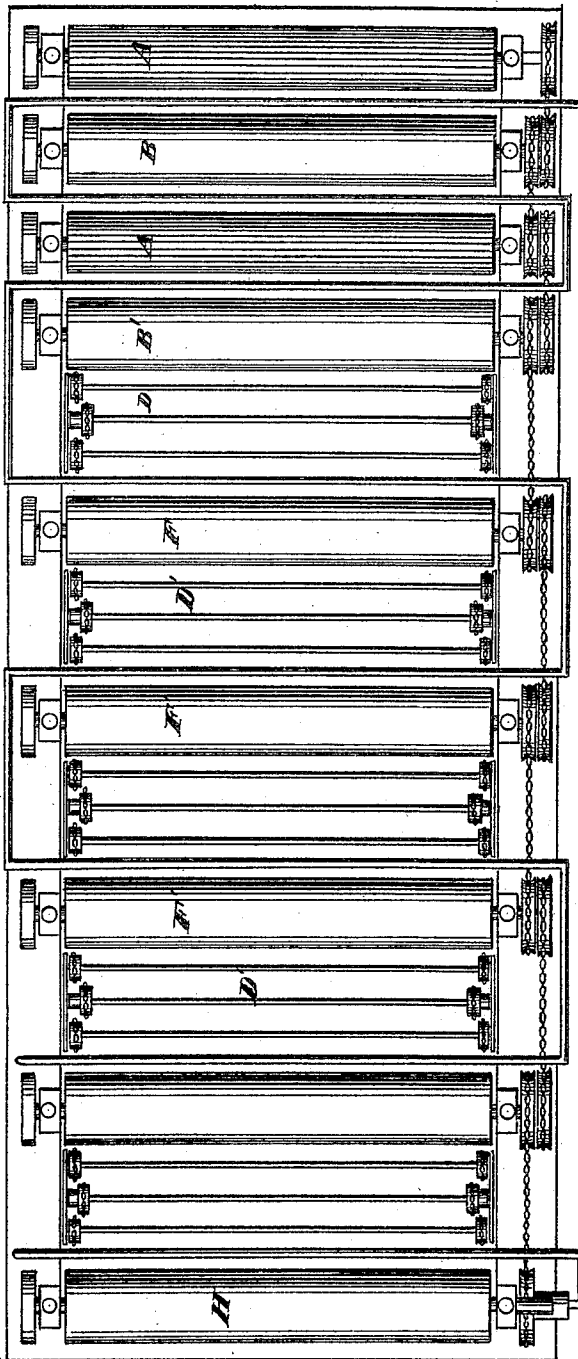


C. C. COLEMAN.
RAMIE-MACHINE.

No. 172,610.

Patented Jan. 25, 1876.

Fig. 1.



