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G. WEBB

2,267,003

DISHWASHING MACHINE

Original Filed July 26, 1937

Fig. 2

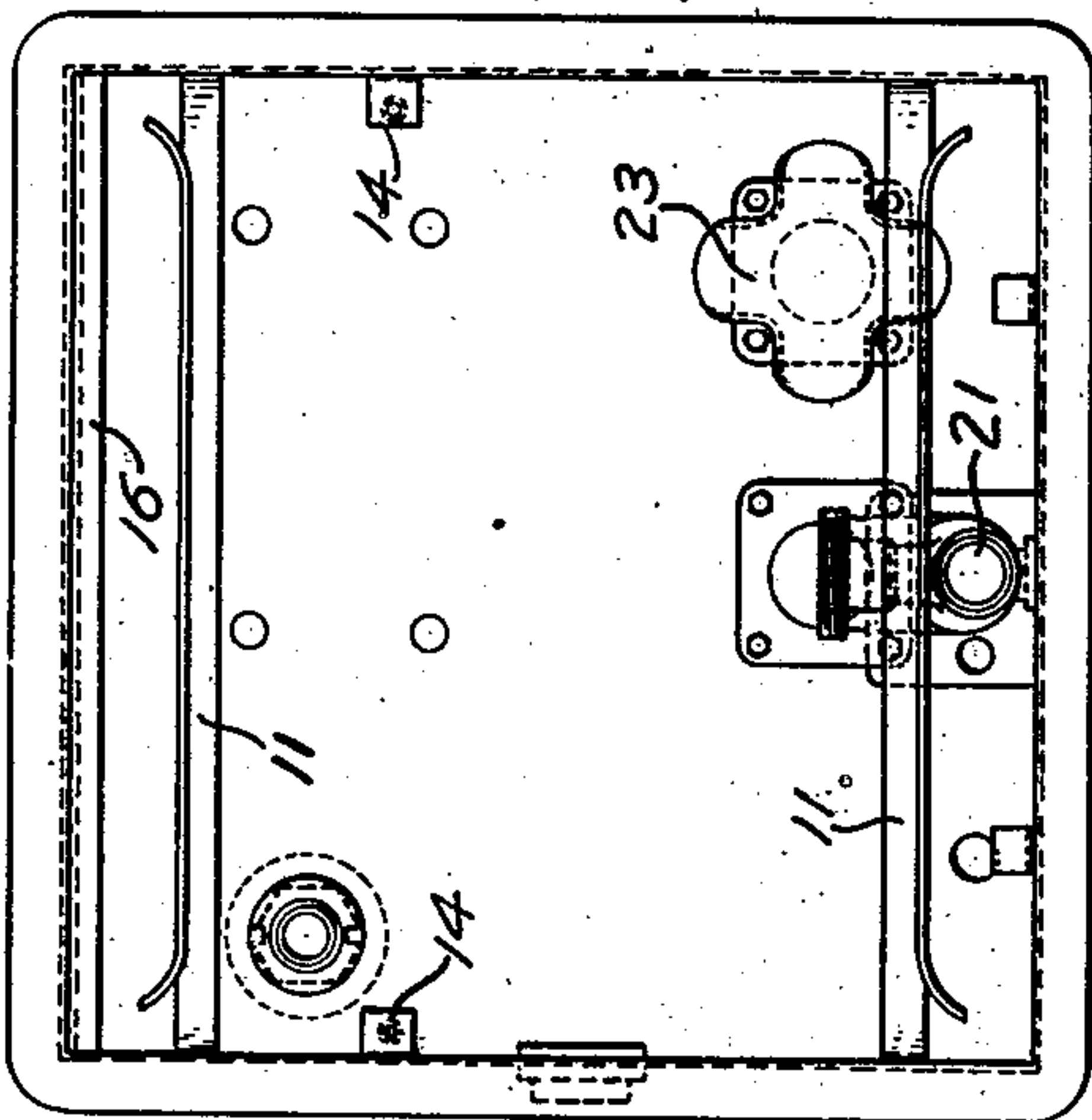


