

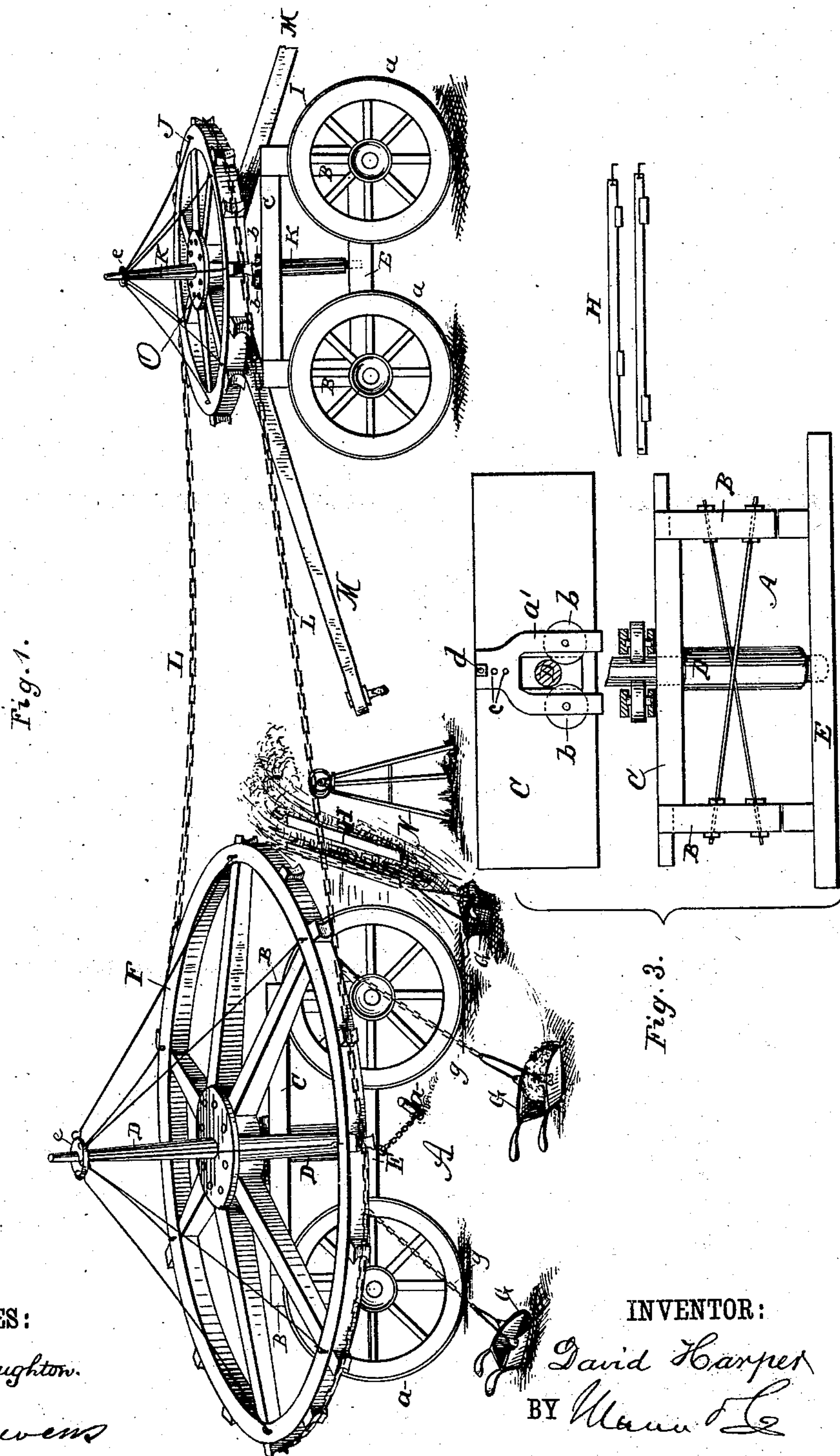
(No Model.)

2 Sheets—Sheet 1.

D. HARPER.
EXCAVATOR.

No. 287,671.

Patented Oct. 30, 1883.



WITNESSES:
Thos Houghton.
W. K. Stevens

INVENTOR:
David Harper
BY *Wm L*
ATTORNEYS.

