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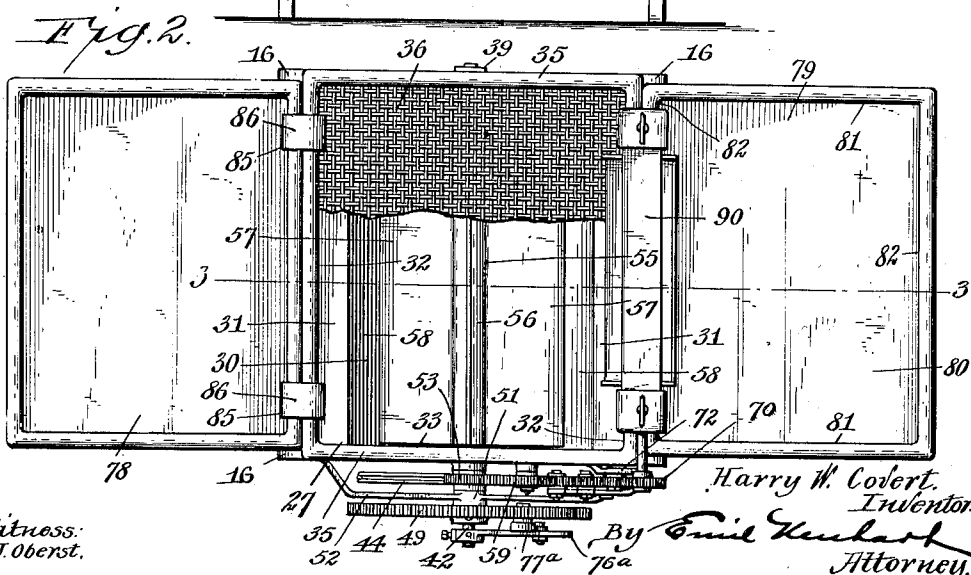
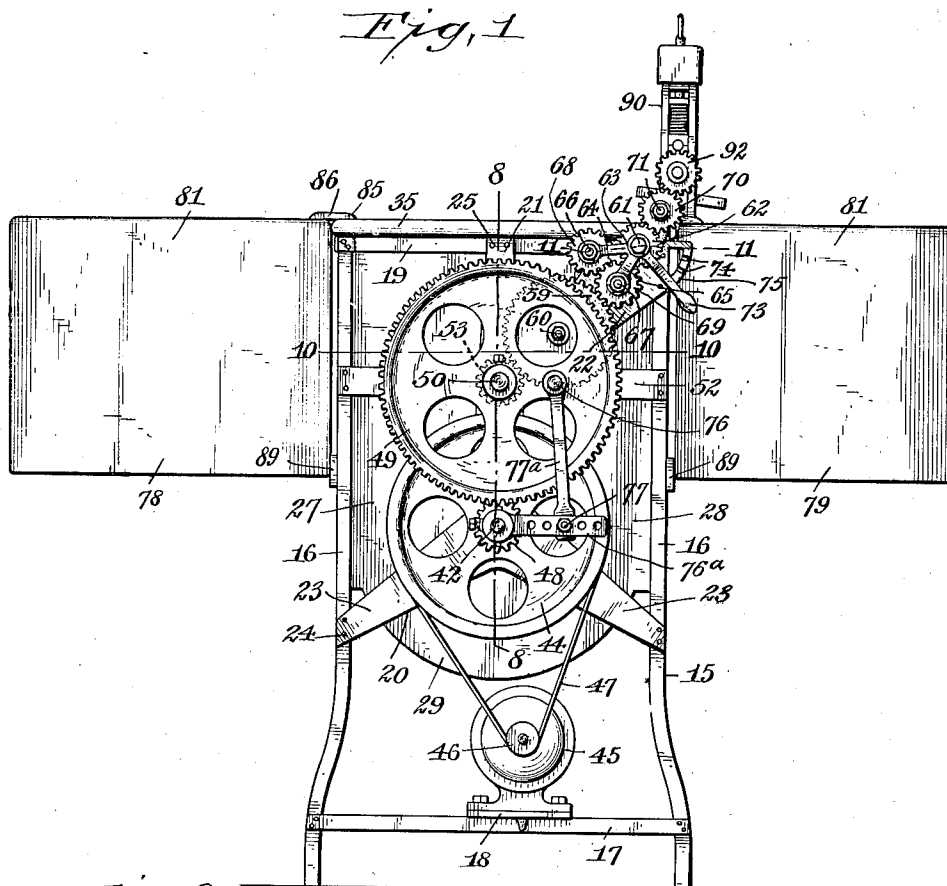
H. W. COVERT

