No. 769,046. PATENTED AUG. 30, 1904.

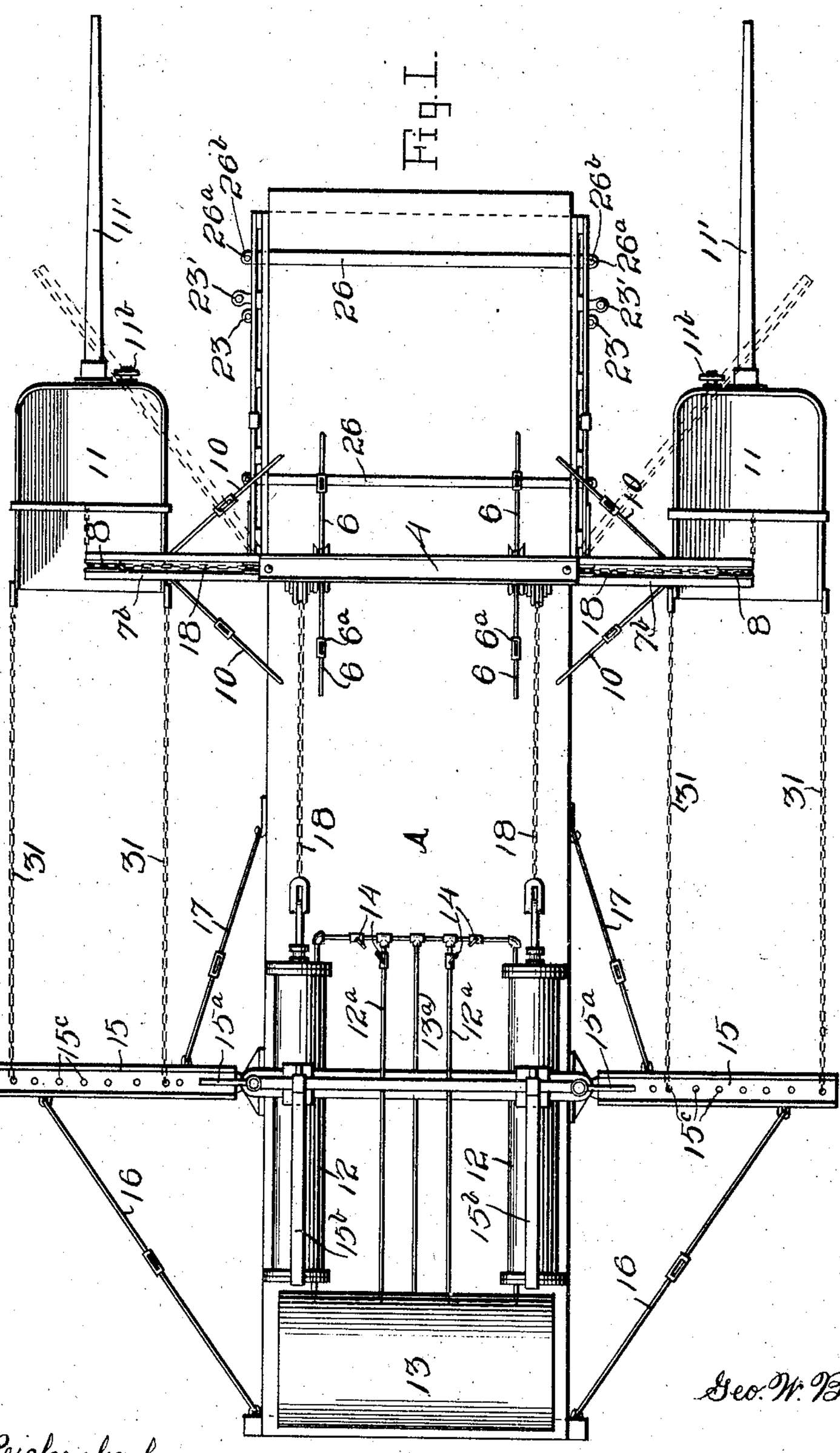
G. W. BASHAW.

DITCHING MACHINE.

