(No Model.)

2 Sheets—Sheet 1.

W. B. CUSHMAN.

DISH WASHER.

No. 413,822. Patented Oct. 29, 1889.

Fig. 1.

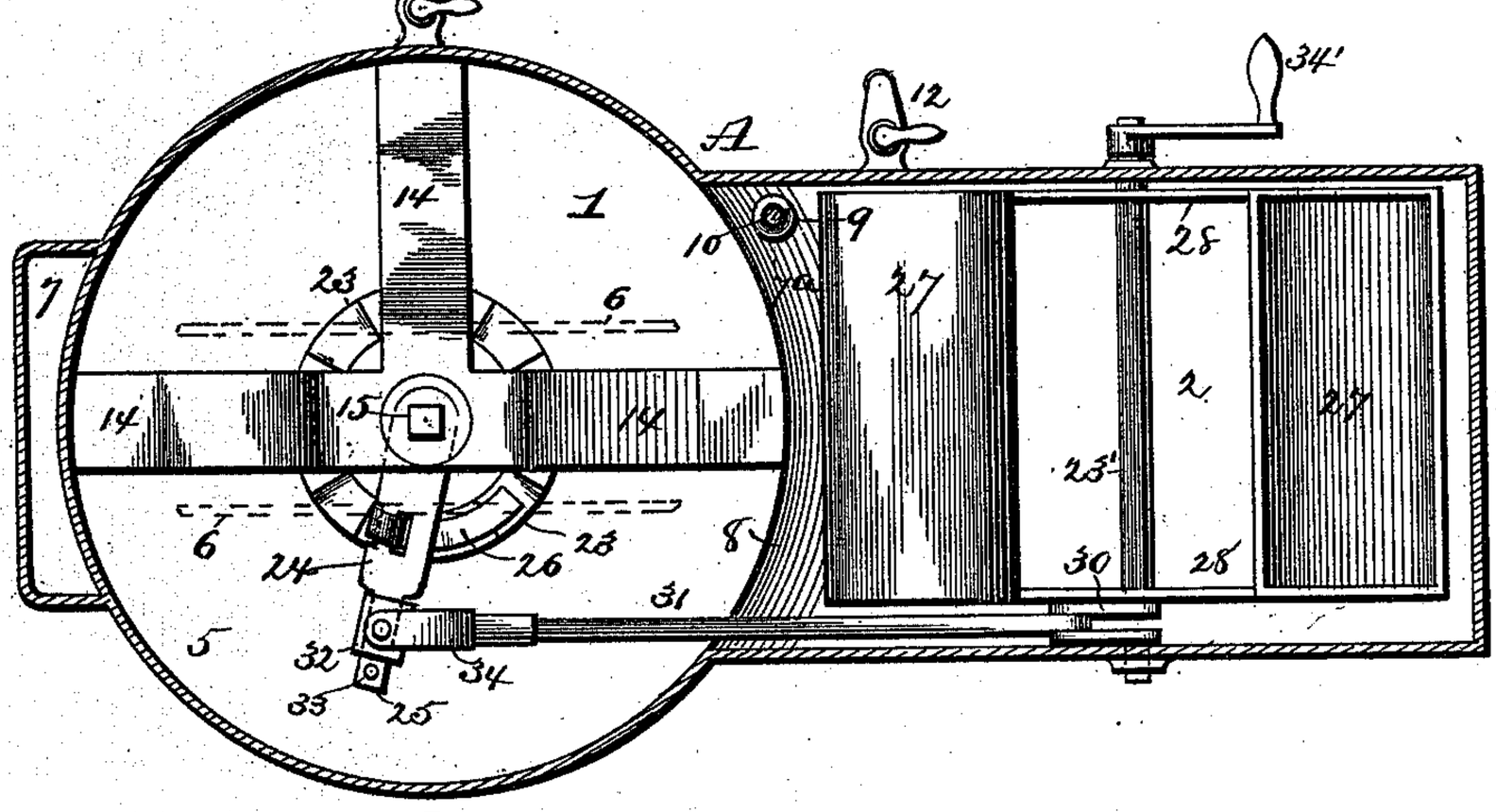
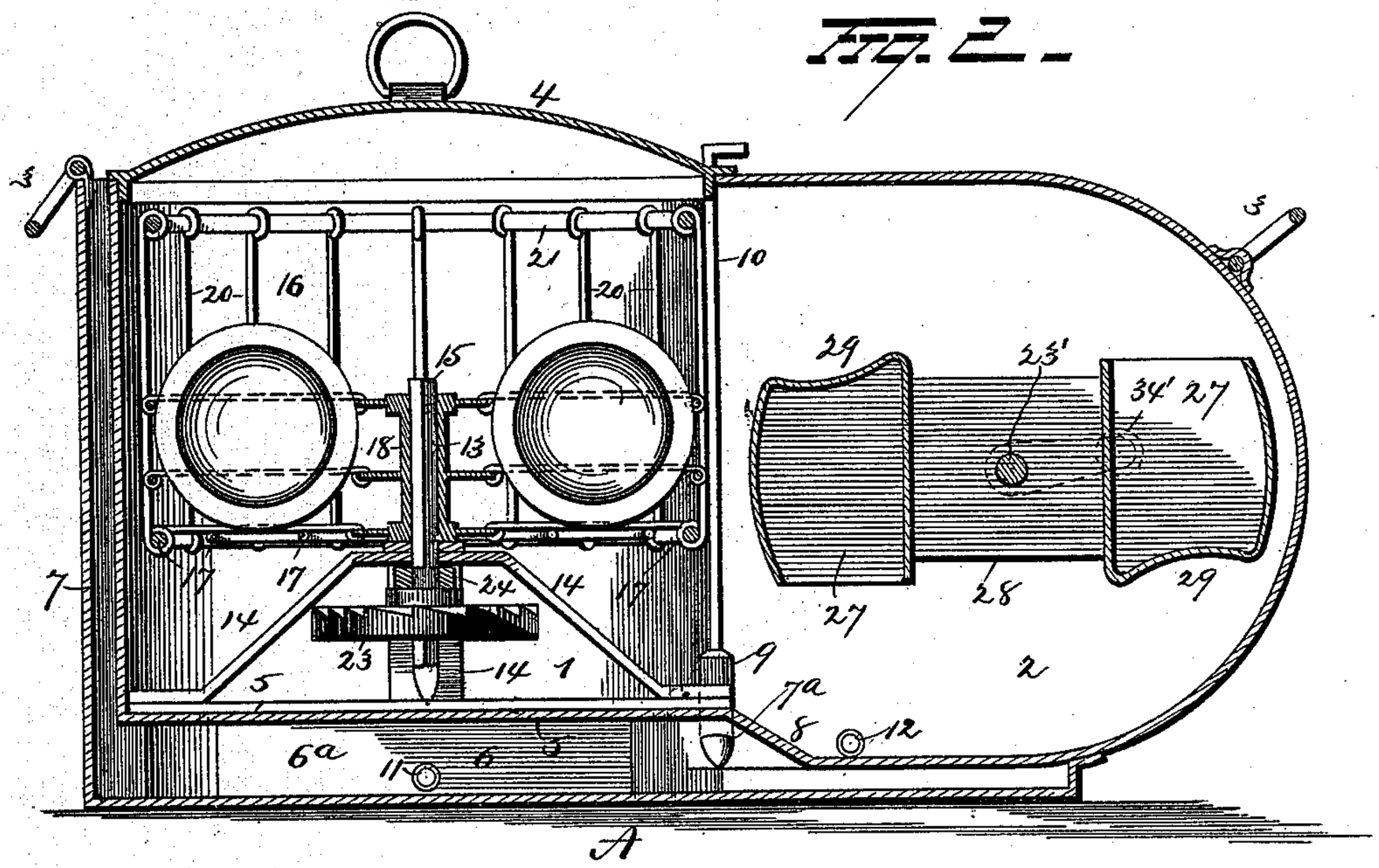


Fig. 2.



