

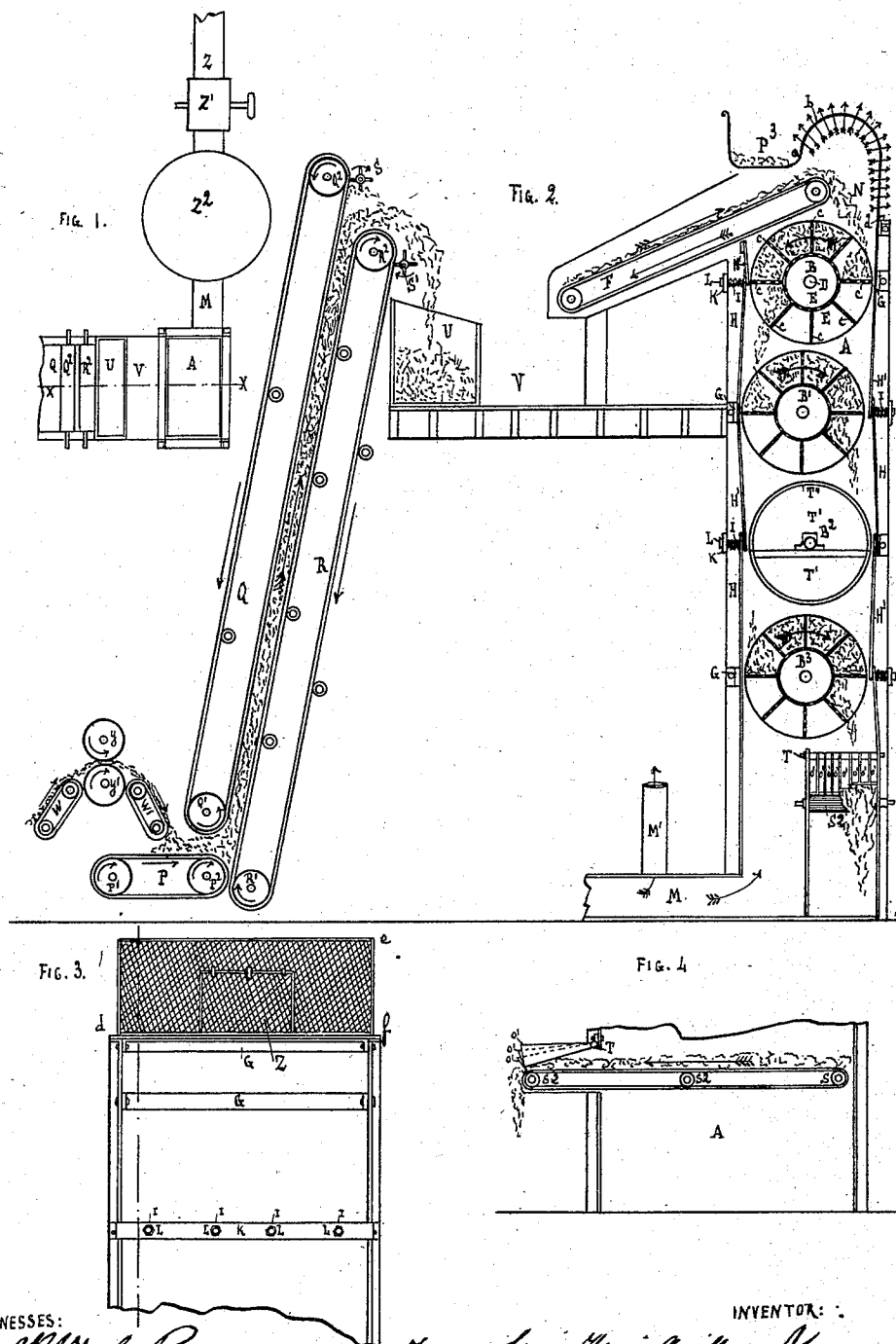
(No Model.)

J. L. H. G. SIMONIS.

MACHINE FOR DRYING AND CARBONIZING WOOL, &c.

No. 416,648.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

JACQUES LOUIS HENRI GUILLAUME SIMONIS, OF VERVIER, BELGIUM.

MACHINE FOR DRYING AND CARBONIZING WOOL, &c.

SPECIFICATION forming part of Letters Patent No. 416,648, dated December 3, 1889.

Application filed June 13, 1889. Serial No. 314,112. (No model.) Patented in Belgium July 16, 1888, No. 82,390, and November 30, 1888, No. 83,986; in France November 22, 1888, No. 194,276, and in England April 23, 1889, No. 6,793.

To all whom it may concern:

Be it known that I, JACQUES LOUIS HENRI GUILLAUME SIMONIS, a subject of the King of the Belgians, and a resident of Verviers, Belgium, have invented certain Improvements in a Machine for Drying and Carbonizing Wool and other Textile Matters, (for which I have obtained a British patent No. 6,793, dated April 23, 1889; a French patent, No. 194,276, dated November 22, 1888, and Belgian patents, Nos. 82,390 and 83,986, dated July 16, 1888, and November 30, 1888,) of which the following is a specification.

This invention has for its object to provide novel means for drying, carbonizing, and purifying or cleaning wool and other textile material; and it consists in the combination of devices hereinafter described, and specifically set forth in the claims.

In order to make the invention clearly understood, reference will now be made to the following drawings, in which—

Figure 1 represents a plan view of the machine. Fig. 2 is a sectional view at the line *xx*, Figs. 1 and 3. Fig. 3 is an elevation of the machine, and Fig. 4 a sectional view of the discharge.

