F. A. RENNER.

EARTH HANDLING MECHANISM.

APPLICATION FILED FEB. 2, 1914.

1,160,199.

Patented Nov. 16, 1915.

2 SHEETS—SHEET 1.

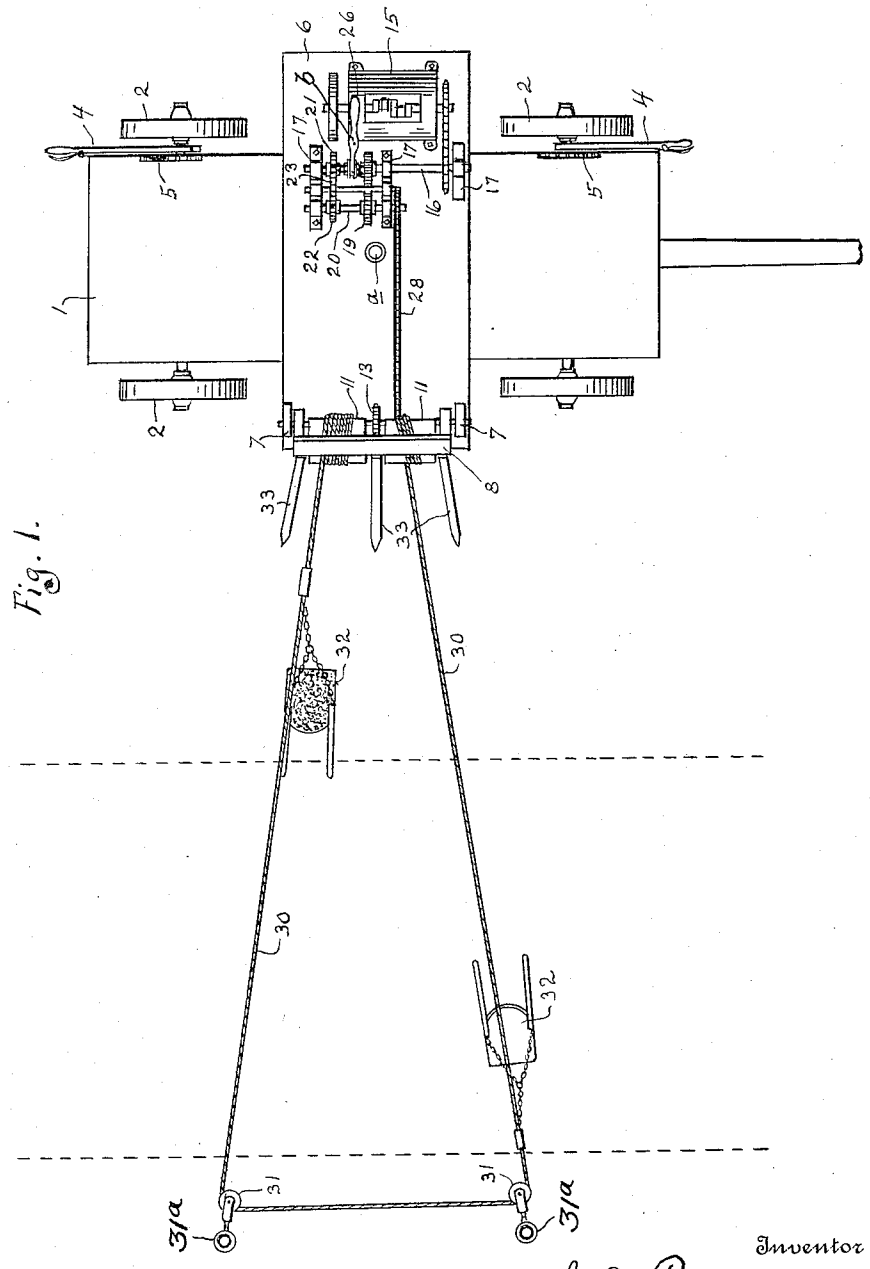

Fig. 1.

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Fig. 4.




Fig. 3.