1,948,957

WASHING MACHINE

Filed Aug. 15, 1929

4 Sheets-Sheet 1



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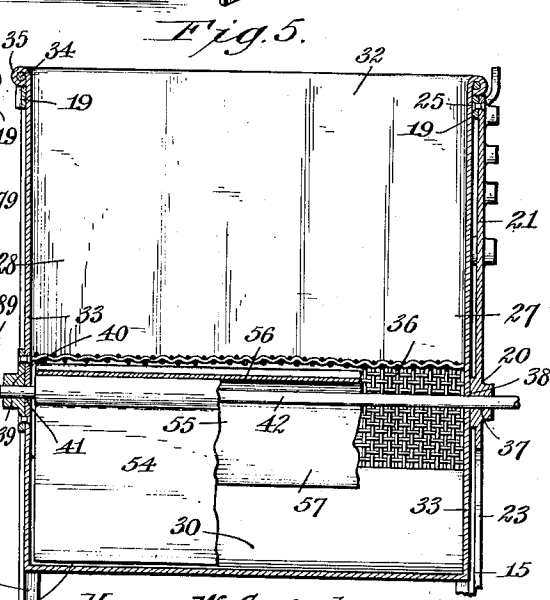
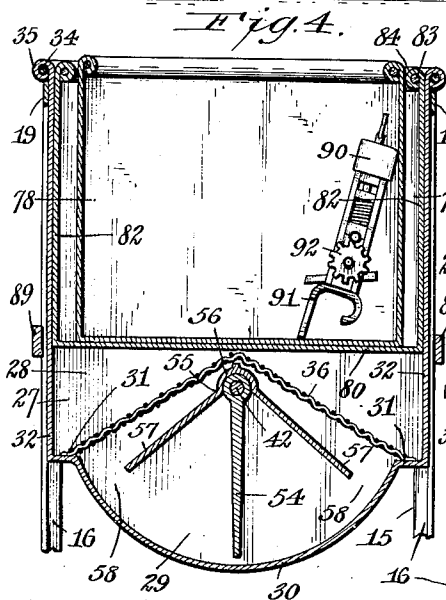
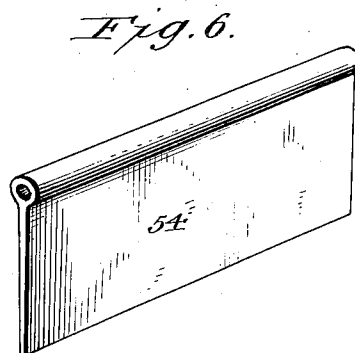
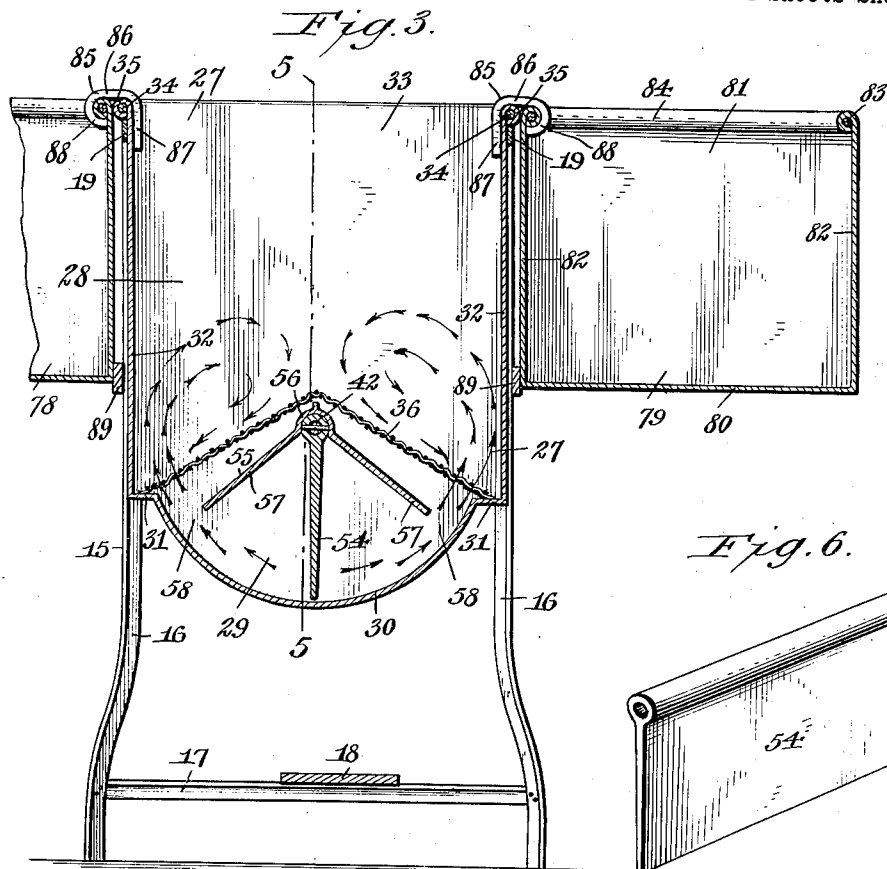
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WASHING MACHINE

Filed Aug. 15, 1929

4 Sheets-Sheet 2



Witness
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Feb. 27, 1934.

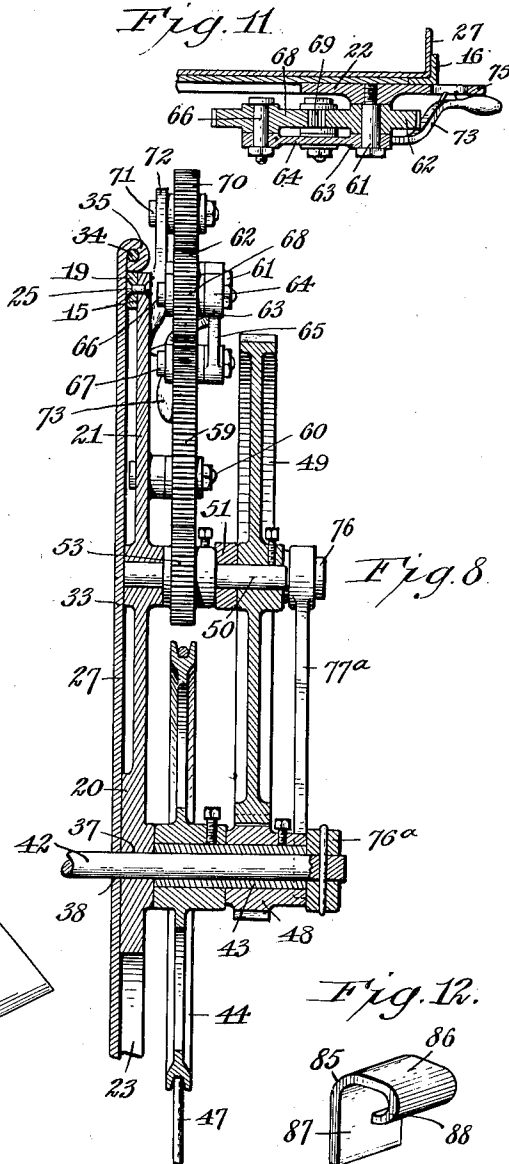
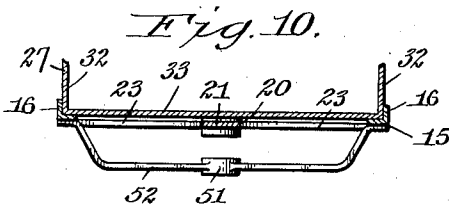
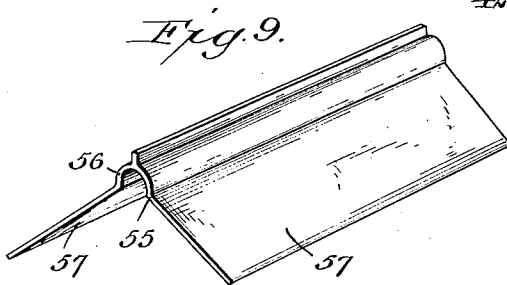
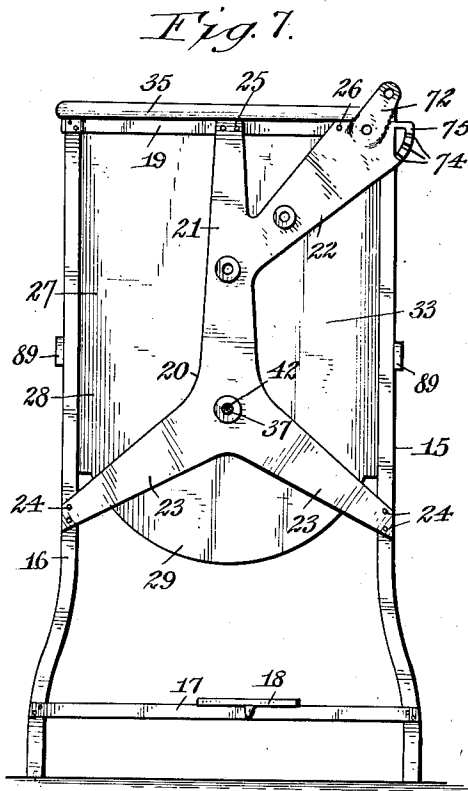
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WASHING MACHINE

