

No. 644,360.

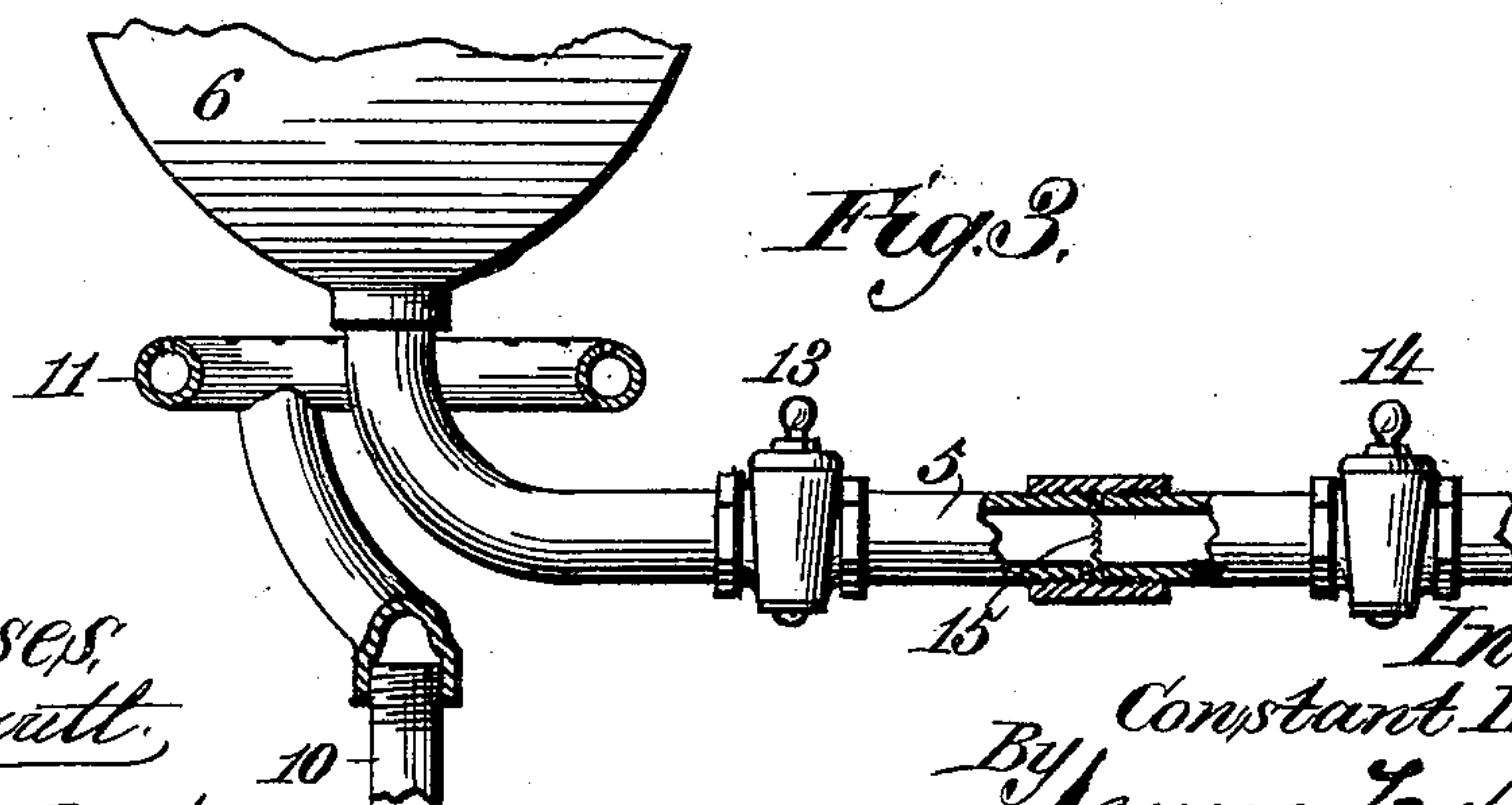