APPLICATION FILED OCT. 12, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

FIG. 1.



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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

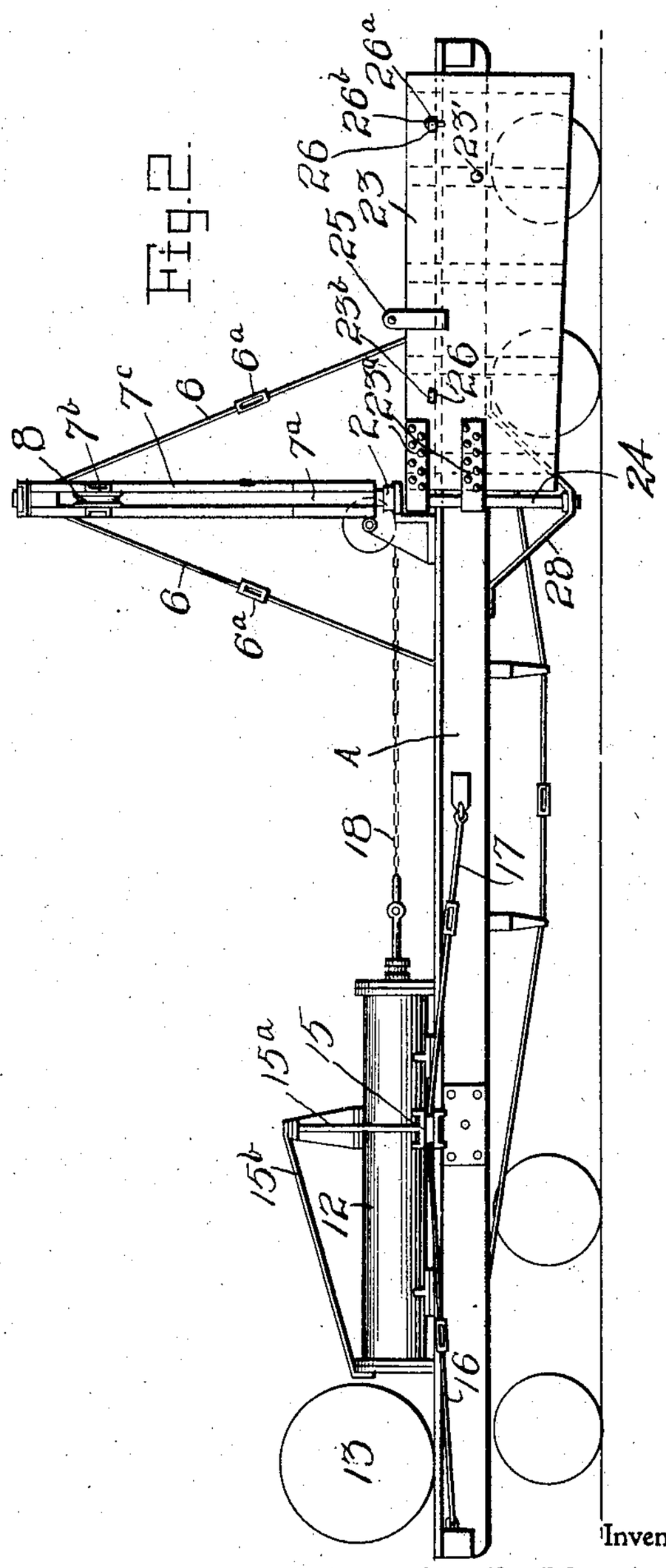
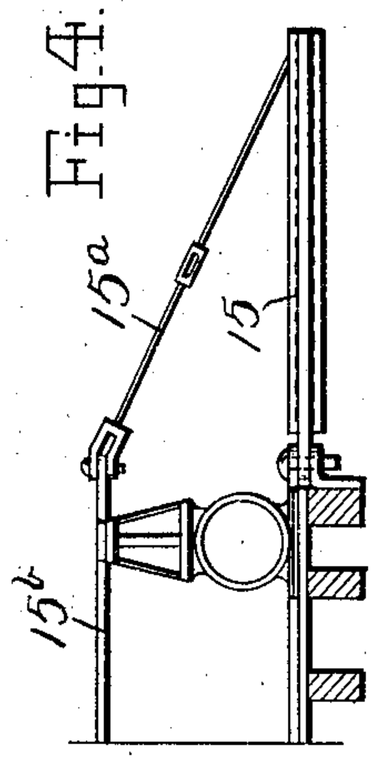


