No. 831,997. PATENTED SEPT. 25, 1906.

P. SCHMID.

APPARATUS FOR UNGUMMING SILK FABRICS.

APPLICATION FILED JAN. 19, 1906.

2 SHEETS—SHEET 1.

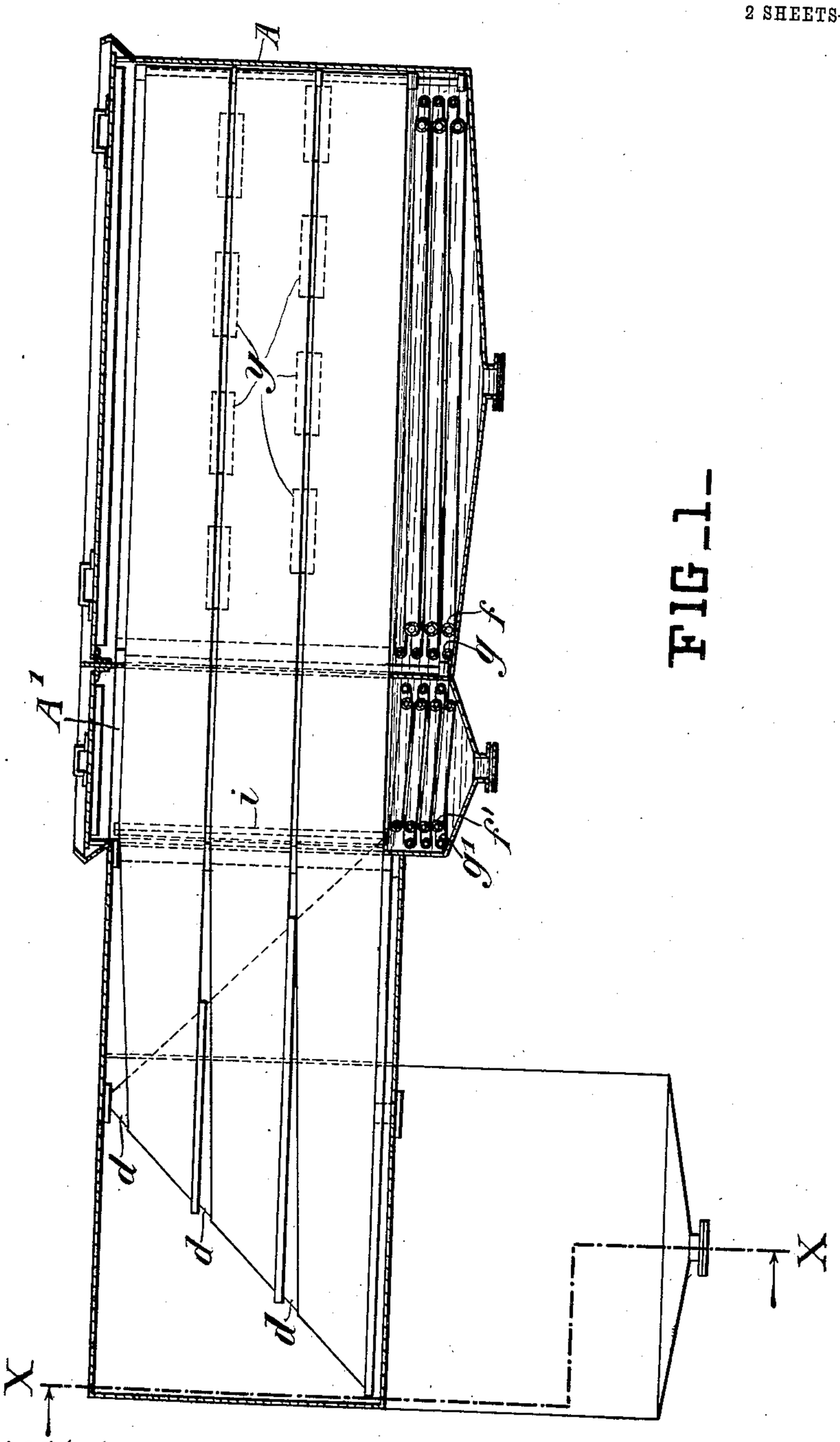

FIG. 1.

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2 SHEETS—SHEET 2.

FIG. 2.

