2 Sheets—Sheet 1.

C. BEU.

Wool Drier.

No. 61,145.

Patented Jan'y 15, 1867.

Fig. 1.

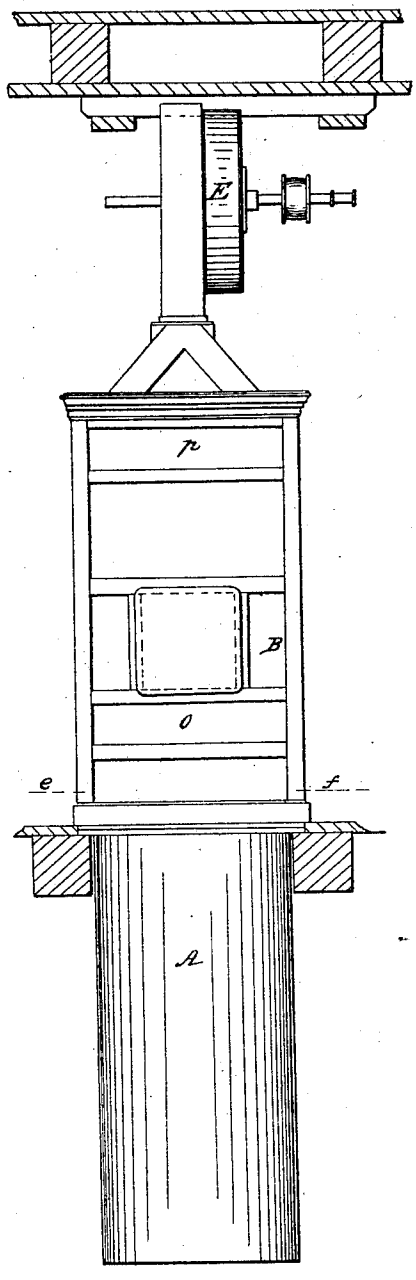



Fig. 2.

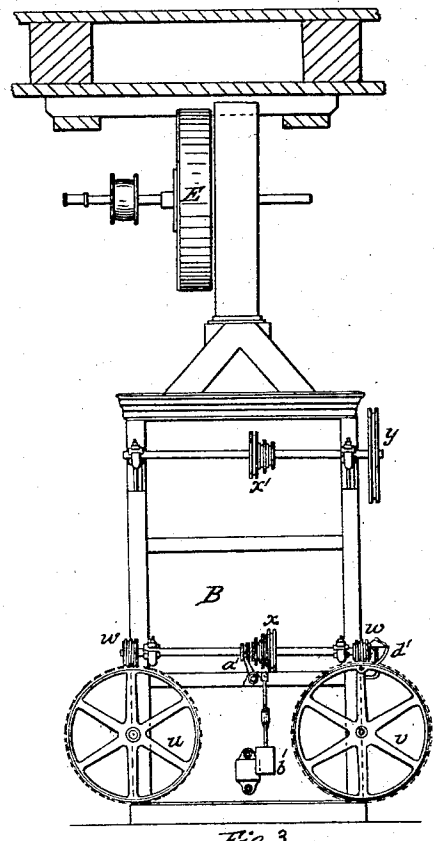
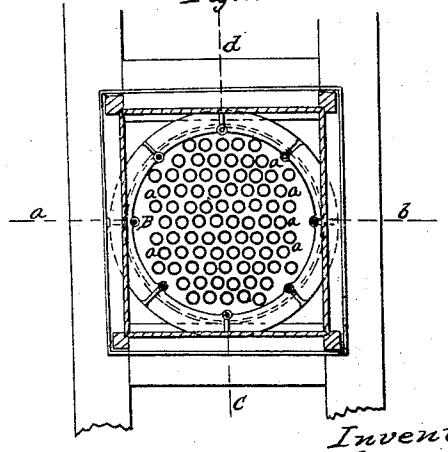



Fig. 3.




Witnesses
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2 Sheets—Sheet 2.

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Fig. 4.

