

(No Model.)

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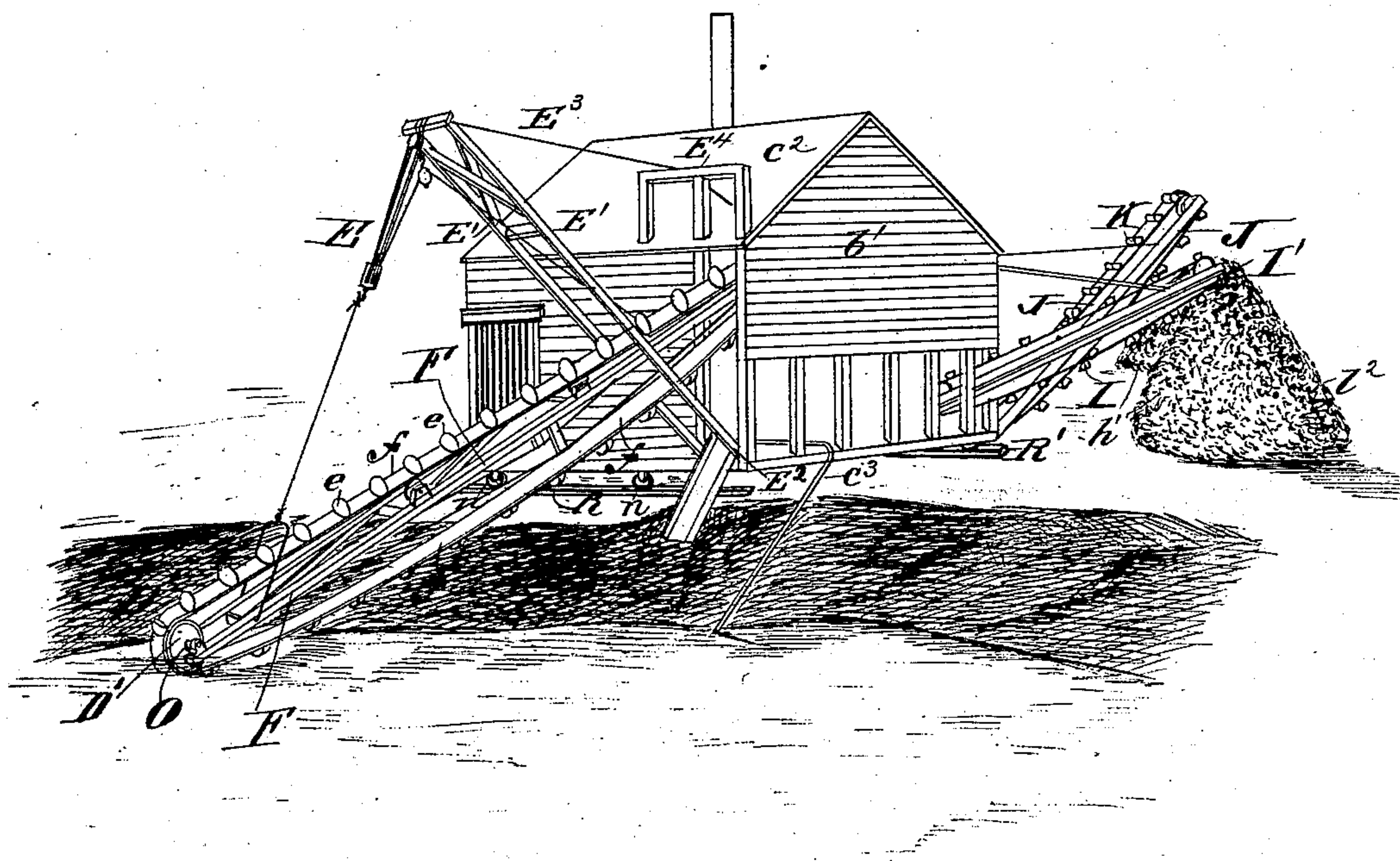
N. W. GODFREY.

SAND AND GRAVEL EXCAVATOR, SEPARATOR, AND ASSORTER.

No. 294,867.

Patented Mar. 11, 1884.

Fig. 1.



WITNESSES:

Francis M. Apple.
L. Sedgwick

INVENTOR:

N. W. Godfrey

BY

Mum & Co.
ATTORNEYS.

(No Model.)

