

(No Model.)

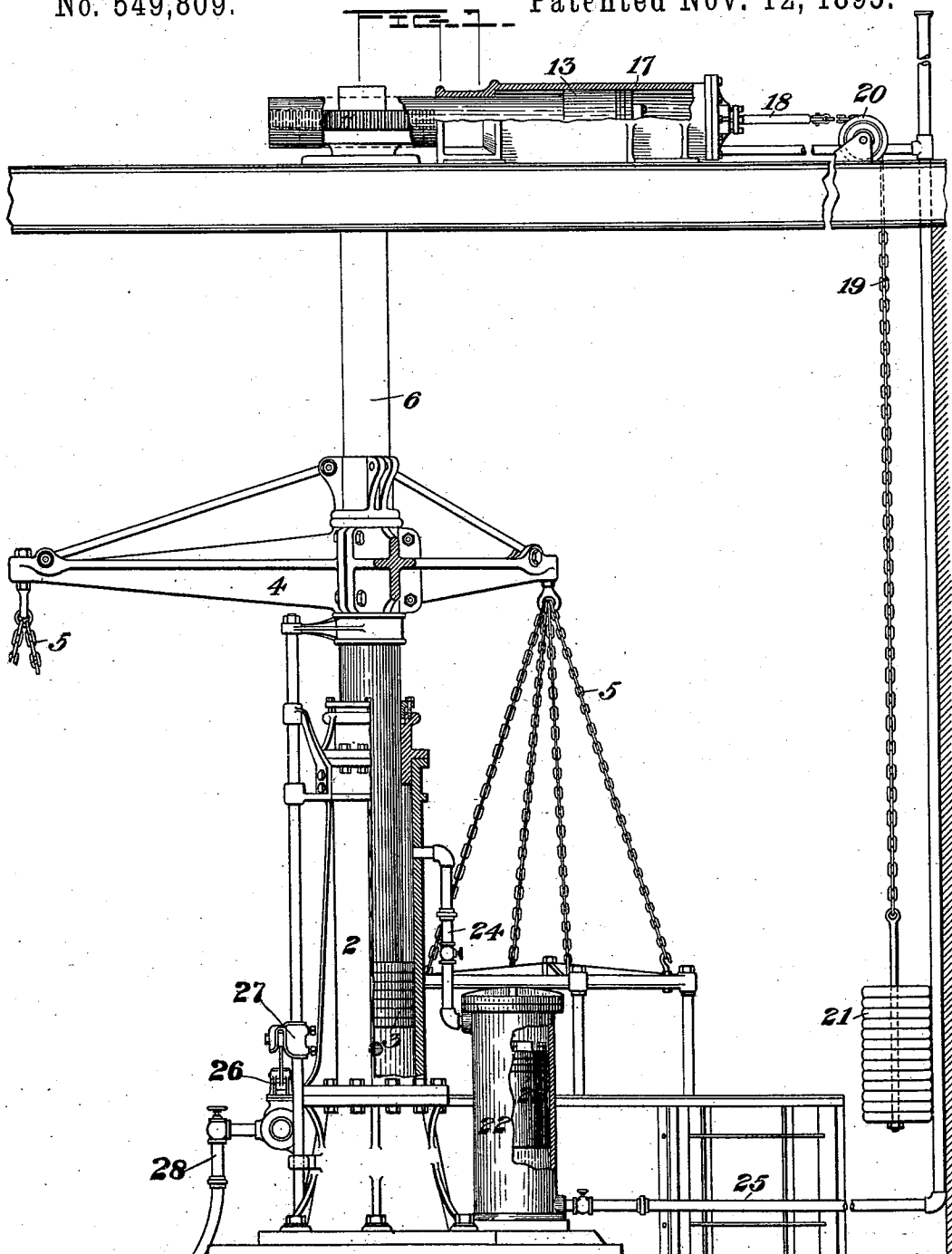
2 Sheets—Sheet 1.

G. MESTA.

AUTOMATIC PICKLING AND WASHING APPARATUS.

No. 549,809.

Patented Nov. 12, 1895.



