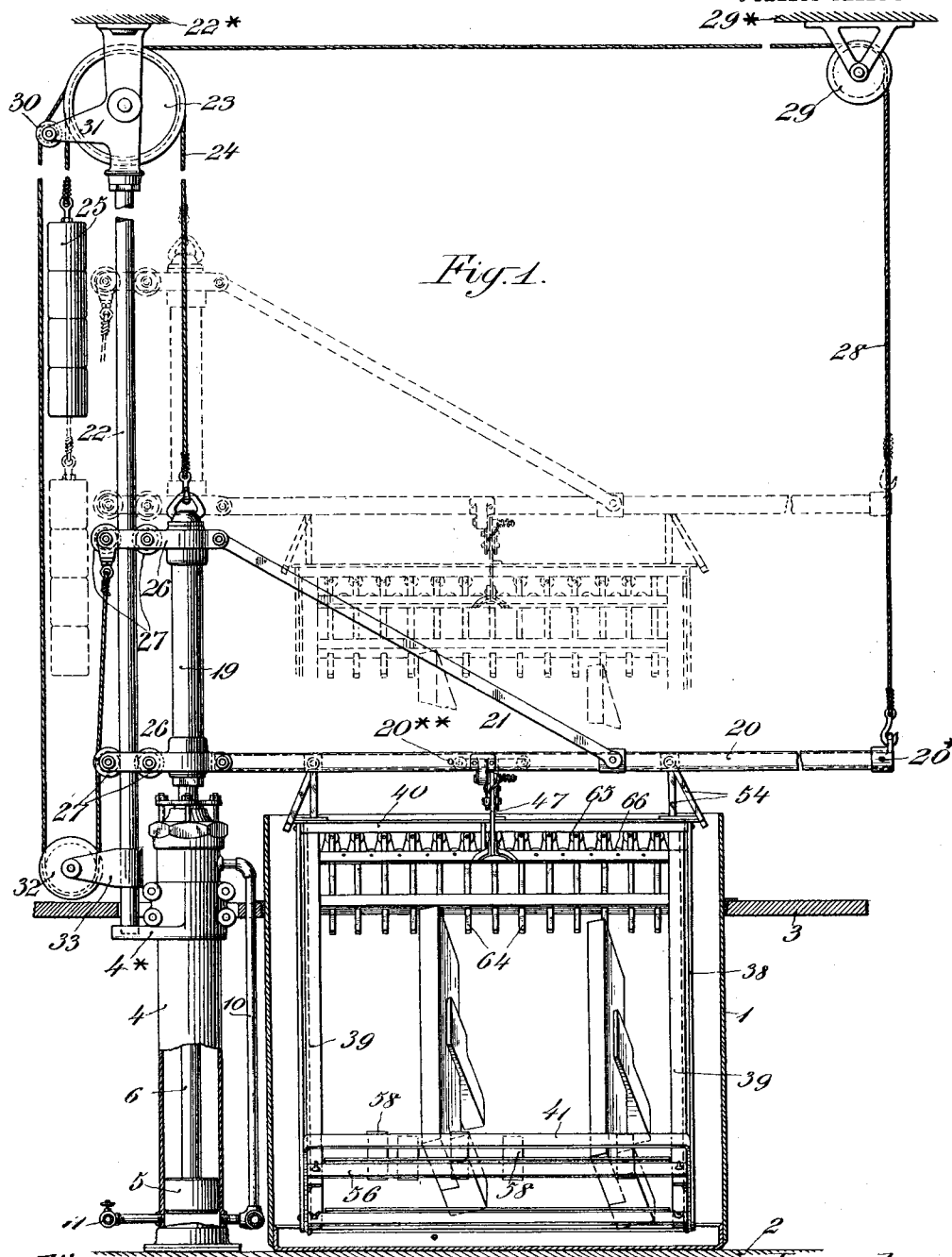


R. A. BEAUSEJOUR.
 HOLDER FOR LIQUID COATING MACHINES.
 APPLICATION FILED MAR. 30, 1909.

1,025,671.

