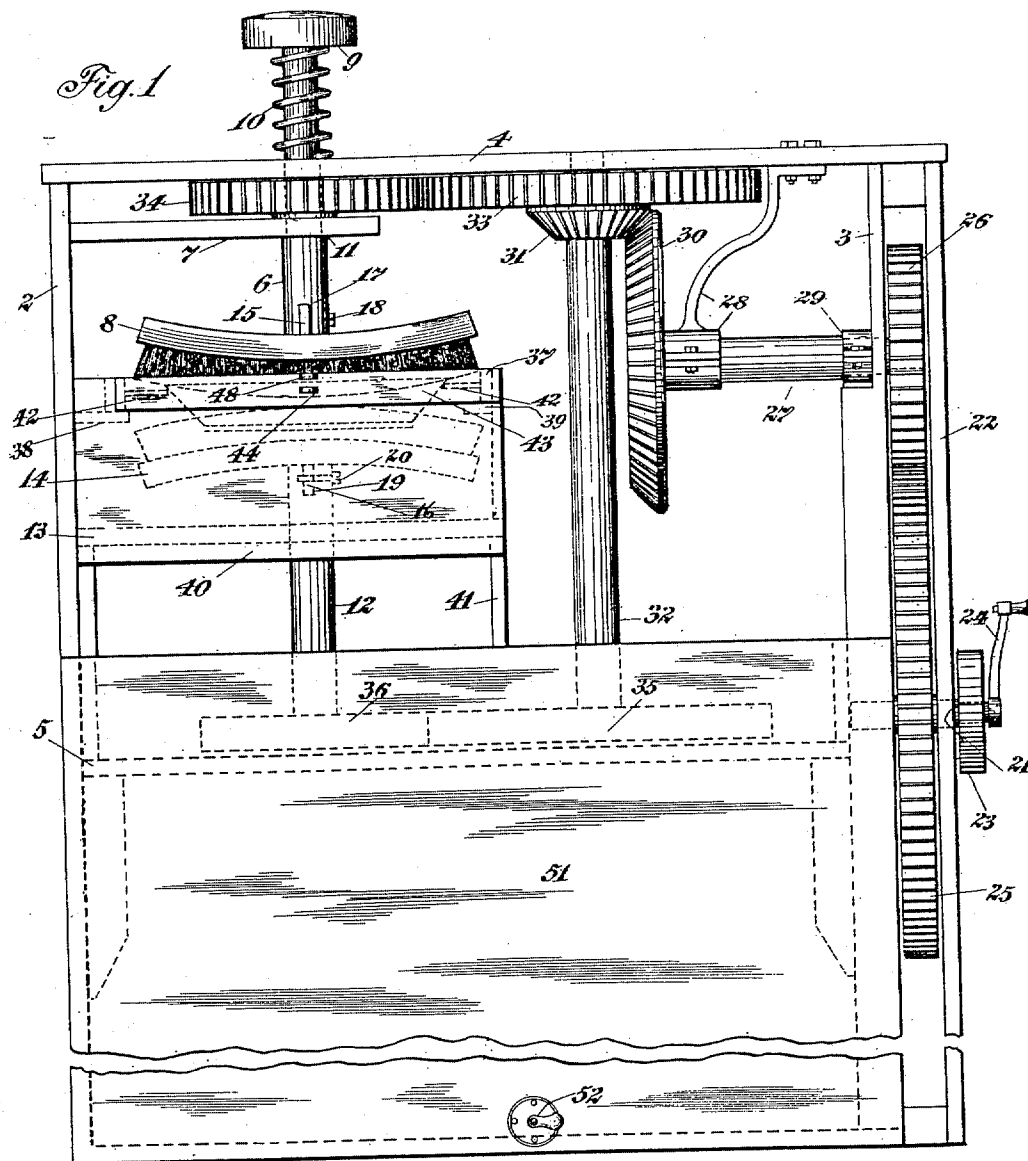


A. PANASCI.
DISH WASHING MACHINE.
APPLICATION FILED FEB. 25, 1907.

981,221.