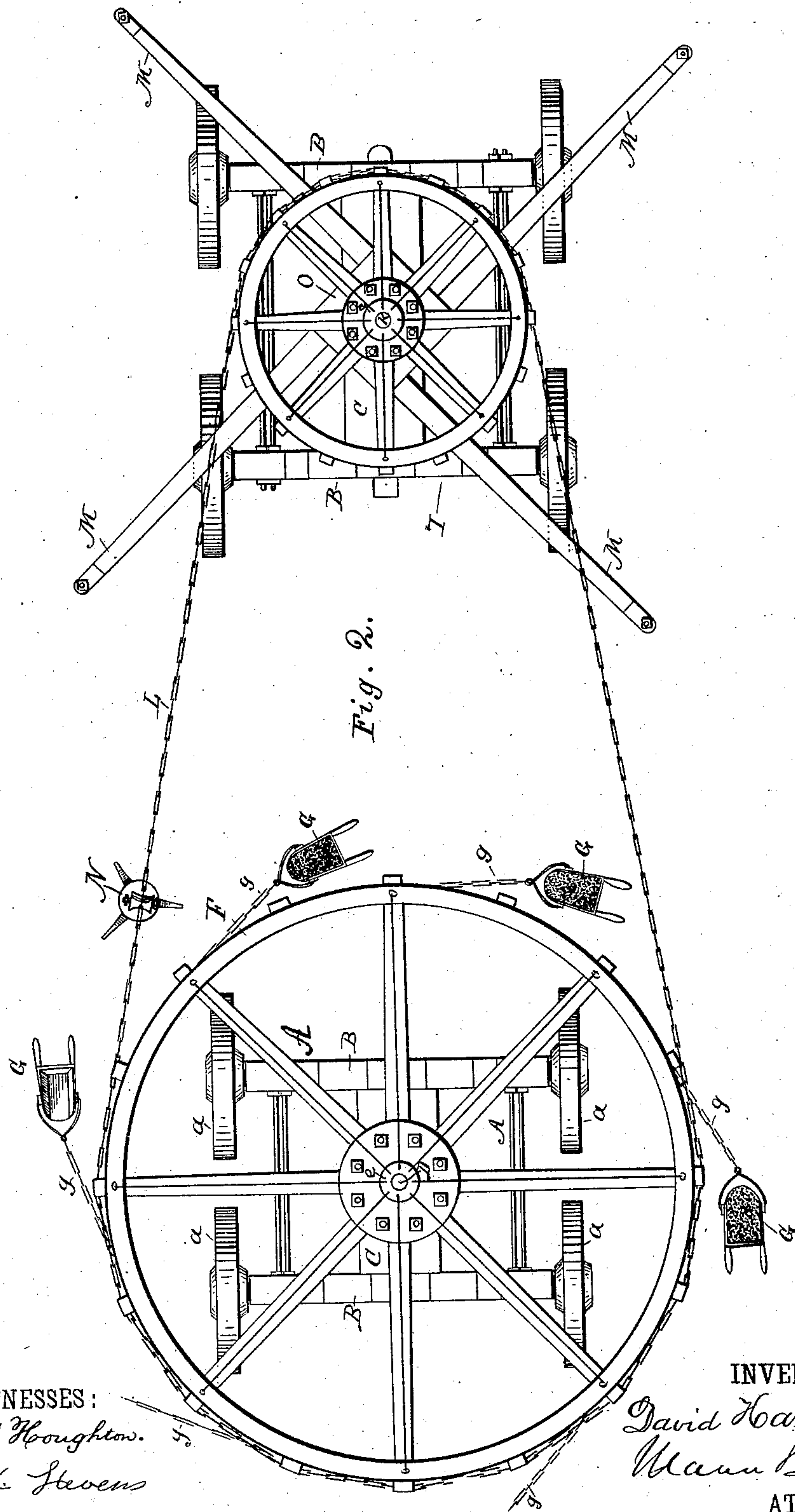
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Mann & Co.
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UNITED STATES PATENT OFFICE.

DAVID HARPER, OF JONESBOROUGH, ARKANSAS.

EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 287,671, dated October 30, 1883.

Application filed May 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, DAVID HARPER, a citizen of the United States, residing at Jonesborough, in the county of Craighead and State of Arkansas, have invented a new and Improved Excavator, of which the following is a specification.

My invention relates to that class of excavators used for digging ditches, building roads, &c.; and it has for its object to provide means whereby either horse-power or steam-power may be economically applied to the removal of dirt for short distances.