Patented May 7, 1912.

3 SHEETS—SHEET 1.



Witnesses:

W. G. Gray
 J. George Barry

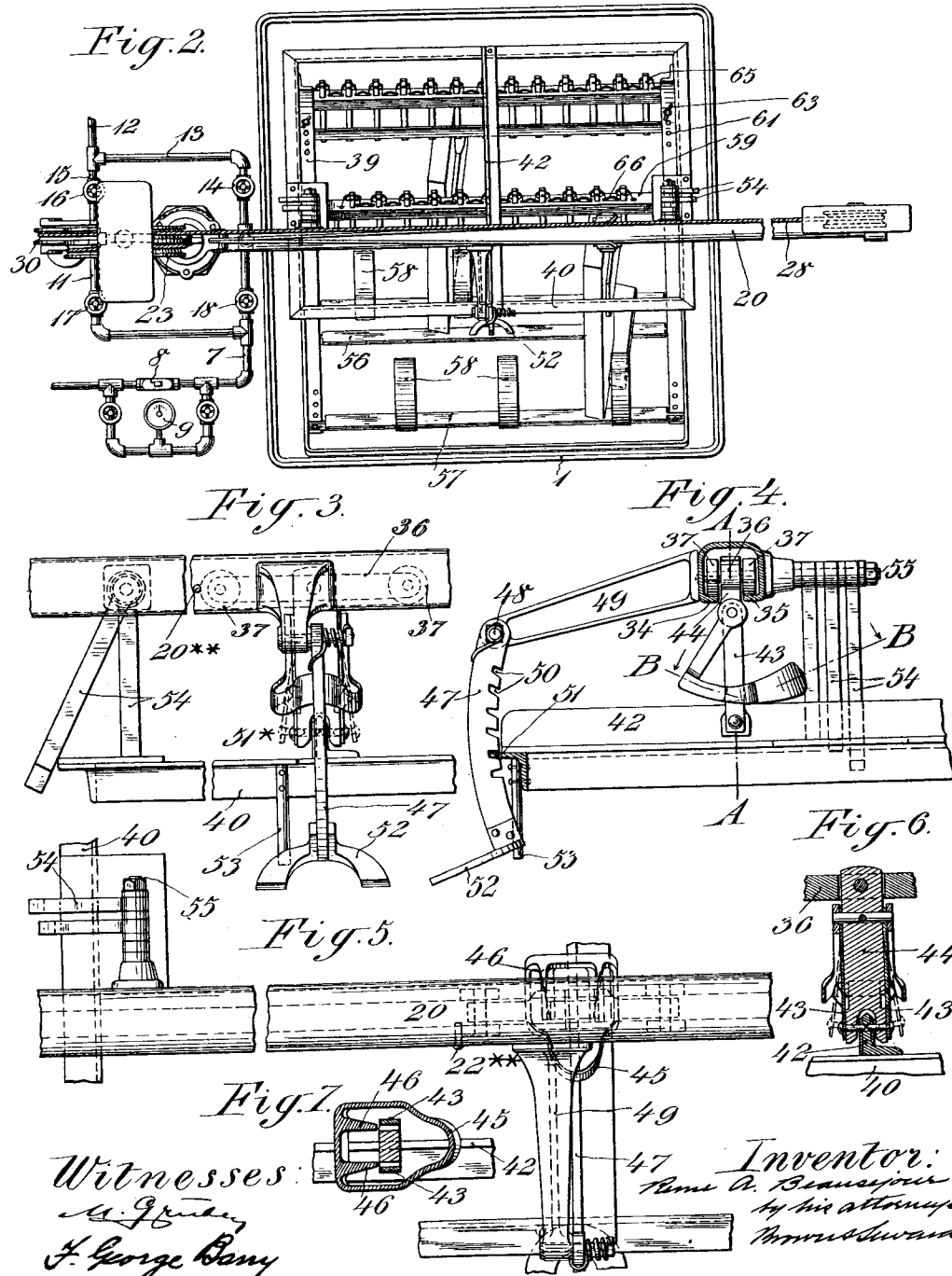
Inventor:

