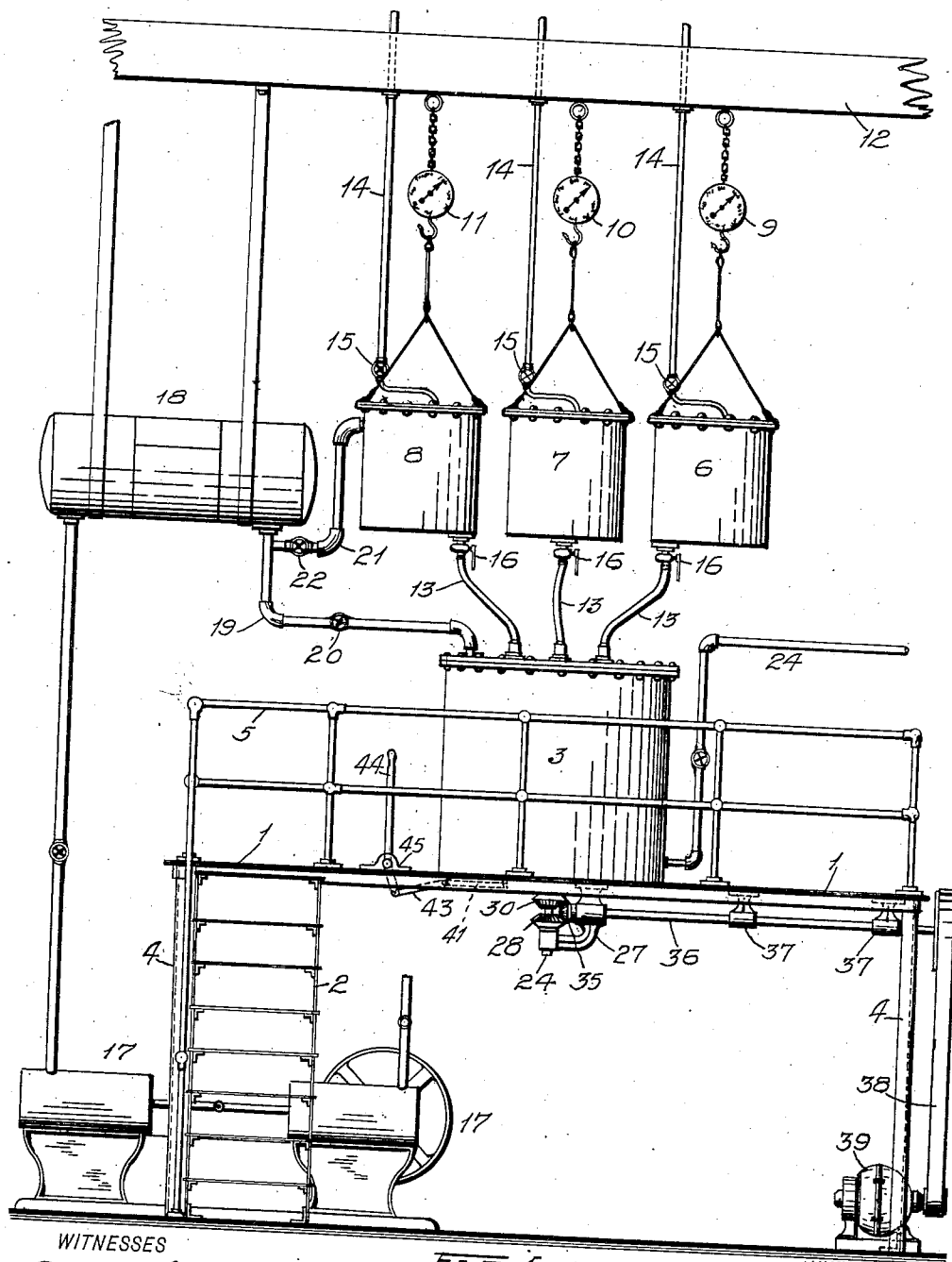


W. A. GRANT.
 APPARATUS FOR MAKING SOAP.
 APPLICATION FILED SEPT. 7, 1907.

939,906.

Patented Nov. 9, 1909.
 2 SHEETS—SHEET 1.



WITNESSES

Frederick Germann Jr.
John W. Kamper

FIG. 1.

