

No. 767,365.

PATENTED AUG. 9, 1904.

W. E. VANDENBURGH.
AMALGAMATOR.

APPLICATION FILED OCT. 12, 1903.

NO MODEL.

FIG. I.

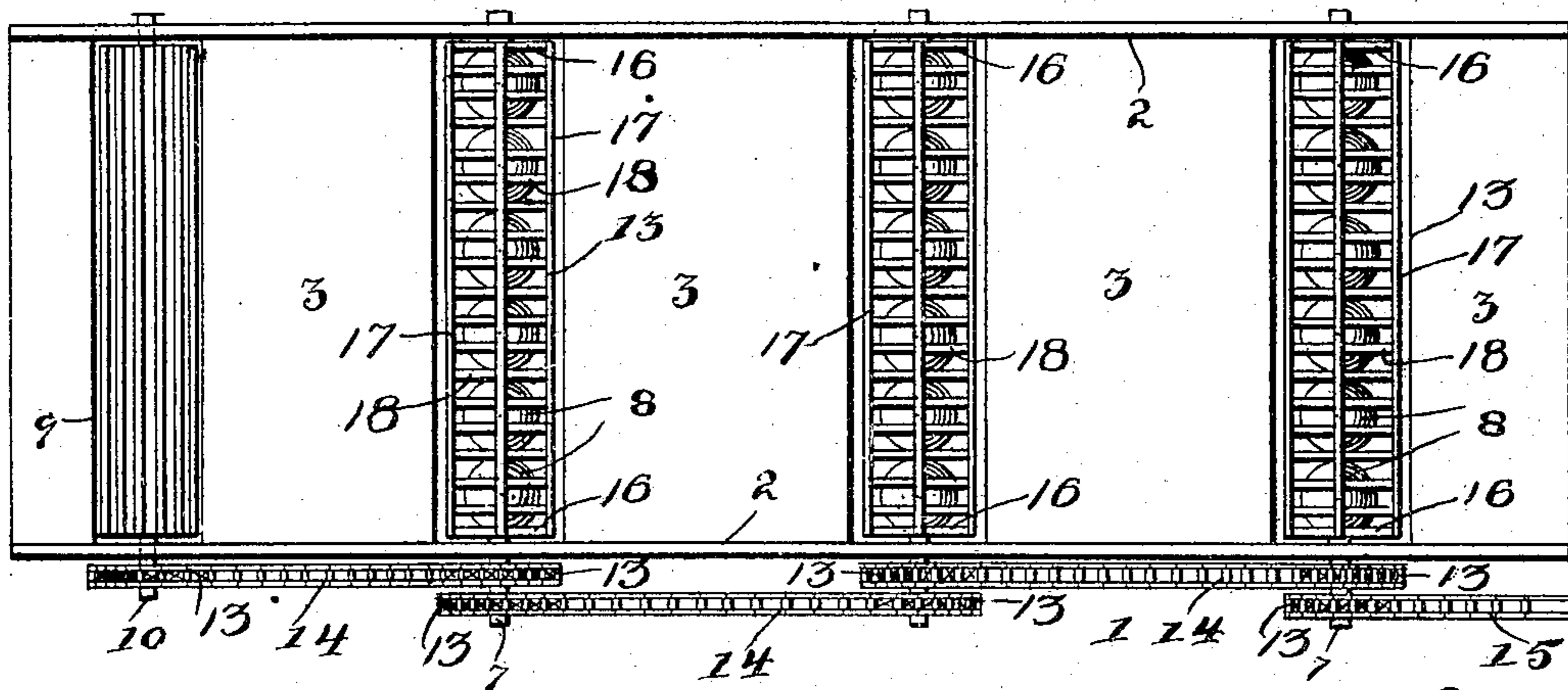


FIG. 2.

