

(No Model.)

2 Sheets—Sheet 1.

A. T. CLAY.

MACHINE FOR FINISHING WOVEN FABRICS.

No. 488,787.

Patented Dec. 27, 1892.

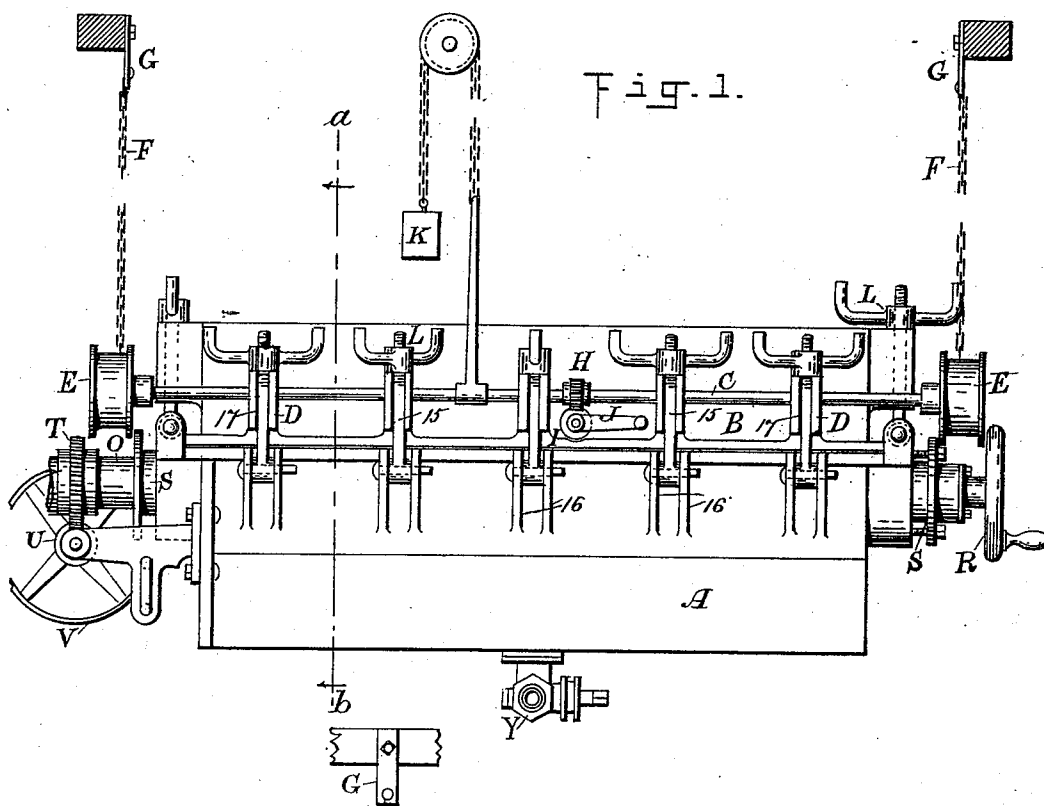
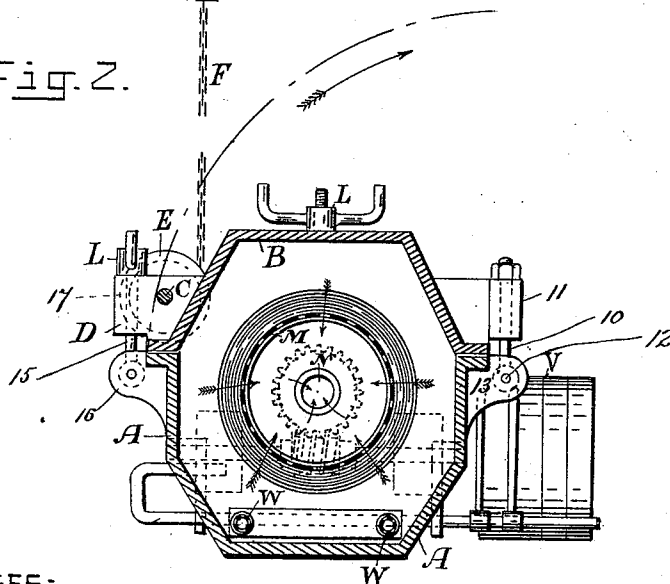


Fig. 2.



