

July 27, 1943.

W. A. LENZ

2,325,255

PHOTOPRINT WASHER

Filed Feb. 12, 1941

2 Sheets-Sheet 1

FIG. 1.

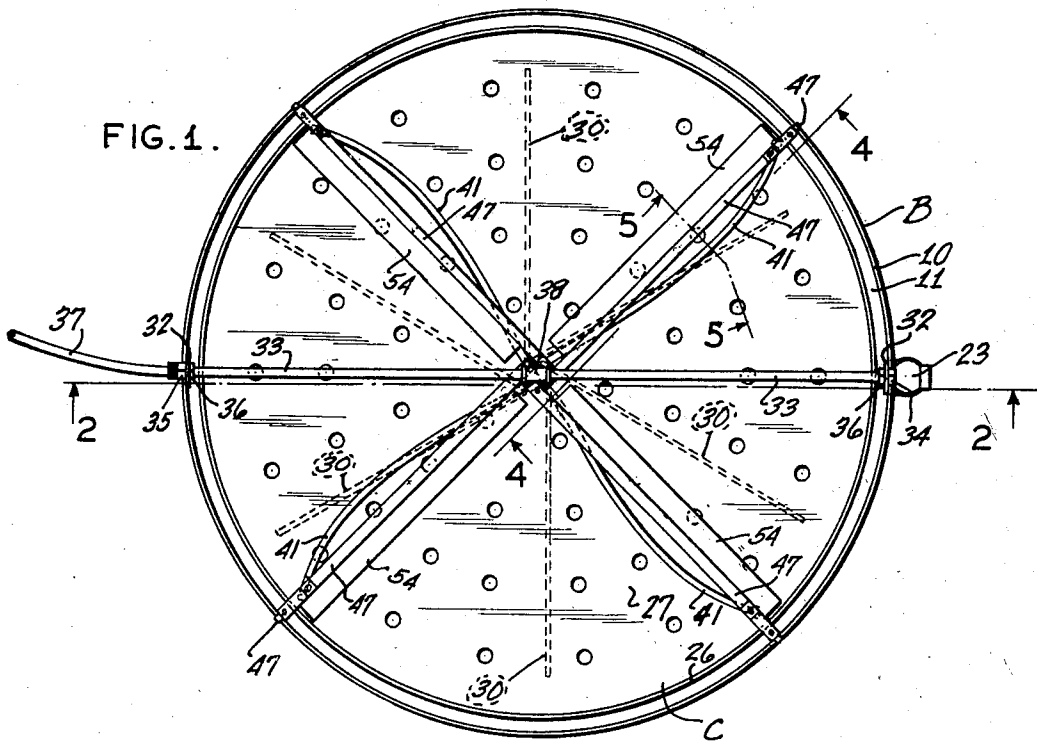
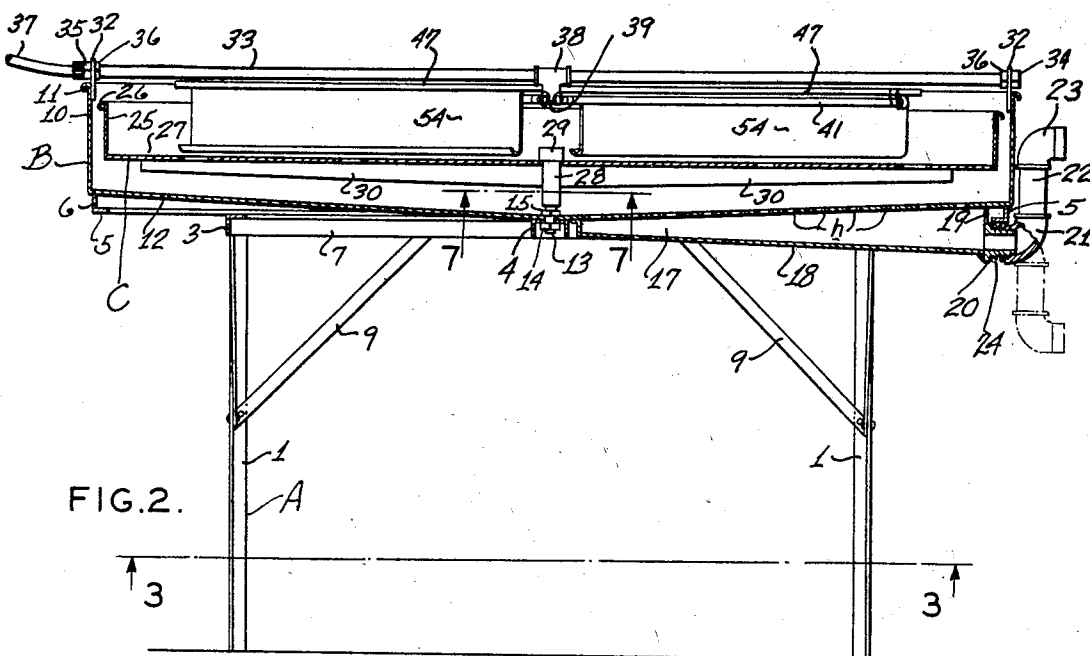


