No. 613,410. Patented Nov. 1, 1898.

# J. DELATTRE.

## MACHINE FOR COMBING WOOL.

(Application filed Dec. 6, 1897.)

(No Model.) 2 Sheets—Sheet 1.

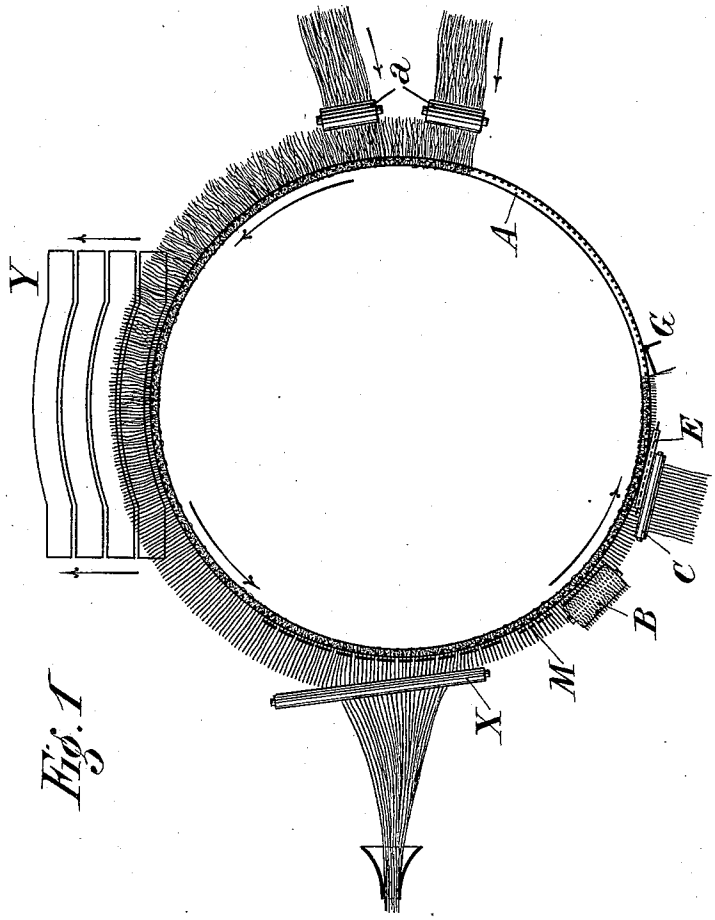



Fig. 1

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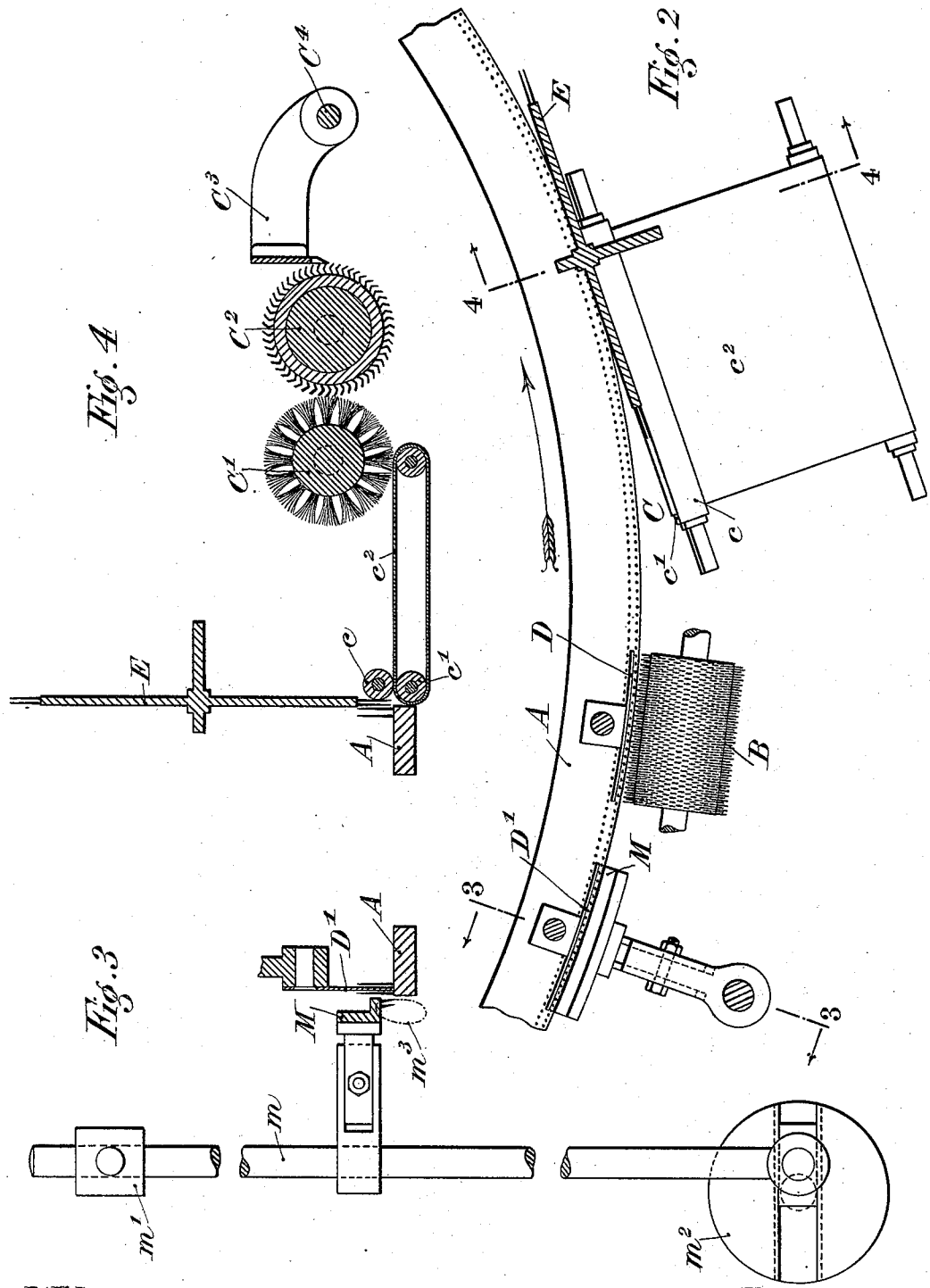
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## MACHINE FOR COMBING WOOL.

