

(No Model.)

F. A. HUNTINGTON.

AMALGAMATOR.

No. 359,155.

Patented Mar. 8, 1887.

Fig. 1.

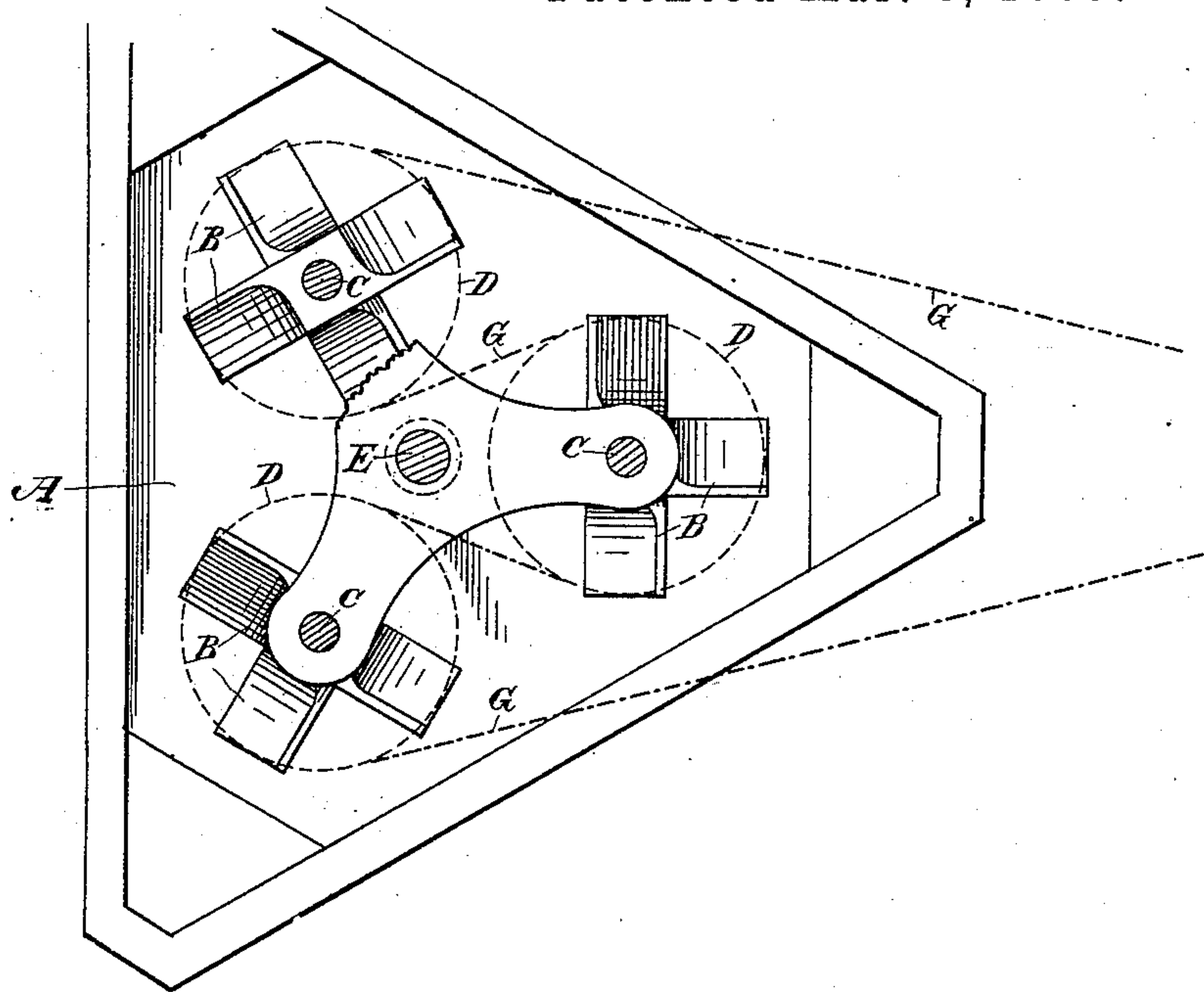
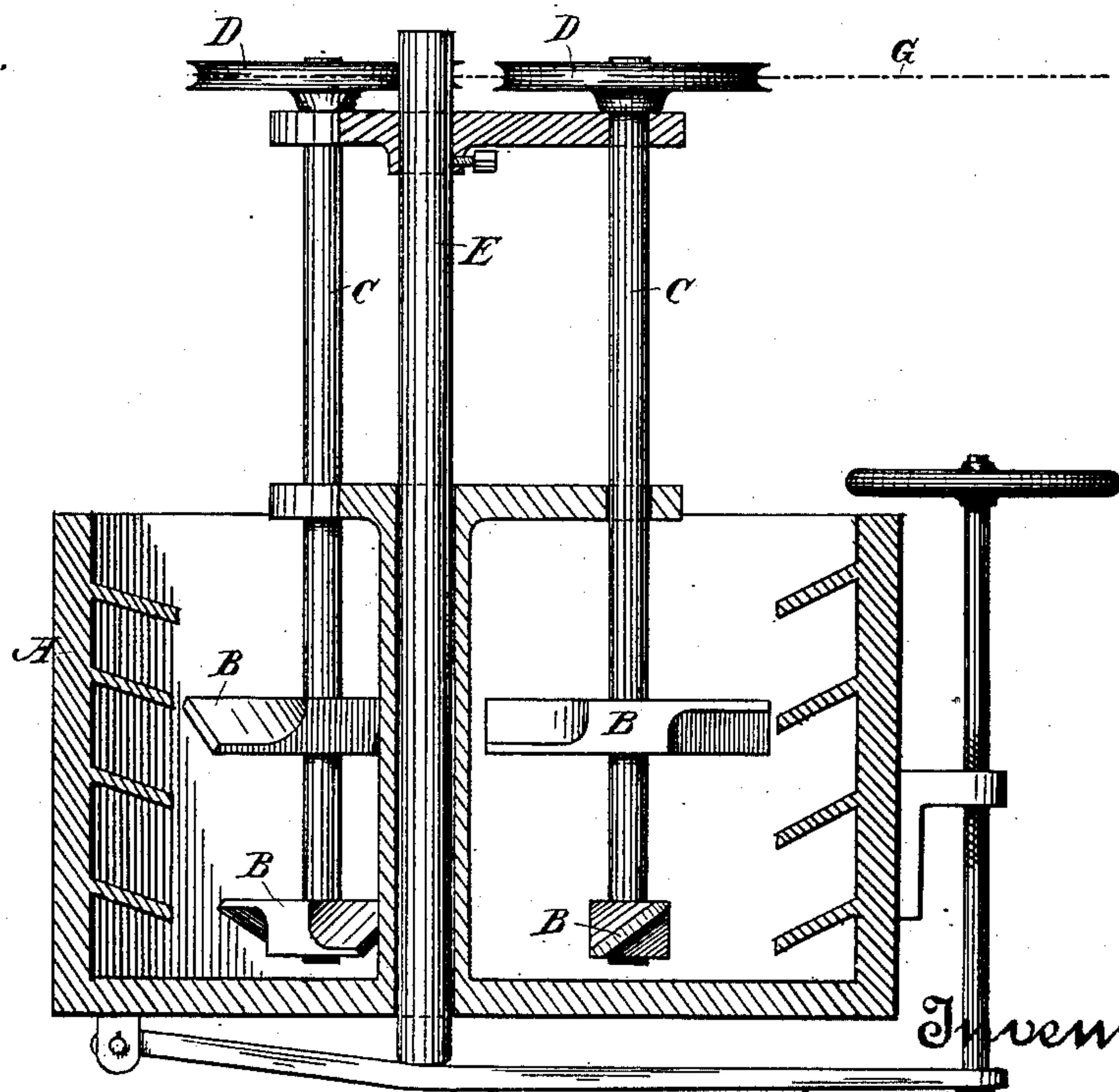


