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PATENTED MAR. 12, 1907.

R. H. SUNKLE.
DISH WASHING MACHINE.
APPLICATION FILED JUNE 10, 1905.

2 SHEETS—SHEET 1.

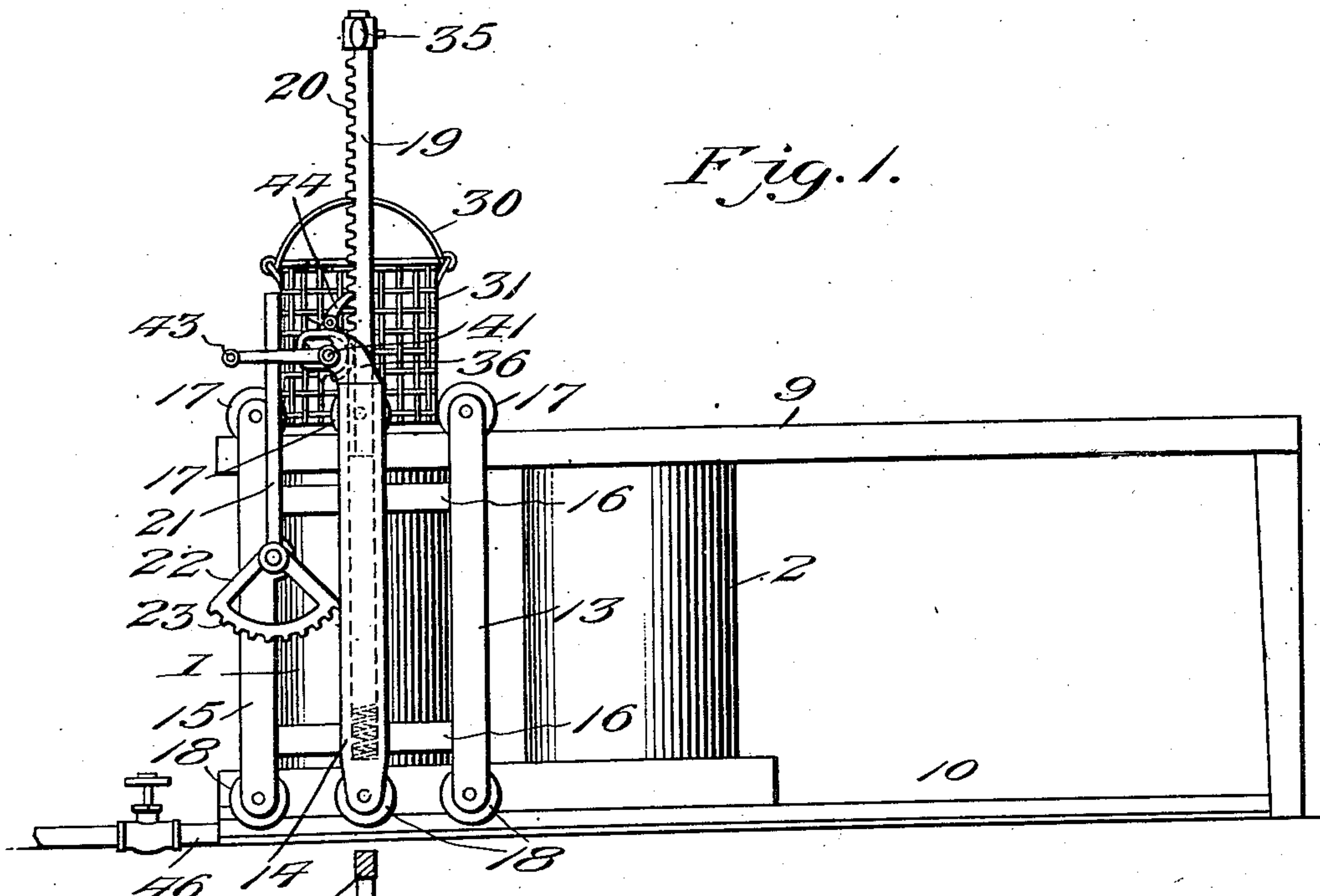
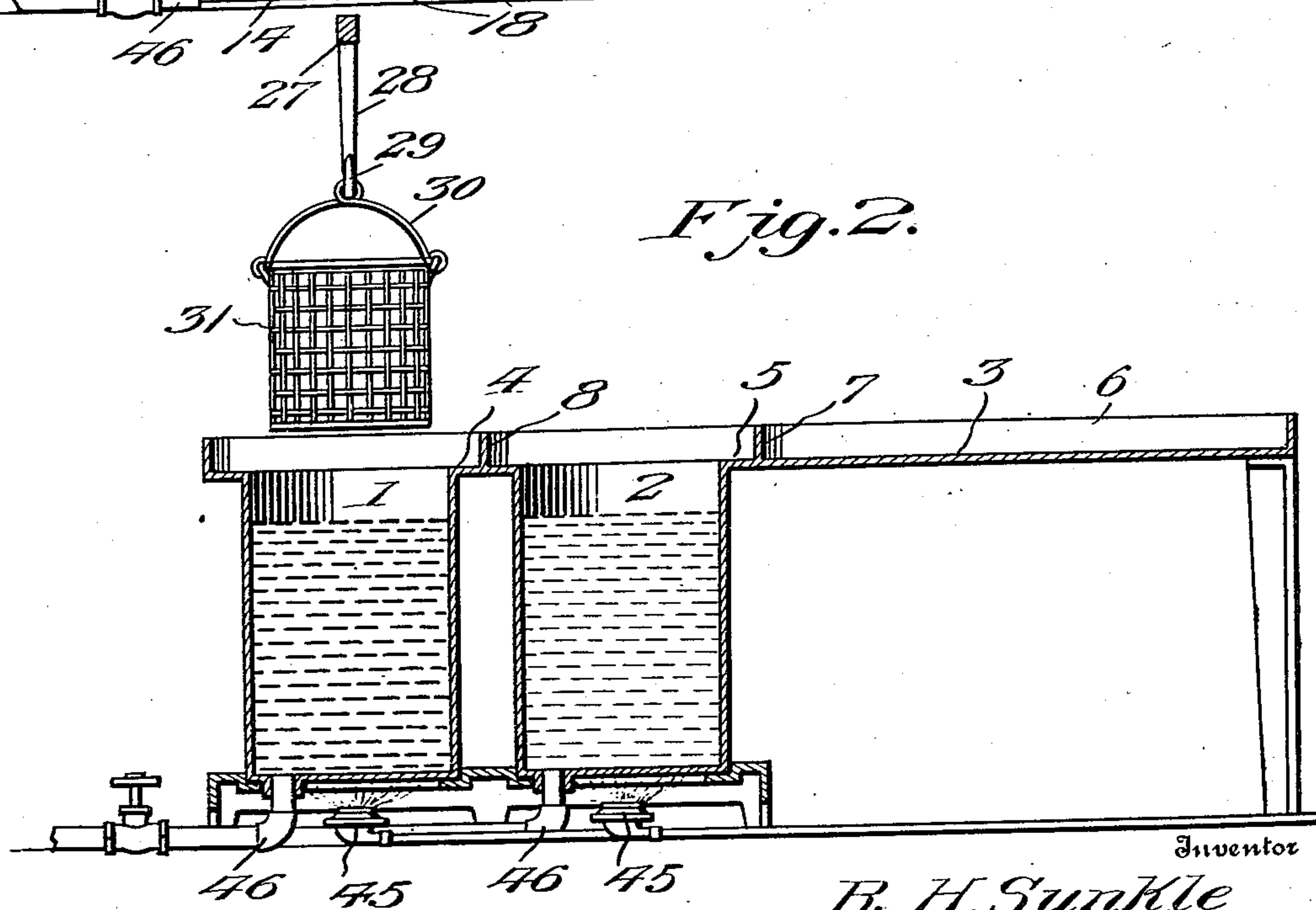


Fig. 2.