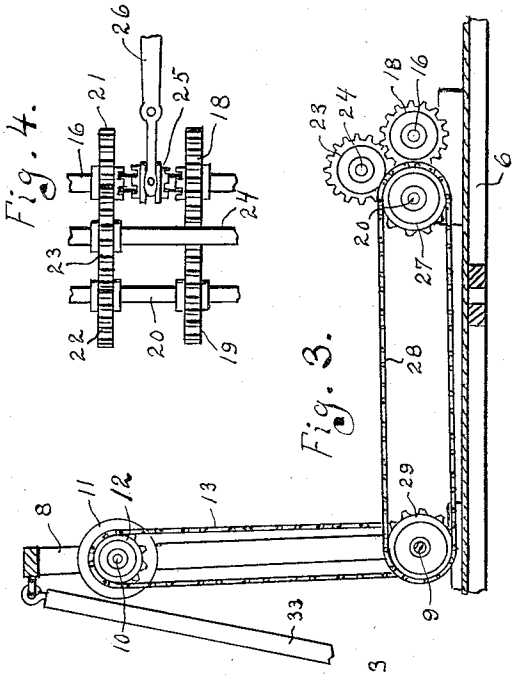



Fig. 5.

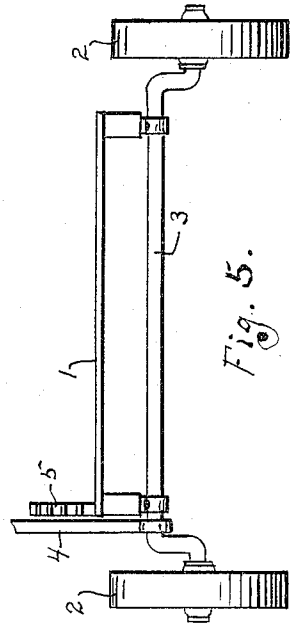
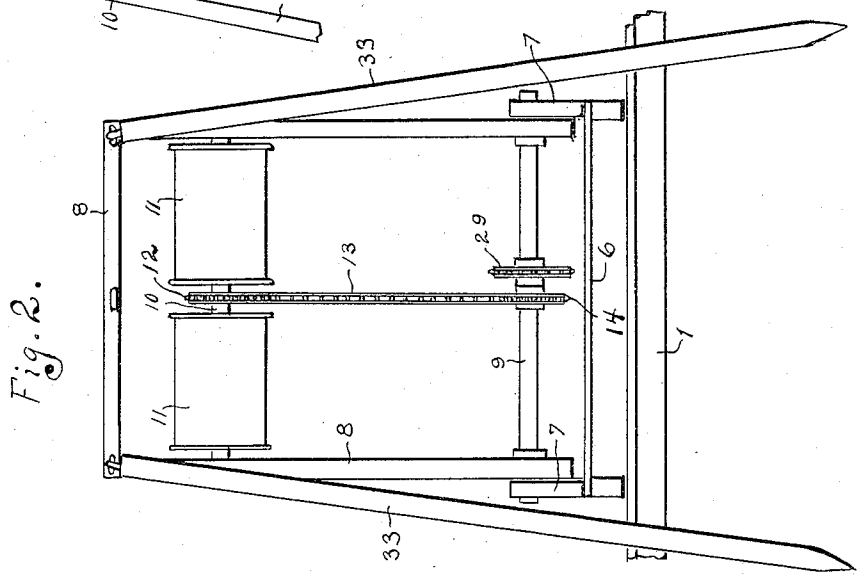



Fig. 2.

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# UNITED STATES PATENT OFFICE.

FRANK A. RENNER, OF TAMPICO, ILLINOIS.

## EARTH-HANDLING MECHANISM.

1,160,199. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed February 2, 1914. Serial No. 816,009.

*To all whom it may concern:*

Be it known that I, FRANK A. RENNER, a citizen of the United States, residing at Tampico, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Earth-Handling Mechanism, of which the following is a specification.

My invention has reference to devices for transporting earth and other materials, and pertains to machines of that class which are designed to carry the material for a considerable distance. It is of simple and light construction, and is of special use for removing sediment and alluvium from drainage ditches or in the construction of such ditches. It is equally useful for removing the earth in excavating for buildings, removing gravel from a pit, and similar uses.

In the drawings: Figure 1 is a plan view of my device as it appears when in use. Fig. 2 is a front view of the drum-supporting frame. Fig. 3 is a side elevation, showing parts of the drum-actuating mechanism, partly in section. Fig. 4 is a plan view of the reverse-gear mechanism, in detail. Fig. 5 is a detail illustrating one of the truck supporting means.