Filed Aug. 15, 1929

4 Sheets-Sheet 3



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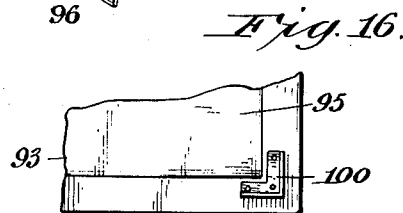
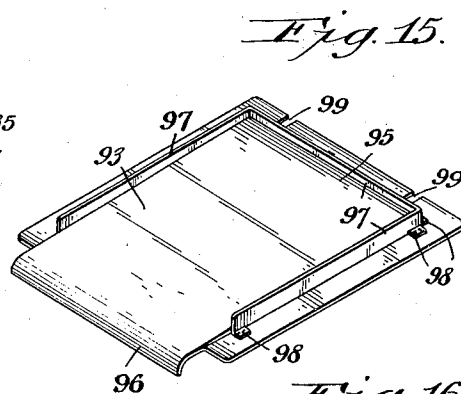
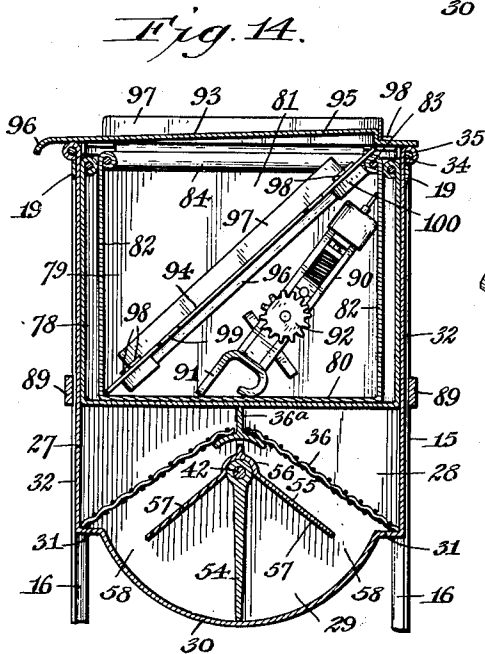
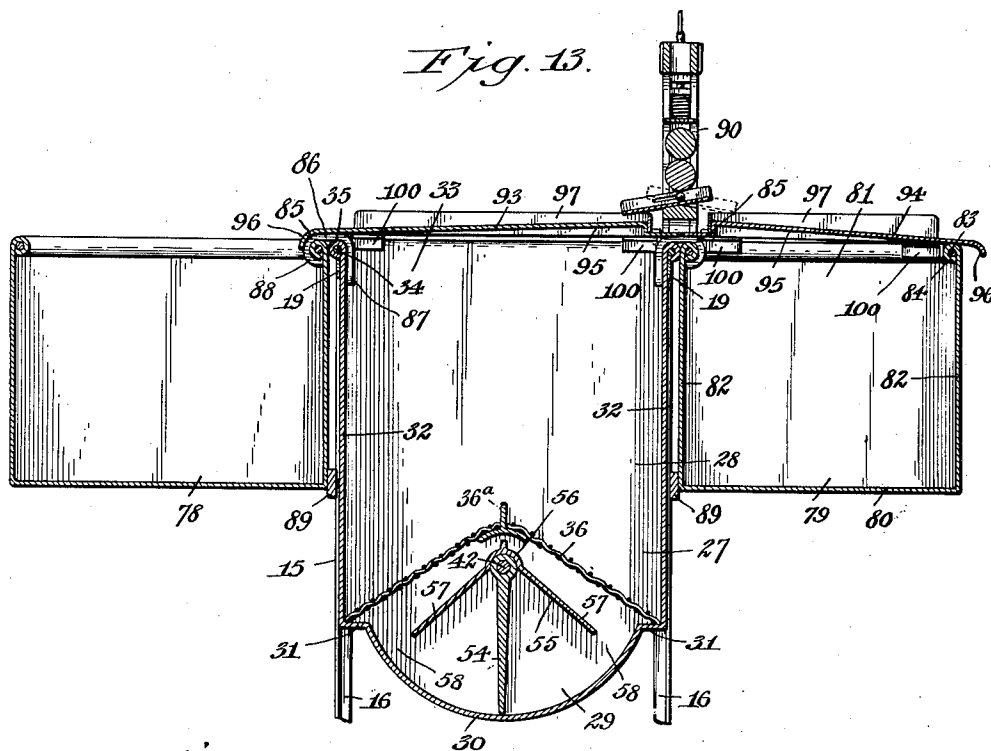
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1,948,957

WASHING MACHINE

Filed Aug. 15, 1929

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

1,948,957

WASHING MACHINE

Harry W. Covert, Jamestown, N. Y.

Application August 15, 1929. Serial No. 386,143

14 Claims. (Cl. 68—37)

My invention relates to improvements in washing machines, and more particularly to machines for washing clothes and the like; although under the principle involved, the invention is also adaptable for use as a dish washer and for other purposes.

One of the objects of my invention is the production of a washing machine having an agitator therein to cause the water within the washing-compartment to be thoroughly agitated and the clothing within said compartment to be moved about so as to subject different articles of clothing successively to the action of the water under greatest agitation.

Another object of my invention is the production of a washing machine embodying an oscillating agitator serving to create suction within the washing-compartment and to cause the water to be drawn through the clothing in said compartment, and thus free the meshes, as well as the surface of the clothing, of all soiling matter.