FIG. 2.



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2 Sheets-Sheet 2

FIG. 3.

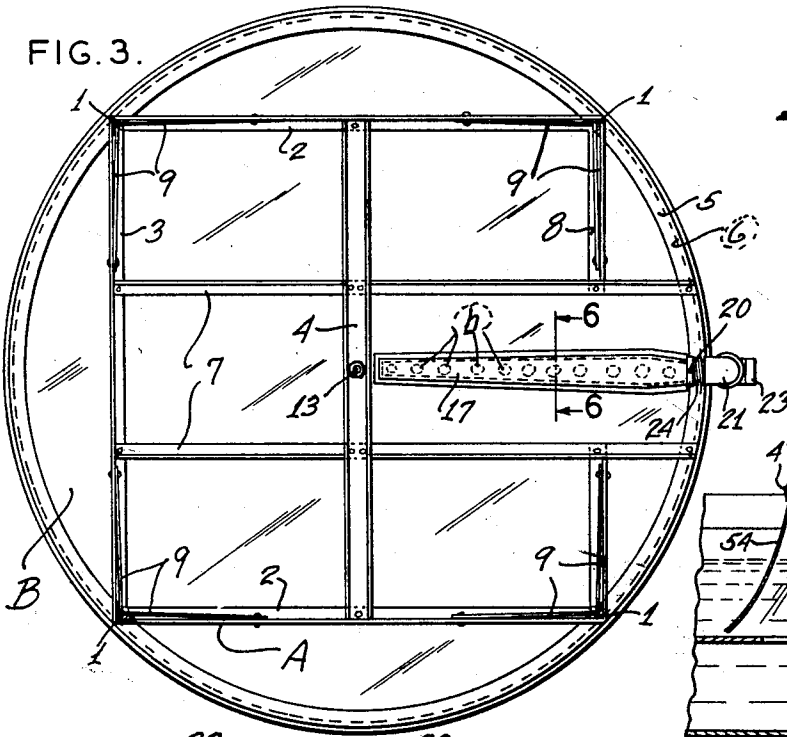
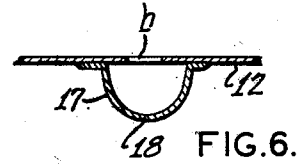
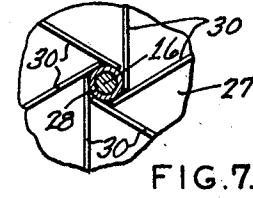
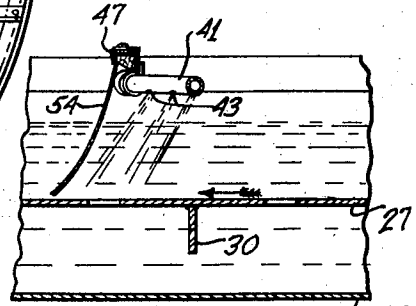


FIG. 5.