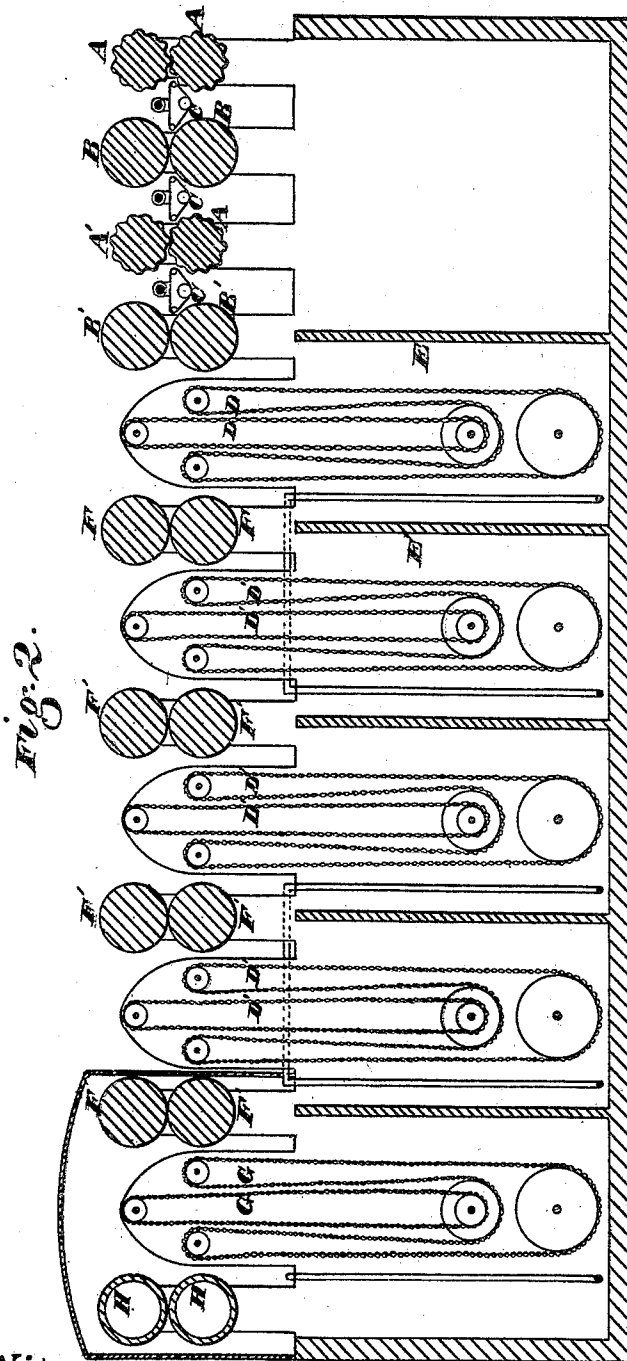
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Fig. 4.

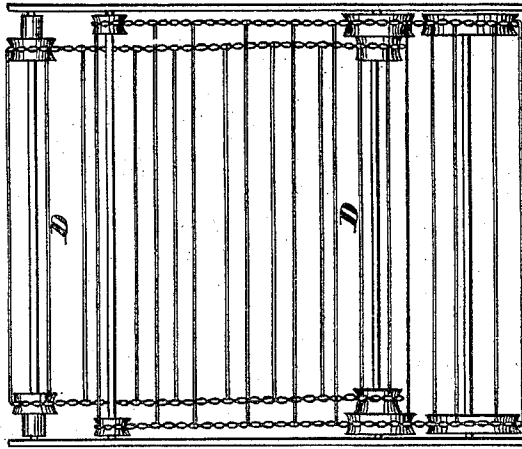
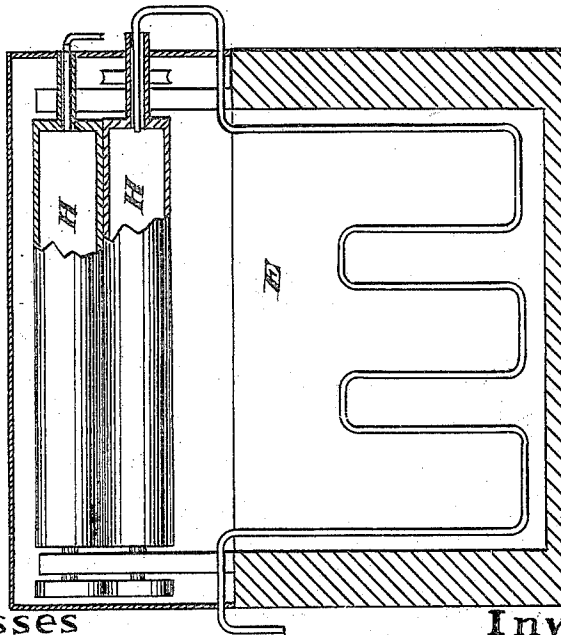


Fig. 3.



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UNITED STATES PATENT OFFICE

CHARLES C. COLEMAN, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN RAMIE-MACHINES.

Specification forming part of Letters Patent No. **172,610**, dated January 25, 1876; application filed September 18, 1875.

To all whom it may concern:

Be it known that I, CHARLES C. COLEMAN, of San Francisco city and county, State of California, have invented a Ramie-Machine; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention, without further invention or experiment.