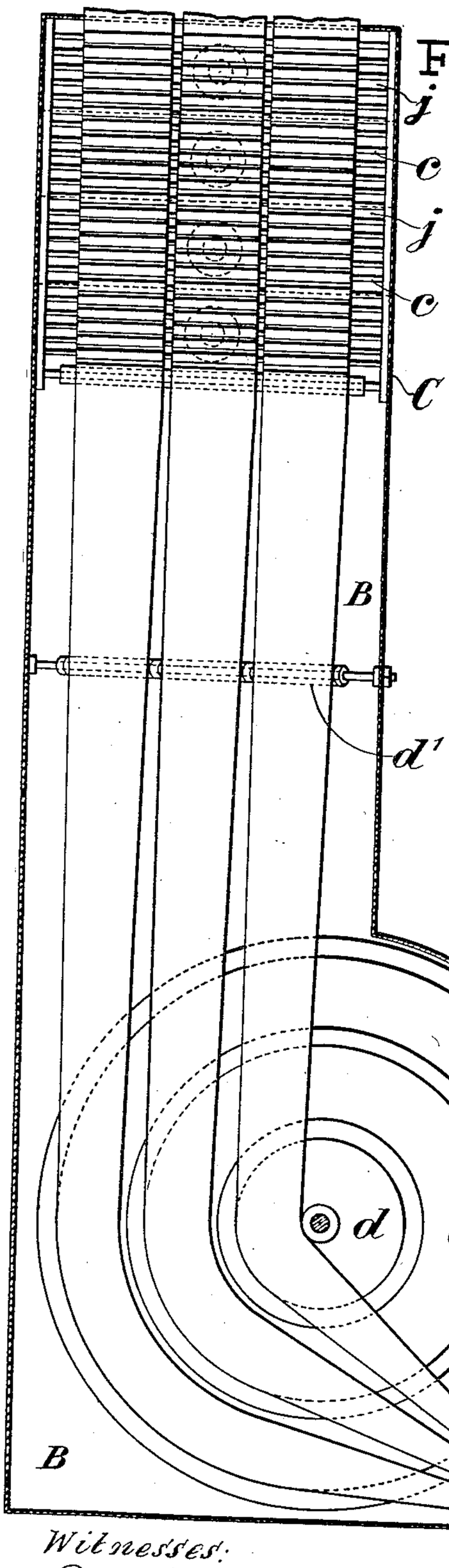
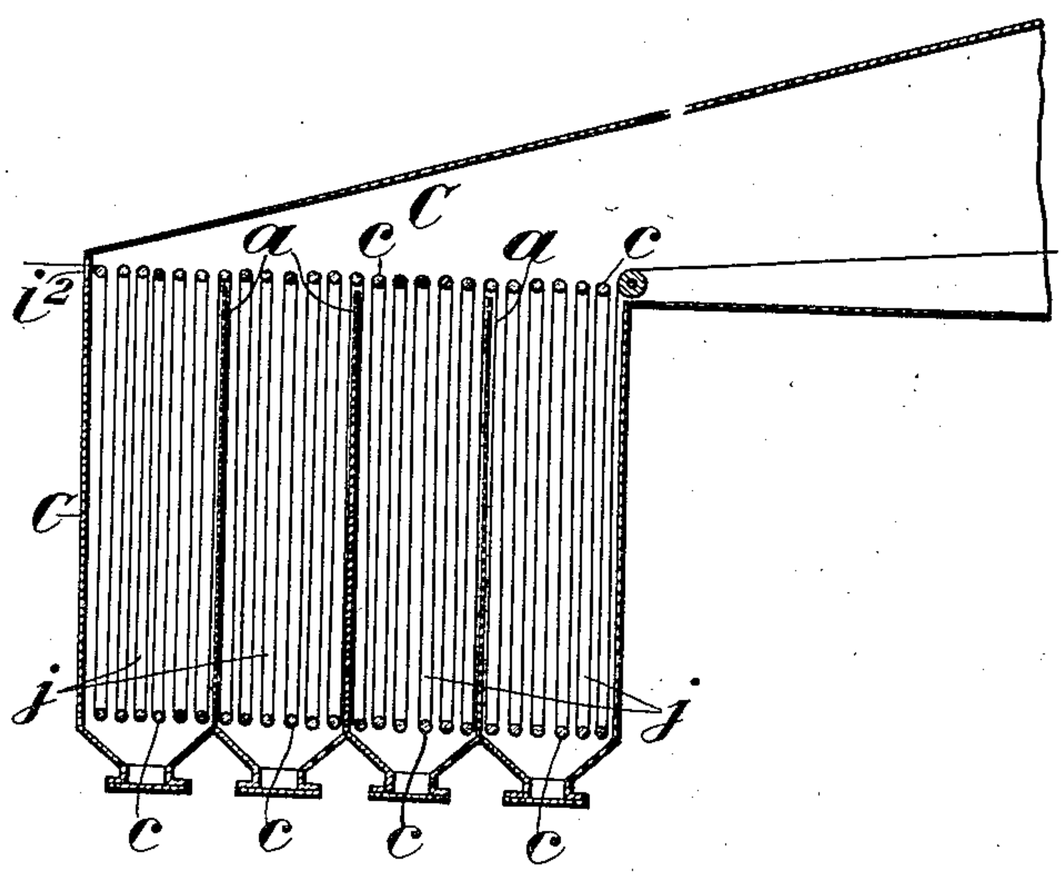
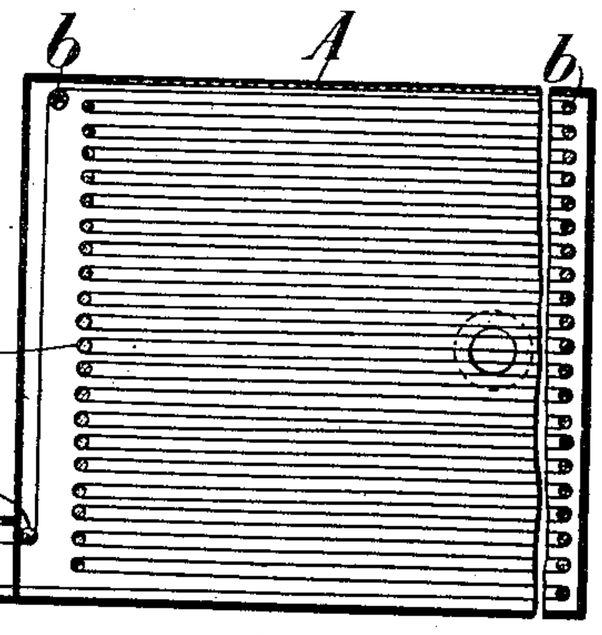


