

(No Model.)

2 Sheets—Sheet 1.

A. REID.  
DYEING APPARATUS.

No. 475,065.

Patented May 17, 1892.

Fig. 1

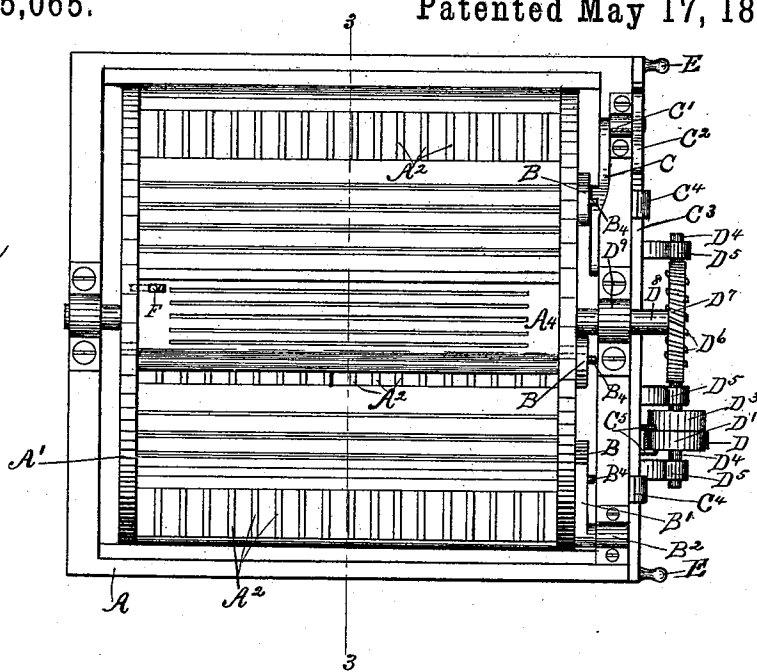
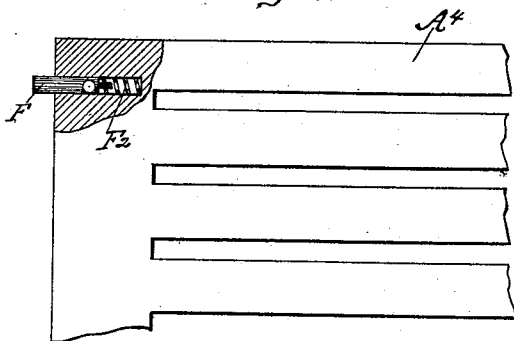


Fig. 4.



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John T. Boock.

Inventor:  
Andrew Reid,  
By Geo. W. Mosher  
att'y.

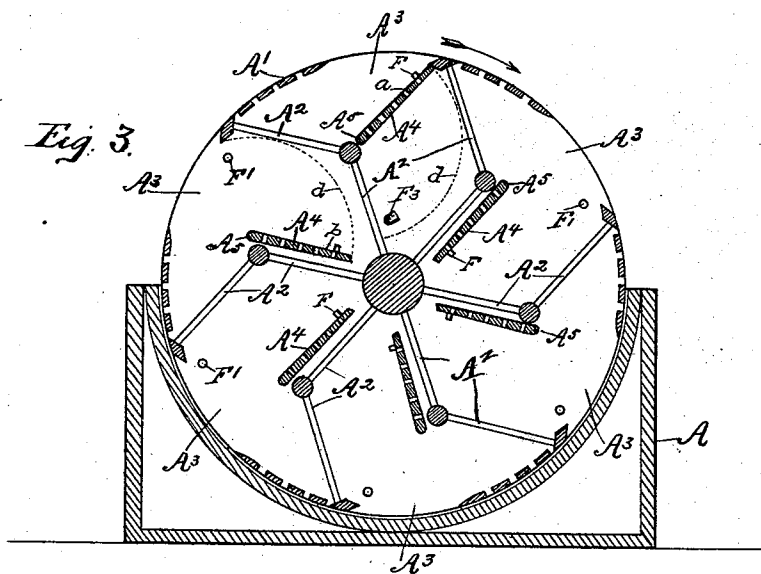
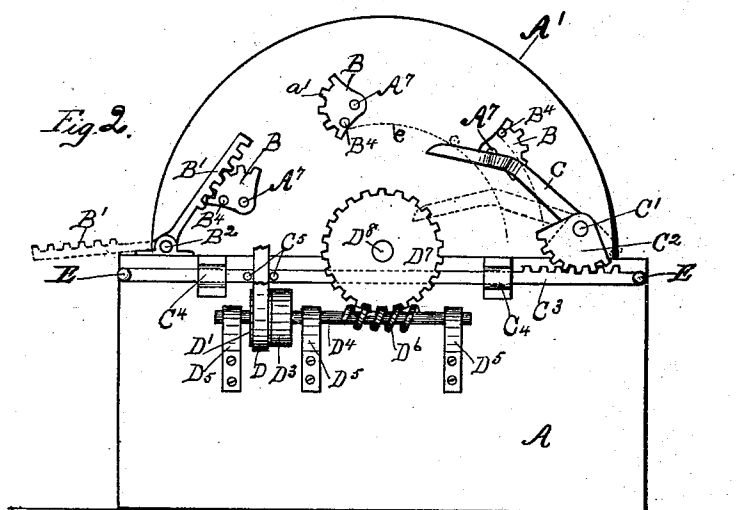
(No Model.)

