

No. 609,360.

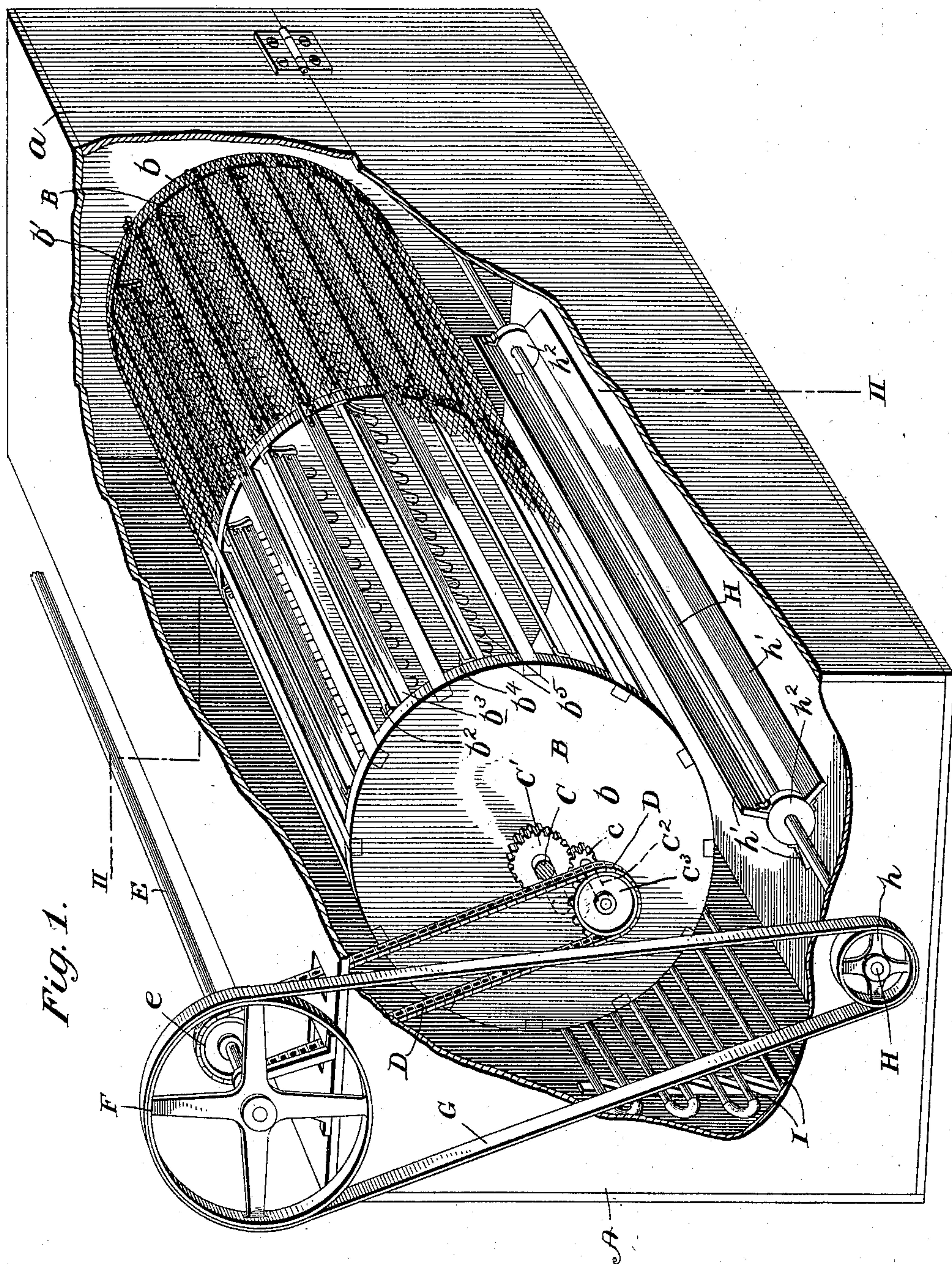
Patented Aug. 16, 1898.

