

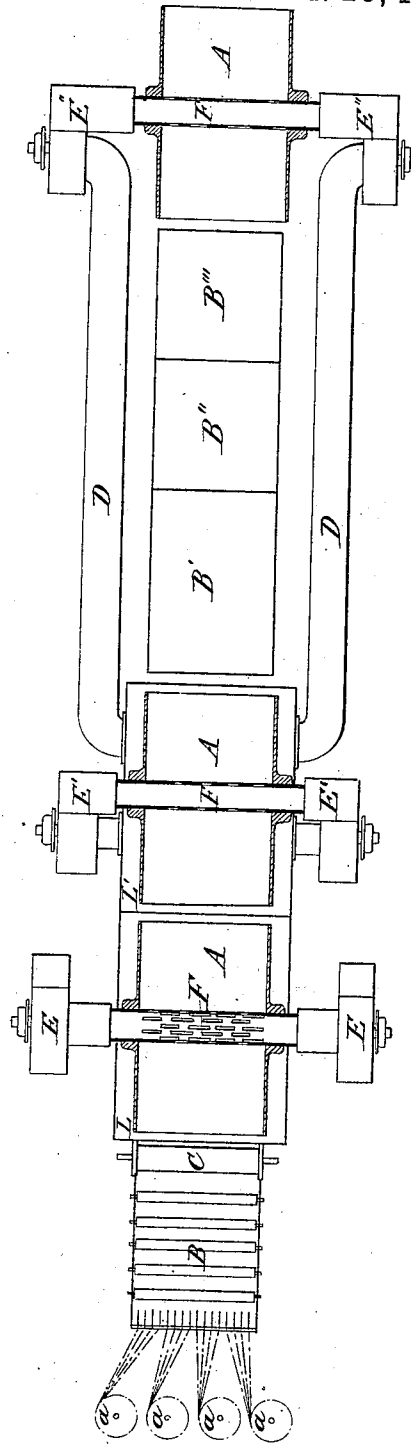
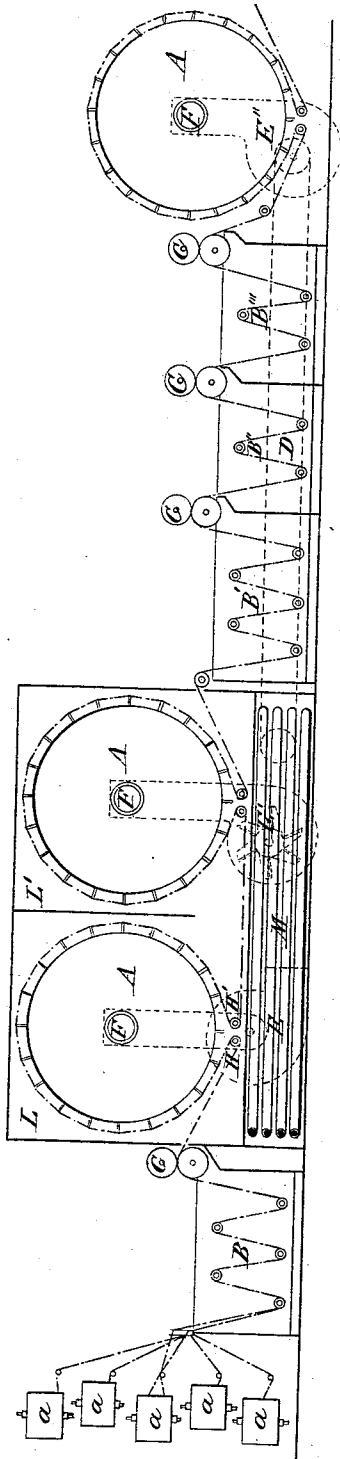
(No Model.)

A. SNOECK.

METHOD OF REMOVING VEGETABLE MATTER FROM WOOL, AND
APPARATUS THEREFOR.

No. 270,992.

Patented Jan. 23, 1883.



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UNITED STATES PATENT OFFICE.

ALBERT SNOECK, OF ENSIVAL, BELGIUM.

METHOD OF REMOVING VEGETABLE MATTER FROM WOOL, AND APPARATUS THEREFOR.

SPECIFICATION forming part of Letters Patent No. 270,992, dated January 23, 1883.

Application filed August 29, 1882. (No model.) Patented in Belgium May 24, 1882, No. 58,012, and in England May 31, 1882, No. 2,575.

To all whom it may concern:

Be it known that I, ALBERT SNOECK, of Ensival, in the Kingdom of Belgium, have invented a new and useful Improvement in the
5 Method of Removing Vegetable Matter from Wool, and in apparatus therefor or connected therewith, (for which I have obtained a patent in Belgium, dated 24th of May, 1882, No. 58,012, and a provisional protection in England, dated
10 31st of May, 1882, No. 2,575,) of which the following is a specification.

This invention consists, first, in subjecting wool to chemical processes having for their object to clear the wool from vegetable matter
15 adhering to it, not while the wool is in the form of yarn or woven tissue, but when it has been worked into a fleece or slivers by the carding or combing machine, so that the chemical action takes place while the wool is in a state of
20 division favorable for the destruction of the vegetable impurities; secondly, in applying for these processes a machine the features of which will be described with reference to the accompanying drawings.

25 Figure 1 of these drawings represents a longitudinal section, and Fig. 2 a plan, of a machine embodying my improvements.

The machine is composed of the following parts:

30 First. A rack, on which are placed the bobbins *a a*, carrying the slivers.

Second. A tank, *B*, containing the acid bath, and provided with rollers serving to conduct the slivers so as to keep them for a certain time
35 in the bath. On leaving the bath the slivers are passed between a pair of press-rollers or wringers, *C*, which press out the greatest part of the liquid retained in the wool.