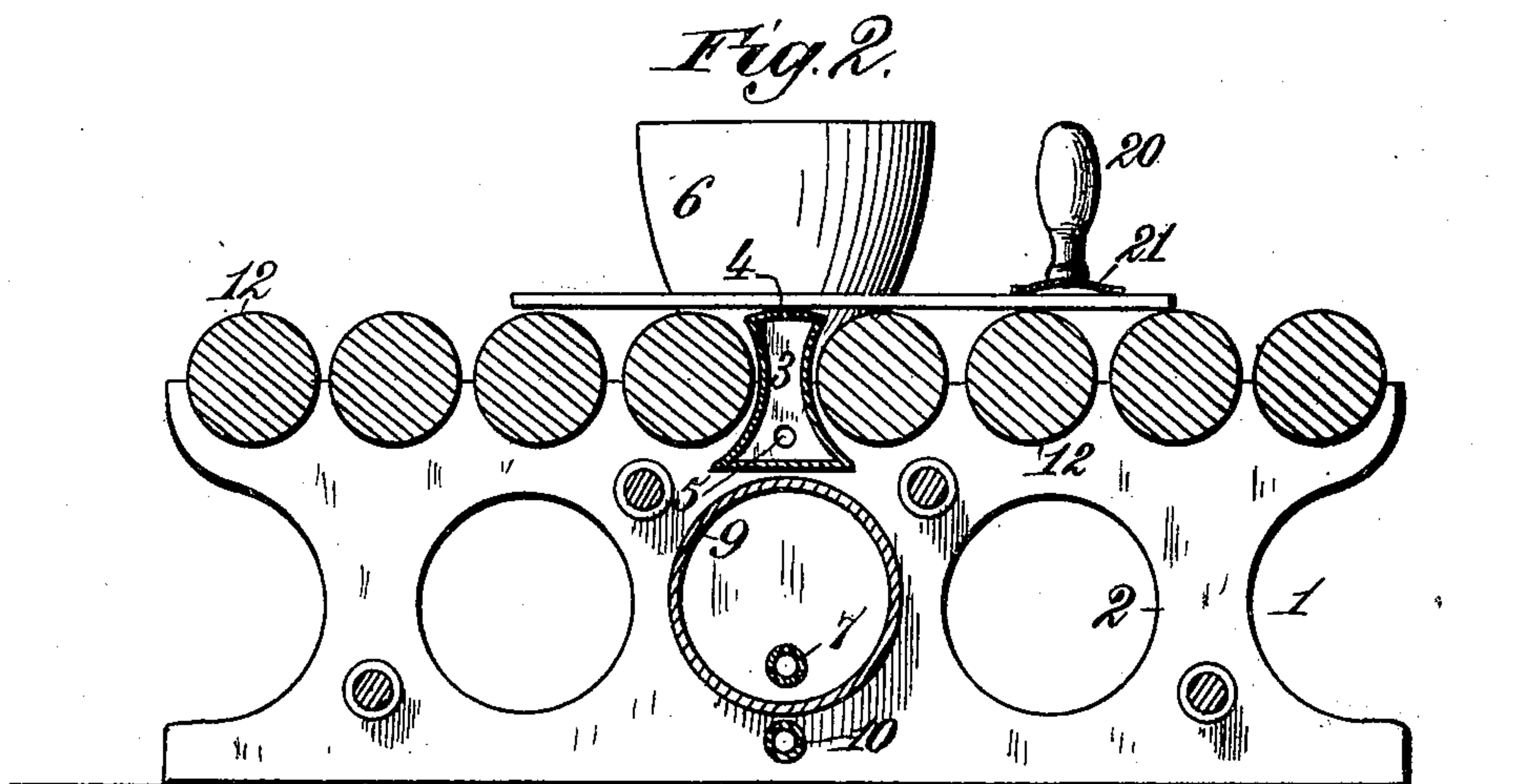