Patented Jan. 10, 1911.

4 SHEETS—SHEET 1.



Witnesses:
Edward H. Kline
A. W. Young

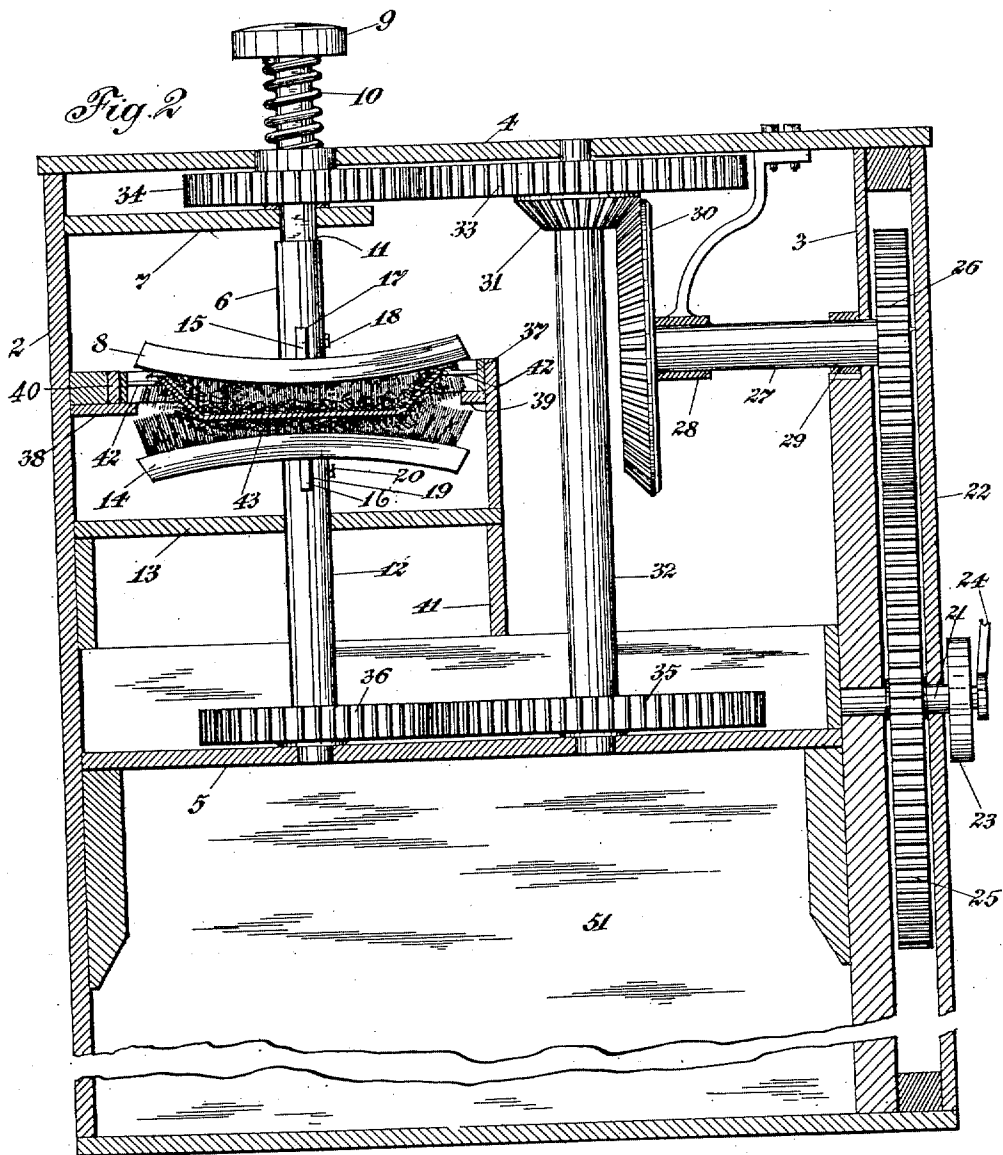
Inventor:
Angelo Panasci
By- Albert C. Tanner
Atty.