Another object of my invention is the production of a washing machine having a washing-compartment and an agitating chamber separated from said washing-compartment by a foraminous wall and wherein the agitator creates suction on the clothing lying upon said foraminous wall and causes the clothing to be turned over so as to present different articles of clothing to said wall during the operation of the machine.

A further object of my invention is the provision of a machine of this type having means to cause the clothing being washed to be moved about and gradually turned over, and while so moved and turned, subjecting the same to the action of suction so that all articles of clothing are equally exposed to the action of the agitated water during the washing operation.

A still further object of my invention is the production of a washing machine having a washing-compartment with an oppositely-inclined foraminous bottom, and means to alternately subject the clothing to the propelling force of water at each side of the clothing-compartment and to suction, causing the clothing to be moved upwardly and toward the vertical center of the clothing-compartment so as to turn over the different articles of clothing and permit the clothing to slide down the inclines of said foraminous bottom to successively subject the articles of clothing to suction action, under which water is drawn through the material of the clothing and the clothing thoroughly cleansed.

A still further object of my invention is the production of a washing machine having a wringer applied thereto, means for operating the washing machine, and means for operating the wringer adapted to be disconnected from or operatively connected with the means for operating said washing machine.

A still further object of my invention is the production of a washing machine having a wringer, means for agitating the water within the machine, operating mechanism for actuating said agitating means and said wringer, and operative means to cause the wringer to be operated with the agitating means or to cause said agitating means to be operated without operating said wringer.

A still further object of my invention is the production of a washing machine having a washing-compartment, and one or more chambers or additional compartments separated from said washing-compartment and nestable into the latter.

A still further object of my invention is the production of a washing machine having a washing-compartment, a suitable support for the same, and chambers at opposite sides of said washing-compartment detachable therefrom; said chambers being nestable one in the other and both in said washing-compartment; said machine having also a wringer removable therefrom and adapted when not in use to be placed within the nested chambers; and a cover for the nested compartment and chambers.

With the above and other objects to appear hereinafter, my invention consists in the novel features of construction, in the novel arrangement of parts, and in the novel construction and combination to be hereinafter described and more particularly pointed out in the subjoined claims.

In the drawings:—

Fig. 1 is an end elevation of my improved washing machine, in what I now consider its preferred form.

Fig. 2 is a plan view of the same, part of the foraminous bottom of the washing-compartment being broken away to show part of the agitating means underneath.

Fig. 3 is an enlarged transverse section taken on line 3—3, Fig. 2, the wringer being removed from the machine.

Fig. 4 is a section through the machine on substantially the same plane as Fig. 3, but having the auxiliary, or rinsing and bluing chambers nested one within the other and both within the

washing-compartment, and showing the wringer within the nested chambers and compartment.

Fig. 5 is a longitudinal section taken on line 5—5, Fig. 3, the operating mechanism being removed.

Fig. 6 is a detached perspective view of the agitator.

Fig. 7 is an end view of the machine with the operating mechanism removed therefrom.

Fig. 8 is an enlarged vertical section through a portion of the machine taken on line 8—8, Fig. 1.

Fig. 9 is a detached perspective view of the baffle element used in conjunction with the agitator.

Fig. 10 is a horizontal section through a portion of the machine, taken on line 10—10, Fig. 1, and showing the operating mechanism removed.

Fig. 11 is an enlarged sectional view of the adjustable gear carrier employed in the train of gearing leading to the clothes wringer, the section being taken on line 11—11, Fig. 1.

Fig. 12 is a detached perspective view of one of the clips for supporting the auxiliary chambers or side compartments of the machine.

Fig. 13 is a transverse section similar to Fig. 3, showing the washing-compartment and the rinsing chamber closed at their upper ends by drain boards, and also showing the foraminous partition separating the washing-compartment from the agitator chamber of slightly different construction.

Fig. 14 is a view similar to Fig. 4, showing the rinsing and bluing chambers nested within the washing-compartment and showing the drain board for the rinsing chamber and also the wringer placed within said rinsing chamber, and the drain board for the washing-compartment serving as a cover for the machine when nested.

Fig. 15 is a detached perspective view of one of the drain boards.

Fig. 16 is a bottom view of a portion of one of the drain boards showing one of the angular retainers adapted to hold the drain board in position.

In the drawings, the numeral 15 designates the frame of the machine, which comprises uprights 16, connecting bars 17 near the lower end of the frame on which a motor shelf 18 is placed, and connecting bars 19 connecting the upper ends of the uprights.

20 designates a stamping or casting, forming part of the frame and comprising a vertical bearing member 21, an oblique bearing member 22, and oblique brace members 23, the brace members being riveted or otherwise secured to the uprights, as at 24. The upper end of the vertical member 21 is riveted or otherwise secured to one of the upper connecting bars 19, as at 25, and the oblique bearing member 22 is fastened to both said last-mentioned connecting bar 19 and the upper end of one of the uprights 16, as at 26.

Set into the frame 15 from the top is a casing 27, which may be constructed of any suitable material; preferably of sheet metal, formed to provide walls or parts seamed or connected together in any approved manner, and enameled or otherwise finished or treated, as may be desired. This casing comprises a rectangular upper portion 28 and a segmental lower portion 29. The concave wall 30 forming the bottom of said lower portion terminates in ledges or ledge walls 31 at opposite sides of the bottom, which meet and are united to or formed with the opposite side walls 32 of the rectangular upper portion of the

casing. The side walls 32 are therefore somewhat offset with respect to the upper ends of the concave wall 30, yet the relation is such that if the curvature of said concave wall were continued upwardly into the rectangular upper portion of the casing it would meet, approximately meet, or intersect the side walls 32. The end walls 33 of said receptacle continue downwardly from their upper ends in a straight line and form the end walls of both the rectangular upper portion and the segmental lower portion. The upper marginal portion of the side and end walls of this casing are curved around stiffening wires 34 forming an external reinforced bead 35, substantially of circular formation in cross section and extending completely around the casing at the upper edge thereof.

On the ledges 31 a foraminous partition 36 is loosely supported. This partition is preferably constructed of wire-mesh material, but any other material having suitable openings therethrough may be employed, if desired. The said partition has opposite ends resting upon the ledges 31, and from their points of support on these ledges incline upwardly and inwardly toward the vertical center of the casing. This partition divides the casing into a washing or clothes-receiving compartment and a lower compartment and serves as the bottom of said washing-compartment and the top wall of said lower compartment. I term the lower compartment an agitator chamber, due to the fact that therein is arranged agitating means to be presently described. By reason of the foraminous partition being removably placed within the casing, access can be readily had to the parts within the agitator chamber from the open upper end of the casing.

