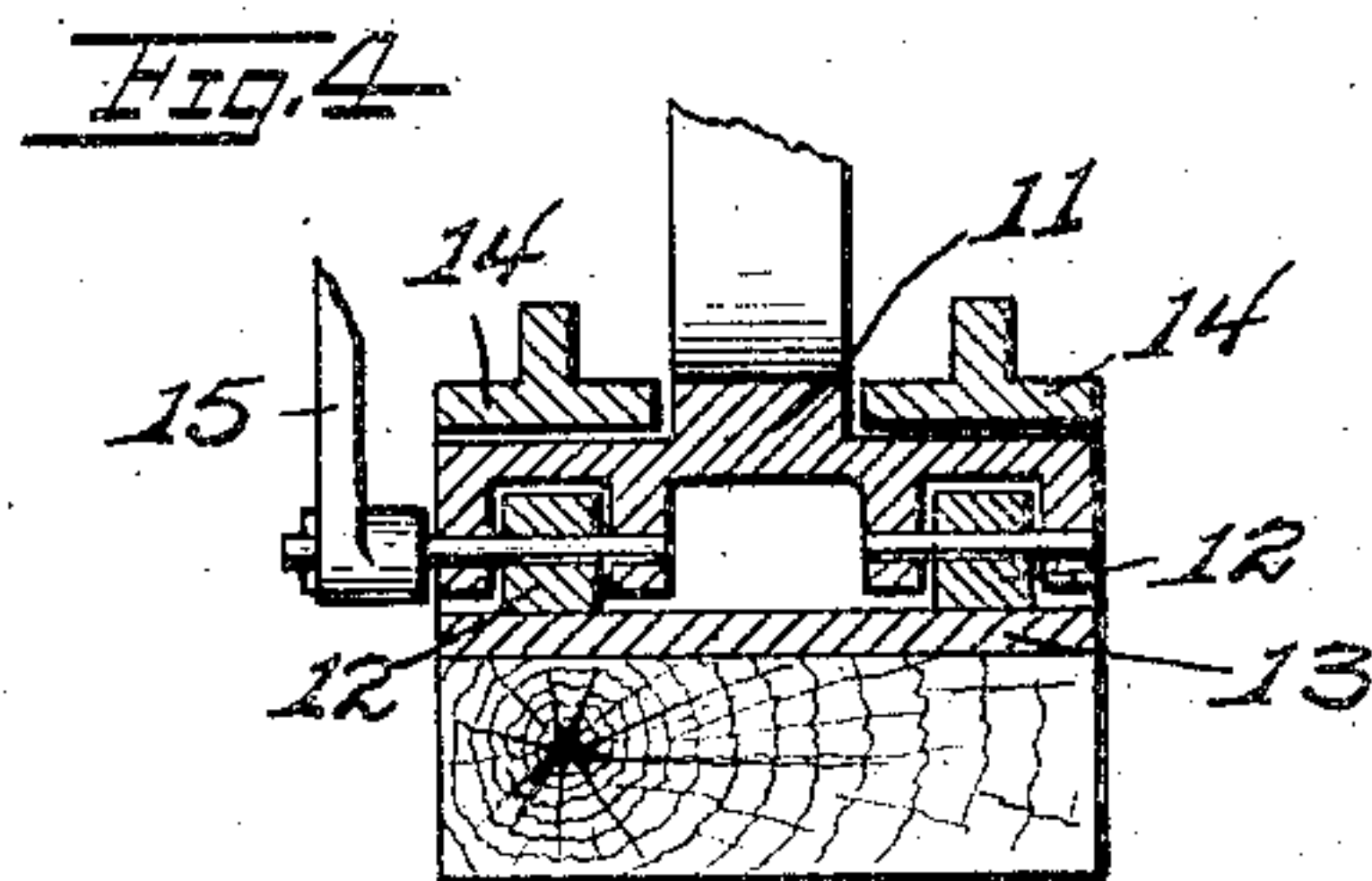
