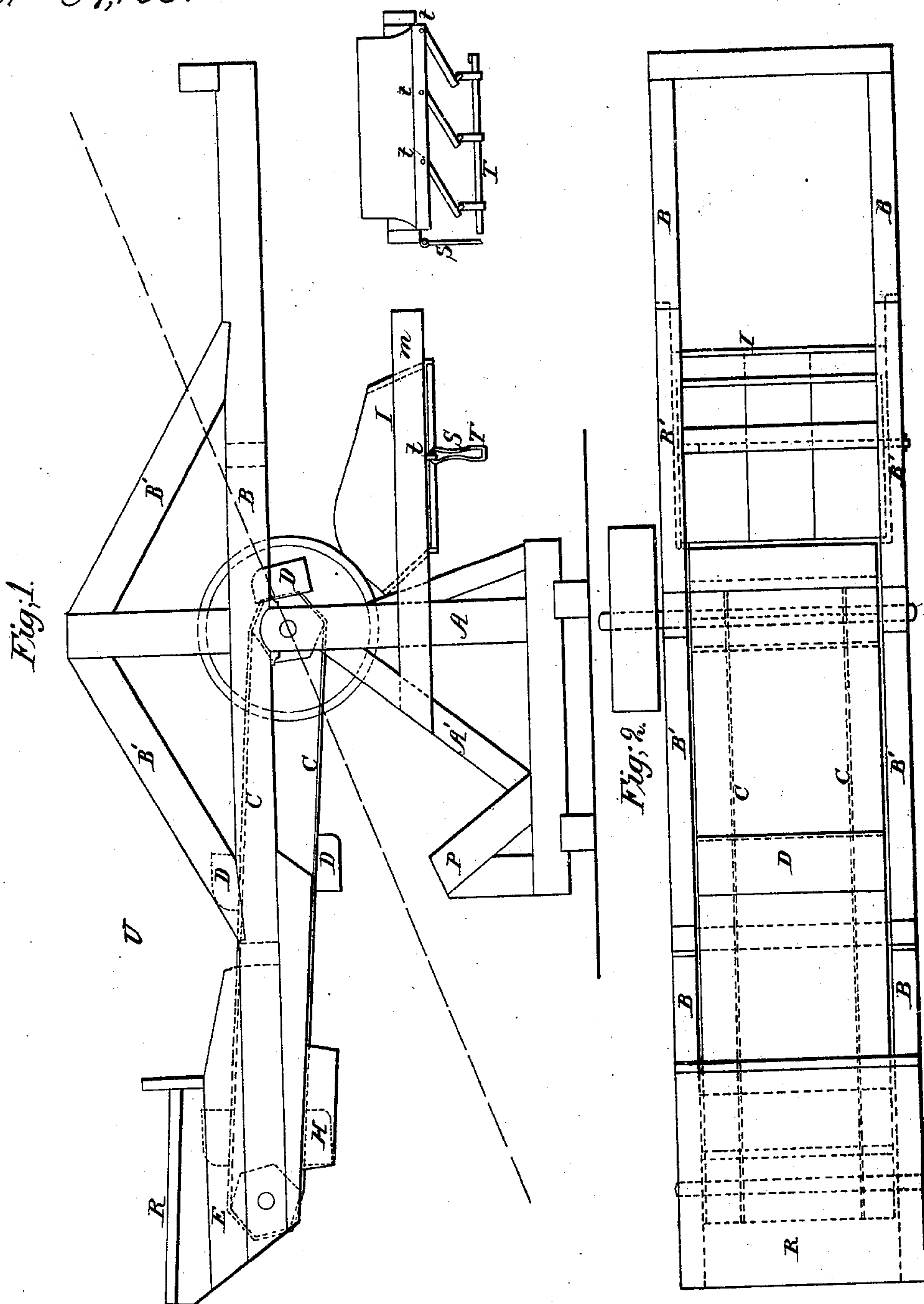


P. W. Hamel

Excavator.

N^o 87,168.

Patented Feb. 23, 1869.



Witnesses;
Geo. M. Smith
Geo. H. Strong

Inventor;
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PETER W. HAMEL, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 87,168, dated February 23, 1869.

IMPROVED EXCAVATING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PETER W. HAMEL, of San Francisco, county of San Francisco, State of California, have invented a certain new and useful Improvement in Excavating-Machine; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains, to make and use my said invention or improvement without further invention or experiment.

The nature of my invention is to provide an improved excavator, or digging-engine, to work in sand or light earth, so constructed as to be removable on rails, and having buckets similar to an ordinary dredging-machine, but so arranged as to work continuously.

It has also a roof or cover over the working-end, to protect the buckets from the effects of slides, and a consequent clogging or stoppage of the whole machinery.

To more fully explain my invention, reference is had to the accompanying drawings.

A A are stout wooden posts, supported by a car moving on rails, laid close to the foot of the embankment.

These posts are strongly braced at A' A', and upon the top support the shaft, which works the excavating-buckets; and a balanced arm, B, also braced at B' B', is supported upon the top of the posts A, by the shaft which works the excavator.

The buckets D D are constructed of convenient size and shape, supported and actuated by two chains, C C. The chains are protected from loose sand by a cover of suitable material.

The end of the machine next the embankment is protected by the sides E and roof R.

The cheeks H prevent the buckets from cutting too deep, and thereby being filled before they reach the talus.

The full buckets are discharged into a box or reservoir, I, resting on the supporting-beams M M, the bottom of which is operated by the stirrup S.

The bottom boards are all connected, by a bar, T, with staples, or hinges t t t, and, as the stirrup is re-

moved, these boards turn edgewise by the weight of the sand.

When a car is in position beneath the box, the contents are discharged into it, by removing the stirrup attached to the bar, and when the car is full it is moved away.

The action of the car in moving away serves to close the bottom, by carrying the boards to their original position, where they are locked by the stirrup S, until another car can be brought into position to be filled.

In commencing the work, the apparatus will be in the position shown at u, the end resting on the natural talus of the hill, the engine which draws it, and is supported on the same car, being started, so that the sand will be carried away gradually, thus allowing the end to sink down, until it reaches its lowest position, the arms B resting on the support P.

The arms may be then lifted, and kept in position by a prop set on the frame, until the apparatus can be moved along to commence another excavation.

The talus of the hill will gradually change as the work progresses, until it reaches the position shown in the dotted lines, and a series of excavations being made on the line of the track, to the end of the proposed work, the track may then be removed to the foot of the then existing embankment, and a new excavation commenced.

My machine is particularly adapted for removing the sands in and around the city of San Francisco, which exist in large quantities, and are easily moved from place to place, and offer nowhere any considerable resistance to removing-forces, having been wafted up by the winds and waves from the ocean-shore.

I claim the roof R, over the working-end of the conveying-buckets, to protect them from land-slides, substantially as described.

In witness whereof, I have hereunto set my hand and seal.

P. W. HAMEL. [L. s.]

Witnesses:

C. W. M. SMITH,
GEO. H. STRONG.