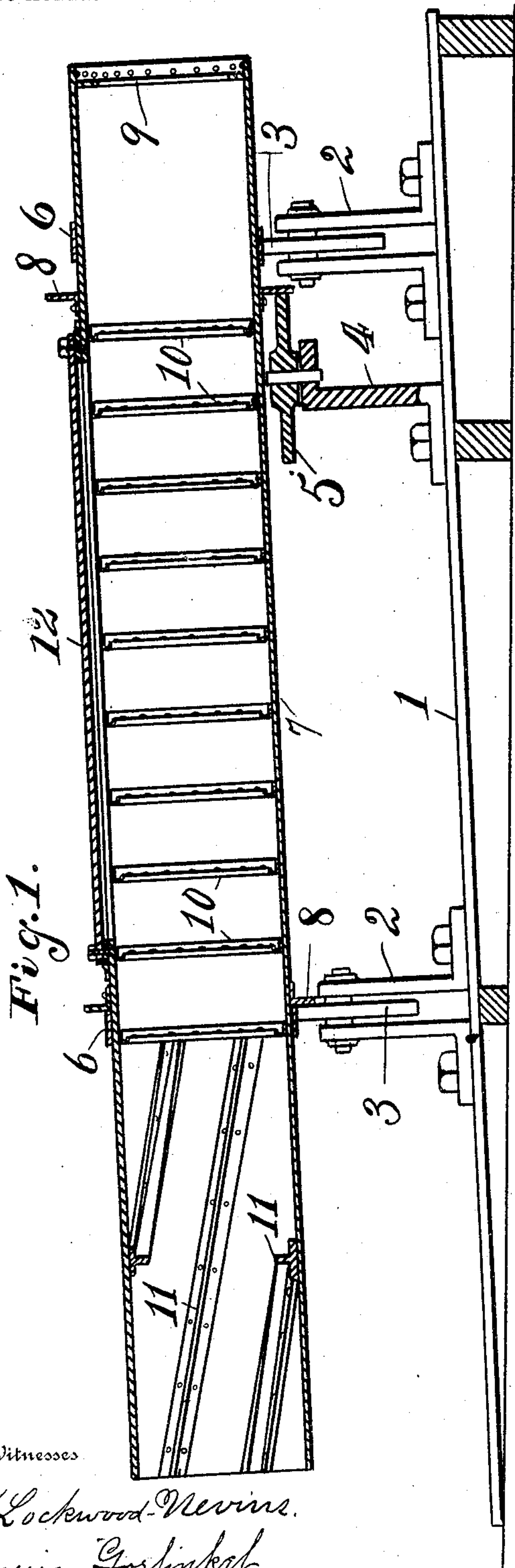


No. 775,578.

PATENTED NOV. 22, 1904.