Rene A. Beausejour
 by his attorneys
 Mount Seward

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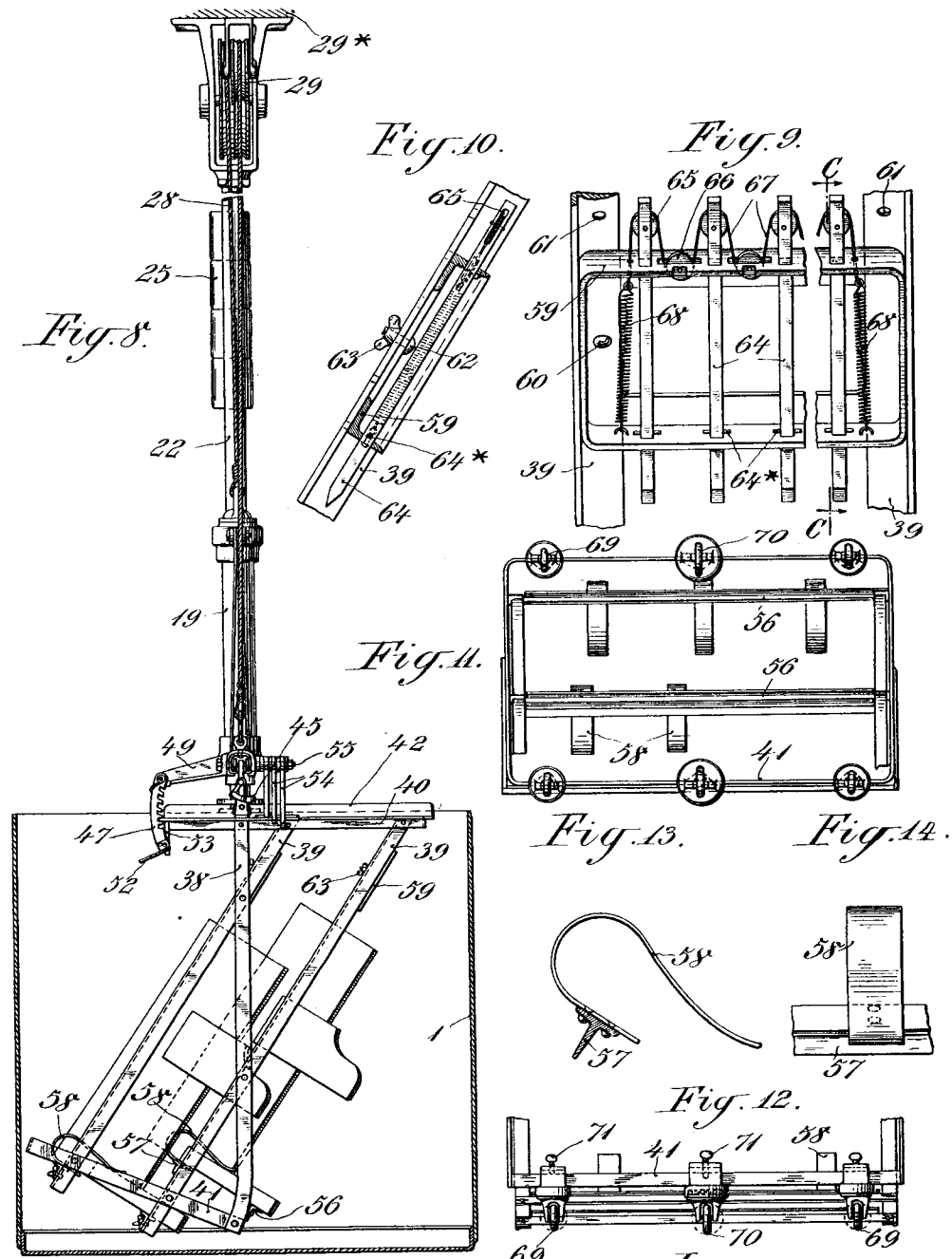


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3 SHEETS-SHEET 3.