Fig. 3

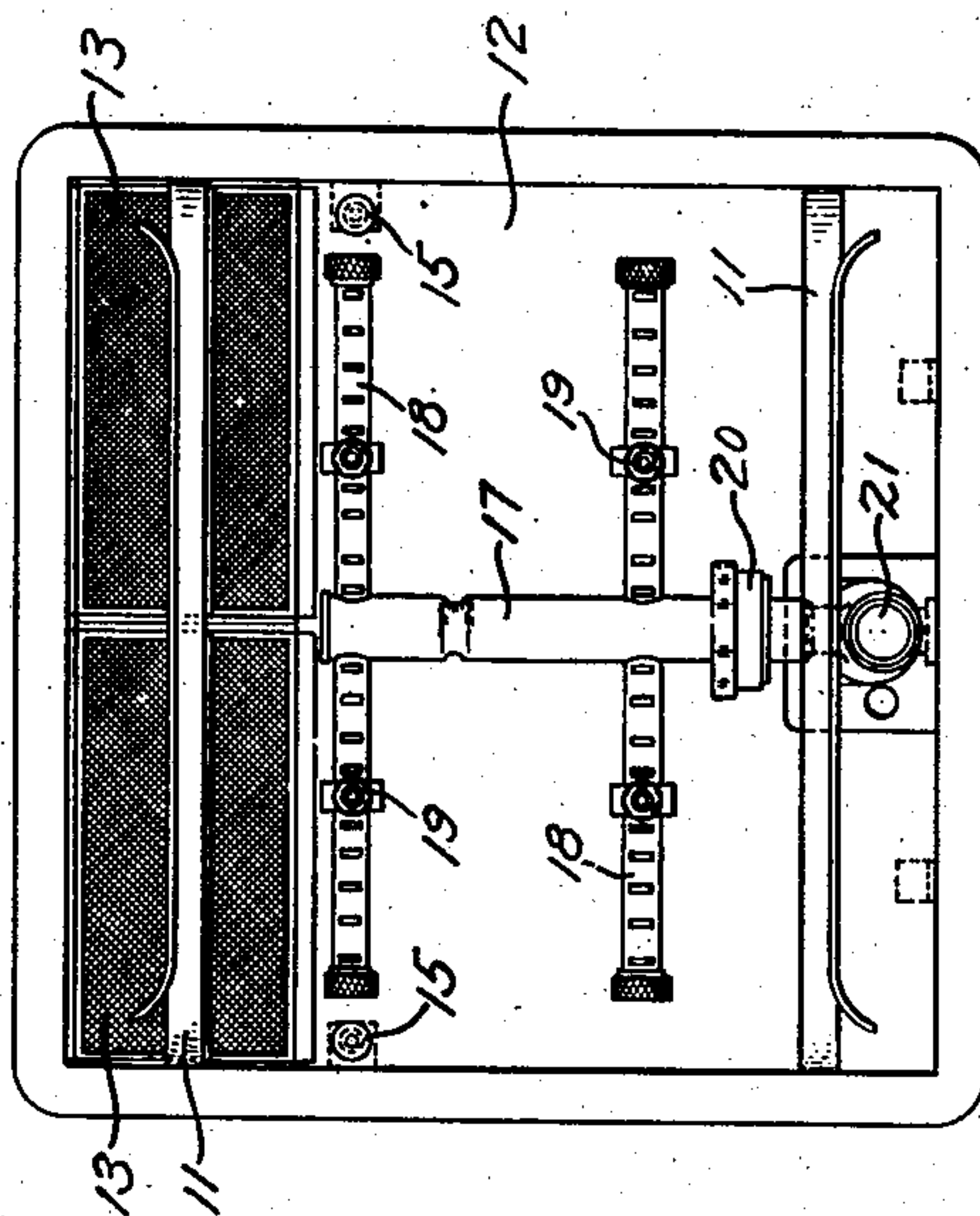
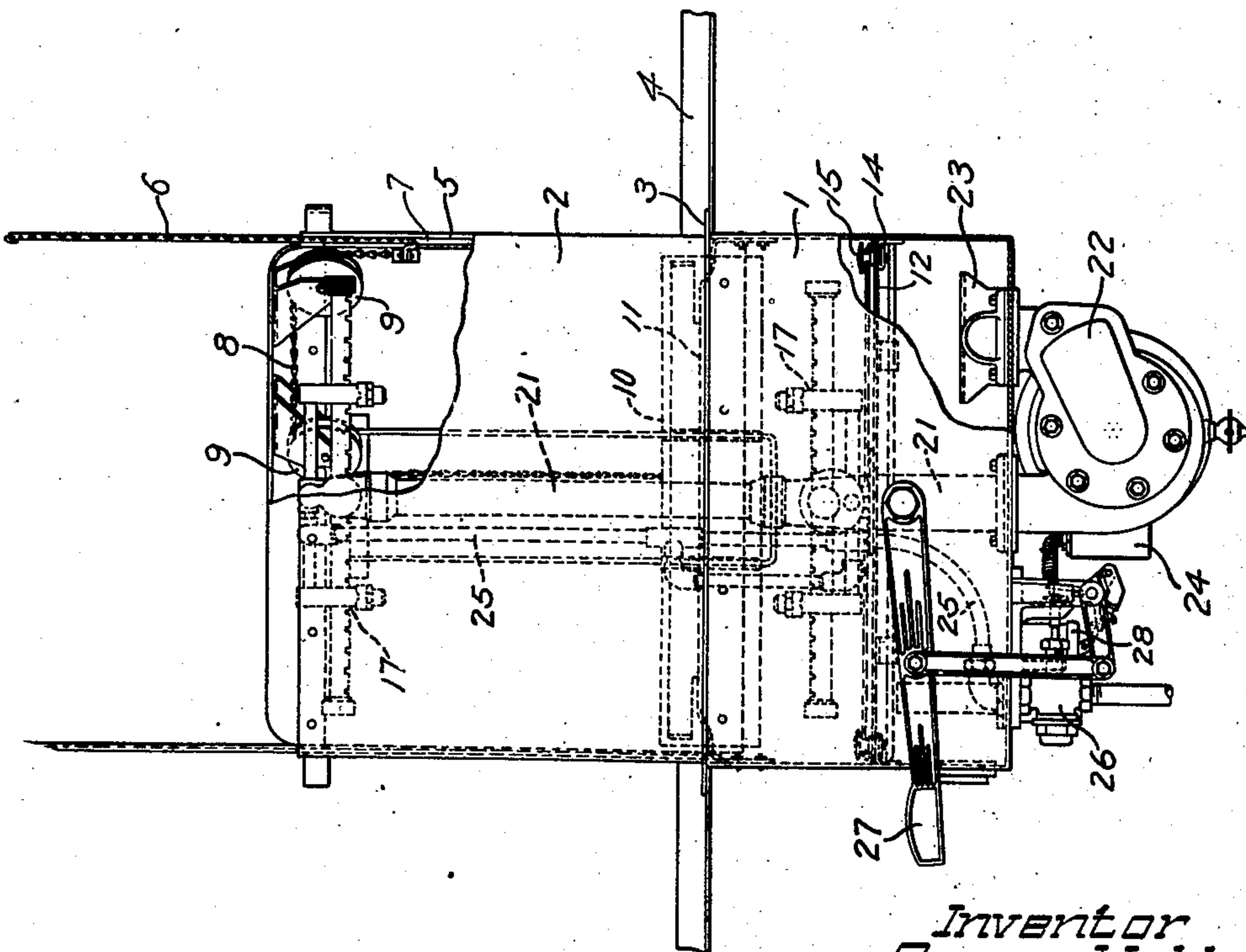


