

No. 794,085.

PATENTED JULY 4, 1905.

A. N. DUBOIS.
ROTARY OXIDIZING APPARATUS.

APPLICATION FILED DEC. 22, 1904.

FIG. 1.

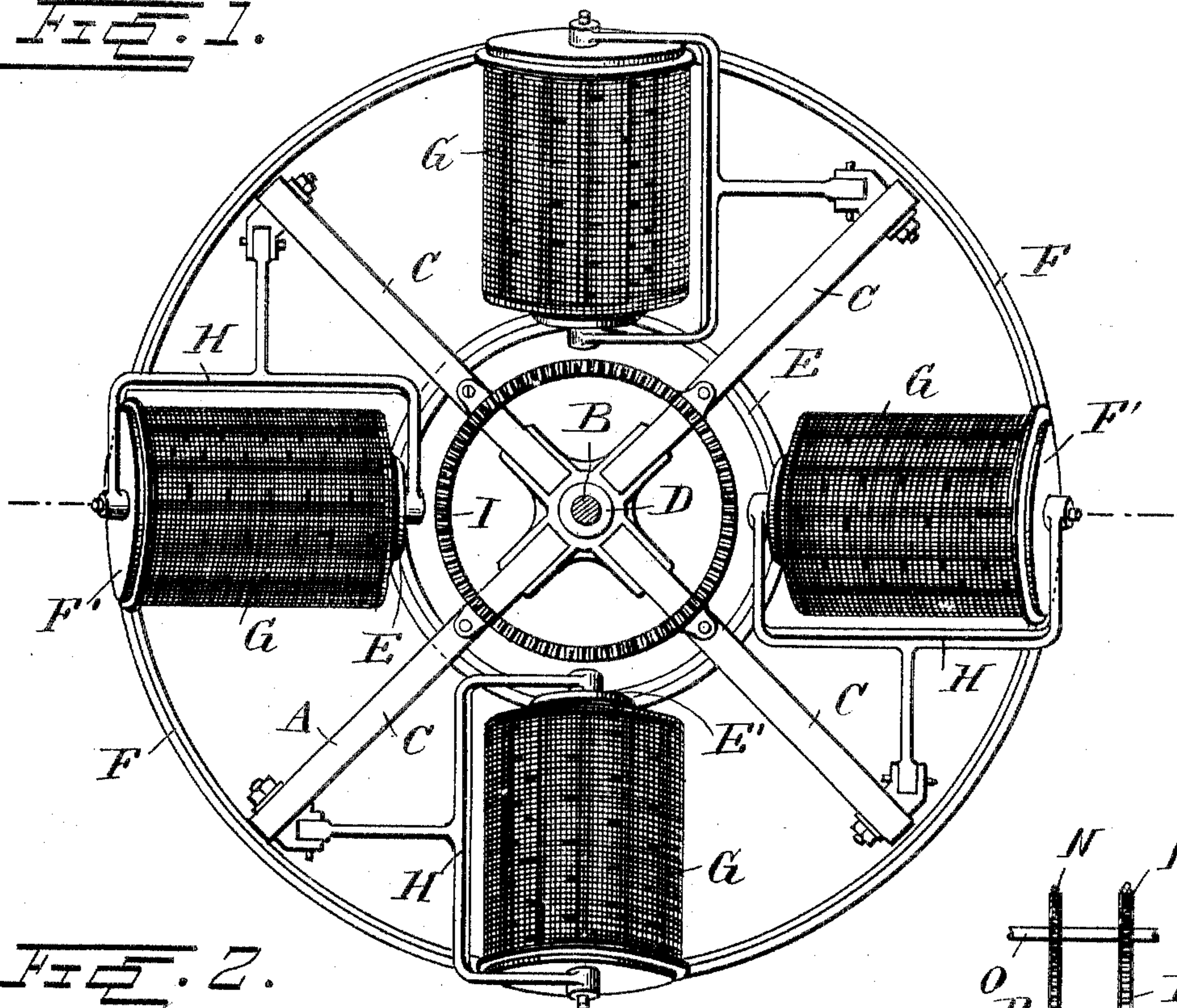
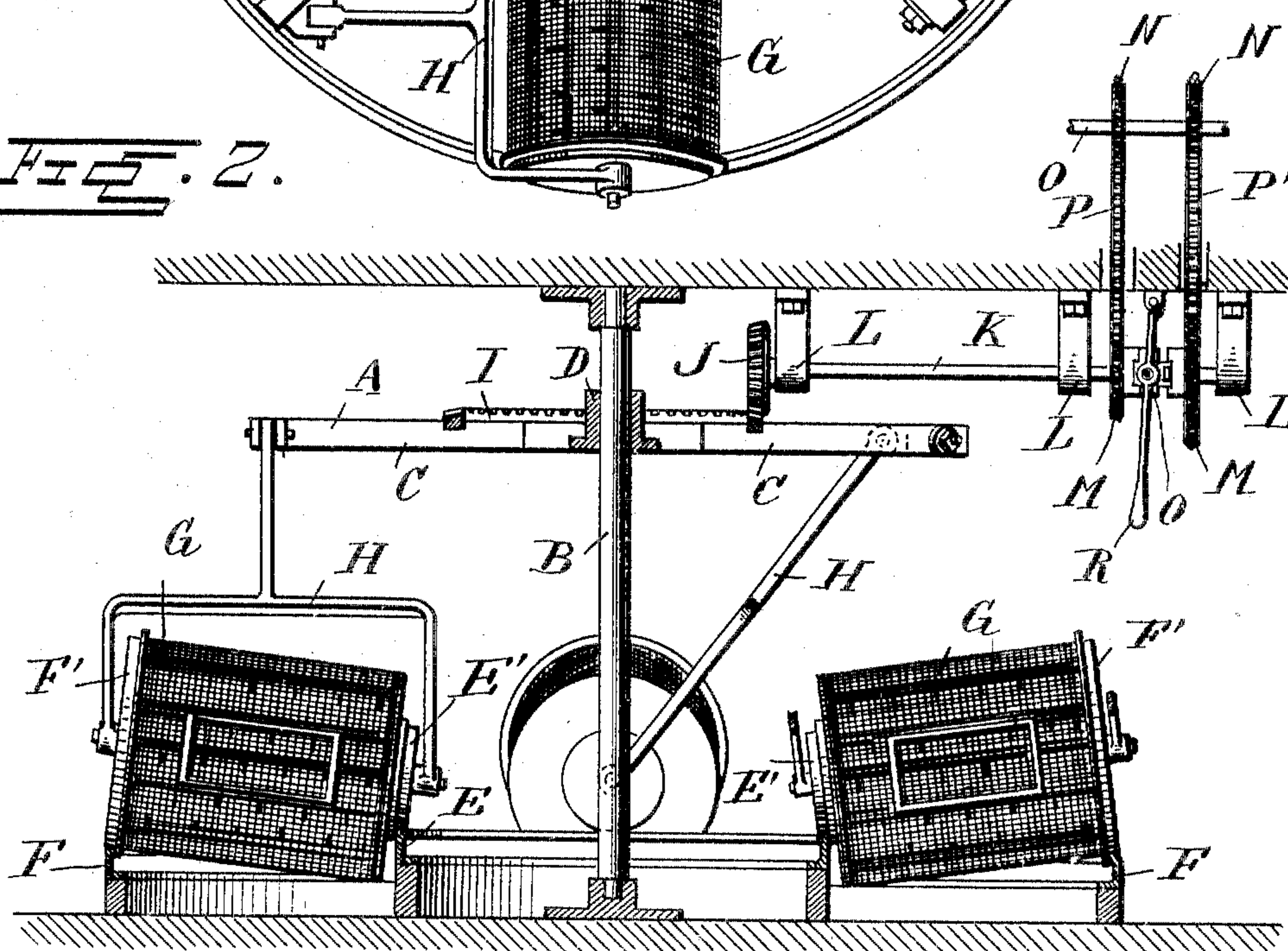