Witnesses

H. M. Corwin
Warren H. Swartz

Inventor

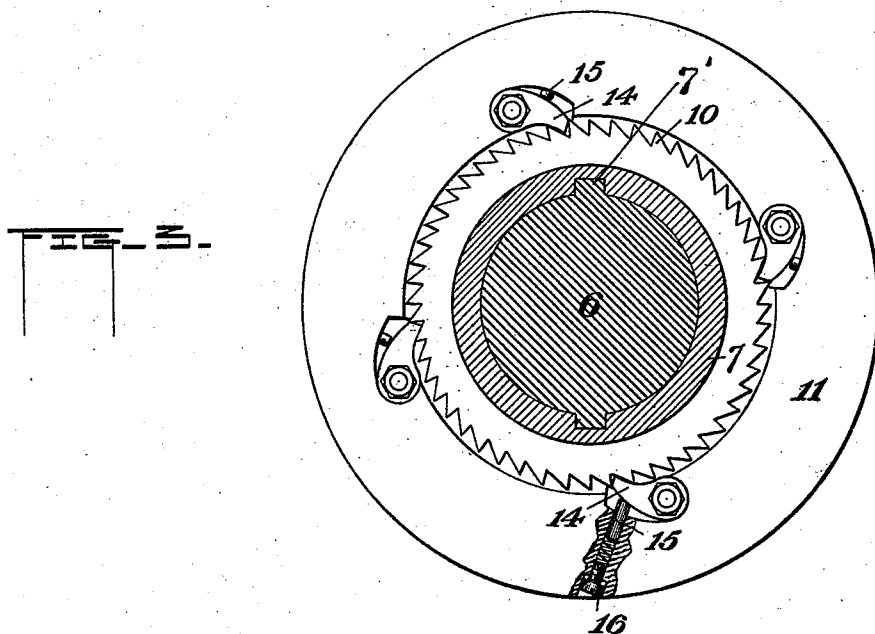
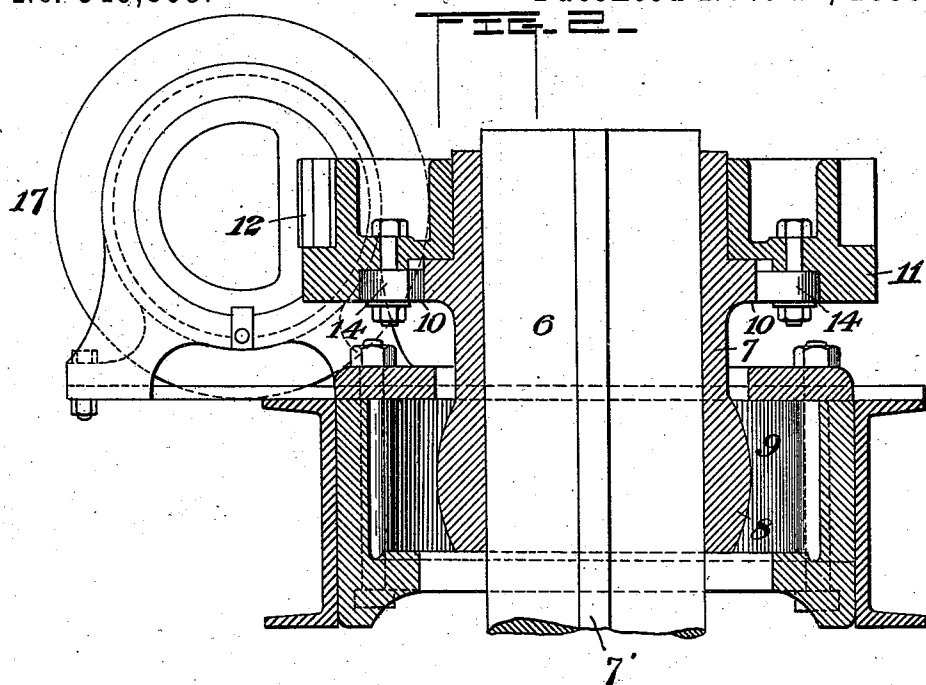
George Mesta
by his attorneys
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UNITED STATES PATENT OFFICE.

GEORGE MESTA, OF PITTSBURG, PENNSYLVANIA.

AUTOMATIC PICKLING AND WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 549,809, dated November 12, 1895.

Application filed May 11, 1895. Serial No. 548,958. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MESTA, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Automatic Pickling and Washing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—
Figure 1 is a side elevation, partly in section, of my improved apparatus; and Figs. 2 and 3 are detail views of the upper bearing and connections.

My invention relates to the class of pickling and washing machines wherein a vertical plunger serves to carry the crates and agitate them in the vats and is designed to prevent canting or tipping of the plunger, to turn the same when lifted a predetermined distance by a power-cylinder, and to make such rotation automatic when the plunger lifts the crates out of the vats.