This foraminous partition may be constructed as shown in Figs. 3 to 5, or it may be provided with an upstanding ledge 36^a along its apex or ridge, as shown in Fig. 13 which may be of metallic structural material, as shown, and when so constructed the foraminous or screen portion of the partition is made in two parts, the upper or inner edges of which are soldered or otherwise secured to said metallic structure.

The stamping or casting 20 has a shaft opening 37 at the point of intersection of its vertical bearing member 21 with its oblique brace members 23, and it lies against the adjacent end wall 33 of the casing 27; said end wall having an opening 38 therein aligned with the opening 37 in said stamping or casting. Secured to the outer side of the opposite end wall 33 of the compartment is a bearing 39 which has a shaft opening 40 there-through, and the end wall to which said bearing is secured is provided with a shaft opening 41 coaxial with the shaft opening in said bearing. The openings 40 and 41 are horizontally aligned with the openings 37 and 38, and extending through these openings is what I term an agitator shaft 42. The walls of these openings serve as bearing for the shaft 42, which shaft extends outwardly a distance beyond the stamping or casting 20. Shaft 42 is disposed within the angle formed by the oppositely-inclined portions of the foraminous partition, or in other words, directly beneath the apex or ridge of said partition and is consequently in a plane above the ledges 31 on which opposite ends of said partition rest. On this shaft is loosely mounted a bearing sleeve 43 onto which is secured a belt pulley 44. On the motor shelf is mounted an electric motor 45, to the shaft of which is secured a belt pulley 46, and around the belt pulleys 44 and 46 a belt 47 is trained;

thus, the bearing sleeve 43 is rotated on the shaft 42 under rotative movement of the belt pulley 44.

The bearing sleeve 43 extends outwardly on the shaft 42 a distance beyond the pulley 44, and on this extending portion is secured a pinion 48 which is in mesh with a gear wheel 49 fastened to a shaft 50 journaled at its inner end in the stamping or casting 20 and at a point between its ends in a bearing 51 formed in a horizontal frame bar 52 riveted or otherwise secured at opposite ends to the uprights 16 of the frame, as best shown in Fig. 10.

On said shaft 50 between the stamping or casting 20 and the frame bar 52, a pinion 53 is secured. The rotative movement of the sleeve 43 on the agitator shaft 42 is therefore imparted through the medium of the pinion 48 and the gear wheel 49 to the shaft 50, and as the gear wheel 53 is secured to said shaft, said gear wheel is rotated and is adapted through suitable mechanism, to be hereinafter described, to cause operation of a wringer attachable to and detachable from the machine.

Within the agitator chamber 29 is an agitator 54. This agitator is preferably a straight-lined member, in the form of a blade or wing, having the shaft 42 extending through its upper end and it is secured to said shaft in any approved manner so that it is movable therewith. This agitator is adapted to oscillate back and forth through an arc of a circle and it has resting on its upper edge a baffle member 55, comprising an intermediate substantially semi-circular portion 56 which rests upon the upper edge of the agitator 54, and two baffle wings or oppositely-inclined flat members 57 which have their outer free ends terminating in spaced relation to the curved wall 30 of the agitator chamber; the spaces 58 so provided determining the amount of water allowed to travel to and fro between the agitator chamber and the washing-compartment. These baffle wings serve also to limit the water drawn into the agitator chamber from the washing-compartment and causes the water forced into the washing-compartment from the agitator chamber to travel along the curved wall of the agitator chamber and the adjacent side walls of the washing-compartment. Said baffle wings are free to oscillate within a small range, either under influence of the water forced along by the agitator wing or by reason of said agitator wing coming in contact therewith. In any event, these baffle wings prevent the moving water from being directed upwardly against the clothing momentarily lodged within the central region of the washing-compartment.

The pinion 53 secured to the shaft 50 is in mesh with a gear wheel 59 rotatable on a stub shaft 60 mounted in the oblique bearing member 23 of the stamping or casting 20.

Rotatable on a stub shaft 61 extending outwardly from said oblique bearing member is a gear wheel 62 which is spaced a distance from the gear wheel 59, and on said stub shaft a gear carrier 63 is arranged for movement in an arc of a circle, said gear carrier comprising two arms 64, 65 in which stub shafts 66, 67 are carried, said stub shafts having gear wheels 68, 69 rotatable thereon and being in mesh one with the other.

The gear wheel 69 is also in mesh with the gear wheel 62, the latter being in mesh with a gear wheel 70 rotatable on a stub shaft 71 fastened in an offset lug 72 extending upwardly from the upper end of said oblique bearing member.

The gear carrier 63 has a lever or handle 73 extending therefrom adapted to be engaged with any one of three notches 74 arranged in a segmental extension 75 on the bearing member 23. When this handle is positioned, as shown in Fig. 1, the gear wheel 69 will be in mesh with the gear wheel 59 and impart motion directly to the gear wheel 62, and through the latter to the gear wheel 70, causing said last-mentioned gear wheel to rotate in a definite direction. With the gear wheel 69 so positioned the gear wheel 68 is out of mesh with the gear wheel 59 so that upon rotation of the gear wheel 69 the gear wheel 68 is rotated idly, due to the fact that it is at all times spaced from the gear wheel 62. The lever or handle 73 is at such times retained in position by the lower of the three notches 74.

Upon moving the lever upwardly to engage the intermediate notch 74 in the segmental extension 75, the gear carrier will be swung slightly on the stub shaft 61, causing the gear wheel 69 to be moved out of mesh with the gear wheel 59, and the gear wheel 68 to be moved toward said gear wheel 59 without bringing it into mesh with the same.

Upon swinging said lever or handle 73 into the uppermost notch 74 of said segmental extension, the gear carrier will be swung on its center to a further degree and cause the gear wheel 68 to mesh with the gear wheel 59, thus introducing into the train of gears an additional effective gear, which will cause a reverse movement of the gear wheel 70.

76 designates a wrist pin extending outwardly from the gear wheel 49, and 76^a is a lever pinned or otherwise secured to the outer end of the oscillating shaft 42. This lever has a plurality of bolt holes arranged lengthwise therein, and it has a pivot bolt 77 passed through one of said bolt holes and through the lower end of a pitman or connecting rod 77^a, which is pivotally attached at its upper end to the wrist pin 76.

