

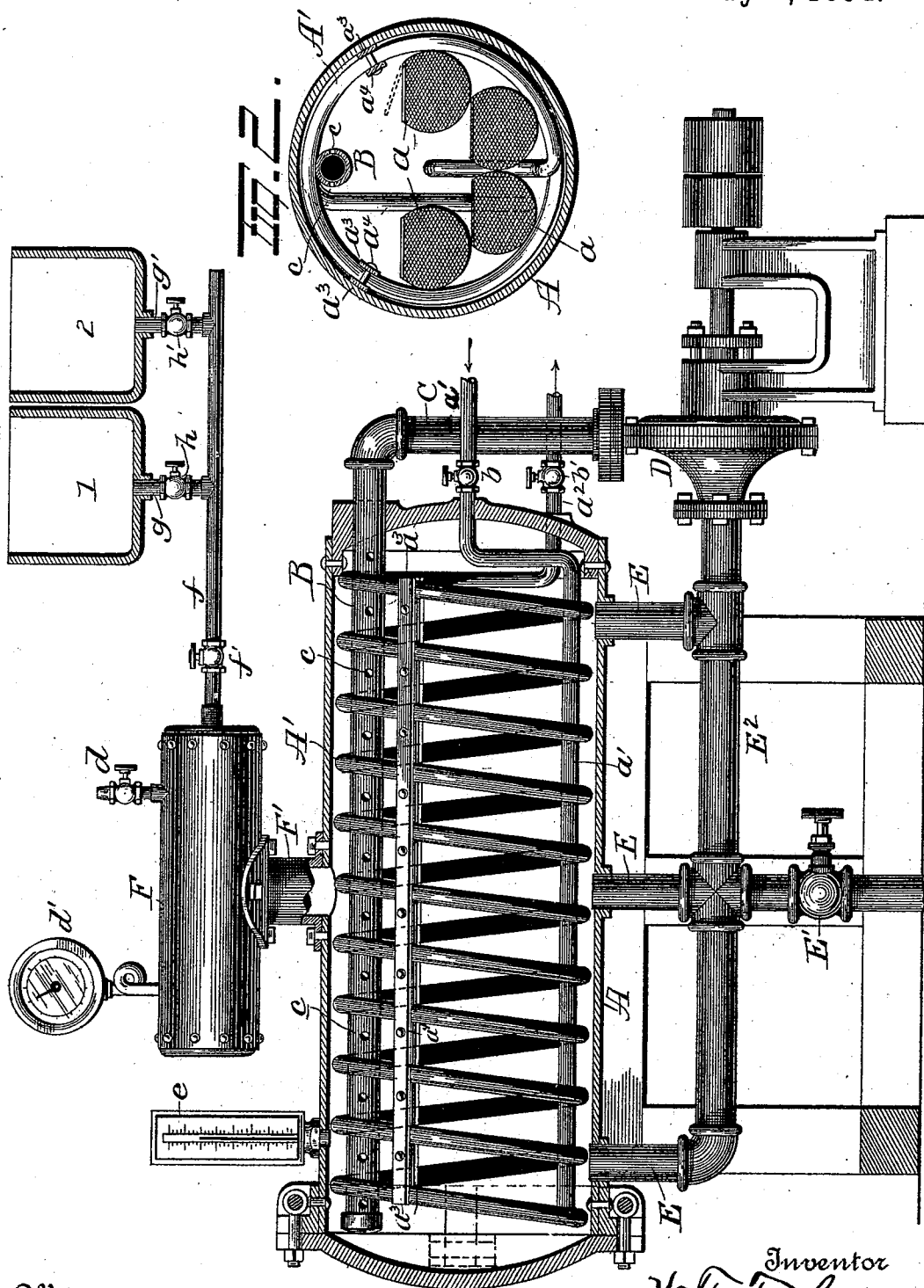
(No Model.)

W. T. FORBES.

APPARATUS FOR TREATING RAMIE OR OTHER FIBROUS GROWTHS.

No. 519,423.

Patented May 8, 1894.



Witnesses
E. J. Kittingham,
G. F. Downing.

Inventor
W. T. Forbes
By *H. A. Seymour*
Attorney

UNITED STATES PATENT OFFICE.

WALTER T. FORBES, OF JERSEY CITY, NEW JERSEY.

APPARATUS FOR TREATING RAMIE OR OTHER FIBROUS GROWTHS.

SPECIFICATION forming part of Letters Patent No. 519,423, dated May 8, 1894.

Application filed October 30, 1893. Serial No. 489,515. (No model.)

To all whom it may concern:

Be it known that I, WALTER T. FORBES, a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Treating Ramie or other Fibrous Growths; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in apparatus for treating ramie or other fibrous growths,—the object of the invention being to produce simple and efficient means whereby to properly heat the cleansing solution whereby to soften the extraneous matter contained in the material being treated.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a longitudinal sectional view. Fig. 2 is a cross section showing baskets *a* in the cylinder.

A represents a cylinder or receptacle, adapted to accommodate a number of baskets *a*. Each basket *a* is made of open material, such as wire cloth of comparatively large mesh,—the covers of the baskets being made of the same material and each basket is preferably of a size to contain five pounds of crude ramie. Thus it will be seen that quite a number of baskets *a* will be provided (each adapted to contain a comparatively small quantity of crude ramie) and therefore the fiber will be spread out and in such manner that the cleansing liquids will come into direct contact with every particle of the material and thus leave no portion thereof uncleansed.

