

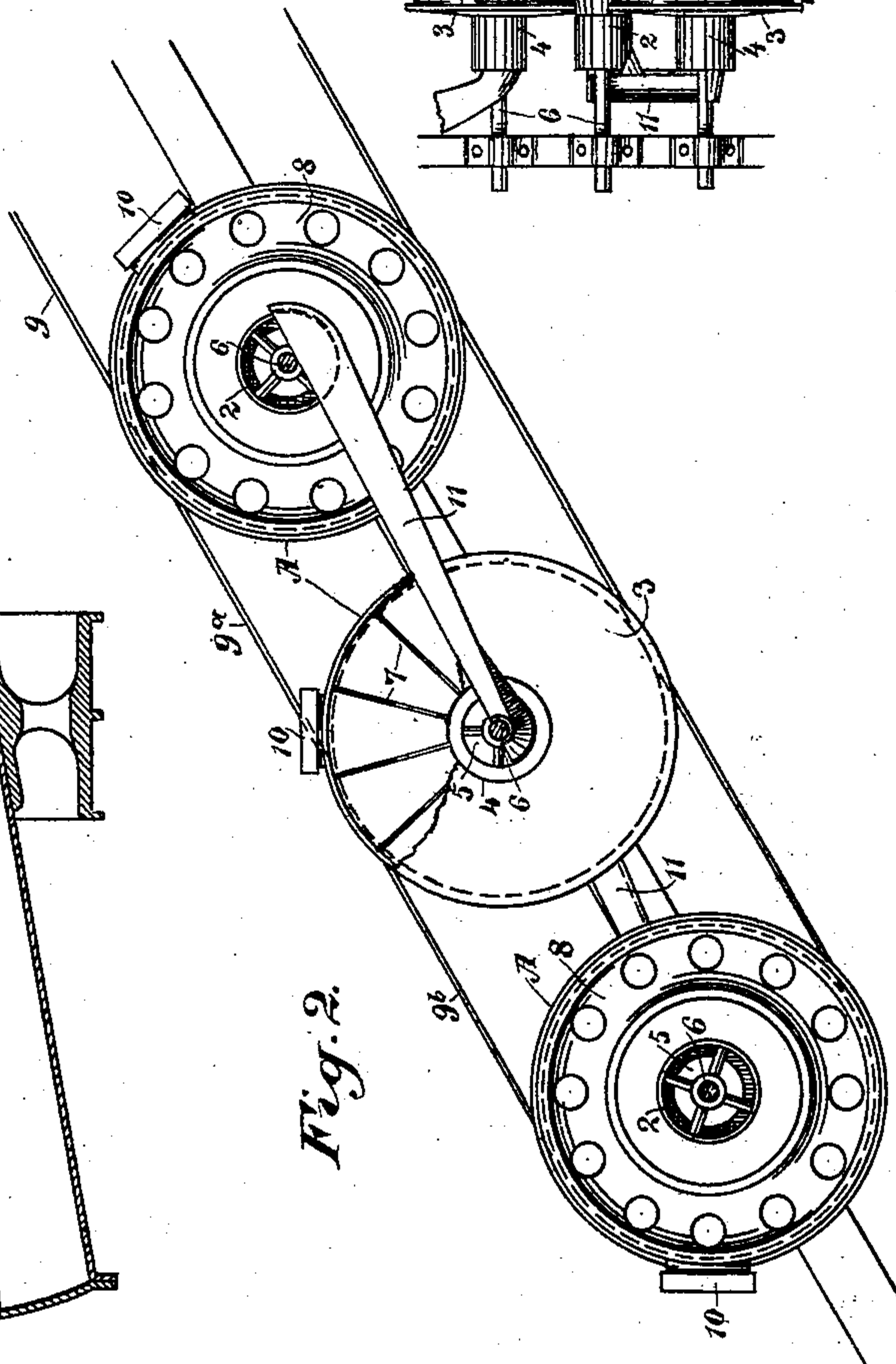
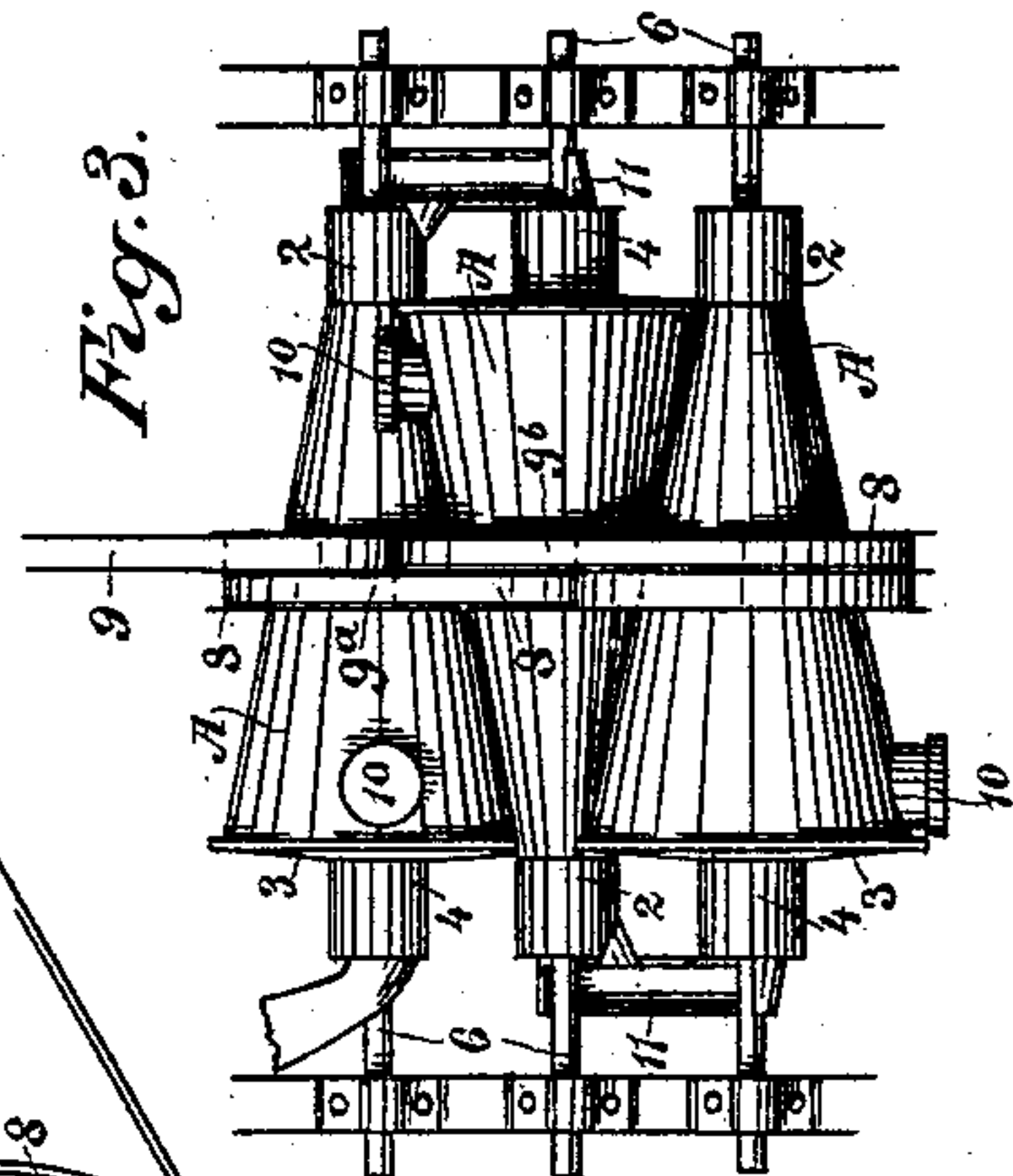