Fig. 4.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

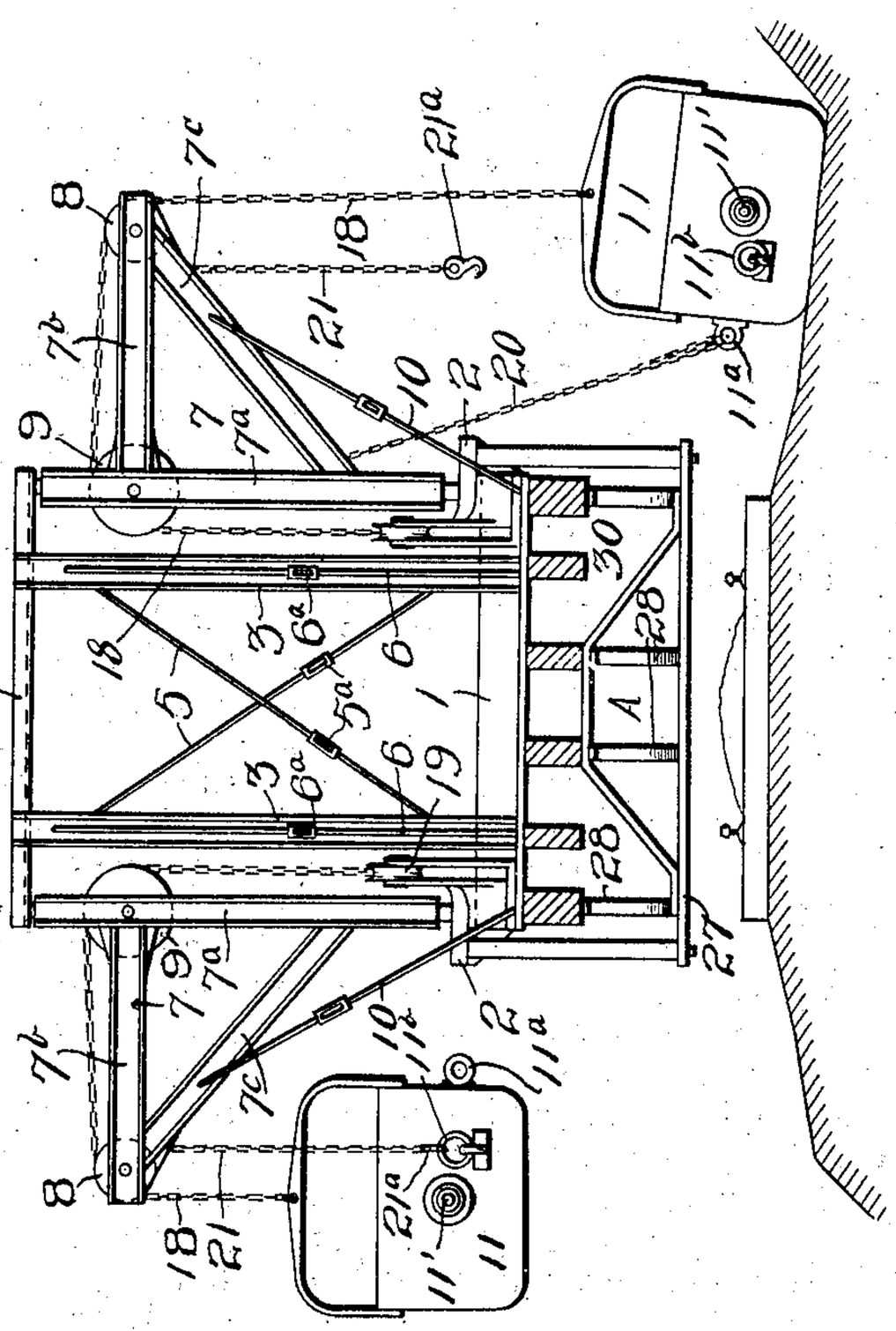
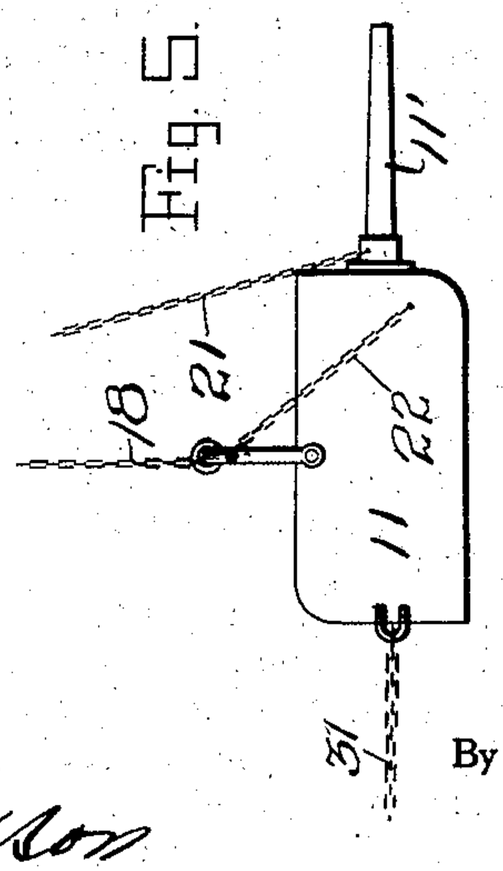