WITNESSES:

John C. Ramsey

INVENTOR:

Arthur T. Clay
by *Herbert W. T. Jenner*
Att'y.

(No Model.)

2 Sheets—Sheet 2.

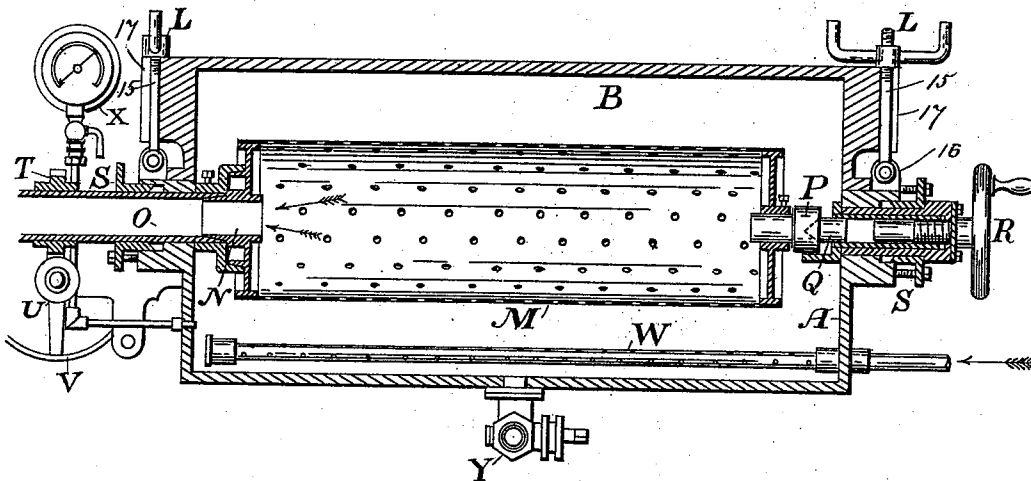
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Fig. 3.



WITNESSES :

J. M. Foster
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INVENTOR :

Arthur T. Clay.
by Herbert W. Jenner
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UNITED STATES PATENT OFFICE.

ARTHUR TRAVIS CLAY, OF RASHICK, ENGLAND.

MACHINE FOR FINISHING WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 488,787, dated December 27, 1892.

Application filed July 5, 1892. Serial No. 439,033. (No model.) Patented in England December 3, 1889, No. 19,377.

To all whom it may concern:

Be it known that I, ARTHUR TRAVIS CLAY, a citizen of Great Britain, residing at Rashick, in the county of York, England, have invented certain new and useful Improvements in Machines for Finishing Woven Fabrics, (for which I have received a patent in Great Britain, No. 19,377, dated December 3, 1889;) 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 has reference to a new construction of machine to be employed for setting or finishing woven fabrics, such processes being technically called blowing or steaming boiling, cooling, and scouring; the apparatus is also applicable for dyeing woven fabrics.

Such being the nature and object of my invention, I will now proceed to describe the same more fully, and for that purpose make reference to the accompanying drawings illustrative thereof, wherein

Figure 1 is a front elevation of a machine or apparatus constructed according to my invention; Fig. 2 is a cross-section of the machine taken through the line *a-b* of Fig. 1; and Fig. 3 is a longitudinal section of the machine, which comprises a box or chest A provided with a lid or cover B capable of opening upon hinges. The hinges are formed by the eye-bolts 10 which project through holes in the lugs 11 on the lid B. These eye-bolts are pivoted by pins 12 to lugs 13 projecting from the box A.