My invention relates to an improved machine and process for preparing the fiber of ramie, flax, and other textile substances directly from the dry stalk, so that it shall be presented in marketable form by one single operation.

My machine consists of a series of alternate fluted and plain rollers, through which the stalks are passed to be crushed, being led by suitable belts from one set of rollers to another. From these rollers the crushed material is passed between belts, which carry it into and through a tank or bath of hot water or steam, for the purpose of freeing the fiber of the glutinous or gummy substance contained in it; after which it is again passed between pressing-rollers, which press out the gummy substance. From these it passes to a second tank and rollers, the solutions being varied, if desired, by the introduction of certain chemicals. After a final washing and pressing, the fiber is passed into a drying-chamber, and, lastly, between heated rollers, which deliver it free from all gummy matter, and nearly free from stalks, the fiber being quite white, and in marketable condition.

In order to more fully explain my invention, reference is made to the accompanying drawings, in which—

Figure 1 is a plan or top view. Fig. 2, Sheet 2, is a side elevation in section, showing the relative arrangement of the tanks and rollers.

A A are a pair of rollers of suitable length, having their periphery fluted or corrugated in regular curves, this form of corrugation being the most effective for breaking up the stalk or envelope. From these rollers the fiber is passed between a pair of plain-faced rollers, B B, which press it, and deliver it to another pair of fluted rollers, A' A', from which it is passed between two or more final pairs of

rollers, B' B'. Suitable supporting or carrying belts C are arranged between each set of rollers, as shown, and these receive the material from each set of rollers, and deliver it to the next. From the final pressing-rollers B the material is received in a sheet between two belts, D, which are caused to run over pulleys, so that they move close together into a tank or receiver, E, where the mass of material is exposed to the action of boiling water or steam. This may be effected in various ways; but at present I prefer to pass the belt up and down, over two or more set of rollers or pulleys, so as to expose the mass thoroughly to the action of the hot water or steam. As the mass rises for the last time from the tank it is delivered by the belt D, so as to pass between a pair of smooth squeezing-rollers, F. The gummy matter which is incorporated in the fiber, having been softened and partially dissolved by the action of the hot water or steam, will be partially pressed out by the rollers F; after which another pair of belts, D', receive the mass, and again carry it through another tank, E', in a manner similar to that which takes place in the first tank. Another set of pressing-rollers, F', again compress the mass, and this operation is repeated by placing as many tanks and rollers continuously as may be needed.

I have found it beneficial to introduce alkaline or other solutions into one or more of the intermediate tanks, as this assists in freeing the fiber of its gummy and coloring matter.

If these baths be employed, a final steam or hot-water bath and pressing-rollers will finish this part of the process; after which a pair of belts, G, receive the mass and carry it through a hot-air reservoir, where it will be dried.

A final pair of hot rollers or cylinders, H, may be employed to finish the drying of the fiber, which will be delivered at the end of the process entirely free from its gummy and other foreign matter, and nearly free from all the woody husk or stalk, so as to be a merchantable article.

My belts are made, preferably, of short links, these links being united by wooden or other slats, which extend from side to side, thus making up the width of the belt, which will

be sufficiently open to allow free access of steam, hot water, and air to the mass.

In some cases it may be found sufficient to employ horizontal belts, carrying the fiber from one set of rollers to another, and the hot water, steam, or other solution can be applied by passing perforated pipes across, above, and below the belts; but I have found the use of tanks to be more efficient for this purpose. Suitable gear or belt wheels will serve to transmit the power to drive the machine, these being merely mechanical details which any machinist can supply.

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

1. The continuous process of freeing textile

fiber from its gummy matter and stalk, the same consisting in first disintegrating the dry stalks by means of crushing-rollers, and then subjecting the mass alternately to hot water or steam, and the action of pressing-rollers, together with a final drying device, substantially as herein described.

2. The apparatus consisting of the fluted and plain rollers A B, endless belts D D, tanks E, pressing-rollers F, and final drying-vessel and cylinder H, when constructed to operate substantially as herein described.

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