Witnesses:
M. G. G. G.
J. George Bary.

Inventor:
Rene A. Beausejour
 by his attorneys
Brown & Howard

UNITED STATES PATENT OFFICE.

REME A. BEAUSEJOUR, OF NEW YORK, N. Y., ASSIGNOR TO STANDARD VARNISH WORKS, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HOLDER FOR LIQUID-COATING MACHINES.

1,025,671.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed March 30, 1909. Serial No. 486,788.

To all whom it may concern:

Be it known that I, REME A. BEAUSEJOUR, a subject of the King of Great Britain, and resident of the borough of Brooklyn, in the city and State of New York, have invented a new and useful Holder for Liquid-Coating Machines, of which the following is a specification.

This invention relates to that type of liquid coating machines in which the articles to be treated to a liquid coating are held in an article holder and raised and lowered by fluid actuated means, the parts being so constructed, arranged and operated that the articles being treated are so held that the liquid dripping therefrom will be kept from accumulating on any surface of the articles, and the articles will be uniformly coated.

One object is to provide means for steadying the lifting mechanism, so that the operations of raising or lowering may be accomplished without any vibration or trembling of the article holder.

Another object is to provide an improved means for retaining the articles to be coated in the holder.

A further object is to provide improved means for securing the holder to the lifting mechanism.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents in side elevation, partially in section, an embodiment of my invention as applied to a single dipping tank, the parts being shown in their lowered positions in full lines and in their raised positions in dotted lines, Fig. 2 is a top plan view of the same, Figs. 3, 4 and 5 are enlarged detail front, side and top plan views, respectively, of the means for carrying the article holder and the means for retaining it in its gravitational position, Fig. 6 is a vertical section of the means for locking the holder to the carrying means taken in the plane of the line A—A of Fig. 4, Fig. 7 is a section in the plane of the line B—B of Fig. 4, looking in the direction of the arrows, Fig. 8 is an end view of an embodiment of my invention, partially in section, the parts being shown in their lowered position, Fig. 9 is a detail front view of the means for engaging and supporting the upper portions of the articles being treated, Fig. 10 is a section taken in the plane of the line C—C of

Fig. 9, looking in the direction of the arrows, Fig. 11 is an inverted plan view of the article holder, Fig. 12 is a plan view of the same, the parts being broken away, Fig. 13 is a detail side view partially in section of one of the clamps for supporting the lower portions of the articles being treated, and its support, and Fig. 14 is a front view of the same.

The dipping tank is denoted by 1 and is herein shown as provided with a floor or other support 2 at its bottom, and a platform 3 near its top. The cylinder 4 of a fluid actuated device is located adjacent to the tank 1. A piston 5 is fitted to reciprocate within the cylinder, 4, and its rod 6 extends upwardly through the top of the cylinder.

The fluid inlet pipe is indicated by 7 and it has a pressure regulator 8 and a pressure regulator gage 9 therein. This inlet pipe 7 is provided with a branch pipe 10 leading to the upper end of the cylinder 4 and another branch pipe 11 leading to the lower end of said cylinder. The fluid outlet pipe 12 is connected to the branch pipe 10 through a pipe 13 having a manually operated valve 14 therein. This outlet pipe 12 is also connected to the branch pipe 11, through a pipe 15 having a manually operated valve 16 therein. A manually operated valve 17 is located in the branch inlet pipe 11, and a manually operated valve 18 is located in the inlet pipe 7.

