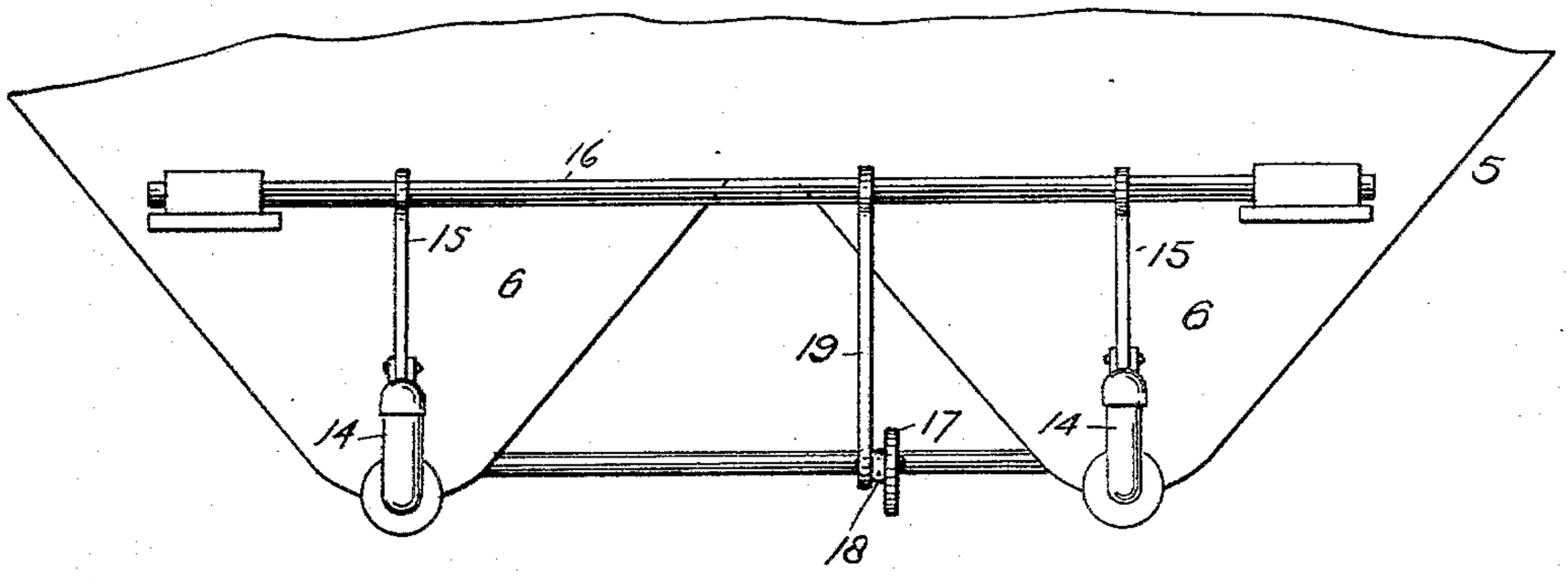
(No Model.)

E. S. BENNETT.

AMALGAMATOR.

No. 563,705. Patented July 7, 1896.

FIG. 1



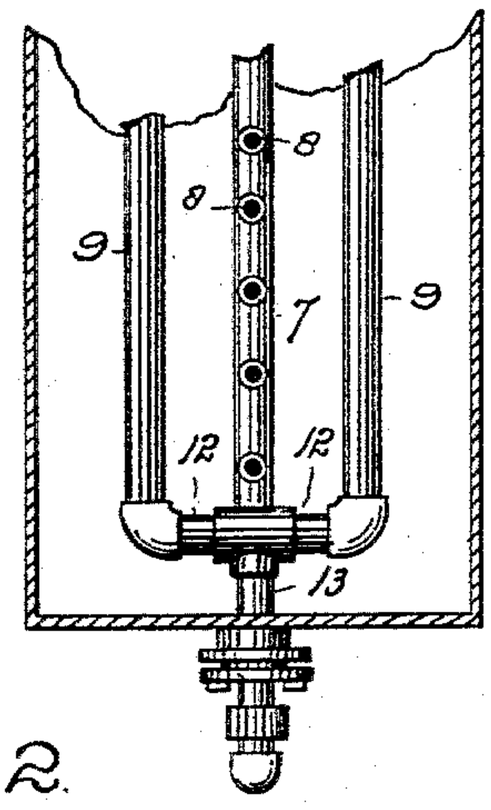


FIG. 2.