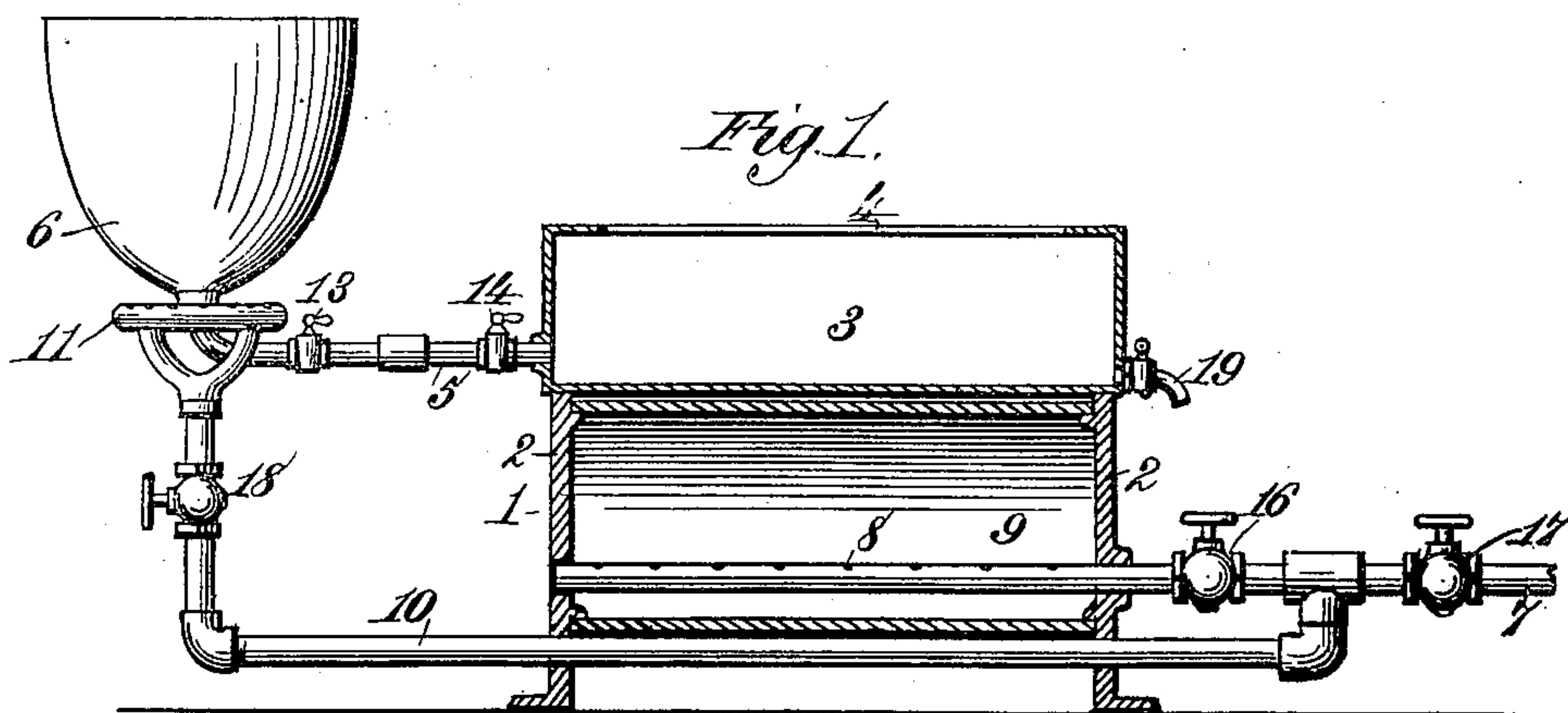
Patented Feb. 27, 1900.