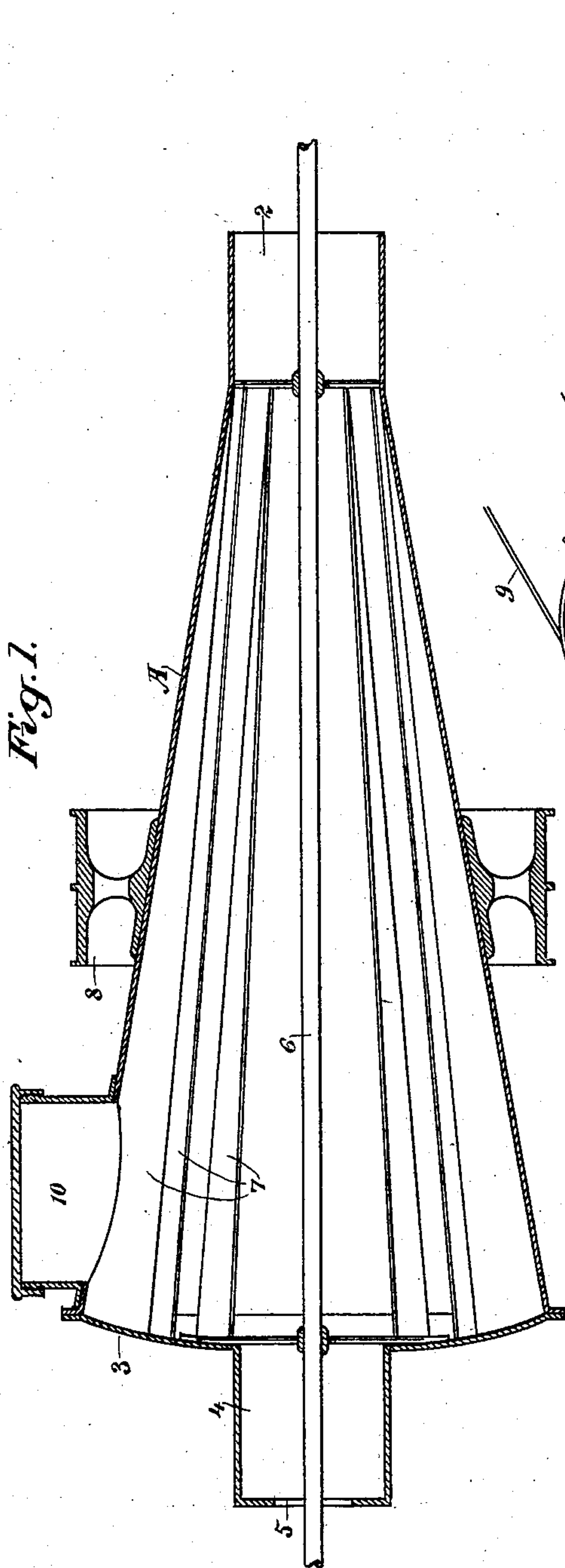
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Patented Dec. 24, 1901.