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4 SHEETS—SHEET 2.

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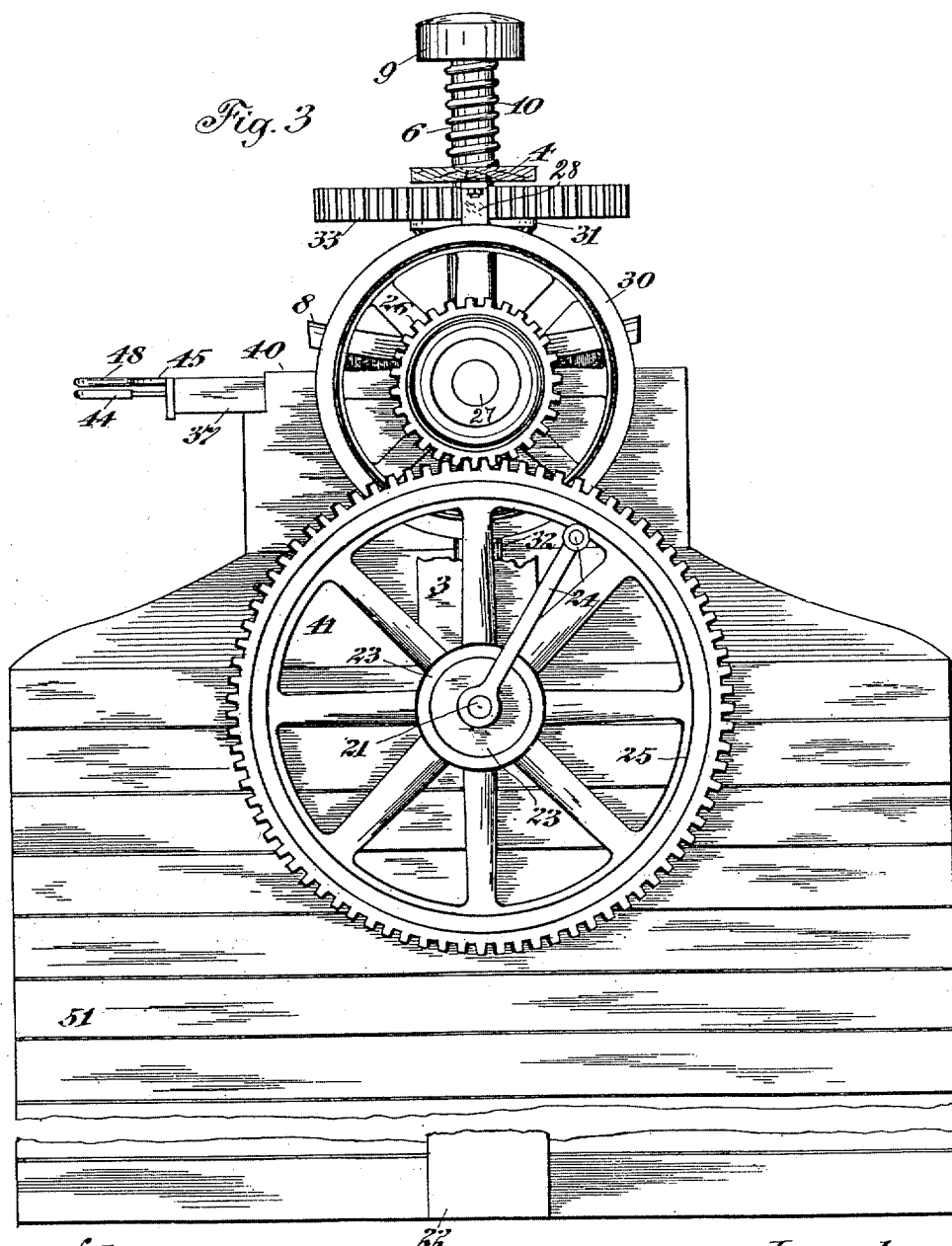


Witnesses:
Edward L. Bloom
A. W. Young

Inventor:
Angelo Panasci
By - Albert C. Tanner
Att'y.