R. MEYER.
OXIDIZING MACHINE.

(Application filed Nov. 26, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
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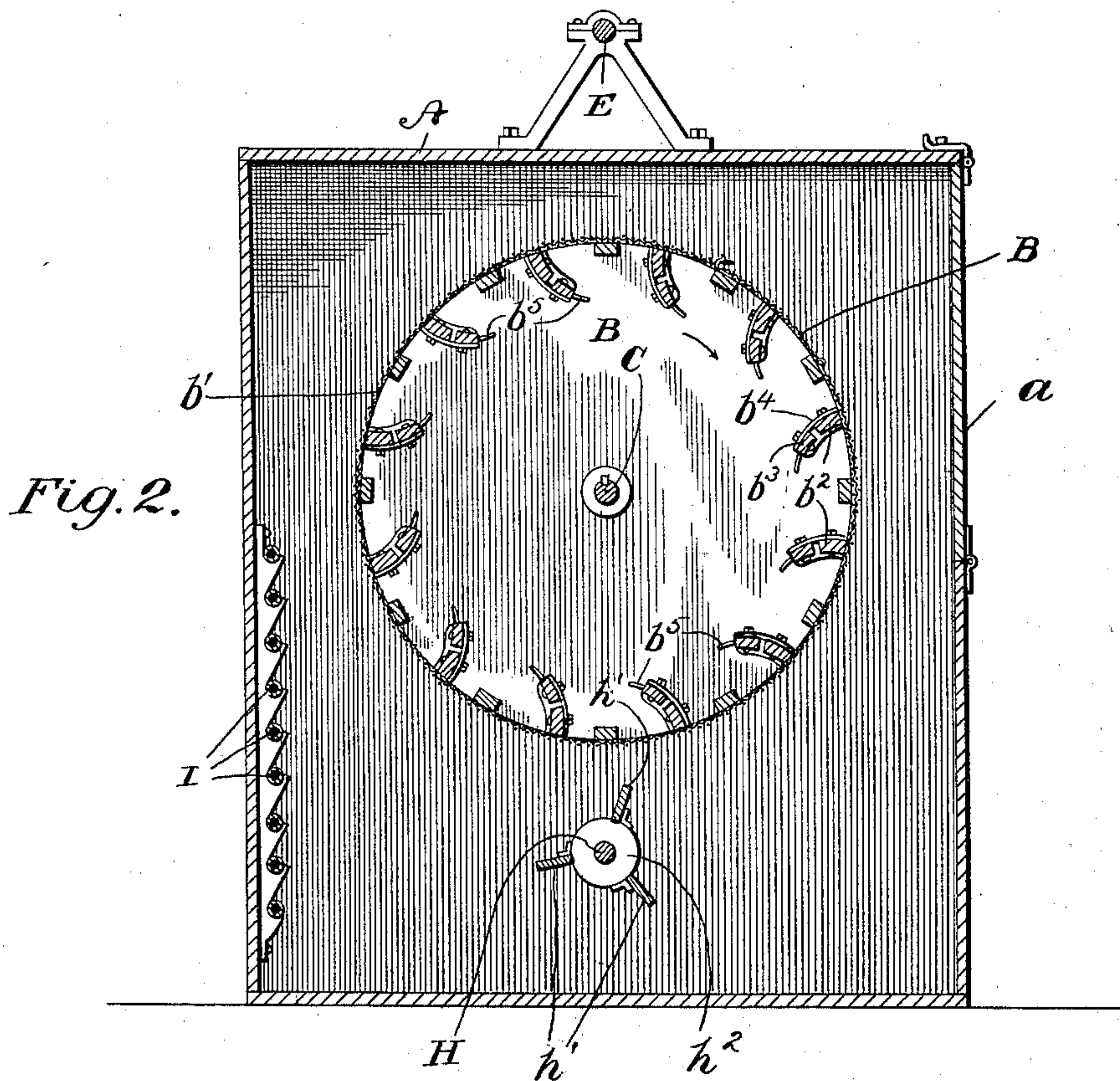


Fig. 3.

