

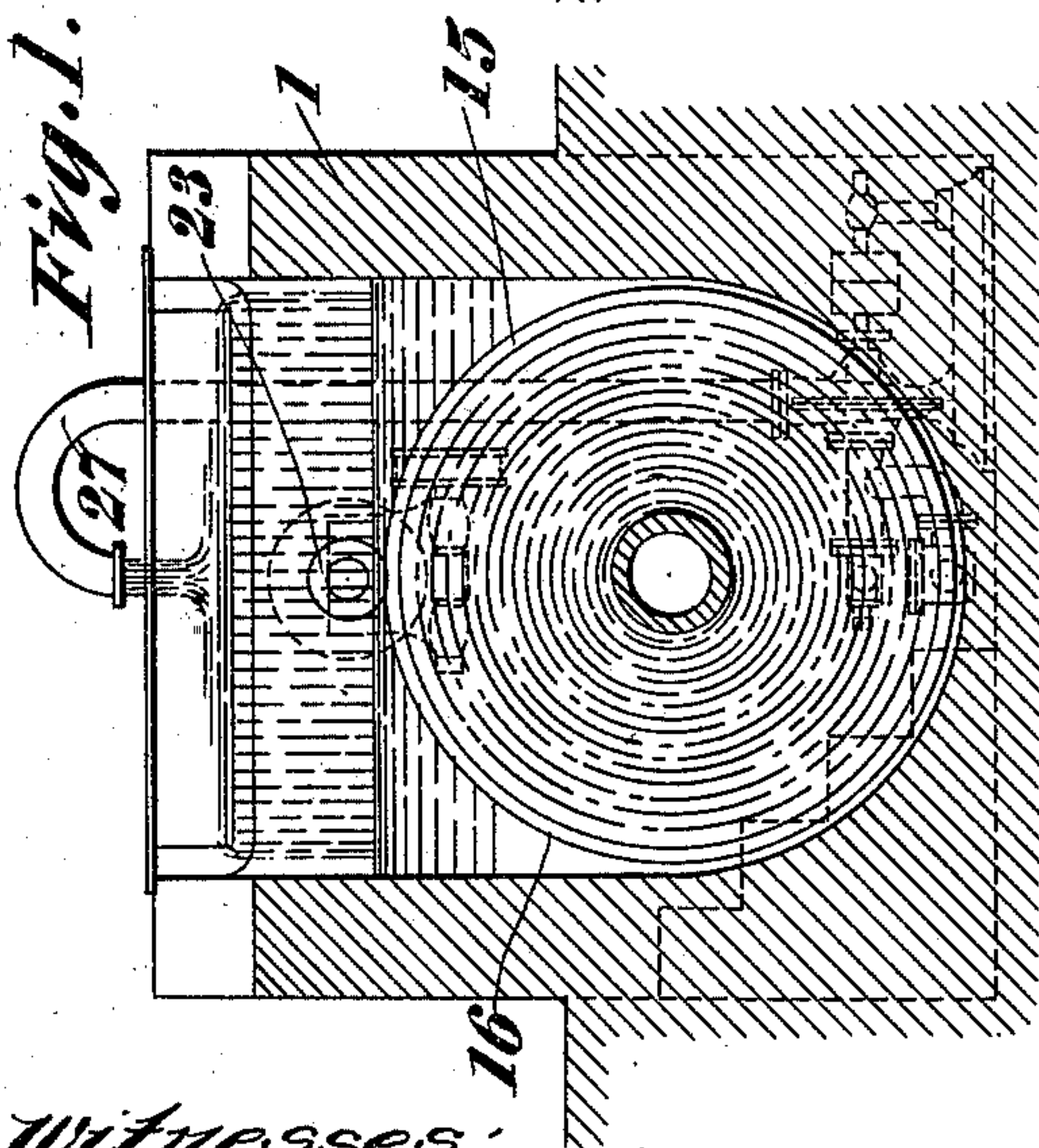
