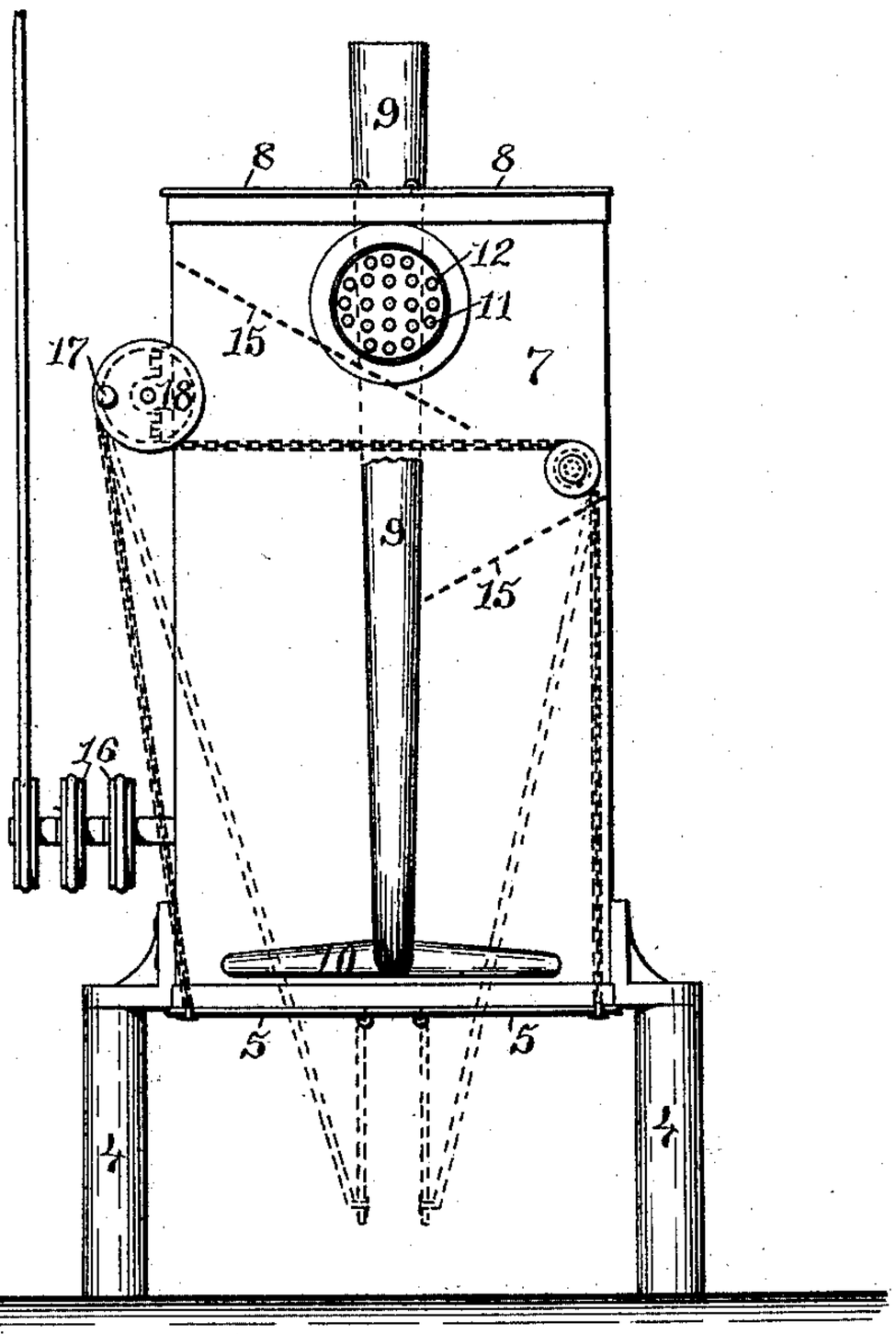
(No Model.) 2 Sheets—Sheet 1.

W. HARTLEY, Jr.

MACHINE FOR DRYING TEXTILE FIBER.

No. 474,087. Patented May 3, 1892.

Fig. 1.



WITNESSES:

M. F. Bligh.

Chas. H. Luther Jr

INVENTOR:

William Hartley Jr

by Joseph A. Miller & Co.

Attys

(No Model.) 2 Sheets—Sheet 2.

W. HARTLEY, Jr.

MACHINE FOR DRYING TEXTILE FIBER.

No. 474,087. Patented May 3, 1892.

Fig. 2.