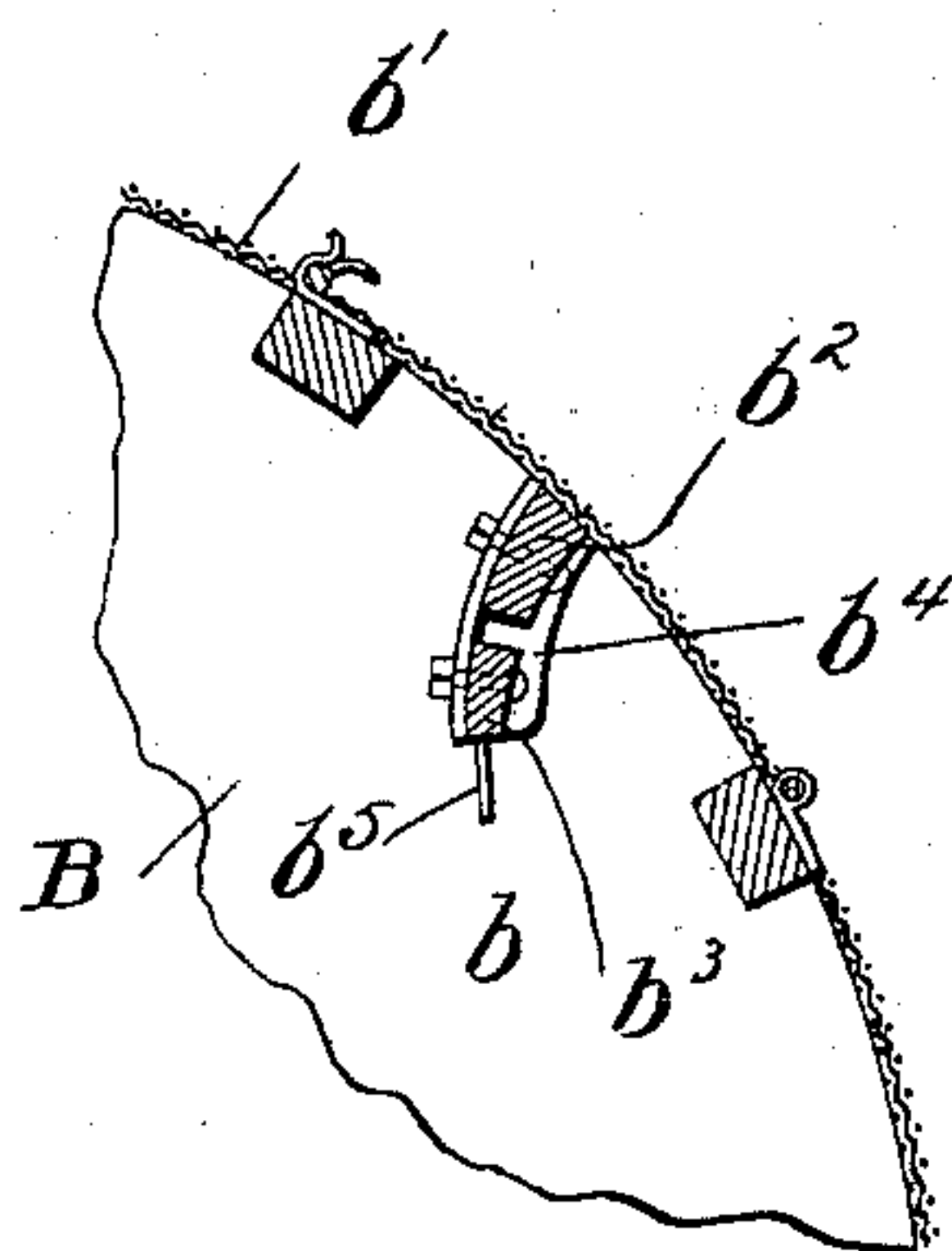
