

UNITED STATES PATENT OFFICE.

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TRENCH-MACHINE.

SPECIFICATION forming part of Letters Patent No. 524,731, dated August 21, 1894.

Application filed April 2, 1894. Serial No. 506,368. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. POTTER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Trench-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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in a machine for raising a tub filled with dirt from the bottom of the trench to the surface and to provide means to transport the tub from one end of the trench to the other. The tub is raised by means of ropes or cables, one end of which is connected to the hoisting engine drums and the other end is connected to the drums on the main shaft to raise the tub, the tub descends either by gravity or by reversing the engine, and has for its object to provide a simple and inexpensive means for the elevation of material and to transport same, back and forth on the line of the track.

With this end in view, the invention consists in certain features of construction and combination of parts, which will be hereinafter fully described and pointed out in the claims.

In excavating for sewers, where the dirt and other materials are to be raised to the level of the street and to be transferred longitudinally to a convenient place for dumping, the device which is the subject of the present invention is of great convenience, as it affords a safe, cheap, practical and readily constructed transit for such material.

Reference being had to the accompanying drawings, forming a part of this specification in which similar letters of reference indicate corresponding parts in both figures, Figure 1— is a side elevation. Fig. 2— is a plan view.

In the drawings, A refers to a horizontal frame and A' to the vertical supports, provided with the wheels A², which are journaled to the brackets A³. This superstructure trav-

els on the rails B which are spiked to the sleeper B'.

D is the horizontal frame of the carriage.

D² are vertical supports, and D⁴ the braces of the frame.

C are the carriage wheels.

C³ C³ are the axles which are journaled to the boxes C². Said boxes are fastened to the lower part of the frame.

C', is the carriage track.

K is the drum shaft and has bearings in the journal boxes J, and is provided with the large drum M. The small drums O and O' and ratchet wheel H are all secured to said shaft.

E is the ratchet wheel beam which is fulcrumed at *f*. One end of the beam is longer than the other in order to engage the ratchet lock F into said wheel, and is released by means of the rope *h*.

P represents one end of the hoisting engine frame, provided with the drums T and R, which have the operating handles X and Y respectively, and which have suitable friction clutches to revolve the drums in either direction.

t is the long rope or cable and is securely fastened to the drum T of the engine, and passes up and over the wide pulley W, then over the pulley W', across the carriage and between the drums M and O' to pulley W², then downward and over the pulley W³, then inward and under the pulley W⁴, then upward and fastened to the large drum. The rope or cable *r* is secured to the drum R of the engine and then passes upward and over the pulley S, then under the pulley S', then upward and over the pulley S² and then around the drum M and is secured thereto, the cable *r* is wound around the drum M in the same direction as the cable *t*. The drums T and R are loose on the shaft and only revolve when the friction levers are engaged therewith, said drum shafts are geared together and are operated by a gear on the main shaft of the engine.

O² and O³ are the ropes or cables with one end fastened to the drums O and O' respectively, then extending down for a suitable length and the end of each is fastened to the handle G' which is fastened on each side of

the tub G, the cable is intended to raise and lower said tub.

In operation, to raise the tub from the bottom of the trench, engage the friction levers X and Y with the drums T and R respectively, which will cause the tub to rise. To lower the tub release both of the said friction levers which will cause the tub to fall by means of gravity, or the tub can be lowered by engaging the friction levers and reversing the engine which will cause the tub to descend. To move the carriage horizontal with the track toward the right, lock the shaft K by means of the ratchet pawl E and engage the friction lever X and release the lever Y. To move the carriage in the opposite direction release the lever X and engage the lever Y with the drum. It is understood that the drums T and R are loose on the shaft and are only operated when the friction levers are engaged therewith.

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

1. The combination with a hoisting engine, a suitable superstructure to travel on the surface, a carriage traveling longitudinally thereon, the shaft K mounted on said carriage, the main drum M on said shaft, the pivoted beam E, the ratchet wheel H, the pawl F attached to said pivoted beam to lock said shaft, cables *r* and *t* connected to the drums of a hoisting engine and passing over a series of small pulleys as shown, and connected to main drum M on the shaft K to move the car longitudinally in either direction, substantially as described.

2. In a trench machine, the combination with a hoisting engine and a traveling super-

structure at the loading station elevated above the ground line and mounted on a suitable track, a carriage traveling longitudinally thereon, the shaft K mounted on said carriage, the main drum M on said shaft, the pivoted beam E, the ratchet wheel H, the pawl F, attached to said pivoted beam to lock said shaft, cables *r* and *t* connected to the drums of the hoisting engine and passing over a series of small pulleys as shown and connected to the main drum M on said shaft, the small drums O, and O' connected to said shaft, and ropes O², and O³ extending downward and connected to a suitable tub or bucket, substantially as set forth.

3. The combination in a device of the class described, a carriage traveling longitudinally on a movable trestle the shaft K mounted on said carriage, the main drum M, the small drums O and O' the ratchet wheel H secured to said shaft, the beam E and pawl F mounted on said beam to lock said shaft, the ropes O² and O³ connected to the drums O and O' respectively, the opposite ends of said ropes attached to a suitable tub, the cables or ropes *t* and *r* attached to the drums T and R on the hoisting engine respectively, the opposite ends of said ropes wound around the drum M, in the same direction and attached thereto, a series of intermediate pulleys between the ends of the ropes *t* and *r* to revolve the shaft in opposite directions, all to co-operate as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH L. POTTER.

Witnesses:

JNO. S. THURMAN,
C. L. HARE.