981,221.

4 SHEETS—SHEET 3:



Witnesses:
 Conrad M. Baum
 J. W. Young.

Inventor
Angelo Panasci
By Albert C. Tanner
Att'y

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4 SHEETS—SHEET 4.

Fig. 4

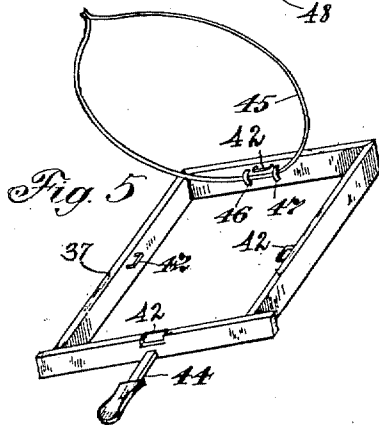
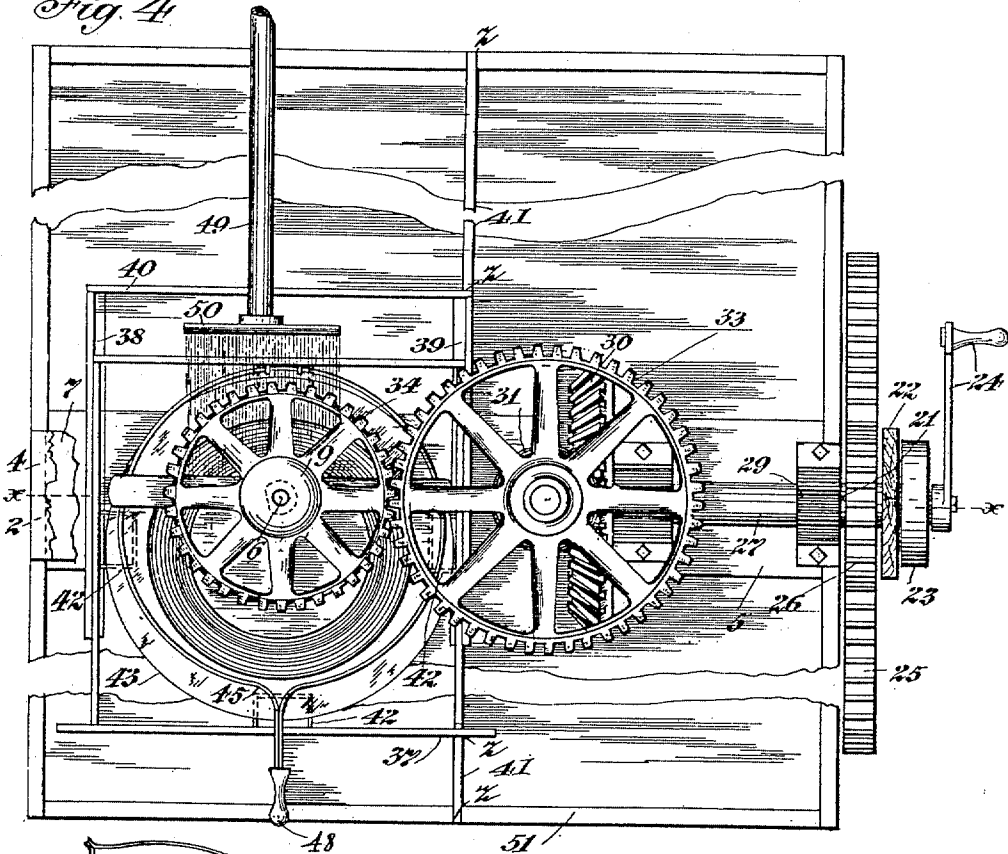
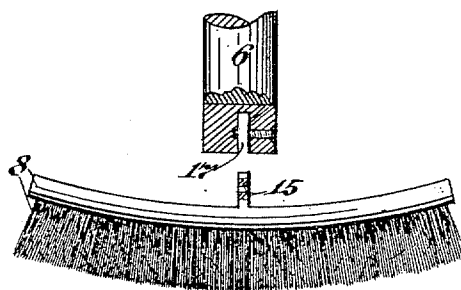


Fig. 6



Witnesses:
Lowell L. Palmer
J. W. Young.