In the drawings, in which similar numerals indicate corresponding parts, 2 represents the single-acting vertical cylinder having the plunger 3, which carries the spider 4, to the arms of which the crates are hung by suitable chains 5, as shown. The cylinder is provided with suitable valve mechanism 26, operated from tappet-rod 27, and to which the inlet-pipe 28 leads. The plunger is provided above the spider with an upward extension 6, which passes through an upper bearing or steadiment, (shown in Figs. 2 and 3,) thus preventing tipping of the plunger by reason of the greater weight upon two of its arms when one arm is unloaded. The extension of the plunger is provided with splines 7', securing it to a collar 7", the lower portion of which is swelled outwardly in the form of a spherical ring 8, which fits within concave blocks 9, held between the channel-beams of the steadiment, giving a ball-bearing which will allow slight side movement of the plunger and prevent wedging. The upper portion of the sleeve is provided with an annular offset or ring 10, having ratchet-teeth, and upon this ring rests a loose wheel 11, provided with teeth which engage the teeth of a rack 12, secured to a horizontal plunger 13 or forming a part thereof. In the under face of the wheel, as shown in Fig. 3, are pivoted pawls

14, which are held in engagement with the teeth of the ring 10 by spring-pressed pins 15, the pressure of the springs being regulated by set-screws 16.

The horizontal plunger 13 is carried in a single-acting cylinder 17, supported upon the upper steadiment, and secured to a projecting stem 18 of the plunger is a chain 19, which passes over a pulley 20 and supports a weight 21, which returns the plunger to its normal retracted position. To actuate the upper horizontal cylinder, I preferably employ a liquid, which is contained in a cylindrical reservoir 22, having a piston 23, which is actuated in one direction by a supply-pipe 24, leading from the main cylinder to its upper face. A pipe 25 connects the reservoir to the upper cylinder, and the pipe 24 enters the main cylinder at a point just below the piston or plunger head of such cylinder when in its uppermost position.

The action is as follows: The crates being in the vats are agitated by giving the main plunger a series of short strokes, and when this operation is completed the plunger is driven to its upper position to lift the crates out of the vats. When in such position, the steam passes directly through this cylinder to the liquid-reservoir 22 and, driving down the plunger, forces the liquid through the pipe 25 into the upper cylinder and, driving the plunger outwardly, rotates the vertical plunger and swings the crates from one vat to the other, this being necessary on account of the different solutions used in the vats. The stroke of the upper cylinder is so arranged that it will bring the crates to the exact position desired. For example, if there are three arms to the spider the plunger gives a stroke which rotates the main plunger one-third of a circle. On exhausting the main cylinder the reservoir is simultaneously exhausted and the weight brings the plunger back to its original position and forces up the piston in the reservoir, driving the liquid back thereinto.

I prefer to employ the intermediate liquid-reservoir, as shown, since if the main cylinder were connected directly to the horizontal cylinder a greater amount of steam would be necessary and the stroke would not be steady.

The advantages of the apparatus will be ap-

parent to those skilled in the art, the single valve controlling the whole apparatus, while the rotatory movement is automatic whenever the longer stroke of the plunger is taken.

5 Canting is avoided and the whole apparatus is simple, compact, and not liable to get out of order.

Heretofore the crates have been swung by hand, whereas in my device they are swung
10 by power and the length of stroke regulated.

I claim—

1. In a pickling and washing machine, a vertically movable plunger carrying a crate-supporting spider, an extension of said plunger passing through a top steadiment, and
15 means for turning the plunger, said means being actuated by the movement of the plunger, substantially as described.

2. In a pickling and washing machine, a
20 vertically movable plunger carrying a crate-supporting spider, an extension of said plunger passing through a top steadiment, a toothed wheel arranged to rotate the plunger, a motive cylinder having a rack engaging said
25 wheel and a connection from the plunger arranged to actuate the motive cylinder; substantially as described.

3. In a pickling and washing machine, a
30 vertical cylinder containing a plunger supporting the crates, a second cylinder arranged

to rotate the vertical plunger, and a connection between the two cylinders, said connection being arranged to actuate the second cylinder after the vertical plunger has moved a predetermined distance; substantially as described. 35

4. In a pickling and washing machine, a cylinder containing a vertically movable plunger, a motive cylinder arranged to rotate the same, and a fluid connection between the
40 plunger cylinder and the motive cylinder for rotating the plunger; substantially as described.

5. In a pickling and washing machine, a cylinder containing a vertically movable
45 plunger carrying a spider and passing through an upper bearing, a motive cylinder arranged to rotate the plunger, a fluid reservoir having a piston or plunger therein, a connection from the reservoir to the motive cylinder, and a
50 second connection from the plunger cylinder to the reservoir upon the opposite side of the piston therein; substantially as described.

In testimony whereof I have hereunto set my hand.

GEORGE MESTA.

Witnesses:

W. B. CORWIN,
C. BYRNES.