

L. A. LARSON
EXCAVATING APPARATUS.
APPLICATION FILED MAR. 17, 1910.

976,663.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

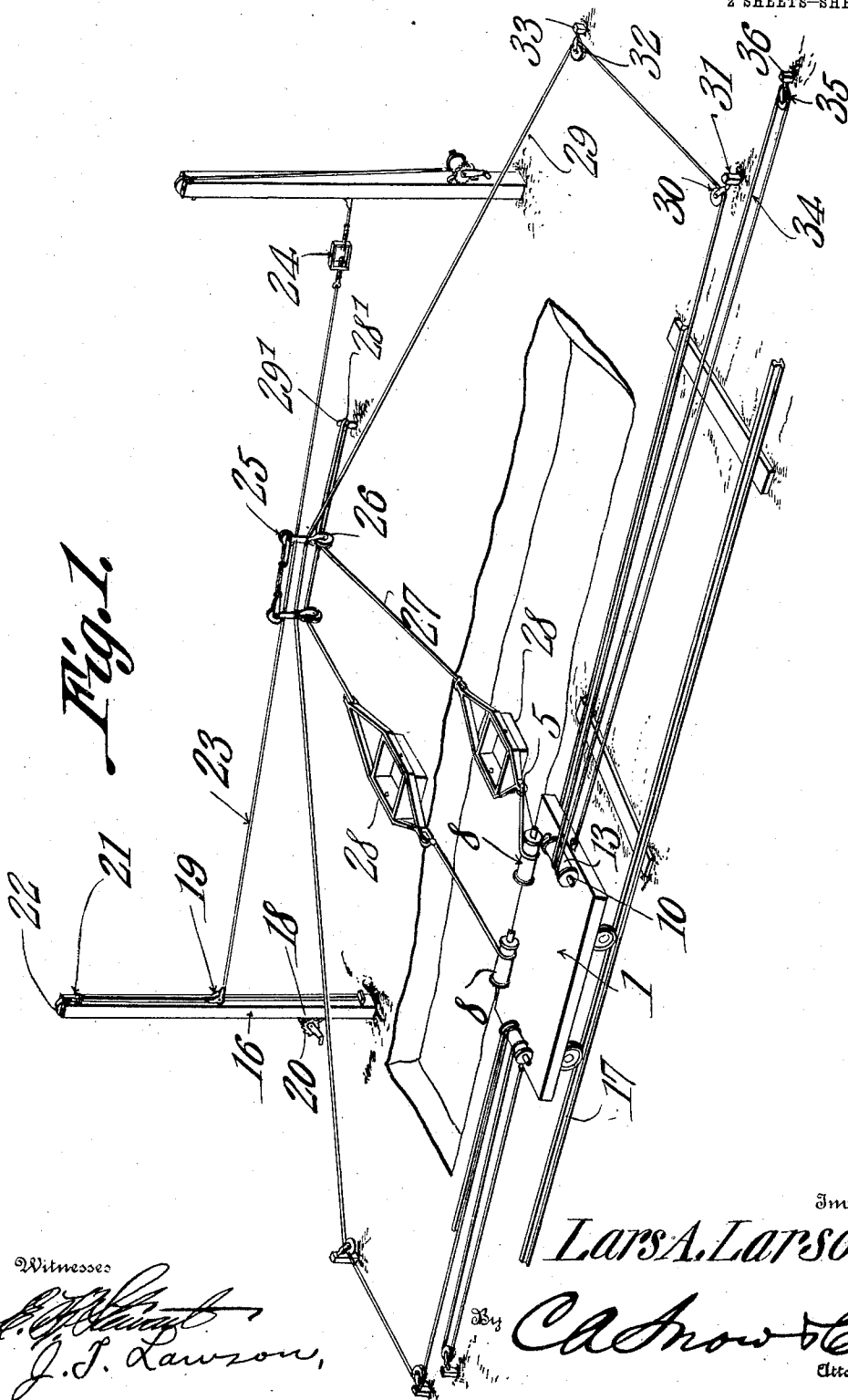


Fig. 1.

