Jan. 26, 1954 A. E. BENNETTS 2,666,937

APPARATUS FOR WASHING AND CLEANING CROCKERY, COOKING UTENSILS, AND THE LIKE

Filed July 27, 1950 3 Sheets-Sheet 1

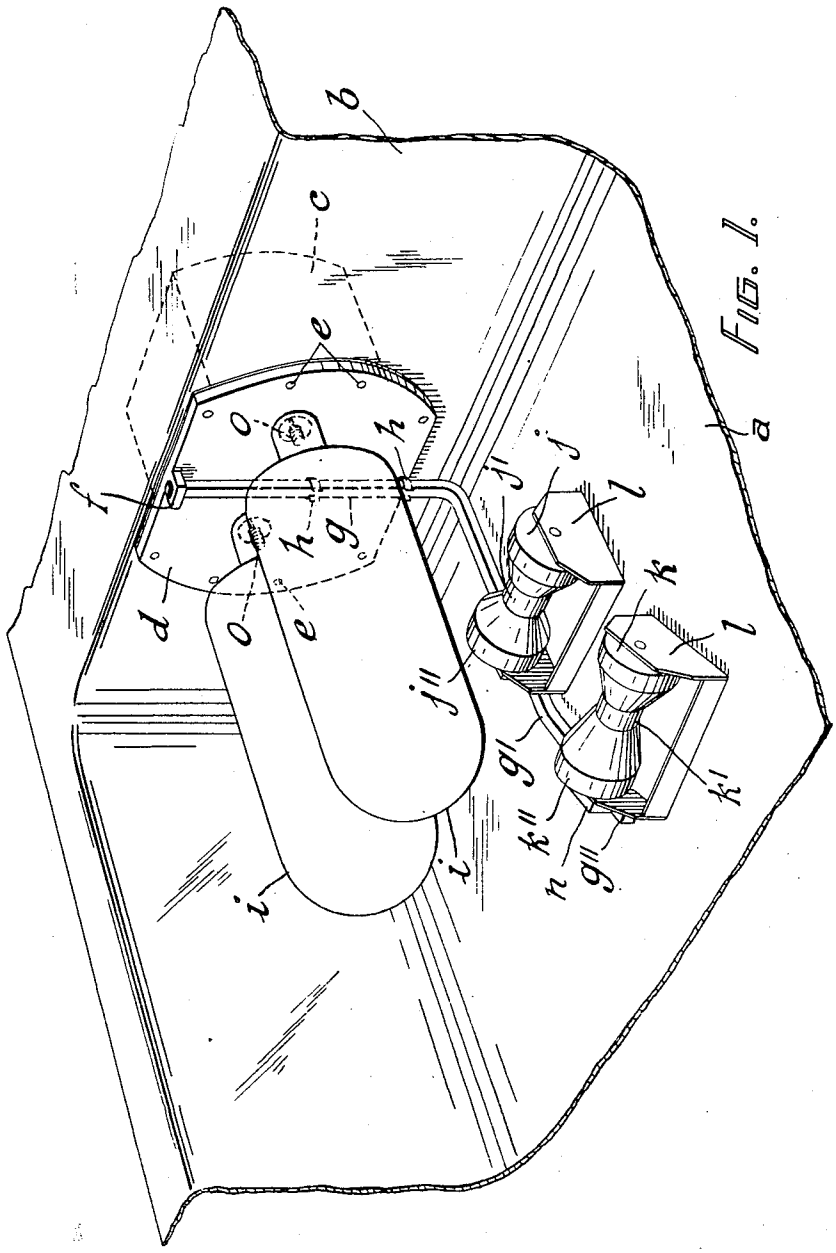


FIG. 1.

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Jan. 26, 1954 A. E. BENNETTS 2,666,937