The machine for drying, carbonizing, and purifying consists—

First, of a chimney-shaped rectangular case A, Figs. 1, 2, 3, and 4, in which drums $B B' B^2 B^3$, of unlimited number, are arranged. These drums travel slowly in the direction shown by the arrows. They may vary in number according to the production requiring to be attained in the drier. The drums B are composed of a shaft D, a wire-gauze cylinder body, sheet-iron plates E, fitted on the shaft D, wire-gauze wings *c*, (see Fig. 2,) through which the hot air can pass in every part, so as to traverse the layers and locks of wool in movement upon the drums $B B' B^2 B^3$.

Second, of an entrance, Fig. 2, consisting of the wire-gauze band F, upon which the wool to be dried is placed in order to feed the drier.

Third, of a discharging contrivance consisting of eight movable pieces O', formed of zinc or other metal hanging loosely from a rod T. The lower ends of these eight pieces

rest upon the apron S S S, Figs. 2 and 4. As the wool leaves the machine, it raises the pieces O' with more or less force, according to the thickness of the locks of wool. These pieces O' keep the opening of the discharge always closed and prevent the escape of warm air.

Fourth, in the yielding of the partitions H and H' of the chimney-shaped case A. These partitions are held in position by rods G. Pins L, fixed to the partitions H', run loosely through the partitions H and the rods K. Spiral springs I, placed on the pins L between the rods K and partitions H, keep the partitions H and H' at a slight distance apart from the rods K and from the drums B. Nuts upon the pins L regulate these distances. When an abundance of wool passes between the drums B and the partitions H and H', the latter are pushed back and compress the springs I. When the wool has passed, the partitions resume their former position near the drums B. This is important, inasmuch as useless openings are suppressed and the hot air is forced to pass through the drums $B B' B^2 B^3$.

Fifth, of an apparatus for cleaning and purifying wool by ventilation, consisting of the endless band F, of the wire-gauze cage *a*, *b*, *d*, *e*, and *f*, which may be of any suitable form, according to the nature of the work to be accomplished. The ventilation arising from the opening N of my drying and carbonizing machine drives through the wire-gauze the dirt and impurities contained in the wool, as shown in the plan view by small arrows. (See Fig. 2.) These impurities and dirt are consequently driven out of the cage and fall on the floor or in receptacles, as at P³, placed to receive them, while the wool remains inside the cage and passes along in the direction desired.

Sixth, in the application of a heating-inlet M', smaller than the large inlet M and taking in heated air from the latter or from a multitubular boiler and placed to introduce hot air into the case A at various heights when the case is made for more than four drums B, placed one above the other.

Seventh, of a raising apparatus for auto-

matically lifting the wool and other textile matters to the height of the drying-machine, and consisting of an endless band P, passing over the cylinders P' P²; of a second endless band Q, passing over the cylinders Q' and Q²; of a third endless band R, passing over the cylinders R' and R²; and of two beaters S and S', intended to clean the bands Q and R and to throw the wool into the receptacle U.

Working of the machine: The washed and damp wool coming from the well-known levathan and deposited on the endless band W passes between the compressors Y Y' onto the endless band W', and falls upon the endless band P. The wool deposited on the endless band P is taken between the endless bands Q and R, which raise it and deposit it in the receptacle U by means of the beaters S and S'. A workman standing on the platform V takes the wool and places it in the compartments of the drum B. As the drum B rotates, it allows the wool to fall in small quantities into the compartments of the drum B', which in rotating allows it to fall in small quantities into the compartments of the drum B². The latter in rotating allows it to fall into the compartments of the drum B³, which allows it to fall in small quantities upon the endless band S² S² S², which carries it outside. During the downward course of the damp wool or other textile material in the case A it falls by its own weight in small quantities and is dried by a draft of hot air moving upward, such air being drawn from outside the building, along the passage Z, Fig. 1, and driven by the ventilator Z' along the tubes of a multitubular steam-boiler Z², which heats it. It then passes along the passage M into the chimney-shaped case A, and finally leaves by the orifice N, loaded with the humidity, dirt, and dust that the wool previously contained.

In order to set forth clearly the structure of the fixed partitions, the drum B³ has been taken away. These fixed partitions have openings T, the inner edges of which are covered with strips of felt T'' to prevent the air and the wool from passing between the plates E of the drums and the said fixed partitions.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A wool drying and carbonizing appa-

ratus consisting of an upright casing, a series of revolving perforated drums arranged one above the other and each having on its outside a series of radial perforated wings, and a hot-air conduit connected with the base of the casing, substantially as described.

2. A wool drying and carbonizing apparatus consisting of an upright casing, having at its top a wool-feeding apron and at its bottom a hot-air conduit, a series of revolving drums arranged one above the other, a wool-discharging apron beneath the lowermost drum, and pivoted plates over the delivery end of the discharge-apron which normally rest thereupon and are raised by the wool passing thereunder, substantially as described.

3. An apparatus for drying and carbonizing wool, consisting of an upright casing, a series of revolving perforated drums having radial perforated wings and located one above the other, a hot-air conduit through which the hot air is forced into the base of the casing, and a cleaner and purifier composed of a foraminous cage located over the upper end of the casing and through which the impurities contained in the wool are driven, substantially as described.

4. A wool drying and carbonizing apparatus consisting of an upright casing having a hot-air inlet and opposite laterally-yielding partitions, a series of revolving drums comprising perforated cylinders located between the opposite partitions and toward which the partitions are constantly pressed, a discharging-apron beneath the lowermost drum, and a feeding-apron at the upper end of the casing, substantially as described.

5. The combination, in a wool-drying apparatus, of an upright casing having laterally-yielding partitions constantly pressed inwardly, and revolving drying-drums, between the external surface of which and the partitions the wool passes downward, substantially as described.

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

JACQUES LOUIS HENRI GUILLAUME SIMONIS.

Witnesses:

WM. S. PRESTON,
J. GROSS.