(Application filed Dec. 6, 1897.)

(No Model.) 2 Sheets—Sheet 2.




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# UNITED STATES PATENT OFFICE.

JULES DELATTRE, OF DORIGNIES, FRANCE.

## MACHINE FOR COMBING WOOL.

SPECIFICATION forming part of Letters Patent No. 613,410, dated November 1, 1898.

Application filed December 6, 1897. Serial No. 660,851. (No model.)

*To all whom it may concern:*

Be it known that I, JULES DELATTRE, of Dorignies, in the Republic of France, have invented a new and useful Improvement in Machines for Combing Wool, of which the following is a specification, and for which patents have been granted as follows: in France, No. 257,442, dated June 24, 1896; in Belgium, No. 123,529, dated September 15, 1896; in England, No. 20,561, dated September 17, 1896, and in Germany, No. 92,485, dated September 22, 1896.

My invention relates to those machines for combing wool in which a horizontal combing-ring is provided at its periphery with rows of vertical needles or points and receives a rotary motion during which its several parts pass successively, first, before a charger or feeding apparatus which delivers the wool to the combing-ring; second, before a combing device known as the "square-motion" comb, which works the fibers retained on the combing-ring; third, before a drawing appliance which draws off the combed fibers from the combing-ring, and, fourth, before a doffing appliance which removes the short staple, impurities, &c., remaining on the combing-ring.

My improvement consists, chiefly, in a supplementary cleaning and combing device and a second drawing device so applied between the first-mentioned drawing device and the doffing appliance that said second drawing appliance is enabled to draw off pretty long well-combed fibers available as combed wool, the waste or very short fibers and impurities being then alone removed by the usual final doffing appliance.

In the annexed drawings, Figure 1 is a plan of a combing-machine made according to my invention. Fig. 2 represents, on an enlarged scale, a plan of a part of the combing-ring opposite the supplementary combing and drawing device. Figs. 3 and 4 are sectional views on the lines 3 3 and 4 4 in Fig. 2.

The same letters refer to corresponding parts in all the figures.

The wool to be combed is placed by the feeders or chargers *a* on the needles of the combing-ring A and is carried forward by the needles in the direction of the arrows and arrives first at the faller-bars or square-motion comb Y, which, as usual, combs the fibers and places them in a parallel position ready to be drawn off by any suitable appliance—as, for example, a pair of rotating rollers X. The long and short fibers which remain on the needles of the combing-ring A are carried forward and come next under the action of the supplementary cleaning and combing device and supplementary drawing appliance which constitute the cardinal points of my invention.

The supplementary cleaning and combing device B represented as an example on the drawings consists of a single rotary comb. A nipper D holds the lap on the combing-ring A during the action of said comb.