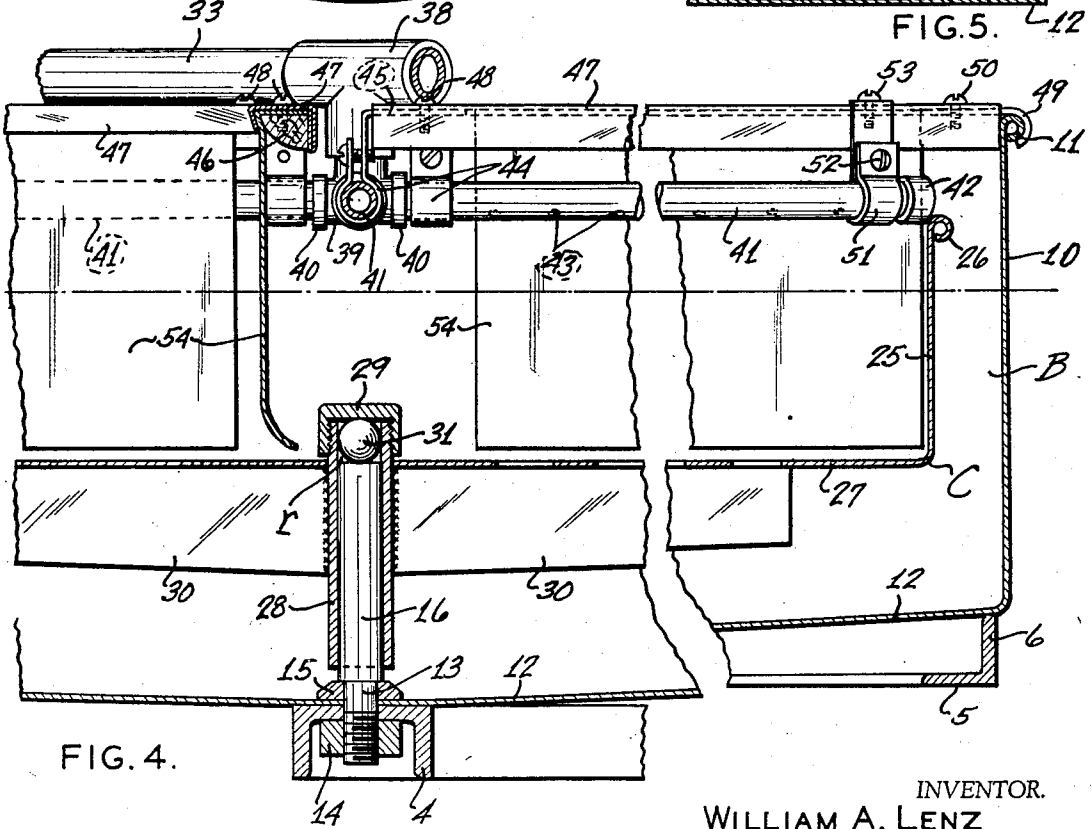


FIG. 4.

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2,325,255

PHOTOPRINT WASHER

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Application February 12, 1941, Serial No. 378,549

8 Claims. (Cl. 95—93)

This invention relates generally to a certain new and useful improvement in photoprint washers.

My invention has for its primary objects the provision of a rugged, durable photoprint washer having an hydraulic motive system and a bearing of unique structure for increasing the fullness and speed of washing action, and to improve generally upon the photoprint washers disclosed in Letters Patent of the United States Nos. 1,313,395, 1,526,603, and 1,720,557, granted to me on August 19, 1919, February 17, 1925, and July 9, 1929, respectively.

And with the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawings (2 sheets)—

Figure 1 is a top plan view of a photoprint washer constructed in accordance with and embodying my present invention;

Figure 2 is a vertical sectional view of the photoprint washer taken approximately along the line 2—2, Figure 1;

Figure 3 is a horizontal sectional view of the photoprint washer taken approximately along the line 3—3 and looking in the direction of the arrows, Figure 2;

Figures 4 and 5 are enlarged fragmentary or broken vertical sectional views of the photoprint washer taken approximately along the lines 4—4 and 5—5, respectively, Figure 1;

Figure 6 is a detail sectional view of the drain or discharge channel of the washer taken approximately along the line 6—6, Figure 3; and

Figure 7 is a detail sectional view of the quill-reinforcing interlocking engagement of the ribs or braces taken approximately along the line 7—7, Figure 2.

Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of my invention, the present photoprint washer comprises a rigid, strong table or support A, which includes four upstanding legs 1 preferably of structural angle iron form and welded or otherwise suitably connected at their upper end by a three-sided or U-shaped rectilinear frame consisting of a pair of spaced parallel angle sections 2 and a transverse angle section 3. Bolted or otherwise secured at its opposite ends to, and extending horizontally between the mid-points of, the angle sections 2, is a reinforcing cross-beam 4 formed of a section of downwardly opening U-shaped channel iron.

Welded or otherwise suitably secured at the four corners of the U-shaped frame formed by the members 2, 3, is an annular top wall 5 preferably provided along its outer periphery with a suitably upstanding flange 6.

