Jan. 6, 1953 M. W. FLETCHER ET AL 2,624,619

CLEANSING DEVICE

Filed Sept. 6, 1950 2 SHEETS—SHEET 1

FIG. 1.

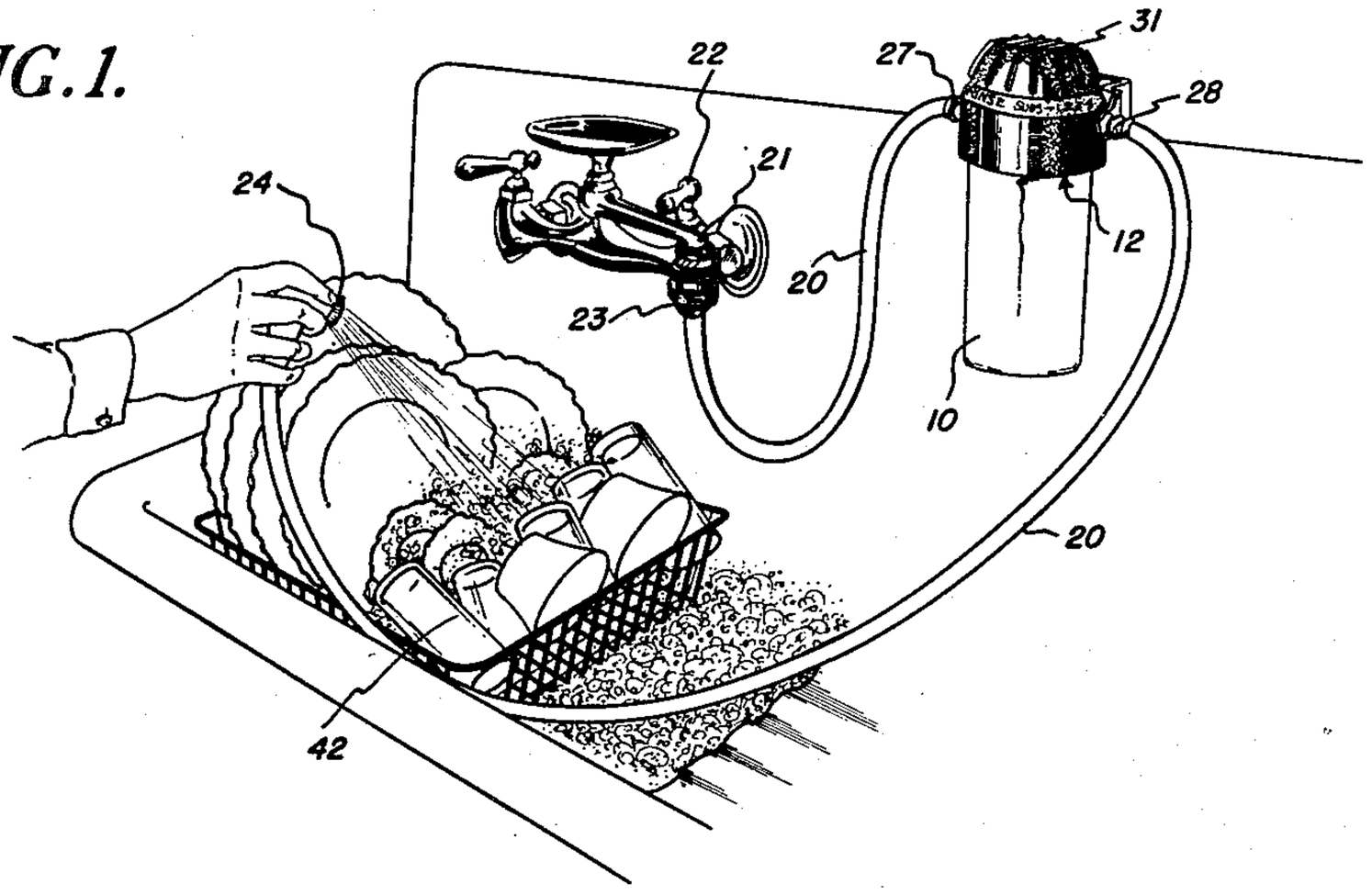


FIG. 2.

