

L. SEITHER.

APPARATUS FOR STEAMING FABRICS, &c.

(Application filed Sept. 12, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

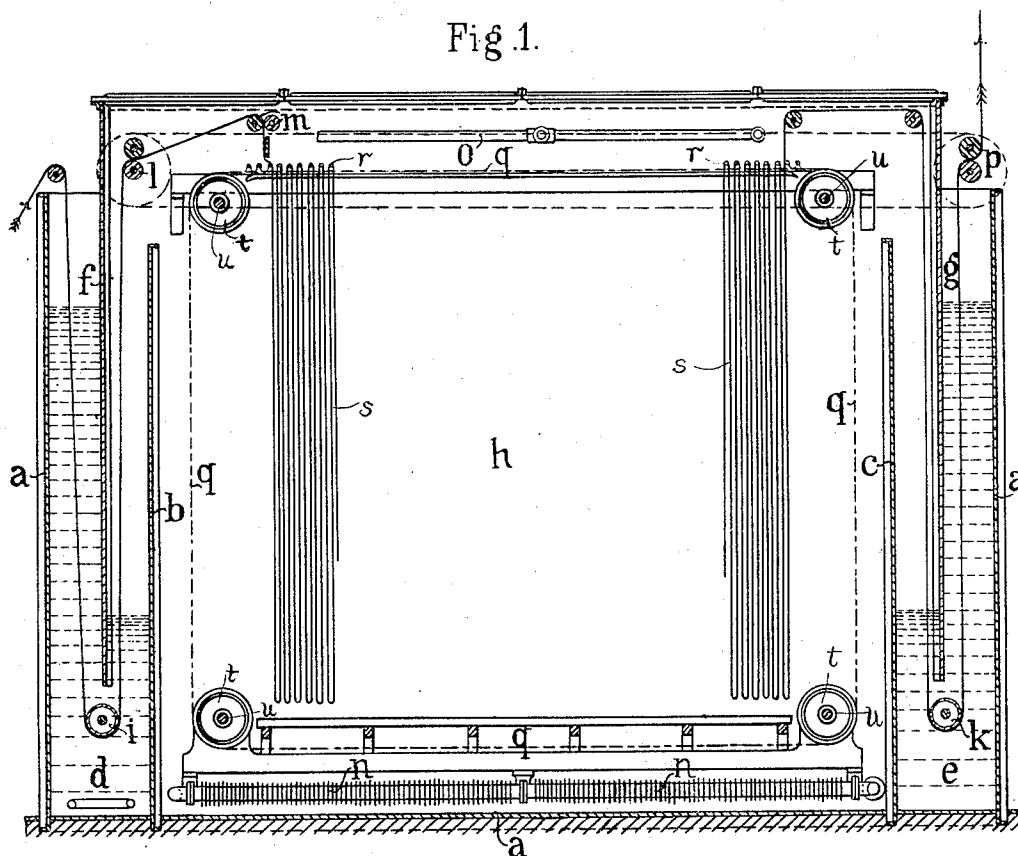
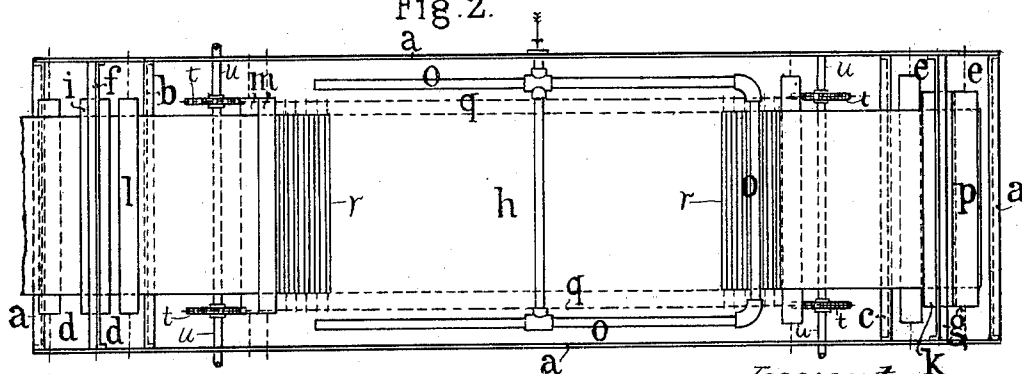


Fig. 2.