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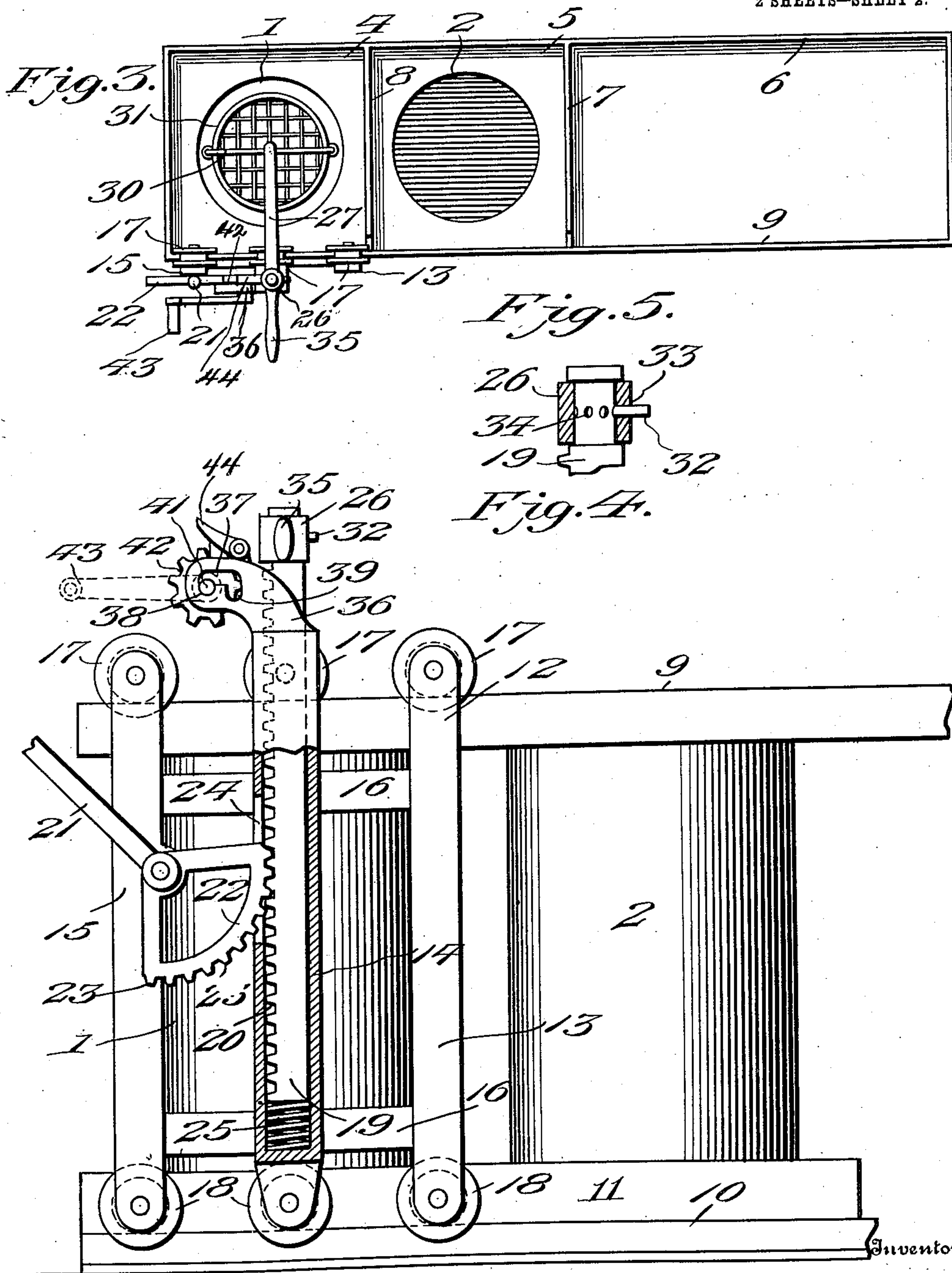
Attorney

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UNITED STATES PATENT OFFICE.

