A. SMITH.

DISH WASHER.

APPLICATION FILED AUG. 8, 1913.

1,176,866.

Patented Mar. 28, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

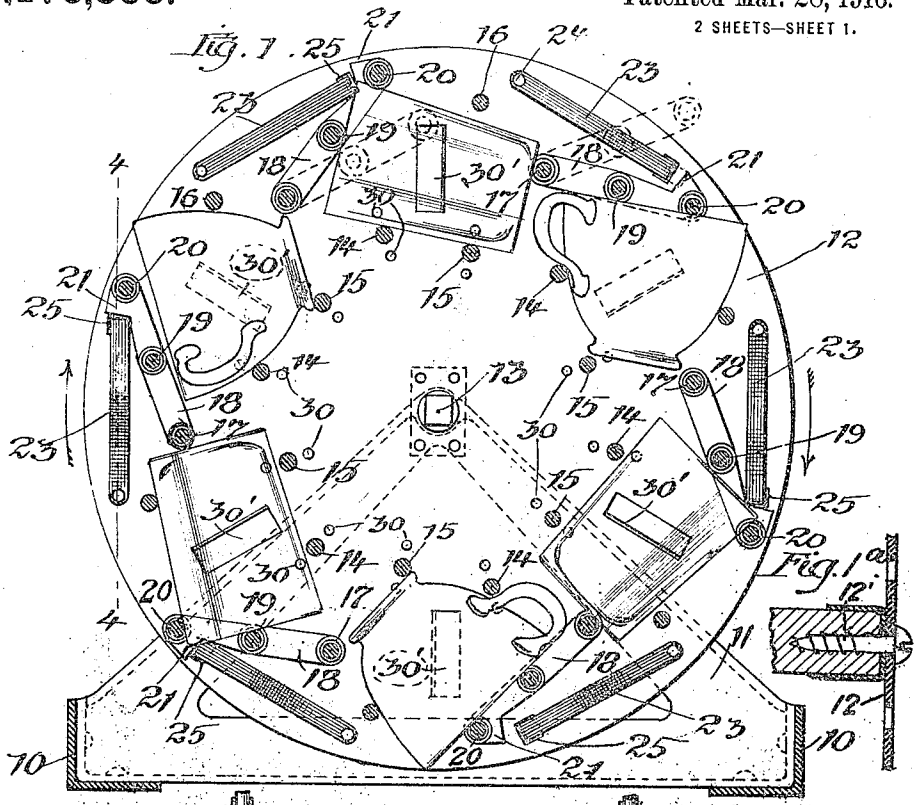
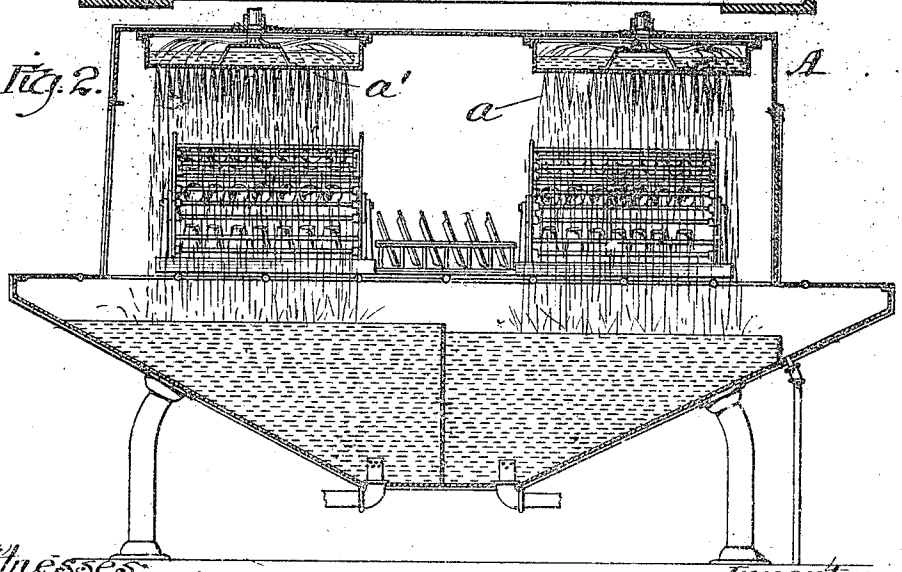


Fig. 1a.

Fig. 2.



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2 SHEETS—SHEET 2.