Fig. 5.



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No. 769,046. Patented August 30, 1904.

UNITED STATES PATENT OFFICE.

GEORGE W. BASHAW, OF SPRINGFIELD, MISSOURI, ASSIGNOR OF ONE-THIRD TO BEN BOWMAN, OF SPRINGFIELD, MISSOURI.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 769,046, dated August 30, 1904.

Application filed October 12, 1903. Serial No. 176,790. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BASHAW, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Ditching-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in ditching-machines.

The object of the invention is to provide a machine of this character which may be made to serve a threefold purpose—for plowing, shoveling up, and transporting and then spreading or leveling the dirt which has been transported and dumped.

Another object is to provide a machine of this character which will be simple in construction, free from complicated mechanism, strong, durable, and well adapted to the purpose for which it is designed.

A further object is to provide a machine of this character in which compressed air, steam, or other fluid may be employed to actuate the same.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical cross-sectional view. Fig. 4 is a detail fragmentary sectional view showing the arrangement of the draft-beam. Fig. 5 is a detail view of the shovel or scoop.

In the embodiment of the invention a flat-car A is provided, which may be of any suitable construction. On said car is arranged an upright frame consisting of a lower cross-piece 1, which is securely bolted to the car-sills. On said cross-piece, at the ends of the same, are fixed castings 2. Uprights or standards 3 are fixed at their lower ends to said cross-piece 1 and are connected at their upper ends by a cross-piece 4, the ends of which project beyond the same. Said standards are also connected by crossed brace-rods 5, having turnbuckles 5^a, whereby the same may be tightened up. Brace-rods 6 are connected to the front and rear side of the standards near their upper ends and to the floor of the car, whereby the former are securely held and braced to the car, turnbuckles 6^a being arranged in the brace-rods 6 to tighten the same.

Between the projecting ends of the cross-piece 4 and the castings 2 at each side of the car are arranged gib-cranes 7, the standards 7^a of which are formed on their upper and lower ends with journals which engage bearings in the extended ends of the upper cross-piece 4 and in the castings 2, so as to permit said crane to swing. In the outer ends of the booms 7^b of the cranes are mounted sheaves 8, and in the standards 7^a, at the inner ends of the booms, are journaled sheaves 9. The cranes are held in a working position by means of guy-rods 10, which are connected to each side of said cranes and to the car, as shown. The booms 7^b are connected to and supported upon the standards 7^a by braces 7^c.

