

E. GMINDER.
PROCESS OF TREATING FABRICS WITH FLUIDS.
APPLICATION FILED JUNE 24, 1908.

924,979.

Patented June 15, 1909.

Fig. 1.

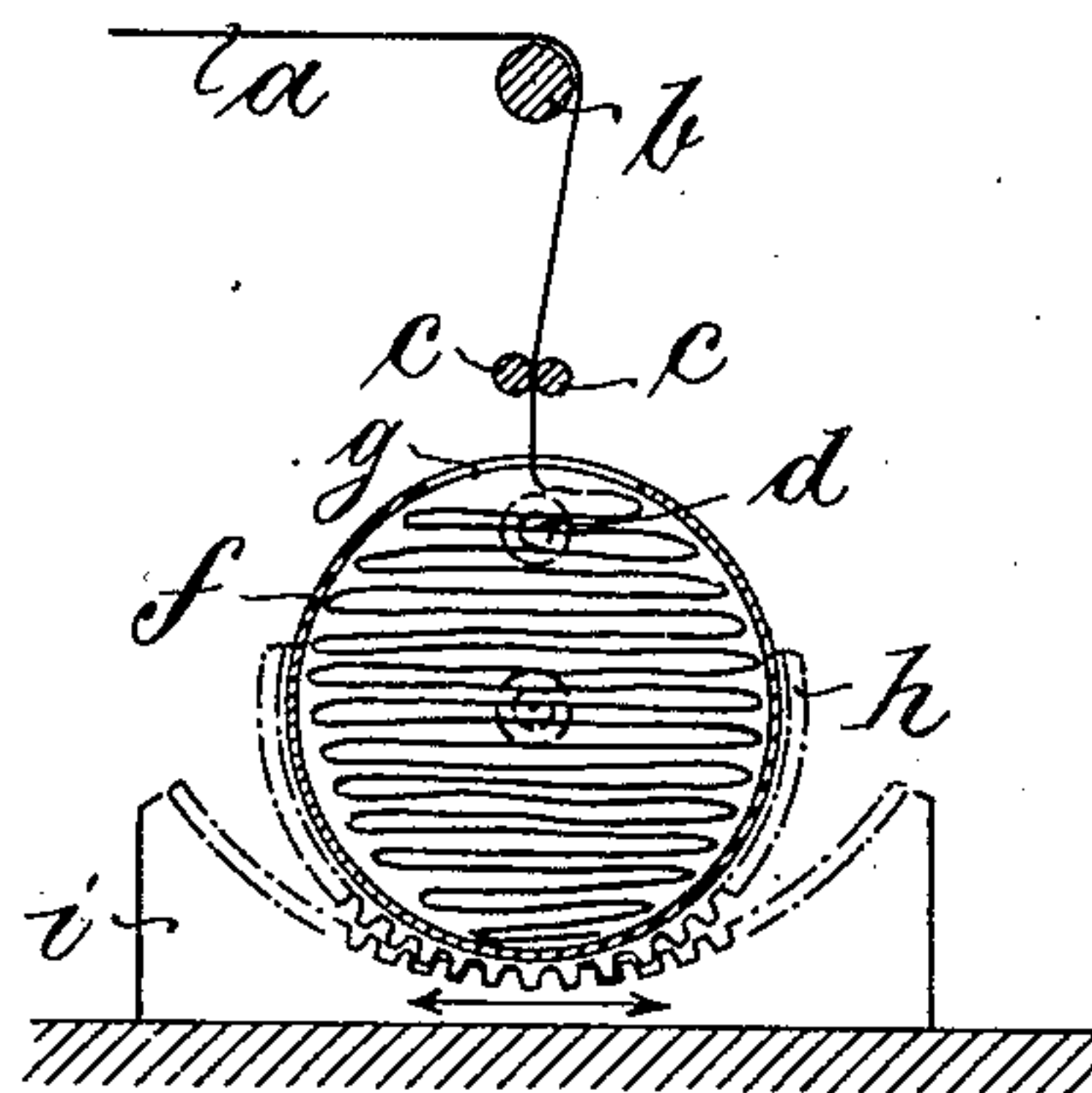


Fig. 2.