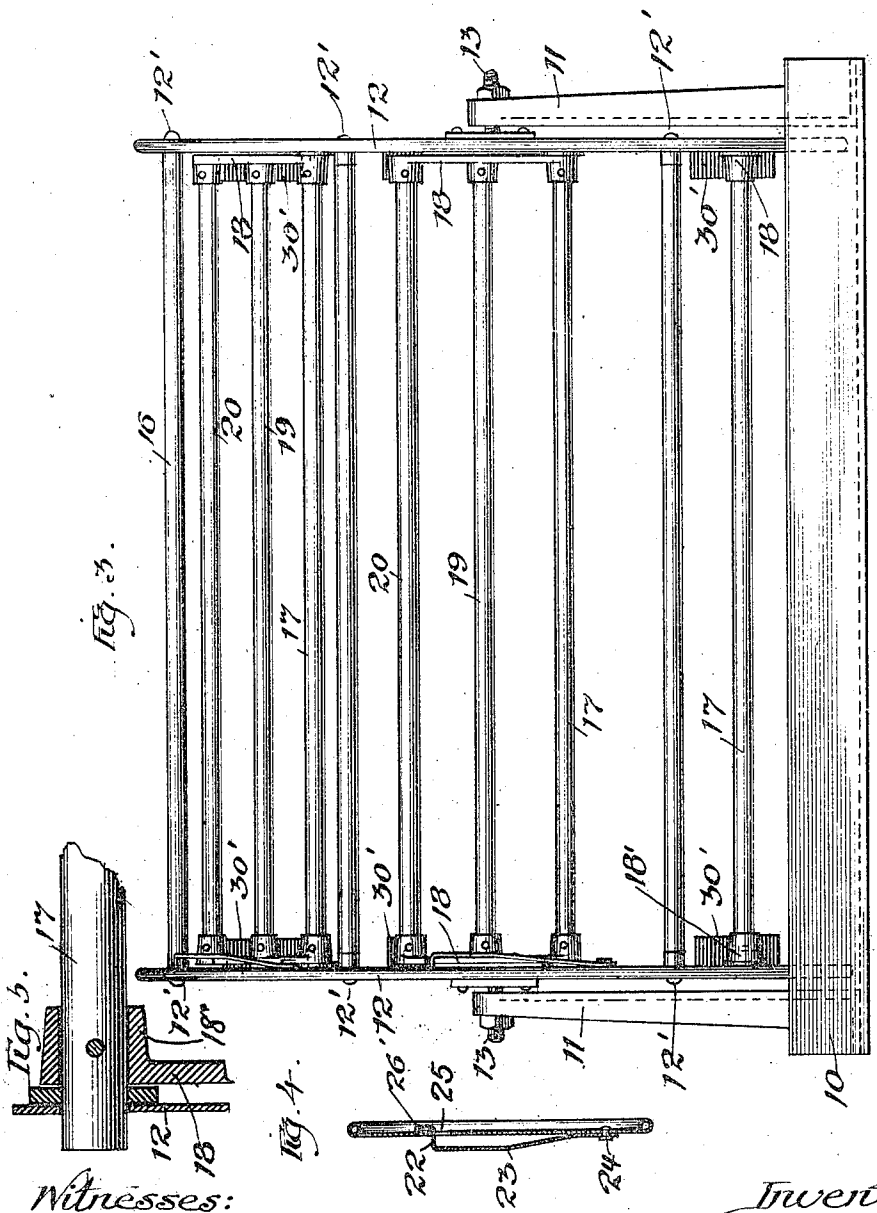


Fig. 3.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

ANDREW SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR TO ALBERT PICK & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DISH-WASHER.

1,176,866. Specification of Letters Patent. **Patented Mar. 28, 1916.**

Application filed August 8, 1913. Serial No. 783,776.

To all whom it may concern:

Be it known that I, ANDREW SMITH, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dish-Washers, of which the following is a full, clear, and exact description.

The invention relates to dish-washers and more particularly to racks for holding cups, tumblers and other hollow-ware in transit through a washing-machine.

It is now common, for example, in the use of the dish-washing machine set forth in Letters Patent No. 1,029,541, dated June 11, 1912, to place the dishes on racks which are pushed longitudinally in succession through the dish-washing machine in which they pass under showers to clean and rinse them, without moving in the racks. In washing hollow ware, such as cups and tumblers, it has been customary to place them in racks and at such an angle that water from the shower would splash or flow into and out of them. In this practice, however, it sometimes occurs that both the inside and outside of the dishes would not be fully cleaned and rinsed, because some part of the dishes would not be directly exposed to the shower.

The present invention designs to provide an improved rack in which the dishes will be held and which will be automatically rotated by the shower, so that when they are at one side of the rack they will receive and retain the water and on the other side they will be inverted to expose the underside directly to the shower. In this manner, very thorough washing is attained, and rotation is automatically effected.

The invention also designs to provide a rack for dish-washing machines of improved construction.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Figure 1 is a vertical transverse section of a rack embodying the invention. Fig. 1ª is a detail sectional view of one of the fixed cross-rods. Fig. 2 is a vertical section of a washing-machine with racks embodying the invention therein. Fig. 3 is a side-elevation of one of the racks. Fig. 4 is a section taken on line 4—4 of Fig. 1. Fig. 5 is a detail sectional view of one of the pivoted cross-rods.