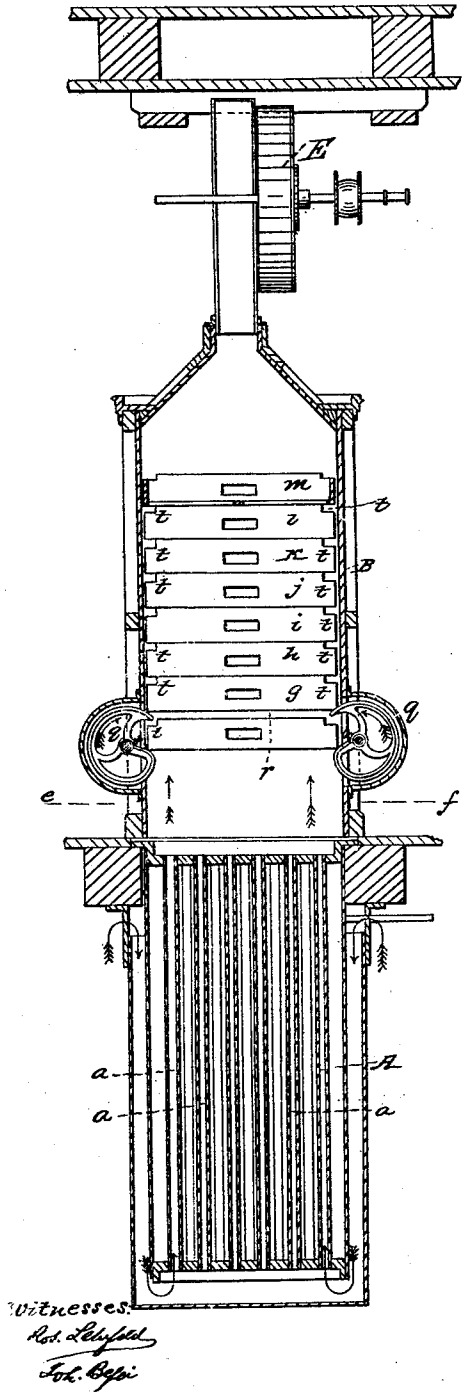
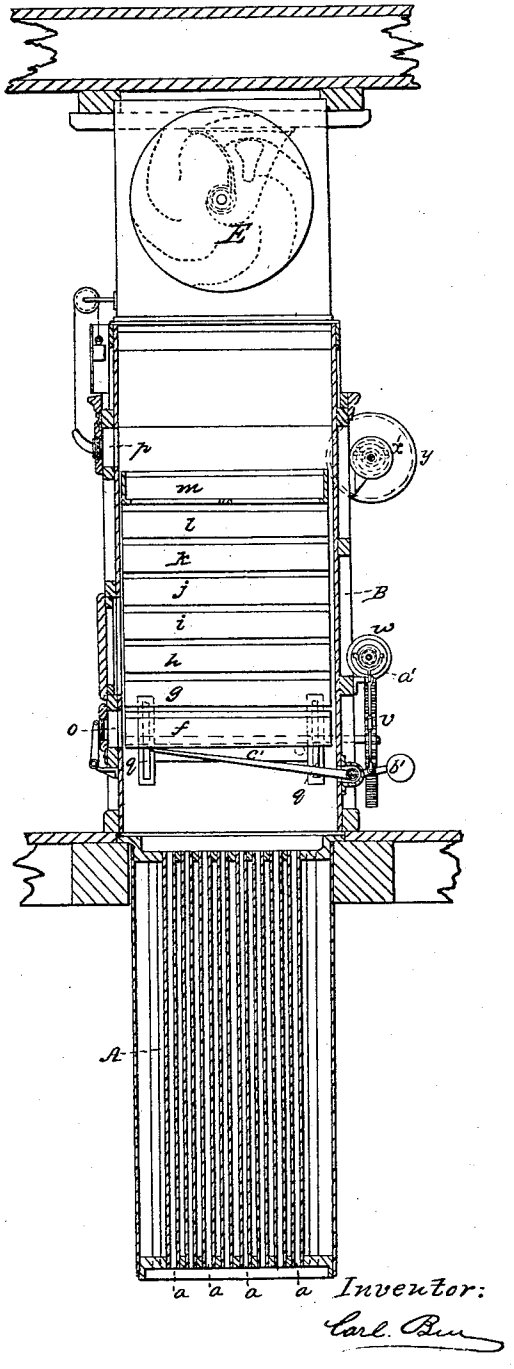



Fig. 5.




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N. PETERS. Photo-Lithographer. Washington, D. C.

# United States Patent Office

CARL BEU, OF DESSAU, ANHALT-DESSAU.

*Letters Patent No.* 61,145, *dated January* 15, 1867; *antedated January* 2, 1867.

## WOOL DRYER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CARL BEU, of Dessau, in the Dukedom of Anhalt-Dessau, have invented a new and improved Machine for Drying Wool, Cotton, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a front elevation of this invention.

