

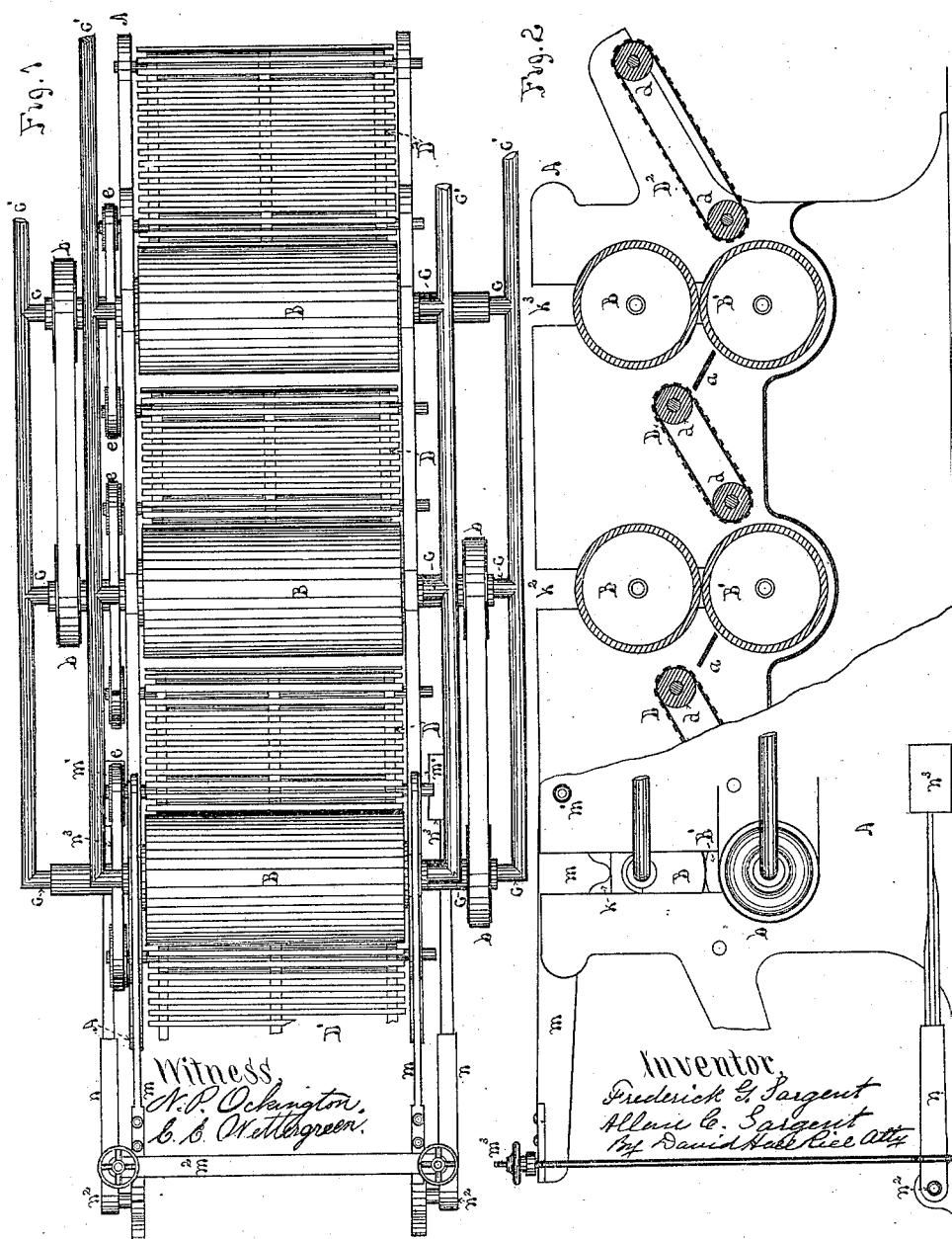
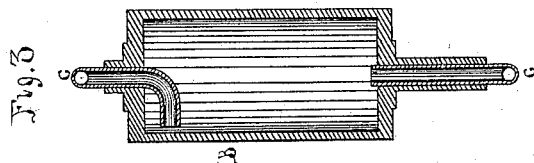
(No Model.)

F. G. & A. C. SARGENT.

WOOL DRIER.

No. 306,529.

Patented Oct. 14, 1884.



UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT AND ALLAN C. SARGENT, OF GRANITEVILLE, MASS.

WOOL-DRIER.