2 Sheets—Sheet 2.

A. REID.  
DYEING APPARATUS.

No. 475,065.

Patented May 17, 1892.



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Inventor:  
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# UNITED STATES PATENT OFFICE.

ANDREW REID, OF AMSTERDAM, NEW YORK, ASSIGNOR OF ONE-HALF TO  
CORNELIUS DWYER, OF SAME PLACE.

## DYEING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 475,065, dated May 17, 1892.

Application filed July 27, 1891. Serial No. 400,846. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW REID, a citizen of the United States, residing at Amsterdam, county of Montgomery, and State of New York, have invented certain new and useful Improvements in Dyeing Apparatus, of which the following is a specification.

My invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 is a top plan view of my improved dyeing apparatus. Fig. 2 is an end elevation of same. Fig. 3 is a central vertical section of same, taken on the broken line 3 3 in Fig. 1. Fig. 4 is a top plan view of a portion of one of the discharge-gates on an enlarged scale.

My invention relates to improvements in a dyeing apparatus consisting of a rotary cylinder provided with pockets and discharging-gates, substantially as shown in United States Letters Patent No. 354,281, granted to Leonard Weldon December 14, 1886.

My invention consists of mechanism for automatically operating the discharge-gates and for arresting the rotary movement of the cylinder when it is desired to discharge the dyed material from the cylinder-pockets.

A is the dye-vat; A', the dipping-cylinder provided with longitudinal partitions A<sup>2</sup>, which divide the cylinder into a series of pockets A<sup>3</sup>. The outer portion of each pocket near the periphery of the cylinder is adapted to be separated from the inner portion of the pocket by the gate A<sup>4</sup>, extending lengthwise of the pocket and pivoted in the heads of the cylinder at A<sup>5</sup> to swing from the position near the bottom of the inner part of the pocket (shown in four of the pockets in Fig. 3) to the outer portion of the pocket in a position near the periphery of the cylinder, as shown at a in Fig. 3. One of the end journals A<sup>7</sup> of each gate projects through a head of the cylinder and is provided with an operating-lever pref-

erably in the form of a toothed segment B, fixed on such journal. I also provide a stop secured to the vat in a position to engage and actuate the gate-levers successively. B' is a preferred form of such stop, consisting of a gear-plate or toothed rack hinged at one end, as at B<sup>2</sup>, upon the vat. The stop is shown in engagement with one of the gate-levers in a position to actuate the gate-lever, and as the cylinder continues its rotary movement in the direction of the arrow the relative position of the gate-lever is changed to that shown at a' in Fig. 2, and the gate, actuated by such lever, swings from the position shown at b through the arc of a circle, as indicated by the broken curved line d, to a closed position, which is shown at a in Fig. 3. I am thus able to automatically close the gates of the several pockets, so that the contents of the pockets descend by gravity upon the closed gates when the rotary movement of the cylinder carries the pockets successively to a position relatively above or higher than the gates, and the contents are discharged from the cylinder either by sliding by gravity from the gates or being removed therefrom by an attendant.

To facilitate the work of the attendant and insure the discharge of the contents of the pockets successively, I provide means for automatically arresting the rotary movement of cylinder to stop the same in convenient positions for successively discharging the pockets.