Figure 2 is a side elevation of the same.

Figure 3 is a horizontal section of the same, the line *e f*, fig. 1, indicating the plane of section.

Figure 4 is a vertical section of the same taken in the plane indicated by the line *a b*, fig. 3.

Figure 5 is a similar section of the same, the line *c d*, fig. 3, indicating the plane of section.

Similar letters in the several views indicate corresponding parts.

This invention relates to an apparatus in which the wool, cotton, or other material to be dried, is placed in a series of boxes, which are provided with perforated bottoms and placed one above the other, and which are exposed to currents of warm, dry air. The air on coming in contact with the lowest layer of wool takes up a quanity of moisture, and as it rises through the several layers, it becomes saturated with moisture, and the lowest layers of the material to be dried, being exposed to dry air, are quickly dried, and the drying operation progresses from the bottom upward. With the drying boxes is combined a suitable mechanism whereby the same are permitted to descend successively, so that each box, after having been exposed to the hot air for a sufficient length of time, can be conveniently removed from below, while another box containing fresh material can be introduced from above, and the operation of drying wool, cotton, or other material, can be conducted with little trouble or loss of time, and with a comparatively small expenditure of fuel.

A represents a heater of any suitable construction, by preference a tubular boiler, to which steam is admitted from a generator of any desirable construction, and from which the condensed water passes off through a self-acting steam trap of any suitable construction. Said heater is surrounded by an air-jacket, through which the atmospheric air finds access at its upper edge, as indicated by the arrows. The air thus admitted passes up through the pipes *a*, and after having been heated, it escapes into the drying apparatus B. This apparatus is a case made of wood or any other suitable material, and into this case are placed the drying boxes *f g h i j k l m*, which are filled with the wool or other material to be dried. These boxes are introduced into and removed from the case B, through apertures *o* and *p* in its front side which can be closed by suitable lids, the lower opening, *o*, serving to remove the lowest box containing the dry material, and the upper opening, *p*, for introducing a fresh box containing wet material. The drying boxes are provided with perforated bottoms, and they are placed one directly on top of the other, their downward motion being produced by the action of cams *q*, two of which are on each side, and which revolve in the direction of the arrows marked on them. These cams are so shaped that the same after each revolution permit the drying boxes to sink down just the thickness of one box with the addition of the space *r*, shown between the two lowest boxes in figs. 4 and 5. Just before this space becomes perceptible, however, the points of the cams catch into reserves, *t*, at the upper edge of the lowest box, and sustain all the boxes above said lowest one, so that, when this box reaches its lowest point, it can readily be removed through the aperture *o*. In order to facilitate the operation of removing the lowest box containing the dry material, the mechanism is so arranged that the same stops as soon as the box has reached its lowest point. At this moment a new box containing fresh material is introduced through the opening *p*. The motion of the cams *q* is produced by means of worm-wheels, *u v*, which move in opposite directions by the action of worms *w*, and cone pulleys, *x x'*, and a suitable pulley, *y*, to which motion is imparted from the line shaft. The cone pulley, *x*, on the worm-shaft is thrown in and out of gear by the action of a clutch and clutch-lever, *a'*, which is connected to a tilting weight, *b'*, to which motion is imparted by the lowest box coming in contact with the lever *c'*, (see fig. 5.) By the act of depressing this lever, the clutch is thrown out of gear with the cone pulley and the worms *w* stop. But as soon as the lowest box has been removed, said lever rises and reassumes its original position, causing the clutch to drop in gear with the cone pulley, and imparting motion to the worms until the next box sinks down. A suitable alarm, *d'*, is sounded at each revolution of the cams *q*, so as to indicate the time for the removal of the box containing the dry material and for the introduction of a fresh box containing wet

material. A suction blower, E, on the top of the case A, serves to carry off the moist air. This blower may be constructed in any suitable manner, and it receives its motion from the line shaft or from any suitable driving-shaft.

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

1. The arrangement of a series of drying boxes placed one above the other in a suitable case A, in combination with a suitable mechanism whereby an automatic downward motion is imparted to said boxes, substantially as and for the purpose described.

2. The recesses *t*, in the drying boxes *f g h*, &c., in combination with the cams *q*, constructed and operating substantially as and for the purpose set forth.

3. The stop motion *a' b' c'*, in combination with the drying boxes *f g h*, &c., constructed and operating substantially as and for the purpose described.

CARL BEU.

Witnesses:

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H. MARSCHALL.