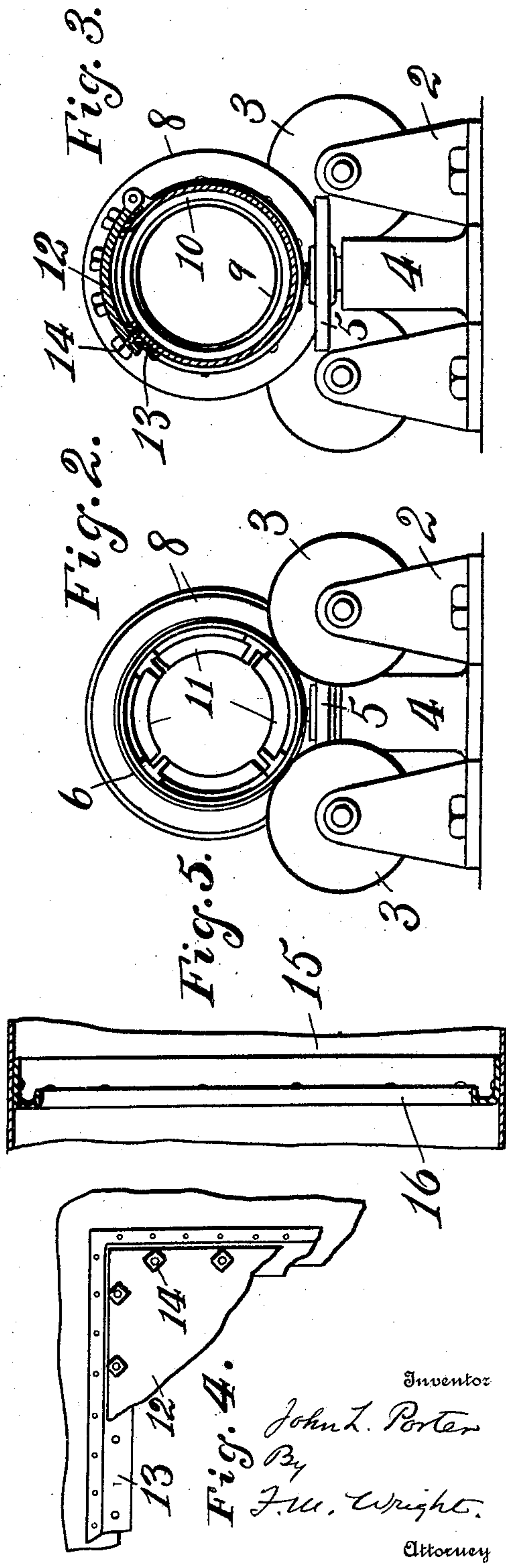
J. L. PORTER.  
ROTARY SLUICE BOX.  
APPLICATION FILED JAN. 25, 1904.

NO MODEL.