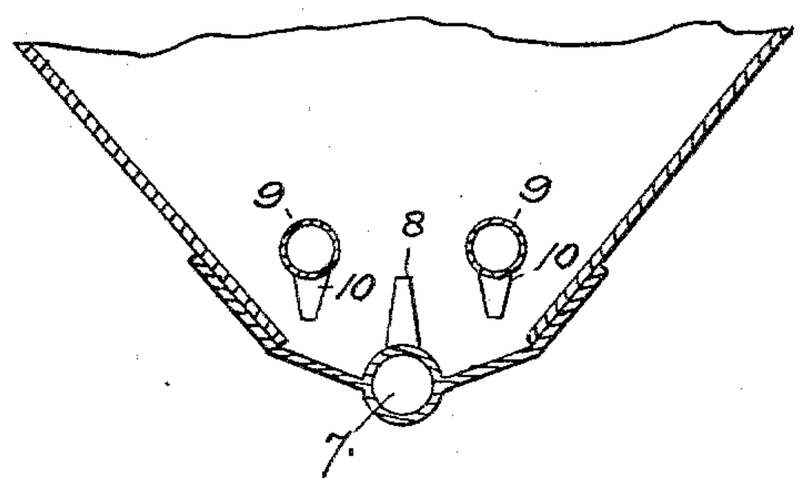


FIG. 3.

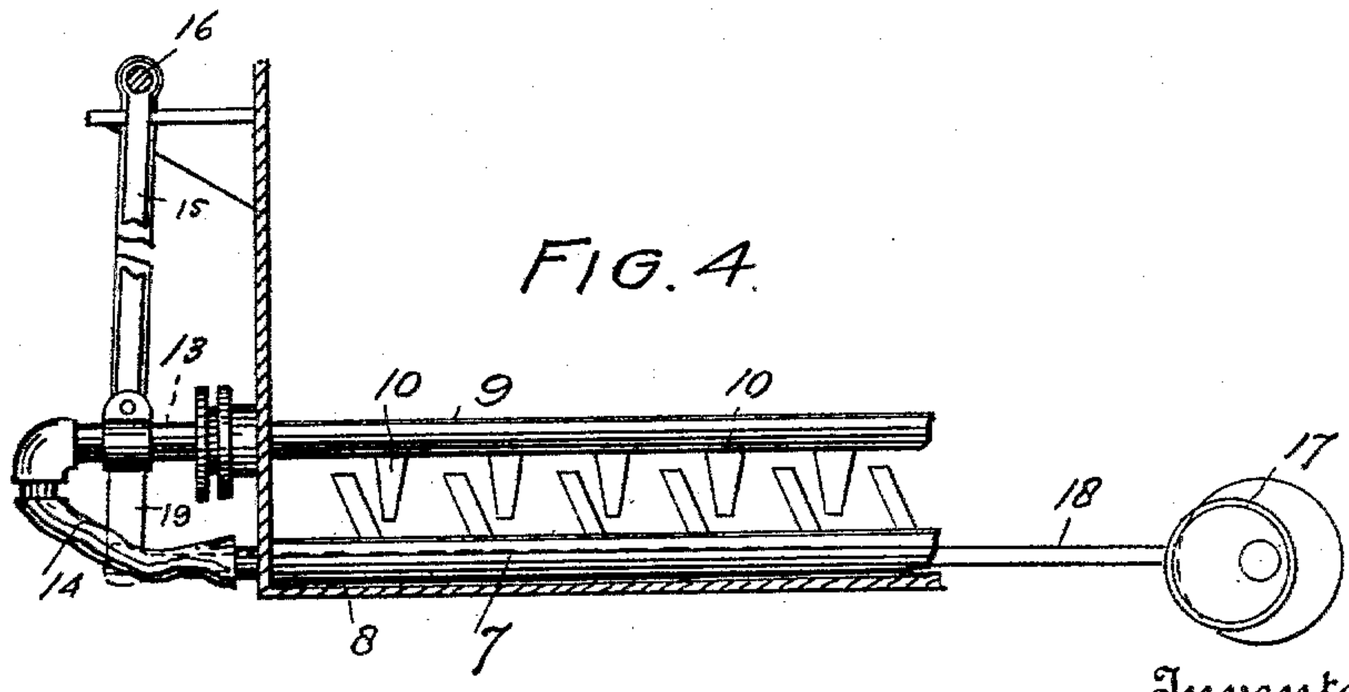


FIG. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ERASTUS S. BENNETT, OF DENVER, COLORADO.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 563,705, dated July 7, 1896.