I may place before the cleaning-comb B or equivalent cleaning appliance a small reciprocating comb (marked M, Figs. 1, 2, and 3,) which I call the "preparatory" comb, the function of which is to constantly return toward the edge of the lap the impurities, which are then much easier got hold of and carried away by the cleaning appliance B. The preparatory comb M is worked in any convenient manner. Fig. 3 shows, for instance, the arrangement to which I give preference. It will be seen that it is carried by a shaft $m$, which can slide in the socket $m'$, which can oscillate upon pivots. At its lower end the shaft $m$ fits into a revolving eccentric disk $m^2$. In consequence of the rotation of this revolving eccentric disk the comb M moves in front of the combing-ring A in a course indicated by the dotted line $m^3$. A nipper D', similar to that of the cleaning-comb B, can hold the lap on the combing-ring A when the comb M exerts its action. It is plain that in consequence of this movement the comb M will comb the lap, which goes around the combing-ring A in such a manner as to bring back to the edges of this lap the impurities. These impurities will then be readily taken hold of and carried away by the supplementary cleaning and combing appliance B. The latter, instead of consisting of a cylindrical rotary comb, as in the example shown, may consist of a comb established and working in the same way as the preparatory comb M.

As regards the supplementary drawing appliance C, it may consist of a pair of small cylinders *c c'*, which may be vertical, horizontal, or on an inclined plane, and which brings

the wool to an endless apron $c^2$, Fig. 4, whence it goes to a funnel or any other reception appliance.

In Fig. 4, C′ represents a rotary brush which facilitates the passage of the wool from the apron $c^2$ to the reception appliance. $C^2$ represents a rotary roller covered with card-clothing and serving for cleaning the brush C′. $C^3$ represents a comb which receives an oscillating motion around an axle $C^4$ and serves to strip the roller $C^2$. This arrangement is, however, no part of my invention and may be replaced by any other appliances fulfilling the same purposes.

There may be placed before the rollers *c c′* a stripper or rotating disk E with needles, which disk comes close up to the rollers *c c′* and the needles of the ring A in order to prevent the passage of the impurities which may not have been caught and removed by the comb B and which might otherwise be drawn off along with the clean fibers.

For the treatment of certain ordinary wools or those easy to work and where a clean state of the combing is not absolutely necessary the disk E can be dispensed with, and this allows of a still closer approach of the rollers *c c′* to the ring A, and consequently they draw out shorter wool. The small rollers *c c′* might be replaced by a presser or other drawing device, with which it would be possible to approach even nearer to the cylinder than with rollers.

The lap of wool drawn out by the rollers *c c′* is gathered either on bobbins or in cans and may be added to the first proceeds of the first drawing-out or be recombed, if this should be necessary; but as it forms an actual combing hardly differing at all from the first, except that its fibers are shorter, it could be employed as it is, in all such cases where a long combing is not indispensable, as for weft, hosiery, &c.

Fig. 1 illustrates the great importance of the interposition of the cleaning and combing device B between the two drawing appliances, since after the action of the faller or square-motion bars Y the front portion of the fibers is the cleanest, while in the after part the fibers are always more or less full of impurities, (lumps, tangles, &c.) If, therefore, the supplementary cleaning and combing device were dispensed with and the second drawing appliance employed alone to draw off the short fibers, those fibers which were sufficiently long to be seized by the rollers *c c′* would be dirty and not thoroughly combed and cleaned, as when my improved arrangement is employed. The cleaning devices placed between the two drawing appliances insure, on the other hand, in every case two real combings hardly differing, except in length of staple, because I have, in fact, two combing appliances complete in the one machine, and this enables me, among other advantages, to vary at will the length of staple in each combing according to the class of wool under treatment or the conditions under which the work is being performed, and this I accomplish by varying the diameter of the rollers X of the first drawing appliance or by setting them nearer to or farther from the combing-ring.

Any doffing appliance G, Fig. 1, may be employed to discharge the waste and impurities remaining on the combing-ring.

I claim as my invention—

1. In machines for combing wool, the combination with a combing-ring, a square-motion combing device and a drawing appliance, of a second or supplementary drawing appliance and a supplementary cleaning and combing device placed between the two drawing appliances as and for the purpose set forth.

2. In machines for combing wool, the combination with a combing-ring, a square-motion combing device, and a drawing appliance, of a second or supplementary drawing appliance, a supplementary cleaning and combing device placed between the two drawing appliances, and a preparatory comb between the first-mentioned drawing appliance and said supplementary cleaning and combing device, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. DELATTRE.

Witnesses:
PAUL DELATTRE,
F. LETUPPE.