When the machine is to be used for shoveling or scooping up and transporting dirt, scoops 11 are arranged at the side of the same and are supported and hoisted by chains 18, which pass over sheaves 8 and 9 and under sheaves 19, journaled in brackets near the lower end of the standards 3, said chains then extending forwardly and connecting with the piston-rods of fluid-pressure cylinders 12, arranged at each side of the car.

Air-pipes 12^a are connected to each end of the cylinders 12 and to a main air-supply pipe 13^a, leading from a compressed-air reservoir 13, carried by the car and in which air is compressed by the air-pump of the locomotive, (not shown,) but which draws or pushes said car. The admission and exhaust of air to the cylinders 12 is controlled by two-way valves arranged in the pipes 12^a.

Near the forward end of the car are arranged draft-beams 15, the inner ends of which are pivoted to brackets on the side of

the car to permit the beams to be swung or folded inwardly against the side of the car when not in use.

The outer end of the beam is supported by a rod 15[a], pivotally connected to a truss-brace 15[b], arranged across the car, as shown. The beams 15 are held in their extended positions by means of a brace-rod 16, which connects the forward outer end of the same to the side of the car, and a similar brace-rod 17 connecting the rear side of the beam to the car, as shown in Fig. 1. These brace-rods are provided with turnbuckles, whereby they may be adjusted to rigidly hold said beam when in working position. The rods are also adapted to be unhooked or detached from the car to permit the beams to be swung in alongside the car, as hereinbefore described. A series of vertically-disposed openings 15[c] are formed in the length of the beam in which are connected one end of draft-chains 31, which are connected at their opposite ends to the scoop or shovels 11, carried by the chains 18. The chains 31 will draw the scoop through the dirt, thereby filling the same, after which said scoop may be hoisted by the chains 18 and the car run to the place where the dirt is to be dumped.

The scoops 11 are further held by side chains 20, connected at their upper ends to the cranes 7, and having their lower ends looped through rings 11[a], fixed to the side of the scoop, as shown. After the scoops have been filled and hoisted they are held in horizontal position by dump-chains 21, connected to the cranes and provided on their lower ends with hooks 21[a], which are engaged with rings 11[b] on the rear wall of the scoops. The bails of the scoops are connected to the sides of the same a little in advance of the center, and short bridle-chains 22 connect said bails with the rear end of the scoop, so that the same will be balanced. By adjusting the bridle-chains the scoop may be tilted upwardly in front to prevent loose dirt from falling off this end of the same while being transported to the dumping-place. When it is desired to dump the scoop after the same has been filled and hoisted, the dump-chains 21 are connected to the same, as previously described, the chains 18 are then slacked, thereby allowing the forward end of the scoop to drop while the rear end is supported by the chains 21, thereby discharging the contents of the same. To the rear end of the scoops are connected handles 11′, by which the same may be tilted and guided when in operation.

When it is desired to use the machine for plowing purposes, scoops are removed and in place thereof are arranged plows which may be of any suitable style, to the clevises of which are attached the ends of one of the chains 31, the opposite end of said chain being connected to one of the holes 15[c] in the draft-beam. The hoisting-chains 18 may also be connected to the plows, so that the same may be raised from the ground for returning after a furrow has been plowed.

In order that the dirt that has been transported and dumped by the scoops may be graded and leveled off, spreading-wings or scrapers 23 are provided on each side of the car, said wings being slidably connected to vertical shafts 24, the upper ends of which have a pivotal connection with the projecting ends of the castings 2, and the lower ends of which are journaled in the ends of a cross-bar 27, supported beneath the car by braces 28 and 30.

The wings are connected to the shafts 24 by means of straps 23[a], secured to said wings above the center of the same, so as to permit them to be lowered into working position, the pivotal connection of the shafts 24 allowing the wings to be swung out to the position shown in dotted lines in Fig. 1, or to be folded back against the side of the car.