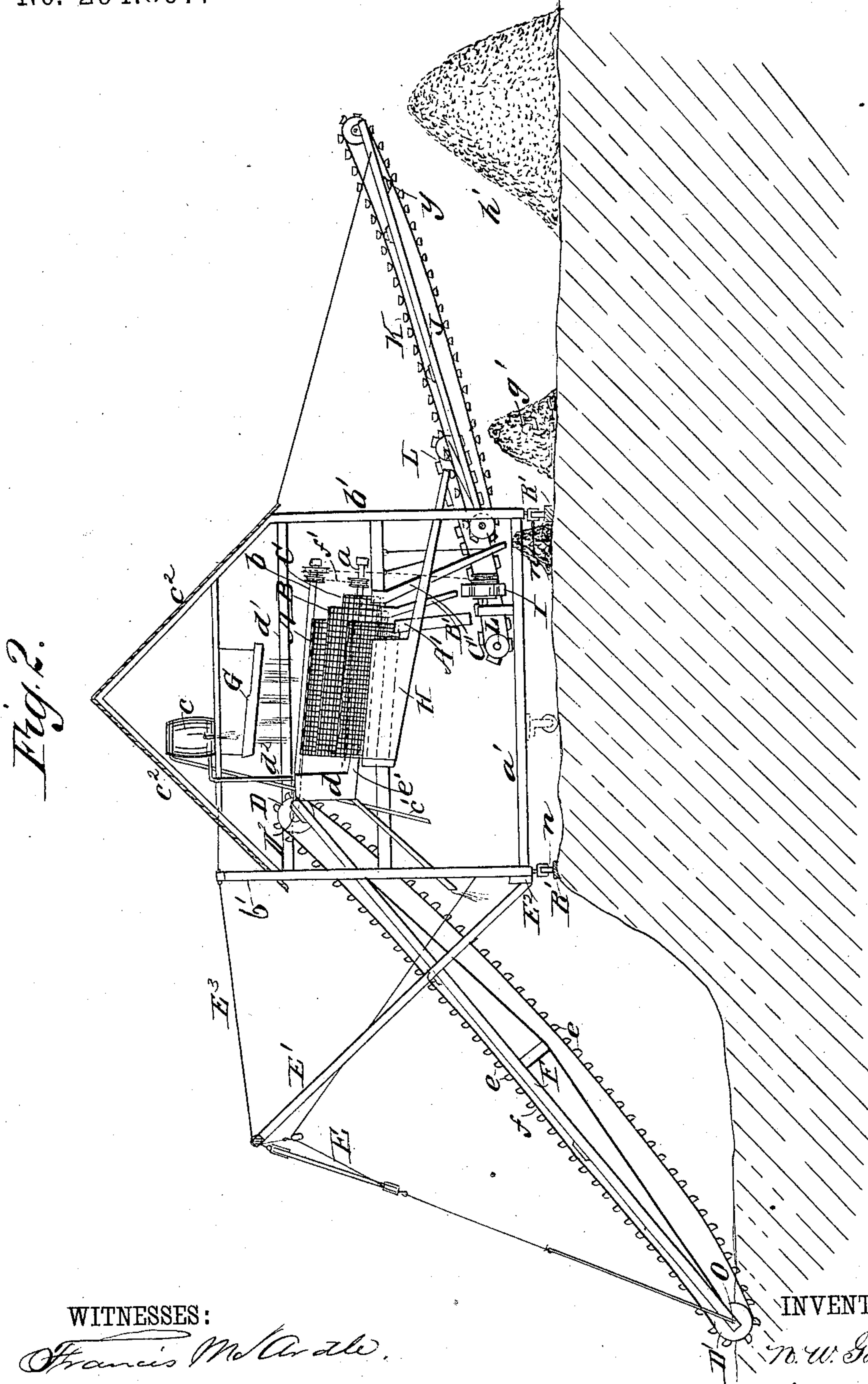
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SAND AND GRAVEL EXCAVATOR, SEPARATOR, AND ASSORTER.

No. 294.867.

Patented Mar. 11, 1884.



WITNESSES:

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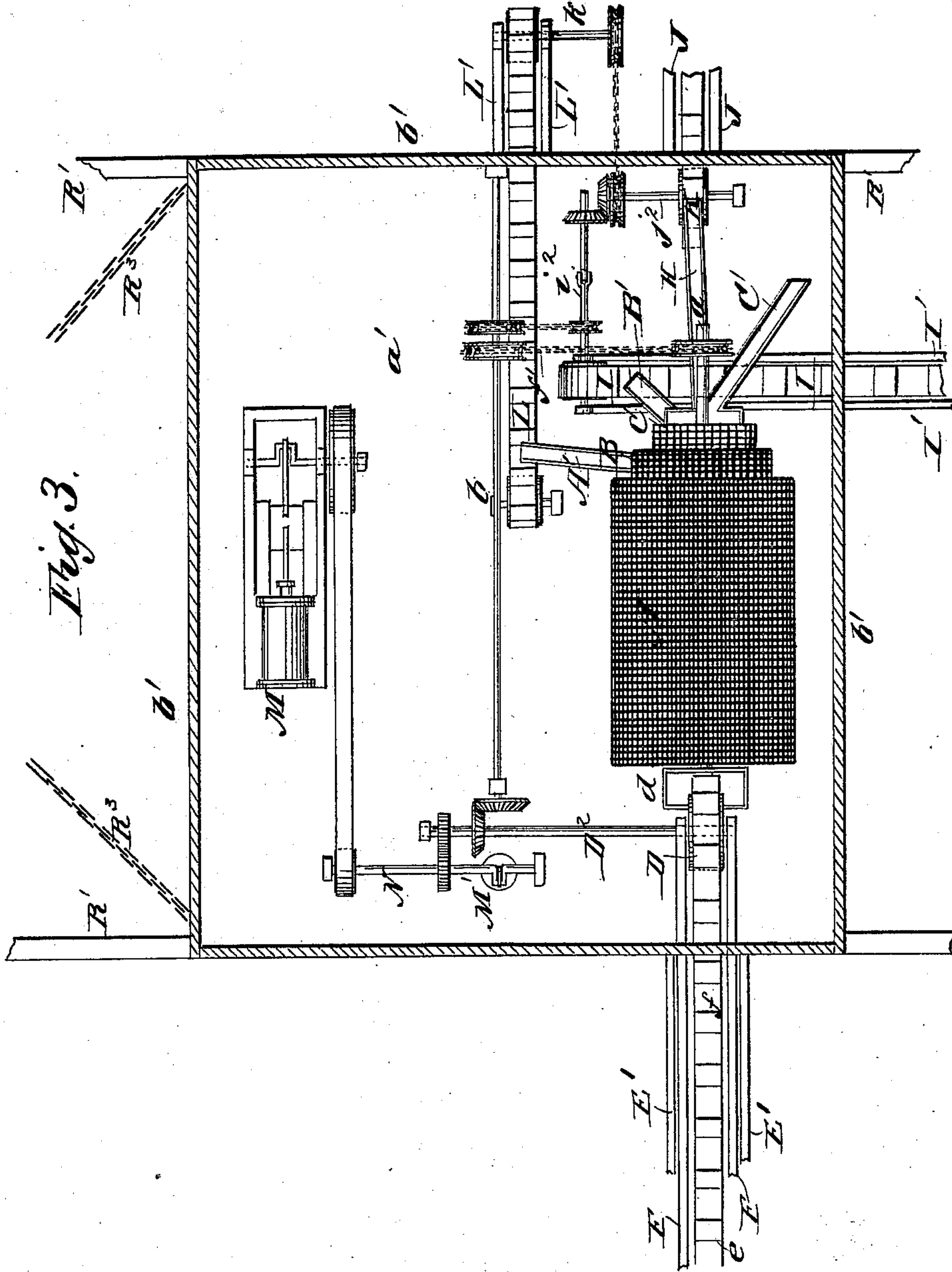
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WITNESSES:

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UNITED STATES PATENT OFFICE.

NICHOLAS W. GODFREY, OF NORTHPORT, NEW YORK.

SAND AND GRAVEL EXCAVATOR, SEPARATOR, AND ASSORTER.

SPECIFICATION forming part of Letters Patent No. 294,867, dated March 11, 1884.

Application filed September 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS W. GODFREY, of Northport, in the county of Suffolk and State of New York, have invented a new and Improved Sand and Gravel Excavator, Separator, and Assorter, of which the following is a full, clear, and exact description.

My invention consists of excavating, separating, and grading apparatus for preparing sand, gravel, earth, &c., for use, comprising a combination and arrangement of mechanism, as hereinafter described and claimed, whereby the sand, gravel, earth, &c., are automatically excavated, elevated, delivered to the screens or separators, graded, and discharged in different places, according to the grades, the said mechanism being movable along the surface of the bed of gravel, sand, or other material being treated in working condition, so as to be shifted along from time to time as the work progresses and the material within reach of the excavator is exhausted.

The object is to provide more effectual and economical means of preparing gravel, sand, earths, &c., for building, road-making, and other purposes at the beds where the material is found, and arranging the same to be obtained in loads or cargoes of the grades required for shipment to different places, than the means at present in use, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of my improved excavating, grading, and assorting apparatus. Fig. 2 is a transverse sectional elevation of the building for inclosing most of the working apparatus, and a side elevation of part of the latter. Fig. 3 is a horizontal section of the building and plan view of the mechanism.