A bracket is carried by the piston rod 6, above the cylinder 4, which bracket comprises a tubular post 19 surrounding a piston rod 6 and having a horizontal arm 20 projecting from its lower end; and a diagonally arranged supporting strap 21 extending from its upper end to the horizontal arm 20 at a point between its inner and outer ends. A vertical post 22 is arranged adjacent to the cylinder 4, which post is of sufficient height to extend above the top of the bracket when the latter is in its raised position. The top of the post is rigidly secured to an upper support 22* and its bottom rests in a suitable support 4* on the cylinder 4. A pulley 23 is mounted at the top of the post 22, over which pulley runs the flexible connection 24 of a bracket counterbalancing device; one end of which flexible connection is attached to the top of the tubular post 19 and the other end to a

counterbalanced weight 25. To insure an even vertical movement of the bracket, I provide upper and lower guide pieces 26 mounted on the tubular post 19 and each
 5 carrying a pair of rollers 27 which engage the post 22 on opposite sides thereof thus causing the tubular post 19 to remain exactly parallel with the post 22 during the vertical movements of the bracket. For this
 10 same purpose and to absolutely prevent any wobbling or vibration of the bracket as it is raised or lowered, I provide a support for the outer end of the horizontal arm 20 which is arranged in the following manner:
 15 A flexible connection 28 is attached to the outer end of the horizontal arm 20. It then passes over the pulley 29 conveniently mounted on a suitable upper support 29* directly over the end of the arm 20; thence
 20 over the pulley 23; thence over the pulley 30 mounted in the horizontal lug 31 on the upper part of the post 22; thence over the pulley 32 mounted on the horizontal lug 33 near the bottom of the post 22; thence over
 25 one of the lower rollers 27; and is then attached to the upper guide piece 26. This flexible connection 28 is drawn taut with the arm 20 exactly at right angles to the tubular post 19, and serves admirably as a
 30 support for the arm 20 to prevent any trembling of the bracket in its vertical movements, which tremors might be imparted to the article being coated and mar the article. The horizontal arm 20 is of inverted U-shape in its cross section, as clearly
 35 shown in Fig. 4, with its edges 34, 35 turned in toward each other substantially at right angles to the side of the arm.

A carriage 36 is fitted to reciprocate within the arm 20, and it is supported therein by the wheels 37 arranged to ride on the intumed edges 34, 35, of the arm. Any suitable means, such, for instance, as the
 40 pins 20* and 20** serve to limit the outward and inward movements of the carriage.

The article holder comprises a skeleton frame having vertical side bars 38 and diagonal side bars 39 connecting the top
 50 and the bottom 41. The top of the holder is provided with a plate 42 (Fig. 4) having a hole therein for receiving the snap catches 43 carried by the depending arm 44 of the carriage 36 for locking the article holder in
 55 engagement with the said carriage. For releasing the snap catches 43 from their engagement with the plate 42 I provide a device comprising a loop 45 and wedges 46. This device is pivoted to the arm 44 in such
 60 a position that a swinging movement to the right (Fig. 4) will cause the wedges 46 to pass between the snap catches 43 and the arm 44 thus disengaging the catches from the plate 42.