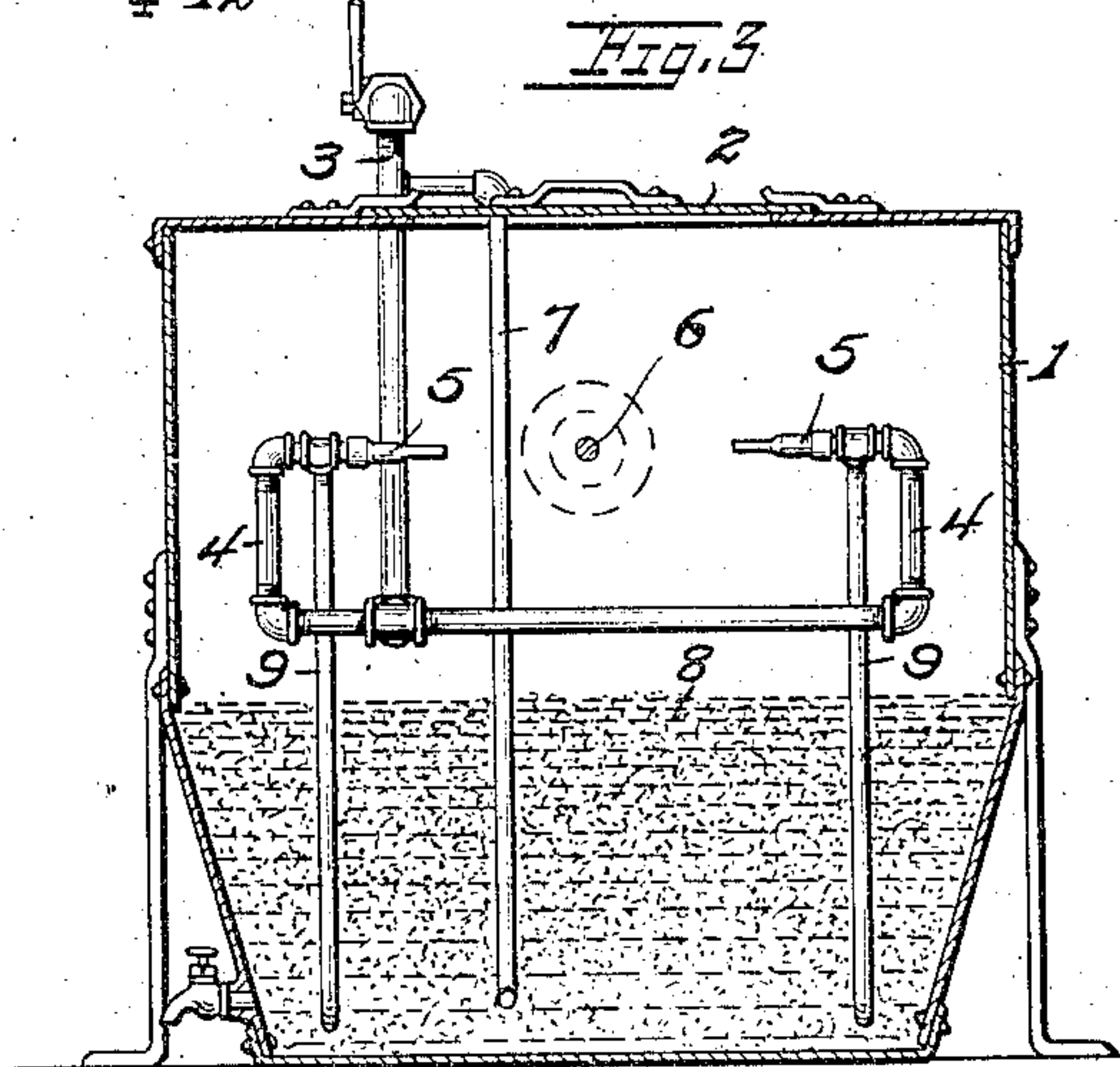
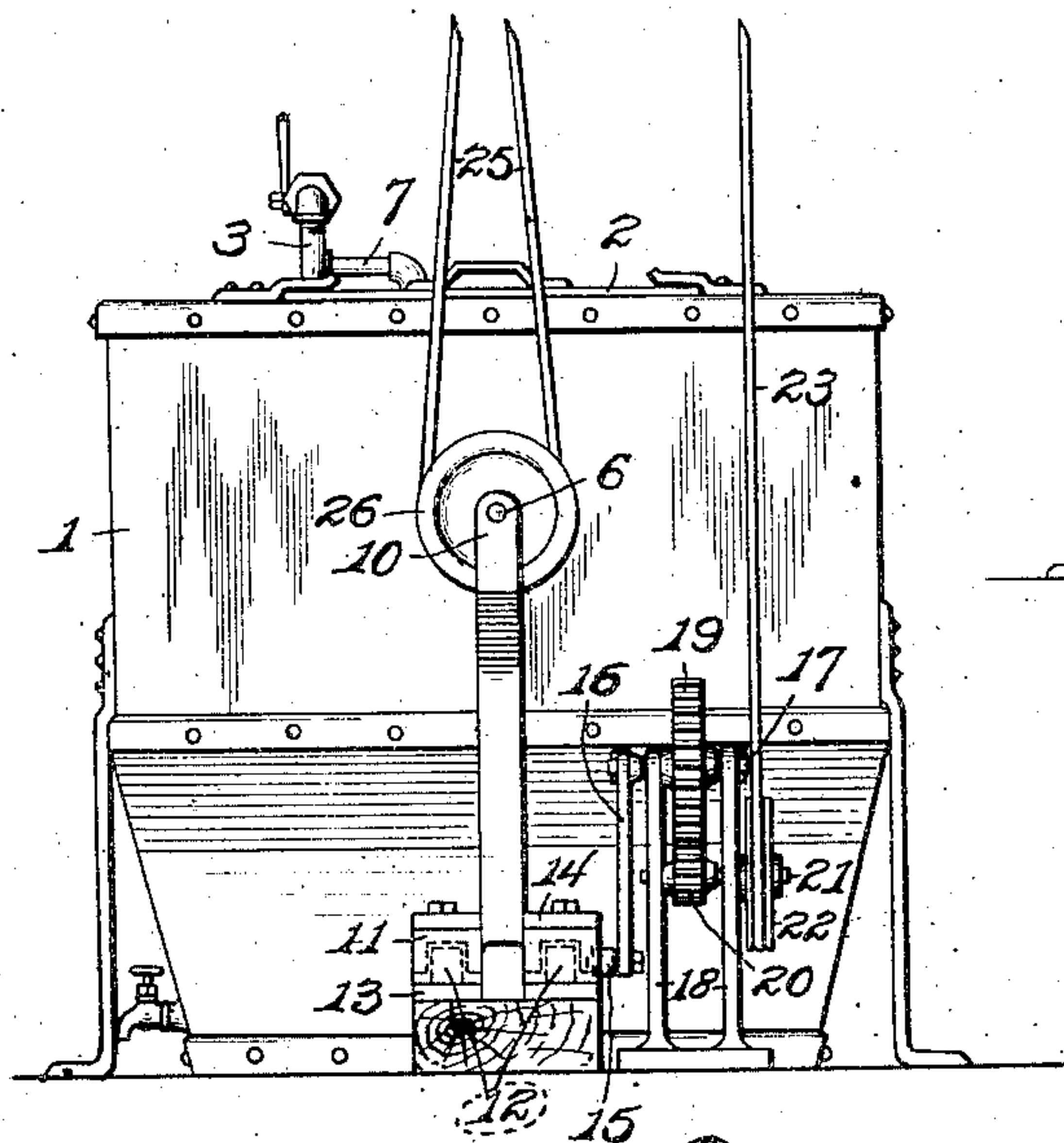
