

(No Model.)

3 Sheets—Sheet, 1.

A. BLAUVELT.  
EXCAVATING BUCKET OR GRAB.

No. 417,975.

Patented Dec. 24, 1889.

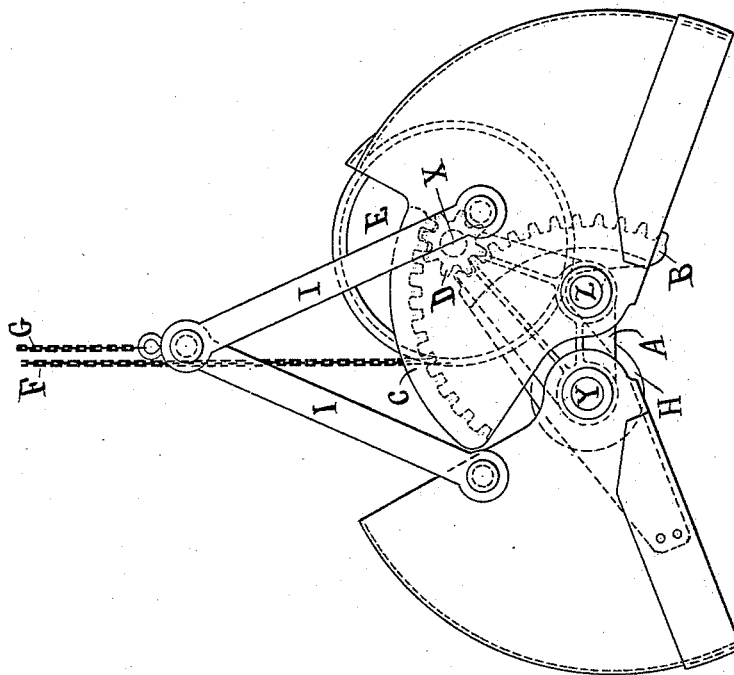


Fig. 2.

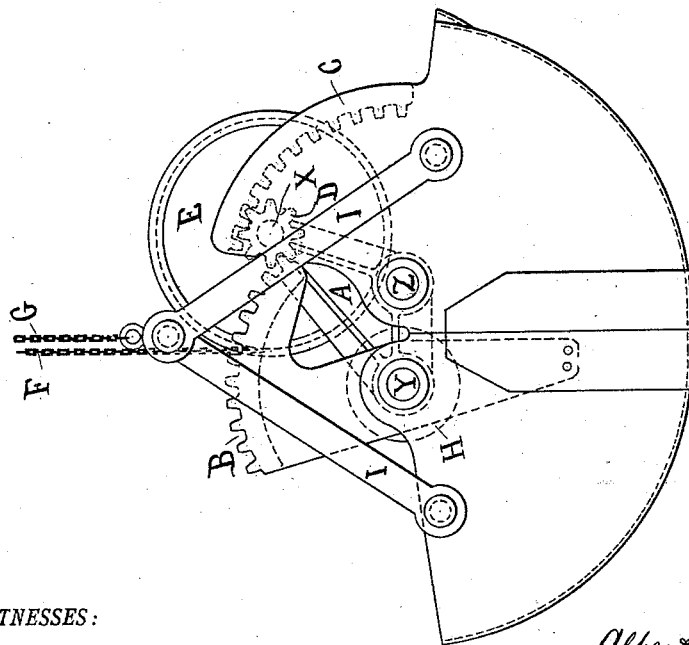


Fig. 1.

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*M. F. Cahill*  
*Jas. A. Ould.*

