

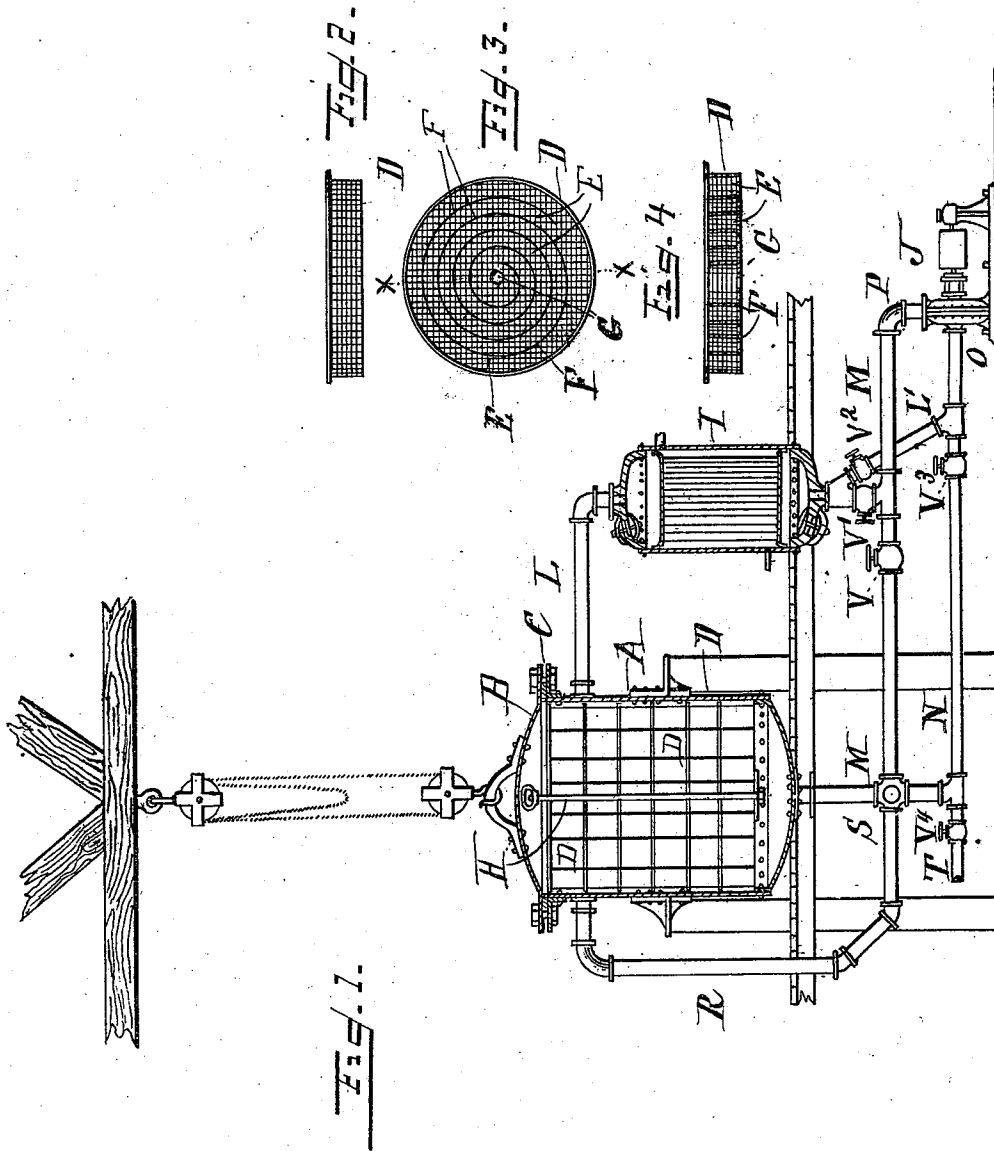
(No Model.)

C. WETHERWAX.

APPARATUS FOR TREATING VEGETABLE FIBERS.

No. 501,124.

Patented July 11, 1893.



WITNESSES:

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APPARATUS FOR TREATING VEGETABLE FIBERS.

SPECIFICATION forming part of Letters Patent No. 501,124, dated July 11, 1893.

Application filed October 31, 1890. Serial No. 369,968. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WETHERWAX, a citizen of the United States, and a resident of Albany, in the county of Albany, State of New York, have invented certain new and useful Improvements in Apparatus for Treating Vegetable Fibers for Their Conversion into Spinning Fibers, of which the following is a specification.