For the purpose of opening or raising the said lid, which is necessarily somewhat heavy, I employ a horizontal shaft C supported in brackets D projecting from the said lid. On each end of the said horizontal shaft C is a pulley E around which passes a chain F suitably connected to the stationary bracket G. On the horizontal shaft C is fixed a worm wheel H in gear with a worm I, so that when the handle J is operated the horizontal shaft is made to revolve, in doing which the chain F is wrapped or wound around the pulleys E, whereby the lid B is raised. The shaft C passes through the brackets D longitudinally of the lid and is raised with the lid when

the pulleys are revolved. A counterbalance weight K is employed for the purpose of keeping the lid in a state of equilibrium. If the box or chest be steam or air-tight, the lid B is hermetically sealed to the lower part of the chest by the screws 15 and nuts L. The screws 15 are pivoted to the lugs 16 on the box and pass through slots 17 in the brackets D. The nuts are loosened and the screws turned forward clear of the brackets D before the lid is raised.

The cloth or fabric to be treated is wound upon a perforated cylinder M; the journal N of the said cylinder is made hollow and is inserted into the tubular revolving shaft O. The opposite end of the said perforated cylinder is closed, and provided with a cup P for receiving the center Q, which is made to move endwise to and from the cup by the hand wheel R after the manner of the spindle in a slide lathe. Each end of the box or chest is provided with stuffing boxes S, which permit of the parts revolving while remaining steam-tight. The hollow revolving shaft O when rotated causes the perforated cylinder and the fabric thereon also to revolve, the said hollow shaft receiving its rotary motion by means of a worm wheel T thereon, gearing with a worm U driven by the driving pulleys V. The rotary motion of the cylinder may be reversed from time to time if thought desirable.

The *modus operandi* is as follows:—The hollow shaft O is placed in communication with a pump or exhaust fan or other form of apparatus for causing a vacuum in the said box or chest, the result being that the air is drawn through the fabric, and through the perforated cylinder, passing away through the hollow shaft. When a vacuum has been thus formed, steam is introduced into the box through perforated pipes W, which steam, or any condensation arising therefrom, is drawn through the fabric by the exhausting fan or pump. The pressure of the steam within the chest is indicated on the steam gage X. The perforated cylinder continues to revolve during the steaming action, and the length of time the steaming is continued will depend upon the class of goods under operation, and the discretion and judgment of the operator. Y rep-

resents a valve for emptying the chest or box. Provision may be made for collecting the ejected liquid in any suitable form of receptacle, so that it may be re-used. By a suitable
5 arrangement of valves attached to the pump or fan, steam can be forced through the fabric in the reverse manner to that described, whereby both the inner and outer surfaces of the rolled fabric will be equally acted upon.
10 Liquids may also be applied to the fabric in the same manner, and by connecting the valve Y to the pump or fan a complete circulation of the dye or other liquor is obtained. This form of apparatus may be used for oper-
15 ating upon fabrics in a variety of ways, as in addition to admitting steam into the chest after the vacuum has been formed, hot or cold water or other liquid may be introduced for cleaning, scouring, or otherwise treating the
20 fabric. The apparatus may also be used for dyeing cloth wound upon the perforated cylinder, as it will be easily seen, that by introducing dye liquor instead of steam or water, the fabric can be dyed.

Although I have shown and described an 25 air-tight steam chest, I prefer to use an open vessel.

What I claim is:—

In a machine for finishing cloth, the combination, with the inclosing box provided 30 with a stuffing-box at each end, of the hollow shaft and driving mechanism for revolving it, a perforated cylinder for the cloth provided with a hollow journal N at one end inserted into and secured to the said hollow shaft, and 35 having a cup P at the other end, the retractible center Q provided with an operating hand-wheel and adapted to engage with the said cup, and a pipe W communicating with the space in the box around the said cylinder, 40 substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR TRAVIS CLAY.

Witnesses:

GEORGE B. NALDER,

THOMAS H. BARRON,

Market Place, Huddersfield.