J. LUTOLF.

DISH WASHING APPARATUS.

APPLICATION FILED APR. 27, 1918.

1,285,272.

Patented Nov. 19, 1918.

2 SHEETS—SHEET 1.

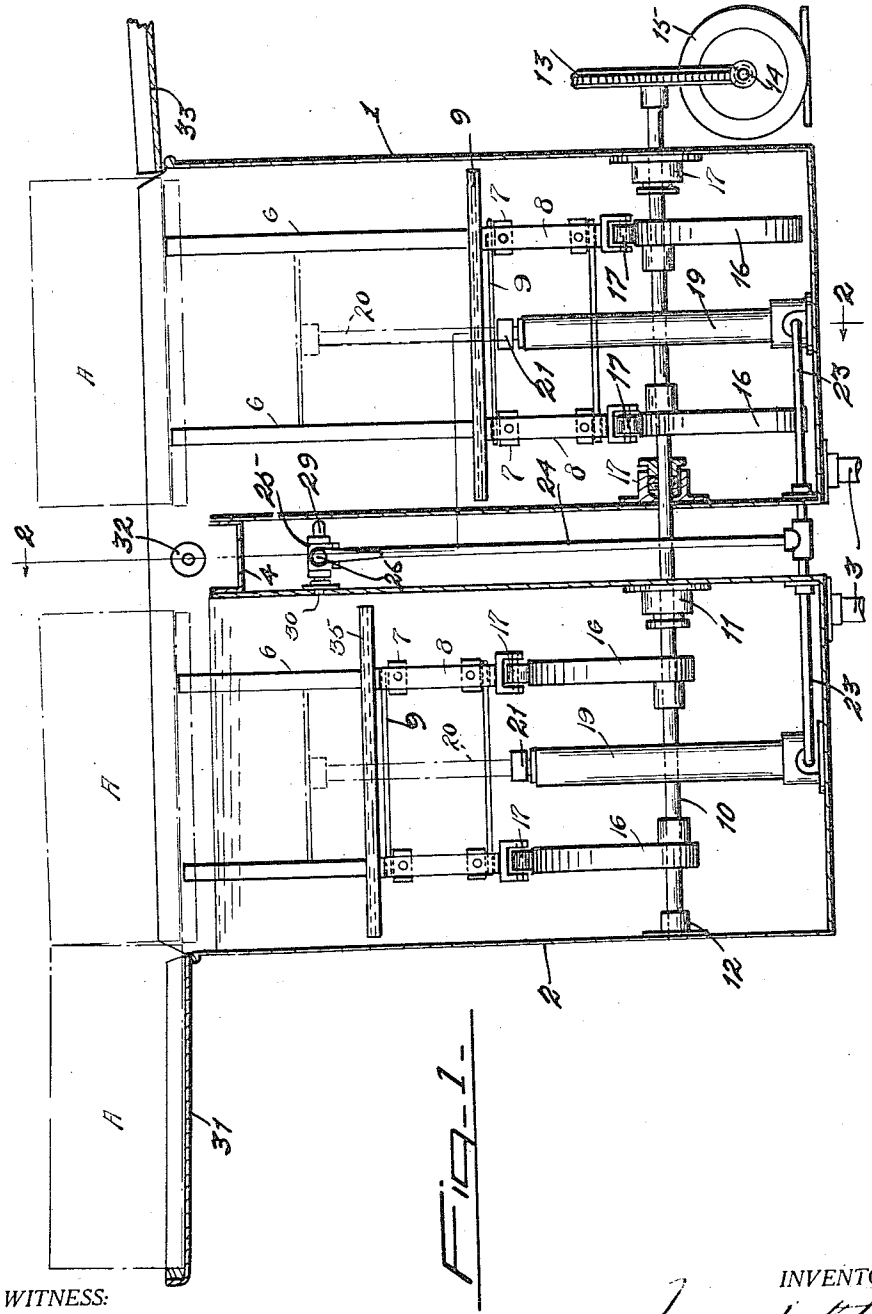


Fig. 1.

WITNESS:

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2 SHEETS—SHEET 2.

Fig. 3.