C. LAVAL.

MACHINE FOR SILVERING GLASS IN MANUFACTURING MIRRORS.

(Application filed Apr. 8, 1899.)

(No Model.)



Witnesses:
Robert Everett.
Dennis Sumby.

Inventor:
Constant Laval.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

CONSTANT LAVAL, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR SILVERING GLASS IN MANUFACTURING MIRRORS.

SPECIFICATION forming part of Letters Patent No. 644,360, dated February 27, 1900.

Application filed April 8, 1899. Serial No. 712,304. (No model.)

To all whom it may concern:

Be it known that I, CONSTANT LAVAL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Machines for Silvering Glass in the Manufacture of Mirrors, of which the following is a specification.

This invention relates to a machine for silvering glass in the manufacture of mirrors; and it has for its object to provide an apparatus by means of which an amalgam may be rapidly, efficiently, and economically applied to the glass plate to form a reflecting-surface.

To these ends the invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a transverse sectional view of my apparatus. Fig. 2 is a longitudinal sectional view of the same, and Fig. 3 is a detail view of the crucible or melting-pot and the means for heating the same.

Referring to the drawings, the numeral 1 indicates the frame or casing of the apparatus, having two upright sides 2 and forming the support for the entire apparatus. Supported at its opposite ends in the uprights 2 is a hollow sheet-metal box 3, provided at its upper end with a narrow slit 4, and, as shown, is narrower at its top than at its bottom, the vertical sides of the box being concaved or curved inwardly for the purpose hereinafter explained. Leading from one end of the box or distributor 3 is a pipe 5, which communicates with a crucible or melting-pot 6, adapted to receive the amalgam to be applied to the glass plate. A gas-pipe 7 leads from any suitable source of supply and extends longitudinally beneath the box or distributor 3, at which point it is provided with perforations 8 and is inclosed in a cylindrical casing or pipe 9 of much-greater diameter, which operates to prevent the jets or flames from coming in direct contact with the box or distributor. A branch pipe 10 leads from the gas-pipe 7 to a point beneath the crucible or melting-pot, where it is connected to and sup-

ports an annular perforated gas-pipe 11, which is disposed beneath the crucible, as shown in Figs. 1 and 3 of the drawings.

Journalled in the uprights 2 is a series of parallel rollers 12, the two central or innermost of which revolve in juxtaposition to the concaved sides of the box or distributor, and the upper sides of said rolls all lie in substantially the same horizontal plane as the top of the box or distributor.

Arranged in the pipe 5 are two hand-operated valves 13 and 14, and disposed in said pipe, between the two valves, is a reticulated diaphragm 15, which operates to prevent the passage of any foreign substances from the crucible to the distributor. By opening to a greater or less extent the valves 13 and 14 the supply of amalgam from the crucible or melting-pot to the box or distributor is controlled. Valves 16 and 17 are respectively arranged in the gas-pipe 7 at points on the opposite sides of the point of connection of the branch pipe 10, and a valve 18 is also disposed in the latter pipe, preferably slightly below the annular burner-pipe 11.

The operation of my improved apparatus is as follows: The metal amalgam is placed in the crucible, wherein it is melted and reduced to a liquid state by the annular burner. The melting-pot 6 extends above the box 3, so that the level of the amalgam in the pot is placed above the amalgam-distributing slit 4 in such manner that the amalgam flowing through the pipe into the box and seeking its level will rise in the box and be forced through the distributing-slit. The plate to be silvered is passed over the rollers, and its under side as it passes over the slit in the upper end of the distributor receives a thin film or coating of the amalgam, and as the plate is relatively cool the film or coating of amalgam immediately sets and hardens thereon. By means of the branch gas-pipe 7 and the valves 16 and 18 the gas may be controlled in such manner as to heat the distributor and crucible at different temperatures, or the gas may be shut off from both by the valve 17.

The distributor 3 is provided at one end with a cock or faucet 19, by means of which the amalgam may be drawn off.

By arranging the melting-pot in relation to

the amalgam-distributing slit 4, as above described, I avoid the use of a pump for raising the amalgam and forcing it through the slit.

In practice I provide convenient means for quickly passing the plates over the rollers and distributor, consisting of a handle 20, provided at its lower end with a flexible disk 21, of flexible material, such as rubber or leather, concaved on its under side. By firmly pressing the disk to the upper side of the glass a vacuum is formed under the disk, causing the latter to adhere to the glass with great tenacity and without damage thereto. One, two, or more of such handles may be provided for the purpose.

Having described my invention, what I claim is—

1. The combination, in a machine for silvering glass, of an amalgam-box having an amalgam-distributing slit, an amalgam-melting pot communicating with said box and rising above the same to place the level of the amalgam in the pot above the distributing-slit, two perforated gas-burner pipes arranged, respectively, in juxtaposition to said pot and box, and a gas-supply pipe common to both gas-burner pipes, substantially as described.

2. The combination with a crucible or melting-pot, of a distributing box or tank in com-

munication with said crucible or melting-pot and provided in its upper side with a narrow discharge-slit, a perforated gas-pipe surrounding said crucible or melting-pot, a perforated gas-pipe extending beneath the distributing box or tank, and a tubular casing surrounding said gas-pipe, substantially as described.

3. The combination with a crucible or melting-pot, of a distributing box or tank, a pipe connecting said box or tank with the crucible or melting-pot, a reticulated diaphragm disposed in said pipe, and valves arranged in said pipe on opposite sides of said diaphragm, substantially as described.

4. The combination with a crucible or melting-pot, of a distributing box or tank in communication with said crucible or melting-pot and having concaved sides and a narrow slitted opening in its upper side, and a series of rollers arranged in substantially the same plane as the upper end of the distributing box or tank, substantially as described.

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

CONSTANT LAVAL.

Witnesses:

WILLIAM F. ROBB,
J. FRED KENNEDY.