INVENTOR

*Albert Blauvelt*

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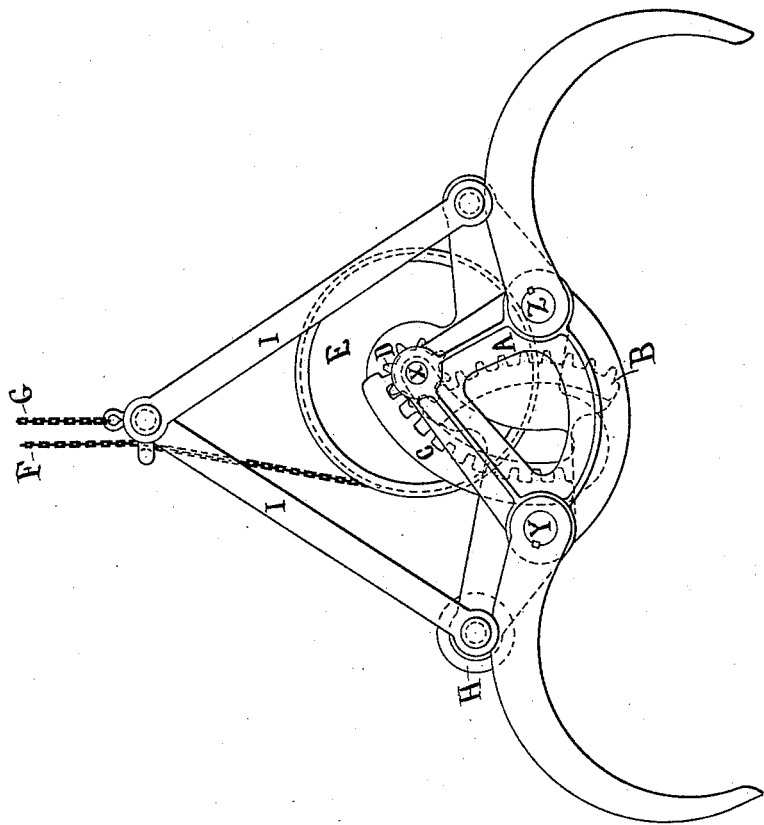


Fig. 4.

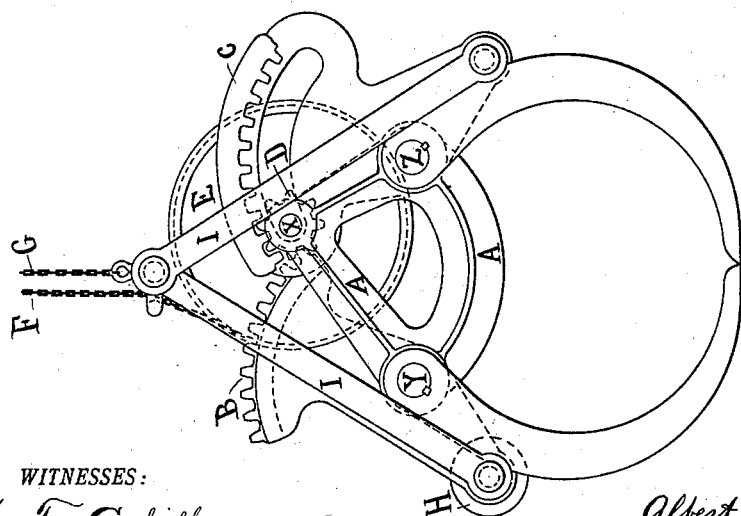


Fig. 3.

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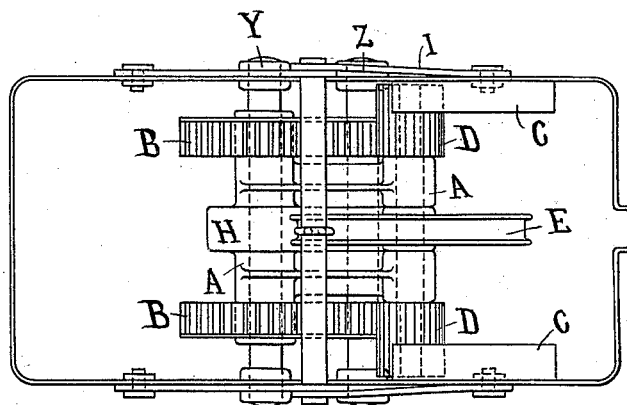


Fig. 5.

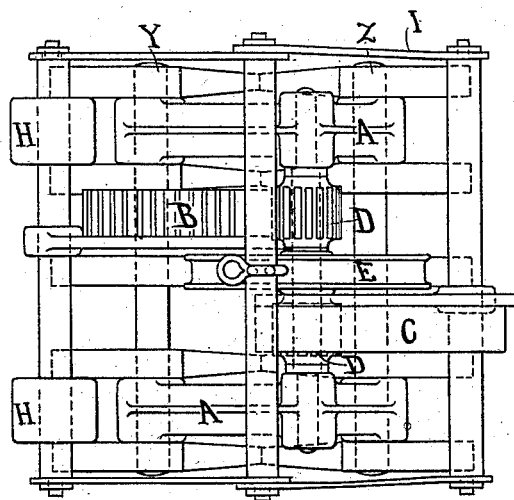


Fig. 6.