65 A spring pressed latch 47 is hinged at 48

to a projection 49 on the lateral arm 20 of the bracket; which latch is provided with a vertical series of catches 50 arranged to receive in one of them a tooth 51 on the top
 70 of an article holder, according to the inclination which the holder assumes under the influence of the weight and disposition of the articles to be dipped. This tooth 51 is part of a notch 51* for receiving the
 75 spring pressed latch 47 to automatically retain the holder in its proper position longitudinally of the arm 20. The lower end of this latch 47 is provided with a cam 52 which is arranged in position to be engaged
 80 by the pin 53 carried by the top of the holder whereby the said latch is removed from its engagement with the tooth 51 and notch 51* of the holder, as the latter is slid
 85 longitudinally of the arm 20 of the bracket to be removed from its position over the tank. The function of this spring pressed latch is to retain the article holder against any swinging movement while it is being
 90 lowered or raised, and also to automatically arrest the movement of the holder in either direction longitudinally of the arm 20 after the holder has reached its proper position
 95 over the tank. To further insure against any swinging movement of the holder, I provide a plurality of series of props 54 pivoted to a projection 55 on the horizontal
 100 arm 20. These props are of various lengths and so arranged that when the holder has assumed the inclination controlled by the center of gravity of the holder and articles therein to be dipped, the prop of the proper
 105 length will swing its lower end into engagement with the top of the holder. Thus the props 54 cooperate with the latch 47 to retain the article holder absolutely against any swinging motion in the tank. The article
 110 holder itself is shown herein as particularly well adapted for use in holding the several parts of a piano. The bottom 41 of the holder is provided with a plurality of laterally
 115 extended cross bars 56 which form supports for the bottoms of the articles to be dipped. A cross bar 57 extends between the side bars 39 of the holder, a short distance above the bottom 41. On one or more
 120 of these cross bars I provide spring clamps 58 so arranged that they will clamp the several articles to the holder.

The diagonal side bars 39 are provided near their tops with loop frames 59. These
 125 frames have holes 60 fitted to register with any one of a series of holes 61 in the bars 39, and the frames may be secured in different adjustments on said bars by means of the bolts 62 and winged nuts 63. Each one
 130 of these loop frames is provided with a series of spring pressed fingers 64, having pointed ends arranged to engage the tops of the articles to be dipped; the said fingers passing through both horizontal mem-

bers of the loop frames and having a sliding movement therein. Pins 64* serve to limit the downward movement of the fingers. Each of the fingers is provided with a pulley 65 near its upper end; and pulleys 66 are mounted in the frame intermediate the fingers. A flexible connection 67 passes around each of the pulleys, both ends of which flexible connection are attached to springs 68, mounted in the frame near the ends thereof for tending to hold the fingers at the limit of their inward movement. By this construction I obtain an even pressure on all the fingers and eliminate the necessity of providing an individual spring for each finger.

The positions of the several article holder devices are such that the articles are so held that the liquid in dripping therefrom will run along an edge to a corner and drop therefrom, thus avoiding any streaking of the article or unevenness of the coating.

For supporting the article holder when it is removed from the dipping mechanism, and facilitating its removal from one place to another, I provide small ball bearing casters 69 and large ball bearing casters 70 which may be removably secured to the bottom 41 of the holder by means of clamp screws 71. I preferably arrange the small casters approximately at the corners of the bottom of the holder and the large casters about centrally of the long sides of the arm, as shown in Fig. 11. When the holder is at rest on the casters, it will be supported by the two large casters 70 and the two small casters 69 at either end of the bottom, according as the center of gravity of the holder and articles contained therein is at one side or the other of the large casters. My object in providing two large casters is to facilitate the turning about of the holder as it is rolled from one place to another. This turning is very easily accomplished if the holder is first balanced on the two large casters only.

In operation, presupposing the fluid to have been admitted to the under side of the piston 5 and permitted to escape from the upper side thereof for causing the piston rod and the bracket thereon to be raised to the limit of its upward movement; the carriage 36 is moved out to the end of the horizontal arm 20 and the article holder secured thereto. The articles to be dipped are then carefully secured within the holder, and the latter and the carriage from which it is suspended are moved inwardly to a position directly over the tank. The holder will seek its center of gravity as it is being moved along the arm 20 and the struts 54 and latch 47 will automatically retain it in that position. The fluid is now admitted to the top of the piston 5 and permitted to escape from the bottom thereof,

thus forcing the bracket and the holder carried thereby downwardly for immersing the article in the liquid in the tank. When it is desired to raise the articles from the tank, fluid is admitted to the under side of the piston 5 and permitted to escape from the upper side thereof, thus causing the piston rod and the bracket thereon to slowly rise, and with them the article holder. The guide pieces 26, with their rollers 27, engaging the post 22, in conjunction with the counterbalancing weight 25 and the flexible connection 28, insure an even vertical movement of the bracket and holder without the slightest degree of quivering or trembling, thereby producing an absolutely smooth and even coating, and hence a very superior finish to the article. After the articles have been raised from the tank, and at the proper time, the carriage and holder may be moved outwardly along the arm 20 until the holder is beyond the tank, the casters adjusted to the bottom of the holder, the latter disengaged from the carriage and rolled to any desired location, where the articles may be allowed to dry.