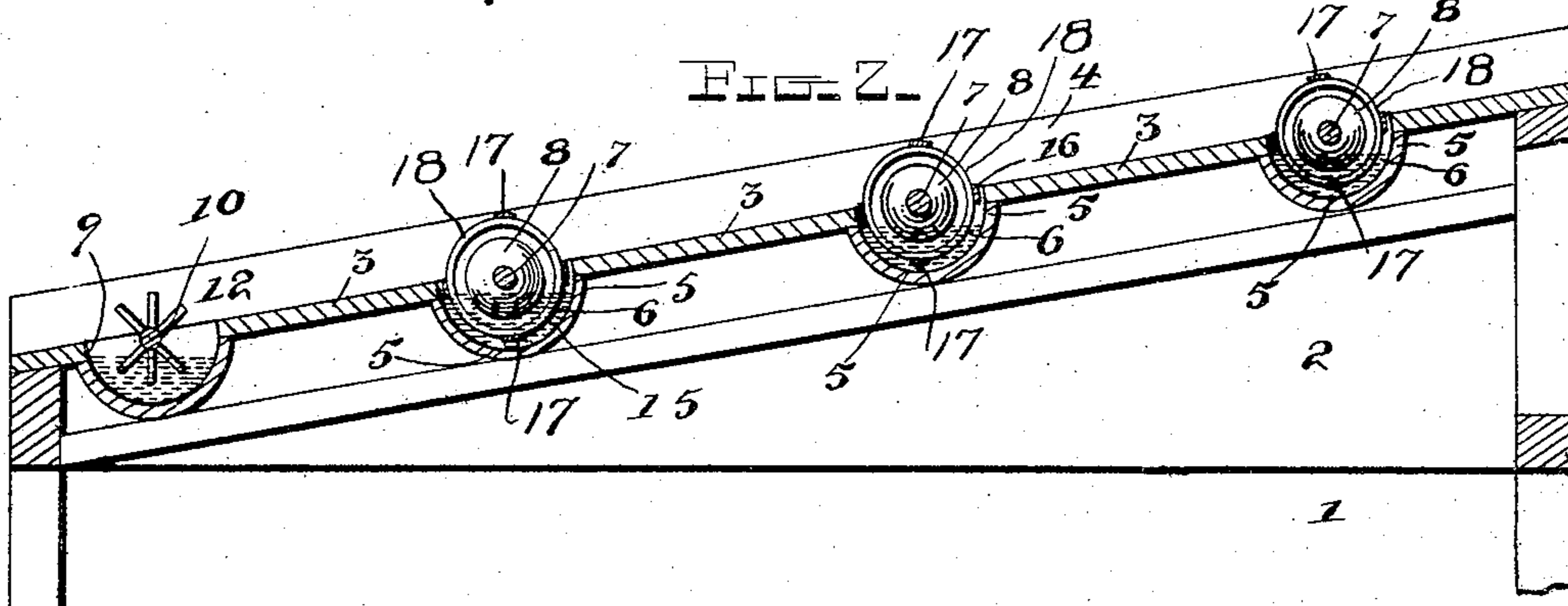