Witnesses
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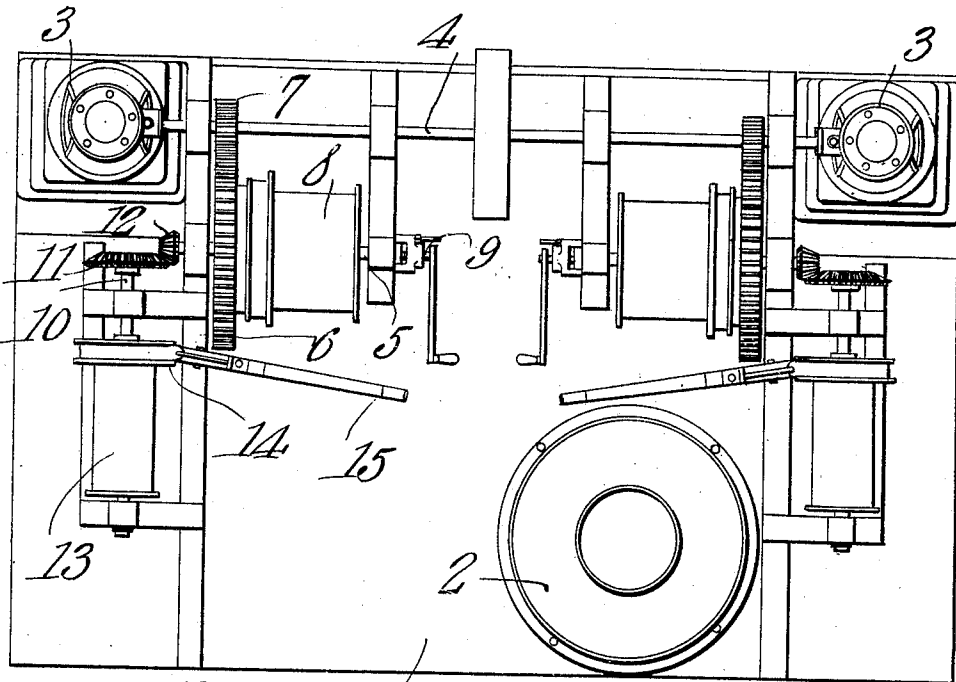
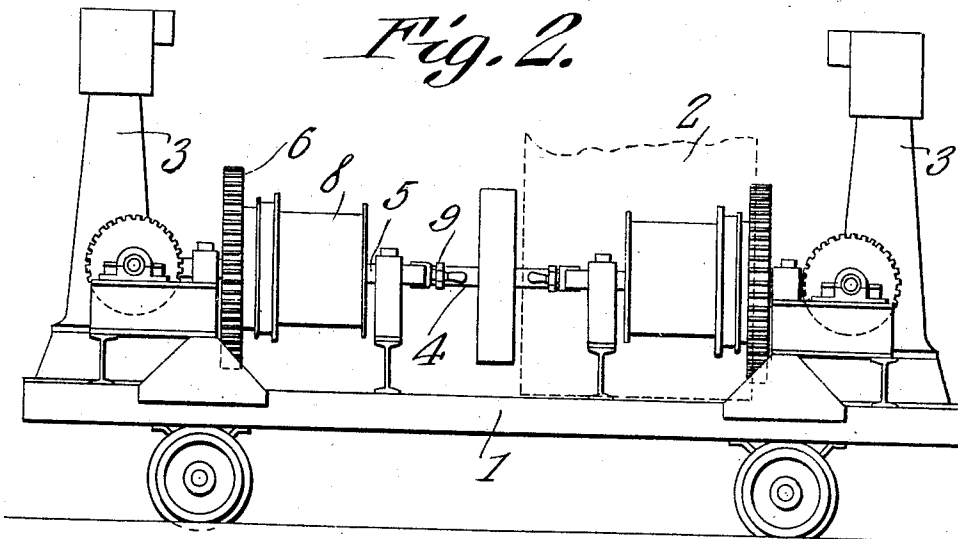


Fig. 3.

