

(No Model.)

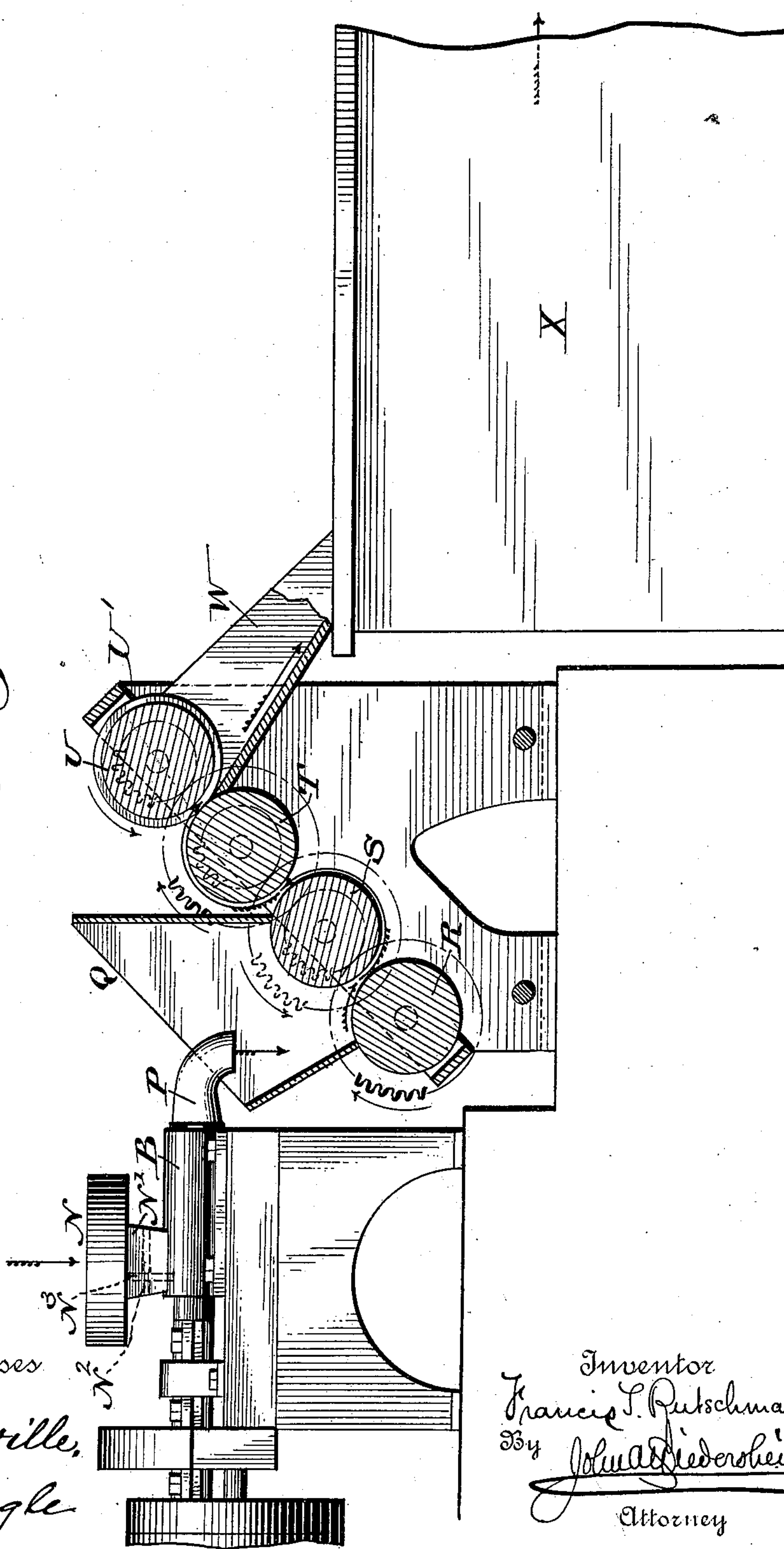
2 Sheets—Sheet 1.

F. S. RUTSCHMAN.
APPARATUS FOR SOLIDIFYING LIQUID SOAP.

No. 567,006.

Patented Sept. 1, 1896.