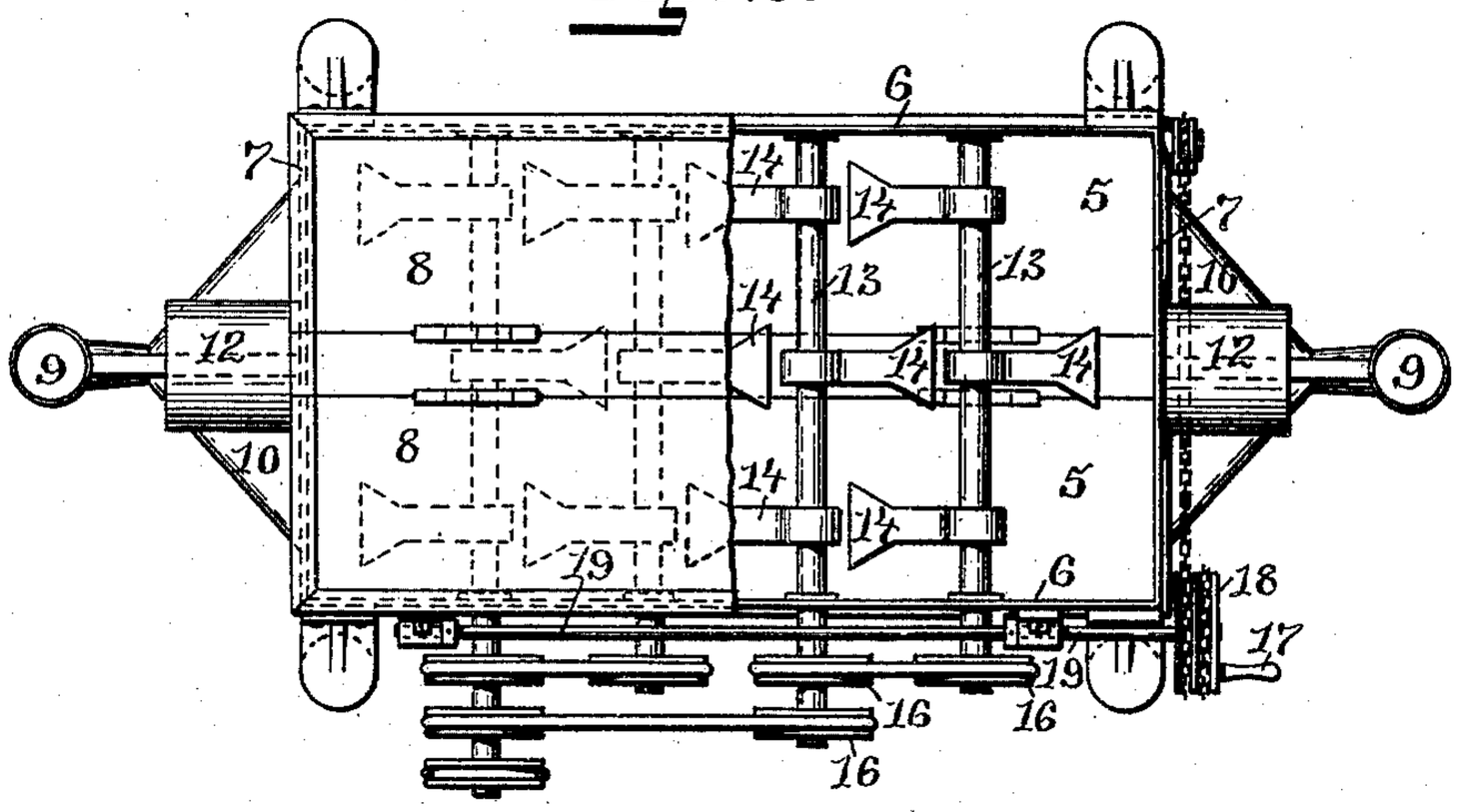
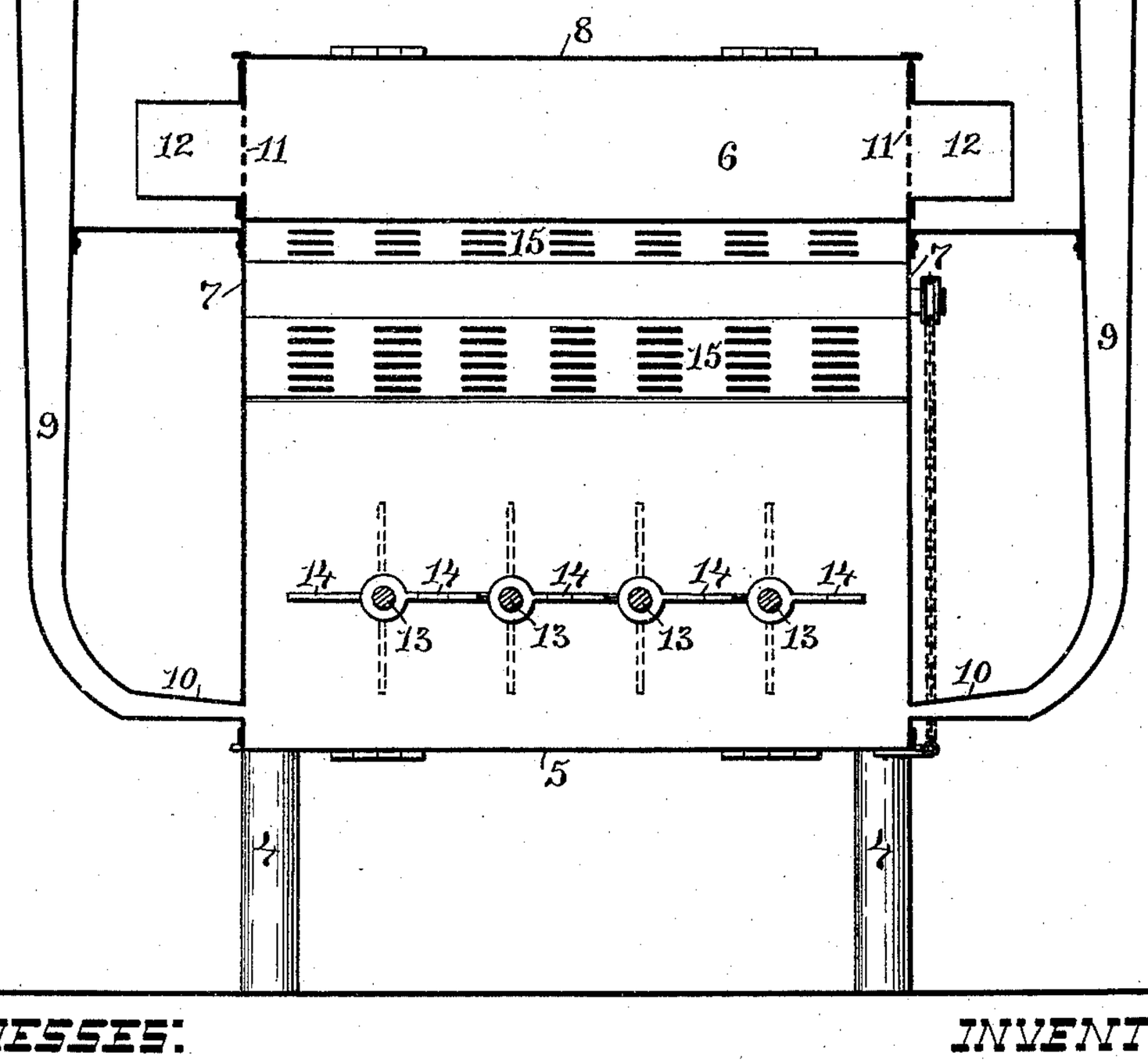


