

Fig. 1.

Witnesses:
Julius H. ...
Asst. ...

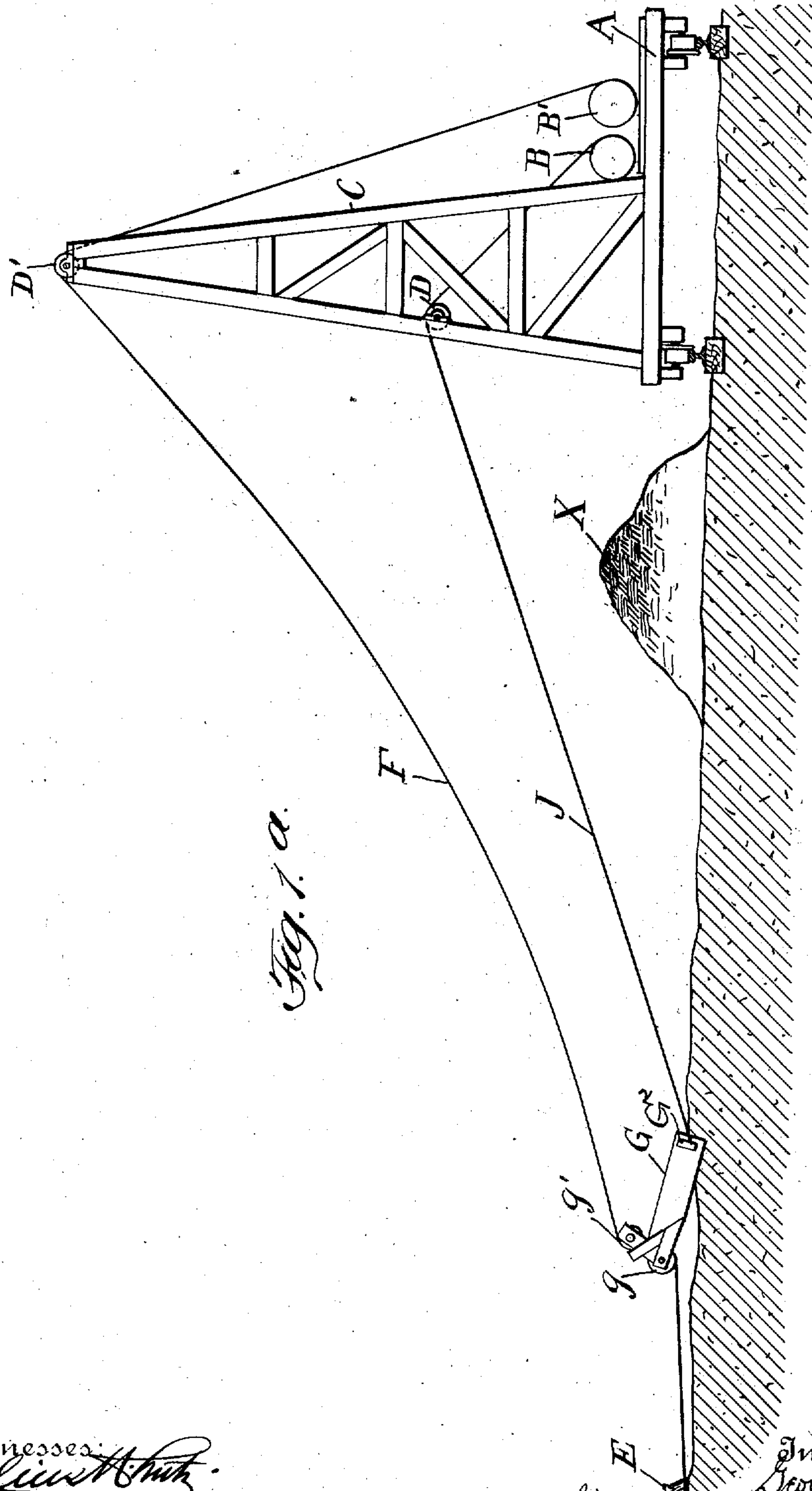
Inventor
George E. Field
 By his Attorney
W. E. Starr

G. E. FIELD.
 APPARATUS FOR EXCAVATING AND TRANSPORTING SOIL AND SIMILAR SUBSTANCES.
 987,352.

APPLICATION FILED SEPT. 15, 1908.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 2.