INVENTOR

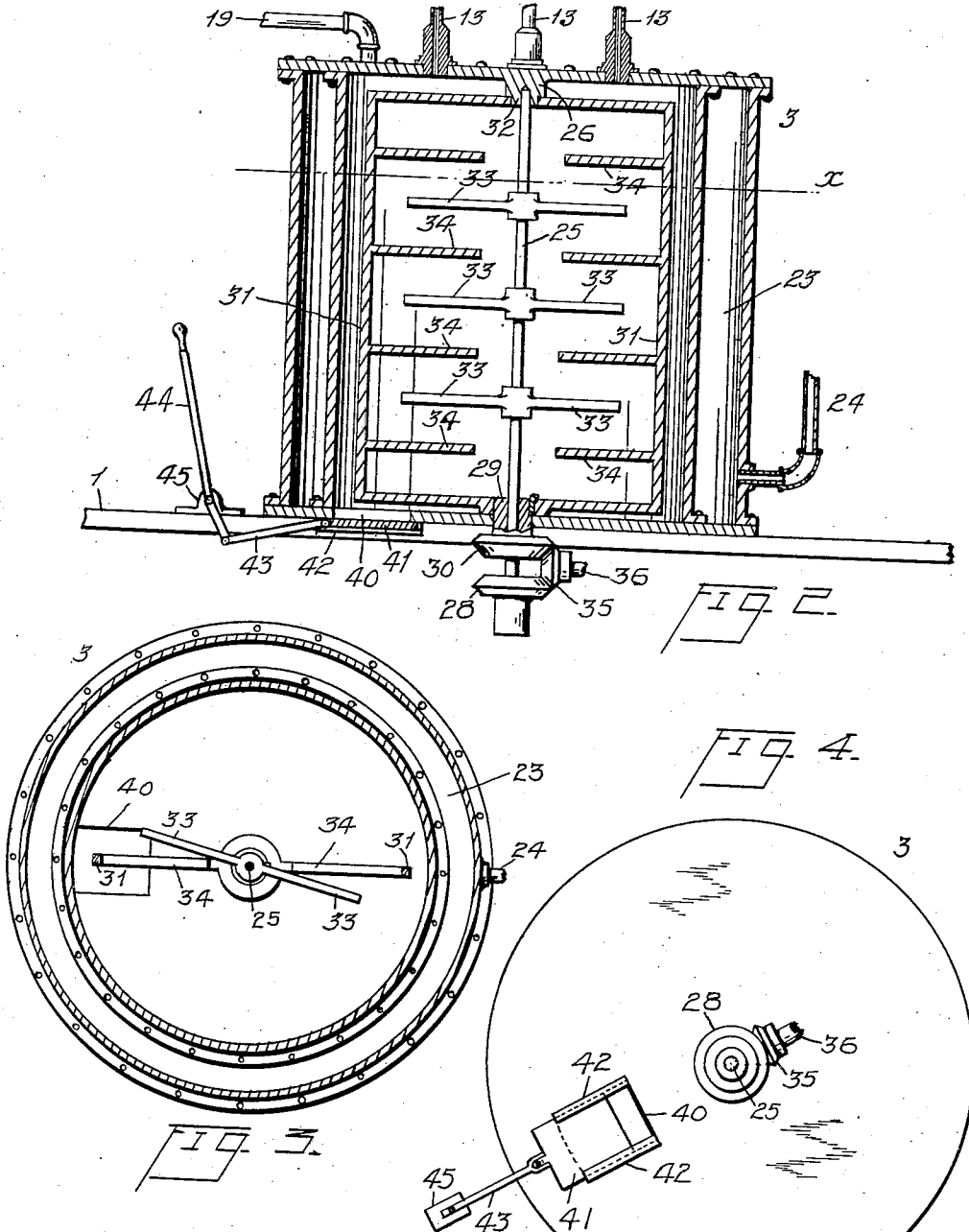
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING SOAP.

939,906.

Specification of Letters Patent.

Patented Nov. 9, 1909.

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To all whom it may concern:

Be it known that I, WILLIAM A. GRANT, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Making Soap, of which the following is a specification.

The objects of this invention are to provide an improved device for combining the ingredients of soap in manufacture of the same; to enable the same to be accurately and thoroughly mixed; to facilitate handling the different materials, including the finished product; to secure a high grade soap, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 shows in elevation an apparatus of my improved construction; Fig. 2 is a vertical central section of the converter; and Fig. 3 is a cross-section of the same on line *x*, Fig. 2; Fig. 4 is a view of the lower end of the converter, looking upward.

In said drawings, 1 indicates an elevated platform reached by steps 2, and upon which the converter 3 of my improved apparatus is arranged. Said platform is supported by posts 4 and provided with a hand-rail 5. Above the said converter 3 are containers 6, 7 and 8 adapted to hold the different ingredients to form the soap and from which the said converter 3 is charged. Preferably these containers are suspended from weighing scales 9, 10 and 11, which in turn hang from a beam 12, and the connections of said containers 6, 7 and 8 with the converter 3 are by means of flexible tubes 13, which do not interfere with freedom of movement of the container. The contents of said containers are introduced to them, respectively, by pipes 14 leading from above and provided with valves or shut-offs 15, these pipes being also flexible and having a substantially horizontal portion, so as to not interfere with the weighing. The interiors of the containers 6, 7 and 8 communicate with the converter 3 by the tubes 13, and these tubes also have shut-off valves 16.