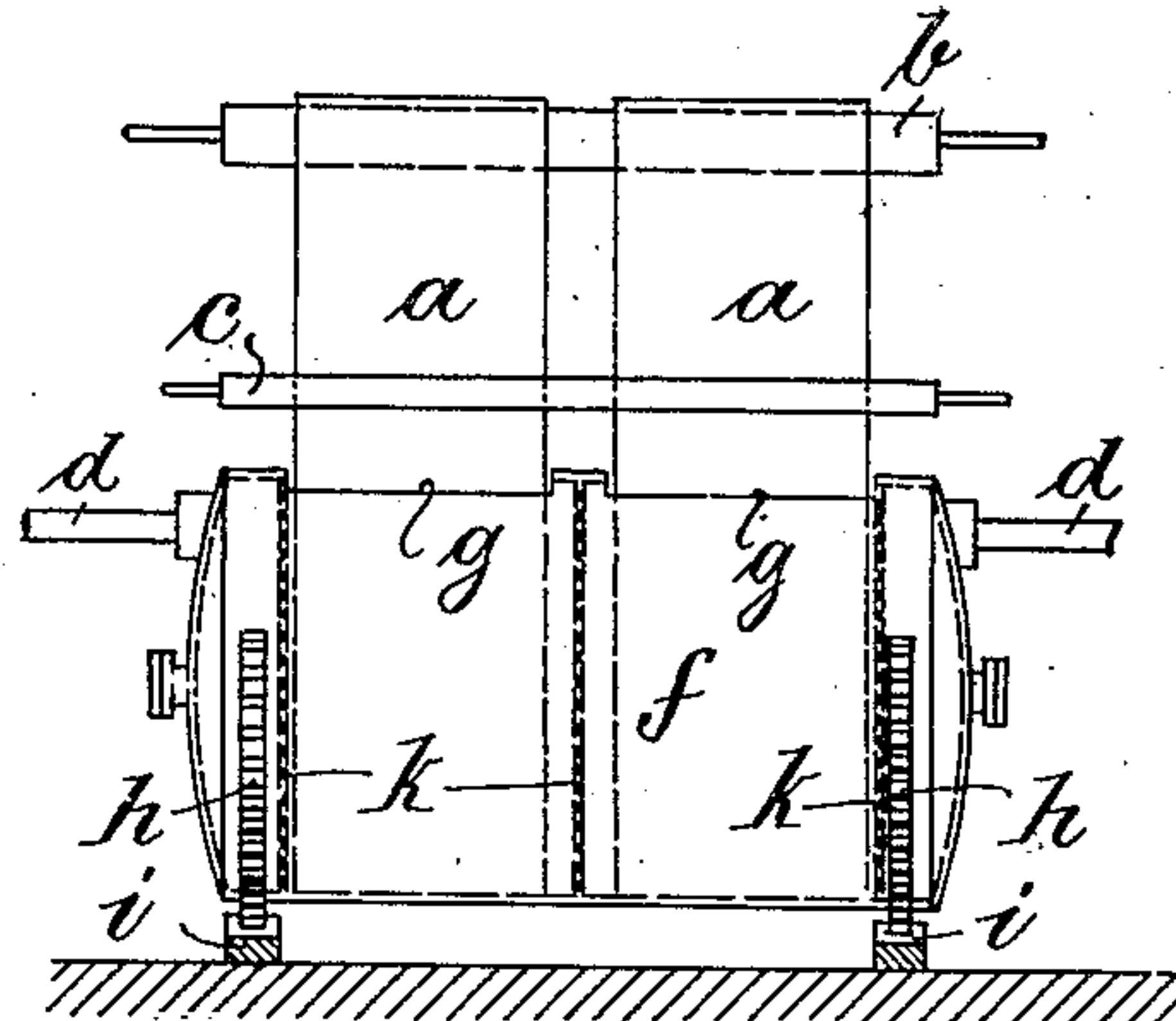


Fig. 3.