ROBERT H. SUNKLE, OF CLEVELAND, OHIO.

DISH-WASHING MACHINE.

No. 847,129.

Specification of Letters Patent.

Patented March 12, 1907.

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To all whom it may concern:

Be it known that I, ROBERT H. SUNKLE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

The invention relates to an improvement in dish-washing machines wherein dishes or the like are subjected to a rapid movement in a body of water or other cleansing fluid.

The main object of the present invention is the provision of means for subjecting the dishes to a rapid reciprocatory movement within a suitable vessel and adapting said means for similar operation in connection with a rinsing-tank, whereby the dishes may be thoroughly cleansed and rinsed without handling.

A further object of the invention is to adapt the operating means for travel from the cleansing-tank to the rinsing-tank and from the latter to a table or support upon which the dishes may be deposited for draining.

With these objects in view the invention consists in certain details of construction and combinations of parts which will first be described in the following specification and then pointed out in the claims.

The preferred embodiment of details of the structure are clearly illustrated in the accompanying drawings in two sheets, in which—

Figure 1 is a view in side elevation of a dish-washer constructed in accordance with my invention. Fig. 2 is a longitudinal section, partly in elevation, of the same, the operating mechanism being omitted. Fig. 3 is a top plan view, and Fig. 4 is an enlarged broken side elevation, illustrating particularly the operative mechanism. Fig. 5 is a broken view in elevation, partly in section, showing the connection between the plunger and the basket-supporting arm.

Referring to the drawings, wherein like parts are indicated by like reference-numerals throughout the several views, my improved dish-washing machine includes tanks 1 and 2 and a table 3 for receiving the cleansed dishes, all of which parts may be of any preferred size and are arranged in alinement longitudinally of the machine. The tanks 1 and 2 and the table 3 are supported in a framework including side bars and cross-bars, said tanks and table being constructed practically of a single strip of material, as

clearly shown in Fig. 2. The upper ends of the tanks 1 and 2 are bent laterally to provide what are termed "drip-tables" 4 and 5 respectively, the surfaces of which tables are in alinement with and form, in effect, a continuation of the receiving-table 3. The drip-tables and receiving-table which are disposed in alinement longitudinally of the machine have an edge flange 6 projecting above the respective surfaces and a similar edge flange 9, transverse flanges 7 and 8 dividing the respective tables, as clearly shown in Fig. 3. The flange 9 is arranged for service as a track for supporting the movable parts of the machine, as will later appear. As thus described, each of the drip-tables and receiving-table is guarded by edge flanges on four sides, and the drip-tables are respectively formed with centrally-disposed openings coincident with the open ends of the cleansing and rinsing tank. As said tables are practically square in plan, considerable surface is provided, surrounding the open mouths of the respective tanks and within the edge flanges, said surface serving to direct any water escaping from the tanks in the operation of the machine back into its proper tank, as will be obvious. The flange 9 provides the upper track for the movable parts of the machine and will be hereinafter referred to as "track" 9. In connection with this track 9 a lower track 10 is secured in vertical alinement therewith, being preferably fixed to one of the frame-bars. The tracks extend longitudinally throughout the length of the machine and are designed to provide for the movement of the operating mechanism hereinafter described.

The operating mechanism comprises a carriage 11, preferably including three vertically arranged parallel bars 13, 14, and 15 and transverse bars 16 joining the vertical bars near their respective ends. The upper ends of each of the vertical bars is provided with a flanged wheel 17, designed to engage the upper track 9, while the lower ends of these bars are similarly provided with a flanged wheel 18 to engage the lower track 10. The wheels 17 and 18 are preferably positioned on the inner side of the vertical bars with relation to the machine, whereby said carriage may be moved longitudinally of the machine without obstruction.