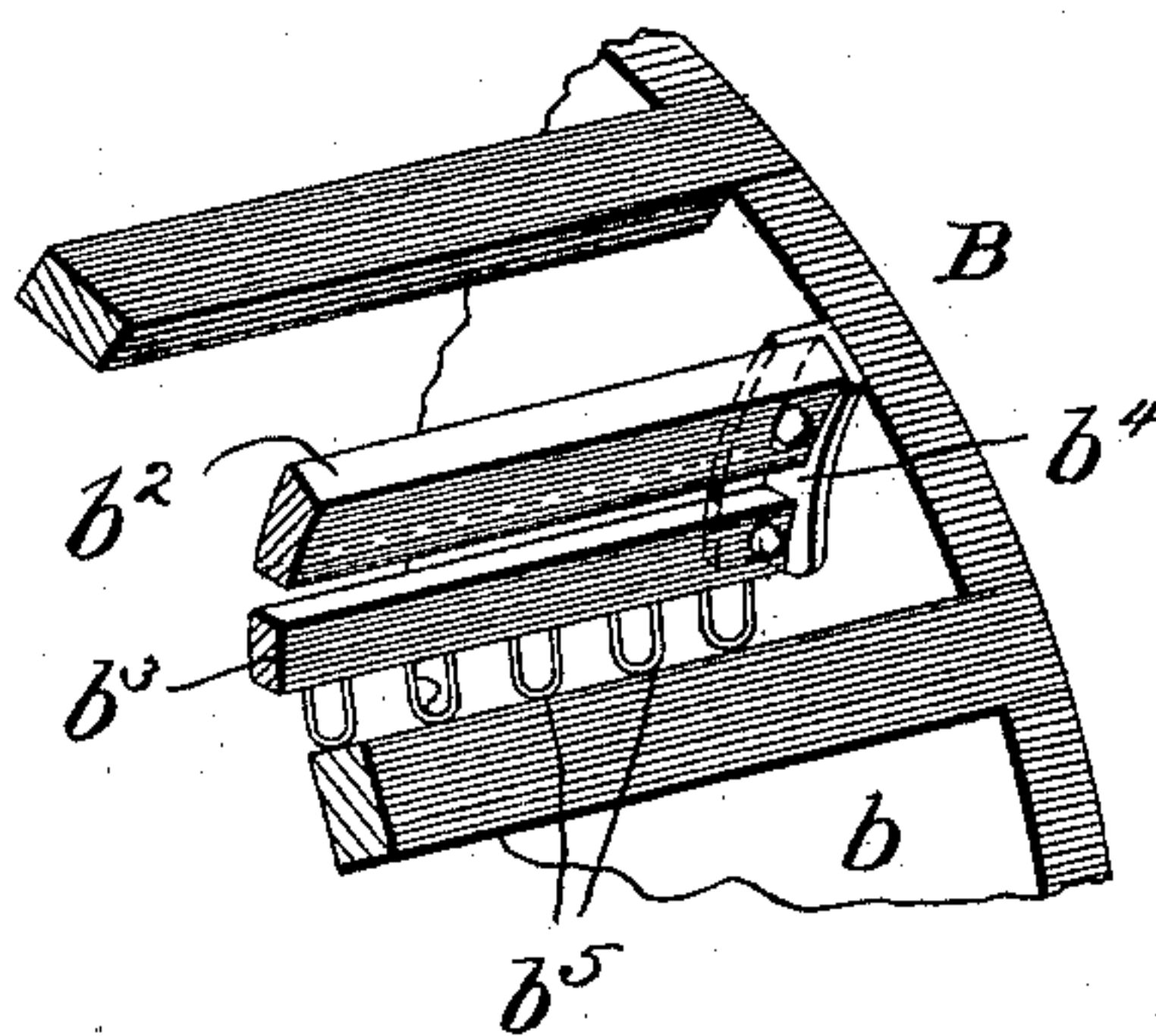