While I have shown one form of fluid actuating means for raising and lowering the article holder, it is to be understood that I contemplate the use of any suitable means for accomplishing this result. It is also evident that changes may be resorted to in the form, arrangement and construction of the various parts of my invention without departing from the scope thereof, hence I do not wish to limit myself strictly to the form herein shown and described, but

What I claim is:—

1. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, a device independent of the bracket arm, and means engaging both the bracket arm and the independent device for steadying the outer end of the bracket during its vertical movement.

2. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, means for steadying the inner end of the bracket, a device independent of the bracket arm, and separate means engaging both the bracket arm and the independent device for steadying the outer end of the bracket during its vertical movement.

3. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, means for steadying the inner end of the bracket, a device independent of the bracket arm, and a separate means engaging both the bracket arm and the independent device for steadying the outer end of the bracket during its vertical movement.

4. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, means for steadying the inner end
5 of the bracket, a device independent of the bracket arm, and separate means engaging both the bracket arm and the independent device for steadying the outer end of the
10 said means being also connected to the means for steadying the inner end of the bracket, whereby the lifting strains are equalized.

5. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, means for steadying the inner end of the bracket, a device
20 independent of the bracket arm, and separate means engaging both the bracket arm and the independent device for steadying the outer end of the bracket during its vertical movement, the said means being also
25 connected to the means for steadying the inner end of the bracket, whereby the lifting strains are equalized.

6. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying the
30 bracket in its vertical movement comprising a fixed post and a guide piece mounted on the bracket and provided with rollers for engagement with said post.

35 7. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, and means for steadying the bracket in its vertical movement
40 comprising a fixed post and a guide piece mounted on the bracket and provided with rollers for engagement with said post.

8. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying the
45 bracket in its vertical movement comprising a fixed post and upper and lower guide pieces mounted on the bracket and provided with rollers for engagement with
50 said post.

9. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising
55 and lowering the bracket, and means for steadying the bracket in its vertical movement comprising a fixed post and upper and lower guide pieces mounted on the bracket and provided with rollers for engagement
60 with said post.

10. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying the
65 bracket in its vertical movement comprising

a plurality of fixed pulleys and a flexible connection attached to the outer and inner ends of the bracket and passing over the said pulleys.

11. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, and means for
70 steadying the bracket in its vertical movement comprising a plurality of fixed pulleys and a flexible connection attached to the outer and inner ends of the bracket and
75 passing over the said pulleys.

12. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying the
80 bracket comprising a fixed post in engagement with said bracket, a pulley mounted on the post, a second pulley mounted below the bracket, a third pulley mounted over the
85 outer end of the bracket, and a flexible connection attached to the inner and outer ends of the bracket and passing over all the said pulleys.
90

13. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, and means for
95 steadying the bracket comprising a fixed post in engagement with said bracket, a pulley mounted on the post, a second pulley mounted below the bracket, a third pulley mounted over the outer end of the bracket,
100 and a flexible connection attached to the inner and outer ends of the bracket and passing over all the said pulleys.

14. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying
105 the bracket comprising a fixed post in engagement with said bracket, a pulley mounted near the upper end of the post, a second pulley mounted near the lower end of the post below the bracket, a third pulley
110 mounted over the outer end of the bracket, and a flexible connection attached to the inner and outer ends of the bracket and passing over all the said pulleys.
115

15. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, and means for
120 steadying the bracket comprising a fixed post in engagement with said bracket, a pulley mounted near the upper end of the post, a second pulley mounted near the lower end of the post below the bracket, a third pulley mounted over the outer end of
125 the bracket, and a flexible connection attached to the inner and outer ends of the bracket and passing over all of said pulleys.

