Dec. 4, 1956 I. J. MORITT 2,772,430

DISH CLEANING DEVICE WITH DETERGENT FEED

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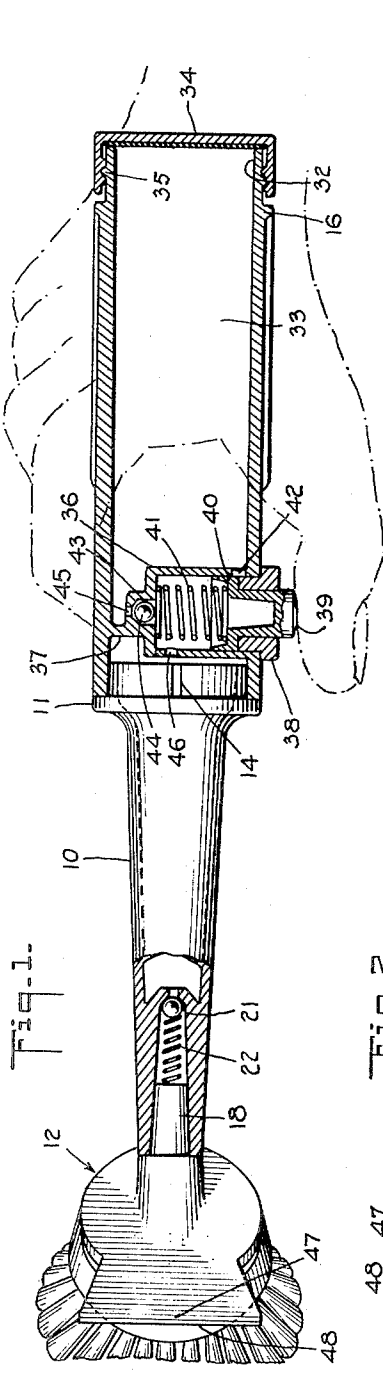

Fig. 1.

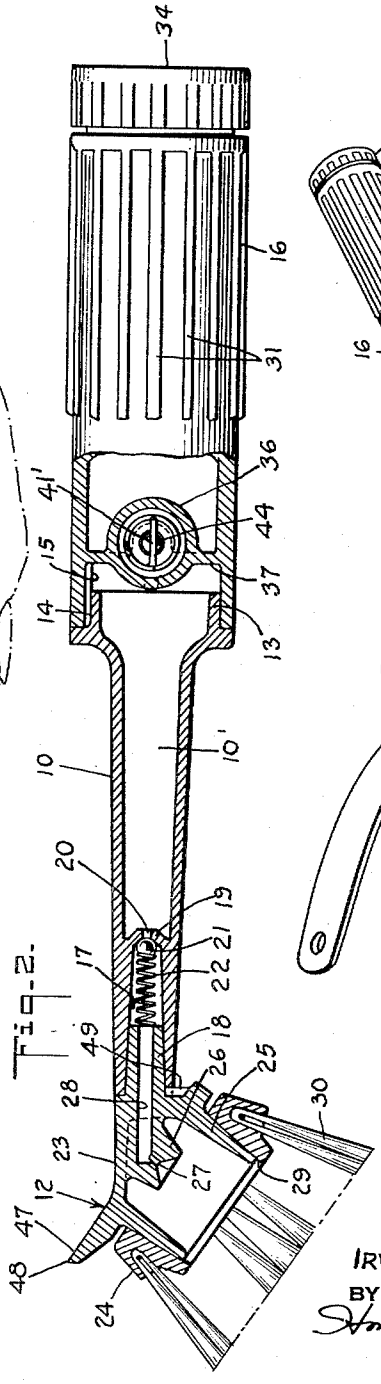

Fig. 2.

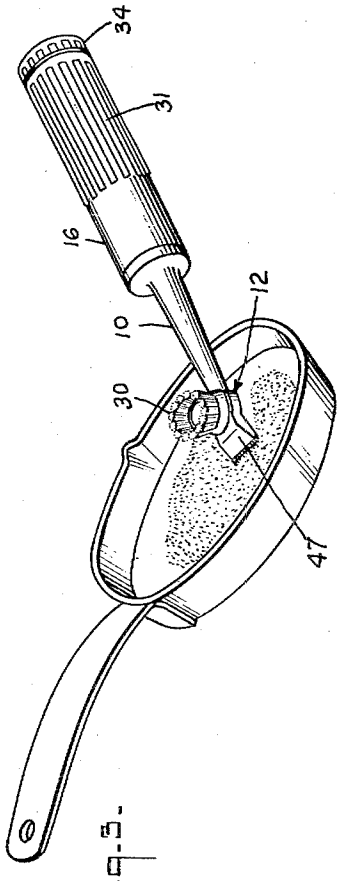

Fig. 3.