Bolted or otherwise suitably secured at an end to, and disposed equidistantly from the opposite ends of, the angle section 3, is a pair of spaced preferably angle iron cross-beams 7, which extend in parallelism with the angle members 2, and which have their vertical flanges suitably cut away for mortised engagement around the cross channel-member 4, each beam 7 being secured at its other end to the circular top wall 5. Welded or otherwise fixed to the ends of, and disposed at right angles to, the members 2, are relatively short inwardly extending angle iron cross-beams 8, in turn, bolted or otherwise secured at their respective inner ends to the members 7, the legs 1 being preferably also reinforced by obliquely extending strap iron brace-members 9, all as best seen in Figures 2 and 3.

Supported or seated upon the upwardly presented peripheral margin of the frame flange 6, is a suitably dimensioned stationary tub or pan B, the outer annular side wall 10 of which is preferably provided at its upper or peripheral margin with an outwardly curled bead 11. Forming part of the tub B, is a bottom wall 12, which is of relatively shallow downwardly tapering conical contour, and which rests in face-wise abutment at its downwardly presented apex upon the horizontal web of the cross channel 4, a securing stud 13, conventionally held in place by a nut 14 and a washer 15, extending vertically through the tub bottom wall 12 and the horizontal web of the channel 4. In turn, forming part of, and extending upwardly from, the stud 13, is a suitably elongated diametrically enlarged bearing post or pintle 16, all as best seen in Figures 2 and 4 and for purposes presently more fully appearing.

Welded or otherwise suitably secured upon the under face of the tub bottom wall 12 and extending radially therealong approximately midway between the members 7, is a trough-like drain channel 17 having a slightly downwardly and outwardly inclined bottom wall 18 preferably of semi-cylindrical cross-section and a transverse preferably flat end wall 19, the tub bottom wall 12 being provided with a plurality of suitable preferably uniformly spaced apertures or holes h leading into and communicating with the drain 17. Suitably fixed in the end wall 19 and opening smoothly into the in-

terior of the drain 17 in substantial coincidence along the semi-circular bottom wall 18, is a radially projecting horizontal nipple 20, and swingably threaded thereon, is a conventional pipe elbow 21 provided at its opposite end with a short length of projecting pipe 22, in turn, provided at its outer end with a second elbow 23, and interposed between the face of the end-wall 19 and the end-face of the elbow 21, is a compression-spring 24 for holding the elbow 21 and its associated fittings 22, 23, at any desired position. It should be noted in this connection that the length of the pipe 22 should be such that the open end of the elbow 23 will be positioned substantially above the desired liquid level within the tub B, and it will also be apparent that, by swinging the pipe 22 and its associated elbows 21, 23, downwardly to the position shown in dotted lines in Figure 2 or to any intermediate position, the tub B may be either entirely drained or the liquid level thereof adjusted, as the case may be.

C designates an annular tray or so-called basket, which includes a vertical side wall 25 of somewhat smaller diameter and substantially shorter in height than the side wall 10 of the tub or pan B and preferably, though not necessarily, provided at its upper margin with a rolled reinforcing and finishing bead 26. Formed integrally with, or suitably secured to, and extending horizontally across the lower margin of, the wall 25, is a foraminous bottom wall 27 and suitably fixed centrally therein is a tubular member or quill 28 seated for rotary movement upon the stud-extension 16 and threadedly provided at its upper projecting end with a retaining cap 29.

Soldered, welded, or otherwise secured along their respective upper margins upon the under face of the basket bottom-wall 27, is a plurality of depending reinforcing ribs or braces 30, each extending inwardly from a point adjacent the outer circumference of the bottom wall 27 and being suitably secured, adjacent its inner end, in facewise tangential abutment upon the outer face of the quill 28, each of the ribs 30 extending a short distance beyond the quill 28 and being endwise abuttingly secured along its transverse margin to the lateral face of the next adjacent rib 30, thus embracingly enclosing the quill 28 in an interlockingly reinforced manner, as best seen in Figure 7.

The quill 28, as shown, has an over-all length somewhat greater than the over-all length of the pintle 16, and thus the cap 29 may be removed from the threaded end of the quill 28, and the quill 28, with its supported basket C, disposed upon the pintle 16 for concentric rotation within the tub B. Initially the downwardly presented margin of the quill 28 will come to rest on the upper face of the washer 15, and it will be evident that the upper or threaded end of the quill 28 will project above the upper end of the pintle 16, forming therewith a cup-like recess *r* which is preferably of reduced height relatively to its diameter. A steel ball bearing 31 of slightly smaller diameter than the recess *r* is then placed within the recess *r*. Thereupon the cap 29 is partially filled with a suitable lubricating grease and replaced upon the threaded end of the quill 28. As the cap 29 is threaded into place, the grease will be forced down into the recess *r* around the ball 31 and between bearing surfaces of the pintle 16 and quill 28. At the same time, the transverse wall of the cap

29 will come into engagement with the ball 31, lifting the entire tray structure C in freely rotating supported position, as best seen in Figure 4.