APPARATUS FOR WASHING AND CLEANING CROCKERY, COOKING UTENSILS, AND THE LIKE

Filed July 27, 1950 3 Sheets-Sheet 2

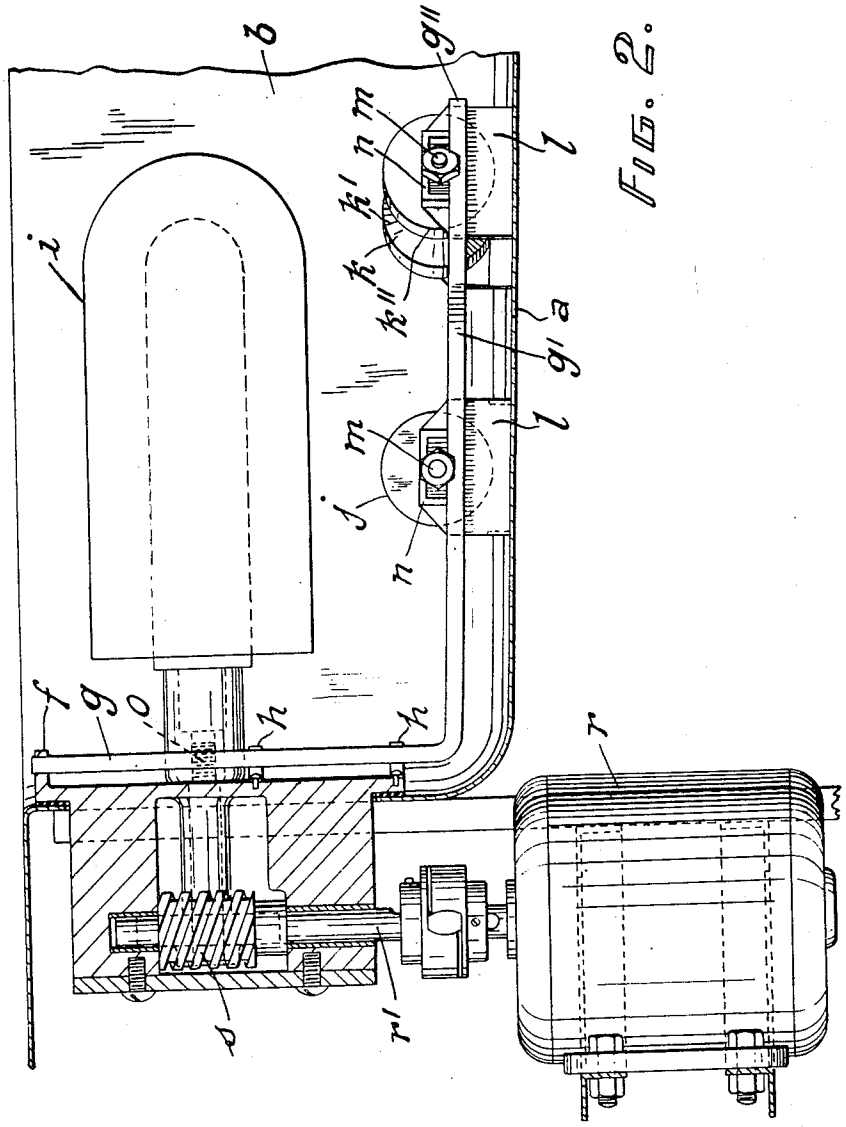


FIG. 2.

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Jan. 26, 1954 A. E. BENNETTS 2,666,937

APPARATUS FOR WASHING AND CLEANING CROCKERY, COOKING UTENSILS, AND THE LIKE

Filed July 27, 1950 3 Sheets-Sheet 3

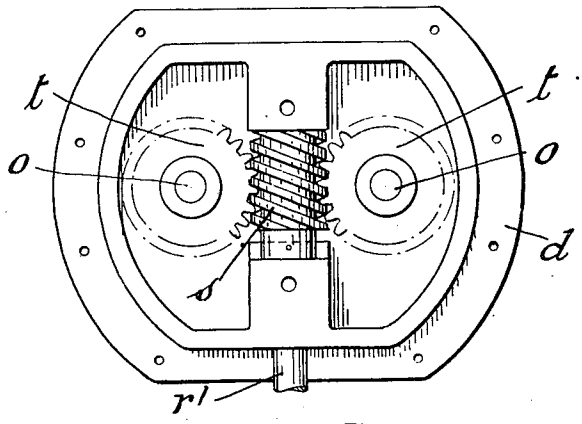


FIG. 3.

