(No Model.) 2 Sheets—Sheet 1.

E. A. RUSDEN.

OXIDIZING APPARATUS.

No. 485,357. Patented Nov. 1, 1892.

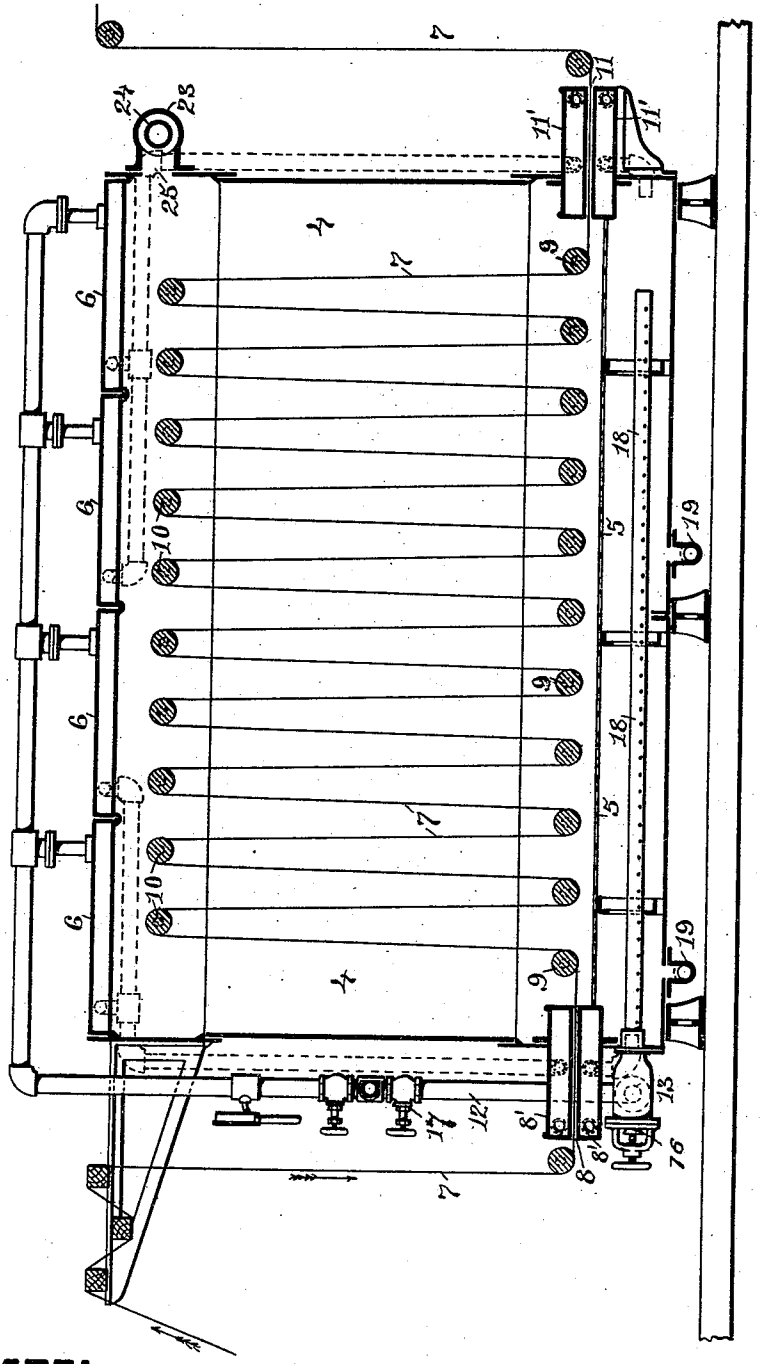


Fig. 1.

WITNESSES:

Chas. H. Luther Jr.

Henry J. Miller

INVENTOR:

Ethelbert A. Rusden

by Joseph A. Miller Jr. Atty.

(No Model.) 2 Sheets—Sheet 2.

E. A. RUSDEN.

OXIDIZING APPARATUS.

No. 485,357. Patented Nov. 1, 1892.

Fig. 2.

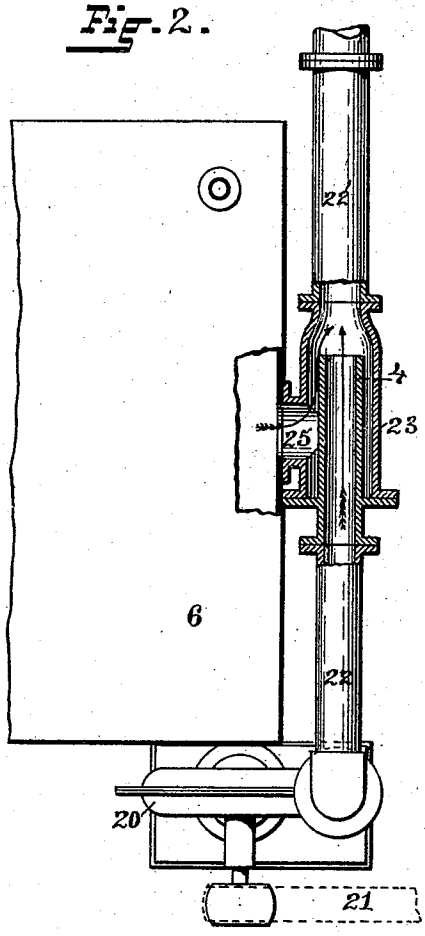
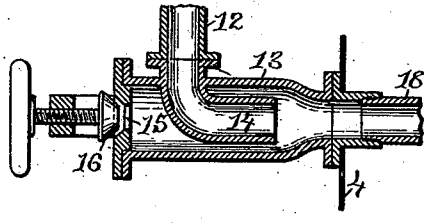


Fig. 3.