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

ROBERT MEYER, OF PHILADELPHIA, PENNSYLVANIA.

OXIDIZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 609,360, dated August 16, 1898.

Application filed November 26, 1897. Serial No. 659,910. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MEYER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Oxidizing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to oxidizing machines or apparatus for use in dye-works in the treatment of hosiery and articles of similar character or material, and more particularly to stockings known to the trade as "fast blacks."

Heretofore a common practice has been to first suitably dye the stockings and then to single them out and place each separately on a board of corresponding shape, in which condition they are then hung in a room in which the temperature is maintained at a point which will insure the complete oxidation of the dye to which the stockings have been subjected, and they are subsequently taken from such room and stripped from the boards preparatory to subjecting them to the "fixing" operation. This process involves the use of a great many boards in a dye-works of any considerable size, which, aside from their first cost and the amount of space occupied thereby when not in use and stored away, must for oxidizing purposes be hung at distances apart to allow of free access of heat and air to the stockings thereon. Moreover, a room of considerable area must be specially fitted up for the purpose, while the placing of the stockings on such boards is liable to and frequently does result in stretching them out of shape; and the work incident to disentangling each stocking from the mass in which it is brought from the dye-tubs and "boarding" the same, the transfer of the stockings when boarded to and from the oxidizing-room, and the stripping of the stockings from said boards necessitates the employment of several workmen and occupies considerable time. To obviate these difficulties, it has been proposed to place the hosiery in a revolving cylinder inclosed within an air-tight box, with means for maintaining the

desired temperature therein, said cylinder having a reticulated cover and longitudinal ribs on its inner surface, carrying pins each adapted to "rake" out or pick up a cluster of stockings, which are carried around inside the cylinder and subjected to the heat, dropping as they approach the vertical center of the cylinder, and so on until the desired extent of oxidation is effected; but it has been found in practice that the pins by which the stockings are raked out of the mass and picked up are not capable even when bent of retaining the stockings until a point near the vertical center of the machine is reached, and as a result the stockings in falling from the pins continually rub against other stockings which are being carried up, and the wear and tear produce a great quantity of lint and make a very rough surface on the finished article, necessitating the reversing of the stockings before being placed in the machine and the returning of them to the face side after the operation is completed. Additional cost of such turning twice, increased rates of fire insurance because of the hazardous appearance of the "lint" or "fly," and the imperfect work produced even with turning the stockings are serious objections to the use of such machines, and by falling upon each other in the manner described and rolling and tumbling down the stockings are not so thoroughly separated and evenly exposed to the warm air, so as to produce perfect oxidation.

The primary objects of my invention are to dispense with the use of stocking-boards and oxidizing-rooms, and to effect a saving of labor incident to singling out and stretching the stockings over and subsequently removing them from such boards and carrying the latter to and from the oxidizing-rooms, and to overcome the objections incident to the use of such machines as have been heretofore devised for this purpose.

A further object is to provide a simple, inexpensive, and efficient machine having a hosiery-containing revolving cylinder adapted to shovel up or lift instead of "raking" and clustering the stockings and to carry them to a point near enough to the vertical center of the cylinder to permit them to fall clear of the contents and all retaining means

within the cylinder by which the goods are raked up in machines heretofore used for this purpose, so that the goods may drop to the bottom of the cylinder without friction or rubbing against other stockings or projections within the cylinder.

The invention will first be described with reference to the accompanying drawings, which form a part of this specification, and then pointed out in the claims at the end of the description.

In the drawings, Figure 1 represents a perspective view of an oxidizing apparatus or machine embodying my invention, parts being broken away to show the interior construction. Fig. 2 is a cross-section of the apparatus on the line II II of Fig. 1, and Figs. 3 and 4 details of parts within the revolving cage or open-work cylinder.

