No. 676,647. Patented June 18, 1901.

A. N. DUBOIS.

APPARATUS FOR OXIDIZING.

(Application filed Jan. 3, 1901.)

(No Model.)

FIG. 1.

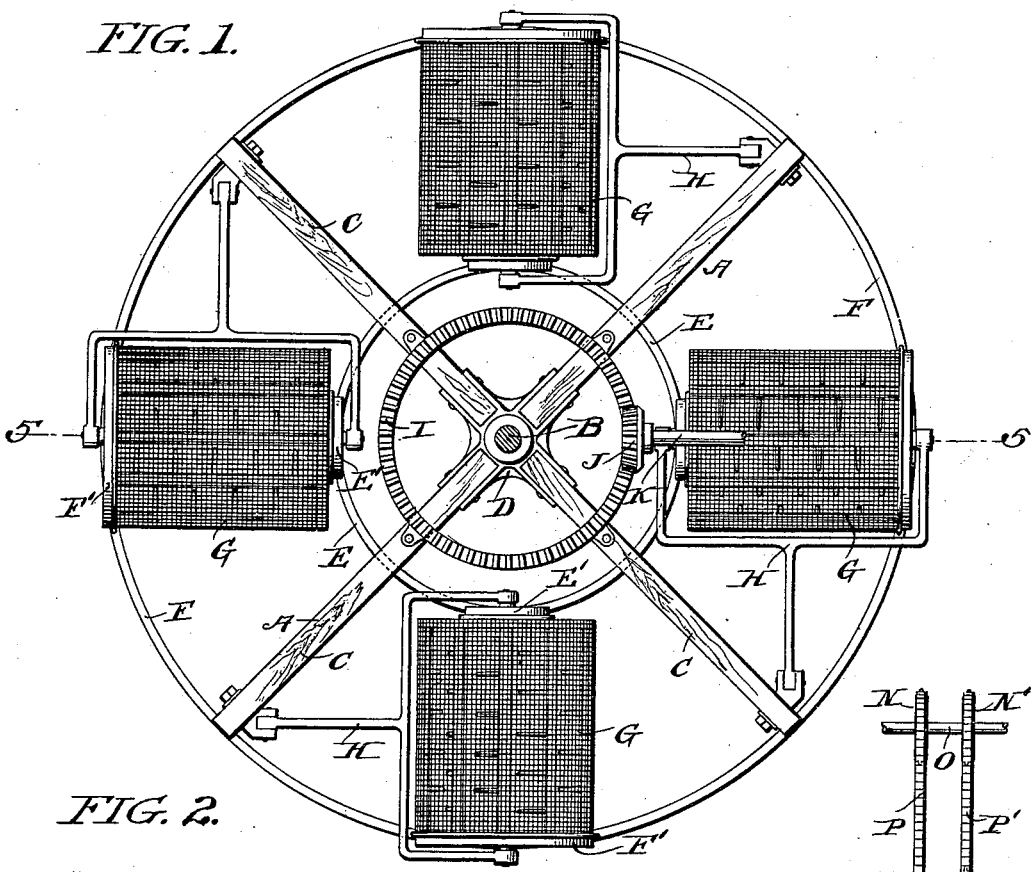
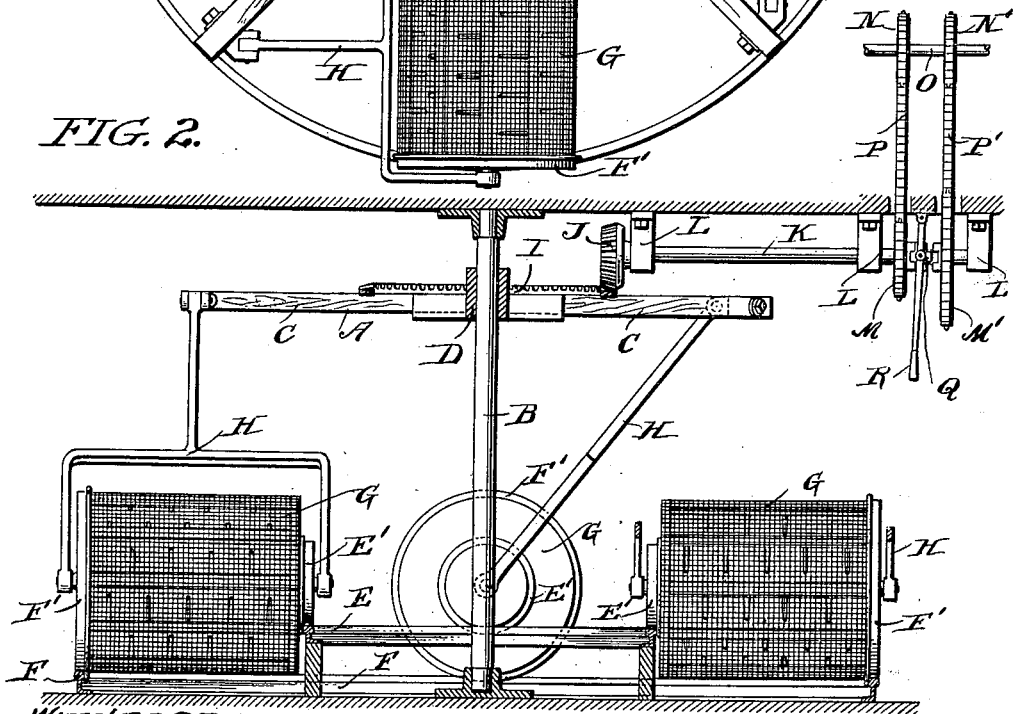


FIG. 2.