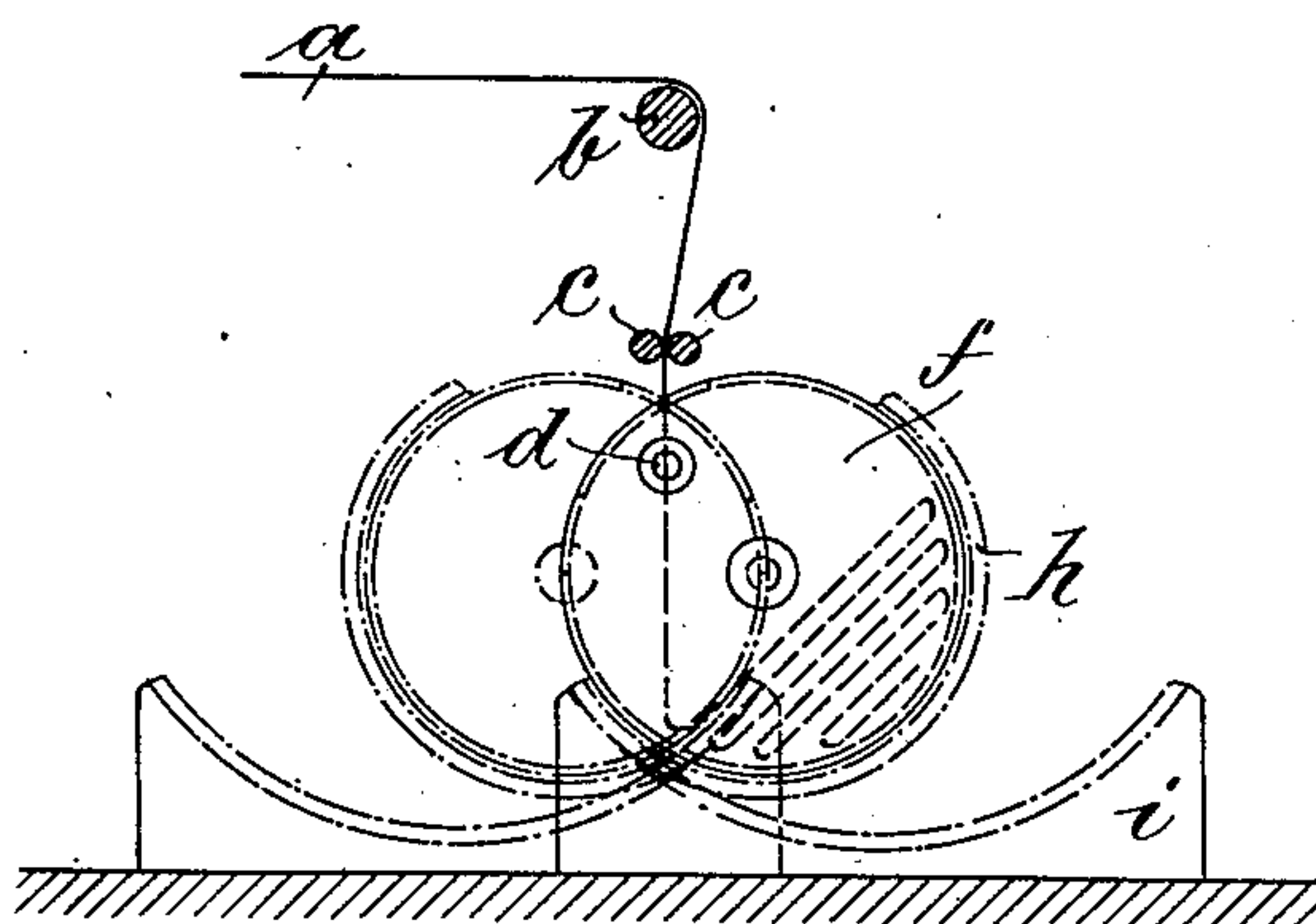