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By his Attorney
H. A. Seymour

(No Model.) 2 Sheets—Sheet 2.

W. B. CUSHMAN.

DISH WASHER.

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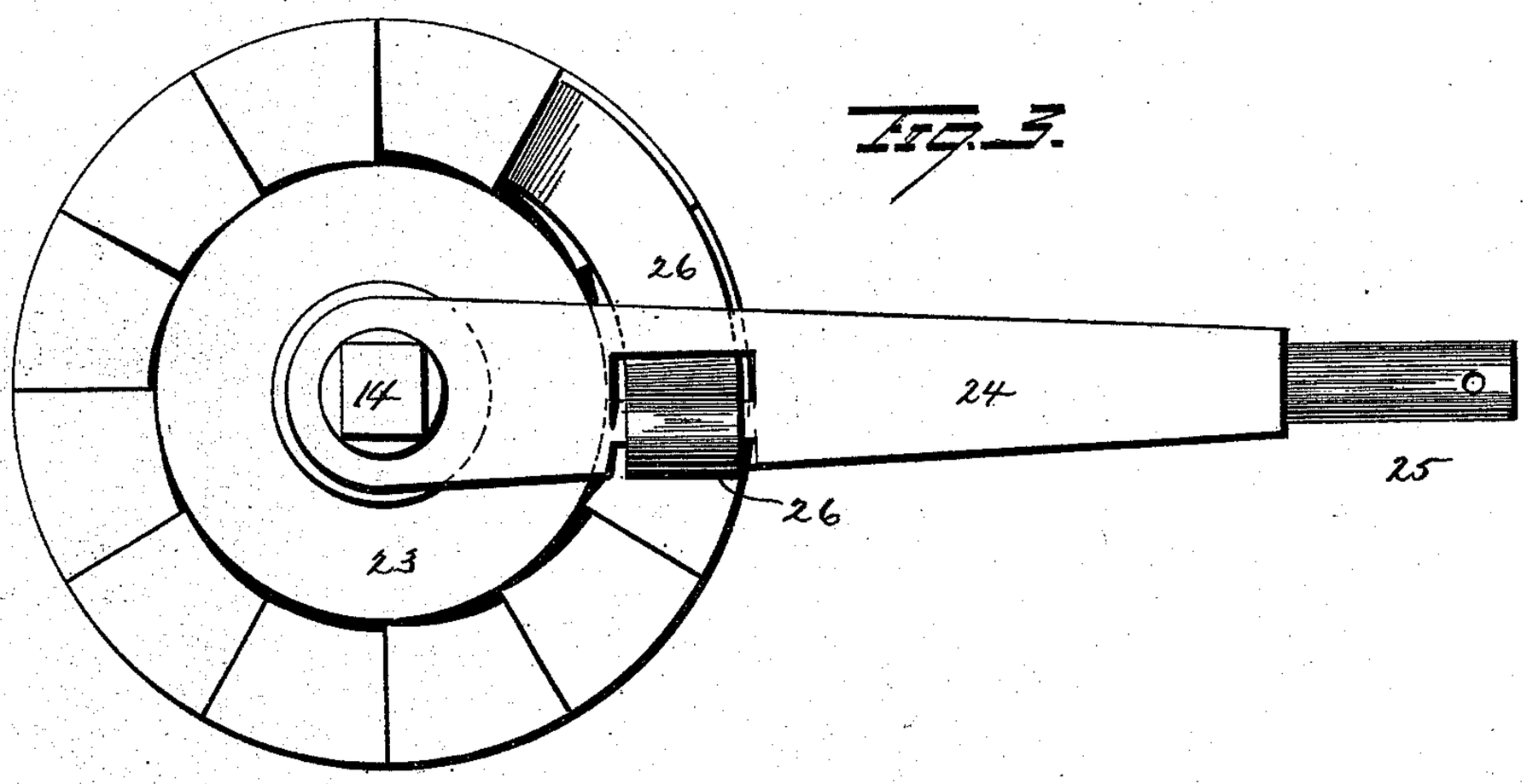
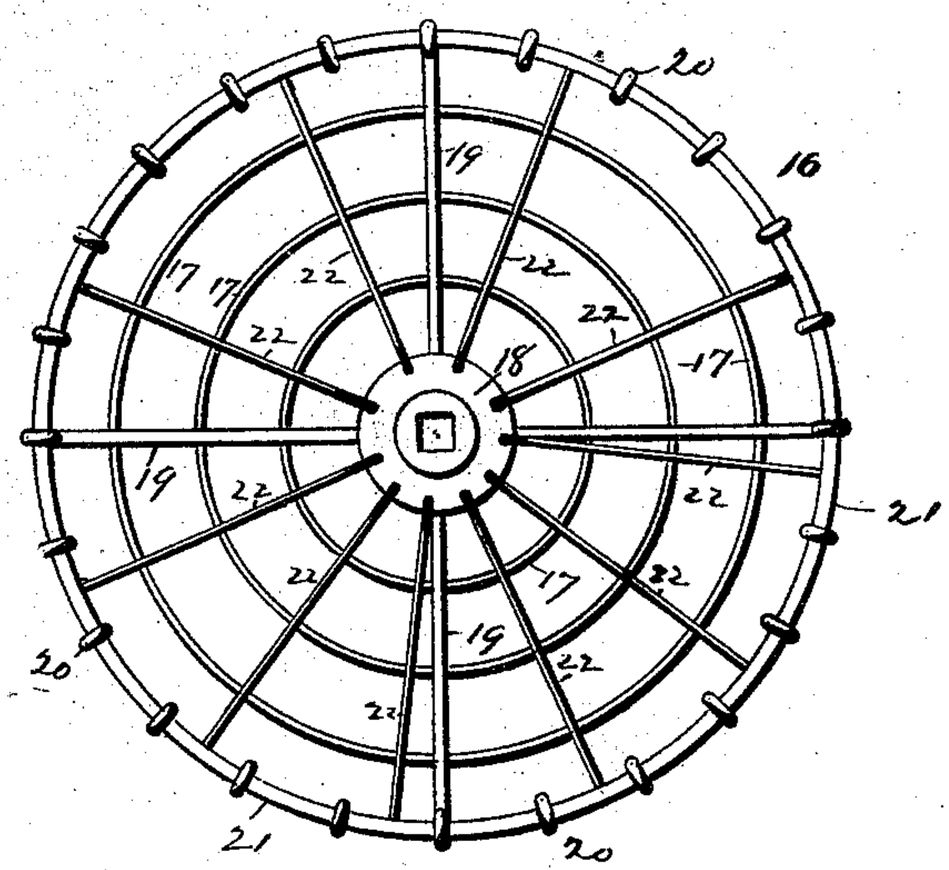