My invention has for its object to provide an improved apparatus for treating vegetable fibers to convert them into spinning fibers, and has for its object to provide a simple and efficient apparatus of this character in and by which vegetable fibers may be treated in a manner which assures substantially uniform action of the chemical liquors upon the fibers while they are retained in the digester in a manner preventing their entanglement or conglomeration, thereby promoting even treatment of all the fibers for their entire length and effecting quick and complete separation of gums or other undesirable foreign substances and leaving the fibers in the best possible condition for subsequent treatment prior to and during the spinning operation.

In order to carry my invention into effect, I have designed the apparatus which I will now proceed to describe.

Figure 1 is a vertical section of a digesting apparatus such as I may employ. Fig. 2 is a side elevation of one of the trays employed in the digesting vessel. Fig. 3 is a plan view of one of the trays, and Fig. 4 is a vertical section through a tray on the line x, x , of Fig. 3.

In the drawings, A is a digesting vessel provided with the cover B, removably connected to the body of the vessel by suitable clamps C. Within the digesting vessel I arrange a number of trays D, preferably made of wire netting and divided into compartments E by the spirally arranged partition F. In the drawings six (6) of such trays are shown. I do not limit myself to any required number of trays. The center of each tray is perforated at G to allow for the passage of the rod H, which has a handle at its upper end and a nut on its lower end, the object of which arrangement is to provide for lifting all of the trays from the digester at one and the same time.

I represents a heater of any suitable con-

struction included in the liquor circulating system in connection with the digester.

J is a pump and L, L', M, N and R are circulating pipes.

V, V', V², V³ and V⁴ are valves.

S is a two-way valve, and T a pipe through which steam may be admitted.

The operation of my improved apparatus is as follows:—The vegetable fiber which it is

desired to convert into spinning fiber is laid in its natural state in the compartments E of the trays D—that is to say the fiber, of the

length that it grows naturally, is laid in the spiral compartments, starting at one end of the spiral and gradually winding the fiber in,

so that the whole length of the fiber is in a condition to be acted upon. When all the compartments of the different trays are full, the trays are united together by the rod H

and placed in the digesting vessel; as shown in Fig. 1. The digesting vessel is then filled to above the level of the circulating pipes with the chemical treating liquor which it is

designed to employ. In the treatment of different fibers different liquors may be employed. The liquor usually employed, however, is a

solution of caustic potash in water, of any strength from five to ten degrees Baumé. When the digester A is filled with the liquor

the pump J is started and the liquor is drawn from the digesting vessel by means of the pipe L, heater I, pipe L' to inlet O of pump J; the

valves V' and V³ then being closed and the valves V and V² being open. The liquor

drawn by the pump is delivered from its outlet P to the pipe M and thence through the

properly adjusted two-way valve S into the bottom of the digester, circulating upwardly therein. As soon as the circulation is estab-

lished, it is my habit to permit sufficient steam to enter the body of the digester through the pipe T and past the valve V⁴, to establish

therein a pressure of from one hundred to one hundred and twenty-five pounds to the square

inch. The circulation of the liquor through the material is maintained from three to five hours, and I prefer that the circulation shall

be in the direction as described, that is upwardly through the material; but the circulation may be reversed, that is to say, the liquor

may be drawn from the bottom of the digester by the pipes M and N to inlet O of pump J,

and delivered by pipe M, heater I and pipe L to the top of the digester, in which case the valves V and V² would be closed and the valves V' and V³ open. Various other circulations of the liquor may however be established by proper manipulation of the valves. I am not limited to the spiral arrangement of the partitions in the digester trays shown in the drawings.

10 Having thus described my invention, I claim—

1. The combination with a digesting vessel of one or more perforated trays located therein, and such trays provided with partitions.

15 2. The combination with a digesting vessel having a plurality of perforated trays located therein, and such trays provided with partitions, of a pump, a pipe communicating with the digesting vessel and the inlet of the pump,

and a pipe communicating with the digesting vessel and the outlet of the pump, substantially as described. 20

3. The combination with a digesting vessel having a plurality of perforated trays located therein, and each having a spirally arranged partition, said trays being detachably secured together to enable the entire series to be introduced or removed from the digesting vessel, and a pump having pipe connections with the digesting vessel at opposite sides of the series of trays, to circulate treating liquid therethrough, substantially as described. 25 30

In witness whereof I have hereunto set my hand this 22d day of October, 1890.

CHARLES WETHERWAX.

Witnesses:

G. W. GOERTNER,

L. D. COLLINS, Jr.