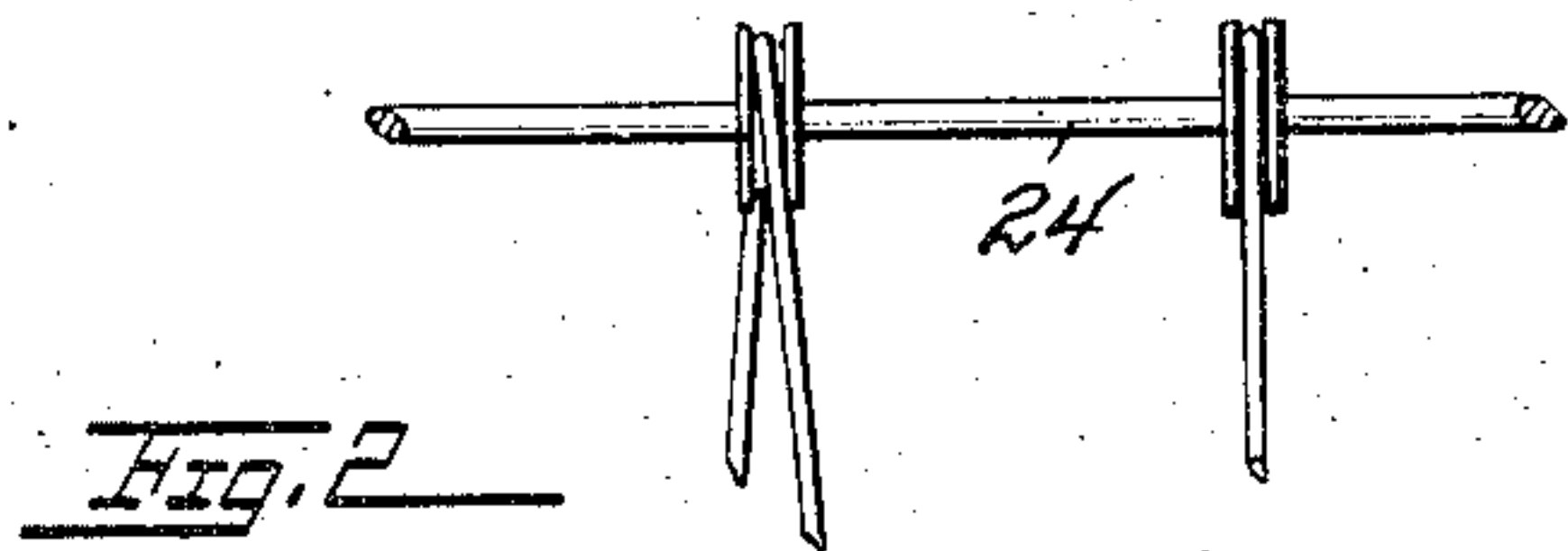