The central bar 14 of the carriage is of hollow construction, thereby adapted to receive a square plunger 19, formed on the face next

the vertical bar 15 with a series of transversely-arranged cog-teeth 20. An operating-lever 21 is pivotally mounted on the vertical bar 15 of the carriage and provided forward of its pivotal connection with a segment 22, formed on its curved edge with a series of cog-teeth 23, designed to project through an opening 24, formed in the proximate side of the bar 14 and meshing with the teeth 20 on the plunger 19, whereby to vertically reciprocate said plunger in the movement of the lever.

The plunger is cushioned through the medium of a coil-spring 25, seated in the lower end of the hollow bar 14, whereby to avoid a sudden stop in the downward movement of the plunger. The plunger is reduced at its upper end to receive a collar 26, secured to one end of an arm 27, projecting laterally from the plunger and overlying when in normal position the tanks 1 or 2. At its free end the arm 27 is provided with a depending support 28, having a hook 29 at its lower end to detachably receive the eye of a bail 30, connected to a wire or perforate dish-basket 31. The basket is preferably somewhat less in diameter than the diameter of the tanks, whereby to provide for the reception of a sufficient quantity of water within the tank to completely envelop the basket in operation. The sleeve 26 is provided with a latch-pin 32, having its operative end projecting through an opening 33, formed in the sleeve. The operative end of the latch-pin is designed to engage in one of a series of depressions 34, formed in a row circumferential of the reduced end of the plunger 19, whereby to secure the arm 27 in adjusted position with relation to the plunger. The sleeve 26 is also provided with a handle 35, extending therefrom in a direction opposite to that of the arm 27 to provide for convenient revolution of the arm when desired. It is also desirable to provide means for operating the plunger independent of the lever 21, in order to adapt the machine for use in situations precluding the use of said lever. I provide this means by mounting a metallic arm or casting 36 at one side of the upper end of the bar 14, the casting projecting laterally of said bar and toward the bar 15. The outer end of the casting is formed with an elongated slot 37, having bearing depressions 38 39 at opposite ends thereof. A stub-shaft 41, carrying a pinion 42 and a crank 43, is mounted in the casting, being of a size to fit snugly within the bearing depressions 38 or 39 and headed at one end to prevent disconnection from the casting. The teeth of the pinion 42 are designed to intermesh with the teeth 20 on the plunger, whereby revolution of the stub-shaft 41 under the influence of the crank will elevate and depress the plunger.

In the operative position of the pinion 42 the stub-shaft 41 is of course seated in the

depression 39, being thereby held in operative engagement with the plunger-teeth, while said stub-shaft and pinion may be withdrawn longitudinally of the slot 37 and seated in a depression 38 at the opposite end of the casting, in which position the pinion is out of mesh with the teeth of the plunger, and said plunger may be operated solely by the lever 21. It is to be understood, of course, that in the operation of the plunger by the pinion 42 the lever 21 is swung to vertical position to wholly disengage its teeth 23 from the teeth of the plunger, as clearly shown in Fig. 1. A dog 44 is pivotally supported on the casting 36 in such position that its operative end may when desired be engaged with the teeth 20 of the plunger 19 to support said plunger in the desired elevated position.

The efficiency of the machine is increased by heating the contents of the cleansing-tank and rinsing-tank, and to this end I mount burners 45 beneath said tanks, which may be of any suitable type and are simply designed to heat the contents of the tank. Discharge-pipes 46 communicate with each of the tanks through its bottom and preferably lead to a suitable sewerage-discharge, thus providing for the convenient draining of the tanks when not in use or when it is desired to replenish the fluid.