Disposed at opposite sides of the washing-compartment are two tubs or chambers 78, 79, one of which may serve as a bluing tub or chamber and the other is a rinsing tub or chamber. In Figs. 1, 3 and 13, the rinsing tub or chamber 79 is shown at the right of the washing-compartment, and like the latter may also be formed of sheet material constructed with a bottom wall 80, end walls 81, and side walls 82; the upper ends of the end and side walls being curved inwardly around a stiffening wire 83 to form internal reinforced beads 84 at the upper ends of said walls. This chamber is somewhat shallower than the washing-compartment, and of somewhat smaller dimension in a horizontal plane, and it differs in construction from the washing-compartment, at least to the extent that it has the reinforced bead at its upper end extending inwardly; whereas, the reinforced bead at the upper end of the washing-compartment extends outwardly.

The chamber 78 is similar in construction and formation to the chamber 79, except that it is somewhat larger than said rinsing chamber so as to permit of nesting the latter therein; yet the bluing chamber 78 is of a size to fit within the washing-compartment 28. This permits the nesting of the three elements in the manner disclosed in Figs. 4 and 14 of the drawings.

No provision is made for supporting the chambers 78 and 79 from the floor on which the washing machine rests, but due to the particular construction employed in reinforcing or stiffening the upper ends of the washing-compartment and

the chambers, under which an external bead is provided along the upper edge of the washing-compartment, and internal beads along the upper edges of the rinsing and bluing chambers 79 and 78, respectively, said chambers are attached to the washing-compartment by means of retainer clips 85, each retainer clip having a horizontal intermediate portion 86, a straight-lined depending end portion 87, and a recurved opposite end portion 88. The recurved portions of these clips engage the inwardly extending reinforcing or stiffening beads at the upper ends of the rinsing and bluing chambers, while the horizontal intermediate portions rest upon the upper edges of these inwardly extending beads and the upper edge of the outwardly extending bead of the washing-compartment; the straight-lined depending portions 87 extending downwardly into the washing-compartment in contact with the inner surface of its side walls, as clearly shown in Figs. 3 and 13. In this manner the rinsing and bluing chambers are suspended from the upper edge of the washing-compartment. The inner wall of each chamber 78 and 79 bears against a rigid cross strip 89 extending from one upright 16 to another of the frame 15.

When removing the rinsing and bluing chambers, or side compartments, as these chambers may be termed, from the casing or washing-compartment, it is simply necessary to elevate them sufficiently to withdraw the straight-lined depending portions 87 of the retainer clips from engagement with the side walls of the washing-compartment.

Provision is made for removably attaching the wringer to the machine and connecting the same with the train of gearing referred to.

The wringer is designated by the numeral 90, and may be of any construction; it, however, has secured to its lower end, means for attachment thereof to the two adjacent walls of the washing-compartment 28 and the rinsing chamber or compartment 79; this means being similar to the retainer clips 85 and being distinguished therefrom under the term fastener clips, designated by the numeral 91. These fastener clips overlie the outwardly-extending bead of the washing-compartment and the inwardly-extending bead of the rinsing chamber or compartment, and the end portions thereof engage said inwardly-extending bead and the inner surface of one of the side walls of the washing-compartment in the same manner as the end portions 88 and 87, respectively, of the retainer clips. These fastener clips, therefore, assist in holding the rinsing chamber or compartment to the washing-compartment while positioning the wringer on the adjacent walls of the two compartments.

If desired, the retainer clips 85, by means of which the rinsing chamber 79 is fastened to the side of the washing-compartment may be dispensed with, and the wringer retained in position during such times as the rinsing chamber is to be supported from the washing-compartment, the fastener clips 91 being depended upon to properly secure the rinsing chamber in place; or if desired, the retainer clips 85 may be used for such purpose and the fastener clips of the wringer may be somewhat larger so as to lie over the retainer clips, this latter, or the dispensation of the retainer clips at such times, being desirable for reasons to appear hereinafter.

The wringer has secured to the shaft of one of its rolls, preferably the lower, a gear wheel 92, which in placing the wringer in position, is

brought into mesh with the gear wheel 70, and the simple removal of the wringer from the machine disconnects the gear wheel 92 from said gear wheel 70.

As clearly shown in Fig. 3, the water within the agitator chamber 29 is moved by the agitator 54 so that it is forced around the ends of the baffle wings or members 57 and backwardly through the foraminous or screen-like partition separating the washing compartment from the agitator chamber; this water taking substantially the course indicated by the arrows in Fig. 3 and causing the clothes resting upon said partition to be moved upwardly at opposite sides of the vertical center of the compartment and inwardly toward said center, thereby causing a continuous downward movement of the clothes along the opposite inclined portions of said partition and an upward and turning movement so that the clothes are being continuously turned over in opposite directions at opposite sides of the washing-compartment, and different clothes and different parts of the clothes presented to the foraminous partition under the continuous actuation of the agitator.

The movement of the agitator toward either inclined portion of the foraminous partition results in the water being drawn through the other inclined portion of said partition under suction created by the agitator so that the water is drawn through the meshes of the clothing; thus assuring a thorough cleansing of the latter. The baffles tend to restrict the suction action along a comparatively narrow area at the lower end of each inclined portion of said partition, and as the clothes are continuously being moved toward and away from said area under step-by-step action, all articles of clothing in the washing-compartment are subjected at opposite sides of the vertical center of said compartment to comparatively strong suction action and to propelling action of the water thereagainst and through the meshes thereof.

The use of the upstanding flange 36^a prevents clothes, and more particularly small articles of clothing, from being carried beyond the vertical center of the foraminous partition under action of the agitated water. This prevents clothing supported on one inclined portion of the foraminous partition from being carried over onto the other inclined portion of said partition; thus guarding against entanglement of different articles of clothing which would make it difficult to subject all portions of each article of clothing to the action of the agitated water and also render the washing difficult to handle when passing the individual articles through the wringer preparatory to rinsing the same.

The motor causes rotation of the pulley 44, which being secured to a sleeve rotatable on the main shaft, causes operation of the pinion 48 secured to said sleeve; this pinion being in mesh with the gear wheel 49 causes rotation of the latter, and due to the fact that this gear wheel is eccentrically connected through the medium of the pitman or connecting rod 77^a with the lever 76^a, the agitator shaft 42 is moved through a partial revolution, first in one direction and then in another, causing oscillation of the agitator 54 within the agitating chamber so as to cause movement of the water in the manner described. The degree of movement of the agitator may be varied by connecting the pitman or connecting rod 77^a to the lever 76^a at a point closer to or more distant from the shaft 42. The gear wheel

49, being secured to the shaft 50, causes rotation of said shaft and the pinion 53 secured thereto. This pinion in turn causes rotation of the gear wheel 59, which under all conditions is rotated during the operation of the washing machine.