Witnesses:
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Joe F. O'Brien

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3 SHEETS—SHEET 3.

Fig. 2.

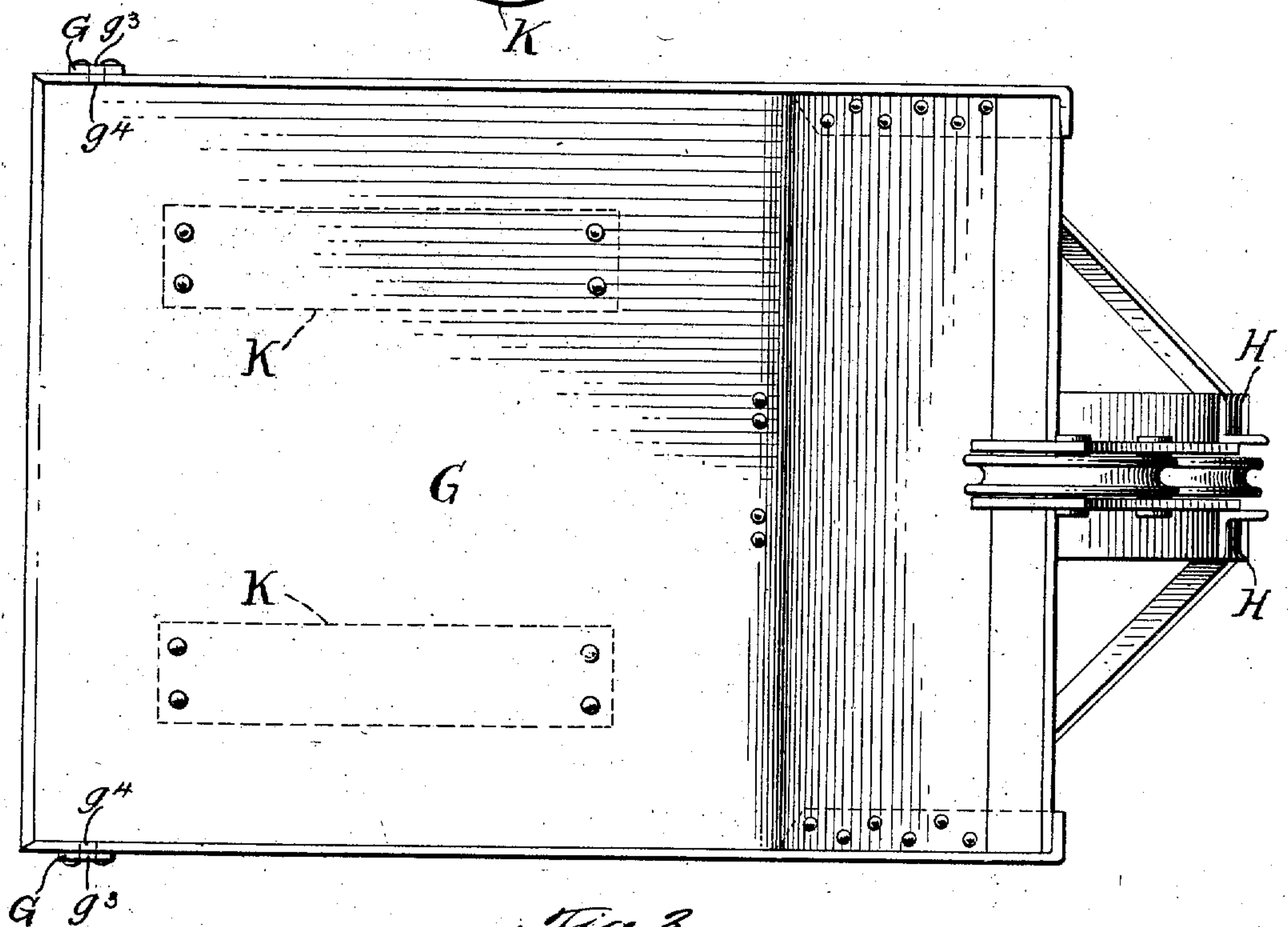
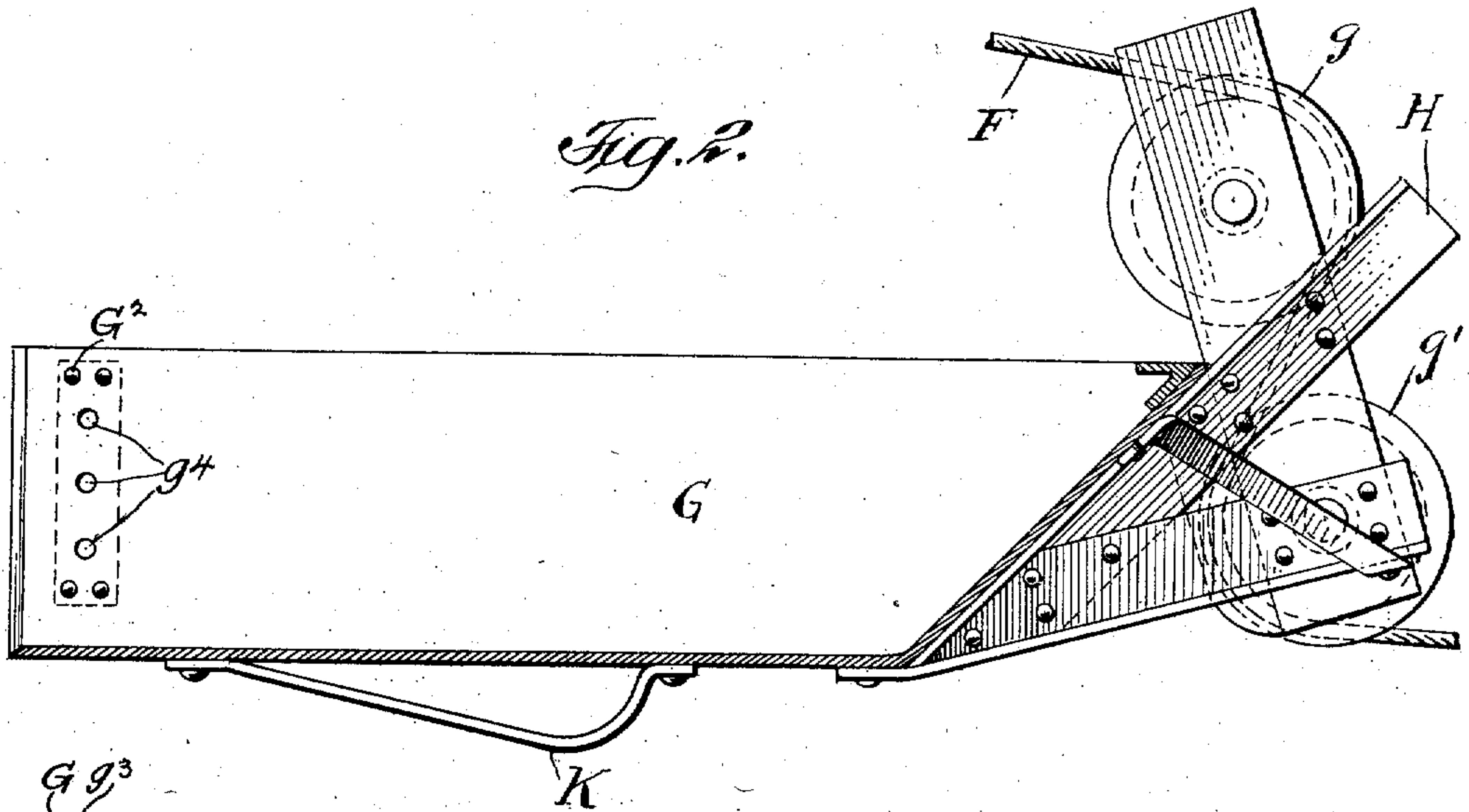