Assuming the parts constructed and arranged as described, the operation of my improved dish-washing machine is as follows: The dishes to be cleansed are placed in the basket 31 and the latter hung or supported on the hook-support of part 28. The arm 27 is revolved until the basket is centrally located above the central tank 1, it being understood that the carriage 12 has been previously moved longitudinally of the tracks to position it directly opposite the tank 1. The arm 27 is locked in position through the medium of a latch-pin 32 to support the basket centrally above the cleansing-tank and the plunger 19 rapidly reciprocated through operation of the lever 21 or crank 43, as may be preferred, thus subjecting the dishes in the basket to the cleansing influence of the fluid within the tank 1 in an obvious manner. After the dishes are thoroughly cleansed the carriage is moved longitudinally of the tracks to position the basket 31 above the rinsing-tank 2, where the operation described is repeated, to thoroughly rinse the dishes. The carriage is then moved longitudinally of the tracks to position the basket above the draining-table and the plunger lowered to deposit the basket with its contained dishes upon the table.

It is wholly obvious that from the initial handling of the dishes to place them in the basket 31 no further direct contact therewith is necessary, as all essential positions of the dish-basket may be obtained through a longitudinal movement of the carriage or the

swinging movement of the arm 27, and the dishes may be thoroughly cleansed, rinsed, and deposited for draining by the simple movement of the carriage and operation of the lever 21 or crank 43.

The apparatus in its described details of structure is simple and cheap in manufacture, though thoroughly efficient in use, and I wish it understood that I do not limit myself to the precise details shown and described, as various changes and modifications thereof may be resorted to without departing from the spirit of my invention.

Having thus described the invention, what is claimed as new is—

1. A dish-washing machine comprising a plurality of tanks, a framework for supporting said tanks, a carriage movable longitudinally of the framework, a plunger mounted for reciprocation in the carriage, and an arm carried by the plunger and arranged above the tanks.

2. A dish-washing machine comprising a framework, a plurality of tanks carried thereby, a carriage movable lengthwise the framework, a reciprocable plunger carried by the framework, an arm movably mounted on the plunger, means for securing said arm in adjusted relation to the plunger, and means for reciprocating the plunger in the carriage.

3. A dish-washing machine comprising a framework, a plurality of tanks carried thereby, a carriage movable longitudinally of the framework, dish-supporting means mounted on said carriage for vertical reciprocation and for a horizontal swinging movement relative to the carriage.

4. A dish-cleaning machine comprising a framework, a plurality of tanks supported by the frame, a carriage movable longitudinally of the framework, a plunger mounted for reciprocatory movement in the carriage, and an arm revolubly mounted on the upper end of the plunger.

5. In a dish-washing machine a framework, a plurality of tanks supported by the framework, a carriage movable lengthwise of the framework, a plunger mounted in the car-

riage, means supported on the carriage for imparting a reciprocating movement to the plunger, and an arm revolubly mounted on the upper end of the plunger.

6. In a dish-washing machine a framework, a plurality of tanks supported by the framework, a carriage movable lengthwise of the framework, a plunger mounted in the carriage, means supported on the carriage for imparting a reciprocating movement to the plunger, an arm revolubly mounted on the upper end of the plunger, and means for locking said arm in adjusted position with relation to the plunger.

7. A dish-washing machine comprising a framework, a plurality of tanks supported thereby, a carriage including a hollow standard mounted for movement longitudinally of the framework, a plunger mounted in said hollow standard, means for operating the plunger, and an arm revolubly supported on the plunger.

8. A dish-washing machine comprising a framework provided with track-rails, a plurality of tanks supported by said framework, a carriage having wheels supported on said track and including a hollow standard, a plunger mounted in said standard, means for reciprocating the plunger, an arm revolubly mounted on the plunger, and means for locking said arm with relation to the plunger.

9. A dish-washing machine comprising a framework provided with track-rails, a plurality of tanks supported by said framework, a carriage having wheels supported on said track and including a hollow standard, a plunger mounted in said standard, a spring-cushion within the standard, and means for reciprocating the plunger, an arm revolubly mounted on the plunger, and means for locking said arm with relation to the plunger.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT H. SUNKLE.

Witnesses:

C. A. GRIFFING,
GEORGE C. HANSEN.