Inventor:
Angelo Panasci.
By Albert C. Tanner
Atty.

UNITED STATES PATENT OFFICE:

ANGELO PANASCI, OF PHILADELPHIA, PENNSYLVANIA.

DISH-WASHING MACHINE.

981,221.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed February 25, 1907. Serial No. 359,213.

To all whom it may concern:

Be it known that I, ANGELO PANASCI, a subject of the King of Italy, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dish-Washing Machines, which improvements are fully set forth in the following specification.

10 This invention relates to improvements in constructions of that class commonly known as dish-washing machines, the same being availed of for subjecting dishes and similar utensils to a cleansing operation.

15 The object of this invention is to provide a dish-washing machine which shall be simple, compact and inexpensive as regards construction; durable, efficient, speedy and reliable in practical service; which shall embody novel features of construction whereby, and when desired by the user, the opposite sides of a dish, or similar utensil, may be directly and uniformly treated at one and the same time; which shall be convenient in its application to practical purposes; and which shall possess certain well-defined advantages over prior analogous constructions.

20 The invention consists in the novel combinations, details and parts whereby, together with the novel relative disposition of said parts, the attainment of the foregoing object is rendered practicable, all of which will be more specifically referred to hereinafter and set forth in the appended claims.

25 The invention is clearly illustrated in the accompanying drawings, wherein like reference-numerals denote corresponding parts throughout the several views, and as to the latter:

30 Figure 1 is a front elevation of a dish-washing machine embodying my said improvements. Fig. 2 is a central, vertical section of same, as along the line $x-x$ of Fig. 4. Fig. 3 is a side elevation of same, with outer side bearing-piece removed. Fig. 4 is a plan view thereof, a portion of the top cross piece being broken away. Fig. 5 is a detail perspective view showing detached the dish-carrier which I purpose making use of. Fig. 6 is a detail view showing features of construction whereby the wipers made use of are each replaceably con-
50 joined with its actuating shaft.

In a general sense my present invention comprises a rotatable wiper; means for actuating the same; and a dish-carrier, the latter

movable into and out of the plane of movement of said wiper.

It further comprises, in a general sense, a pair of wipers facing each other and rotatable in adjacent, parallel planes; means for jointly actuating said wipers; and a dish-carrier, the latter movable simultaneously into and out of the respective planes of movement of said wipers.

65 In carrying out my invention, reference being had to the accompanying drawings, I make use of a tank, having uprights 2, 3, rising therefrom at opposite sides thereof, and connected at their upper ends by a cross-piece 4, a similar cross-piece 5, arranged parallel with the cross-piece 4, beneath the same and spanning said tank, by preference interiorly thereof, being employed, these parts being relatively secured in position in any common and well known manner, and so as to give substantial rigidity to the frame structure thus formed.

6 denotes a primary wiper-shaft, projecting downwardly through, and terminating somewhat below, the cross-piece 4, with respect to which said shaft is movable both rotarily and longitudinally. As an additional bearing for the shaft 6, and to insure the steady movement thereof with respect to a definite axis, I provide a bracket 7, secured to and projecting inwardly from the upright 2. There is replaceably conjoined with the wiper-shaft 6, at its lower extremity, a wiper 8, here shown as having the specific character of an elongated, somewhat downwardly bowed brush. It will be observed that when shaft 6 is rotated, the wiper 12 normally rotates in a definite horizontal plane, but the horizontal plane of movement thereof may, since the shaft 6 admits of being longitudinally adjusted, be somewhat varied, and for a purpose which will be hereinafter more particularly explained. The shaft 6 is further provided, at its upper extremity, with a hand-piece or knob 9, between which and the cross-piece 4, there is disposed a spiral spring 10, which encircles said shaft and tends at all times to elastically hold the same at the limit of its upward, longitudinal movement. Any appropriate means may be employed for limiting the upward longitudinal movement of shaft 6, although to this end I purpose to reduce the upper portion of said shaft, thereby providing the same with a shoulder 11, which normally engages the

bracket 7, at its under side, all substantially as clearly indicated in the drawings.