Fig. 3.



WITNESSES:

M. F. Bligh.

Chas. H. Luther Jr

INVENTOR:

William Hartley Jr

by Joseph A. Miller & Co.

Attys

UNITED STATES PATENT OFFICE.

WILLIAM HARTLEY, JR., OF LONSDALE, RHODE ISLAND.

MACHINE FOR DRYING TEXTILE FIBER.

SPECIFICATION forming part of Letters Patent No. 474,087, dated May 3, 1892.

Application filed May 23, 1891. Serial No. 393,902. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HARTLEY, Jr., of Lonsdale, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Machines for Drying Textile Fibers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The invention has reference to an improvement in the class of driers in which wool, cotton, or other fiber is dried; and it consists in a chamber provided with suitable doors, air inlets and outlets, and a series of beaters or agitators, by which the fiber is kept in an open agitated condition, permitting the air to freely pass through the same, as will be more fully set forth hereinafter.

Figure 1 is a vertical end view of the drying-machine, part of the hot-air pipe being broken away so as to show the air-escape opening more clearly, the lower doors being indicated in their open position in broken lines. Fig. 2 is a horizontal top view, partly in section. Fig. 3 is a longitudinal vertical section through the center of the machine.

Corresponding numerals of reference indicate corresponding parts throughout.