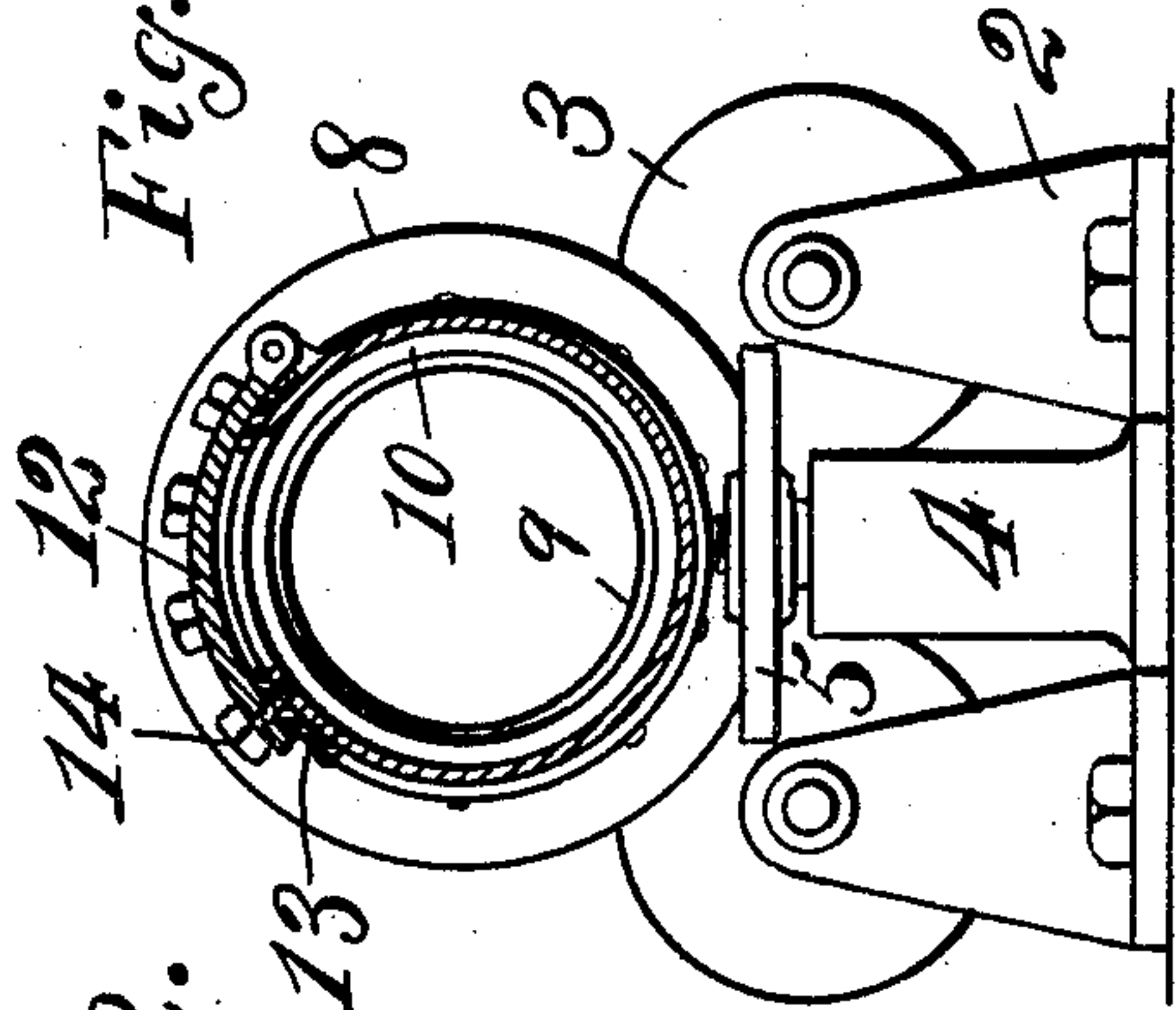


Witnesses