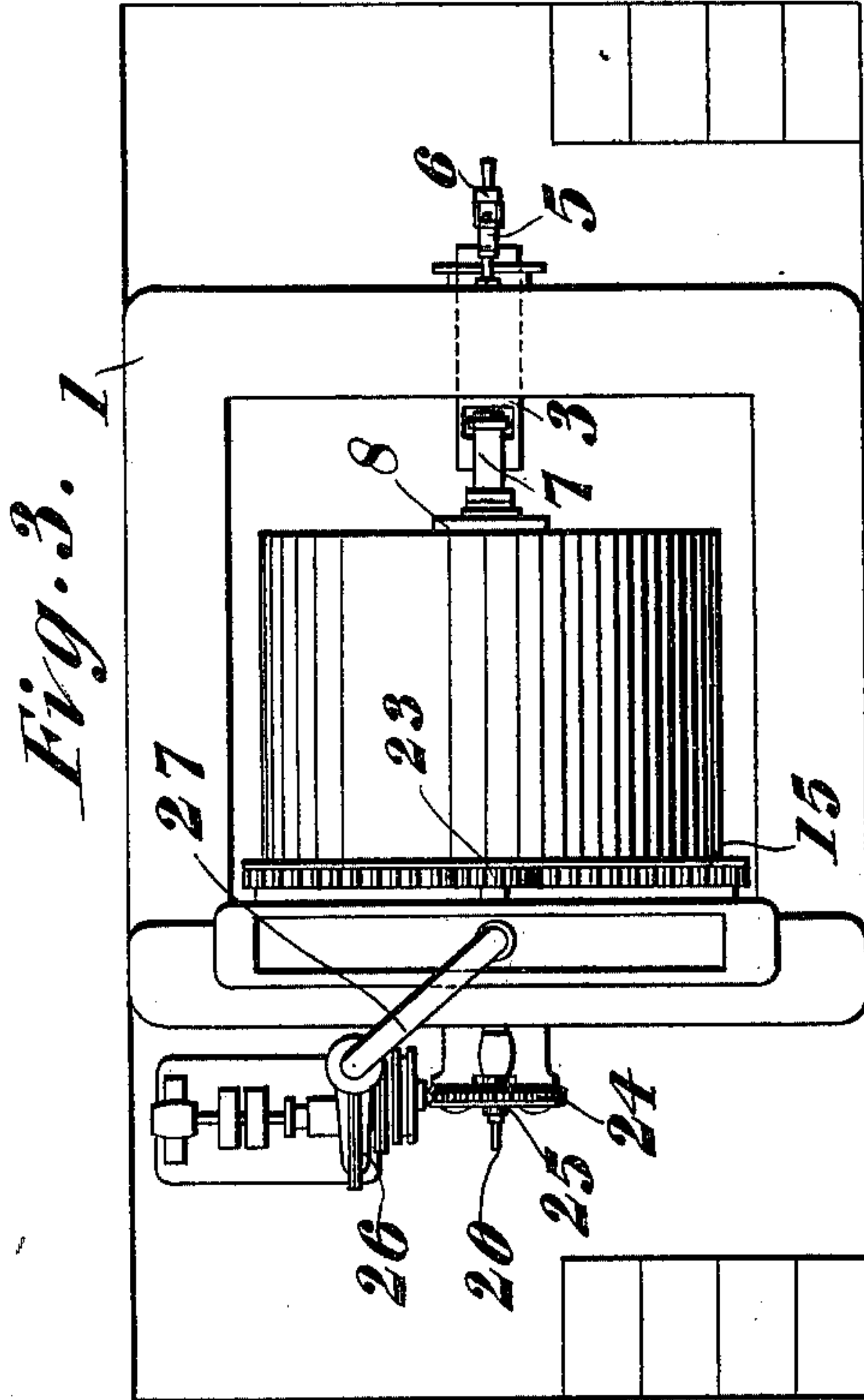