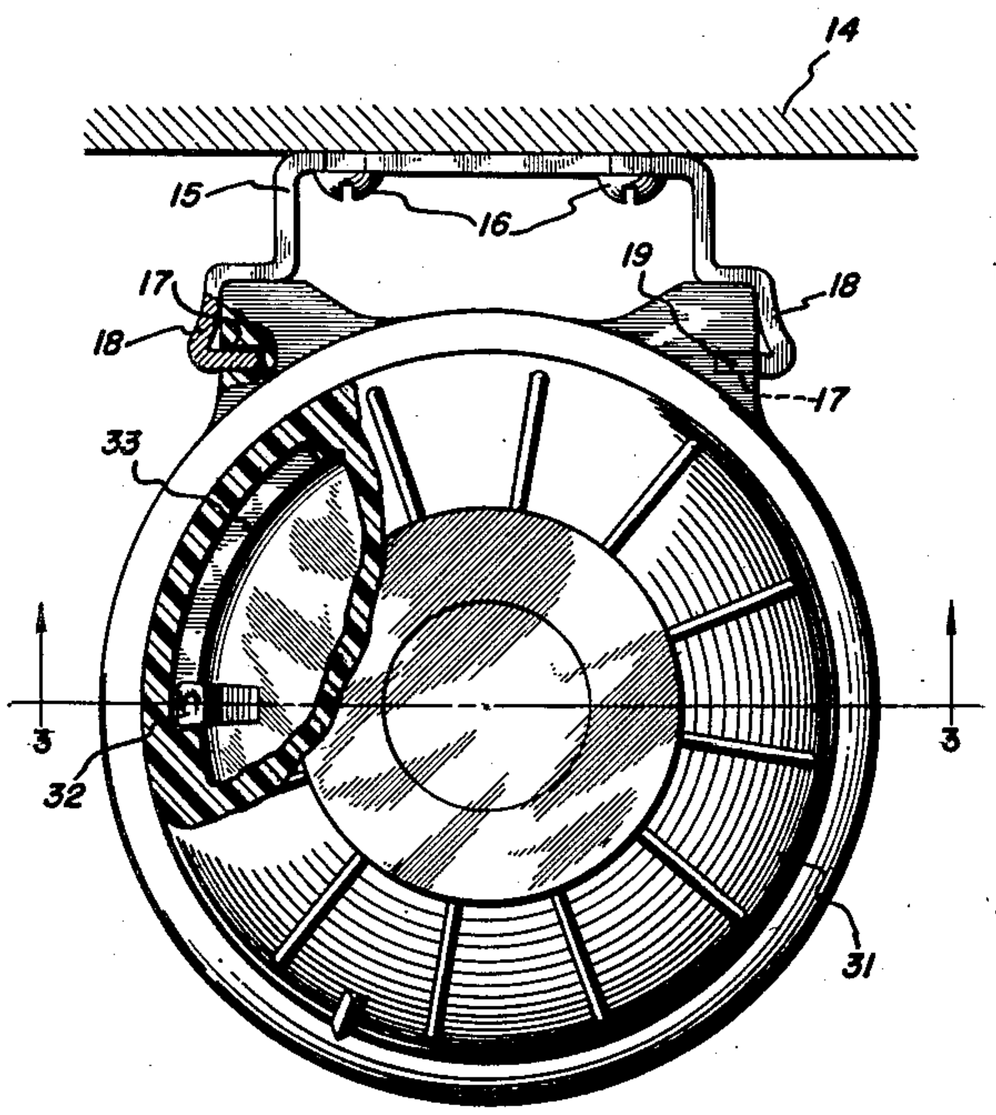
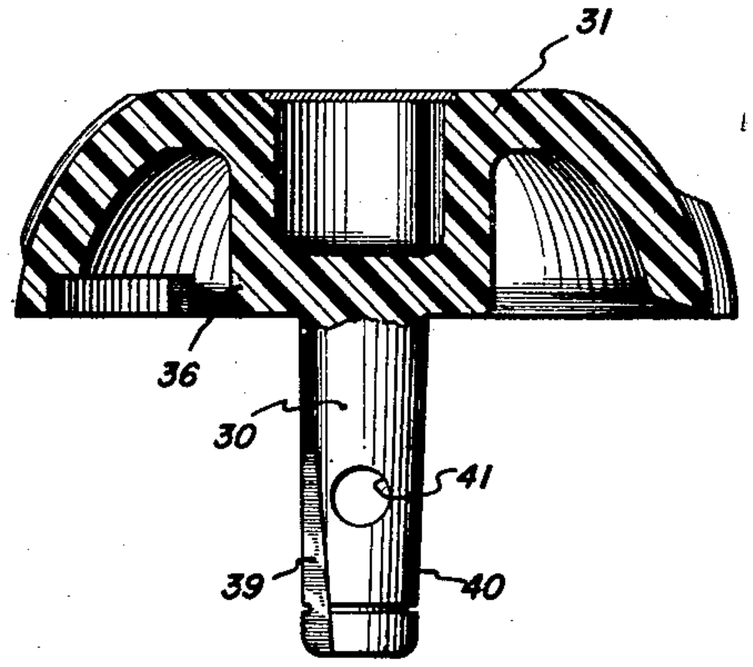