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UNITED STATES PATENT OFFICE.

LARS A. LARSON, OF WEIR, KANSAS.

EXCAVATING APPARATUS.

976,663.

Specification of Letters Patent. Patented Nov. 22, 1910.

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To all whom it may concern:

Be it known that I, LARS A. LARSON, a citizen of the United States, residing at Weir city, in the county of Cherokee and State of Kansas, have invented a new and useful Excavating Apparatus, of which the following is a specification.

This invention relates to an excavating apparatus and it consists in the novel arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a simple apparatus adapted to be used for excavating material to form cuts for roadbeds and so forth and to provide means for moving the excavated material in order that it might be deposited at desired points.

With the above objects in view the apparatus includes a track upon which is mounted a car equipped with engines and winding drums. Cables are arranged to wind upon some of the said drums whereby the car may be moved along the track and cables are arranged to wind upon other of the said drums and to the last said cable earth scoops are attached. Masts are erected in the ground adjacent the area at which the excavation is to be made and a track is adjustably supported upon the said masts. A carriage is arranged to travel along the last said track and is attached to the first said cables which are mentioned as being windable upon the drums of the said car for the purpose of moving the car and said carriage also serves as guiding means for the cables which connect with the earth scoop.

In the accompanying drawings:—Figure 1 is a perspective view of the apparatus illustrating the car diagrammatically. Fig. 2 is a detail side elevation of the car. Fig. 3 is a top plan view of the car.

The car 1 is provided upon its platform with a boiler 2 and engine 3. A shaft 4 is operatively connected with the engine 3 and stub shafts 5 are journaled in suitable supports mounted upon the said car 1. Gear wheels 6 are journaled for rotation upon the shaft 5 and mesh with gear wheels 7 fixed to the shaft 4. Winding drums 8 are mounted upon the shaft 5 and may be moved into frictional contact with the gear wheels 6 by means of the thrust devices 9 in the usual manner. Shafts 10 are journaled for rotation at the ends of the car 1 and beveled pinions 11 are fixed to the ends of the said shafts 10. The said pinions 11 mesh

with pinions 12 fixed to the shafts 5. Winding drums 13 are mounted upon the shafts 10 and are controlled by friction devices 14 which in turn are operated by levers 15 in the usual manner. Masts 16 are erected in the ground adjacent the area in which the excavation is to be made and a track 17 is laid in the vicinity of the said masts and parallel with the same and the car 1 is arranged to travel upon the said track 17.

Blocks 19 are arranged to move vertically along guides provided at the inner sides of the masts 16 and winding drums 20 are journaled at the outer sides of the said masts and in the vicinity of the lower ends thereof. Cables 21 are attached at their inner ends to the blocks 19 and pass over pulleys 22 journaled for rotation at the upper ends of the said masts and at their outer ends are arranged to wind upon the drums 20. A track 23 is secured at its ends to the blocks 19 and is provided at a point between its ends with a turn buckle 24 whereby the said track may be maintained in a taut condition. A carriage 25 is arranged to travel upon the track 23 and is provided with depending sheaves 26. A cable 27 is arranged to wind on drums 8 mounted on car 1 and said cable 27 is attached to a drum 8, then to an earth scoop 28, then passes over one sheave wheel 26, then around a sheave wheel 29 secured in position by a stake 28' driven in the ground, then back over the other wheel 26 and then attached to the other earth scoop 28 and then attached to the other drum 8 on car 1. Cables 29 at one end are arranged to wind upon the drums 13 upon the car 1 and the said cables 29 pass around sheaves 30 attached to stakes 31 driven in the ground and sheaves 32 attach to pegs 33 driven in the ground. The other ends of the said cables 29 are connected with the carriage 25. Cables 34 are arranged at one end to wind upon the drums 13 and the intermediate portions of the said cables pass around sheaves 35 attached to stakes 36 driven in the ground in alinement with the track 17 and the other ends of the said cables 34 are connected to the ends of the car 1.