Third. Two drying-cylinders, *A* and *A'*, each
40 constructed with two solid disks or carriers mounted on a hollow axle, having large openings *F* between the two carriers, Fig. 2, the circumference of the cylinder being formed by bars parallel to the axis, and at a considerable
45 distance from each other. The slivers are guided by two rollers, *H* and *H'*, which force them to surround the whole circumference of the cylinder. The slivers are placed near each other in such a manner as to form a regular
50 fleece as possible, which position is most favorable for allowing the air-current serving to dry

the slivers to pass through their entire thickness in one direction or in the other. Each of these cylinders *A A'* is inclosed by a casing, *L* or *L'*, which communicate with each other. 55

Fourth. A tank, *B'*, containing water, which is continually renewed.

Fifth. A tank, *B''*, containing a solution of soda, ammonia, or other alkaline substance.

Sixth. A tank, *B'''*, containing a soap bath. 60 These three tanks, like the tank *B*, are provided with guide-rollers and wringers.

Seventh. A drying-cylinder, *A''*, similar to the cylinder *A*.

Eighth. A heating apparatus, *M*, placed in 65 a closed chamber.

Ninth. Six fans, *E E, E' E', E'' E''*. The fans *E' E'* suck in hot air, blow it through the axle *F* of the cylinder *A* into the interior of this cylinder, and force it to pass through the
70 layer of wool which surrounds the cylinder. The air fills the chamber *L'*, and passes then into the chamber *L*, being forced on one side by the fans *E' E'* and sucked on the other side
75 by the fans *E E*, which communicate with the hollow axle of the cylinder *A*, so that the air of the chamber *L* is forced to pass from the outside to the inside through the slivers which surround the cylinder *A*. The air is subsequently discharged from the apparatus in pass-
80 ing through the axle of the cylinder and the fans *E E*.

The chamber *L* may be in communication either with the hot-air chamber or with the atmosphere of the machine-room by means of
85 different openings provided with valves. This arrangement allows mixing the air coming from the chamber *L'* with hotter or colder air, so as to bring it to the required temperature. Finally the two fans *E'' E''* take hot air from
90 the air-chamber, forcing it afterward through the axle of the cylinder *A''*, and from there through the layer of woollen slivers which surround this cylinder. By means of apertures applied to the conduit of these ventilators and
95 provided with valves the temperature of the hot air can be reduced at will by mixing with it more or less air from the machine-room.

The three drying-cylinders and the four pairs of press-rollers receive a rotary motion from
100 a train of tooth-wheels calculated in such a manner that the speed at the circumference of

each of these organs is slightly higher than that of the preceding one by the amount necessary to keep the slivers on the fleece in a constant state of tension.

5 The machine operates as follows: A quantity of slivers is mounted on the rack sufficient to form a continuous and uniform fleece. These slivers are drawn across the tank B, where they are impregnated by the acidulated bath.
 10 After having been subjected to the press-rollers they pass on the small roller H in order to surround the whole circumference of the cylinder A, which they leave on passing over the small roller H', to be conducted toward
 15 the cylinder A'. While the slivers travel with the cylinder A air passes through them at a low temperature, but sufficiently hot so that, after leaving the cylinder, the material is completely dry, or nearly so. The sliver travels then
 20 in the same manner with the cylinder A', where air passes through it at a temperature sufficiently high to pulverize the vegetable matter. By this arrangement of drying-cylinders and fans I obtain the almost complete utilization
 25 of the hot air, and expose the wool to a high temperature only during the time absolutely necessary. The most convenient diameter for the cylinders, as well as the quantity of air for every pair of fans, and the best temperature
 30 to be adopted for every cylinder, will be found by experience. In leaving the cylinder A' the slivers are drawn into the tank B', where they are washed with water, so as to eliminate as much acid as possible. The bath in the tank
 35 B'' serves to neutralize the acid contained in the sliver, while the soap bath in the tank B''' is destined to completely purify the sliver from any traces of acid base or salt which it may contain. Finally, in leaving the wringing-
 40 roller of the tank B'' the sliver surrounds the circumference of the cylinder A'', by which it is dried, and the whole process of carbonization completed. The tank B''' and the three drying-cylinders may, however, be omitted, and
 45 these organs replaced by a well-known drying apparatus. After the slivers have come out of the machine they may be formed into so many bobbins as there are slivers at the en-

trance of the machine; or several of these slivers may be united, in order to form a smaller number, by passing them through doubling apparatus or gill-boxes. The removal of the pulverized vegetable matter is effected without any difficulty by the combing-machine or other appliances used for the preparation of wool for spinning, according to the period at which the carbonization is effected—that is to say, whether before or after the treatment of the sliver by the combing-machine.

In the drawings the way described by the sliver is indicated by dotted lines.

The number of acid tanks, washing or neutralizing tanks, and drying-cylinders may be altered without departing from the nature of this invention, and the cylinders may be replaced by other known drying apparatus. Instead of acid baths or neutralizing-baths, chambers may be used where the material is impregnated with gases having the same effect as the latter.

What I claim as new, and wish to secure by Letters Patent, is—

1. The method of purifying textile fiber from vegetable impurities by carbonization and washing while the material to be purified forms a sliver or fleece, instead of subjecting it to these processes while it is in the form of flocks, yarn, or tissue, substantially as and for the purpose described.

2. The combination of tank B with drying-chamber L L', tank B' B'' B'', guide-roller, wringing-roller C C, drying apparatus A A' A'', and heating apparatus M, substantially as described and illustrated.

3. The combination of drying-cylinder, having perforated hollow axles F, with fans E E, E' E', E'' E'' and hot-air chamber M, substantially as described and illustrated.

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

ALBERT SNOECK.

Witnesses:

H. LYNER,

H. YANSSOM.