FIG. 6.



INVENTORS
FRED E. FLETCHER &
BY MYLES W. FLETCHER

ATTORNEY

Jan. 6, 1953 M. W. FLETCHER ET AL 2,624,619

CLEANSING DEVICE

Filed Sept. 6, 1950 2 SHEETS—SHEET 2

FIG. 3.

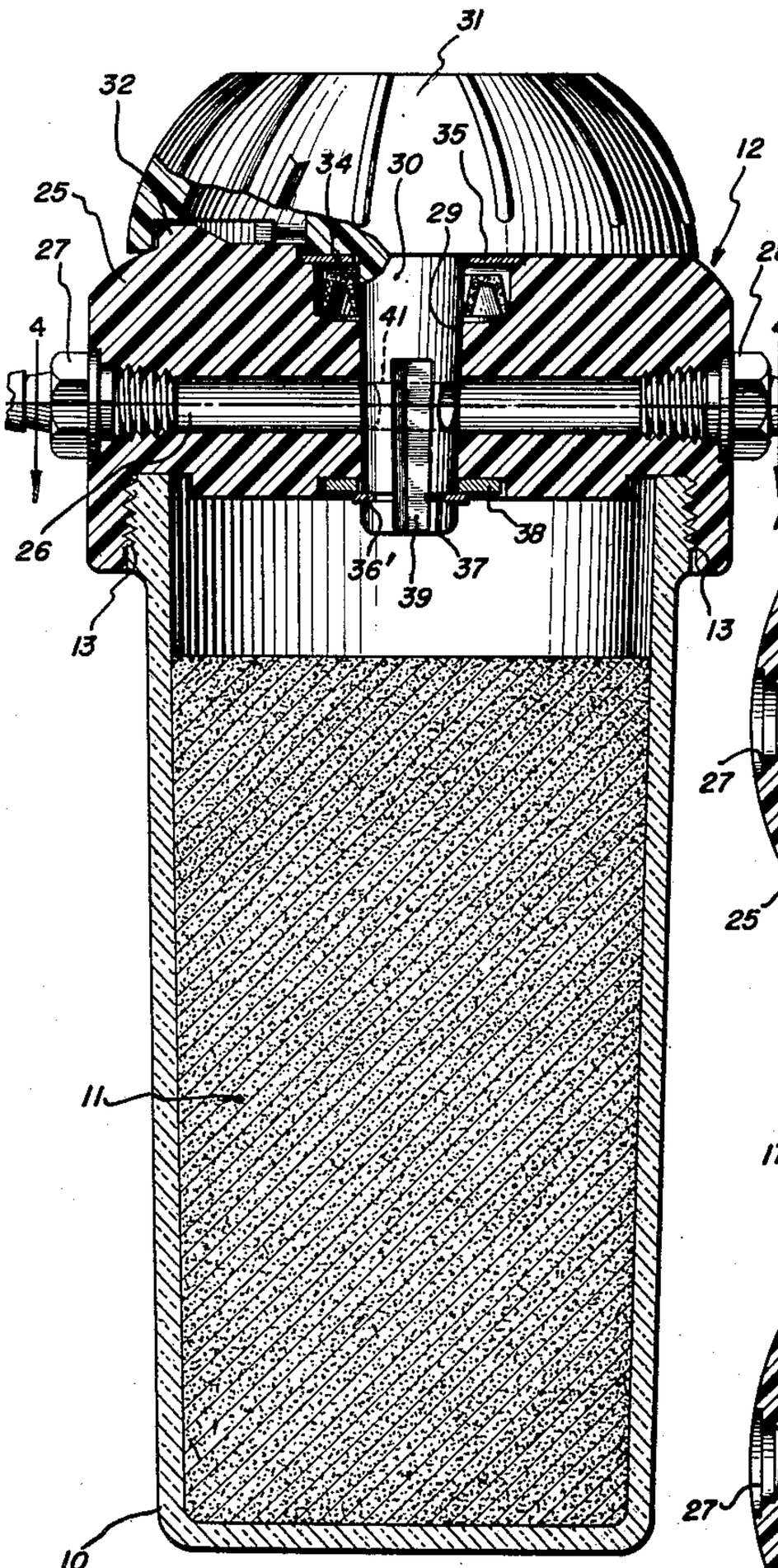
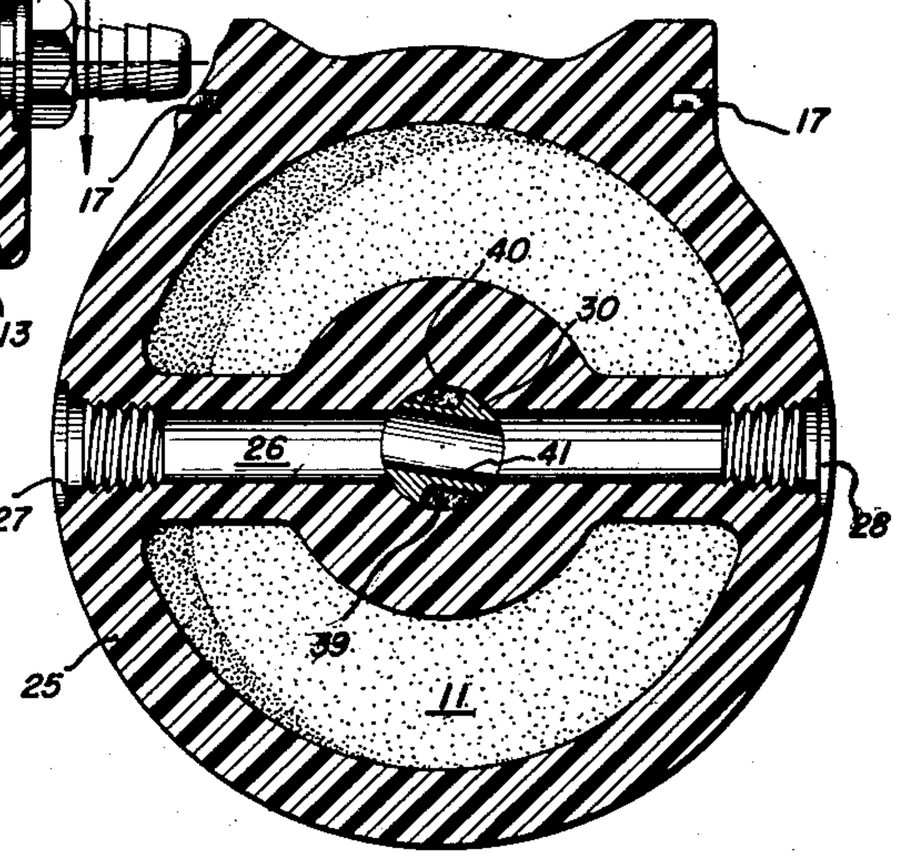


FIG. 4.