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DISH CLEANING DEVICE WITH DETERGENT FEED

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2 Claims. (Cl. 15—133)

This invention relates to devices for use in washing dishes of various types and kinds, so that the hands may be kept free, or relatively free, from contact with detergents used in the cleaning of dishes. More particularly, the invention deals with a tubular device of the character described having a brush head with a manually actuated plunger in the handle portion of the device for operating a piston controlling intermittent discharge of detergent into the brush head for application to the dishes being cleaned.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and, in which:

Fig. 1 is a plan and sectional view of a device made according to my invention, with parts of the construction broken away and diagrammatically illustrating positioning of the device in a hand.

Fig. 2 is a longitudinal partial sectional view of the structure, as shown in Fig. 1; and

Fig. 3 is a diagrammatic view illustrating the use of the scraper portion of the head in removing particles adhering to a pot or pan.

In the drawing, **10** represents the tubular body portion of my device which is slightly tapered from a flanged end portion **11** to the head **12** of the device. The flanged end has a projecting collar portion **13**, having a keyway, as at **14**, for receiving a key **15** on a tubular handle member **16**. The contracted end portion of the body **10** has a tapered bore **17**, in which a tapered end portion **18** of the head **12** is adapted to frictionally fit. A transverse wall **19** is formed at the base of the bore **17** with a small aperture **20** therein, the latter being normally closed by a ball **21**, having a light spring **22** acting thereon, the spring seating on the tapered end **18** and normally supporting the ball in position to close the opening **20**. The head **12** is made of two detachably coupled parts, which can be referred to as the scraper part **23** and the brush part **24**. The scraper part **23** has an angularly extending tubular portion **25**, centrally of the base of which is a body **26** having a small discharge opening **27** therein, which communicates with a bore **28** extending longitudinally of the head and through the tapered portion **18**, as clearly shown in Fig. 2 of the drawing.

The outside diameter of the tubular portion **25** is tapered to receive a correspondingly tapered bore **29** of the brush head, this brush head carrying circumferentially spaced bristles **30**, forming what may be termed a tubular brush for use in cleaning dishes, to which a detergent has been applied through action of the device, as later described.

The handle member **16** has a longitudinally ribbed gripper surface **31** for securely holding the device in the hand. The outer end portion **32** of the handle member is opened for admission of detergent into the storage chamber **33** formed in the handle member and this open end is closed by a cover **34**, having threaded engagement with the end **32**, as indicated at **35**.

The other end portion of the handle member has a transverse piston cylinder **36** arranged therein and joining the walls of the handle member in a web, as indicated at **37**. The tubular handle member **16** has common diameter bores at end portions thereof, which are divided or partitioned by the cylinder **36** and web **37**. One of these bores forms the storage chamber **33**; whereas the other bore opens into the tubular body **10**. The cylinder opens outwardly through the wall of the handle member **16** and this opening is closed by a ring **38**, in which the plunger portion **39** of a piston **40** operates, the plunger **39** being normally extended beyond the collar **38** by a spring **41** arranged in the cylinder **36**.

The cylinder **36**, adjacent the wall of the handle member, has a vent passage **42** for breaking vacuum back of the cylinder in outward movement of the piston. The inner end of the cylinder has a reduced small housing **43**, in which a ball **44** is mounted, the ball acting as a valve closing an admission aperture **45**, placing the cylinder **36** in communication with the chamber **33**. The side of the cylinder **36**, adjacent the inner end thereof, has a discharge port **46**, from which detergent can be pressure discharged in controlling discharge through the aperture **27** into the brush head, as will be apparent. Considering Fig. 2 of the drawing, it will appear that the spring **41** has a radial end **41'**, which retains the ball **44** against displacement from the housing **43**.

At this time, it might be said that the detergent which is in a liquid or substantially liquid state is free to flow from the chamber **33** into the tubular body **10** and is held in this body or the chamber **10'** thereof by the ball valve **21**. However, when the piston **40** is actuated, for example, by the thumb of a hand, as diagrammatically indicated in Fig. 1 of the drawing, the action of the piston will pressure discharge a predetermined amount of the detergent into the head for application to the dish, pan or the like being cleaned. In operation, the device is reciprocated over a surface in a scrubbing or scouring fashion and dishes, pans or the like can be cleaned by simply holding the same under a stream of water, or by intermittent dipping into a pan filled with water, whichever procedure is found to be desirable.

From time to time and, particularly pots and pans, these utensils have a collection of congealed matter adhering to their surfaces. This matter can be freed by the use of the scraper blade **47** on the head **12**, or the part **23** of said head. The scraper blade preferably flares outwardly to form a wide scraper edge **48**, which is preferably contracted to form a relatively sharp edge, as indicated in Fig. 2 of the drawing.