SPECIFICATION forming part of Letters Patent No. 306,529, dated October 14, 1884.

Application filed March 5, 1883. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK G. SARGENT and ALLAN C. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Wool-Drying Machines, of which the following is a specification.

Our improvement relates to machines for drying wool and other fibrous substances; and it consists in forming the said machine with a series of heated rollers to compress and dry the fiber between them, having a series of feeding-aprons placed so as to convey the fiber from one pair of said heated rolls to the next and out of the machine, and a series of chutes between the rollers and aprons on the feed-in side of said rolls, the object of the invention being to subject the wool fiber alternately to pressure and heat, and to the air in passing through the machine to dry it thoroughly and quickly.

In the drawings, Figure 1 is a top plan view of our machine with part of the first feed-in apron broken away for convenience of showing other parts. Fig. 2 is a side elevation with part of the casing broken away and the exposed working parts shown in section. Fig. 3 is a longitudinal section of one of the rollers and its steam-heating attachments.

A is the frame of the machine.

B B' are a series of hollow rollers placed in pairs at some distance apart in the machine, and made to revolve by driving-pulleys *b*, attached to the axes of the lower rolls. These axes are made hollow and revolve closely about pipes *c c*, as shown more in detail in Fig. 3, which pipes open into the interior of the rollers, and are designed to convey steam into them to raise them to a suitable heat for drying the fiber. The pipes *c c* are connected to steam-pipes *c' c'*, which conduct the steam into and out of the former.

Between each pair of rolls B B' are arranged feeding-aprons D, for conveying the fiber from one pair of rollers to the next, and at the feed-in end of the machine is a similar apron, D', for feeding the wool into the first pair of rollers, and at the feed-out end is another apron, D², for conveying the fiber out of the machine. These aprons D D² are made of open or slatted work, so that they serve to expose the

wool fiber to the air after it has passed through the heated drying and squeezing rollers, and thus materially assist the drying process. These aprons are revolved by rollers *d d*, which are driven by pulleys *e e* in the ordinary manner.

a a are chutes placed in an inclined position between the apron D or D' and the lower squeezing and drying roller, B'. These chutes serve to conduct the fiber from the apron to the rolls and prevent its escaping while passing between them. The upper roller, B, of the first pair of drying-rolls on the feed-in end of the machine has its axis placed in boxes which slide up and down in the slot *k*. On the upper box the levers *m*, which are pivoted at *m'*, rest, and these in turn are held together by the cross-bar *m²*, to which are attached the rods *m³*, extending downward around the levers *n*, pivoted at *n²*, upon the ends of which are placed the weights *n³*, and the roller B is thus made to press with any desired force upon the lower roller, B'. The other upper rollers, B B, have their boxes sliding in similar slots, *k² k³*, and may be weighted in like manner, if desired, as is common in various kinds of machines. The pipes *c* will usually be found sufficiently flexible between the rollers to allow for the necessary difference of rise and fall between them while operating; but a flexible pipe of rubber or other suitable material may be used to convey the steam, if desired.

Instead of having steam admitted to both the upper and lower rolls of each pair, it may be found sufficient to admit it to only one roller of each pair, and thus accomplish the drying process.

The operation of the machine is as follows: The wool, being placed upon the feed-in apron D', is conveyed to the first pair of squeezing and drying rollers B B' and subjected to pressure and heat. The surface speed of the first apron, D, is more rapid than that of the first pair of rollers B B', and hence the wool, in passing from the rollers upon this apron, is opened up and the air admitted through it by the separating influence of the different speeds of these several parts. After exposure to the air and opening up by the first feed-apron, D, the fiber passes through the second pair of drying and squeezing rollers B B', and is again

subjected to pressure and heat. The apron D, following this pair of rolls in like manner, runs faster than they in surface speed, and again opens up the fiber and exposes it to the
5 air, when it is again passed through the next pair of rollers B B'. The apron D² runs faster than this pair of rollers, and so finally exposes the fiber to an opening-up process and air-currents before it leaves the machine.

10 What we claim as new and of our invention is—

1. In an apparatus for drying wool, the combination of a series of rolls in pairs, heated as described, and intervening wool-conveying

belts, each belt having a greater surface speed 15 than the preceding rolls.

2. In an apparatus for drying wool, the combination of a pair of rolls, heated as described, and a belt receiving the wool therefrom, having a surface speed greater than the rolls, 20 whereby the wool is opened up to permit access of air to the fibers.

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Witnesses:

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