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# UNITED STATES PATENT OFFICE.

ALBERT BLAUVELT, OF NEW YORK, N. Y.

## EXCAVATING BUCKET OR GRAB.

SPECIFICATION forming part of Letters Patent No. 417,975, dated December 24, 1889.

Application filed March 5, 1889. Serial No. 301,927. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT BLAUVELT, a citizen of the United States, and a resident of 229 Broadway, New York city, New York, have invented certain new and useful Improvements in Excavating Buckets or Grabs, of which the following is a specification.

My invention relates to improvements in excavating buckets or grabs such as are called "clam-shells;" and the object of my invention is to make such buckets or grabs more compact and powerful than allied prior inventions.

In my invention, also, the periphery of the main drum comes at or near the center of the bucket, giving the hoist-chain an exactly or nearly central lift, and dispenses with the need for a great deflection of the hoist-chain to the center, as required in the common clam-shell bucket. By reason of the halves of my bucket being hinged on axes laterally removed from each other I secure an oblique and lateral scooping action of the cutting edges or points of my bucket or grab such as is not obtainable by buckets as commonly constructed with halves or sections hinged at or near the center of the bucket.

I attain these objects by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a side elevation of my invention in the form of a clam-shell bucket when closed. Fig. 2 is a view of the same, showing the bucket when open. Fig. 3 is a side elevation of my invention as a toothed grab when closed. Fig. 4 is a view of the same when open. Fig. 5 is a plan view of Fig. 1. Fig. 6 is a plan view of Fig. 3.

Similar letters refer to similar parts throughout the drawings.

The frame A carries and holds in fixed relative position the axes X, Y, and Z. The axis X has secured to it a drum E and pinions D. The axis Y carries ordinary or external gear-segments B and one side or half of the bucket secured thereto. The axis Z carries internal gear-segments and the opposite side or half of the bucket therewith. (See Figs. 1 and 5.)

Figs. 3 and 6 show an equivalent construction employing less gearing. The segments

B and C have the same pitch diameter, and their arcs of movement clear and pass each other laterally. (See Figs. 5 and 6.) The pinions D have the same pitch diameter and take each segment separately or have sufficient breadth to take two segments side by side. Rotation of the pinions D rotates the segments and the respective halves of the bucket or grab in opposite and equal arcs of movement. The bucket is closed by hoisting on the chain F, which winds around the drum E, secured on the axis of the pinions. The opening of the bucket is effected by slackening the chain F and holding or hoisting the chain G. This, by reason of the connections I I being attached to points overspanning the axes and the center of gravity, permits the bucket or grab to open by gravity precisely as is usual in allied types of buckets or grabs.

H is a counter-weight to make the bucket or grab hang level on the chains and to render the opening movement more positive. I can apply my invention to construct a bucket with both halves and segments carried by a common axis central with the bucket; but this necessitates different pitch diameters for the segments and corrective differences of diameters on the pinions which I think best to avoid in construction.

I prefer to avoid cast-iron in the construction of my invention and to make all parts thereof of wrought metal or cast-steel.

Having described and shown my invention, that which I claim as patentable, and desire to secure by United States Letters Patent, is—

1. A bucket or grab having an external or spur gear-segment and an internal gear-segment, each gearing into pinions having a common axis, said axis also carrying a drum or sheave.

2. In a bucket or grab having a hoist-chain winding about a drum or sheave, the parallel axes X, Y, and Z forming a triangle having its apex removed to either side of the center of the bucket or grab, as shown.

3. The combination, with the bucket or grab having sections or sides and a frame to which the sections are hinged, of toothed segments permanently connected to the sections,

a pinion or pinions for acting on such segments, and a drum or sheave and rope or chain for rotating the pinion or pinions to close the bucket or grab, and the links for  
5 opening the bucket or grab, substantially as shown.

In testimony that I claim the foregoing as

my invention I have signed my name, in presence of two witnesses, this 1st day of March, 1889.

ALBERT BLAUVELT.

Witnesses:

M. F. CAHILL,  
JNO. A. OULD.