The entire device can be made of any desired material, or combinations of materials, and I have found it particularly desirable to use certain types and kinds of plastic materials which simplify the cost of producing the device, in that the plastic parts can be readily moulded. However, in other instances, portions of the tool may be made from metal with plastic parts associated therewith. While different types of bristles can be provided in the brush head **30**, I have found that the plastic or nylon type of bristles are suitable for the intended purpose.

It will be apparent that the purpose of the key **15** is to maintain the head **12** in predetermined position with respect to the plunger **39**. In the accompanying drawing, the plunger is shown at one side of the handle member and this has been found to be a practical arrangement. However, in some devices, the keying can be so controlled as to dispose the plunger in other positions with

respect to the head. It will also be understood that the angular arrangement of the head with respect to the handle member is such as to enable the brush **30** to get into corners of a pot or pan and also to maintain the hand in a raised position with respect to a dish or pan or other type of member being cleaned.

In the use of the device, it will be understood that the plunger **39** is intermittently actuated to bring into the head **12** sufficient detergent to perform the operation of cleaning dishes, pots and pans. In this connection, it will be understood that one charge of the detergent into the head may be sufficient to clean several dishes but, in any event, the control is available for supplying the required amount of detergent from time to time. It will also be understood that, between uses, the device can be stored in any suitable manner and the detergent is maintained sealed within the device until such time as further use thereof is required. A single filling of the chamber **33** will, in normal instances, care for several dish washing operations.

For purposes of description, the scrubbing and scraping device may be referred to as a tool or implement and the tubular body, including the handle member, may be considered the shank of the tool, at one end of which is the combination brush and scraper head and, at the other end of which is the cap, controlling refilling of the chamber in the handle member of the shank. In like manner, the plunger and piston unit as a whole may be regarded as a pump, including the ball check valve. Still further, the spring seated valve in the tubular body of the shank and the port controlled thereby may be referred to as a valve controlled port.

It will be noted, from a consideration of Fig. 2 of the drawing, that the head **12** has a projecting key **49** to key the head in definite position with respect to the tubular body portion **10**.

It is also preferred that the tapered portion **18**, as well as the collar **13**, be cemented into position so that the handle member **16**, as well as the head **12**, become integral with the tubular body **10**.

It will be understood that the closing of the ball valve **21** facilitates the flow of liquid from the chamber **33** into the cylinder **36**. This also prevents liquid from being sucked back from the chamber **10'** when the plunger **39** is moved outwardly by the spring **41**. In this connection, it will be understood that the plunger is sealed by the collar **38** and, in this outward movement of the plunger, the material that may be sucked in, back of the piston **40** through the passage **42**, will be forced back into the chamber **33** through said passage.

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

1. A dish cleaning device of the character described, comprising a tapered tubular body, a brush head at the contracted end of said body, a one-piece moulded tubular handle member at the other end of said body, said handle member having one-diameter bores opening through both ends, the bore at one end of said member forming a storage chamber for a liquid detergent, a detachable cap for closing said chamber, said bores being divided by a web and an integral hollow cylinder traversing the bores adjacent the other end of said member, the integral structure of said handle member facilitating moulding thereof, said cylinder having a port communicating with the bore at the second named end of said member, the cylinder having a valve controlled aperture opening into said chamber, a manually and spring operated pump in said cylinder and accessible outwardly of said member, a collar mounted in said member and cylinder for retaining the pump against displacement from said cylinder, said head having a discharge passage, through which detergent passes into the brush of said head, and operation of said pump controlling transfer of detergent from said chamber through said cylinder and into said tubular body for pressure feed through the discharge passage of said head into the brush of said head.

2. A dish cleaning device of the character described, comprising a tapered tubular body, a brush head at the contracted end of said body, a one-piece moulded tubular handle member at the other end of said body, said handle member having one-diameter bores opening through both ends, the bore at one end of said member forming a storage chamber for a liquid detergent, a detachable cap for closing said chamber, said bores being divided by a web and an integral hollow cylinder traversing the bores adjacent the other end of said member, the integral structure of said handle member facilitating moulding thereof, said cylinder having a port communicating with the bore at the second named end of said member, the cylinder having a valve controlled aperture opening into said chamber, a manually and spring operated pump in said cylinder and accessible outwardly of said member, a collar mounted in said member and cylinder for retaining the pump against displacement from said cylinder, said head having a discharge passage, through which detergent passes into the brush of said head, operation of said pump controlling transfer of detergent from said chamber through said cylinder and into said tubular body for pressure feed through the discharge passage of said head into the brush of said head, and a valve controlling passage of detergent through the tubular body to said head.

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