Fig. 3.

Witnesses:
Julius F. Smith
Joe F. O'Brien

Inventor
George E. Field
 By his Attorney
R. H. C. Starr

UNITED STATES PATENT OFFICE.

GEORGE E. FIELD, OF COMSTOCK, NEW YORK, ASSIGNOR OF ONE-HALF TO ATLANTIC, GULF AND PACIFIC COMPANY, A CORPORATION OF WEST VIRGINIA.

APPARATUS FOR EXCAVATING AND TRANSPORTING SOIL AND SIMILAR SUBSTANCES.

987,352.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed September 15, 1908. Serial No. 453,199.

To all whom it may concern:

Be it known that I, GEORGE E. FIELD, a citizen of the United States, and at present residing at Comstock, in the county of Washington and State of New York, have invented certain new and useful Improvements in Apparatus for Excavating and Transporting of Soil and Similar Substances, of which the following is a full, clear, and exact description.

My invention relates to improvements in apparatus for excavating and transporting of soil and similar substances.

Referring to the accompanying drawings, Figure 1 is a side view illustrating a construction embodying the preferred form of my invention in operation on a waterway; Fig. 1^a is a similar view of a similar construction working on land; Fig. 2 is a side view of my preferred form of bucket; and Fig. 3 is a top view thereof.

Similar reference characters designate corresponding parts.

Referring now to these drawings and the preferred form of my invention illustrated therein, A designates a suitable support for the engine, etc. As shown in Fig. 1, this support is in the form of a boat floating in water contiguous to a bank, the height of which it is desired to raise. The support may be of any other character, such as an ordinary engine house, a mere platform or a platform on wheels running on tracks for land work (Fig. 1^a). Mounted on this support is an engine of any suitable type provided with two drums B B' capable of being operated independently of each other. Also mounted on this support, or, if preferred, under some circumstances, adjacent thereto, is a scaffolding C, provided as shown with two pulleys D D'.

E designates a fixed securing device, which, during the actual operation, is secured at a desirable point to the ground and which may be of any suitable character. As shown, it is a stake driven into the dirt. A chain connected to two trees, or a heavy weight or any other securing device may be employed. To this is secured one end of a cable F, which I shall hereinafter refer to as a "trackway." As shown, this trackway F runs from the securing device E over the top of the scaffolding and the pulley D' and around the drum B' connected with and driven by the engine. Mounted on this

trackway is what I shall call a "bucket" G, which is actually a combined scraper or excavator and receptacle. As shown, this "bucket" G is provided with two idle rolls or rollers g, g' mounted between two suitable bearing plates H, H, which in turn are rigidly secured, as by riveting to the rear end of the "bucket". As shown, the "trackway" passes between these two rollers, thus permitting the "bucket" to be moved up and down along the "trackway",—the "trackway" during its operation engaging with the roller g. Connected to the front end of the "bucket" is another cable J, which runs over a pulley D and around the drum B connected with and actuated by the engine.

As shown in the drawings, a plate G² is secured to the sides of the bucket at the front end thereof, which are provided with a series of vertically arranged openings g³. The two plates G² constitute a securing device on the bucket to which the end of the cable J may be adjustably secured. The purpose of the openings g³, which register with similar openings g⁴ in the sides of the bucket, is to regulate the depth of cut of the bucket when it is dragged along by the cable J.

The operation of this construction, generally speaking, is as follows: The securing device E is placed at a suitable point and the "trackway" connected thereto. The trackway is then drawn taut by actuating the drum B' and the cable J slackened to permit the "bucket" to slide down the trackway by gravity until it reaches the ground at a point adjacent to the securing device E. The "bucket" is then tilted, substantially as shown in Fig. 1 in full lines and the drum B actuated to pull on the cable J and drag the bucket through the dirt until the same is filled or at least supplied with as much dirt as is desired at that particular time. The "bucket" is then dragged along the dirt to the dumping ground, which I have designated "X" and at the rear side thereof until it reaches a point where it is desired to dump the contents. The drum B' is then actuated to tighten the "trackway" F, which raises the "bucket" and dumps the contents. The cable J is then slackened to permit the return of the "bucket".

It is obvious as the work progresses, the most desirable point of operation or excavation will gradually approach toward the

dumping ground and away from the securing device E. The "bucket" may, therefore, be allowed to slide down the trackway to the securing device and then be dragged forward until it strikes the dumping point and then tilted, or, as preferred, the cable J slacked away sufficiently to allow the "bucket" to slide down to a point approximately above that place at which it is desired to make the next excavation or digging. The movement of the cable J and the consequent movement of the "bucket" on the "trackway" can then be stopped and the trackway slacked away to permit the "bucket" to fall to the ground, when the operations can be continued as already described.