16. In a machine of the character described, a tank, an article supporting
130

bracket, means for raising and lowering the bracket, and means for steadying the bracket in its vertical movement comprising a fixed post, upper and lower guide pieces mounted on the bracket and engaging said post, a pulley above the upper guide piece, a second pulley below the upper guide piece, a third pulley above the outer end of the bracket, and a flexible connection attached to the outer end of the bracket and the upper guide piece and passing over all the said pulleys.

17. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket, and means for steadying the bracket in its vertical movement comprising a fixed post, upper and lower guide pieces mounted on the bracket and engaging said post, a pulley above the upper guide piece, a second pulley below the upper guide piece, a third pulley above the outer end of the bracket, and a flexible connection attached to the outer end of the bracket and the upper guide piece and passing over all the said pulleys.

18. In a machine of the character described, a tank, an article supporting bracket, means for raising and lowering the bracket, and means for steadying the bracket in its vertical movement comprising a fixed post, upper and lower guide pieces mounted on the bracket and engaging said post, a pulley mounted on the post above the upper guide piece, a second pulley mounted on the post below the upper guide piece, a third pulley above the outer end of the bracket, and a flexible connection attached to the outer end of the bracket and the upper guide piece and passing over the said pulleys.

19. In a machine of the character described, a tank, an article supporting bracket, fluid operated means for raising and lowering the bracket and means for steadying the bracket in its vertical movement comprising a fixed post, upper and lower guide pieces mounted on the bracket and engaging said post, a pulley mounted on the post above the upper guide piece, a second pulley mounted on the post below the upper guide piece, a third pulley above the outer end of the bracket, and a flexible connection attached to the outer end of the bracket and the upper guide piece and passing over all the said pulleys.

20. In a machine of the character described, an article supporting bracket, a carriage fitted to reciprocate along the same, an article holder, and means whereby the engagement of the carriage with the holder will lock the two together.

21. In a machine of the character described, an article supporting bracket, a carriage fitted to reciprocate along the same, an article holder, means whereby the engagement of the carriage with the holder will lock the two together, and a manually operated device for unlocking the two.

22. In a machine of the character described, an article supporting bracket, a carriage fitted to reciprocate along the same, an article holder, and independent devices upon opposite sides of the bracket for automatically retaining the holder in its gravitational angle with respect to the bracket, said means comprising a notched latch and a series of struts of different lengths operating upon the bracket and the holder.

23. In a machine of the character described, an article holder, a spring clamp mounted therein for yieldingly retaining articles within the holder, and a series of spring actuated fingers also for yieldingly retaining articles within the holder.

24. In a machine of the character described, an article holder, and a series of fingers mounted therein for yieldingly retaining articles within the holder, said fingers being normally held at the limit of their inward movement by a spring having a flexible connection attached thereto and passing over the fingers.

25. In a machine of the character described, an article holder, a loop frame therein, a series of fingers mounted in said frame and having pulleys on their outer ends, a series of pulleys also mounted in the frame, a spring, and a flexible connection attached to said spring and passing over all of the said pulleys for holding the fingers at the limit of their inward movement.

26. In a machine of the character described, an article supporting bracket, a carriage fitted to reciprocate along the same, an article holder, means for automatically locking and manually unlocking the holder to and from the carriage, the said means comprising snap catches carried by the carriage and fitted to engage the holder and a loop pivoted on said carriage and having wedges adapted to be inserted between the carriage and the snap catches for disengaging the latter from the holder.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this twenty-sixth day of March 1909.

REME A. BEAUSEJOUR.

Witnesses:

F. GEORGE BARRY,
HENRY THIEME.