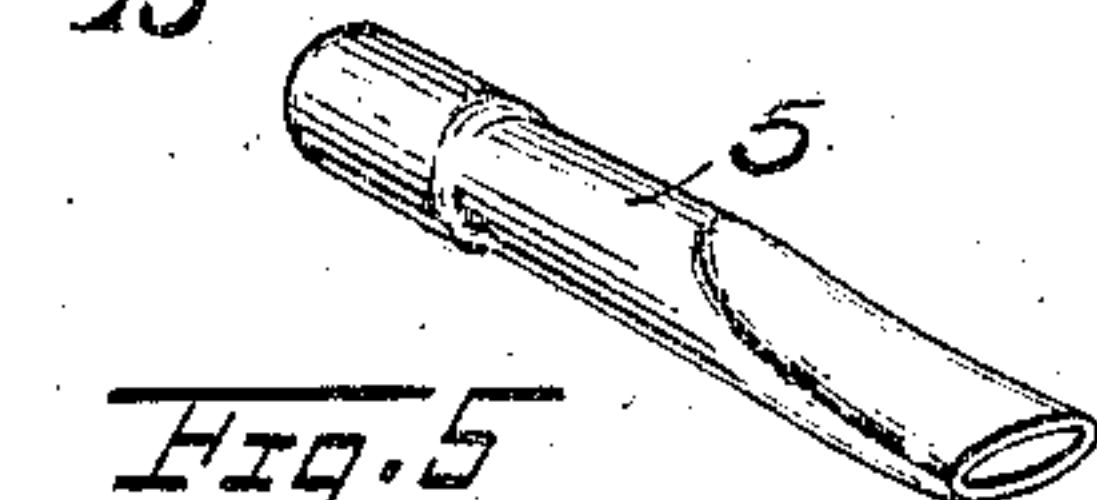