Fixed upon the inner face, and projecting upwardly beyond the bead 11, of the tub wall 10, is a pair of diametrically opposed upstanding brackets 32 suitably apertured for receiving a horizontal header pipe 33 extending diametrically across and over the tub B and conventionally provided at its one or outer end with a pipe cap 34 and at its opposite or inner end with a pipe nipple 35, a pair of locking nuts 36 being disposed on the pipe 33 for clamping engagement with the lugs 32. Suitably threaded or otherwise connected to the nipple 35, is a flexible hose 37 adapted, in turn, for connection at its other end to a faucet or other conventional source of water pressure (not shown).

Midway between the lugs 32, the pipe 33 is provided with a downwardly opening T-fitting 38, in turn, provided with a four-way or so-called double T-fitting 39 having four horizontally disposed arms or off-takes 40 set at right angles to each other. Threaded into and extending horizontally from each of the off-takes 40, is a spray-pipe 41 provided at its outer end with a pipe-cap 42. Each of the spray-pipes 41 is arcuately bent in its horizontal plane substantially as shown in Figure 1 and is provided intermediate its ends with a plurality of apertures or orifices 43 opening obliquely downwardly and toward the center of curvature of the spray pipes 41.

Adjacent to the off-takes 40, preferably each of the spray-pipes 41 is provided with an encircling metal clamp 44 conveniently formed of strap metal and provided with a bent-over tail-piece or clip 45 which is inserted between the end and upper side of a wooden bar 46 and clamp channel 47, and fastened securely with a sheet metal screw 48 which extends through the channel 47 and clip 45 into the wooden bar 46. The inner end of the bar 46, so attached, extends lengthwise at an angle of 90° to the axial line of the adjacent take-off 40 and the outer end projects over the outer end of the next spray-pipe ahead, and is provided at the outer extremity with a projecting clip member 49 which is curled over at its end for clipwise engagement with the bead 11 of the tub side wall 10. The inner end of the clip 49 is inserted between the upper side of the bar 46 and the channel 47 and fastened with a screw 50 in a manner similar to the clip on the other end of said bar 46. Adjacent to the outer end of the bar 46 and channel 47, is another metal clamp 51 substantially similar to the clamp 44 fastened to the outer end of the spray-pipe 41, being attached to said spray-pipe 41 between the last two holes or orifices 43 on the outer end of said pipe and locked into position by a sheet metal screw 52, the upper end of said clamp being placed over the channel 47 and fastened with a sheet metal screw 53 projected through the end of the clamp 51 and channel 47 into the wooden bar 46.

Folded at its upper margin over and depending from each bar 46 and secured by the channel 47, is a flap or curtain 54 formed preferably of rubberized fabric, oilcloth, or other suitable material to act as a splash curtain and prevent the water from the spray-pipes 41 from spattering over the outside of the washer. Since the channel 47 is held in position by means of the screws 48, 50, with which the clamps 44 and 51

are severally attached, the channel 47 may be very easily removed for replacing the splash-curians with a set of new curtains when it may be required.

In use and operation, by means of the hose 37, the tub or tank B is filled up to a level determined by the vertical position of the elbow 23, which latter should be either directly connected to or disposed over a sink or other suitable drain to catch and dispose of the overflowing water. The photoprints, films, or other articles to be washed are then placed within the basket C. The jets of water discharging from the orifices 43 downwardly and inwardly in the form of a non-perpendicular circular sheet will set the water and the rotatable basket C into motion in the direction shown by the arrow in Figure 5. At the same time, the arcuate and somewhat divergent relation of the several water jets emerging from the orifices of each spray-pipe 41 will produce a unique form of turbulence within the whirling body of water, so as to effect an unusually thorough and complete washing action and, at the same time, materially increasing the speed of rotation of the body of water and the rotatable basket C which is being carried therewith, the discharging water jets forcing the photoprints downwardly within the moving body of water and the turbulence or agitation thereof maintaining the photoprints separate one from the other.

The flaps or curtains 54 will prevent excessive splashing of the water where the discharging jets impinge and will also deflect the moving body of water and the photoprints downwardly toward the bottom of the basket C.