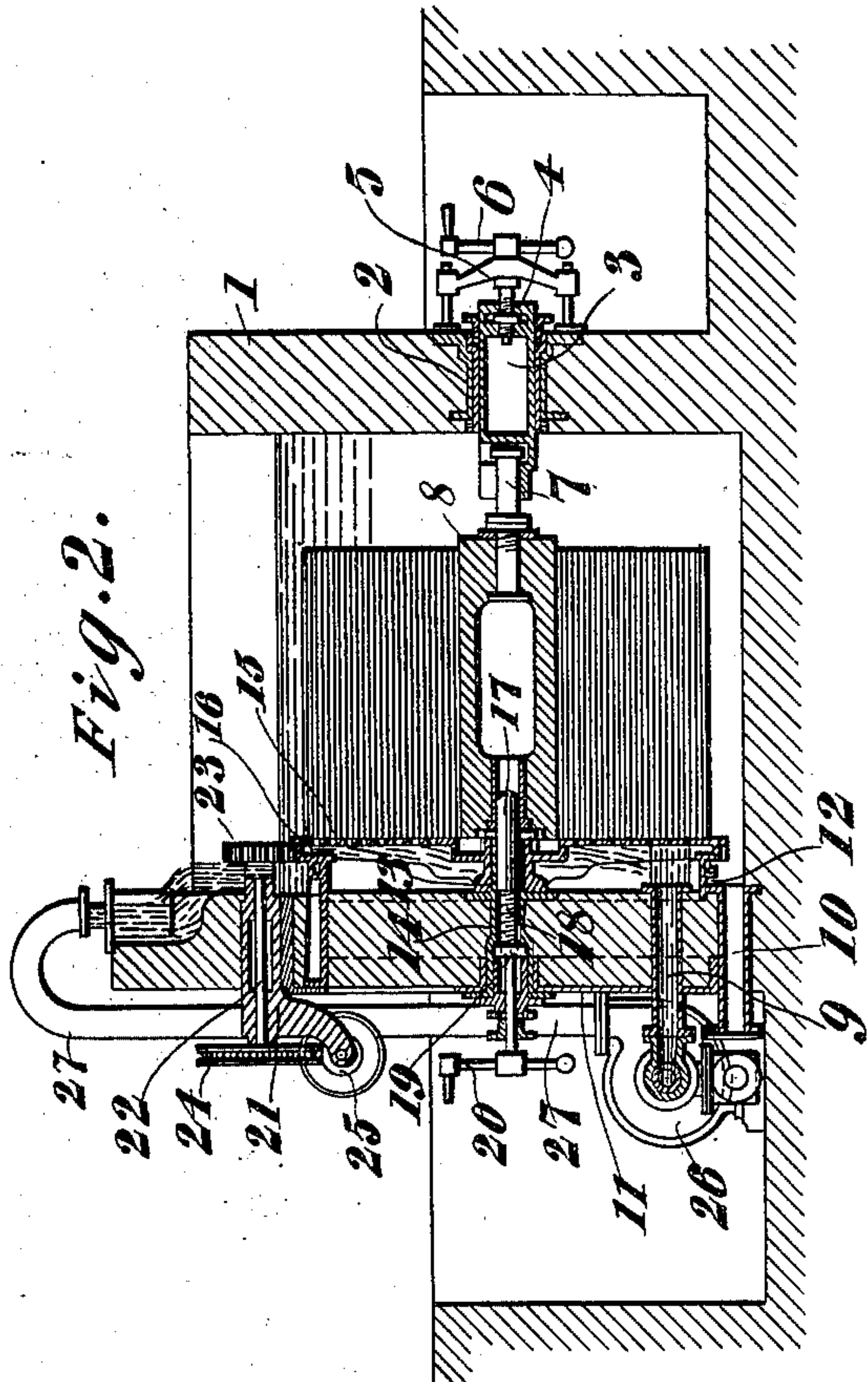
No. 672,645.