Fig. 1.



Witnesses

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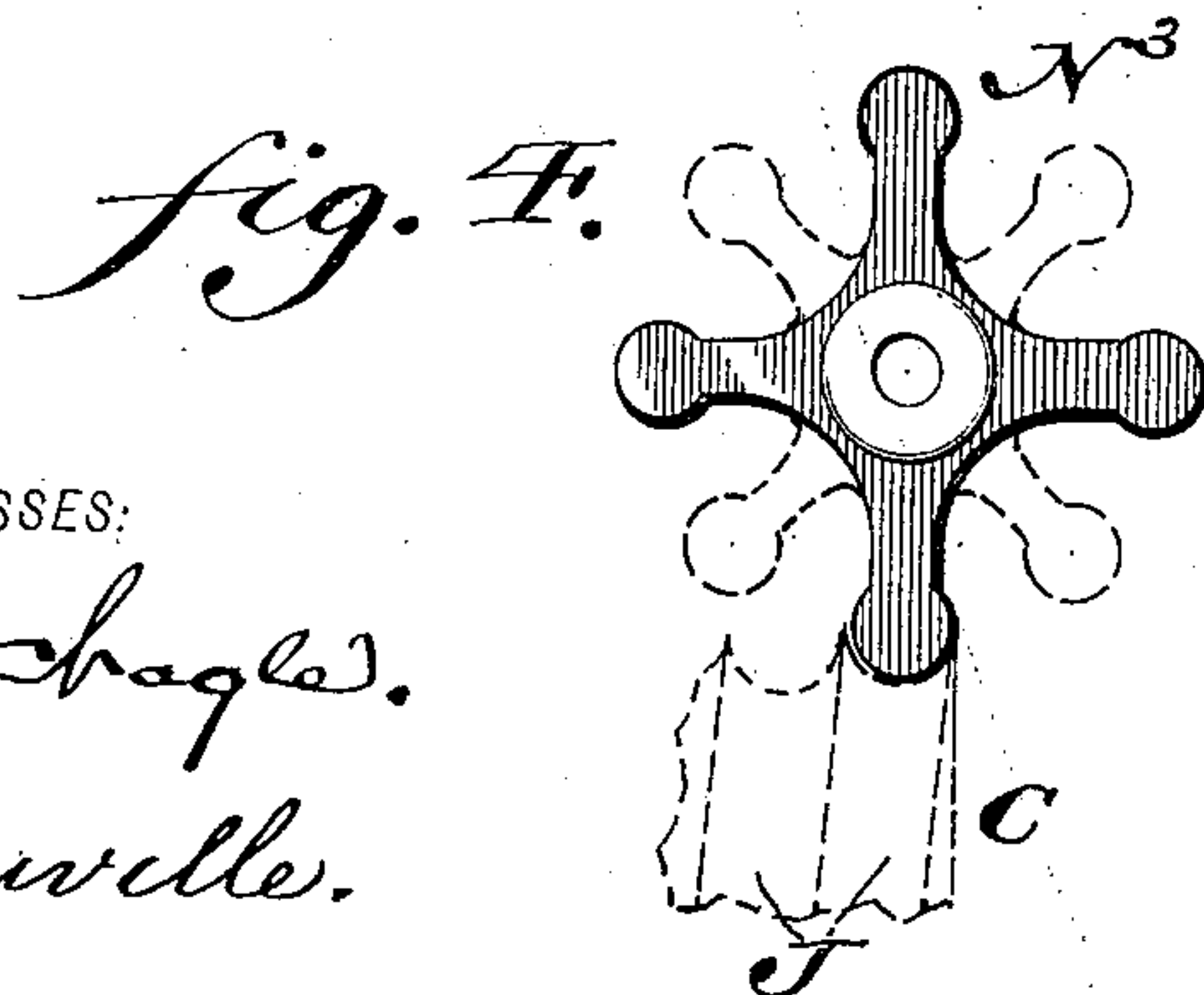