C. G. HAMBLETON.
GOLD SAVING APPARATUS.

(Application filed June 20, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES G. HAMBLETON, OF EAST OAKLAND, CALIFORNIA.

GOLD-SAVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 689,612, dated December 24, 1901.

Application filed June 20, 1901. Serial No. 65,269. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. HAMBLETON, a citizen of the United States, residing at East Oakland, county of Alameda, State of California, have invented an Improvement in Gold-Saving Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is designed to save gold and precious metals by agitating the pulverized material with which these metals are associated in contact with mercury.

It consists of one or more hollow conical chambers having horizontal axes and journals at the ends with means for rotating the chambers. In the interior these chambers are provided with lifting plates or ribs, and a chamber or pocket projecting from the one side of the larger diameter receives the mercury and heavier portions at each revolution and ejects them into the surrounding mass. These depressions or pockets also serve to finally receive and retain the valuable amalgam which settles into them when they are at the lowest point, and by removing a cap the apparatus can be readily cleaned up at will.

Referring to the accompanying drawings, Figure 1 is a longitudinal section through the apparatus. Fig. 2 is an end view of a series of chambers. Fig. 3 is a front view of the same.

One or more of the revoluble cones which are employed may be used to construct the apparatus. I prefer to use a plurality situated side by side, with means for conducting the discharge from the first to the second, through which it passes, and thence to a third or more, if so many be employed.

A is a cone-shaped chamber of any suitable or desired length and having the smaller end open to form a discharge 2 and the larger end closed by a cap 3, having a central cylindrical extension 4, in the end of which is formed a reduced opening, as at 5.

6 is a shaft connected by arms or spiders with the interior of the chamber near each end and extending axially through and beyond the ends, so as to form bearings upon which the chamber is mounted, so that its axis is essentially horizontal.

The small opening 5 serves as an inlet or supply through which pulverized rock or pulp containing gold or silver is introduced into the larger end of the chamber A, and as the discharge end 2 is of larger diameter than this opening it will be manifest that the level of the material will cause it to discharge through the end 2, will remain below the inlet opening, and prevent any loss at that end.