931,341.



WITNESSES:
J. E. Arthur,
S. R. Laidley



INVENTOR
Jacob Phillips.
BY
W. E. Sumner.
ATTORNEY.

UNITED STATES PATENT OFFICE.

JACOB PHILLIPS, OF BELLAIRE, OHIO.

BLASTING DEVICE.

No. 931,341.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed March 3, 1909. Serial No. 481,138.

To all whom it may concern:

Be it known that I, JACOB PHILLIPS, a citizen of the United States of America, and resident of Bellaire, county of Belmont, and State of Ohio, have invented certain new and useful Improvements in Blasting Devices, of which the following is a specification.

This invention relates broadly to apparatus for frosting glassware, and specifically to sand or mud blast apparatus.

The primary object of this invention is to provide a blasting machine wherein the articles of glassware to be treated or acted upon are automatically shifted with relation to the blast nozzles so as to bring the whole of the surface which is to be treated within the range of said nozzles.

Another object is to provide means whereby the device may be adjusted for regulating the movement of the shifting mechanism. And a still further object within the contemplation of this invention is to provide a comparatively simple, inexpensive and efficient device wherein mud or thin mortar is employed as the abrading element.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings—Figure 1 is a general sectional elevation of one embodiment of this invention showing the general arrangement and formation of the various elements comprising the same; Fig. 2 is a side elevation of the same; Fig. 3 is a section of the same on the line 3—3, Fig. 1; Fig. 4 is an enlarged section on the line 4—4, Fig. 1; and—Fig. 5 is an enlarged perspective view of a blast nozzle.

Referring to said drawings, in which like reference-numerals designate like parts throughout the several views—1 indicates a receptacle or reservoir for containing abrasive material, said reservoir having a hopper-shaped lower portion and having a slidable cover 2, as shown. Leading into said reservoir is a pipe 3 for air or steam, preferably the latter, from which branch pipes 4 lead to oppositely-disposed nozzles 5 located on opposite sides of the path of movement of the

articles of ware which are suitably mounted and held upon a revoluble shaft 6.

Leading from the steam pipe 3 to a point adjacent to the bottom of the hopper is a branch pipe 7 adapted for discharging steam with considerable force for constantly agitating and mixing the thin mortar or mud 8 and, consequently, preventing to a considerable extent chance clogging of suction pipes 9 which lead from points adjacent to the bottom of the reservoir to the branch pipes 4 directly in the rear of the nozzles 5. It will of course be perceived that the force of the steam directed through the nozzles will produce a suction which will draw the mortar or mud through the pipes 9 and cause it to be discharged with force against the interposed ware.