On any suitable frame, and preferably one in the form of a house, with a floor, a' , inclosing sides b' , and a roof, c^2 , I mount one end of an excavator as high up on the frame as is necessary for discharging from the upper end of said excavator into screens or separators, by the shaft D^2 , supported on the beams d' . The said excavator consists of the endless belt

f , with buckets e , stretched over pulleys D and D' , the latter being mounted at the outer ends of the struts F , pivoted on shaft D^2 at the inner ends, and suspended at the outer ends by suitable rope-tackle, E , from the boom E' , having its foot rests on the sill of the building at E^2 , and its top supported by the guy E^3 , extending into the building through the roof and over the bridge E^4 to any substantial fastening within the building. The rope-tackle E is contrived to raise and lower the free end of the excavator, for lowering it as the material is gathered in and taken away by the buckets, and for raising it above the bank when the machine is to be shifted along to a new position, the machine being for that purpose mounted by wheels n on rails R' , which are extended approximately parallel with the river bank or beach, as shown in Fig. 1.

From the upper end of the excavator the buckets discharge into hopper d , and when passing down from over pulley D and from hopper d the material passes through spout e' into the interior section, C , of a triple revolving screen, composed of sections A , B , and C , arranged one within another, all on the shaft a , which is revolved by an endless chain or belt, f' , from the shaft b . A stream of water is discharged into the hopper d through pipe d^3 along with the material from the excavator, to wash away the fine dust and to facilitate the action of the screens, the water being supplied from the tank c in the upper part of the building. Water is also sprinkled on the screens by a sprinkler, G , also supplied from the tank c . The tank is supplied by a pump, M' , through pipes c' and c^3 . The coarse material separated by the inner screen, C , falls through the spout C' to the ground through the building. The next grade, passing through C into B and separated by screen B , falls through spout B' onto the endless carrier I , supported by struts I' , by which it is conducted to the rear of the building, where it is delivered at pile l^2 . The third grade, separated by the screen A , passes through spout A' to the endless elevator-carrier L , supported on struts L' , and is delivered through the side of the building at the pile g' , while the sand passing through all the screens passes through spout H to the elevator K on the struts J , and is delivered at the

pile h' . This elevator has a kind of knocker-wheel having flats and angles, and located at y , for knocking and jarring the belt just below where the buckets empty, to cause the buckets to discharge freely. The discharge-elevator K is shown as extended from the building on the opposite side from the excavating-elevator, by which arrangement it not only discharges the material out of the way of the track of the apparatus, which lies along the bank, but this arrangement of the elevators on opposite sides of the track adapts them to counterbalance each other, to prevent the building from leaving the track while being moved along the same. The motive power is furnished by an engine at M , which drives the shafting N , D^2 , b , i^2 , j^2 , and k^2 , for working the excavator, screens, carriers, and elevators.

The building is provided with strong chains R^2 at the front, for connecting it with a capstan or other powerful means of moving it along from time to time as the excavator exhausts the material within reach.

From the different grades thus rapidly and cheaply separated at the banks, cars, boats, trucks, and other conveyances may be loaded with the particular grade wanted for any destination, and the cost of handling and conveying any superfluous material will be saved.

In low places, and particularly along the sand and gravel beaches of lakes, rivers, and other bodies of water, the deep cuts made by the excavators in gathering up the material may be utilized as canals to float vessels, which may follow the excavators to load directly from the piles left on the banks, and thus the prepared material may be cheaply conveyed to ships and railroad stations, and sometimes

to the ultimate destinations without rehandling.

It will be seen that my invention is applicable to canal-digging and for making other excavations.

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

1. The combination of the wheeled supporting-house, the excavating-elevator extended outward from or through one side of the house, means for raising the free end of the elevator above the beach on which the house rests, and the discharge elevator or elevators extended from the house on the opposite side from the excavating-elevator, and adapted to counterbalance the same, whereby the apparatus may be shifted laterally along the beach in working condition, substantially as shown and described.

2. The combination, with the hopper and the screens in the screening and grading apparatus, of the tank e , supported above the same, the sprinkler G , arranged between the tank and screens, and supplied with water from the tank, and the pipe d^2 , connecting the tank with the hopper, substantially as shown and described.

3. A screening and grading apparatus having the series of discharge-spouts, and the endless carriers or elevators adapted to receive from the spouts and deliver at a distance the several grades of material coming from the screens, substantially as shown and described.

NICHOLAS W. GODFREY.

Witnesses:

C. SEDGWICK,
EDWD. M. CLARK.