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

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AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 359,155, dated March 8, 1887.

Application filed April 20, 1886. Serial No. 199,560. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. HUNTINGTON, of the city and county of San Francisco, State of California, have invented an Improvement in Amalgamators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus for amalgamating ore or pulp containing precious or valuable metals; and it consists in the construction and combination of devices, all of which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings, Figure 1 is a plan of my apparatus. Fig. 2 is a vertical section.

A is a containing vessel or tub, which may be made of any suitable material and depth, and the sides being preferably nearly or quite vertical. This tub may be made square, oblong, or of any polygonal shape which will form angles and interruptions sufficient to prevent the material within the tub from being carried round and round by the action of the stirrers. These stirrers consist of propeller-shaped blades B, secured in pairs upon vertical shafts C, the blades being so bent that the upper and lower blades upon each shaft have their pitch in opposite directions. This causes the complete agitation of the pulp or material within the tub or vessel, bringing all parts of it into intimate contact with the mercury in the bottom of the tub and preventing it from settling, while the angular form of the tub prevents a smooth rotary current being established, on account of the centrifugal action. The tub is also provided with one or more shelves at each corner, upon which the pulp is thrown during the rotation of the propellers. I have found it preferable to employ two or more of these vertical shafts, which, if the tub is rectangular, may be arranged in line, or if made triangular in shape would be placed similarly with reference to each other. These shafts are suitably journaled, and extend upward so as to have driving-pulleys D fixed to their upper ends, and a single belt, G, is employed to drive all of them, when three are used, passing around all of the pulleys, as shown.

The supporting-boxes of the pulleys may be secured to a frame, which is supported from a central shaft, E, extending down through the bottom of the tub, and having its step upon a lever, by which it may be raised and lowered, thus raising the propellers, which is necessary in order to free them from the sand and heavy material that would settle about the lower ones when the apparatus is stopped. By thus raising the propellers temporarily when the machine is started they will soon agitate the whole of the material and loosen it up again sufficiently to allow them to revolve freely, when they may be again allowed to sink to their usual position.

I am aware it is not broadly new to construct a tub or receptacle of angular form; nor is it new to provide a shaft or shafts journaled within said tub, with wings having their pitch in opposite directions, whereby the material is agitated. I therefore do not claim these features, broadly, but limit myself to the construction and combinations claimed.

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

1. The angular or polygonal containing-tub having one or more shelves at each corner, in combination with a vertical shaft or shafts rotating within the tub and provided with propeller-blades, substantially as herein described.

2. An angular or polygonal containing-tub having a vertical shaft or shafts with propeller-blades secured thereto in pairs and operated as shown, a frame in which the journal-boxes of the shafts are fixed, said frame being supported upon a central shaft or post, and means whereby the shaft is vertically adjustable, substantially as described.

In witness whereof I have hereunto set my hand.

FRANK A. HUNTINGTON.

Witnesses:

S. H. NOURSE,
H. C. LEE.