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

WELLINGTON B. CUSHMAN, OF WEST LINE, MISSOURI.

DISH-WASHER.

SPECIFICATION forming part of Letters Patent No. 413,822, dated October 29, 1889.

Application filed June 15, 1889. Serial No. 314,445. (No model.)

To all whom it may concern:

Be it known that I, WELLINGTON B. CUSHMAN, of West Line, in the county of Cass and State of Missouri, have invented certain new and useful Improvements in Dish-Washers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in dish-washing machines.

The object is to rapidly wash, rinse, and dry dishes and general table-ware with little liability of breakage, and, in addition to these functions, to furnish a machine which may be placed on a stove or range to keep the water therein heated and in the best condition for removing dirt from the dishes, and to provide means for conveniently supplying and discharging water and for splashing the water upon the dishes in the most effectual manner.

With these ends in view my invention consists in an intermittingly-rotated basket for the support of the dishes in connection with buckets for scooping and splashing the water upon the dishes, and in other connected mechanism and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a detached view of a portion of the mechanism adapted for turning the dishes, and Fig. 4 is a view of the basket in which the dishes are supported.

A represents the case which constitutes the body of the machine. This may be made of different material, but is preferably of tin or other sheet metal. The case is divided into two compartments—namely, the dish-washing chamber 1 and the bucket-chamber 2. The former is conveniently of cylindrical form, and the latter also may be in the general shape of a cylinder placed at right angles to chamber 1 and opening into it. However, these particular shapes are by no means necessary, and are only mentioned because by actual experiment they have been found to accomplish the object sought in an effectual and economical manner. The case is provided with handles 3 3 at suitable positions, and any sort of cover 4 may be used; but generally a removable one like the lid of an ordinary tin pail is preferred. The bottom of the case is straight and flat, and is adapted to rest upon a stove, range, or other support, so as to present an extended heating-surface, and the chambers are provided with a second bottom 5, raised a short distance above the other, where it is supported by the braces 6 6 between the two bottoms to receive and hold a supply of water. A tank 7, located in some convenient position alongside the chamber 1 and preferably integral with said chamber, communicates with this water-space 6^a between the two bottoms and always supplies water therto. The water is allowed to flow from this tank and space into chamber 2 through an orifice 7^a in the sloping wall 8 at the end of the space, and this orifice is controlled by a plug-valve 9, the stem 10 of which extends through the case, where it can be easily raised or lowered. Faucets 11 and 12 in one side of the case are opened to decant the water from the tank or the chamber 2, and if only the dirty water is to be removed the faucet 12 is opened, the plug-valve 9 remaining closed. This removes all the water in the compartments 1 and 2, and by closing this faucet and opening the valve a new supply is let into the chambers.

A frame or housing 14, consisting of strips of metal or other material, is attached to the bottom 5 of chamber 1, and a vertical shaft 13 is revolubly supported in this frame. This shaft has an angular or square upper end 15, and the basket 16 is adapted to be mounted on this shaft. This basket is preferably cylindrical in form and consists of wire. A series of circular wires 17, concentric with the center post 18, constitute the bottom, and these circular wires are held together by the radial wires 19. Vertical wires 20 extend upward from the outer circular wire, and these are held together by circular wires 21. Radial wires 22 extend outward to form different-sized spaces for the plates or other dishes which are held on edge between them. A crown ratchet-toothed wheel 23 is rigidly secured on the vertical shaft within the frame 14. An arm 24 is loosely mounted on the

vertical shaft, and it extends out laterally beyond the wheel 23, where it terminates in a rounded outer end 25. Gravity-pawl 26 is carried by this arm, so that one side of the arm by passing over the pawl prevents the latter from being raised too high, so as to drop over the other way and miss any of the teeth of the crown-wheel 23. The manner of vibrating this arm will be explained more fully.

The crank-shaft 23′ is revolubly supported in the chamber 2, and buckets 27 27 are secured to the shaft. These buckets are located opposite each other, and are oppositely turned and preferably held together by the webs 28 28. They may be of various shapes; but the form shown is desirable, as in this instance the bottoms 29 are bent in or concaved to serve as scoops and also to force the water upward against the dishes when the motion of the crank-shaft is reversed. The positions of the buckets are such that their edges just pass the bottom and back of the chamber 2, which back is about concentric with the crank-shaft, so that even when very little water is used it may be easily scooped up from the bottom of the chamber. The crank 30 on this shaft is preferably located inside, as shown, and from this crank a pitman 31 extends forward to the arm 24, with which it is coupled by a kind of universal joint. Said joint consists of a sleeve 32, loosely mounted on the rounded outer end 25 of the arm 24, where it is retained by a key 33 and a section 34, secured to the end of the pitman and pivotally connected to the sleeve. The crank-shaft is turned by a crank-handle 34′ thereon outside of the case. By turning this crank-handle the buckets scoop up the water in the bottom of the chamber 2 and splash it over the dishes. While one is being filled the other is being emptied, and meanwhile the basket is given an intermittent motion so timed that at each stop the contents of two buckets is splashed over the dishes. The water immediately drains off and runs back into the narrow bottom of chamber 2, to be again scooped up. The bottom of chamber 1 may slope toward chamber 2, if so desired, to facilitate this backflow, and, owing to the restricted size of the chamber 2, comparatively little water is required, as it is only necessary to fill the bottom of the chamber. This intermittent motion is important, as the dishes are washed more easily and better cleaned by this splashing than they would be by a continuous contact with the water.