Each rack comprises a frame which is adapted to be pushed longitudinally through the dish-washing tank A and successively under showers *a* and *a'*. Usually these racks are successively forced through the machine, so that one will push all those ahead of it through the exit end of the machine. Each frame comprises angle-bars 10 at the sides thereof and end-brackets 11 which are rigidly secured to, and connect the ends of side-bars 10 to form a rigid frame in which a rotating dish-holder is mounted. The rotating holder comprises a pair of end-disks 12 each of which is provided with a stud 13 which is journaled in one of the end-brackets 11 so that it will be free to revolve. Plural sets of bars, usually formed of wood and round in cross-section, extend between and are secured in disks 12 by screws 12', so that the disks will be connected together thereby and will revolve together. These bars are disposed to form open-troughs adapted to hold hollow-ware, such as cups, tumblers and bowls, and to hold them against rotation relatively to the holder. Each set of bars is adapted to contain a row of dishes extending between the disks 12 and to hold them against rotation in the holder and so that when they are disposed at one side of the rack, they will catch water from the showers and when at the other side, they will be inverted to shed the water. Each set of bars comprises an inner pair of rods 14 and 15 and an outer rod 16, all of which have their ends secured in the disks. Each set also comprises a pivot-bar 17 which is pivotally held in the disks and carries a pair of arms 18. A pair of rods 19 and 20 extend between and are secured in each pair of arms and this pair is movable to permit the dishes to be conveniently placed into the troughs formed by the rods.

One of the arms 18 of each pair is provided with an abutment 21 which is adapted to engage an angular portion 22 of a spring-catch 23 which is secured to one of the disks 12, as at 24. To guide the free end of each spring 23, its terminal extends through a slot 25 in the disk to which it is attached, and this spring is provided with a stop-terminal 26. By pressing the spring 23 outwardly or toward the disk to which it is attached, abutment 21 and arm 18, bars 19 and 20, together with arms 18, to which they are secured, will be released so they may be swung

upwardly, as indicated in dotted lines Fig. 1, and so that tumblers or the like may be placed in troughs formed by the bars 14, 15, 16 and 17. In successively loading the troughs, the holder may be turned about its axis. After a trough is loaded, arms 18 and bars 19 and 20 are swung downwardly to cause said bars or either of them to rest upon the dishes, and spring 23, in the path of abutment 21 will arrest said arms and rods 19 and 20 against sufficient movement to permit the dishes to fall out of the troughs when the dishes are inverted, as the holder is rotated. Preferably, the stop 22 on spring 23 of abutment 21 is disposed so that high dishes, such as tumblers can be placed in the trough, and if smaller dishes, such as cups are placed therein, bars 19 and 20 will not permit sufficient movement to let the dishes fall out of the troughs. A series of holes 30 is provided in each disk for each of the bars 14, 15 to permit them to be secured different distances from the outer bars and correspondingly vary the troughs, and to adapt the troughs for hollow-ware or dishes of different sizes or shapes. The troughs are formed in annular series and any number may be provided according to the capacity desired. Guards 30′ are formed of punched-in portions of the disks to serve to hold the dishes away from the disks, and away from arms 18 and the bosses 18′ in which cross-rods 17, 19 and 20 are secured, so that they will not strike the dishes.

In operation, the racks are pushed into the machine A and pass successively under showers a, a'. As one of the racks passes under a shower, the dishes at one side thereof will receive and retain water from the shower and overbalance that side of the rack, causing it to rotate the holder and the dishes therein. As the dishes rotate, and after being filled with water, they are inverted, discharge the water therein, and the outside thereof is exposed to the direct action of the shower. By means of this operation, all portions of the dishes are cleaned. The invention thus provides an improved rack for dishes which will be automatically rotated by the showers and without special rotating-means, one in which the dishes may be conveniently placed and from which they can be conveniently removed.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

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

1. In a dish washer, the combination of a support, a holder rotatably mounted on said support and provided with means for holding hollow dishes, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

2. In a dish washer, the combination of a support, a holder rotatably mounted on said support, transversely extending troughs in said holder for holding hollow dishes, and a shower above said support and holder so arranged as to dicharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

3. In a dish washer, the combination of a support, a holder rotatably mounted on said support, transversely extending bars in said holder forming troughs for holding hollow dishes, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

4. In a dish washer, the combination of a tank, a support movable through said tank, a holder rotatably mounted on said support and provided with means to hold hollow dishes, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

5. In a dish washer, the combination of a tank, a support movable through said tank, a holder rotatably mounted on the support and comprising sides and bars extending longitudinally of the holder and between its sides to form an annular series of troughs, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

6. In a dish washer, the combination of a tank, a support movable through said tank, a holder rotatably mounted on the support and comprising longitudinally extending bars forming separated troughs on opposite sides of the axis of rotation of the holder, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

7. In a dish washer, the combination of a support, a holder rotatably mounted on said support, transversely extending troughs in

said holder for holding hollow dishes, means comprising pivoted cross bars for retaining said dishes in said troughs, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

8. In a dish washer, the combination of a support, a holder rotatably mounted on said support, transversely extending troughs in said holder for holding hollow dishes, pivoted arms carrying cross bars for retaining the dishes in the troughs, latches for holding said arms, and a shower above said support and holder so arranged as to discharge water upon both sides of the pivot of the dish holder, the water of said shower operating to rotate said holder thereby to expose the inside and outside of said dishes to said shower.

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