When the lever 73 controlling the train of gears between the gear wheel 59 and the wringer is in the position shown in Fig. 1, the gear wheel 69 being in mesh with the gear wheel 59 causes the
 10 wringer to be actuated through the action of the gear wheels 62, 70 and 92, the latter being part of the wringer, and at such times the gear wheel 68, which is at all times in mesh with the gear wheel 69, is caused to be idly rotated by the lat-
 15 ter. The gear wheel 69 is in the position shown in said figure when the wringer is to be employed for wringing clothes taken from the washing-compartment to be delivered into the rinsing chamber 79. When, however, the wringer is not
 20 in use, the lever 73 is engaged with the central notch 74 in the segmental extension of the oblique bearing member 23. This causes the gear wheel 69 to be disengaged from the gear wheel 59 and the gear wheel 68 to remain disengaged from said
 25 gear wheel 59, and under such conditions the train of gears between the gear wheel 59 and the wringer are non-rotatable, the pinion 53 and the gear wheel 59, however, rotating idly.

When the clothes are rinsed within the chamber 79, they may be transferred to the bluing water in the chamber 78, by passing them through the wringer under reverse action, this being accomplished by swinging the lever 73 into the uppermost notch 74 of the segmental extension on the oblique bearing member 23, thereby bringing the gear wheel 68 into mesh with the gear wheel 59, causing a reverse action of the various gear wheels extending from the gear wheel 68 to the wringer, as will be clearly understood.

40 If desired, preparatory to wringing the clothes, after being rinsed, the water in the clothes compartment may be drained from the latter, and the clothing passing through the wringer from the rinsing chamber may be delivered into the washing-compartment preparatory to lifting them into the bluing chamber. I, however, prefer to employ drain boards to facilitate this and other steps in the method of washing; and in
 50 Figs. 13 to 16 I have shown such drain boards; the reference numeral 93 designating the drain board for the washing-compartment, which also serves as a cover for the machine, when several of the parts are placed within the washing-compartment, as shown, for example, in Fig. 14. A similar or smaller drain board 94 is provided for covering the rinsing chamber. Either of the two drain boards is to be used separately, or both at the same time. The drain board 94 is, of course,
 60 removed from the rinsing chamber 79 during the rinsing of the clothing, and instead of delivering the rinsed and wrung-out clothing into the washing-compartment, they may be delivered onto the drain board 93, and from the latter slid into the bluing compartment 78; thus making it unnecessary to lift the clothes in delivering them into the bluing compartment.

After the clothes are properly blued, they may be removed from the bluing compartment and delivered onto the drain board 93, from which
 70 they may be directed through the wringer after properly manipulating the lever or handle 73 to cause the rolls of the wringer to rotate in the proper direction. At such times, the drain board 94 may be placed over the rinsing chamber 79,
 75 and as the clothes are passed through the wring-

er, they will be delivered onto said drain board, from which they may be slid down without effort into a clothes basket positioned on the floor to receive the same from the outer edge of said drain board.

Each of these drain boards is constructed of
 80 sheet material stamped to a size to properly cover the compartment or chamber to which it is adapted to be applied, and it is given the desired inclination to properly discharge water delivered thereonto. For this purpose the metal is
 85 pressed upwardly from a point near one end, as at 95, and its opposite end curved downwardly, as at 96, and surrounding the upwardly pressed portion of the metal is an upstanding flange or rim 97 fastened in place by means of ears
 90 98 and soldered along its lower edge to make the same water tight.

One end of each of these drain boards is provided with notches 99 which receive the re-
 95 tainer clips 85 by means of which the chambers 78 and 79 are secured to the washing-compartment. These drain boards have depending retainer flanges 100 on their under sides at the four corners, which fit into the angles of the compartment and chamber on which the drain
 100 boards are used, thus preventing sliding movement of the same.

If desired, both the rinsing and bluing compartments may be made somewhat shallower
 105 than shown in Figs. 3 and 4, so that when they are nested one within the other, and the two placed within the washing-compartment, the upper edges of the same will be in planes beneath the upper edge of the washing-compartment, and
 110 after placing the smaller drain board 94 used on the rinsing chamber within the latter, while nested, and also placing the wringer within said rinsing chamber, the drain board 93 may be applied to the washing compartment so as to completely enclose the rinsing and bluing chambers, the drain board 94, and the wringer, as
 115 shown in Fig. 14.

While this invention is particularly adapted for washing clothes, it may be utilized as a dish
 120 washer, since it will only be necessary to insert suitable racks within the washing-compartment, such as usually employed in dish washers, for holding the dishes separated to allow the agitated water to reach all parts thereof. In that
 125 case, the side compartments will not be required.

Having thus described my invention, what I claim is:—

1. A washing machine, comprising a casing having a washing-compartment provided with
 130 an outwardly-extending reinforcing bead at its upper end, a chamber adjacent said washing-compartment having an inwardly-extending reinforcing bead, and retainer elements for said chamber embracing the upper ends of the walls
 135 of said washing-compartment and said chamber, each of said elements comprising a horizontal portion lying against the upper edges of said walls, a straight-lined depending end portion lying against the inner face of the wall of said
 140 washing compartment and a recurved opposite end wall encircling the inwardly-extending reinforcing bead of said chamber.

2. A washing machine, comprising a casing formed of sheet metal, a chamber adjacent said
 145 casing having an inwardly-extending bead at its upper end, and retainer clips having a horizontal intermediate portion lying against the upper edges of the walls of said casing and chamber, a depending portion at one end lying against the
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inner side of the wall of said casing and an embracing portion at its other end conforming to said inwardly-extending bead and engaging the same, said embracing portions serving to prevent disengagement of said retainer slips from said chamber.

3. A washing machine, comprising a casing having a rectangular upper portion and a segmental lower portion provided with a concaved bottom wall describing less than a semi-circle and being connected to the side walls of the upper portion by narrow horizontal ledges, a foraminous partition within said casing inclined downwardly and outwardly from a central point and having its opposite ends resting upon said ledges, an oscillating wing pivotally arranged within the segmental lower portion of said casing and having its center of oscillation above the plane of said ledge and its free end in slightly spaced relation to said concaved bottom, and means for actuating said oscillating wing.