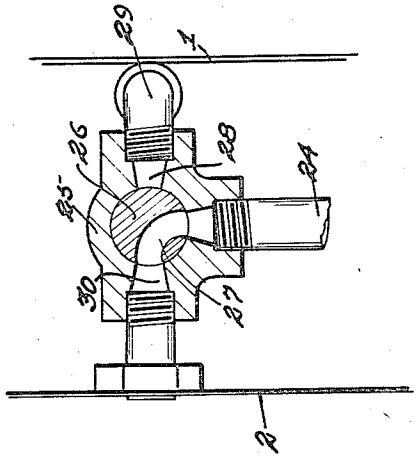
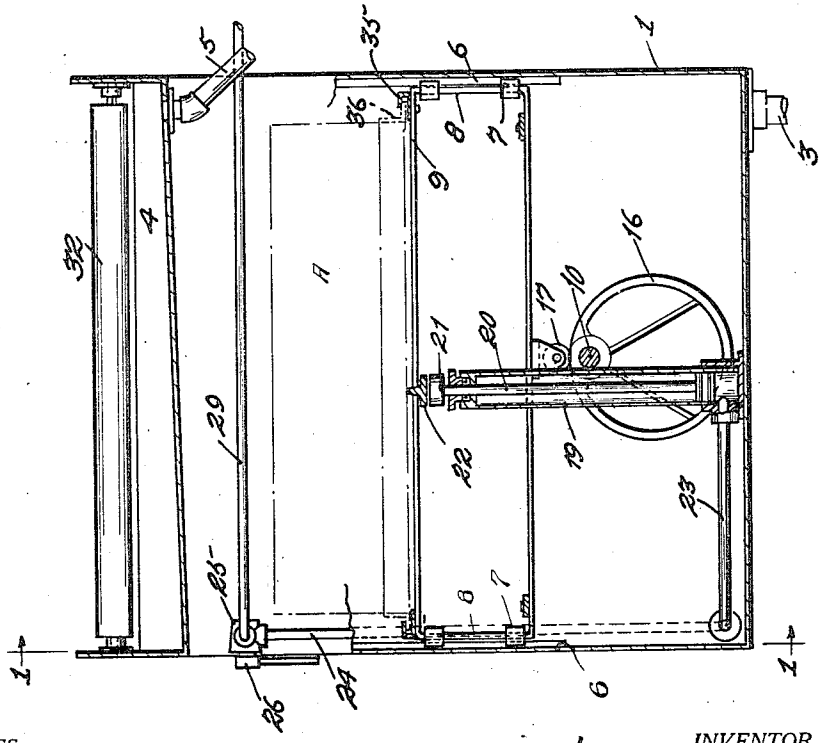


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOSEPH LUTOLF, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO SWISS MANUFACTURING COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF NEVADA.

DISH-WASHING APPARATUS.

1,285,272. Specification of Letters Patent. Patented Nov. 19, 1918.

Application filed April 27, 1918. Serial No. 231,214.

To all whom it may concern:

Be it known that I, JOSEPH LUTOLF, a citizen of Switzerland, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Dish-Washing Apparatus, of which the following is a specification.

The present apparatus relates to improvements in dish washing machines, and has for its principal objects to provide a simple apparatus wherein the dishes are subjected to a rapid reciprocating movement in a vertical plane during the washing thereof; one wherein the reciprocating movement is imparted by mechanical means; one wherein the dishes are lifted from the interior of the apparatus by hydraulic means, the water from said means discharging into the rinsing receptacle and providing a fresh supply therefor, and one wherein there is provided separate receptacles for washing and rinsing the dishes.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein—

Figure 1 is a view in vertical section of the preferred embodiment of my invention.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view of the controlling valve for the hydraulic basket lifting apparatus.

Referring more particularly to the several views of the drawings, wherein like characters of reference indicate corresponding parts, 1 and 2 designate the respective washing and rinsing tanks arranged adjacent to each other and each provided with an open top and formed at its base with a controlled drain pipe 3. The adjacent edges of the tanks 1 and 2 are slightly lower than the surrounding edges, and are connected by a drain or trough 4 having an outlet 5 and adapted to receive the overflow from the tank 2. The tanks are each formed on their interior with the vertically disposed frame guide rails 6 with which coöperate the frame guide brackets 7 secured to the vertical members 8 of each rectangular frame 9, one of which is positioned within each tank and is capable of vertical reciprocation therein.

Extending transversely through the tanks 1 and 2, adjacent their bases, is a rotatable shaft 10 supported at points wherein the same passes through the walls of said tanks by gland bearings 11 and at its end by a cup bearing 12 within the tank 2. The free end of the shaft carries a gear 13 intermeshing with a pinion 14 on the armature of a motor 15, the operation of which imparts rotation to said shaft.

Carried by the shaft within each of said tanks is a pair of cams 16, the cams of the respective tanks being arranged at diametrically opposite points on said shaft, as in Fig. 1. The frames 9 are each provided with anti-friction rollers 17 for resting on the periphery of the cams 16, as in the drawings, and the rotation of said shaft causes a reciprocation of the respective frames within their respective tanks.