The "bucket" may be of any desired shape, size and material, but I have illustrated my preferred form in the accompanying drawings.

Referring to Figs. 2 and 3, it will be noticed that I have secured to the bottom of my preferred form of "bucket" two saddles or runners K K. They may be secured in any desirable manner but are shown as being riveted to the bottom thereof. They make it much easier to tip the "bucket" to place the same in operative position to fill. It will further be noticed that I have secured my rollers *g g'* to the rear of the "bucket" in such a way that they are arranged at an angle to the horizontal axis of the body portion of the "bucket." This has two uses. In the first place, it makes the dumping operation easier and more rapid, and in the second place, it makes it easier to tilt the "bucket" and to drive the forward end thereof into the dirt. Furthermore, as the "bucket" is being dragged along by the cable J, after it is filled, the saddles K K offer less resistance to the surface of the dirt than would the entire surface of the "bucket." Furthermore the saddles will keep the cutting edge of the "bucket" slightly raised above the surface of the ground after the same has been filled and while it is being hauled back toward the place where it is to be dumped.

The cutting edge of the "bucket," as also other portions thereof, may be reinforced in any suitable manner.

The cable J may be actuated in any suitable manner other than that indicated in the drawings. Furthermore, the drums B and B' may be driven by the same engine or two separate motors.

What I claim as new is:

1. A bucket provided at its front end with a securing device, and at its rear end with two pulleys arranged at an angle to the horizontal axis of the body-portion of the bucket, and separated sufficiently to permit a cable to pass between the same.

2. In an excavating and transporting ap-

paratus, the combination of a trackway secured at one end to the ground, and at the other end to a trackway-drum, a bucket supported at its rear end therefrom and adapted to move and be moved along the same, a cable secured to the front end of said bucket, means for actuating the cable, and means for actuating the track-way drum—the bucket being constructed and arranged to turn into dumping position excepting when under tension from the cable secured to the front end thereof, and the various parts being constructed and arranged to permit of a regulation of the extent of tilting of the bucket during excavating and of the dumping thereof at any desired point along the trackway by the tightening of the trackway and the cessation of tension on the cable.

3. The combination of a movable support, a scaffolding mounted thereon, a plurality of pulleys arranged on said scaffolding at different heights, a trackway running over one of the pulleys, and having its other end secured to any desirable fixed point, a cable passing over the other pulley, a bucket having its rear end mounted on and traveling along said trackway and connected at its front end to the end of the cable and adapted automatically to turn to a dumping position whenever suspended on said trackway excepting when under tension from said cable, means for actuating the cable to force the bucket through the dirt to excavate and to drag the same along the ground, and means for actuating the trackway to various inclinations—the relative actuating means for the trackway and the cable being relatively controllable to permit of the dumping of the bucket at any desired point intermediate the scaffolding and the aforesaid fixed point.

4. A bucket provided at its front end with a securing device and at its rear end with two pulleys arranged one above the other, but separated sufficiently to permit a cable to pass between the same.

5. In an excavating and transporting apparatus, a bucket provided at one end with two pulleys spaced apart to permit of the passage of a rope over one, between the two and underneath the other, and having their centers on a line running at less than right angles to the longitudinal axis of the bucket.

6. The combination with a bucket provided at its front end with a securing device and at its rear end with two pulleys arranged one above the other, of a cable attached to said securing device, and a trackway passing over the top of the rear pulleys then between these pulleys and under the lower thereof.

7. In an excavating and transporting apparatus, the combination of a trackway secured at one end to the ground, and at the

other end to a drum, a bucket supported at its rear end therefrom and movable along the trackway in one direction by gravity, a cable secured to the front end of the bucket
5 for moving it along to load and haul it, and means for relatively tightening the trackway and cable whereby the bucket may be dumped at any desired point.

In witness whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

GEO. E. FIELD.

Witnesses:

FREDERICK B. WARNER,
MARTIN W. WALSH.

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