In the drawings the numerals 4 indicate posts, by which the drier is supported at such height as will permit of the opening of the lower doors 5 and the discharge of the material. The rectangular case, having the sides 6 and ends 7, may be made of such proportions that the case will extend through the whole height of a story, so that the lower doors 5 will open into a room on the story below the story in which the drier is built, and the upper doors 8 will open in the story above the story of the building in which the drier is erected, so that the fiber can be readily placed into the drier on one floor, pass through the drier, and be discharged therefrom. The rectangular case or chamber is supplied with heated air, preferably under pressure, through the pipes or ducts 9, connected with the inlets 10, placed near the bottom of the chamber at the opposite ends. The pipes 9 are shown as extending from the inlets in a vertical direction; but they may be arranged in any other desired direction. Near the top of the chamber the perforations 11 connect the interior of the chamber with the exhaust-tubes 12, which tubes may be extended into the outer air, or they may be connected with an exhaust-fan, so as to draw the moist air from the drier and facilitate the movement of the air through the fiber.

Near the bottom of the drying-chamber a series of shafts 13 are supported in suitable bearings, and these shafts are each provided with a series of beaters projecting from the shafts in opposite directions, arranged so as not to interfere with each other when the shafts are turned and so that when the revolution of the shafts is stopped the beaters can be placed into the vertical position indicated in broken lines in Fig. 3, permitting the fiber to be discharged. One or more perforated partitions 15, placed in the inclined position indicated in Fig. 1, may be placed into the upper part of the drying-chamber, so that the fiber may be exposed to the currents of air preparatory to being subjected to the final drying process and agitation. The shafts 13 are provided with the pulleys 16 or with gears, and motion is imparted to the same by either the system of pulleys, as shown in the drawings, or by gears.

The doors 5 are operated by means of the crank-handle 17, extending from the chain-pulley 18, secured to the shaft 19, which turns in bearings secured to one side 6 of the drying-chamber. Chains are secured at one end to the chain-pulley and at the other end to the doors 5, so that by turning the shaft 19 the doors 5 may be readily opened or closed. When the drying-chamber is long, the shaft 19 may extend from end to end of the chamber and chain-pulleys be placed at each end and connected with the doors by chains at each end.

The operation of my improved drier is as follows: When the fiber, which is usually wrung out as dry as possible by a wringer and which may have been heated and partially dried on the perforated shelves 15, is discharged into the drying-chamber, the revolving beaters keep the fiber in constant agitation, and by them the fiber is kept in an open condition suspended in the currents of heated air flowing, preferably under pressure, into the chamber by the inlets 10, which practi-

cally extend across the width of the chamber at the ends. The beaters open, clean, and separate the fiber, so that the dry heated air can come into contact with all parts and carry off any moisture contained in the fiber. If the exhaust is connected with a fan-blower, the moisture is carried off at great velocity and the most delicate fiber—such as the finest wool—can be dried rapidly and at a lower temperature than in other driers. When the machine is stopped, the lower doors 5 are opened and the dry fiber is removed, and by turning the shafts 13 slowly once or twice the discharge of the fiber is facilitated. The doors 5 and 8 are hinged, preferably, in the center, so as to facilitate the charging of the drying-chamber and the discharging of the fiber.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine for drying textile fiber, the combination, with a rectangular chamber, of inlets near the bottom of the opposite ends for the admission of heated air, outlets near the top of the opposite ends for the discharge of the air and vapor, doors in the top and bottom of the chamber for the admission and discharge of the fiber, and a series of horizontal shafts provided with beaters adapted to agitate and open the fiber, as described.

2. In a machine for drying textile fiber, the combination, with the rectangular drying-chamber provided with air-inlets near the bottom at opposite ends, of the exhaust-tubes 12 near the top of the chamber at the opposite ends, the centrally-hinged doors 5, forming the bottom of the chamber, the centrally-hinged doors 8, forming the top of the chamber, the oppositely-inclined shelves 15, and the shafts 13, provided with the beaters 14, adapted to operate substantially as described.

3. In a machine for drying textile fiber, the combination, with the rectangular drying-chamber having the vertical sides 6 and ends 7, of the centrally-hinged doors 8, forming the top, the centrally-hinged doors 5, forming the bottom, the hot-air inlets 10, near the bottom, at the opposite ends of the chamber, the perforations 11, and exhaust-tubes 12, near the top, at opposite ends, the perforated oppositely-inclined shelves 15 in the top of the chamber, the shafts 13, provided with the beaters 14 near the bottom of the chamber, and mechanism, substantially as described, for rotating the beater-shafts and operating the doors 5, as described.

WILLIAM HARTLEY, JR.

Witnesses:
JOSEPH A. MILLER,
JOSEPH A. MILLER, Jr.