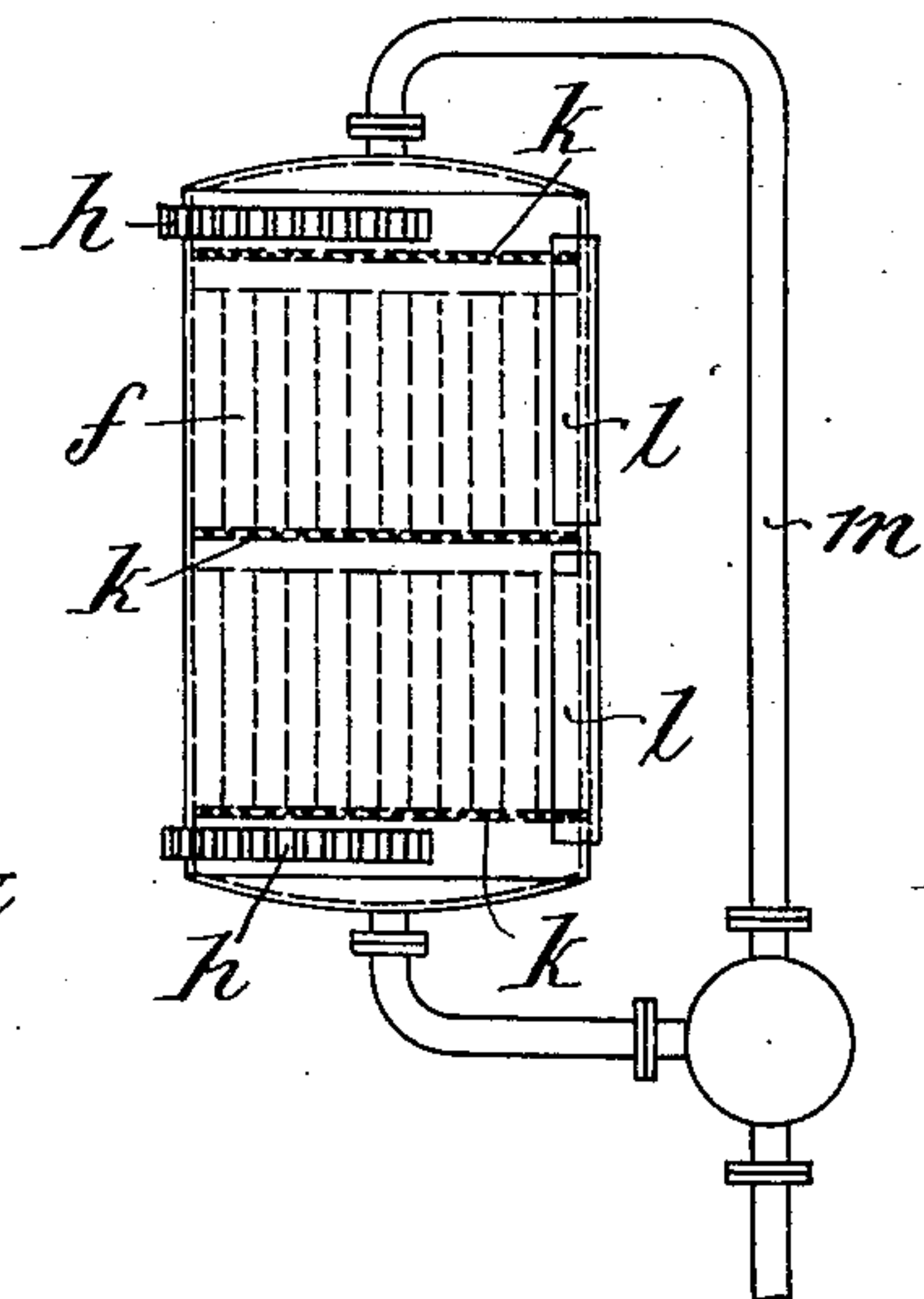