WITNESSES:
Oscar Eccrill
William J. Baldwin

INVENTOR:
A. N. Dubois
by A. B. Wilson & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ALEXANDER N. DUBOIS, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR OXIDIZING.

SPECIFICATION forming part of Letters Patent No. 676,647, dated June 18, 1901.

Application filed January 3, 1901. Serial No. 41,986. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER N. DUBOIS, 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 Apparatus for Dyers; and I do 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.

My invention relates to an improved oxidizing apparatus for the use of dyers.

The objects of the invention are, first, to provide means whereby a plurality of cylinders or drums for holding the goods may be simultaneously operated, preferably in a circular path, within the usual oxidizing-room or inclosing structure, so as to economize space, secure uniform oxidation, and provide for the handling at one and the same operation of a maximum amount of goods; second, to provide simple and effective carrying mechanism for the cylinders; and, third, to provide operating mechanism which will insure a constant, positive, and uniform movement of the apparatus at a regulated rate of speed, either high or low, as circumstances may require.

With these and other ends in view, which will appear as the nature of the invention is better understood, the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of an oxidizing apparatus embodying my invention. Fig. 2 is a central vertical section thereof.

Referring now more particularly to the drawings, the letter A designates a rotating carrier-frame mounted upon a vertical shaft B, which may or may not rotate with the frame, and comprising a series of radial arms C, connected to a central collar or sleeve D, which encompasses said shaft.

Arranged concentric with the shaft below the carrier-frame is a circular trackway composed of inner and outer annular rails E and F, located in different horizontal planes, the inner track-rail being elevated above the outer one, as clearly shown in Fig. 2. On this trackway a series of pervious oxidizing drums or cylinders G is mounted to travel in a circular path. Each of these cylinders is carried by and is revolubly mounted in a pendent yoke H, pivoted to one of the radial arms C of the frame A, and is provided at its opposite ends with wheels E′ and F′ to travel upon the said rails E and F. The inner wheel E′ is of smaller diameter than its companion outer wheel F′, so as to traverse the inner track-rail E and so as to adapt both wheels to roll uniformly to cause the rotation of the cylinder G. The cylinders are thus adapted to travel in unison in a circular path and in thus traveling rotate about their own axes, thereby moving the goods to be oxidized about therein in the usual manner. In practice the body of the cylinder is preferably made of pervious material and is provided upon its interior with pins arranged at an angle of about fifty degrees to pick up and toss the goods about, as shown in my application for patent, filed March 12, 1900, Serial No. 8,291; but any construction of cylinder suitable for the purpose may be employed.

By the foregoing construction of apparatus it will be seen that when rotary motion is imparted to the frame A the cylinders G will be moved around the annular trackway and in thus moving will be caused to rotate to expose all surfaces of the goods to the action of the atmosphere. By means of said construction, also, a maximum amount of goods may be handled within a minimum period of time and amount of space. The most important advantage secured, however, is that of exposing the goods to the atmosphere at all points—north, south, east, and west—in the oxidizing-room or inclosing structure in which the apparatus is arranged. I have observed it to be an invariable fact that the atmospheric conditions of the oxidizing-rooms of dye-houses vary according to the direction of pressure of the outer atmosphere, the atmosphere at the side of the room facing in the direction from which the wind is blowing being in every case in which I have made observation much moister than at any other part and dryest at the opposite side and that where the goods are placed within cylinders rotating in fixed bearings those placed within the cylinder at the

moist side oxidize very slowly, while those at the opposite side dry too quickly and become tender and frequently have to be sold as second-grade goods, resulting in loss of time in the one case and damage to the goods in the other. My invention entirely obviates this difficulty, as the goods are carried around and exposed at all points to the atmosphere in the oxidizing-room and must oxidize uniformly. I also provide drive mechanism for effecting a constant, positive, and uniform movement of the apparatus. This mechanism comprises a rack I, with which meshes a gear J, on one end of a counter-shaft K, journaled in suitable bearings L and carrying two loose sprocket-wheels M M′ of different diameters. These sprocket-wheels are connected to fixed sprocket-wheels N N′ of like diameter on a drive-shaft O by means of sprocket-chains P P′ and are adapted to be engaged by a double clutch Q, operated by a pivoted lever R. By engaging the clutch with the smaller loose sprocket-wheel M the shaft K will be revolved at its highest rate of speed, and by engaging said clutch with the large sprocket-wheel M′ the shaft K will be revolved at a lower rate of speed and impart motion to the cylinders accordingly. By the use of this construction of drive mechanism it will be apparent that a constant, positive, and uniform action of the apparatus at a regulated rate of speed is provided for, whereby all liability of imperfect oxidation due to irregular action of the cylinder is avoided.

I reserve the right to make such changes and modifications in the construction of the apparatus as fall clearly within the spirit and scope of my invention.

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

1. In an oxidizing apparatus, the combination of a circular trackway, a rotary carrier, perforated drums attached to said carrier and provided with wheels to traverse the trackway, a drive-shaft, a counter-shaft operatively connected with the carrier, fixed sprocket-wheels of like diameter on the drive-shaft, loose sprocket-wheels of unequal diameter on the counter-shaft, chains connecting the sprocket-wheels on the two shafts, and a double clutch coacting with said loose sprocket-wheels, substantially as set forth.

2. In an oxidizing apparatus, the combination of a circular trackway, a rotary carrier, perforated oxidizing-drums attached to said carrier and provided with wheels to traverse the trackway, and high and low speed gearing for rotating the carrier at a constant, positive and uniform regulated speed, either high or low, at will, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDER N. DUBOIS.

Witnesses:
FRANK J. HIGGINS,
CHAS. C. EMENS.