For the purpose of moving the ware longitudinally between the nozzles 5 and consequently exposing a relatively large, or the whole, surface of the ware to the abrading action of the blasts issuing from said nozzles, the shaft 6 is journaled in the forks 10 of a support borne by a movable carriage 11. Said carriage has rollers 12 which travel upon a bed-plate 13, and fixed guide-bars 14 serve to maintain the carriage seated and to prevent displacement thereof. A pitman 15 connects said carriage to a crank-arm 16 fixed upon a shaft 17 which is journaled in supports 18. Said shaft 17 has thereon a gear-wheel 19 in mesh with a pinion 20 fixed on a second shaft 21 journaled in said supports 18, the last-mentioned shaft also having a belt-wheel 22 thereon which is connected by a belt 23 to a suitable drive-shaft 24 or other main driving mechanism. An elastic belt 2 connects a pulley wheel 26 fixed on the shaft 6 between the forks 10 to said drive-shaft 24. A slot 27 in the crank-arm 16 provides for the adjustment of the pitman 15 with relation to the shaft 17, and consequently provides means whereby the length of the stroke of the pitman and, therefore, the length of the longitudinal movement of the shaft 6, may be regulated.

The operation of this invention, while largely apparent from the foregoing description, may be now partially and briefly restated for the sake of clearness: The ware to be treated is mounted in any appropriate manner upon the shaft 6 which is revolved rapidly by the belt 25. With each revolution of the shaft 17 on which the crank-arm

16 is carried, the carriage 11 is moved forward and back, carrying therewith said shaft 6, such movement being permitted by the elastic character of the belt 25. The ware is consequently moved forward and back past the blast nozzles, the length of the movement of said shaft 6 and, therefore, the proportion of the surface of the ware subjected to the action of the blast, being regulated by adjustment of the pitman with relation to said crank-arm.

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

1. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a longitudinally movable rotary shaft for conveying the article to be treated in front of said nozzles, automatic means for rotating said shaft, and means for moving said shaft longitudinally a predetermined distance.

2. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a rotary shaft bearing the article to be treated, and automatic means for shifting said shaft longitudinally, a predetermined distance.

3. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a rotary shaft supporting the object to be treated, automatic means for moving said shaft across the path of the ejected abrasive material, and means for adjusting the last mentioned means for regulating the distance of such movement.

4. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a rotary shaft supporting the object to be acted upon, automatic means for moving said shaft across the path of the ejecting abrasive material, and means for regulating the distance of such movement.

5. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a rotary shaft supporting the object to be treated, means for automatically moving said shaft longitudinally for thrusting said object into and out of the path of the abrasive material issuing from said nozzles, and means for regulating the length of the thrust.

6. A device of the character described,

comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a shaft supporting the object to be treated, a carriage supporting said shaft, means for rotating said shaft, and means whereby said carriage is thrust forward and back a predetermined distance for carrying said object into and out of blast-receiving position.

7. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a shaft supporting the object to be treated, a carriage supporting said shaft, means for rotating said shaft, means for moving said carriage forward and back for subjecting said object to the blasts issuing from said nozzles, and means for regulating the distance traversed by said carriage in its movement.

8. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a shaft supporting the object to be treated, a carriage supporting said shaft, means for rotating said shaft, a rotary crank-shaft, and means interposed between the carriage and the crank-shaft whereby the former is thrust forward and drawn back with each revolution of the latter.

9. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a shaft supporting the object to be treated, a carriage supporting said shaft, means for rotating said shaft, a rotary crank-shaft, a pitman connecting said crank-shaft and said carriage, and gearing for rotating said crank-shaft.

10. A device of the character described, comprising in combination, a reservoir for abrasive material, ejecting nozzles, means for supplying a blast of abrasive material through said nozzles, a shaft supporting the object to be treated, a carriage supporting said shaft, means for rotating said shaft, a rotary crank-shaft, means interposed between the carriage and the crank-shaft whereby the former is thrust forward and back with each revolution of the latter, and means for regulating the length of the forward thrust of the carriage.

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

JACOB PHILLIPS.

Witnesses:

M. B. ROLLER,
H. E. DUNLAP.