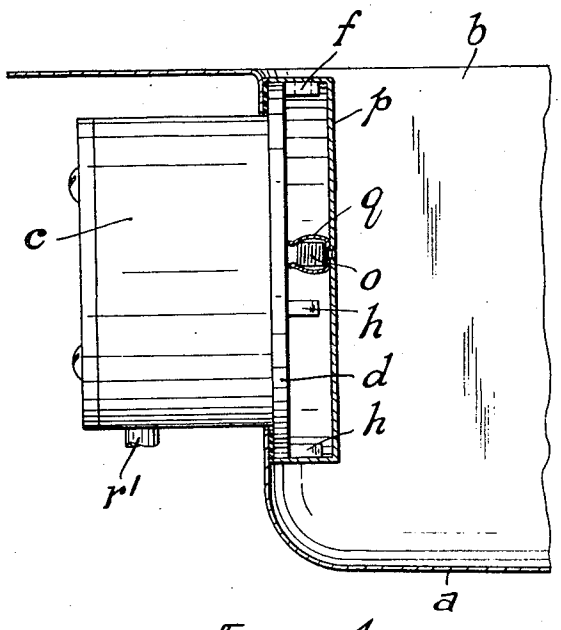


FIG. 4.

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UNITED STATES PATENT OFFICE

2,666,937

APPARATUS FOR WASHING AND CLEANING CROCKERY, COOKING UTENSILS, AND THE LIKE

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Application July 27, 1950, Serial No. 176,134

5 Claims. (Cl. 15—74)

1

This invention relates to apparatus for washing and cleaning crockery, cooking utensils and the like of the kind which employs a pair of oppositely rotating and horizontal brushes and means for supporting articles such as plates whereby the same are maintained automatically in the cleaning position with the brushes which are immersed in water in engagement with opposite sides of the article and so that the rotation of the brushes causes the positioned article also to rotate on the supports.

The primary object of the present invention is to provide an apparatus of the above kind with improved supporting means which will accommodate plates of all the customary sizes and shapes without adjustment and which will result in more efficient and rapid cleansing than has been possible with other and more conventional supports and which will hold the plate against accidental ejectment from between the revolving brushes.

A further object of the invention is to adapt the apparatus so that it may be associated with a conventional form of domestic sink in such manner that when the apparatus is not in use the sink may be restored almost completely to the condition of a plain sink.

Broadly the present invention consists of apparatus of the type specified which has supporting means for plates and similar shaped articles comprising rollers to be engaged by the edge of the article wherein at least one of said rollers is disposed with its axis at an angle to the axis or axes of one or more of the remaining rollers.

In a preferred arrangement two supporting rollers are used and these rollers are mounted so that their transverse centres are offset from the longitudinal mean centre of the two brushes with the axis of one roller at an oblique angle to this longitudinal mean centre with the axis of the remaining roller normal to said centre. It is desirable that the supporting surface of the angularly disposed roller shall embody a conical section on that side of the rollers transverse centre which is nearest to the longitudinal mean centre of the two brushes. It is also desirable that the angularly disposed roller shall be situated adjacent to the outer ends of the brushes which are unsupported so that they present unobstructed ends over which cups and similar hollow articles may be pushed to clean their interiors.

In this preferred arrangement the two rollers are attached to a detachable bracket and this is used in conjunction with detachable brushes, the whole being associated with a domestic sink

2

whereby when the washing apparatus is not in use the plate supporting rollers and the brushes may be removed to restore the sink almost completely to the condition of a plain sink.

When the brushes have been removed the ends of their driving shafts will project into the interior of the sink. To prevent accident to the user from this cause a detachable cover may be provided adapted wholly to enclose these projecting shaft ends or stubs.

In order that the invention may be clearly understood and carried into effect an example of the above preferred arrangement will now be described by aid of the accompanying drawings in which:

Fig. 1 is a fragmentary view in perspective showing a portion of a domestic metal sink and in position therein two supporting rollers in the form of bobbins with their supporting bracket and means for detachably securing the same to the face plate of a gear box forming part of the transmission to stub shafts for the brushes, which are shown in chain dotted lines.

Fig. 2 is a vertical section through the gear box and sink showing the supporting rollers and their bracket in side elevation.

Fig. 3 is an end view of the gear box with the cover plate removed.

Fig. 4 is a sectional elevation showing in position the removable cover used to enclose the stub shafts for the brushes when the sink is restored to the condition of a plain sink.

Referring to the drawings *a* and *b* represent respectively the base and one side of the washing compartment of a conventional pressed steel domestic sink. The side *b* is cut away to provide an aperture to receive the body *c* of a gear box. This gear box body has a flange in the form of a face plate *d* and the body is inserted from the inside of the sink through the aforesaid aperture until the inside face of the flanged edge of the face plate beds against the inside face of the side *b* of the sink. In this position it is held by screws or other means the heads of which are indicated diagrammatically at *e*.

