts mounted on said car, chains secured to said shafts having hooks for attachment to the cars, and supplementary connections for said chains.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 40
PATRICK J. McDONALD.

Witnesses:

MURRAY C. BOYLE,
CHARLES C. NORRIS, Jr.