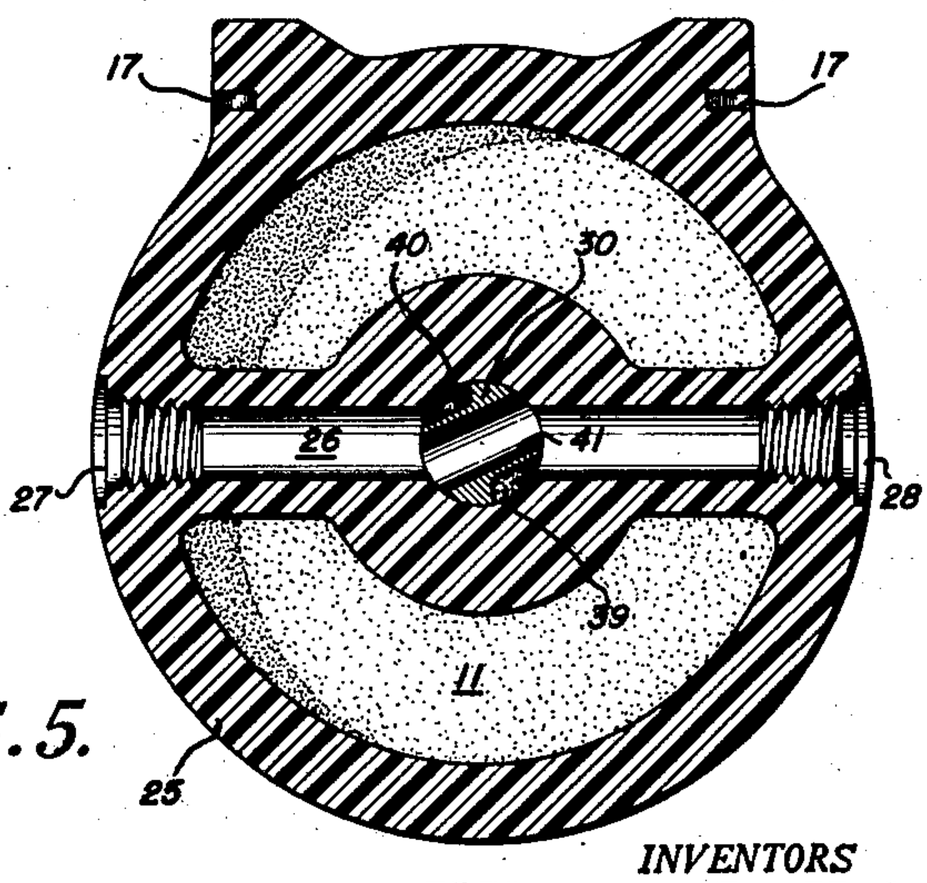


FIG. 5.

INVENTORS
FRED E. FLETCHER &
MYLES W. FLETCHER
BY
ATTORNEY

Patented Jan. 6, 1953

2,624,619

UNITED STATES PATENT OFFICE

2,624,619

CLEANSING DEVICE

Myles W. Fletcher and Fred E. Fletcher,
Atlanta, Ga.

Application September 6, 1950, Serial No. 183,392

8 Claims. (Cl. 299—84)

1

This invention relates to cleansing devices, and more particularly to a new and improved dishwasher of the spray type which uses hot water from the faucet of a conventional kitchen sink or other suitable outlet, and a detergent contained in a suitable receptacle which is part of the device per se.

Heretofore various dishwashers of this general type have been produced, but they have not been particularly successful for a number of reasons, not the least of which has been the lack of suitable regulation between the hot water and the detergent employed; variable factors between the two, and particularly the latter, leading to insufficient, if not actually unsatisfactory results.

An object of this invention is to provide a valve which will permit minute adjustments in varying the proportions of hot water being forced through a detergent container.

Another object is to provide simplicity in such a device.

A still further object is to provide durability and long life in a dishwasher.

Another object is to make possible ease of regulation.

These and other objects made apparent during the further progress of this specification are accomplished by means of our improved dishwasher and valve, a full and complete understanding of which is facilitated by reference to the drawings herein, in which:

Fig. 1 is a view in perspective showing the through means of U cup packing 34, which forms

Fig. 2 is an enlarged top view, fragmentary in part, showing the valve knob and certain associated structure;

Fig. 3 is a side view taken partially in vertical cross-section along the line 3—3 of Fig. 2 looking in the direction of the arrows, and showing the valve and its associated detergent-containing chamber;

Fig. 4 is a view taken substantially in horizontal cross-section along the line 4—4 of Fig. 3, looking in the direction of the arrows, and showing the valve in rinsing position;

Fig. 5 is a view on the same plane as Fig. 4, showing the valve in a maximum washing position; and

Fig. 6 is a view partially in vertical cross-section of the valve knob and its associated stem.