WITNESSES:

Chas. H. Luther Jr.

Henry J. Miller

INVENTOR:

Ethelbert A. Rusden

by Joseph A. Miller & Co

Attys

UNITED STATES PATENT OFFICE.

ETHELBERT A. RUSDEN, OF PROVIDENCE, RHODE ISLAND.

OXIDIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 485,357, dated November 1, 1892.

Application filed May 21, 1891. Serial No. 393,561. (No model.)

To all whom it may concern:

Be it known that I, ETHELBERT A. RUSDEN, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Oxidizing Apparatus; and I do 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.

This invention relates more particularly to improvements in apparatus for oxidizing textile fabrics.

The object of this invention is to produce an apparatus which will more thoroughly oxidize the fabric as it passes through the apparatus.

The further object of the invention is to produce an apparatus in which the supply of oxygen and steam can be perfectly regulated and from which the gases and steam may be more readily drawn than has been possible heretofore.

The invention consists in the peculiar construction of the oxidizing-chamber and the combination therewith of novel means for introducing oxygen and steam thereinto and of withdrawing the vitiated oxygen and gases therefrom, as will be more fully described hereinafter, and pointed out in the claim. Oxidizing apparatus or chambers are particularly adapted for use in calico printing to fix and develop the color or dye by exposing the cloth in a chamber to currents of warm moist air. As heretofore constructed air was admitted to the oxidizing-chamber through perforations in the sides thereof near the bottom and was heated by steam-pipes located within the chamber, the air being kept moist by steam admitted at the lower part of the chamber through a perforated pipe. The objections to the oxidizing apparatus used at present are that the oxygen admitted thereto cannot be regulated in quantity and that the acids and gases are not properly withdrawn therefrom.

My invention is adapted to overcome these objections, and I will now proceed to more fully describe the same.

Figure 1 is a vertical longitudinal sectional view of my improved oxidizing-chamber. Fig. 2 is a top view of a portion of the oxidizing-chamber and the outlet therefrom, showing, also, the fan-blower and the condenser in section, through which air is forced to create a suction. Fig. 3 is a longitudinal sectional view of the injector, showing the valve used to regulate the flow of oxygen.

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 4 indicates the walls forming the sides and ends of the oxidizing-chamber. These walls may be constructed of any suitable material. The floor 5 is generally formed of a perforated copper sheet. The top of the chamber is formed of a number of boxes 6 6, which are connected together and through which when in use currents of steam pass, the passage of the steam being somewhat obstructed by longitudinally-extending feathers cast in the boxes, the steam being admitted at one corner of the box and withdrawn from the corner diagonally opposite. The cloth 7 enters the chamber through the opening 8, between the steam-chests 8′, and passes under the rollers 9, journaled on shafts secured in the lower part of the chamber, thence over the rollers 10, journaled on shafts in the upper part of the chamber, and finally out of the chamber through the opening 11, between the steam-chests 11′, which are kept heated by the steam passing through them to dry the cloth as it passes out.

Steam is furnished to the oxidizing-chamber from the supply-pipe 12, which is connected with the injector 13. This injector is provided with the steam-inlet 14, Fig. 3, and with an opening 15 to admit air, the amount of which is regulated by the valve 16, while the amount of steam is governed by the valve 17 in the supply-pipe 12. To the inward end of the injector 13 the perforated pipe 18 is secured and extends nearly the length of the oxidizing-chamber beneath the floor-plate 5, the water formed by condensation being drawn off through the opening 19.

To the upper rear portion of the oxidizing-chamber is secured a fan-blower 20, which is driven by a belt 21, working on the pulley of the fan-shaft. The currents of air created by this fan-blower are conveyed through the pipe 22 to the condenser 23, which has the air-inlet 24, through which the air passes and is discharged into the pipe 22′, thus creating a suc-

tion in the condenser and drawing the foul air, gases, and steam from the oxidizing-chamber through the opening 25 and forcing them through the pipe 22′ to any desired point without passing them through the blower or through any mechanism which might be corroded or otherwise injured by the passage of these gases. By the improvements thus specified I am able to produce cloth in which the dyes are more thoroughly oxidized than heretofore and can admit to the chamber the exact proportions of steam and air which are ascertained to produce the best results, while my improved method of drawing the steam and gases from the chamber adds greatly to the utility of the machine.

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

In an oxidizing apparatus for textile fabrics, the combination, with a jacketed chamber through which the fabric is passed, and the injector 13, connected therewith and provided with air and steam supply pipes governed by valves, of an ejector-condenser connected with said chamber, in which suction may be created to draw the steam and gases therefrom.

ETHELBERT A. RUSDEN.

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