Located within the cylinder *A* and in close proximity to the inner wall thereof, is a coil or pipe *A'*, the outer end of said coil being continued to produce a pipe *a'* which passes through the coil and through one end of the cylinder. The other end *a''* of the coil is made to project through the same end of the cylinder as the pipe *a'*. The end of the pipe *a'* of the coil *A'* is connected with a suitable source of steam supply and the steam entering this

pipe at one end of the cylinder, passes to the other end thereof, then through the coil, and exhausts at the end *a''* thereof. The respective ends of the coil will be provided with valves *b*, *b'*, respectively, whereby to control the supply and exhaust of steam. The steam being thus made to pass through the coil *A'*, will serve to heat the solution employed for cleansing the fibrous material, and this heat will be imparted to said fibrous material to soften the gummy substance contained therein. The cleansing solution will be forced rapidly through the material in a manner hereinafter explained.

The coil *A'* being located in close proximity to the wall of the cylinder, it will not in any manner conflict with the baskets containing the material being treated. In order to properly support the parts of the coil, bars *a''* will be placed along the same interiorly and exteriorly thereof, and secured together by means of suitable bolts *a''* passing through the convolutions of the coil. I prefer to employ at least three pairs of such bars.

A pipe *B* passes through the cylinder *A* and is provided at diametrically opposite sides with comparatively large perforations *c* adapted to discharge laterally on the fiber contained in the baskets *a*. A pipe *C* communicates at one end with the pipe *B* and at a point near the receptacle or cylinder *A*, and at the other end said pipe *C* communicates with a circulating pump *D* of any preferred construction. The pipe *C* should be of an area equal to the combined area of all the perforations *c* of the pipe *B*. A series of pipes *E* communicate at one end with the bottom of the cylinder *A*, the lower end of one of said pipes being open and provided at a point near its lower end with a suitable valve *E'*. Through the pipe having the valve *E'*, the liquid contents of the cylinder *A* can be discharged. The pipes *E* are connected with the circulating pump *D* by means of a suitable pipe *E''*. A dome *F* is located above the cylinder *A* and communicates therewith by means of a short pipe *F'*. The dome is provided with an air cock *d* and also with a pressure gage *d'*,—both of which may be of any preferred construction. A thermometer *e* is located on the cylinder or receptacle *A*, whereby the temperature of the same can, at all times, be ascertained. A

pipe *f* communicates with the dome *F* and is provided with a valve *f'*, preferably in proximity to said dome. The pipe *f* extends in proximity to a series of vats or receptacles, preferably under the same. I prefer to provide two such vats or receptacles which, in the drawings, are designated by the numerals 1, 2. The vats are connected with the pipe *f* by means of short pipes *g*, *g'* having valves *h*, *h'*, respectively. The vat 1 is intended to contain a solution capable of dissolving the gummy substance contained in ramie or other fibrous growths and this solution I term a "degumming solution." The vat 2 is intended to contain water.

In starting the apparatus, the valves *f'* and *h* and the air cock *d*, will be opened to permit the degumming solution in the vat 1 to flow through the pipes *g*, *f* and the dome *F* into the cylinder *A*, until the latter is completely filled, after which the valves *f'*, *h*, will be closed. Steam will be permitted to pass through the coil *A'*, whereby to heat the solution and fiber as above explained. When the solution shall have become properly heated, the circulating pump *D* will be brought into action, which will cause the solution to pass from the bottom of the cylinder *A*, through the pipes *E*, *E'*, the circulating pump *D*, pipe *C* and pipe *B*, and will be discharged through the lateral perforations *c* in said pipe *B*. This circulation of the solution will be continued a sufficient length of time to remove the gum from the fiber,—the action of the pump causing the solution to pass through the fiber in an efficient manner and the steam passing through the coil *A'* maintaining the solution at the proper temperature to soften and dissolve the gum. By providing several outlets *E*, the solution will leave the cylinder at various points simultaneously, thus facilitating a complete circulation of the solution through the ramie, from one end of the cylinder to the other. The

combined area of all the pipes *E* should be equal to the area of the suction pipe *E'*. After causing the degumming solution to circulate in this manner for a suitable length of time, the pump *D* will be stopped, the valves closed and the solution drawn off. Water from the vat 2 will then be made to circulate through the material in the cylinder in the same manner as above explained.

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

1. The combination with a cylinder or receptacle, a steam pipe spirally coiled therein with its ends extending outside of the cylinder or receptacle, of a pump, a perforated circulating pipe extending from the pump through the cylinder or receptacle, pipes leading from the bottom of the cylinder or receptacle to the pump, a dome discharging into the cylinder or receptacle, a pipe leading into the dome, and tank discharging into said pipe, substantially as set forth.

2. The combination with a cylinder or receptacle having a steam pipe spirally coiled in the interior thereof throughout the length of the cylinder or receptacle and entering and returning through one end thereof, of perforated circulating pipe extending the length of the receptacle or cylinder, pipes leading from the lower end of the cylinder or receptacle, in communication with the circulating pipe, a pump, a dome discharging into the cylinder or receptacle, a pipe leading to the dome and tanks leading into the said pipe, substantially as set forth.

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

WALTER T. FORBES.

Witnesses:

R. S. FERGUSON,
C. S. DRURY.