The device can be run by machinery. It can be made cheaply and can be readily moved from one place to another. More than one basket for the dishes could also be used, and thus the dishes on one could be washed, and then the basket with the dishes could be removed and another one placed in the machine. After all are washed in this manner thoroughly they could be rinsed in the same way.

During the entire process very hot water may be used, and the operator need not touch the water. This hot water heats the dishes thoroughly, so that the moment they are exposed to the air they begin to dry. The machine seldom if ever gets out of order and is easily operated, can be used to wash vegetables as well as crockery, and the fact that the basket is removable makes it obvious that its contents could easily be carried to the cupboard or other place in it. The machine usually is kept on the stove or range with water in it, always in readiness for work, and consequently the water from the tank, which is always clean, may be drawn off and used for other purposes, if desired.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the particular construction herein set forth; but,

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

1. In a dish-washing machine, the combination, with a case, a rotary crank-shaft, and buckets thereon, of a removable basket, a pitman extending from the crank-shaft, and a ratchet-and-pawl connection between the basket and pitman, whereby motion from the crank-shaft is communicated to the basket, substantially as set forth.

2. In a dish-washing machine, the combination, with a case, a rotary crank-shaft, and buckets thereon, of a shaft at right angles to the vertical crank-shaft, a basket mounted on the shaft, and a pitman extending from the crank-shaft and loosely connected with the other shaft, whereby motion is communicated to the basket, substantially as set forth.

3. In a dish-washing machine, the combination, with a case, a crank-shaft, and buckets thereon, of a shaft at right angles to the crank-shaft, a basket removably mounted on the shaft, a crown ratchet-toothed wheel on the shaft, an arm extending laterally from the shaft and having a gravity-pawl thereon adapted to engage the teeth of the wheel, and a pitman extending from the crank-shaft and having loose connection with the arm, whereby the latter is vibrated, substantially as set forth.

4. In a dish-washing machine, the combination, with a case, a rotary crank-shaft, and oppositely-extending buckets thereon, of a vertical shaft having an angular upper end, a removable basket, a crown-toothed ratchet-wheel secured on the shaft, and arm extending from the shaft, with a pawl thereon extending beneath a portion of the arm, a pitman extending from the crank-shaft, and a universal joint connecting the pitman with the arm, substantially as set forth.

5. The combination, with a vessel divided

into two communicating apartments and provided with a hollow bottom and a water-tank communicating with said hollow bottom, of a rotary shaft having buckets thereon, a vertical shaft actuated by the bucket-carrying shaft, and a basket carried by the vertical shaft, substantially as set forth.

6. The combination, with two compartments, each having a false bottom, said bottom being braced and having a frame thereon, of a vertical shaft having an angular upper end, a removable skeleton wire basket, a crown-toothed wheel on the shaft, an arm extending laterally from the shaft, with a gravity-pawl to engage the teeth on the wheel, a rotary crank-shaft with buckets thereon, a pitman extending from said shaft, and a universal joint connecting the pitman with the arm, substantially as set forth.

7. The combination, with a rotary basket, of a crank-shaft, a pair of buckets thereon with concaved bottoms, a pitman attached to the crank-shaft, and a pawl and ratchet connecting the pitman and basket support, whereby the latter is given periodical movements, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WELLINGTON B. CUSHMAN.

Witnesses:
JAMES M. BATEMAN,
M. L. JUDD.