To this end it consists in the construction and combination of parts hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the principal form of my invention. Fig. 2 is a plan view of the same; and Fig. 3 is a detail plan view of plank C, &c.

A represents a wagon or truck, having four common wheels, *a*, mounted on axles, as usual. On these axles are mounted two very high bolsters, B, on the top edges of which a broad longitudinal plank, C, is firmly secured, connecting them together. In the middle of this plank is a loop-shaped hole, longest across the timber, in which hole stands a shaft, D, stepped in the reach E.

a' is a sliding fork, provided with two friction-rollers, *b*, against which shaft D bears when in use. This fork *a'* is made laterally adjustable by means of holes *c*, through which a pin, *d*, passes into a hole in the plank C. This permits shaft D to incline to the angle required in use. On shaft D is mounted a very large sprocket-wheel, F, which is stayed up by brace-irons extending from its rim to a link-plate, *e*, which is fixed on top of shaft D.

G represents common scoop earth-scrapers, hauled by lines or chains or other flexible attachments, *g*, attached to the lower face of the rim of wheel F. The shaft D is adapted to be inclined, as before described, for the purpose of adjusting the plane of wheel F to the plane of draft of the scraper-chains *g*.

The truck A is placed beside the line of ditch to be dug, between it and the crown of the road or of the dumping-ground, and is

there made fast by suitable stakes in the ground, and chains hitched thereto. When wheel F is revolved, it drags the scrapers around, and one or more men may be employed in guiding the scrapers to be filled in the ditch, while one dumps them as fast as they are brought to the top of the road, or at any place required within reach of their chains.

H represents framed skids, which may be used as tracks for the scrapers to slide on up abrupt ascents or to guide the scrapers to the edge of the dump, if required.

To revolve wheel F, any usual means may be applied; but I have devised a horse-power to be used in connection with the device described as a part of my excavator. To this end, I is a truck similar to truck A, but carrying a smaller sprocket-wheel, J, on its vertical shaft K. Upon this sprocket-wheel and upon sprocket-wheel F an endless chain, L, operates as a belt to communicate motion from wheel J to wheel F. Underneath wheel J, on the same shaft, is a large iron hub, O, adapted to receive four or more arms, M, to which the team may be attached. These arms pitch downward from the plane of wheel J, to bring their outer ends in line of draft, while the wheel is high enough to carry its belt L high enough to permit the team to pass freely under it. To carry the slack side of the belt above the team, I provide one or more stools, N, having rollers journaled thereon. The wheel F may be of any required size, and the wheel J and the length of arms M may be proportioned thereto to give any required amount of power. Other vertical rollers may be staked at suitable places, properly mounted in bearings, to assist in guiding the draft-chains in the direction desired. Motion may be communicated to wheel F from a steam-engine or from any other power by usual methods. The trucks are provided with tongues, by which to be hauled from spot to spot, said tongues being removable, to be stowed out of the way while the excavator is at work.

By the use of my excavator one boy may drive four or more horses and two men may handle four or more scrapers with as much ease as one man, one boy, and one horse can manage a single scraper when the horse is

hitched directly thereto, and the team working on level ground on a spot which they quickly become accustomed to can work with more ease than while climbing a gravel bank, hauling a scraper, so that the advantages of my invention are obvious.

What I claim is—

1. The truck A, the shaft D, journaled therein, the sprocket-wheel F on shaft D, and means for revolving the same, substantially as specified, in combination with the scrapers G and the lines or chains *g*, connecting them with wheel F, as and for the purpose specified.

2. The combination, with the scrapers G and flexible attachments *g*, of the wheel F above truck A, and vertically journaled therein, adapted to haul the scrapers in a circle outside of the truck, as shown and described.

3. The combination, with the truck A, the plank C, secured thereon, and having an enlarged central hole, the reach E, having a step thereon, and the shaft D, stepped therein, of a fork, *a*, the rollers *b*, journaled therein, and said fork being laterally adjustable, substantially as described, for the purpose specified.

4. The combination, with the truck A, wheel F, and scrapers G, operating as described, of the truck I, the wheel J and shaft K, mounted thereon, the hub O on shaft K, the arms M in hub O, and means for securing a team thereto beneath wheel J, and the belt L upon wheels F and J, as shown and described.

DAVID HARPER.

Witnesses:

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A. WATSON.