

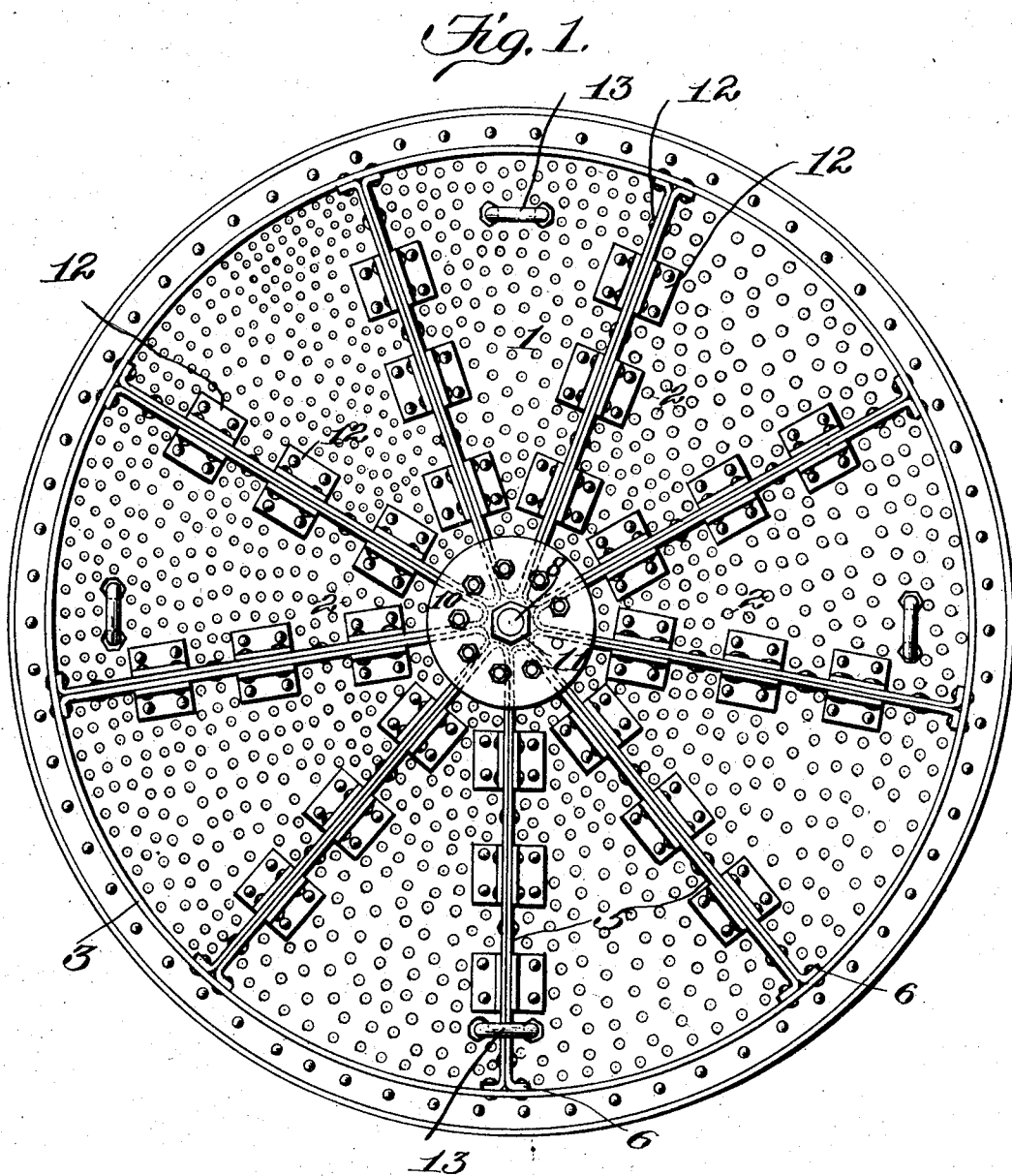
No. 780,400.

PATENTED JAN. 17, 1905.

J. A. WILLARD.
COMPRESSION TOP FOR DYE VATS.

APPLICATION FILED AUG. 1, 1904.