Within the chamber A are longitudinally-disposed ribs or vanes 7, and around the outside of it is a cylindrical drum or pulley 8, which is adapted to receive a driving-belt or its equivalent, as at 9. Through this belt power may be transmitted to rotate the chamber A at a slow rate of speed. Upon one side of the larger end of the chamber is an extension or receptacle 10, which may be provided with a screw-cap or other means for forming a tight joint, but which may be opened at will. This chamber serves for the collection of the mercury and amalgam when the machine is stopped with the chamber at the lowest point, the incline of the sides of the chamber being sufficient to cause any free mercury to flow in that direction, and the heavier material will also gradually work to that point.

The operation of the single apparatus would then be as follows: The chamber being set in motion and material delivered into it through the receiving end, the ribs or vanes 7 will lift the pulp or mercury and allow it to fall through the space after the ribs have passed above the horizontal plane of the axis, and this continually agitates the pulp and mercury together, so as to bring any gold or silver which may be contained therein into contact with the mercury. The constant agitation also serves to scour and brighten any gold which may be rusted or coated, so that the mercury can act upon it. It will be seen that a considerable body of mercury will always settle into the projecting receptacle 10 whenever that is at the bottom during the revolution, and as it is carried up toward the top this mercury will be projected and discharged from the chamber and will pass through the mass with considerable force on account of its weight. This action taking place at each revolution of the cylinder adds very considerably to the effect.

By this apparatus I am enabled to save a large quantity of fine and what is known as "float" gold, which is too fine to be amalgamated in any ordinary manner and which is ordinarily carried off and lost with the tailings.

In order to subject the material to the action of the apparatus as long as may be desired without checking the flow or working it in independent charges, I have shown a plurality of these chambers mounted parallel with each other and with the large and small ends of alternate chambers at the same side, so that the discharge through the small end 2 of any chamber can be conducted and delivered into the opening 5 of the next adjacent chamber. This is effected by means of a spout or carrier, as at 11, so formed as to partially inclose and surround the lower part of the discharge 2 of the chamber and having sufficient incline to deliver the material into the opening 5 of the next chamber, and so on for any number. When a series of these chambers is thus employed, the belt-pulleys 8 are of such width that the belt 9 serves to drive the first of the chambers, and a belt 9^a, extending from this pulley 8 to the pulley on the next cylinder, transmits motion to rotate that cylinder, and another belt 9^b connects the next chamber, and so on for as many as it may be desired to use. In this manner the material may be repeatedly subjected to the operations within the chambers until the gold is as thoroughly extracted as may be desired.

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

1. An apparatus for saving gold, consisting of a cone-shaped mercury-containing chamber said cone having a reduced extension of its smaller end serving as a discharge, a removable cap fitted to the larger end of the chamber and provided with a reduced extension with an opening therein for the inlet of pulp, a horizontal shaft passing through the chamber and its extensions and about which the chamber is turnable, radial, longitudinally-extending ribs or vanes fixed into the interior of the chamber between the opposite

end extensions, and an extension beyond the outer periphery of the chamber at the larger end and serving as a collecting pot or chamber for mercury said pot capable of projecting a charge of mercury into and through the one at the head end of the cylinder at each revolution thereof.

2. An apparatus for saving gold, consisting of a horizontally-journaled, conically-shaped chamber having a centrally-located cylindrical extension from its smaller end, a cap or closure removably fitted to its larger end and provided with a centrally-located cylindrical extension, having a feed-inlet, a shaft extending horizontally through the chamber and its end extensions, a lateral projection from the periphery of the head end of the chamber forming a depressed pot adapted to collect mercury and discharge the same into and through the material entering the head end of the chamber, agitators on the interior of the chamber between the end extensions thereof, and means for rotating the chamber.

3. An apparatus for saving gold and silver consisting of a plurality of horizontally-journaled conical chambers parallel with each other and reversely arranged, and having reduced tubular extensions at opposite ends, said extensions at the larger ends having inlet-openings, said extensions at the smaller ends serving as discharge-openings, chutes by which the discharge from each chamber is delivered into the receiving end of the adjacent one, said chambers having radial interior ribs and amalgam-collecting chambers at their larger ends, said chambers adapted to collect mercury and discharge the same into the mass of material at the head end of the cylinder at each revolution thereof, belt-pulleys fixed upon the exterior of the chambers, and belts passing around said pulleys whereby power may be transmitted to revolve the series in unison.

In witness whereof I have hereunto set my hand.

CHARLES G. HAMBLETON.

Witnesses:

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JESSIE C. BRODIE.