(No Model.) 2 Sheets—Sheet 1.

J. L. POTTER.

EXCAVATING AND CONVEYING MACHINE.

No. 588,006. Patented Aug. 10, 1897.

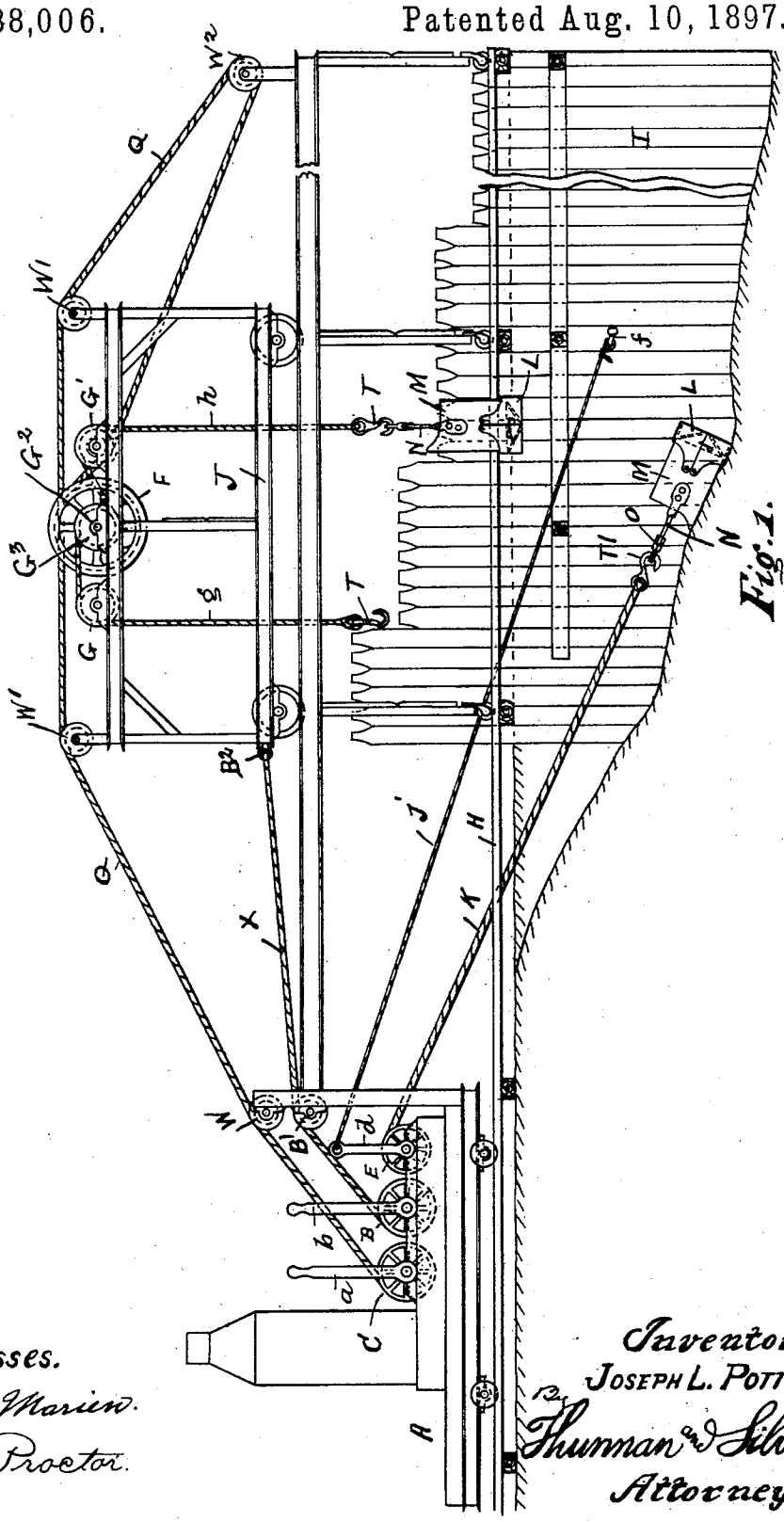

Fig. 1.

Witnesses.
Charles Marion.
M. C. Proctor.

Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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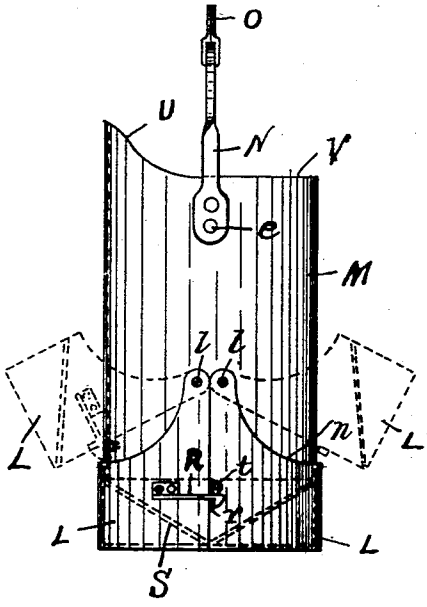

Fig. 2.

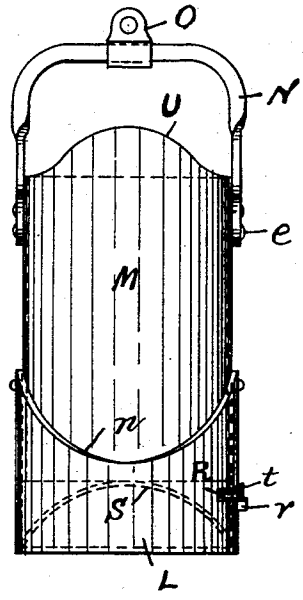

Fig. 3.

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH L. POTTER, OF INDIANAPOLIS, INDIANA.