12 denotes a secondary wiper-shaft, which bears at its lower end in the cross-piece 5, and at its upper portion in a bracket 13, secured to, and projecting inwardly from, the upright 2. There is replaceably conjoined with the shaft 12, at its upper extremity, a wiper 14, here shown as having the specific character of an elongated, somewhat upwardly bowed brush. It will be observed that when shaft 12 is rotated, the wiper 14 rotates in a definite, horizontal plane; also that the respective shafts 6 and 12 are arranged in axial alinement and that one is adjustable toward and away from the other, to the end that the wipers 8 and 14 may be varied with respect to the distance between them.

Specifically, each of the wipers aforementioned comprises a rigid portion or back and a flexible portion, the latter taking the character of bristles, or any suitable material yielding or displaceable under pressure, substantially as illustrated in the drawings; and said wipers are arranged each with its yielding portion facing the yielding portion of the opposite one. Again, each of said wipers is provided with a tongue projecting medially from the rigid portion thereof, said tongues being denoted, respectively, by the numerals 15, 16, and being adapted, the former to enter a slot 17, formed in the lower end of shaft 6, where it is held in any appropriate manner, as by means of the fastening screw 18, and the latter to enter a corresponding slot 19, formed in the upper end of the shaft 12, where it is held in any appropriate manner, as by means of the fastening screw 20. It will be observed, in this connection, that the respective wipers may be readily detached, each from its cooperating shaft, and replaced by another varying in the matter of size or bowed form.

Attention is here called to the facts that shaft 6 may be rotated in either direction; that shaft 12 may be rotated in either direction; and that the said shafts taken together may be relatively rotated in the same direction, and may vary in the matter of speed of rotation; and in this connection any appropriate mechanism may be employed to accordingly actuate the shaft 6, or accordingly actuate the shafts 6 and 12 jointly.

For rotating the shaft 6 in a definite direction I purpose to make use of a train of gearing which will now be described:

22 denotes an upright bearing-piece, arranged at one side of the tank aforementioned and spaced somewhat away from the adjacent wall thereof; and 21 denotes an initial driving-shaft, journaled in said wall and the bearing-piece aforementioned, and project-

ing somewhat outwardly beyond the latter to receive any appropriate device, as the pulley 23, or crank 24, whereby power and motion may be primarily imparted to said shaft.

25 denotes a driving spur-wheel, fast on the shaft 21, between the bearing-piece 22 and the wall of the tank aforementioned adjacent thereto, and in mesh at all times with a pinion 26, fast on a counter-shaft 27, the latter turning in the bearings 28, 29, and having fixed thereon, at its inner end, a bevel-wheel 30, in mesh at all times with the bevel-pinion 31, fast on the intermediate, vertical shaft 32, the latter bearing at its lower end in the cross-piece 5, and at its upper end in the cross-piece 4. There is also firmly mounted on the vertical shaft 32, above the bevel-pinion 31, a spur-wheel 33, which is in mesh at all times with a spur-pinion 34, preferably having a hub as indicated in Fig. 2, bearing in the cross-piece 4, and disposed on the wiper-shaft 6 in a manner to turn therewith as a unit, and at the same time permit longitudinal adjustment of said shaft independently thereof. In this connection the shaft 6 may be flattened at one or more sides thereof, and the central opening in said pinion, and its hub, correspondingly shaped, substantially as indicated in the drawings. It will accordingly be seen that upon power and motion being imparted to the driving-shaft 21, such power and motion will be transmitted to the wiper-shaft 6, through the medium of the intermediate train of gearing above described, the wiper 8 being accordingly rotated. Now, to the end that the wiper 19 may be correspondingly rotated, I firmly mount on the vertical shaft 32 an additional spur-wheel 35, which is in mesh at all times with a spur-pinion 36, fast on the wiper-shaft 12.