2 SHEETS—SHEET 1.



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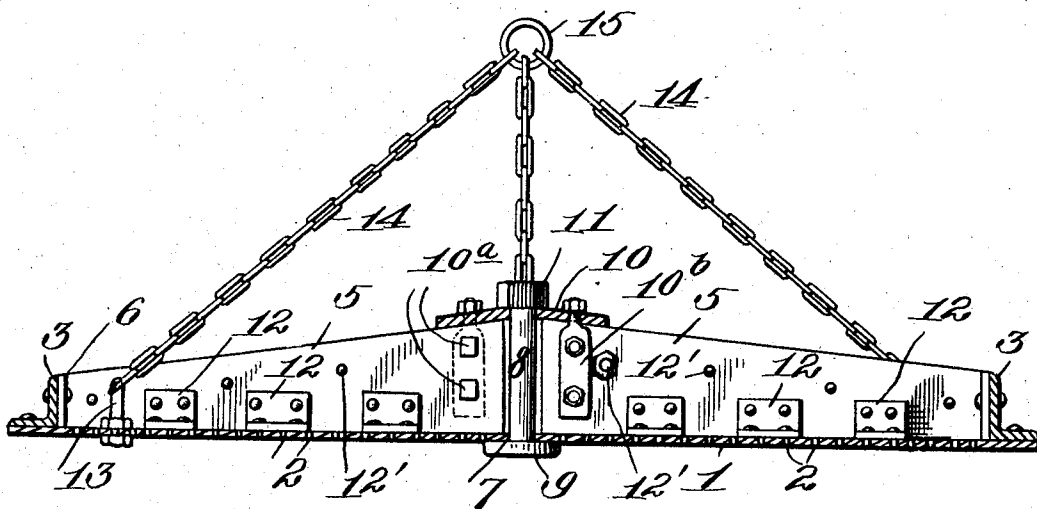
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2 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES A. WILLARD, OF CHATTANOOGA, TENNESSEE, ASSIGNOR TO VACUUM DYEING MACHINE COMPANY, OF CHATTANOOGA, TENNESSEE, A CORPORATION OF TENNESSEE.

COMPRESSION-TOP FOR DYE-VATS.

SPECIFICATION forming part of Letters Patent No. 780,400, dated January 17, 1905.

Application filed August 1, 1904. Serial No. 219,097.

To all whom it may concern:

Be it known that I, JAMES A. WILLARD, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Compression Top or Closure Plates for Dyeing Apparatus, of which the following is a specification.

This invention relates to new and useful improvements in compression top or closure plates for dyeing apparatus, and has for its object the construction of a plate of this character which when placed in position in a dyeing apparatus will not bend or buckle from pressure during the dyeing or washing operation.

A further object of the invention is to provide a plate of the character set forth which can be easily and quickly removed from the machine.

The invention has for its further object to construct a compression top or closure plate for dyeing machines which shall be simple in construction, strong, durable, efficient in its use, and comparatively inexpensive to manufacture.

To these ends the invention consists of the novel combination, construction, and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of the plate, and Fig. 2 is a transverse sectional view on line *x x* of Fig. 1.

Like reference characters denote like parts throughout both views.

Referring to the accompanying drawings, 1 denotes a plate shown circular in contour, but any preferred shape may be employed, and which is adapted to close and operate in a dye-vat and rest upon the material to be dyed. The plate 1 is provided with a series of openings or perforations 2 to permit of the passage of dye liquor therethrough. Se-

cured to the upper face of the plate 1 and arranged near the edge thereof is a peripheral angle-iron 3. This angle-iron has one of its arms extending vertically from the upper face of the plate 1 and its other arm extending toward the edge thereof and serves as a reinforcement for said edge. To strengthen the plate 1, I provide a series of radially-extending reinforcing members, preferably in the form of truss-braces, which will now be described. These reinforcing members consist of a number of truss-irons 5 of a length approximately equal to the diameter of the plate 1 and are bent at their middle into V shape, thus having their wide portions at the angle. The ends of the V-shaped irons are bent toward each other to form lugs 6.

The plate 1 is provided at its center with a perforation 7, through which projects a bolt 8, having an enlarged head 9.

The truss-irons 5 are arranged upon the upper face of the plate 1, with their angular portions so arranged as to form an opening at the center of the plate, so that their arms will extend radially therefrom. The lugs 6 will thus rest against the vertical arm of the peripheral angle-iron 3, to which they are secured by means of bolts or rivets.

The truss-irons 5 when secured to the plate 1 are adapted to abut against each other—that is to say, one arm of each iron is adapted to abut against an arm of the adjacent iron. A washer 10 is placed upon the free end of the bolt 8 and the angular portions of the truss-irons 5 and closes the opening formed by the angles of the irons, and the said washer 10 is connected to each of the truss-irons 5 through the medium of a bolt 10^a. These bolts 10^a are secured to their respective truss-iron through the medium of the holdfast devices 10^b, extending through the bolts 10^a and made fast to the truss-irons 5. By such an arrangement the plate is reinforced at the center thereof. A nut 11 is screwed upon the free end of said bolt and engages the washer to securely clamp the angular portions of the truss-irons 5 to the plate 1. To secure the abutting arms of the truss-irons together and

to the upper face of the plate 1, angle-irons 12 are provided. These angle-irons 12 are arranged on one side of the abutting radially-extending arms of the truss-irons 5, preferably 5 oppositely one another, and have one of their arms secured to the upper face of the plate 1 by rivets or bolts extending through both the arm of the angle-irons and the plate 1. The angle-irons 12 are further secured to 10 the radial arms of the truss-irons 5 by means of rivets or bolts extending therethrough. Additional holdfast devices are employed, if desired, to assist in securing the abutting arms of the truss-irons together, and these holdfast 15 devices are indicated by the reference character 12'.

Yokes, eyes, or other suitable devices 13 are secured at intervals to the upper face of the plate 1, to which lifting-chains 14, connected in turn to a ring 15, are secured in order 20 that the plate may be lifted from the vat when the dyeing or washing operation is completed.