EXCAVATING AND CONVEYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 588,006, dated August 10, 1897.

Application filed November 14, 1896. Serial No. 612,104. (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 Excavating and Conveying 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.

My invention relates to an improvement in a machine for excavating trenches economically by means of a scoop to raise the material from the bottom of the trench to the surface, and, further, to provide means to transport the scoop filled with material longitudinally to a convenient place for dumping.

The object of my invention is to provide a simple and inexpensive apparatus and receptacle for scooping up the material from the trench and means for transporting same back and forth on the line of the track and disposing of the contents of the scoop at the desired place by means of the drop-bottom of the scoop. The scoop is pulled over the trench-surface until filled by means of the rope or cable connected to one of the drums of the hoisting-engine and is raised and transported by means of ropes or cables, one end connected to and operated by the hoisting-drums and the other end connected to the drums on the shafts of the traveling carriage.

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

In excavating for trenches, sewers, and the like where the material is to be raised to the surface to be transported longitudinally to a convenient place for dumping this device is of great convenience, as it affords a safe, practical, and readily-constructed transit for such material. It has been the custom to first loosen the dirt by means of picks and shovels and filling the receptacle with dirt and then raising it to the surface, but my invention fills the scoop automatically by dragging it along the surface of the trench by means of the ropes and cables on the carriage and engine by simply manipulating the drum-levers which are attached to the engine and dropping the contents of the scoop in a convenient place at the will of the operators.

Referring to the drawings, Figure 1 represents a side elevation showing the machine in operation. Fig. 2 is a side elevation of the scoop, showing the bottom of same open in dotted lines. Fig. 3 is an end elevation.

In the drawings, H is a surface rail on which the superstructure travels. On top of this superstructure the carriage J is mounted and travels longitudinally on wheels. On top of the carriage J is mounted the main drum F and the supplemental drums G, G′, and G^3. These drums are mounted on suitable shafts of the carriage.

I represents the boards of the sides of the trench in which the scoop M operates.

A represents the hoisting-engine frame, provided with the drums C, B, and E, and which have the operating-levers *a*, *b*, and *d*, respectively. The levers *a* and *b* are connected to suitable frictional clutches to revolve said drums in either direction. The drums C and B are loose on the shaft and only revolve when the levers *a* and *b* are engaged therewith. The drums to which the levers *a*, *b*, and *d* are connected are geared together and are engaged by a third or a series of intermediate gears to the gear on the main shaft of the engine.

Q is a long rope or cable, and is attached to the drum C of the engine and passes over the pulleys W and W′ lengthwise across the carriage and over the pulley W^2, then around the main drum F.

The rope or cable X is secured to the drum B of the engine, then passes upward and over the pulley B′, and is attached to the carriage B^2. This rope pulls the carriage toward the engine. The ropes *g* and *h* pass over the supplemental drums G G′, respectively, and around the supplemental drums G^3, which are attached to the main shaft G^2, on which is mounted the main drum F. The ropes or cables *g* and *h* have hooks T attached to their lower ends.

The scoop M is preferably made cylindrical and has the swinging or bottom doors L, pivoted to the scoop at *l*, and the two halves of the bottom are held together by means of a spring-latch R, engaging with the catch *r* on the opposite half of the bottom.

l is an eyelet in the spring-latch to attach a rope to disengage the doors of the scoop from the surface of the trench. The bottom L is concave at *n*, so that the sides of the doors will clear the scoop M when open. The doors at the bottom of the scoop have the concave or slanting bottom S. When the spring-latch on the door is released, the doors open automatically by means of the weight of the material forcing the bottom doors apart.

The top of the scoop is shown flat at V and tapers upward in the contour, as shown at U. The edge U scrapes and gouges in the surface of the trench, thereby filling the scoop.

N is the rigid handle and is riveted to the scoop by means of the rivets *e*.

O is the bracket attached to the handle N and engages with the hook T.

In operation, to lower the scoop disengage the frictional clutch-lever *a* and the scoop will fall by gravity to the bottom of the trench. Then engage the lever *d* by means of the rope *j*, which will cause the drum E to revolve and pull the scoop toward the hoisting-engine. The scoop is effectively filled in this manner, and when filled is engaged with the hook T on the rope or cable *h* and is elevated to the surface by means of the lever *a* and drum C. The scoop when elevated to the surface is then transported longitudinally along the track to the desired place for dumping. Then the operator lifts the latch, which releases the drop-bottom doors of the scoop, and said doors open by means of the weight of the load therein, thus relieving the scoop of its contents.

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

1. In combination the movable trestle, the movable carriage mounted thereon, the shafts journaled on said carriage, the main and supplemental drums carried by said shafts, the cables or ropes connected to said supplemental drums, the scoop connected by said ropes to said supplemental drums, the ropes or cables leading from the engine-drums and passing over pulleys carried by said carriage and connected to the main drum, the winding of said rope on said engine-drums being adapted to either raise or lower said scoop, or advance said carriage, the cable attached to one of said engine-drums to advance or pull said scoop on the surface of the trench, the hand-rope operating said drum and the rope or cable to pull the carriage toward the engine, substantially as shown and described.

2. The herein-described scoop for excavating materials having a cylindrical body, the mouth of the scoop flared upward, the bottom doors pivoted to said cylindrical body and made into halves and moving in opposite directions, the bottom of said doors of the scoop made concave and held together by means of a spring-latch, substantially as shown and described.

3. The herein-described scoop for an excavating-machine, made cylindrical in form and having operating-doors at the bottom thereof, and pivoted to said scoop, said doors having slanting bottoms and held together by means of a spring-latch, substantially as shown and described.

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

JOSEPH L. POTTER.

Witnesses:
JNO. S. THURMAN,
E. T. SILVIUS.