FIG. 3.





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UNITED STATES PATENT OFFICE.

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APPARATUS FOR UNGUMMING SILK FABRICS.

No. 831,997. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed January 19, 1906. Serial No. 296,864.

To all whom it may concern:

Be it known that I, PETER SCHMID, a citizen of the Swiss Republic, and a resident of Basel, Switzerland, have invented new and useful Improvements in Apparatuses for Ungumming Silk Fabrics, of which the following is a full, clear, and exact specification.

This invention relates to an apparatus employed for ungumming or removing the sericin envelop from silk fabrics; and it consists of an apparatus having means whereby the fabric treated is conducted through soap-lather or suds in a vertical direction—that is to say, with its breadth directed vertically, so as to insure the contact of the lather with all parts of the fabric—and means whereby the moving fabric is shifted to a horizontal position or with its breadth directed horizontally, so that during the washing it passes through the washing-water in this way. The suds or soap-lather softens and renders soluble the sericin envelop on the fibers of the fabric.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a side elevation, partly in section, and Fig. 2 a plan view, of an embodiment of this improved apparatus for ungumming silk tissues or fabrics. Fig. 3 is a section on line X X of Fig. 1.

A represents the operating-tank, designed to receive in its lower part a soapy liquid which can be heated by means of a serpentine pipe *f*, supplied with steam and provided or not with perforations, according as it is desired to heat by direct contact with steam or simply by conduction. Moreover, this operating-tank A contains in its lower part a perforated serpentine pipe *g*, supplied with compressed air and through which air under pressure may be injected into the soapy liquid, if desired, for the purpose of favoring the formation of little soap-bubbles in the upper part of the operating-tank A.

Close to the operating-tank A is arranged a small chamber A′, connecting the tank A to a larger chamber B, connected itself with a washing-tank C. The chamber A′ is also provided with a steam-heating pipe *f′* and an air-injecting pipe *g′*.