Referring now to the drawings, it will be noted that our invention consists essentially of a detergent container 10 in which is placed detergent 11, preferably in block or cylindrical form

2

and of a type which because of a uniform hardness and certain chemical properties, does not tend to soften throughout, but permits only an appropriate wearing action or dissipation of its immediate outer surfaces.

Container 11 is mounted to a valve assembly 12 by means of screw threads 13, or other appropriate water-tight arrangement, and the entire device preferably mounted to a wall 14 by means of a holding bracket 15 and screws 16, a pair of slots 17 being formed in the side rear of the assembly to receive arms 18 of bracket 15, the downward movement of the assembly being checked by terminations 19 in slots 17, below the top of said assembly.

A hose 20 is joined to a conventional hot water faucet 21, having a valve actuating member 22, through a suitable connection 23, which may be of the snap-on type; a further extension of hose 20 terminating in a conventional spray nozzle 24.

Special attention is now directed to valve assembly 12, which may be formed of plastic or other suitable material, said valve consisting essentially of a base member 25, through the central portion of which passes a horizontal channel 26, said channel being provided with suitable fittings 27 and 28 for the purpose of receiving ends of hose 20.

Element 25 is provided in its central portion with a downwardly tapering channel or aperture 29 contemplated to receive a closely fitted valve stem 30, which stem is in turn susceptible of limited rotable actuation to the right or to the left through valve knob 31.

Movement of 31 is checked by a vertically extending dog 32 (Fig. 2) formed integral with 25 and which operates in a slot or channel 33 moulded or otherwise positioned in the lower-inner periphery of said knob 31.

The valve stem is mounted in the top of 25 through means of U cup packing 34, which forms a water-tight connection at this point, and washer member 35 facilitates the turning of the knob 31, shoulder 36 of which rests upon said washer. At the bottom of stem 30 a retaining ring 36' operates in suitable indentions provided at 37 and adjacent to gasket 38, serving to hold said stem firmly in place. A pair of valve slots 39 and 40 are formed integral with stem 30, leading down said stem into and out of the detergent container, and operate in a manner which will be explained in detail during the further progress of this specification. A central aperture 41 of generally circular contour is formed in stem 30 and registers with channel

26, when the valve is fully assembled and in operative position.

When our dishwasher is mounted as shown in Fig. 1 of the drawings, and container 10 filled with a suitable detergent, it is only necessary to open faucet 21 by means of handle 22 upon which a supply of hot water is driven through hose 20 and enters channel 26 at point 27. If the valve is turned to the position indicated by Fig. 5 of the drawings, a major portion of this same hot water upon encountering valve slot 40 will be driven downwardly along valve stem 30, and entering container 10, encounter detergent 11 and progressively dissolve such. At the same time, and in view of the pressure being built up in said chamber, hot water thus impregnated will be driven upwardly through valve slot 39 to the opposite or discharge side of channel 26, where it emerges at 28 and passes through hose 20 to spray 24 at which point it is played upon dishes to be washed until such time as the detergent has had the desired effect, upon which the valve knob 31 is turned in such a manner as to bring opening 41 of stem 30 into registration with channel 26, as shown in Fig. 4, at which time clear hot water begins to pass through the valve, hose 20 and spray nozzle 24, said hot water being used to rinse dishes 42, after which they may be dried or left to dry of their own accord.

Special attention is directed to the control feature of our valve, which permits the proportioning of hot water and the detergent in a simple but highly effective manner, it being apparent that valve stem 30 can be adjusted through knob 31 in such a manner as to permit only a small portion of available hot water to contact the detergent, through a progressively increasing opening to a point of maximum impregnation, this being important in the rather wide variations in hot water temperatures and water compositions found in homes, apartments and the like, plus differences in the qualities and characteristics of detergents. It is known that the ratio of effectiveness of most detergents rises rather quickly in proportion to the temperature of the water as, for example, a cleansing agent that may be 25% effective with water at 140° may be 100% effective at 160°. Again, so-called hard water at the same temperature usually requires more detergent for equal cleansing than does soft water, all of which makes it highly desirable for the operator, for reasons of efficiency and economy, to have what amounts to an absolute control of the portion of hot water entering the detergent-containing chamber.