It is desirable that means be provided whereby a dish, or analogous utensil, may be inserted into, and withdrawn from the plane of movement of the wiper 8, or inserted simultaneously into and withdrawn from the respective planes of movement of the wipers 8 and 14; and to this end I purpose to make use of a dish-carrier, clearly shown in Fig. 5, consisting of opposite connected side and end pieces, and as a whole adapted to engage, slide along and rest on the opposite rails 38, 39, arranged within and at the opposite sides of the stationary, dish-carrier frame 40, the latter consisting of suitable, connected side and end pieces, and as a whole firmly connected, through the medium of one of its side pieces, to the upright 2, and sustained at its opposite side in any appropriate manner, as by means of a support 41, rising from the cross-piece 5. The carrier 37 is quadrangular in general form, open at top and bottom, readily displaceable by a sliding movement from the

rails 38, 39, and provided with dish-sustaining clips 42, one medially along each of its side and end pieces, and relatively disposed so as to be engaged by the margin of a dish, as 43, or other utensil, placed in the carrier 37 preparatory to cleansing the same, said clips thus serving to prevent the dish from falling through said carrier. The clips 42 may be each of any suitable general form, constructed of any suitable material, and secured to its cooperating part of the carrier 37 in any convenient manner. The carrier 37 is preferably provided with a stationary handle 44, and also with a dish-retainer 45, the latter being preferably formed from wire, substantially circular in general form, hinged, as at the points 46, 47, to the distant end piece of the carrier 37, and looped or shaped at its forward side to form integrally therewith a handle 48, the same to be grasped jointly with the stationary handle 44, when the user desires to press the dish-retainer aforementioned downwardly in the direction of the clips 42, and accordingly hold a dish, as 43, between said retainer and said clips, the holding force thus applied to the dish being elastic.

It is essential that means be provided whereby the wiper or wipers made use of, and while in operation, may be sprayed with, or otherwise subjected to, a cleansing fluid, as hot or cold water. This may be accomplished in various well known ways, as by means of a pipe 49, leading from any general supply of cleansing fluid, and having a sprinkler 50 at its discharge end, said pipe and its sprinkler being arranged to direct the cleansing fluid escaping therefrom against said wiper or wipers; and to receive such cleansing fluid after it shall have served its purpose in conjunction with said wiper or wipers, any appropriate vessel or tank, as 51, may be provided, said tank having a drain-off faucet or pipe 52.

In operation, power and motion is primarily imparted to the driving-shaft 21, and is transmitted therefrom to the wiper or wipers of the machine through the medium of the intermediate train of gearing hereinbefore described, said wiper or wipers being subjected to a cleansing fluid, as hereinbefore explained; whereupon the operator takes the carrier 37, with the dish to be cleansed contained therein, and presents said carrier to and slides it along the rails 38, 39, until said dish is brought into the plane of movement of said wiper, or simultaneously into the planes of movement of said wipers, when both are employed, thereby allowing said wiper or wipers to act on the dish. Now, if a more severe wiping action is desired on, say, the upper side of said dish, the operator grasps the knob 9 and presses downwardly thereon, thereby accordingly adjusting longitudinally the shaft 6,

so as to bring the flexible portion of its wiper 8 more strongly against said dish. When the dish shall have been duly subjected to this cleansing operation, the carrier 37 is withdrawn forwardly along the rails 38, 39, the dish removed therefrom, and another dish to be cleansed substituted for the cleansed dish; whereupon the carrier 37 is again urged or slid into its normal position for service on the rails 38, 39, and so on.