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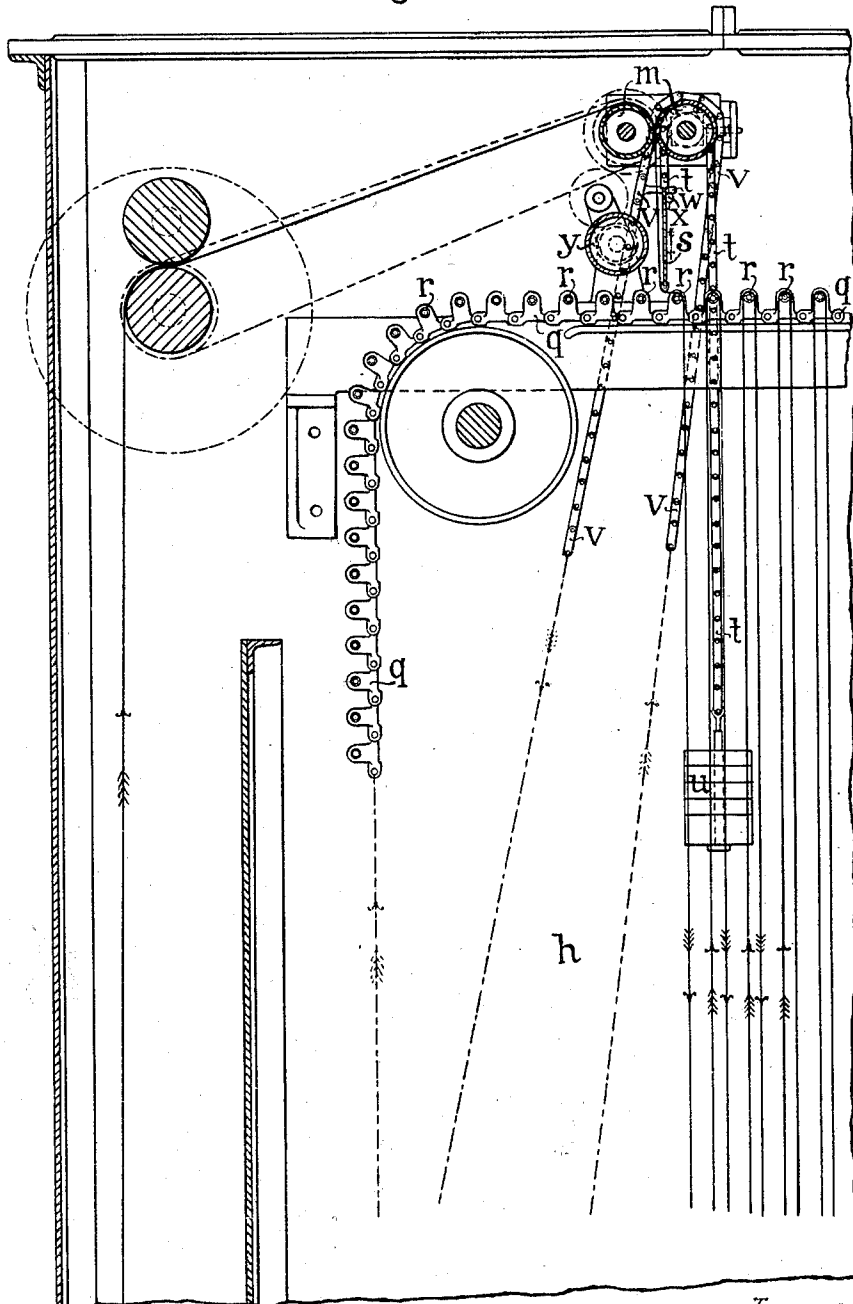
## APPARATUS FOR STEAMING FABRICS, &amp;c.

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(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

LUDWIG SEITHER, OF MÜLHAUSEN, GERMANY, ASSIGNOR TO EMIL WELTER, OF MÜLHAUSEN, GERMANY, A FIRM.

## APPARATUS FOR STEAMING FABRICS, &c.

SPECIFICATION forming part of Letters Patent No. 685,949, dated November 5, 1901.

Application filed September 12, 1900. Serial No. 29,754. (No model.)

*To all whom it may concern:*

Be it known that I, LUDWIG SEITHER, a subject of the Emperor of Germany, and a resident of Mülhausen, Alsace, in the German Empire, have invented a new and useful Improvement in Apparatus for Cleansing, Steaming, and Washing Fabrics in or Preparatory to Bleaching or Finishing Processes, of which the following is a specification.

10 This invention is particularly designed for the preparation of fabrics for bleaching or finishing by subjecting them first to the action of an alkaline or other chemical cleansing liquor, next to the action of steam, and  
15 afterward to the action of water or washing liquid; and the object of the improvement is to provide an apparatus for such or like purposes in which the steam employed may be maintained at a pressure sufficiently greater  
20 than that of the atmosphere to give it a desirable temperature.

An apparatus embodying my invention is provided with a central chamber for containing steam at a desirable pressure and two  
25 smaller chambers, one at the entrance and the other at the exit end of the first-mentioned chamber. The smaller chamber at the entrance end is filled with treating liquid and the other with washing liquid, and through  
30 the three chambers the material to be treated is conducted. The treatment is effected as follows: The woven or other fabric is passed in the form of a continuous web first downward and then upward in the chamber filled  
35 with the treating liquid; then, preferably by means of a pair of endless chains and transversely-arranged metal carrying-tubes attached thereto, is carried in hanging folds or loops through the central chamber under  
40 steam-pressure, whence it passes first in a downward and then in an upward direction through the chamber filled with the washing liquid. The liquids in the two end chambers are made, as hereinafter described, to form hydraulic seals for the central chamber, which  
45 contains no liquid, but only dry steam, which may be, by means of the hydraulic seals, confined in said chamber at a pressure higher than that of the atmosphere.