At any convenient point, as on the floor

beneath the platform 1, is stationed an air-compressor 17, and said compressor is adapted to pump into a reservoir 18, which may also be suspended from the beam 12, as shown. Said reservoir is connected, as by a pipe 19, provided with shut-off 20, with the converter 3, and a second pipe 21 with a shut-off 22, connects said reservoir with one of the containers, as 8.

The converter 3 is preferably surrounded by a steam jacket 23, within which steam is admitted as by a pipe 24. Within the converter 3 is an axial shaft 25 having its upper end seated in a bearing 26 on the inside of the top of the converter and its lower end projecting through the bottom of the converter and having a bearing in a bracket 27 on the platform 1. The said shaft 25 has fast upon itself outside of and beneath the converter, a lower gear wheel 28, and where it passes through the bottom of the converter, it is surrounded by the hub 29 of a second or upper gear wheel 30, also outside the converter. The said hub 29 is fitted nicely into the bottom of the converter, and inside of the converter has keyed to itself a rectangular frame 31, which occupies a diametric plane of the converter and finds a bearing at its upper end on a reduced end of the socket in the top of the converter for the end of the shaft 25. The said shaft 25 carries radially projecting lateral arms 33, and the said frame 31 has on its sides arms 34 which project inward and are staggered in vertical position with respect to the arms 33 of the shaft 25. In length, said arms 33 and 34 of the two sets extend considerably past each other or overlap, and thus when rotated in opposite directions an extremely thorough and effective agitation of the contents of the converter is obtained. To secure such rotation of the shaft 25 and frame 31, the said gears 28 and 30 thereof are engaged by the upper and lower edges of a third bevel gear 35, on a shaft 36 journaled in the said bracket 27 and hangers 37 on the bottom of the platform 1, or in other suitable bearings, and driven by a belt 38 from a motor 39.

The bottom of the converter 3 is provided with an aperture or port 40 adapted to be closed by a gate 41 sliding in ways 42 secured to the bottom of the converter. For operating this gate 41, it is shown connected

by a link 43 to a hand-lever 44 fulcrumed on the platform 1, as at 45, or any other suitable operating means may be employed.

In carrying out my invention, the ingredients for making the soap are introduced into the containers 6, 7 and 8, through their supply pipes 14, in the proper proportionate quantities as determined by the weigh scales. The valve 15 in said supply pipes are then closed and the valves 16 below the containers are opened to permit the contents of the containers to pass into the converter 3 through the pipes 13. If necessary, the valve 22 may be opened to allow air-pressure from the tank 18 to force the contents of the container 8 into the converter, or the other containers might be similarly equipped. By opening the valve 20, air-pressure may be introduced from the tank 18 through the pipe 19 into the converter, which attains a double purpose. First, it secures a pressure in the converter which is free from variations of moisture, whereby all kinds of ingredients can be saponified with different grades of soda, and second the said air-pressure enables the mass of soap in the converter to be readily discharged or forced out through the port 40 at the proper time. That is, by closing the valves 16 to the containers, any desired pressure can be secured in the converter from the compressed air tank 18, and when the gate 40 is opened the contents blown out. Obviously, the arms 33 and 34 may be rotated at such times and speed as may be desired to effect a thorough mixing and saponification of the ingredients in the converter.

Having thus described my invention, what I claim is:

1. In an apparatus for making soap, the combination of a converter having a discharge port in its bottom, means for con-

trolling said port, a charging container above said converter and adapted to discharge therein by gravity, a valved duct leading from the bottom of said container to the top of said converter, a compressed-air supply, ducts leading from said compressed-air supply to the tops of said converter and container, respectively, and valves for said last-mentioned ducts.

2. In an apparatus for making soap, the combination of a converter having in its bottom a port adapted to discharge the contents of the container by gravity, means for controlling said discharge port, charging containers above said converter adapted to discharge therein by gravity, valved ducts leading from the bottoms of said containers to the top of said converter, a compressed-air supply, ducts leading from said compressed-air supply to the top of said converter and one of said containers, respectively, and valves for said last-mentioned ducts each independent of the other.

3. In a converter, the combination of a cylindrical body portion arranged with its central axial line vertical, an axial shaft in said converter, a diametrically disposed rectangular frame in said converter having its rim adjacent to the walls of the converter, arms on said shaft and frame, means for rotating said shaft and frame, means for charging said cylindrical body portion, a compressed-air duct opening into the top of said cylindrical body portion adjacent to its curved walls, and a gate at the bottom of said cylindrical body portion also adjacent to its curved walls, said compressed-air inlet and gate being at opposite sides of the path of the said rotary frame.

WILLIAM ALBERT GRANT.

Witnesses:

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