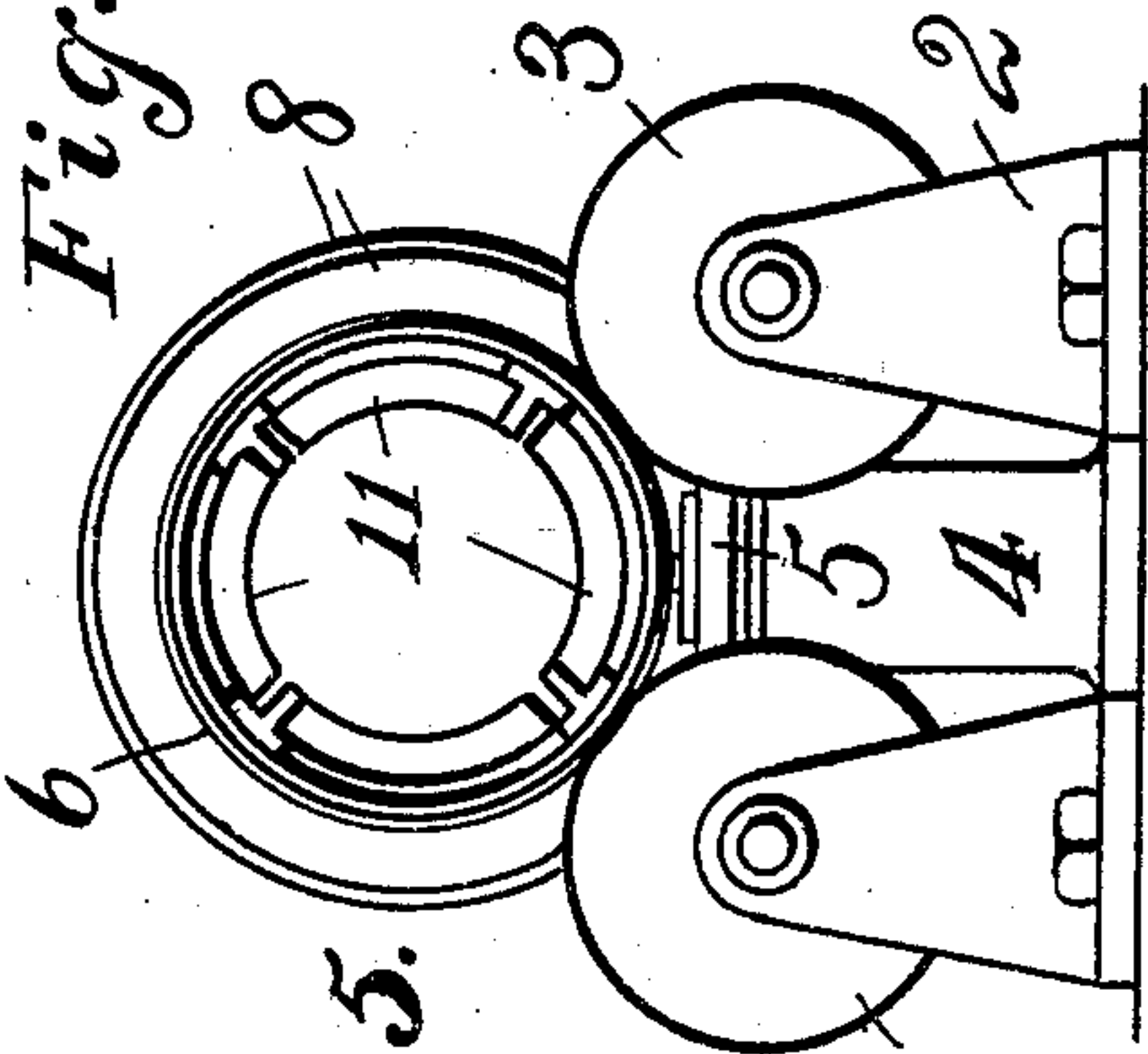
K. Lockwood-Nevins.  
Bessie Gorfinkel.