By reason of the unique ball bearing structure and reinforcing ribs 30, the rotating basket C is extremely rigid and strong and hence scratching or buckling of the very frangible wet photoprints is totally obviated. In addition, the ball bearing 31 may be very readily and quickly lubricated from time to time by simply removing the cap 29 and repacking the recess *r* with lubricant. In this same connection, it should be noted that the entire weight of the basket structure C tends to force the lubricating grease downwardly along the bearing faces of the pintle 16 with a positive pressure, thereby effectively preventing any tendency of the slightly acid corrosive liquid within the tank from rising upwardly against and attacking the pintle surface.

The washer is exceedingly efficient in the performance of its intended functions, and it should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the photoprint washer may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A photoprint washer comprising, in combination, a support having an annular upstanding flange and a centrally disposed cross-beam, a tub having a conical bottom-wall marginally resting on said flange and centrally at its apex on said beam, means including a stud engaging the support-beam and the apex of the tub bottom-wall for securing the support and tub together, said stud being elongated in the provision of an upstanding pintle, a basket having a bottom wall provided with a quill for disposition around the pintle, and a plurality of depending

ribs secured marginally to the basket bottom-wall and at their respective inner ends tangentially to the quill and projecting inwardly beyond the quill into engagement one with the other.

2. A photoprint washer comprising, in combination, a support having an annular upstanding flange and a centrally disposed cross-beam, a tub having a conical bottom-wall marginally resting on said flange and centrally at its apex on said beam, means including a stud engaging the support-beam and the apex of the tub bottom-wall for securing the support and tub together, said stud being elongated in the provision of an upstanding pintle, a basket having a bottom wall provided with a quill for disposition around the pintle, a cap removably mounted over the pintle on the upper end of the quill, and bearing means interposed between the cap and the upper end of the pintle for suspending the basket for rotation within the tub.

3. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and having connection adjacent its opposite ends with the upper margin of the side wall of the tub, and a plurality of spray-pipes dependingly supported from, and having communication with, the header pipe and radially extending over the basket.

4. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and having connection adjacent its opposite ends with the upper margin of the side wall of the tub, a downwardly opening first fitting fixed centrally upon and having communication with the header pipe, a second fitting having four horizontally disposed take-offs dependingly supported from, and having communication with, the first fitting, and spray-pipes radially extending over the basket from, and supported by and having communication with, the take-offs of the second fitting.

5. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and having connection adjacent its opposite ends with the upper margin of the side wall of the tub, a downwardly opening first fitting fixed centrally upon and having communication with the header pipe, a second fitting having four horizontally disposed take-offs dependingly supported from, and having communication with, the first fitting, and lengthwise curved spray-pipes radially extending over the basket from, and supported by and having communication with, the take-offs of the second fitting, each spray-pipe having a plurality of discharge orifices directed obliquely downwardly toward the basket in the formation

of a plurality of converging jets for rotating the basket and imparting a print washing turbulence to the body of liquid of the washer.

6. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and fixed adjacent its opposite ends to and upon the upper margin of the side wall of the tub, a plurality of spray-pipes dependingly supported from, and having communication with, the header pipe and radially extending over the basket, and splash-curtains supported by the spray-pipes for depending into the basket.

7. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and fixed adjacent its opposite ends to and upon the upper margin of the side wall of the tub, a plurality of spray-pipes dependingly supported from, and having communication with, the header pipe and radially extending over the basket, brackets fixed, and each having a member disposed in ele-

vated relation, to the spray-pipes, rigid members supported by the brackets, and splash-curtains supported by, and depending from, said members into the basket.

8. A photoprint washer comprising, in combination, a stationary tub having a bottom-wall and an upstanding annular side wall, a basket having pivotal connection with the tub bottom-wall for rotation within the tub, the tub side wall having an upper margin disposed above the plane of the upper margin of the basket side wall, a header pipe extending diametrically across, and fixed adjacent its opposite ends to and upon the upper margin of the side wall of the tub, a plurality of lengthwise curved spray-pipes dependingly supported from, and having communication with, the header pipe and radially extending over the basket, each of said pipes being provided with a plurality of spaced discharge orifices each disposed for forming a spray jet directed obliquely downwardly and in the opposite direction to the direction of curvature of the pipe, brackets fixed, and each having a clip disposed in elevated relation, to the spray-pipes, rigid straight members supported by the bracket clips and extending in inwardly spaced parallel relation to the chord of the arc of curvature of the respective pipe, and flexible curtains supported by, and depending into the basket from, said rigid straight members.

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