The operating-tank A, as well as the intermediate chamber A′, contains vertical guide-rollers *b*, adapted to guide the different tissue or fabrics to be treated, placed one above another, with their transverse extent or breadth directed vertically. (In the drawings there are indicated, for example, three webs.) The chamber B incloses three rotatable truncated cones *d*, placed one above another, over which pass the said three webs or fabrics and the function of which is to bring the latter from the position with their breadth directed vertically to a position with their breadth directed horizontally—that is to say, to turn the fabrics angularly for ninety degrees—in order to enable them to pass from the vertical rollers *b* of the operating-tank A upon horizontal rollers *c* of the washing-tank C, which latter simply contains water and is divided by separating-walls *a* into a plurality of compartments *j*.

The fabrics to be treated are continuously supplied to the chamber A′ through a slot *i*, provided in the side wall of said chamber and preferably furnished with two elastic tongues engaging the opposite sides of the fabrics. They pass then through the chamber A′ and by a serpentine way over the vertical rollers *b* of the operating-tank A above the soapy liquid contained in the chamber A′ and tank A and through the steam and soap-lather contained in the upper part of these receptacles, which latter have to be in convenient relation with the outer atmosphere for the purpose of favoring the formation of soap-lather with the aid of air penetrating from the outside into said chamber and tank. In this way the fabrics occupy a vertical position—that is to say, a position with their breadth directed vertically—so as to have all their parts in intimate contact with the ascending soap-lather bubbles, and thus to be treated in a very efficient manner, whereupon they come out of the tank A and enter the chamber A′, from which they pass through a slot *i′* into the chamber B and upon the rotatable truncated cones *d* and afterward upon an auxiliary roller *d′*, inclined at about twenty degrees to the horizon, and finally reach the horizontal rollers *c* of the washing-tank C, into which they pass through the washing liquid contained in the compartments *j*. After having been washed therein they leave the last compartment *j* through a horizontal slot i^2, provided in the side wall of the tank C. During the whole operation the fabrics are preferably moved continuously; but they might also be displaced intermittently.

The side walls of the tank A are provided with convenient normally open apertures *y*, arranged at different heights and designed

to allow the admission of air for favoring the formation of the soap-bubbles.

What I claim is—

1. An apparatus for the purpose specified, having an operating-tank with means for producing soap-lather in its upper part and guide members arranged to guide the fabrics to be treated therein through the soap-lather in a position with their breadth directed vertically for the purpose of allowing intimate contact of the soap-lather with all the parts of the fabrics, a washing-tank with guide members arranged to guide the fabrics treated in said operating-tank through a water-bath in a position with their breadth directed horizontally, and means between said two tanks for turning the fabrics from their vertical position in the operating-tank to their horizontal position in the washing-tank, substantially as set forth.

2. An apparatus for the purpose specified, having an operating-tank with means for producing soap-lather in its upper part, and vertical rollers designed to guide the fabrics to be treated therein through the soap-lather in a vertical position, a washing-tank with horizontal rollers designed to guide the fabrics treated in said operating-tank through a water-bath in a horizontal position, and means between said two tanks for turning the fabrics from their vertical position in the operating-tank to their horizontal position in the washing-tank, substantially as set forth.

3. An apparatus for the purpose specified, having an operating-tank with means for producing soap-lather in its upper part, and vertical rollers designed to guide the tissues to be treated therein through the soap-lather in a vertical position, a washing-tank with horizontal rollers designed to guide the tissues treated in said operating-tank through a water-bath in a horizontal position, and one or more truncated cones in a chamber between said two tanks adapted to turn the tissues from their vertical position in the operating-tank to their horizontal position in the washing-tank, substantially as set forth.

4. An apparatus for the purpose specified, having an operating-tank with means for producing soap-lather in its upper part and with vertical rollers designed to guide the fabrics to be treated therein through the soap-lather in a vertical position, a washing-tank with horizontal rollers designed to guide the fabrics treated in said operating-tank through a water-bath in a horizontal position, and means between said two tanks for turning the fabrics from their vertical position in the operating-tank to their horizontal position in the washing-tank, the said operating-tank comprising a large and wide chamber A and a narrow and small chamber A′ substantially as set forth.

In witness whereof I have hereunto signed my name, this 9th day of January, 1906, in the presence of two subscribing witnesses.

PETER SCHMID.

Witnesses:

GEORGE GIFFORD,

AMAND RITTER.