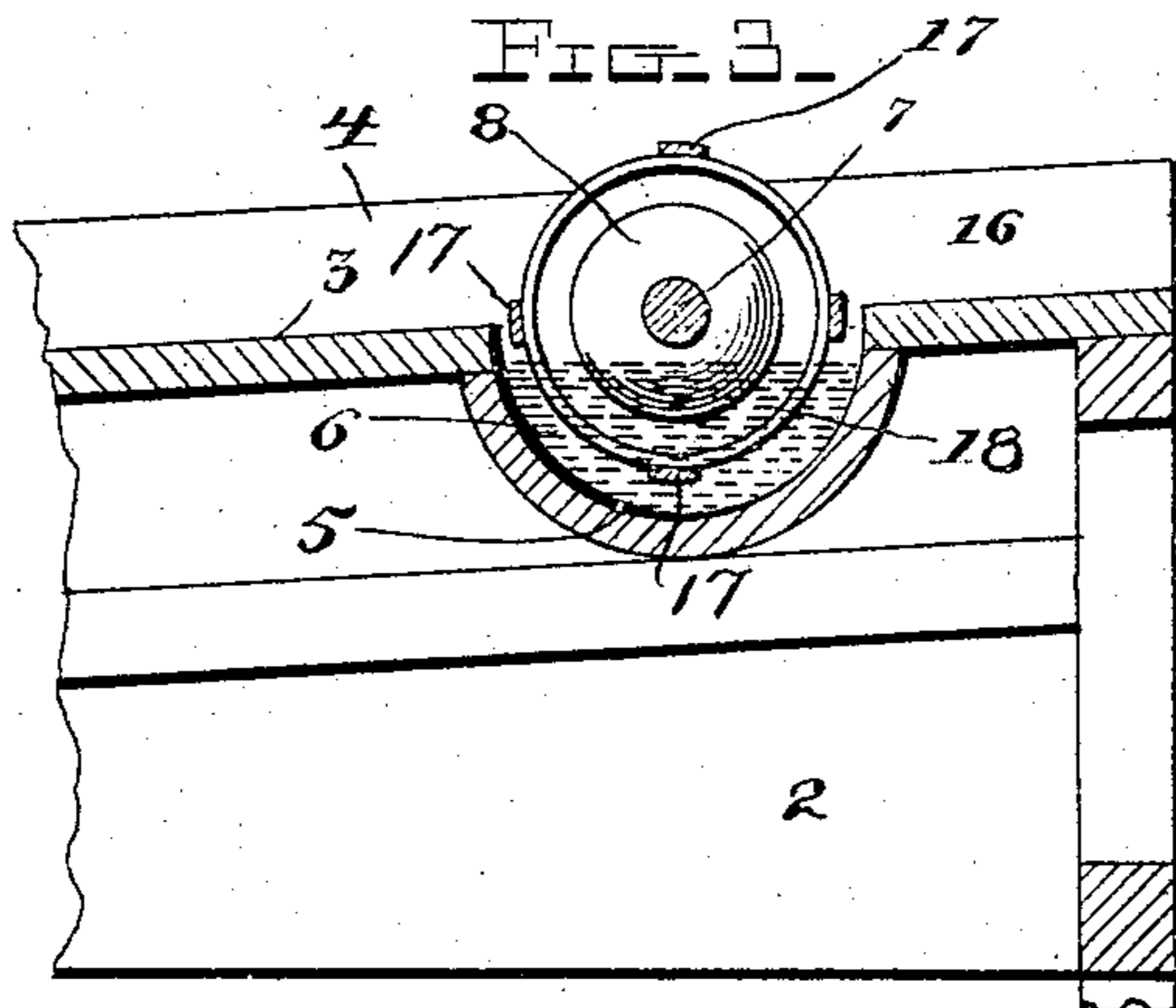