50 In the accompanying drawings, Figure 1 represents a longitudinal vertical section of

a complete apparatus; and Fig. 2, a plan, the cover being removed. Fig. 3 is a side view, partly in section, showing the fold-laying arrangement on a larger scale than in Figs. 1 55 and 2.

In the tank *a* two chambers *d* and *e* are formed by the arrangement shown of the division-walls *b* and *c*, which extend from the bottom nearly to the top of the tank, one of 60 said chambers, *d*, being sufficiently filled with chemical treating liquid and the other, *e*, with washing liquid. Into these chambers dip the end walls *f* and *g* of the central chamber *h*. The division-walls *b c*, extending to the bot- 65 tom of the tank *a*, shut off communication between the lower parts of the chambers *d e* and the lower part of the central chamber *h*, which is the steam-chamber, and so prevent the liquid in the chambers *d e* from entering 70 the said chamber *h*. The end walls *f* and *g* do not reach to the bottom of the end chambers *d e*, but terminate at a suitable distance below the level of the liquid in the latter. By means 75 of the end walls *f* and *g* two divisions in each of the end chambers are formed in connection the one with the other, through which divisions the material to be treated is conducted. For this purpose there are arranged in each 80 of the chambers *d* and *e*, below the end walls *f* and *g*, guide-rollers *i* and *k* for the woven fabric or other material to be treated. This material, as will be seen by Fig. 1, is first conducted downward through the chamber *d* and the treating liquid therein, then around the 85 guide-roller *i*, and again upward between squeezing-rollers *l* to draft-rollers *m* into the central chamber *h*, which is heated by means of ribbed tubes *n*, arranged at the bot- 90 tom thereof, and is supplied with steam by means of the perforated tubes *o*, arranged underneath the cover of the chamber. The cover itself consists of heated steam-plates in order to prevent the dripping of liquid onto 95 the goods. The steam-pressure generated in the chamber *h* presses against the surface of the liquid standing in the end chambers *d* and *e* between the walls *b* and *f* and *c* and *g*, by which action a secure closing or sealing of the steam-chamber *h* to the atmosphere will be 100 effected. Through this chamber, which is under steam-pressure, the material *S* to be

treated passes from the rollers *m* to metal carrying-tubes *r*, mounted in two endless chains *q*, running on wheels *t*, the shafts *u* of which run in suitable fixed bearings within the steam-chamber and to one of which shafts constant rotary motion is given by any suitable means for the purpose of giving the chains a sufficiently slow movement relatively to that of the rollers *m* to allow the material on its way through the chamber *h* to be fed down between the tubes *r* in the form of hanging folds, as shown in Fig. 1, by any suitable means provided for that purpose. From these chains *q* and their carrying-tubes *r* the material is carried first downward through the washing liquid in the chamber *e*, then around the guide-roller *k*, and again upward and between squeezing-rollers *p* and out of the apparatus.

Any suitable means may be employed to produce the hanging folds of the material between the carrying-tubes *r*, but as such means are not included in the present invention I have not thought it necessary to represent or describe them.

The several rollers *l*, *m*, and *p*, which all rotate with corresponding surface velocities, may have their rotary movements given to them by any suitable means, which I have not thought it necessary to represent or describe.

What I claim as my invention is—

1. An apparatus for treating fabrics comprising a central steam-chamber, two chambers for liquids one at each end of said steam-chamber and both in communication with the upper part thereof, hydraulic seals between

said steam-chamber and the two liquid-chambers for the exclusion of the liquids from the steam-chamber and the confinement of the steam therein under pressure, and means for carrying a fabric first through one liquid-chamber, next through the steam-chamber and finally through the other liquid-chamber, substantially as herein described.

2. In an apparatus for treating fabrics, the combination with a central steam-chamber *h* and two liquid-chambers *d e* at opposite ends thereof said steam-chamber and said liquid-chambers having between them inner walls *b c* and outer walls *f g* said inner walls closing communication between said steam and liquid chambers at their bottoms but leaving communication between their upper parts free and said outer walls extending from the top of the steam-chamber to within some distance from the bottoms of the liquid-chambers, of means for carrying the fabric first downward and then upward through one of said liquid-chambers, thence through said steam-chamber, thence first downward and then upward through the other of said liquid-chambers, all substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 28th day of August, 1900.

LUDWIG SEITHER.

Witnesses:

A. LEBOR,

CHR. WEILBRENNER.