Fig. 4.



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UNITED STATES PATENT OFFICE.

EMIL GMINDER, OF REUTLINGEN, GERMANY.

PROCESS OF TREATING FABRICS WITH FLUIDS.

No. 924,979.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 24, 1908. Serial No. 440,191.

To all whom it may concern:

Be it known that I, EMIL GMINDER, subject of the King of Württemberg, residing at 26 Wernerstrasse, Reutlingen, German Empire, have invented new and useful Improvements in Processes for the Treatment of Fabrics with Fluids, of which the following is a specification.

The present invention relates to an improved process for treating fabrics with fluid while these fabrics are in the spread out condition. Such treatment of the fabric may for instance be the acidulating, washing or bucking of the same. In the treatment of fabrics in the spread out form as opposed to the rolled up or tube form, it has been usual hitherto to lay the fabric in flat zigzag folds in a vessel and then move this vessel with the horizontally lying folds into position to be steamed. This method however produces the objection of unevenness in the density of the layers as naturally the lower layers of fabric are denser than the upper layers. The employment of vertically running zigzag folds involves difficulties in laying, which have not hitherto been practically overcome without the employment of supporting rails or the like over which the folds were laid and hung.

The chief characteristic of the present invention is that during laying in of the spread out fabric the holder which is provided with curved walls, is arranged with its axis horizontal and the fabric is passed through an opening in the side wall of the said holder. The holder is then together with the contained fabric placed with its axis vertical, the opening in the side-wall of the holder is closed and the treating fluid is circulated preferably axially through said holder. When the holder is removed from the horizontal to the vertical position the laid in fabric naturally spreads outward so as to lie against the curved walls of the holder. In this way I avoid those spaces between the fabric and the holder which in previous forms of laying in devices have been productive of such defects in the working of the apparatus. These defects chiefly consist in that there is not an even resistance at all points to the passage of the treating fluid and in consequence this fluid follows the natural law and finds the path of least resistance. By laying in the spread out fabric in the manner herein described an even regular resistance to the passage of the fluid is provided and owing

to the cloth or the like being arranged with its longest edge horizontally during the treatment with fluid there is not produced the same difference in density between the upper and the lower layers.

The process according to the present invention is illustrated in the accompanying drawings, which show one suitable and convenient form of apparatus for carrying the same into effect.

Figure 1 is a section of the holder in the position which it occupies during laying in of the spread out fabric, Fig. 2 is a side view of the arrangement shown in Fig. 1, Fig. 3 is a view illustrating diagrammatically the method of oscillating the holder in order to effect the laying in of the spread out fabric in loose folds, Fig. 4 is an outside elevation showing the holder in the position which it occupies when being treated with the treating fluid.

According to the form shown the spread out fabric *a* passes over a guide roller *b* and between two feeding rollers *c* to the holder *f*. The holder *f* is illustrated as of circular form and is provided with an opening *g* in the side walls thereof. Through the opening *g* the spread out fabric *a* passes. The holder *f* is pivoted about the axis *d* which is arranged eccentrically to the axis of the holder *f*. The holder *f* is provided with a toothed segment *h* adapted to engage with a curved rack *i*. This curved rack *i* is moved back and forward by any convenient mechanism not illustrated.

Usually it is advisable to arrange the holder *f* so as to take two or more breadths of fabric *a* in its axial length. In Fig. 2 an arrangement is illustrated in which two breadths of fabric are laid in zigzag folds side by side and perforated division walls *k* are arranged between the fabric. After laying in the fabrics as described the holder *f* is removed and placed with its axis vertical, as shown in Fig. 4, and the treating fluid is supplied thereto through a pipe *m*. Before placing the holder in the vertical position shown in Fig. 4, a cover *l* is placed over the opening *g*.

I claim:—

1. Process for treating fabric in the spread out state with fluids, consisting in laying the fabrics in loose continuous zigzag and substantially horizontal folds in a vessel having curved walls, while the said vessel is arranged with its axis substantially hori-

zontal, placing said vessel with the contained fabric with its axis vertical and supplying the treating fluid to the vessel.

2. Process for treating fabrics in the spread out state with fluids consisting in laying the fabrics in loose continuous zigzag and substantially horizontal folds in a cylindrical vessel, while the said vessel is arranged with its axis substantially horizontal, placing said vessel with the contained fabric with its axis vertical and circulating the treating fluid axially through the vessel.

3. Process for treating fabrics in the spread out state, consisting in passing a spread out length of fabric to a holder, said holder being of cylindrical shape with its axis horizontal and provided with an opening in its circumferential wall to admit the spread out fabric, moving said holder in an oscillatory path so as to cause the fabric as it is fed forward to lie therein in loose zig-

zag folds, placing said cylinder with its axis vertical so that the folds lie against the internal curved walls of the cylinder and passing the treating fluid axially through said cylinder.

4. A process for treating fabrics in the spread out state with fluids consisting in laying the fabric in loose continuous zigzag and substantially horizontal folds in a vessel placing said vessel with the contained fabric so that the fabric is in a vertical plane and the long edges thereof are in a horizontal plane and supplying treating fluid to the vessel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL GMINDER.

Witnesses:

MAX MEYER,

EMIL KAYSER.