In operation it will be seen that by winding the cables 21 upon the drums 20 that the track 23 may be raised to any desired elevation above the surface of the ground. One earth scoop 28 is filled by an operative as it is moved away from car 1 toward car-

riage 25 and said load of earth is dumped by an operative before said load reaches carrier 25. The drums 8 and cable 27 are so arranged that when one drum 8 is in gear with the engine the other drum is released to let off the corresponding amount of rope or cable. The scoop when emptied is brought back by releasing one drum 8 and causing the other drum to wind, so when one scoop is going out with a load it passes the other scoop returning empty. Either one of the drums 13 is rotated to cause its attached cables 29 and 34 to wind thereon while the other drum 13 is permitted to unwind. As the cables 29 and 34 wind upon the active drum 13 the car 1 is moved along the track 17 and the carriage 25 is moved along the track 23 in the same direction. By this arrangement it will be seen that means is provided for moving the car 1 along the track 17 in either of two directions and that the carriage 25 will move along the track 23 in the same direction and at the same rate of speed at which the car 1 moves in order to always have the rope 27 at right angles with drums 8 and to elevate rope 27 so it will not drag in the dirt and cause unnecessary friction.

Having described the invention what I claim as new and desire to secure by Letters Patent is:—

1. An excavating apparatus comprising a track, a car arranged to travel upon the track, masts located adjacent the track, a track supported by said masts, a carriage arranged to travel upon the tracks supported by the mast, means operatively connecting the car with the carriage to cause the same to move simultaneously, scoop cables connected with the car and guided by the carriage, and scoops attached to the said scoop cables.

2. An excavating apparatus comprising a track, masts erected adjacent the track, a track adjustably supported by said masts, a carriage arranged to travel upon the adjustable track, a car arranged to travel upon the first said track, means operatively connecting the car with the carriage to cause the same to move simultaneously upon their respective tracks, scoop cables connected with the car and guided by the carriage and scoops attached to said scoop cables.

3. An excavating apparatus comprising a track, a car arranged to travel thereon, masts located adjacent the track, winding drums mounted upon the mast, blocks slidably

mounted upon the mast, a track connecting the said blocks, cables operatively connecting the blocks with the winding drums, a carrier arranged to travel upon the last said track, means operatively connecting the carrier with the car to cause the same to travel simultaneously upon their respective tracks, scoop cables connected with the car and guided by the carriage, and scoops attached to the said scoop cables.

4. An excavating apparatus comprising a track, a car arranged to travel thereon, masts erected adjacent the track, a track supported by said masts, a carrier arranged to travel upon the last said track, scoop cables connected with the car and guided by the carriage, scoops attached to the scoop cables, winding drums mounted upon the opposite ends of the car, cables connected at their ends to the said winding drums and the carriage and at intermediate points passing around fixed guides located beyond the ends of the carriage and car and draft cables also arranged to wind upon the said drums and connected at their other ends with the ends of the car and at intermediate portions passing around fixed guides located beyond the ends of the car.

5. An excavating apparatus comprising a track, a car arranged to travel upon the track, masts located adjacent the track, a track supported by said masts, a carrier arranged to travel upon the last said track, winding drums located upon the side of the car, scoop cables arranged to wind upon said drums, sheaves carried by the carrier, said scoop cables passing over said sheaves, scoops attached to the scoop cables, winding drums located at the ends of the car, cables attached at their ends to the winding drums at the ends of the car and to the said carrier and at intermediate portions passing around fixed guides located beyond the ends of the car and carrier, draft cables arranged to wind upon the drums located at the ends of the car and at their other ends being attached to the ends of the car and at intermediate portions passing around fixed guides located beyond the ends of the car.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LARS A. LARSON.

Witnesses:

G. W. HUNT,
ED COWAN.