The face plate *d* is provided at its upper end with an apertured boss *f* to receive the upper end of the vertical portion of a bent bar bracket *g* the intermediate part of this vertical portion being detachably held by engagement between the sides of spring clips *h*.

The boss *f* and the clips *h* are arranged to hold the vertical portion of the bracket *g* on a line which is coincident with the mean longitudi-

nal centre of the two brushes *i*. The horizontal portion of this bracket extends across the base *a* of the sink and for the great part of its length also coincident with the mean longitudinal centre of the two brushes. Near its outer end, however, it is bent as at *g'* see Fig. 1 so that the remaining or outer section of the bracket runs obliquely in a direction away from said mean longitudinal centre for a purpose hereafter to be described. This outer end is indicated at *g''*.

The supporting rollers *j* and *k* are supported by cradles *l* wherein they are freely rotatable. These cradles rest upon the base *a* of the sink and are attached respectively to the outside of the straight and oblique sections of the horizontal portion of the bracket *g* by bolts or their equivalent *m*, see Fig. 2, which pass through slotted brackets *n* on the upper surface of the horizontal portions of the bracket *g*. By this means the rollers may be adjusted relatively to each other.

The rollers *j* and *k* are shaped as bobbins with grooves composed of a parallel central portion *j'* and *k'* and conical section *j''* and *k''* on either side.

On positioning a plate between the two brushes with its base nearest the operator its edge will rest on the central portion *j'* in the case of the roller *j* and on the inside conical section *k''* of the roller *k* and the inwardly revolving brushes will tend to force the edge of the plate down this conical section onto the central portion *k'*, a tendency which is resisted by the outer end of the nearest brush with the result that the opposite sides of the plate will be held hard against the adjacent parts of opposite brushes. In other words the plate will tend to have a lateral twist with advantage to the efficiency of the cleaning operation. This effect is the result of disposing the roller *k* with its axis at an angle to the axis of the roller *j*.

As will be seen clearly from Fig. 1 the brushes which for preference have nylon bristles, are screwed onto projecting threaded stub shafts *o* and these shafts rotate in bearings carried by the face plate *d*. When it is desired to use the sink without the plate washing apparatus the brushes and the bracket *g* with rollers *j* and *k* and their cradles *l* are removed, and to prevent damage to the user from the projecting ends of the stub shafts, these are enclosed by a cover plate *p*, see Fig. 4. This plate is held in position by spring catches *q* which are arranged to snap over and engage the stub shaft *o*.

The stub shafts are driven simultaneously and in opposite directions by an electric motor *r*, see Fig. 2 through a gear transmission consisting of a worm *s* on the end of the motor shaft *r'* which is situated between, and meshes simultaneously with a pair of worm wheels *t* on the outer ends of the stub shaft *o*.

I claim:

1. In a device for washing crockery and the like, comprising a sink for holding washing water, a pair of oppositely rotatable and horizontally mounted brushes positioned in the sink so as to normally be immersed in the washing water, means normally immersed in the washing water for supporting an article of crockery by its edge in a vertical position between said brushes, said brushes, as they rotate, serving to grip a part of the supported article and simultaneously clean both sides of the thus supported article and to impart a revolving motion thereto, said supporting means comprising at least two rollers, one of which is positioned with its axis at an angle to the axis of the adjacent roller, the axis of said thus positioned roller being at an angle to that of the brushes, whereby a lateral twist is imparted to the supported article as it is revolved by the brushes.

2. Apparatus according to claim 1 wherein at least the angularly disposed roller is mounted so that its transverse centre is offset from the longitudinal means centre of the two brushes.

3. Apparatus according to claim 1, wherein at least the angularly disposed roller is mounted so that its transverse center is offset from the longitudinal mean center of the two brushes, and wherein the angularly disposed roller has a supporting surface which embodies a conical section on that side of the roller's transverse centre which is nearest to the longitudinal mean centre of the two brushes.

4. Apparatus according to claim 1, wherein at least the angularly disposed roller is mounted so that its transverse center is offset from the longitudinal mean center of the two brushes, wherein the angularly disposed roller has a supporting surface which embodies a conical section on that side of the roller's transverse center which is nearest to the longitudinal mean center of the two brushes, and wherein the angularly disposed roller is situated adjacent to the outer ends of the brushes.

5. A device in accordance with claim 1, wherein the angularly disposed roller has a conical portion so that the article supported by the rollers and gripped between the brushes is caused to ride on the conical portion of said angularly disposed roller, thereby to have imparted thereto a lateral twist.

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