When the wings are swung out in working position, one of the chains 31 is connected to a ring or staple 23′, fixed to the outer side of the wings, the opposite end of the chain engaging the draft-beam 15, whereby said wing is caused to scrape or level off the dirt when moved by the car.

A bracket 25 is fixed to the upper edge of the wings, and to said bracket is connected the lower end of the hoisting-chains 18, by which said wings may be raised and lowered to move the same into and out of working position. When the wings are folded back against the sides of the car, they are in a raised position and are supported in such position and held against the car by means of bars 26, which extend across the floor of the car, the ends of the bars passing through openings 23[b], formed in the wings. In the projecting ends of the bars 26 are formed holes 26[a], and in said holes are inserted pins 26[b], which hold the wings in place against the sides of the car. The lower edge of the wings are slightly inclined inwardly and upwardly to conform to the shape of the track-ballast.

In the construction of the machine as herein described a combination of devices are employed, whereby the plowing, ditching, and spreading of dirt may be accomplished by the use of the same operating machinery, thereby reducing the cost and expense necessary for the operation of separate machines for these purposes.

By the use of compressed air or similar fluid for hoisting the several operating devices or implements the necessity of a windlass and engine to operate the same is obviated. With this construction one or both sides may be operated either singly or together, so that as soon as one scoop fills it may be hoisted and held up until the scoop

on the other side has been filled, at which time this may also be hoisted and the car moved to the dumping-place.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a ditching-machine, the combination with a car, of cranes arranged thereon to support scoops, means for holding said scoops in working position, means for raising and lowering the same, and means coacting with said holding and hoisting mechanism to tilt the scoop and thereby dump the same, substantially as described.

2. A ditching-machine comprising a car, a crane carried thereby, a scoop having a bail pivoted to one side of the center of gravity thereof, and a flexible connection between the bail and the heavier end of the scoop, a hoisting-chain carried by the crane, means to operate the hoisting-chain, means to connect it to the bail of the scoop, a dump-chain carried by and depending from the crane, and means to attach the dump-chain to the heavier end of the scoop, whereby the latter may be tilted and dumped by the lowering of the hoisting-chain, substantially as described.

3. In a ditching-machine, the combination with a car, of cranes arranged thereon, hoisting-chains arranged on said cranes, earth-working implements supported by said chains, motors carried by said car, and having pistons and piston-rods, the latter being connected directly to said hoisting-chains, whereby said implements are raised and lowered, and means for holding said implements in position to be operated by the movement of said car, substantially as described.

4. In a ditching-machine, the combination with a car, of swinging cranes pivotally connected thereto to be swung into and out of operative position, to support earth-working implements, a draft-beam carried by the forward end of said car, draft-chains connected to said beam and to said implements whereby they are held in working position, hoisting-chains arranged on said cranes whereby said implements may be hoisted, and motors carried by said car and having pistons and piston-rods, the latter being directly connected to said hoisting-chains whereby the same may be raised and lowered, substantially as described.

5. In a ditching-machine, the combination with a car, of swinging cranes pivotally connected thereto to be swung into and out of operative position, to support earth-working implements, a draft-beam carried by the forward end of said car, draft-chains connected to said beam and to said implements whereby they are held in working positions, hoisting-chains arranged on said cranes and connected to the earth-working implements whereby said implements may be operated, motors carried by said car, and having movable elements connected directly to said hoisting-chains whereby the same may be raised and lowered, for the purpose set forth, substantially as described.

6. In a ditching-machine, the combination with a car, of an upright frame fixed and braced thereto, swinging cranes supported by said frame, hoisting-chains arranged on said cranes, draft-beams pivotally connected to the sides of said car, means for holding said beam in working position, draft-chains adjustably secured to said beam, earth-working implements supported by said hoisting-chains and actuated through said draft-chains, motors carried by said car and having movable elements connected to said hoisting-chains to actuate the same, spreading-wings pivotally supported on the sides of said car to be raised and lowered by said hoisting-chains and to be swung out and held in operative position by said draft-chains, and means for holding said wings folded against the sides of said car, and up out of working position, substantially as described.

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

GEORGE W. BASHAW.

Witnesses:
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