FIG. 2.



Witnesses
C. *[Signature]*
C. H. Grissbauer.

Inventor
Alexander N. Dubois

by *A. B. Wilson*
Attorney

UNITED STATES PATENT OFFICE.

ALEXANDER N. DUBOIS, OF PHILADELPHIA, PENNSYLVANIA.

ROTARY OXIDIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 794,085, dated July 4, 1905.

Application filed December 22, 1904. Serial No. 238,024.

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 Rotary Oxidizing Apparatuses; 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.

This invention relates to improvements in rotary oxidizing apparatus for the use of dyers.

The object of the invention is to improve the construction of apparatus shown and described in Letters Patent of the United States No. 676,647, granted to me June 18, 1901, by providing means whereby the goods contained in the oxidizing-cylinders will be prevented from being thrown and piled up in one end of the cylinders, thereby retarding and prolonging the oxidizing of the same.

With this object in view the invention consists in the construction and arrangement of certain of the parts, as will be hereinafter 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, and Fig. 2 is a central vertical sectional view of the same.

Referring more particularly to the drawings, A denotes a rotating carrying-frame mounted upon a vertical shaft B and comprising a series of radial arms C, connected to a central collar or sleeve D, which encompasses said shaft.

Arranged concentrically 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 track-rail. On this track a series of pervious oxidizing drums or cylinders G are mounted to travel in a circular path. Each of these cylinders is carried by and is revolvably mounted in a pendent yoke H, pivoted to one of the radial arms C of the frame A, and is provided at its opposite end with two

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, which makes both wheels roll uniformly to cause the rotation of the cylinders G. The cylinders are thus adapted to travel in unison in a circular path, and in thus traveling rotate upon their own axis, thereby moving the goods to be oxidized therein in the usual manner. The body of the cylinder is preferably made of reticulated or pervious material, as hereinbefore described, and is provided upon its interior with pins arranged at an angle of about five to eight degrees to pick up and toss the goods about within the cylinders.

In order that the goods will not be thrown and piled up at the outer ends of the cylinders by the centrifugal force due to the revolving of the cylinders, the track-rails E and F are arranged in such relative horizontal planes as to support the cylinders in an inwardly-inclined position at an angle of from five to eight degrees. This arrangement of the cylinders is clearly shown in Fig. 2 of the drawings. By arranging the cylinders to run at the above-described angle the same may be revolved at a much greater speed without causing the goods contained therein to be piled up at one end of the cylinders, as occurs when the cylinders are revolved rapidly in a horizontal position. This arrangement permits the cylinders to be revolved at the rate of about fifteen revolutions per minute, whereas by the former arrangement they could only be revolved from five to six revolutions per minute. At such slow speed it required from five and one-half to six and one-half hours to get the goods well oxidized, whereas at about fifteen revolutions per minute the goods are well oxidized in three to three and one-half hours, and when listing the goods are well listed in fully one-half less time than when the cylinders are turned at five to six revolutions per minute, which is an important saving in both operations.

By the former 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 track-rail, and in

thus moving will be caused to rotate, thereby exposing all surfaces of the goods to the atmosphere of the oxidizing room or structure in which the apparatus may be arranged. In order that a constant, positive, and uniform movement of the apparatus may be maintained, I provide a suitable driving mechanism, comprising a rack I, with which meshes a gear J on one end of a counter-shaft journaled in suitable bearings L and carrying two loose sprocket-wheels M and M' of different diameter. These sprocket-wheels are connected to fixed sprocket-wheels N and N' of like diameter on a drive-shaft O by means of sprocket-chains P and 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 N the shaft K will be revolved at its highest speed, and by engaging said clutch with the larger sprocket-wheel M' shaft K will be revolved at a lower rate of speed and impart motion to the cylinders accordingly. Instead of the clutch Q, I may use a double friction-clutch, or I may use double sets of pulleys driven by belts, and the results will be the same. By the use of this construction of driving mechanism it will be apparent that a constant, positive, and uniform action of the apparatus at a regular rate of speed is provided for, whereby all liability of imperfect oxidation due to irregular action of the cylinders is avoided.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what

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

1. In an oxidizing apparatus, the combination of a rotary carrier, perforated drums attached to said carrier and provided with supporting-wheels, concentric circular tracks upon which said wheels run, said tracks being arranged to support said drums in an inwardly and downwardly inclined position, and means whereby said rotary carrier is driven, substantially as described.

2. In an oxidizing apparatus, the combination of a rotary carrier, perforated drums attached to said carrier and provided with wheels, concentric circular tracks upon which said wheels run, said tracks being arranged to support said drums in an inwardly and downwardly inclined position, a drive-shaft, a counter-shaft operatively connected with said carrier, fixed sprocket-wheels or pulleys of like diameter on the drive-shaft, loose sprocket-wheels or pulleys of unequal diameter on said counter-shaft, chains or belts connecting the sprocket-wheels on the two shafts, and a double clutch or pulley coacting with said loose sprocket-wheels or pulleys, substantially as and for the purposes described.

3. In an oxidizing apparatus, the combination of a rotary carrier, perforated oxidizing-drums attached to said carrier and provided with wheels, a circular trackway, comprising concentrically-disposed inner and outer tracks arranged to support said drums in an inwardly-inclined position, and high and low speed gearing for rotating the carrier at a constant positive, and uniform, regulated high or low speed, substantially as described.

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

ALEXANDER N. DUBOIS.

Witnesses:

MORTIMER A. JONES,
ISSIE S. MEEDS.