4. A washing machine, comprising a casing having spaced vertical side walls and a concaved bottom wall describing less than a semi-circle and being connected to the lower ends of said side walls by narrow horizontal ledges, a foraminous partition in said casing inclined downwardly and outwardly in opposite directions from the vertical center of the casing and having its ends loosely resting upon said ledges, a shaft journaled in spaced walls of said casing in a plane above said ledges and extending through the same directly beneath the highest point of said foraminous partition, an oscillating agitator wing secured to said shaft and having its free edge slightly spaced from the concaved bottom wall of said casing, means for actuating said shaft to cause oscillation of said agitator wing so as to successively force water under pressure through the opposite end regions of said foraminous partition, and means within said casing to compel the major portion of water to be passed through said foraminous partition at the extreme end regions thereof.

5. A washing machine, comprising a casing having a concaved bottom describing less than a semi-circle, a foraminous partition within said casing spaced from said bottom and dividing the casing into a washing-compartment and an agitator chamber beneath said washing compartment, a shaft extending through said agitator chamber and having its axis coincident with the center from which said concaved bottom is described, an agitator wing secured at its upper end to said shaft and depending normally therefrom, and a baffle member resting upon the upper edge of said agitator wing and receiving sole support therefrom, said baffle member having opposite baffle wings positioned between said agitator wing and said foraminous partition to direct the major portion of the water through the end regions of said partition.

6. A washing machine, comprising a casing having a concaved bottom, a partition within said casing dividing the same into a washing-compartment and an agitator chamber, said partition having openings through at least its opposite end portions and being inclined downwardly and outwardly on opposite sides from the vertical axial center of said casing, a shaft extending through said casing beneath the apex of said partition, an agitator wing secured to said shaft at its upper edge and having its free lower end in slightly spaced relation to said concaved bottom, and a baffle element oscillatably mounted upon the upper edge of said agitator wing and having two

opposite downwardly and outwardly inclined baffle wings spaced from said bottom wall a greater distance than said agitator wing.

7. A washing machine, comprising a casing having a washing-compartment and an agitator chamber separated by a foraminous partition having opposite inclined portions, means in said chamber for agitating the water in the washing-compartment and for causing the clothes within said washing-compartment, aided by the inclined portions of said foraminous partition, to be turned over on the latter, and means within said washing-compartment to prevent the clothes at one side of the washing compartment from moving to the other side thereof.

8. A washing machine, comprising a washing-compartment, an agitator chamber beneath said washing-compartment, an agitating device within said agitator chamber, a foraminous partition separating said washing-compartment from said agitator chamber and inclined downwardly and outwardly from a central line, and a ledge extending upwardly into said washing-compartment from the apex of said foraminous partition.

9. A washing machine, comprising a casing having a washing-compartment and a segmentally shaped agitator chamber separated from said washing-compartment by a foraminous partition supported at opposite ends within said casing and inclined downwardly and outwardly from a central line, said partition having an upstanding flange at its apex serving to confine the clothing within said washing-compartment to one or the other side of the latter and said washing compartment having opposite vertically-disposed walls slightly offset with respect to the upper ends of the curved wall of said segmentally-shaped agitator chamber, and means within said agitator chamber aided by said partition to cause agitation of the water within said chamber and compartment and to move the clothing upwardly and inwardly towards said upstanding flange and cause said clothing at opposite sides of said flange to be turned over and moved downwardly along the inclined portions of said partition.

10. A washing machine, comprising a casing having a washing compartment and a mechanism chamber, whose wall describes less than a half circle, a segmental partition separating said compartment from said chamber and having a plurality of openings therethrough, a pivoted agitating device within said casing beneath said partition and having its center in a plane above the highest point of the wall of said mechanism chamber, and baffle means in said chamber between said agitating mechanism and said partition extending from said center towards said wall to cause the water to be forced upwardly by said agitating mechanism through the openings in the end portions of said partition, in contact with opposite side walls of said washing compartment, and thence inwardly toward the vertical center of said washing compartment to shift the wash on said partition and turn it over so as to present different articles being washed and different portions of the same articles to the openings in said partition.

11. A washing machine, comprising a casing having an upper portion provided with spaced opposite straight-lined vertical walls and a segmental lower portion having its curved wall defining no more than a half circle and being connected at its ends to said straight-lined vertical walls by narrow ledge walls, a foraminous inverted V-shaped partition separating said upper

portion from said lower portion and having opposite ends resting on said ledge walls, and mechanism within said lower portion aided by said V-shaped partition to cause water, when in said casing, to be forced upwardly and drawn downwardly alternately through opposite ends of said partition, said ledge walls being comparatively narrow and the curved wall of said lower segmental portion being in such relation to said side walls that the water forced upwardly through said foraminous partition is caused to travel in contact with said side walls and by the latter be directed inwardly and upwardly toward the vertical center of the casing, thence outwardly and downwardly away from said vertical center, and finally be drawn through said foraminous partition at the outer ends thereof.

12. A washing machine, comprising a casing to contain water and having a foraminous partition therein on which clothes to be washed are to be placed, agitating mechanism within said casing underneath said partition, baffle means carried by said agitating mechanism extending in opposite directions beneath said partition and having its ends spaced from the wall of said casing to cause the direct passage of water through the end portions of said partition only under pressure created by said agitating mechanism.

13. A washing machine, comprising a casing having a washing-compartment and a segmental chamber beneath said washing-compartment separated by a partition having openings there-

through, agitating mechanism within said segmental chamber, and baffle means also in said chamber extending from a medial plane laterally towards the wall of said chamber providing restricted water passages adjacent said wall for causing the water to pass directly through the end portions of said partition under action of said agitating mechanism and travel along the lower portions of the side walls of said washing-compartment to cause clothes resting on said partition to be turned and moved along said partition from a medial plane outwardly in opposite directions, said agitating mechanism alternately drawing water through the meshes of the clothes and the openings in said partition and forcing water through said openings.

14. A washing machine, comprising a casing separated into two superposed parts by a foraminous partition, the lower of said superposed parts having a wall describing a segment of a circle less than a semi-circle, an oscillating water agitator within said lower part having its center of rotation coincident with the center for said segmental wall and forcing water along said segmental wall, and a baffle extending in opposite directions from the plane of the center of said agitator towards said segmental wall and having its ends spaced from said wall to provide restricted water passages between the two and to cause water to be forced directly through the end portions of said foraminous partition.

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