W. L. GREY.

DITCH DIGGER.

APPLICATION FILED FEB. 21, 1912.

1,045,834.

Patented Dec. 3, 1912.

Fig. 1

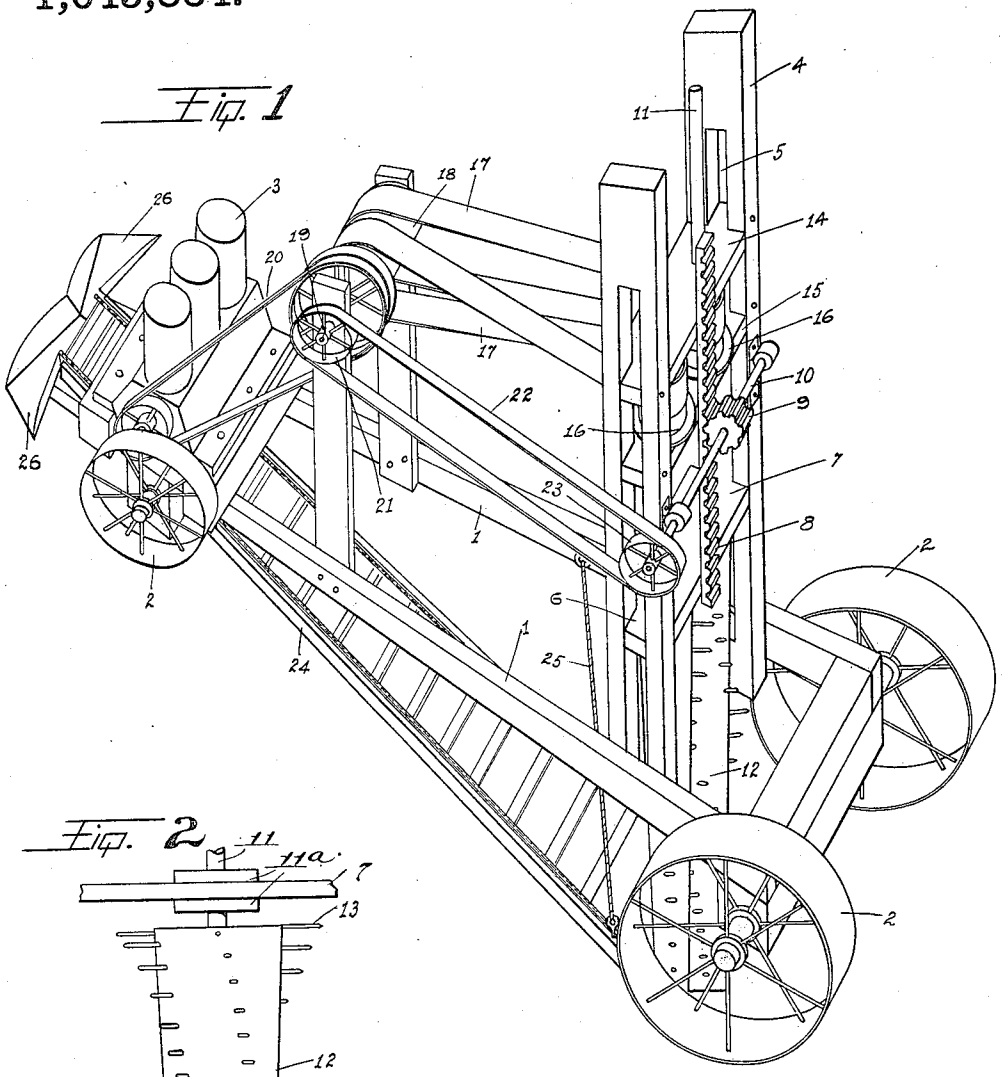


Fig. 2

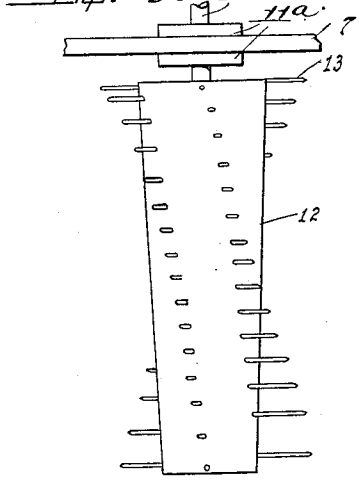
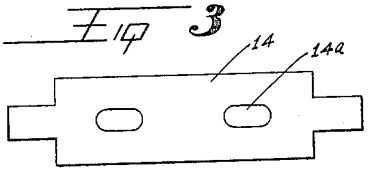


Fig 3



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIS L. GREY, OF STOCKTON, CALIFORNIA.