Application filed October 5, 1895. Serial No. 564,819. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS S. BENNETT, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in amalgamators of the class set forth in Patent No. 221,905, issued to me and bearing date November 25, 1879. This patent shows a tank having inclined sides and a bottom comprising two valleys, in each of which is centrally located a longitudinal row of upwardly-projecting nozzles or jet-pipes connected with a suitable water-supply source. The function of these nozzles or jet-pipes is set forth in the specification forming a part of said patent. During the use of amalgamators of this class more or less amalgam runs down the inclined sides of the tank and settles in the valleys. There is also a tendency on the part of the sand to settle in the valleys. The object of my present invention is to keep this sand agitated or in a state of commotion to let the amalgam which is seeking the bottom of the valleys pass to the lowest possible position and settle beneath the sand, wherefrom it may be easily withdrawn through the instrumentality of suitable draw-off cocks. The amalgam being heavier than the sand naturally would pass to the bottom of the valleys beneath the sand. In the absence of some suitable agitating mechanism, however, the sand packs in the bottom of the valleys and becomes so hard as to prevent the amalgam from getting underneath it.

My present invention consists in locating a pipe on each or either side of the central row of nozzles or jet-pipes in each valley, said pipes being so constructed that streams or jets of water or air may be forced through them into the bottom of the valleys, whereby the sand is kept boiling up somewhat after the manner of water and sand in a natural spring. This result may be obtained by providing the pipes with perforations or by equipping them with nozzles. Furthermore, these pipes may be either stationary or adapted to reciprocate through the agency of suitable operating mechanism. In the drawings the pipes are shown provided with depending nozzles and connected with operating mechanism, though it must be understood that I do not limit the invention to the construction shown, as I am aware that stationary pipes provided with plain perforations will perform the function stated, though the form shown is believed preferable.

The invention will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a fragmentary end view of the tank, illustrating suitable means for reciprocating the movable pipes located in the valleys. Fig. 2 is a horizontal section taken through the tank illustrating one of the valleys equipped with my improvements. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a vertical longitudinal section taken through one of the valleys of the tank.

Similar reference-characters indicate corresponding parts in the views.

Let the numeral 5 designate the tank, having inclined sides and a bottom shaped somewhat like the letter W, and having, therefore, two valleys 6. In the longitudinal center of each valley is located a water-conduit 7, formed integral with the bottom of the tank and provided with upwardly-extending inclined nozzles 8. On each side of this central conduit is located a pipe 9, having depending nozzles 10. The pipes 9 are connected within the tank by a T-head 12, from the center of which leads a branch pipe 13, which extends through an aperture formed in the end of the tank and is surrounded by a stuffing-box.

Outside of the tank, the branch pipe 13 is connected with the central water-conduit 7 by a section 14 of flexible hose through which the pipes 9 receive their supply of water. Each branch pipe 13 is connected outside of the tank with the lower extremity of an arm 15, to whose upper extremity is made fast a rock-shaft 16, journaled on the end of the

tank. The rock-shaft is operated from an eccentric 17 through the medium of a connecting-rod 18 and a rock-arm 19.

Other means may, of course, be employed for reciprocating the pipes 9. While, as before stated, these pipes may be stationary, I prefer to have them movable, since their efficiency in the performance of the function stated is thereby augmented. Whether the pipes 9 are stationary or movable, they may have either plain perforations or nozzles, as desired.

As heretofore intimated, the pipes 9 may be made to perform their function either by water or air. When water is employed, it is preferably taken from the main conduit formed in the bottom of each valley. It may, however, be taken from any other suitable supply source. When air is employed in connection with the pipes 9, said pipes may be connected with any suitable air-forcing apparatus, whereby the jets of air are forced into the valleys through the perforations or through nozzles in the same manner and for the same purpose as the streams or jets of water.

Having thus described my invention, what I claim is—

In an amalgamator the combination with a tank having inclined sides and one or more valleys formed in its bottom, each valley having a central, upwardly-projecting, longitudinal row of nozzles connected with a suitable air or water supply source, of an apertured pipe located on each or either side of said central row of nozzles, and suitable means for imparting to said apertured pipes a reciprocating movement, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ERASTUS S. BENNETT.

Witnesses:

C. F. SCHOFIELD,

JULIUS BROWN.