1 represents a truck, mounted on carrying-wheels 2, and pivotally mounted, as at *a*, on the truck 1 is a platform 6, at one end of which are fixed supports 7, between which is pivotally held an arch-frame 8, by means of a shaft 9 journaled at its ends in said supports. Rotatably mounted in the frame 8 is a shaft 10, upon which is secured a pair of drums 11, between which drums is fixed on the shaft 10 a sprocket-wheel 12, connected by a sprocket-chain 13 with a similar wheel 14 on the shaft 9, whereby the movement of the latter shaft is imparted to the shaft 10.

15 indicates a motor on the opposite end of the platform 6 from the frame 8, from which motor power is imparted in any usual manner to a shaft 16 journaled in bearings 17 mounted on the platform. On the shaft 16 is mounted a gear-wheel 18, so as to rotate independently thereof, and in mesh with a similar wheel 19, fixed on a shaft 20, also rotatably mounted on the platform 6. A gear-wheel 21 is also loosely mounted on the shaft 16, from which wheel movement may be imparted to a gear-wheel 22 fixed on the shaft 20, by means of an idler gear-wheel 23 fixed on a shaft 24 journaled in the bearings 17, said gear-wheel 23 being in mesh with the wheels 21 and 22.

Feathered on the shaft 16, between the wheels 18 and 21, is a clutch collar 25, provided with clutch-teeth adapted to engage similar teeth on the inner faces of said wheels, and provided with an operating lever pivoted as at *b*. By means of the gearing devices just described the movement of the shaft 16 can be imparted to the shaft 20 to rotate the same in either direction, as desired. Nothing new is claimed thereon, and the reversing operation can be accomplished in other ways.

On one end of the shaft 20 is fixed a sprocket-wheel 27, connected by a chain 28 with a sprocket-wheel 29 on the shaft 9, whereby the movement of the former shaft can be communicated to the latter, to cause the rotation of the shaft 10 and drums 11 thereon.

A cable 30 is fixed at one of its ends to one of the drums 11 and at its other end to the other one thereof, such cable passing through pulleys 31 secured to stakes 31ª at any desired distance from the machine. Connected with the cable 30 is a pair of scrapers 32, adapted to be operated in a direction toward or away from the machine upon the movement of the cable. The end of the cable is secured to one of the drums so that the direction of movement thereof will be contrary to that of the cable on the other drum, so that the cable is kept taut at all times, and when one scraper is moving outwardly the other one is moving in the opposite direction. To hold the frame 8 against the strain of the cable and loaded scrapers, two or more legs or braces 33 are pivotally connected with the upper part of said frame, and inclined downwardly and outwardly to the ground.

In use the truck 1 is moved forwardly on a line parallel with the line of the strip to be excavated, indicated by broken lines in Fig. 1, the machine being stopped at regular intervals to permit the removal of the earth. As shown in the drawings the work is carried on at a right angle to the line of travel of the machine, but by reason of its pivotal connection with the truck 1, the platform 6 can be turned at an angle therewith, so as to remove material in a direction obliquely to that of the machine. In this way a greater amount of material may be removed at each

setting of the machine, and a correspondingly less number of movements thereof required. In changing the position of the truck the frame 8 is swung inwardly at the top until the braces 33 are clear of the ground, and if desired such frame can be laid over upon the platform while being moved. The scrapers 32 are preferably detachably connected with the cable 30 so as to be readily disconnected for convenience in moving.

It is obvious that the distance of the machine from the line of excavation can be regulated by the length of the cable, and sufficient space provided between the machine and excavation for the deposit of the earth removed.

What I claim as my invention and desire to secure by Letters Patent of the United States, is:

In a device of the class described, a platform supported to swing at a central point; a vertical frame pivotally mounted at one end of said platform; a pair of drums rotatably mounted in said frame; a cable secured at its ends to said drums so as to be oppositely wound thereon upon the rotation thereof; means for supporting said cable in two spaced-apart lines; a pair of excavating devices connected with the opposite lines of said cable, so as to have alternate operation therewith; braces pivoted at their upper ends to the top of said frame and adapted to engage the ground at their lower ends; and means for suitably operating said drums.

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

FRANK A. RENNER.

Witnesses:
W. N. HASKELL,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."