From the foregoing, it is apparent that we have disclosed a simple, unique, and effective dishwasher and valve, which makes possible desired adjustments at the touch of a fingertip, yet at the same time is rugged and thoroughly adapted to its intended purposes. That said device is economical of manufacture, economical of use, and subject to a wide range of adaptations.

While we describe our invention in some detail herein, it is not our purpose to limit ourselves thereby, but on the contrary, intend that the appended claims shall be accorded a construction and scope fairly consistent with our contributions to the art.

We claim:

1. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with

the detergent container, a valve stem mounted in the second channel, U cup packing forming a water-tight seal between the stem and channel, a retaining ring and a gasket for holding the stem in operative position in the channel, a pair of oppositely disposed vertical slots in the sides of said stem, a central aperture in the stem communicating with said horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel; hose means for introducing fluid into said horizontal channel, hose means for receiving fluid being directed from said channel and detergent container, a spray nozzle on one end of said second hose, and means for mounting the valve and detergent container on the wall of a room.

2. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem operatively mounted in the second channel, said stem being provided with a pair of oppositely disposed vertical slots in the sides thereof, a central aperture in the stem communicating with the said horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel; hose means for introducing fluid into said horizontal channel, hose means for receiving fluid being directed from said channel and detergent container, a spray nozzle on one end of said second hose, and means for mounting the valve and detergent container on the wall of a room.

3. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem operatively mounted in the second channel, said stem being provided with a pair of oppositely disposed vertical slots in the sides thereof, a central aperture in the stem communicating with the said horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel; hose means for introducing fluid into said horizontal channel, hose means for receiving fluid being directed from said channel and detergent container, and a spray nozzle on one end of said second hose.

4. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem operatively mounted in the second channel, said stem being provided with a pair of oppositely disposed vertical slots in the sides thereof, a central aperture in the stem communicating with the said

horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel.

5. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem mounted in the second channel, U cup packing forming a water-tight seal between the stem and channel, a retaining ring and a gasket for holding the stem in operative position in the channel, a pair of oppositely disposed vertical slots in the sides, a central aperture in the stem communicating with said horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel, stop means limiting the potential field of rotations of said valve stem; hose means for introducing fluid into said horizontal channel, hose means for receiving fluid being directed from said channel and detergent container, a spray nozzle on one end of said second hose, and means for mounting the valve and detergent container on the wall of a room.

6. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem mounted in the second channel, U cup packing forming a water-tight seal between the stem and channel, a pair of oppositely disposed vertical slots in the sides of said stem, a central aperture in the stem communicating with said horizontal channel, and means for bringing said slots into progressively increasing or decreasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel; hose means for introducing fluid into said horizontal channel, hose means for receiving fluid being directed from said channel and detergent container, a spray nozzle on one end of said second hose, and means for mounting the valve and detergent container on the wall of a room.

7. In a device of the character described in combination, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem mounted in the second channel, a plurality of oppositely disposed vertical slots in the sides of said stem, a central aperture in the stem communicating with said horizontal channel, and means for bringing said slots into progressively increasing registration with a stream of fluid in the horizontal channel, and a proportional amount of said fluid directed into and out of said detergent container through said channel; hose means for introducing fluid being directed from said channel, a spray nozzle on one end of said second hose, and means for mounting the valve and detergent container on the wall of a room.

8. In a device of the character described, a detergent container and a proportioning valve, said valve including a base member, a horizontally extending channel formed therein, a vertically extending channel bisecting said horizontal channel, and communicating with the detergent container, a valve stem operatively mounted in the second channel, a plurality of oppositely disposed slots in the sides of said stem, a central aperture in the stem communicating with said horizontal channel, and means for bringing said slots into progressively increasing registration with a stream of fluid in the horizontal channel, and a portion of said fluid directed into and out of said detergent container through said channel.

MYLES W. FLETCHER.
FRED E. FLETCHER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,704,913	Clauson	Mar. 12, 1929
1,777,152	Poteet	Sept. 30, 1930
1,967,909	Sonner	July 24, 1934
2,103,957	Scott	Dec. 28, 1937
2,513,566	Kent	July 4, 1950