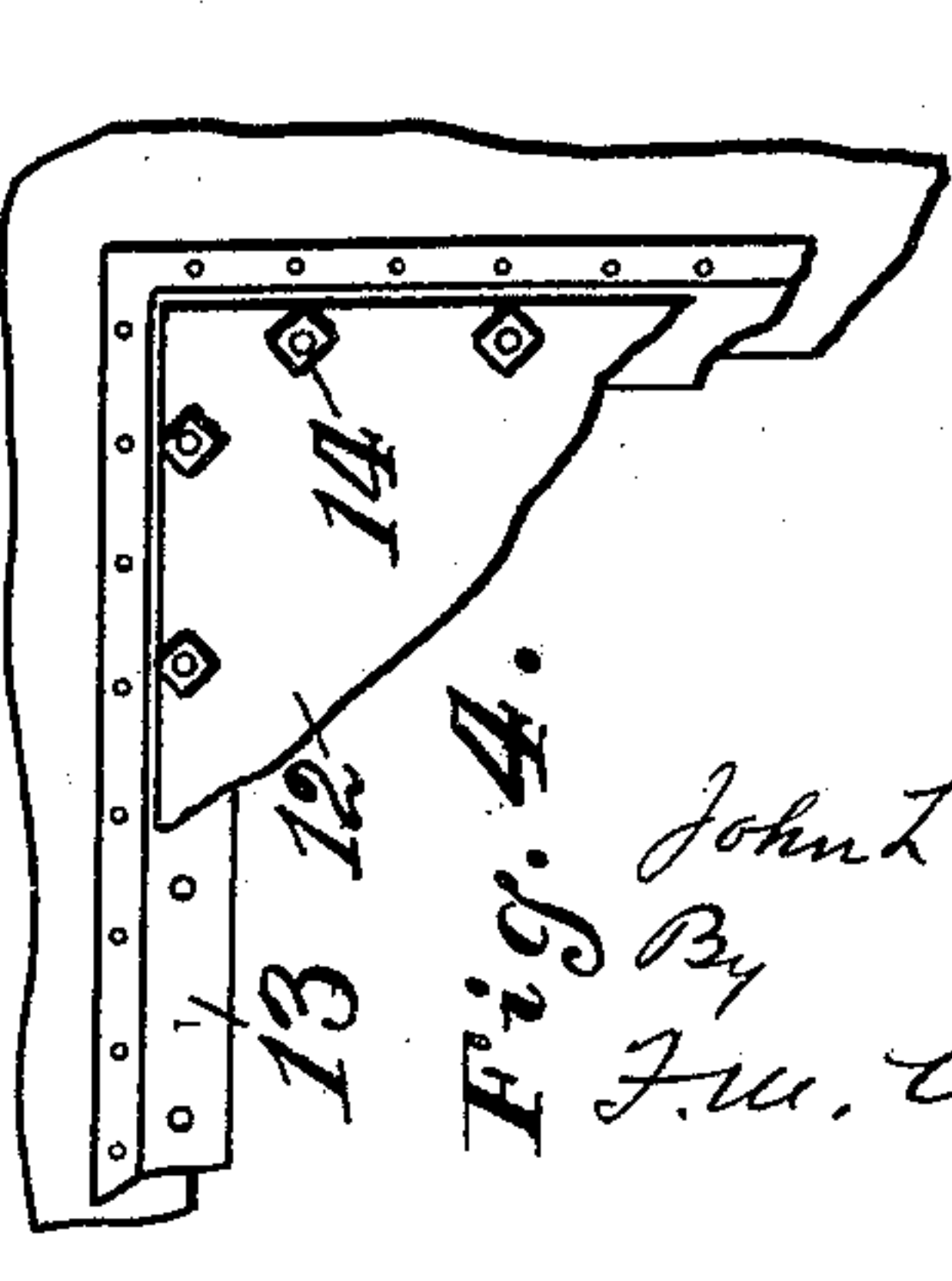
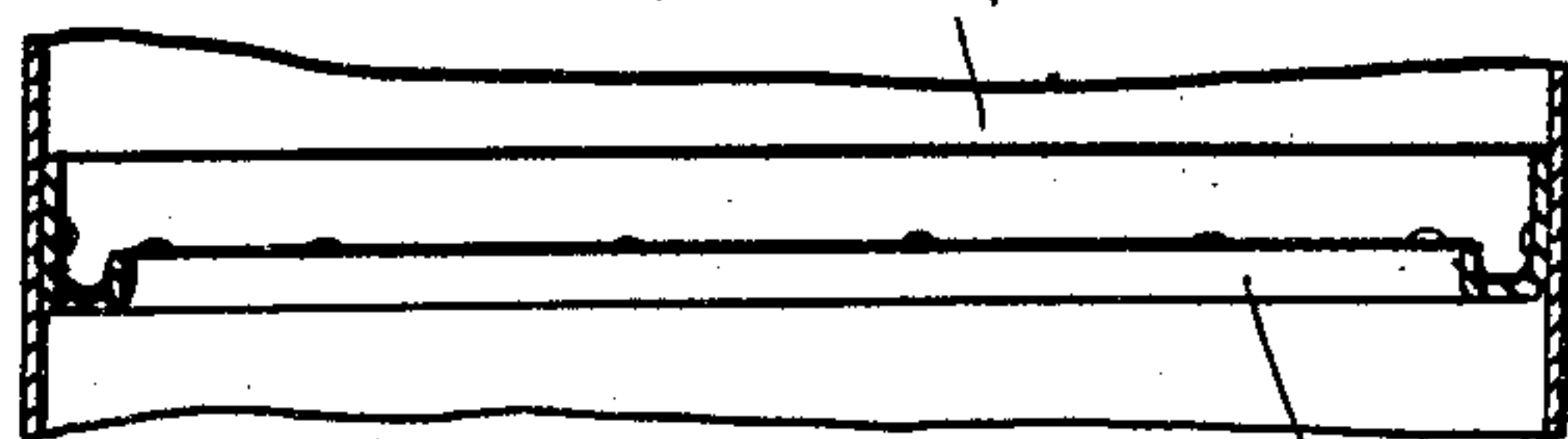
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Inventor