A stop-pin B<sup>4</sup>, projecting from the several gate-levers B, engages with the shipper-lever C, fulcrumed upon the vat at C' and provided with a toothed segment C<sup>2</sup>. The toothed segment actuates the toothed slide-bar C<sup>3</sup>, movable in bearing-supports C<sup>4</sup>, secured to the vat and provided with the shipper-arms C<sup>5</sup>. The shipper-arms force the driving-belt D from the fixed pulley D' to loose pulley D<sup>3</sup> and the cylinder stops, the pulleys being mounted upon the shaft D<sup>4</sup>, rotary in bearings D<sup>5</sup>, and provided with worm-gear D<sup>6</sup>, which engages with the gear-wheel D<sup>7</sup>, fixed upon the cylinder-shaft D<sup>3</sup>, rotary in bearings D<sup>9</sup>, secured to the vat. The vibratory end of the shipper-lever is offset toward the cylinder-head and so located as to be engaged by the pins B<sup>4</sup> in the several gate-levers when the gates are closed and not to be engaged

by such pins when the gates are open. As shown in Fig. 2, the gate-lever located at  $a'$  has been acted upon by the toothed stop to close its gate and carry its pin  $B^4$  nearer the cylinder-shaft, and as the cylinder rotates the path traveled by the pin is indicated by the broken line  $e$ , and the position of the pin when first brought into engagement with the offset end of the lever is shown by a dotted circle. As the pin moves along its path after engaging the shipper-lever, the lever and its toothed segment  $C^2$  are actuated and forced to the position indicated by dotted lines in Fig. 2, actuating the toothed slide-bar to ship the belt. When the gates are open, the pins  $B^4$  are sufficiently removed from the cylinder-shaft to pass the offset part of the shipper-lever without engaging the same. The cylinder will continue to rotate until the toothed stop  $B'$  is brought from the position indicated by dotted lines in Fig. 2 by hand into engagement with the gate-levers to close the gates and force the projecting pins into position to engage the shipping-lever. The slide-bar is shown provided at each end with a handle  $E$  for shipping or reshipping the belt when desired. The gates  $A^4$  are each provided with a spring-controlled bolt  $F$ , projecting from one end of the gate and adapted to enter and fit a socket  $F'$  in the cylinder-head to lock the gate in a closed position after it has been actuated by the gate-lever  $B$ . The gate can be released by withdrawing the bolt from its socket against the force of the controlling-spring  $F^2$ . The bolt  $F$  also serves to hold the gate in an open position by entering the short groove  $F^3$ —one in each pocket—in the cylinder-head, which groove is provided with an inclined bottom wall, upon which the end of the bolt binds with sufficient friction to hold the gate open against its own weight, while allowing the bolt to ride the inclined bottom wall when the gate is actuated by its lever.

By my improved construction I am able to remove the contents of the cylinder from the hot dye-liquor as soon as they are dyed without waiting for the liquor to cool and without withdrawing the liquor from the vat. I am

thus able to save the time and fuel that would be necessary to reheat the dye-liquor; also, I am able to use the same dye-liquor repeatedly without being obliged to draw it from the vat and pump it back into the same for each lot of material to be dyed, the liquor being kept heated while the dyed contents of the cylinder are being removed and the cylinder is being reloaded.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a dyeing apparatus, the combination, with a rotary dipping-cylinder provided with a plurality of pockets, each having an inner and an outer portion, of a plurality of oscillatory gates, each arranged to close the entrance to the inner portion of a cylinder-pocket, a gate-lever attached to each gate, and a lever-actuating stop movable to and from the path of the gate-levers, substantially as described.

2. In a dyeing apparatus, the combination, with a rotary dipping-cylinder provided with a plurality of pockets, each having an inner and an outer portion, of a plurality of oscillatory gates, each arranged to close the entrance to the inner portion of a cylinder-pocket, means for operating the gates, a spring-lock for securing each gate in a closed position, and means for detachably holding each gate in an open position, substantially as described.

3. In a dyeing apparatus, the combination, with a rotary dipping-cylinder, a drive-belt for imparting rotary movements to the cylinder, a belt-shipper, a shipper-lever, and connections between the shipper and shipper-lever, of a series of lever-actuated stops supported by the cylinder and movable relatively thereto, and means for successively moving the stops into a position on the rotary cylinder to operatively engage the shipping-lever, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of July, 1891.

ANDREW REID.

Witnesses:

JOHN F. COLLINS,  
HENRY BARTLEY.