Fig. 1



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DISHWASHING MACHINE

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Original application July 26, 1937, Serial No.
155,607. Divided and this application Febru-
ary 24, 1938, Serial No. 192,295

2 Claims. (Cl. 141—9)

The principal object of this invention is to provide a dish washing machine of compact construction so that the resultant machine will occupy a minimum of space whereby the machine may be placed in locations where only a small space can be devoted to such a machine.

Another object is to provide a dish washing machine in which certain parts may be readily removed to permit cleaning and inspection of the machine.

Other and further objects of the invention will be readily apparent to those skilled in the art from the following disclosure.

This application is a division of my co-pending application Serial No. 155,607, filed July 26, 1937.

In the accompanying drawing I have illustrated the invention as required by the statutes, but it will be understood that the drawing is for illustrative purposes only and is not to be construed as limiting or defining the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

In the drawing:

Fig. 1 is a front elevation of a dish washing machine embodying the invention, certain parts of the casing being broken away to show the internal construction and other parts of the internal construction being shown in dotted lines.

Fig. 2 is a plan view of the lower section of the dish washing machine casing, certain parts being omitted for clearness.

Fig. 3 is a view similar to Fig. 2 with all of the parts in place.

Prior to the present inventions most dish washing machines have been of substantial size and consequently could not be used where only a limited space could be devoted to dish washing such as in soda and lunch fountains, small kitchens, and other similar places. These prior art machines were also of complicated and relatively expensive construction which further precluded a more universal use. My dish washing machine is primarily intended for use in such places as have been set forth, although its use is obviously not so limited. As will be apparent hereinafter, certain phases of the invention are susceptible of application to any dish washing machine, and as to these I mean to claim them broadly.

In Fig. 1 I have shown one form which a dish washing machine incorporating the features of the invention may take. This machine includes a casing, means for supporting a tray of dishes to be washed, and a washing and rinsing fluid distribution and control system.

The casing is preferably formed in two sections 1 and 2 from stainless steel and may be rectangular in cross section. The section 1 of the casing may be provided with a peripheral flange 3 which may rest upon or be secured to a table top or other supporting means 4. The section 2 has one or more openings 5 therein which permit access to the interior of the casing. Doors such as shown at 6 may be slidably mounted in guideways 7, and door counterbalancing means including chains 8, pulleys 9, and a weight 10, all of known construction, are preferably provided. The dishes to be washed are preferably stacked in trays which may be placed in the machine and be supported on guide tracks 11.

In accordance with the invention the casing is provided with means for dividing the same into upper and lower portions, the lower portion serving as a reservoir for the washing fluid which is to be recirculated. This dividing means or partition preferably includes a perforated portion, through which the fluid, after passing over the dishes, must pass to return to the reservoir. In this way the fluid to be recirculated is freed of any refuse from the dishes being washed. The perforated portion may take the form of one or more removable refuse trays, the same being preferably so located and supported that removal thereof may be easily effected.

I have shown a casing dividing means incorporating the above features of this phase of the invention and I shall now describe the same as it is the type which I now deem preferable.

The dividing means comprises a substantially horizontal imperforate portion or apron 12 and a perforate portion which, as shown in Fig. 3, comprises a plurality of refuse trays 13 and which is positioned in substantially horizontal register with the apron 12. The sum of the respective areas of the imperforate and perforate portions is such that it equals the cross sectional area of the casing, that is, the areas of the imperforate and perforate portions are complementary with respect to the area of the casing.

The apron 12 is preferably supported by brackets 14 secured to the sides of the casing, and, if desired, one or more thumb screws 15 may be provided for detachably securing the apron to the brackets. The perforated portion may also rest upon one or more supports 16 extending from the side of the casing and it may also have an edge extending over the adjacent edge of the apron to be supported thereby. I have illustrated this construction for supporting the refuse

trays 13, as is apparent in Fig. 3, wherein the forward edges (as viewed in this figure) of the refuse trays project over and rest upon the edge of the apron 12.

I have illustrated a washing and rinsing fluid distribution system construction which may be advantageously used in conjunction with the already described casing construction, but I realize that the casing may be combined with distribution systems other than that shown.

The fluid distribution system preferably includes discharge heads or devices positioned above and below the dishes to be washed. Each discharge head may include a washing fluid conduit having fluid discharge openings therein and a rinsing fluid conduit also having discharge openings therein. I now prefer to so construct each of these two heads that it may be mounted in or removed from the casing as a unit.

In the illustrated construction discharge heads or devices 17, 17 are positioned above and below the dishes to be washed. Each discharge head includes washing fluid conduits 18 and rinsing fluid conduits 19, the two conduits each having suitable discharge openings therein and being preferably secured to each other so that the two conduits may be put in place or removed from the casing as a unit. Each of the units is rigidly secured in operative position as shown and connected with the proper fluid distribution system by means of the threaded ring 20. The dimensions of the lower discharge head unit are preferably such that the unit does not interfere with the ready removal of the refuse trays 13. This construction is illustrated in Fig. 3 wherein the lower unit is shown as projecting over only the apron 12. It should, of course, be understood that if some other type of discharge head construction were used in conjunction with a casing dividing means such as above described, the dimensions of the substituted construction might well also be so limited for the same reason.