John L. Porter

By

F. W. Wright.

Attorney



# UNITED STATES PATENT OFFICE.

JOHN L. PORTER, OF MOUNTAINVIEW, CALIFORNIA.

## ROTARY SLUICE-BOX.

SPECIFICATION forming part of Letters Patent No. 775,578, dated November 22, 1904.

Application filed January 25, 1904. Serial No. 190,477. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. PORTER, a citizen of the United States, residing at Mountainview, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Rotary Sluice-Boxes, of which the following is a specification.

This invention relates to an improved rotary sluice-box or amalgamator especially adapted for saving fine gold. It belongs to that class of amalgamators in which the ore or sand to be treated is agitated in contact with mercury.

The objects of the invention are, first, to provide a construction by which the agitation will be effected by the force of the water and material flowing through the agitator, whereby the apparatus will be rendered automatic in its action, requiring no applied power to operate the same; secondly, to provide an improved form of riffle for catching the amalgam.

A further object of my invention is to provide an apparatus of this character which can be advantageously used as a dry washer to save gold without the use of water, being of especial value in desert places where water cannot be readily obtained.

This invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends, hereinafter fully specified, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a longitudinal section of the apparatus. Fig. 2 is an end view of the same. Fig. 3 is a cross-section of the same. Fig. 4 is a plan view of a portion thereof. Fig. 5 is a section, enlarged, to show the shape of the riffle.

Referring to the drawings, 1 represents a suitable base, on which are erected bearings 2 for four vertical rollers 3, two of these rollers being at the upper end of the apparatus and two at the lower. The base will be given a suitable slope—say half an inch to a foot, more or less—in order to cause the water and material to be treated to flow by gravity through the amalgamator. In addition there is a bearing 4 for a fifth roller 5, which runs in a plane parallel with the axis of the cylinder 7.

The four vertical rollers 3 bear against bands

6, secured upon a cylinder 7, these bands being provided to take the wear. The horizontal roller bears against the upper of two flanges 8 and supports the amalgamator against sliding downward. At the same time it allows the cylinder to revolve freely, bearing against said vertical and horizontal rollers.

The material to be treated with water is fed into the upper end of the cylinder either from a chute or from the end of a series of sluice-boxes. At the extreme upper end of said cylinder it is provided with an internal flange 9, the object of which is to keep the water and material carried therewith from backing up and out of the upper end of the cylinder. The material then passes down in the interior of said cylinder over a series of annular riffles 10. These riffles are placed at about eight inches apart; but this distance may be varied greatly according to the nature of the material to be treated. Each upper end of the cylinder is extended for a distance considerable compared with the distance between two adjacent riffles 10. At the lower end are provided a series of spiral ribs 11. The material flowing out through the lower end of the cylinder impinges against these ribs and imparts rotation to the cylinder, which revolves easily upon the rollers 3, previously described. For inserting the mercury and removing the amalgam there is provided a long narrow opening between the two flanges 8, said opening being closed by a shutter 12, which is made perfectly tight to prevent the escape of the quicksilver as the cylinder revolves. To so render this shutter tight, the edges of the opening are covered by a thin rubber gasket 13, which is pressed firmly down upon said edges by the shutter when closed. The edges of the shutter are held firmly down by means of bolts 14.

Each annular riffle is formed with a broad outer flange 15, by which it is secured to the shell or cylinder, and a narrow inner flange 16, both of these flanges extending upward. The object of the outer flange 15 is to save the wear upon the shell and also for securing the riffle to the shell, and the object of the narrow inner flange is to assist in retaining the mercury, since it prevents any large pieces of gravel or rock impinging on the mercury



and causing it to splash or flow over the riffle. The advantage of this construction is that the cylinder is constantly revolved and the mercury and ore treated are constantly agitated  
5 together, thus insuring perfect amalgamation of the gold by the mercury. A further important advantage is that this operation is done automatically by the force of the water itself, thus dispensing with the necessity of  
10 using power, which is of special importance in remote districts where machinery and power are difficult to procure.

I claim—

The combination of two pairs of vertical  
15 rollers, one pair being at a higher level than the other pair, a cylinder revolving on said four rollers and having a circular flange, a roller revolving in a plane parallel with the

axis of the cylinder and bearing against said circular flange, said cylinder having a series 20 of annular riffles in the middle portion thereof, a longitudinal opening over said riffles, and a tight-closing shutter for said opening, the cylinder extending at each end a considerable distance compared with the distance 25 between adjacent riffles, and having at the upper end an annular internal flange and at the lower end spiral ribs, substantially as described.

In witness whereof I have hereunto set my 30 hand in the presence of two subscribing witnesses.

J. L. PORTER.

Witnesses:

FRANCIS M. WRIGHT,  
BESSIE GORFINKEL.