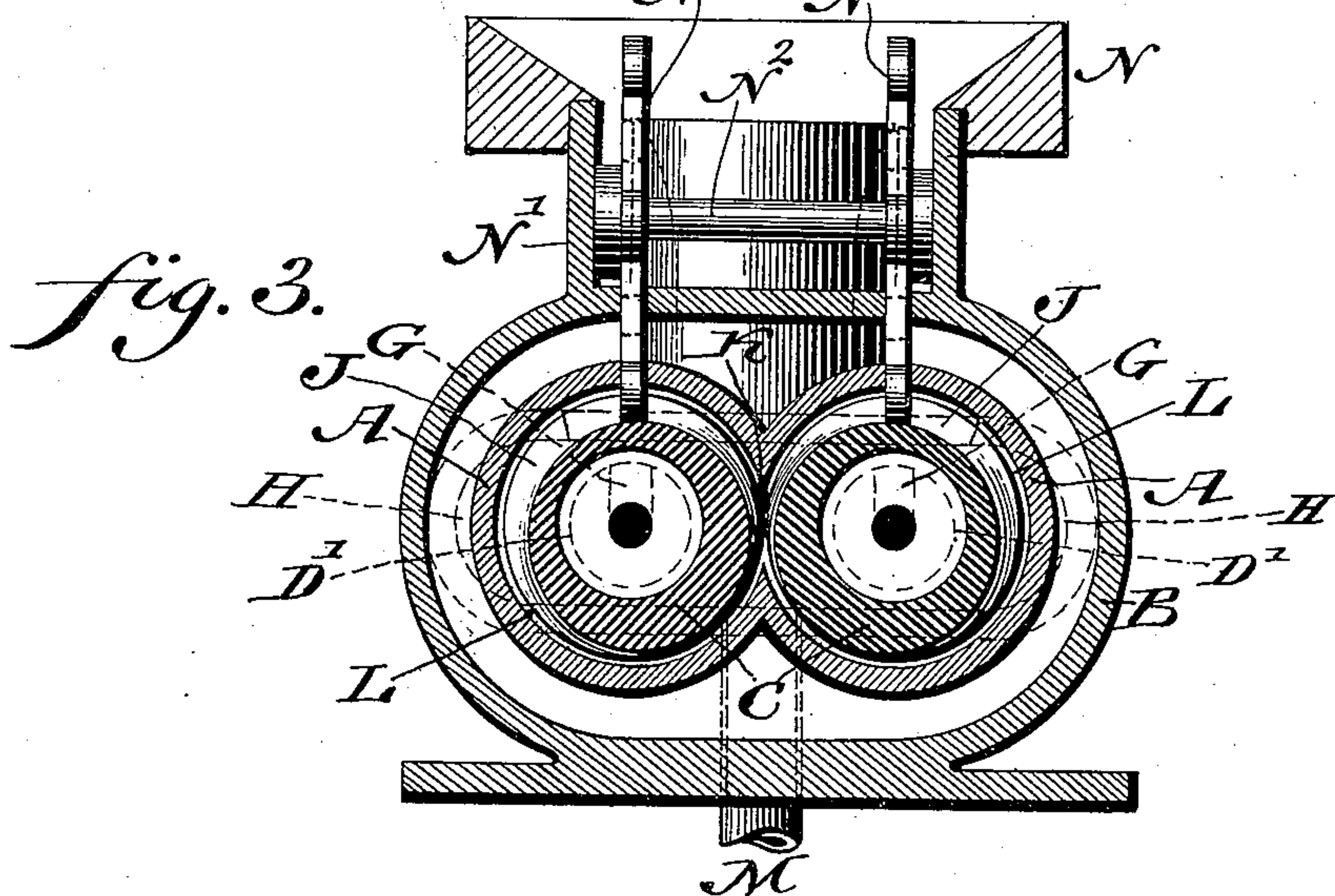
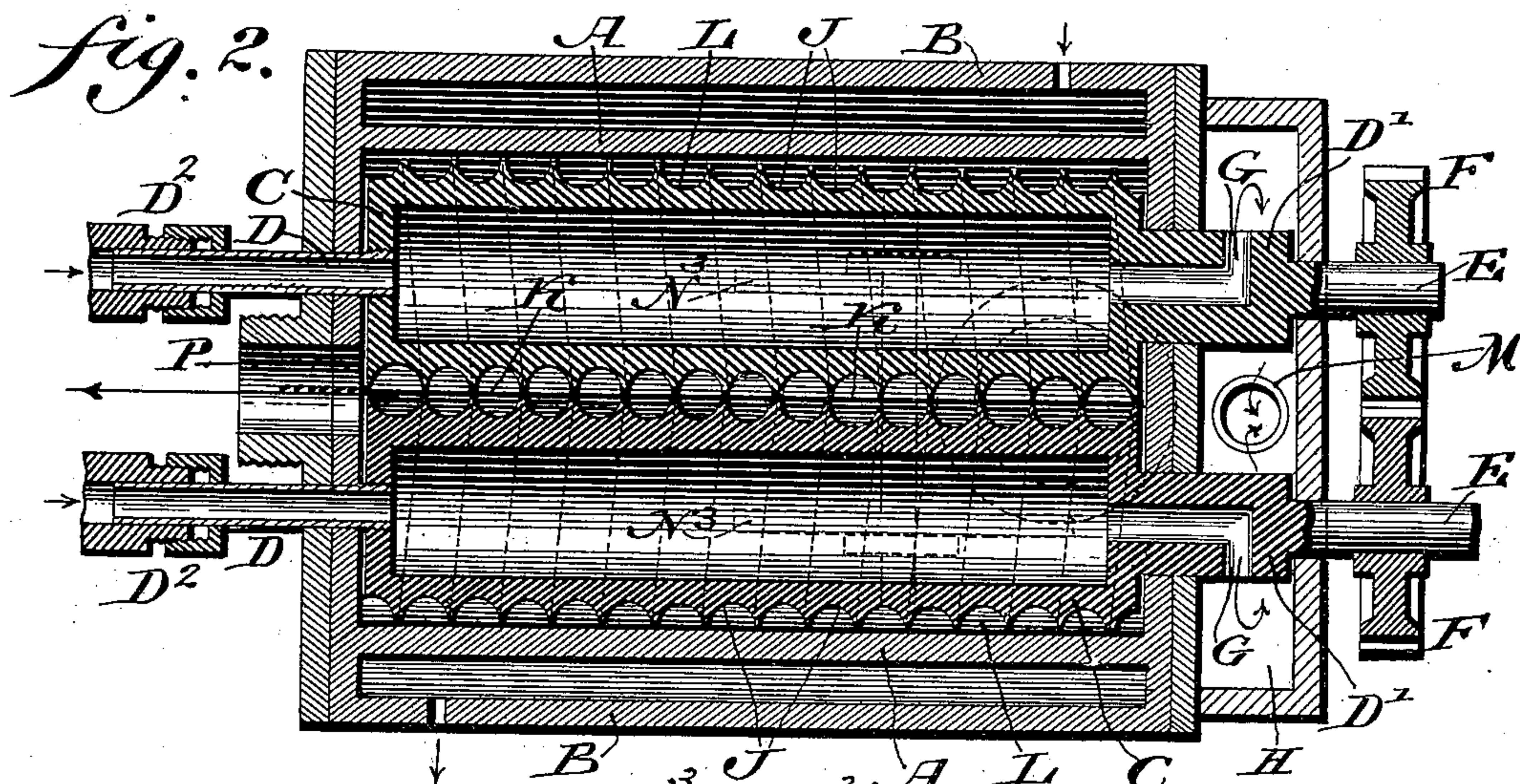
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WITNESSES:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SOLIDIFYING LIQUID SOAP.