Patented Apr. 23, 1901.

W. MATHER.
APPARATUS FOR DYEING, &c.

(Application filed Jan. 2, 1901.)

(No Model.)



Witnesses:
Geo. Sullivan
Geo. Kessler

Inventor
William Mather

By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM MATHER, OF MANCHESTER, ENGLAND.

APPARATUS FOR DYEING, &c.

SPECIFICATION forming part of Letters Patent No. 672,645, dated April 23, 1901.

Application filed January 2, 1901. Serial No. 41,908. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MATHER, a citizen of England, residing at Salford Iron Works, Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Apparatus for Bleaching, Dyeing, and Otherwise Treating Fabrics, of which the following is a specification.

In my patent specifications Nos. 653,580, 653,581, and 662,281 I have described means of treating fabrics in their full width rolled upon mandrels with liquids, gases, or vapors. Some of the operations required for bleaching and dyeing fabrics so rolled involve the use of chemicals which act upon iron vessels and apparatus, damaging them and also coloring objectionably the liquids employed.

My present invention relates to apparatus made of material which is not acted on by the liquids employed, as I shall describe, referring to the accompanying drawings.

Figure 1 is a longitudinal section, Fig. 2 is a transverse section, and Fig. 3 is a plan, of apparatus according to my invention.

I construct a tank 1 of cement, building into its end walls fittings for centering the mandrel on which fabric is rolled and also communicating pipes. In the right-hand end is built a cylinder 2, which may be of iron, as no part of it is exposed to the liquid in the tank, and in this cylinder I fit a hollow gun-metal plunger 3, which passes through a stuffing-box and carries a nut 4, which engages a screw that passes through an external yoke 5 and can be turned by a handle 6, so as to slide the plunger to and fro. The front part of the plunger 3 forms a seating open on the upper side to receive a sleeve 7, fitted on the end of the mandrel 8. In the left-hand end of the tank, near the bottom, I build gun-metal pipes 9 and 10, an external frame 11, which may be of iron, and an internal frame 12, of gun-metal, which has a hollow cylindrical boss 13 projecting into the tank and a tubular boss 14 projecting to the outside. On the boss 13 is mounted free to revolve a perforated disk 15, having teeth around its periphery and having a flange 16 at its back, turned true and fitting against packing held in an annular groove formed in the face of the frame 12. In the boss 13 is fitted a round-ended plunger 17, having a screw-threaded part 18 screwing

through a nut 19, its outer end passing through a stuffing-box to an external handle 20, by which it can be turned in either direction. In the upper part of the left-hand wall of the tank I build a box 21, in which are bearings for a spindle 22, having fixed on it a pinion 23, gearing with the teeth on the disk 15. On the outer end of the spindle 22 is fixed a worm-wheel 24, gearing with a worm 25 on a spindle worked by a belt or otherwise from any convenient motor. The pipe 9 is connected as suction-pipe to a rotary or other suitable pump 26, from which a discharge-pipe 27 extends upward and terminates in a bend, so as to deliver liquid into the upper part of the tank.

The apparatus is worked in the following manner: The plunger 3 being retracted a few inches and the plunger 17 being fully retracted, a roll of fabric having the sleeve 7 placed on the end of the mandrel 8 is lowered by a crane or traveler into the tank until the sleeve 7 rests in its seating in the front of the plunger 3. The roll being then adjusted in position to present its mandrel central with the plunger 17, that plunger is advanced so as to enter the open end of the mandrel and form a bearing for it. The plunger 3 is then advanced so as to press the end of the roll against the perforated disk 15. The tank is then filled with suitable liquid, and by means of the pump this is continuously drawn lengthwise through the roll and discharged into the tank above while the roll is slowly rotated. When the fabric has been sufficiently permeated by one liquid, the contents of the tank can be run off by the pipe 10, and the fabric can then be treated by fresh liquid. When it is desired to remove the roll, the plunger 3 is withdrawn a little, so as to separate the roll from the perforated disk 15, and then the plunger 17 is fully withdrawn, leaving the mandrel 8 free, whereupon the roll can be lifted from the tank.

Although I have described the tank as being made of cement, it might obviously be made of other material that is not acted on by the liquids employed. In order to give it strength and portability, it might be cased externally with iron or steel or formed of a framing or casing lined with tiles, slate, earthenware, or such like materials. The

metallic parts that are exposed to the action of the liquids employed may be, as described, of gun-metal, or they may be of other alloys such as are not injuriously acted on by the
5 liquids.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim--

In apparatus for bleaching, dyeing and
10 otherwise treating fabrics, a tank made of or lined with material that is not attacked by the liquids employed, this tank having at its one end a retractile seating for the bearing of

the one end of a roll-mandrel, and having at the other end a retractile centering-plunger 15 for the other end of the mandrel, and having mounted in a bearing a perforated disk and gearing for causing it to revolve, substantially as described.

In testimony whereof I have hereunto set 20 my hand in presence of two subscribing witnesses.

WILLIAM MATHER.

Witnesses:

JNO. Q. THORNHILL,

JAS. STEWART BROADFOOT.