Positioned within each tank beneath the respective trays is a cylinder 19 having mounted therein a piston 20 adapted when retracted within their respective cylinders to lie with their head ends 21 at a point below the lowest limit of travel of the brace 22 of the respective frames, said pistons being capable of a sufficient stroke to elevate the upper surface of the frame to a point level with the upper edges of the respective tanks. Communicating with the base of each cylinder is a pipe 23 which leads from a pipe 24 carrying at one end a three-way connection 25 within which is mounted a plug valve 26 formed with a curved bore 27 adapted to register with adjacent bores

of the three-way connection on the rotation thereof. The bore 28 of the connection 25 connects with a water supply 29 under pressure and the bore 30 communicates with the water of the rinsing tank 2.

When it is desired to position the dish baskets on or remove the same from the trays, the valve 26 is operated to admit water under pressure into the cylinders 19 which raises the plungers to simultaneously elevate the trays to the dotted line position, as in Fig. 1. The valve is next rotated to a position, as in Fig. 3, at which time the weight of the trays causes a depressing of the plungers, which expel the water contained within the cylinders into the rinsing tank 2, permitting the rollers 17 to rest on the cams 16 at which time the baskets containing the dishes are submerged within the water in their respective tanks and on the rotation of the shaft are reciprocated within said water.

When it is desired to remove the basket of washed dishes from tank 2 and to change the basket from tank 1 into tank 2, the trays are first elevated, as herebefore explained, the basket on the tray associated with tank 2 is slid therefrom onto the runway 31, the basket on the tray associated with tank 1 is slid therefrom over the roller 32 onto the tray associated with tank 2 and a basket of soiled dishes is slid onto the tray associated with tank 1 from the slide 33. The valve 26 is then rotated to permit the bearing rollers 17 to rest on the cams, after which the motor is operated causing a rapid reciprocation of the baskets containing the dishes within the water in the respective tanks.

It will be apparent that the soiled dishes are first subjected to a reciprocation in hot soapy water and are thence transferred into the tank containing hot rinse water and are subjected to further reciprocation. By discharging the water from the cylinders into the tank 2, the water in said tank is maintained fresh and that displaced therefrom and carrying the grease which floats toward the surface thereof passes from the trough 4. If desirable, the trays may be provided with flanged guides 35, or any other suitable means, for receiving the flanges 36 on the base of the dish holding baskets.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A dish washing apparatus including an open topped tank for containing a washing fluid, a dish holding basket supporting frame within said tank and mounted for vertical reciprocation therein, a rotating cam within said tank and coöperating with said frame for imparting reciprocating movement thereto, and means operated by hydraulic pressure within said tank and capable of operation to elevate the frame without the sphere of said cam and above the fluid level in said tank to enable the baskets to be positioned thereon and removed therefrom.

2. A dish washing apparatus including independent open topped washing and rinsing tanks, each adapted for containing a fluid, a dish holding basket supporting frame within each of said tanks and mounted for vertical reciprocation therein, a cam within each of said tanks and coöperating with the respective frames to impart vertical reciprocation thereto, means operated by hydraulic pressure within each of said tanks and capable of operation for the simultaneous elevation of said frame to a point above the fluid level within the respective tanks to enable baskets to be positioned thereon and removed therefrom, means for directing the fluid from said hydraulic means on the lowering of said frames into said rinsing tank, and an overflow leading from said rinsing tank.

3. A dish washing apparatus including independent open topped washing and rinsing tanks, each adapted for containing a fluid, a dish holding basket supporting frame within each of said tanks and mounted for vertical reciprocation therein, a rotatable shaft extending horizontally through said tanks, a cam carried by said shaft within each of said tanks and on the peripheral edges of which said frames rest, the cams in adjacent tanks being disposed on opposite sides of said shaft, means connected for operating the shaft to cause a vertical reciprocation of said frames, and independent means for raising said frames within said tanks to position the frames adjacent the upper edge of said tanks to enable the baskets to be positioned on the frames and removed therefrom.

4. A dish washing apparatus including an open topped tank for containing a fluid, an open dish holding basket supporting frame mounted within said tank for vertical reciprocation therein, means for guiding said frame in its movement within said tank, a rotatable cam within the base of said tank and on the periphery of which said frame rests, means for operating said cam for vertically reciprocating said frame within said tank, a fluid operated plunger within said tank below said frame, and valve controlled connections for supplying a fluid under pressure to said plunger to operate the same to lift said frame from said cam and elevate the same to a point adjacent the upper edge of said tank.

5. A dish washing apparatus including an open topped tank for containing a fluid, an open dish holding basket supporting frame mounted within said tank for vertical reciprocation therein, means for guiding said frame in its movement within said tank, a rotatable cam within the base of said tank and on the periphery of which said frame

rests, means for operating said cam for causing a vertical reciprocation of said frame within said tank, and means operated by hydraulic pressure for raising said basket supporting frame from the peripheral surface of said cam.

In testimony whereof I have signed my name to this specification in the presence of a subscribing witness.

JOSEPH LUTOLF.

Witness:
HARRY A. TOTTEN.