SPECIFICATION forming part of Letters Patent No. 567,006, dated September 1, 1896.

Application filed April 9, 1895. Serial No. 545,067. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS S. RUTSCHMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Solidifying Liquid Soap, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to an apparatus for solidifying liquid soap, the same embodying a case and cylinders therein, whereby the soap may be worked or manipulated by said cylinders through the case, while subjected to the cooling action of the cylinders or case, or both, thus rapidly effecting solidification of the soap, avoiding the use of frames, and the consequent loss of time, as will be hereinafter set forth.

Figure 1 represents a partial side elevation and partial vertical section of an apparatus for solidifying soap embodying my invention. Fig. 2 represents a horizontal section of a portion thereof on an enlarged scale. Fig. 3 represents a transverse vertical section thereof. Fig. 4 represents a face view of a device employed for preventing the backing up and turning over of the soap in the sides of the casing.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a case or chamber having a covering-jacket B, forming a surrounding chamber adapted to contain a cooling substance or mixture. Within the said case are the hollow drums or cylinders C, whose journals D, D' are mounted on the walls of the case and made hollow so as to be in communication with said cylinders, the latter being supplied with water through the journals D. Connected with the journals D', which constitute the outlets of the cylinders, are shafts E, to which are keyed or otherwise secured the gear-wheels F, whereby rotation may be imparted to said cylinders, the journals D having tight joints with the water-supply pipes by means of the stuffing-boxes D². In the journals D' are discharge-ports G, which communicate with the chamber H, which is secured to the case A, it being noticed that portions of said journals D' rotate within said chamber.

On the peripheries of the cylinders C are spiral grooves J, the grooves of one cylinder being pitched in a direction the reverse of the other, it being seen that the cylinders are arranged parallel and closely together, so as to have between them a spiral passage K, a spiral passage L also existing between said cylinders and the case A.

In the neck N' of the hopper N is mounted the shaft N² of the winged wheel N³, the wings of which radiate from the hub and have their outer ends freely entering the spiral grooves of the cylinders C.

The chamber H is provided with the pipe M for the discharge of water passed through the cylinders C and passing out through the journals D'.

The case A is provided with the hopper N for supplying the same with liquid soap and with the pipe P for discharging the same after being worked by the cylinders into the hopper Q, at the base of which are rollers R and S, adjacent to which are the rollers T and U, said rollers being arranged parallel and geared together in such manner that their speed increases throughout the series. Below the roller U, whose periphery is grooved, is the spout W, which leads to the drying apparatus X, the latter being more fully illustrated and described in another application for patent of even date herewith and bearing Serial No. 545,066. It will be seen that when the soap in liquid or plastic condition enters the case it is directed between the cylinders and prevented from backing up and turning over in the sides of the casing, whereby the soap is directed between the cylinders, so as to travel toward the discharge end of the casing, it being noticed that the wheel N³ rotates, by the action of the spiral grooves of said cylinders, so that the end of one wing is always in the groove of the respective cylinder and the case and forced by the spiral grooves of the cylinders to the discharge end of the case, it being subjected to the cooling action of the cylinders, whereby it is effectively driven and solidified, in which condition it is discharged from the pipe P, falling upon the roller R, and is carried by it between said roller and the roller S. As the latter roller rotates at a higher rate of speed than the former the soap is drawn around the said roller S and so up

between it and the roller T, an edge of the hopper preventing it from remaining on the roller S and directing it on the roller T, so that it is passed between said roller T and the grooved roller U, the walls of the grooves of the latter being of such width that they practically form cutting-knives, whereby the soap falls in strips into the spout W. The soap may be stripped from the top roll in any suitable manner, as by hand or a proper device.

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

1. An apparatus for solidifying liquid soap consisting of a case, hollow cylinders with spiral grooves on the exterior thereof, located in said casing, and hollow journals carrying said cylinders, substantially as described.

2. A case, a hollow cylinder with inlet and outlet journals mounted therein, a chamber inclosing the end of the outlet-journal, and supply and discharge devices for said case, said cylinder having a spiral groove on its exterior, and the parts combined substantially as described.

3. In a soap-solidifying apparatus, cylinders with spiral grooves therein, and a wheel

mounted in the casing provided with wings which freely enter said grooves, substantially as described.

4. An apparatus for solidifying soap consisting of a case with surrounding cooling-chamber, hollow cylinders mounted in said case, having hollow journals, connecting-gearing for said cylinders, a hopper leading into said case, an outlet-pipe from said case to a second hopper, and a series of rollers at the discharge-outlet of said second hopper, the upper one of said rollers having grooves and provided with a discharge-spout therefrom, said parts being combined substantially as described.

5. An apparatus for solidifying soap, consisting of a casing having a surrounding jacket, forming a surrounding cooling-chamber, a hopper leading into said casing, cylinders mounted in said casing having spiral peripheral grooves, and rotatable wheels having wings entering said grooves, said parts being combined substantially as described.

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