FIG. 3.



Inventor

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AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 767,365, dated August 9, 1904.

Application filed October 12, 1903. Serial No. 176,731. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. VANDENBURGH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Amalgamators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improved amalgamator; and it consists in the construction, combination, and arrangement of devices hereinafter fully described, and pointed out in the appended claim.

The object of my invention is to combine with a fixed conduit for the pulp a mercury-trough in the conduit, spherical bodies revoluble in the mercury in the trough, and rings spaced from and extending around the spheres, also revoluble in the trough and disposed concentrically with relation to the spheres and in planes substantially parallel with the current of the pulp, said spheres and rings presenting surfaces of maximum area, which surfaces are continually covered by the mercury owing to their movement therein to hold the fine "float-gold" which floats on the surface of the water, while the heavier particles of the precious metal are caused to be caught by the mercury in the trough and to sink into the same.

In the accompanying drawings, Figure 1 is a top plan view of an amalgamating-table embodying my improvements. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a detail sectional view on a larger scale.

Referring more particularly to the drawings, 1 denotes a supporting-frame having side pieces 2, the upper edges of which are inclined or slanted from the front to the rear end of the machine, as shown. Upon the slanting edges of said boards are secured top plates 3, which form the table over which the pulp flows. Strips or flanges 4 are arranged along each side of the table to prevent the pulp from running off the sides of the same.

At intervals along the table between the

plates 3 are formed spaces or openings in which are arranged troughs 5, having curved bottoms, as shown. In each of said troughs is arranged a shaft 7, which are journaled in the bearings in the ends 6 of the troughs. On the shaft 7 are fixed balls or spherical bodies 8, of which there may be any desired number. In the present instance six are shown on each shaft. These balls or spherical bodies may be formed of any suitable metal, but are preferably constructed of copper and are secured to the shafts in any suitable manner. At the lower end of the table is arranged a trough 9, which is similar in construction to the troughs 5. In this lower trough is arranged a shaft 10, on which are fixed a series of radial agitating-plates 12, which are adapted to be turned in the trough for a purpose hereinafter described. The shafts 7 and 10 may be driven to rotate the balls and agitator-plates by any suitable means. They are here shown as provided on one end with fixed sprocket-wheels 13, which are connected together by sprocket-chains 14. Motion being imparted to the shaft 7 by a chain 15, running to any suitable source of power, (not shown,) will be transmitted to the other shafts through the chains 14, as will be understood.

The troughs 5, of which there may be any number, according to the length of the table and the distance between them, are filled with mercury, in which the balls 8 are rotated with their shafts, thereby coating the same with mercury. The rotation of the balls continually presents fresh mercury-covered surfaces, over which the pulp flows in running on the inclined table and over the mercury-filled troughs. These mercury-covered surfaces attract and hold the fine float-gold which floats on the surface of the water, while the heavier particles of gold are caught by the mercury in the troughs and sink into the same. The sand, pulverized quartz, and other waste in the pulp being of less specific gravity than the mercury will be carried across the troughs by the flow of water until the same reaches the trough 9 at the lower end of the table, which trough the sand, pulverized quartz, and other waste enters and from which it is thrown

out and kept moving by the agitator-plates 12, arranged to operate in said trough.

Should any mercury overflow or be splashed out of the troughs 5, it will pass down the table with the waste pulp and into the trough 10, where it will be caught and being heavier than the pulp will sink to the bottom of the trough beyond the reach of the agitator-plates, where it will remain until removed by the operator.

10 On each shaft 7, near the ends thereof, arcircular heads 16, which rotate with said shafts and are connected together by bars or strips 17, which are spaced apart, as shown. Rings 18 are spaced from and disposed around the 15 balls or spheres, are spaced apart, are disposed concentrically with relation to the spheres and in planes parallel with the current of the pulp, and are attached to the bars or strips 17, so that they rotate in the mercury in the 20 troughs together with the spheres. The concentric disposition of the rings with reference to the spheres adapts them to rotate therewith smoothly in the mercury in the troughs without agitating the mercury. These rings may 25 be made of wire or strips of any suitable material, preferably copper, and, together with the spheres, present maximum superficial area to the mercury in the troughs.

30 In the operation of the machine the shafts on which the spherical bodies and rings are mounted may be caused to rotate in either di-

rection to turn said spherical bodies and rings in the direction of the flow of the pulp or against the same, as may be desired.

From the foregoing description, taken in 35 connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, 40 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus fully described my invention, 45 what I claim, and desire to secure by Letters Patent, is—

An amalgamator comprising a fixed conduit for the pulp, a mercury-trough in the conduit, spherical bodies revoluble in the mercury in 50 the trough, and rings spaced from and extending around the spheres, also revoluble in the trough and disposed with relation to the spheres and in planes substantially parallel with the current of the pulp. 55

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM E. VANDENBURGH.

Witnesses:

LEWIS EGAN,

E. V. BACHARACH.