DITCH-DIGGER.

1,045,834. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed February 21, 1912. Serial No. 679,078.

To all whom it may concern:

Be it known that I, WILLIS L. GREY, a citizen of the United States, residing at Stockton, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Ditch-Diggers; and I do declare the following to be a full, clear, and exact description of the same, 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 characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in excavating machines and particularly to a machine used for digging ditches for irrigating or drainage purposes or for any other purpose desired.

The object of the invention is to produce such a machine as will cut and excavate in a rapid, effective and accurate manner at any depth desired and lift the excavated dirt to the top of the ditch as fast as it is excavated.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of the parts as will fully appear by a perusal of the following specification and claim.

In the drawings, similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a perspective view of the complete ditcher. Fig. 2 is a side elevation of a digging drum. Fig. 3 is a top plan view of a guide member.

Referring now more particularly to the characters of reference on the drawings, I first provide a wheel mounted frame 1 having supporting wheels 2 and carrying on its rear end an operating gas engine or other power mechanism 3. Secured to the frame 1 is a vertical frame comprising upwardly projecting beams 4 and two spaced cross-beams 14 and 15, said beams 4 being provided with vertical guide slots 5 adapted to receive tongues 6 on a cross beam 7, such tongues being movable vertically in said slots, said cross beam 7 being provided with a fixed vertical gear rack 8 adapted to intermesh with a pinion 9 secured on a shaft 10 journaled on the sides of the beams 4 and adapted to be driven by the engine 3 by means of suitable belting which will be hereinafter described. By this structure the beam 7 may be raised or lowered in order to raise or lower the digging mechanism according to the depth of the ditch, which digging mechanism is described as follows, namely; two vertical rods 11 project through the beam 7 and carry on their lower ends tapered drums 12. In order to permit the digging mechanism to be raised and lowered with the beam 7 as stated above such rods 11 have projecting flanges 11^a which embrace said member 7 and hence as such member 7 is raised or lowered this raises or lowers these rods 11 and their connected parts. Each of said drums 12 is provided with a plurality of outwardly extending digging or cutting teeth 13 secured to said drum 12 from top to bottom in rows and following the periphery of said drum in what might be termed a quarter circular turn as shown in Figs. 1 and 2. The teeth on one drum pass between the teeth on its adjacent drum when in operation for the purpose of keeping said teeth free and clear from dirt or debris. The rods 11 project upwardly through the two spaced beams 14 and 15 between which are disposed pulleys 16 slidably keyed to said rods 11 which pulleys 16 are driven by belts 17 connected with a pulley 18 on a shaft 19 driven by means of suitable pulley or belt connection with the engine 3 as at 20. A pulley 21 on the shaft 19 is connected by a belt 22 with a pulley 23 on the shaft 10 which drives the pinion 9 as hereinbefore described.

Hinged to the forward end of the frame 1 is a conveyer 24 adapted to project under the cutting drums 12 and to be connected with the member 7 by means of cables 25 whereby said conveyer will raise or lower as the cutting drums are raised or lowered. This conveyer 24 discharges into side chutes 26 which throw the dirt on each side of the ditch. The purpose of the tapered structure of the drum 12 is to cut the ditch with a flare at its outer edges to prevent the same from caving in during the digging operation. The members 14 are provided with elongated slots 14^a through which the rods 11 pass, whereby said rods may be tilted to make a greater or lesser flare to the sides of the ditch.

From the foregoing description it will be readily seen that I have produced such a de-

vice as substantially fulfils the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention.

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

A device of the character described comprising a wheel mounted frame, a vertical frame secured on said wheel mounted frame, a cross beam movable in said vertical frame, a vertical gear rack secured to said cross beam, a pinion secured on a shaft journaled on said vertical frame and engaging said gear rack, means for driving said shaft, rods turnable in said cross beam and movable therewith, a cutting means on the lower ends of said rods, means for turning said rods, and a conveyer leading from said cutting means, as described.

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

WILLIS L. GREY.

Witnesses:
PERCY S. WEBSTER,
JOSHUA B. WEBSTER.