Referring to the drawings, in which similar letters of reference are used to denote corresponding parts in different views, A denotes a box or case having a suitable door *a*, which may be hinged and provided with any suitable fastening device for keeping the door closed. This case A is preferably composed of wood, though any suitable material may be employed, and the door may be located thereon and secured thereto in any proper or desired manner. In suitable bearings within the casing A is journaled a revolving cage or cylinder B, which may have solid or other suitable heads *b*, to which may be attached a spindle or through which may project one end of the shaft C, on which may be secured a spur-wheel C', meshing with a pinion *c*, which latter may be fixed on a counter-shaft or spindle C², carrying a spur wheel or gear C³, about which is passed a driving chain or belt D, which latter also passes about a spur wheel or gear *e* on a driving-shaft E. Motion may be imparted to the driving-shaft E in any proper manner, thereby imparting a rotary motion to the cage or cylinder A through the train of gearing just described or by other suitable means.

To one end of the shaft E may be secured a band-wheel or pulley F, about which is passed a driving-belt G, which connects the band-wheel F with a band-wheel or pulley *h*, secured to a shaft H, having a fan thereon arranged within the casing A below the cage or cylinder B. This fan may be of any suitable construction. In the form shown it consists simply of three longitudinal wings *h'*, secured to disks *h*², which are made fast upon the shaft H, on which the band-wheel *h* is fixed.

The cage or cylinder B is provided with an open-work or reticulated cover *b'*, which may be of any suitable construction. This cover may be composed of wire-netting or other suitable material. Within the cylinder are arranged a series of parallel longitudinal strips or bars *b*² *b*³, secured together by suitable cleats *b*⁴ or otherwise, so as to leave an

intervening space and form a shelf or shovel-bar having an arc-shaped or curved form in cross-section to adapt it to take under and shovel up or lift the stockings and carry them partially around the cylinder. To the inner strips *b*³ are secured, so as to preferably form a continuation of the arc or curve thereof, a series of loops *b*⁵, of wire or other suitable material. These shelves are thus adapted to scoop up or shovel up the goods and carry them to a point near enough to the vertical center of the cylinder to permit them to fall clear of all succeeding shelves and of the goods thereon, so that when the goods reach the vertical center they may drop to the bottom without frictional contact with other goods or with any projections on the interior of the cylinder, and they are thus made to fall evenly, and the goods are thereby perfectly separated. The space between the two parallel strips forming the shelf, together with the loops on the outer strip, are adapted to detain the stockings, when about to fall, sufficiently to prevent but few of them from leaving the shelf at the same instant, thus effectually separating the mass and thereby obviating the objections incident to the use of plain ribs and pins, as in previous machines of this character, shoveling, as it were, instead of raking the goods, and thus facilitating their separation. The fan below the cylinder also tends to buoy up the stockings as they fall to the bottom and at the same time keeps up a circulation of air and facilitates the drying and oxidizing process.

As a convenient method of heating the air to the required temperature within the closed chamber or casing A a system of steam-pipes I may be employed, communicating in any proper manner with a steam-generator and circulating coil or system.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An apparatus for oxidizing hosiery and similar goods comprising a suitably-closed case or chamber having a door and air-heating apparatus, a cylinder arranged to revolve within said case, having on its interior a series of containing-shelves consisting of parallel strips slightly separated and connected in arc shape to form a curved containing-surface, together with a series of loops projecting from the outer strip and forming a continuation of said curvature, to adapt said shelves to shovel up the goods within the cylinder and carry them to the vertical center thereof, together with a fan arranged below the cage, and means for revolving the cage and simultaneously imparting motion to the fan, substantially as described.

2. An oxidizing apparatus comprising a closed case or chamber, means for permitting access thereto, means located within said case or chamber for heating the air therein, a revolving cage or cylinder journaled within said

case, provided on its interior with a series of shelves composed of parallel slightly-separated longitudinal strips arranged to present a curved front, and a series of loops forming
5 a continuation of the curvature projecting from the outer strip, together with a fan arranged within said case below said cage, and mechanism for revolving the cage and simul-

taneously imparting motion to the fan, substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

ROBERT MEYER.

Witnesses:

FRED E. SCHMIDT,

W. A. BAUER.