The washing fluid discharge conduits are suitably connected with the pipe 21 which extends upward from the bottom of the casing adjacent one side wall thereof. Secured to the bottom of the casing is a centrifugal pump 22 having its discharge outlet connected with the pipe 21 and its intake connected with an outlet member 23 in the bottom of the casing. An electric motor 24 is provided for driving the pump. The rinsing fluid discharge conduits 19 are connected to a pipe 25 extending parallelly with the pipe 21 and being suitably connected with a valve 26 secured to the bottom of the casing. An operating lever 27 serves to selectively operate an electric switch 28 or the valve 26 as desired, the switch 28 serving to start and stop the motor 24.

The operation of the dish washing machine will now be described, it being assumed that the machine is properly connected with suitable sources of electrical energy and rinsing fluid. The dishes to be washed may be arranged in a suitable rack which is placed in the machine and rests on the guide tracks 11. The doors 6 are lowered to close the machine. The operator now moves the lever 27 to the position necessary to move the switch 28 to its "on" position, whereupon the pump 22 withdraws the washing fluid from the tank portion of the casing and discharges it through the washing fluid discharge conduits 18, the fluid passes over the dishes, drains on to the apron 12 or refuse trays 13 and then passes through the perforations in the trays to be freed of refuse and again into the tank portion of the casing to

be recirculated by the pump. After the dishes have been thoroughly washed, the lever is moved to its original position which serves to return the switch to its "off" position. The lever is now moved to the position in which it serves to operate the valve 26 to permit the rinsing fluid to flow into its distribution system and be discharged over the dishes. After the dishes have been thoroughly rinsed the lever may be returned to its original position.

If desired, the operator may easily lift out the refuse trays 13 for cleaning as the lower discharge head does not project over them. The apron 12 may also be easily and quickly removed. To effect removal of the apron, the lower discharge head must be first removed and to do so it is only necessary to unscrew the single threaded ring 20 and remove the discharge head unit from the casing. The apron may now be lifted out after removing the thumb screws 15. The apron, lower discharge head, and refuse trays can be reassembled in the machine by a mere reversal of these steps.

Alternative forms of the invention will be apparent to those skilled in the art, and I do not intend to limit myself to any particular embodiment except as defined in the claims.

What I claim is:

1. In a dish washing machine, the combination of a casing having upper and lower portions, the said upper portion having an opening therein permitting access to the interior of the casing and the said lower portion constituting a tank having bottom and side walls for the reception and storage of washing fluid, dish supporting means fixedly mounted within the tank, a fluid conducting means within the tank, a fluid discharge device rigidly mounted in operative position in the upper portion of the casing but below the dish supporting means and opening in said upper portion and secured to said fluid conducting means so as to be readily connectible thereto and disconnectible therefrom for removal from the casing, said dish supporting means and said discharge device when in position being so related as to prevent the removal from the casing of any article of substantial area from beneath said discharge device, a horizontal imperforate apron of substantial area positioned in the casing directly below the discharge device, said apron being removable from the casing upon detachment and removal of the discharge device, and a perforate tray means in horizontal register with the apron and positioned at one side of the casing so as to be readily removable from the casing when said discharge device is in its operative position in the casing, said apron and tray means jointly constituting a partition substantially co-extensive in area with the horizontal area of the casing.

2. In a dish washing machine, the combination of a casing having upper and lower portions, the said upper portion having an opening in a side wall thereof permitting access to the interior of the casing and the said lower portion constituting a tank having bottom and side walls for the reception and storage of washing fluid, a pair of dish rack supporting rails aligned with said opening, a fluid conducting means within the tank adjacent one side wall thereof, a fluid discharge device rigidly mounted in operative position in the upper portion of the casing between said dish rack supporting rails and below said opening and secured to said fluid conducting means so as to be readily connectible thereto and disconnectible

therefrom for removal from the casing, said dish rack supporting rails and said discharge device when in position being so related as to prevent the removal from the casing of any article of substantial area from beneath said discharge device, a horizontal imperforate apron of substantial area positioned in the casing directly below the discharge device, said apron being removable from the casing upon detachment and removal

5 of the discharge device, and a perforate tray means in horizontal register with the apron and positioned at one side of the casing so as to be readily removable from the casing when said discharge device is in its operative position in the casing, said apron and tray means jointly constituting a partition substantially coextensive in area with the horizontal area of the casing.

GEORGE WEBB.