It will be understood that the rails aforementioned are so relatively disposed with respect to the wiper or wipers of the machine as to bring the dish contained in the carrier aforementioned, and when the latter is duly positioned on said rails, into the plane of movement of said wiper, or the planes of movement of said wipers when both are employed.

It will be seen that my improved machine is particularly well adapted for the purposes for which it is intended, and further that the same may be modified to a considerable extent, particularly as regards the mechanism availed of for imparting power and motion to the wiper-shaft or wiper-shafts, the specific character of the dish-carrier made use of, and various other minor details of the general construction, without materially departing from the spirit and principle of my invention.

I claim:

1. In a dish-washing machine, in combination with a tank having uprights arranged at opposite sides thereof, a cross-piece extending horizontally from one of said uprights to the other and connecting the two; a bracket attached to and projecting horizontally from one of said uprights, somewhat beneath and in line with said cross-piece; a vertical wiper-shaft, having its upper portion reduced to form an annular shoulder, which reduced portion projects upwardly first through the bracket aforementioned and thence through and beyond the cross-piece aforementioned, for movement both rotarily and longitudinally jointly in said bracket and cross-piece, and the annular shoulder aforementioned serving, when brought into engagement with said bracket, to limit the upward movement of said wiper-shaft; a hand-piece attached to said shaft at its upper extremity; a spiral spring, disposed between said hand-piece and said cross-piece, encircling said shaft, and tending to yieldingly hold the same to the limit of its upward movement; a wiper detachably mounted on said shaft at its lower extremity; a rectangular dish-carrier frame, arranged horizontally with its central portion somewhat beneath and in line with said wiper, and provided interiorly with opposite, parallel rails; a rectangular dish-carrier, adapted to engage and slide to and fro

along said rails, the latter being so disposed relatively to said wiper-shaft as to enable said dish-carrier, when positioned on said rails, to sustain a dish to be cleansed within the range of downward movement of said wiper, under depression of said wiper-shaft; means for subjecting said wiper to a flow of cleansing fluid; and means for duly rotating said wiper-shaft.

2. In a dish-washing machine, in combination with a tank having uprights arranged at opposite sides thereof, a cross-piece extending horizontally from one of said uprights to the other and connecting the two; a bracket attached to and projecting horizontally from one of said uprights, somewhat beneath and in line with said cross-piece; a vertical wiper-shaft, having its upper portion reduced to form an annular shoulder, which reduced portion projects upwardly first through the bracket aforementioned and thence through and beyond the cross-piece aforementioned, for movement both rotarily and longitudinally jointly therein, and the annular shoulder aforementioned serving, when brought into engagement with said bracket, to limit the upward movement of said wiper-shaft; a hand-piece attached to said shaft at its upper extremity; a spiral spring disposed between said hand-piece and said cross-piece, encircling said shaft, and tending to yieldingly hold the same to the limit of its upward movement; a

wiper detachably mounted on said shaft at its lower extremity; an additional wiper-shaft, journaled to rotate beneath and in axial alinement with the wiper-shaft first above specified; a wiper detachably mounted on said additional wiper-shaft, at its upper extremity; a rectangular dish-carrier frame, arranged horizontally between the respective wipers aforementioned, and provided interiorly with opposite, parallel rails; a rectangular dish-carrier, adapted to engage and slide to and fro along said rails, the latter being so disposed relatively to the respective wipers aforementioned, as to enable said dish-carrier, when positioned on said rails, to sustain a dish to be cleansed more or less within the plane of movement of the wiper mounted on said additional wiper-shaft, and also within the range of downward movement of the wiper mounted on the wiper-shaft first above specified, under depression of the latter, and whereby the opposite faces of a dish thus sustained by said dish-carrier may be treated at one and the same operation; means for subjecting said wipers simultaneously to a flow of cleansing fluid; and means for simultaneously rotating said wiper-shafts.

ANGELO PANASCI.

Witnesses:

THOMAS ANDROY,
L. A. TAULANE.