It will thus be evident that when the top 25 plate, as above described, is placed in a dye-vat and pressure is applied thereto for compressing the material to be dyed in the dye-vat the peripheral angle-iron 3 will effectually prevent the edge of the top plate from bending or buckling, and the body of the plate 30 will be strengthened and prevented from bending or buckling by the truss-irons 5.

In describing my invention I have described a top plate adapted to be used in a dye-vat 35 which is circular in form; but it is to be understood that my top plate may be square, hexagonal, or of any other contour, according to the shape of the dye-vat in which it is intended to be used.

It is thought that the many advantages of the improved compression top or closure plate can be readily understood from the foregoing 40 description, taken in connection with the accompanying drawings, and it will, furthermore, be evident that changes, variations, and modifications can be resorted to without departing from the spirit of the invention or sacrificing any of its advantages, and I therefore do not wish to restrict myself to the details 45 of construction hereinbefore described and as shown in the accompanying drawings, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

55 Having thus described the invention, what I claim, and desire to secure by Letters Patent, is—

1. A perforated compression top plate for dyeing apparatus provided with truss-braces 60 bent into V-shaped form secured to the top thereof for increasing its strength, said truss-braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom.

65 2. A perforated compression top plate for

dyeing apparatus provided with truss-braces bent into V-shaped form secured to the top thereof for increasing its strength, said truss-braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom, said plate further 70 provided with an angle-iron secured to the top thereof near its edge for strengthening said edge, said radially-extending arms of the truss-braces having their ends secured to said angle- 75 iron.

3. In combination, a perforated plate, a reinforcing member mounted upon the upper face of said plate and having a part thereof flush with the edge of the plate, truss-braces disposed throughout the upper face of said plate, 80 means for securing the truss-braces to the plate, and means for securing the truss-braces to said reinforcing member.

4. In combination, a perforated plate, a reinforcing member mounted upon the upper face 85 of said plate and having a part thereof flush with the edge of the plate, truss-braces disposed throughout the upper face of said plate, means for securing the truss-braces to the 90 plate, means for securing the truss-braces to said reinforcing member, said truss-braces having portions abutting against each other, and means for securing the abutting portions of the truss-braces together. 95

5. A perforated compression top plate for dyeing apparatus consisting of a perforated body portion, truss-braces disposed throughout the upper face of said body portion and having their ends bent at an angle, means for 100 securing the braces to the body portion, an edge-reinforcing member for said body portion, and means for securing the angular ends of the braces to said reinforcing member.

6. A compression top plate for dyeing apparatus comprising a perforated body portion, 105 abutting brace members disposed throughout the upper face of said body portion, an edge-reinforcing member for said body portion, means for securing the brace members to the 110 body portion, and means for securing the reinforcing member to the brace members and to the body portion.

7. A compression top plate for dyeing apparatus, comprising a perforated body portion, 115 abutting brace members disposed throughout one face of said body portion and secured thereto, and an edge-reinforcing member for said body portion suitably secured thereto.

8. A compression top plate for dyeing apparatus, comprising a perforated body portion, 120 V-shaped brace members disposed throughout one face of said body portion and abutting against each other, means for securing the brace members together, and means for securing 125 the brace members to said body portion.

9. A compression top plate for dyeing apparatus, comprising a perforated body portion, V-shaped brace members disposed throughout 130 one face of said body portion and abutting

against each other, means for securing the brace members together, means for securing the brace members to said body portion, an edge-reinforcing member for said body portion, and means for securing said reinforcing member to the body portion and to the brace members.

10. A perforated compression top plate for dyeing apparatus provided with truss-braces bent into V-shaped form secured to the top thereof for increasing its strength, said truss-braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom, means for securing the angular portions of said braces to the plate, and means for securing the arms of said braces to the plate.

11. A perforated compression top plate for dyeing apparatus provided with truss-braces bent into V-shaped form secured to the top thereof for increasing its strength, said truss-braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom, means for securing the angular portions of said braces to the plate, means for securing the arms of said braces to the plate, and a reinforcing member suitably secured to the plate and said brace members.

12. A perforated compression top plate for dyeing apparatus provided with truss-braces bent into V-shaped form secured to the top thereof for increasing its strength, said truss-braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom, said plate further provided with an angle-iron secured to the

top thereof near its edge for strengthening said edge, said radially-extending arms of the truss-braces having their ends secured to said angle-iron, and means for securing the angular portion of said braces to the plate.

13. A perforated compression top plate for dyeing apparatus provided with braces bent into V-shaped form secured to the top thereof for increasing its strength, said braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom.

14. A perforated compression top plate for dyeing apparatus provided with braces bent into V-shaped form secured to the top thereof for increasing its strength, said braces having their angular portions arranged at the center of the plate and their arms extending radially therefrom, said plate further provided with an angle-iron secured to the top thereof near its edge for strengthening said edge, said radially-extending arms of the braces having their ends secured to said angle-iron.

15. A perforated compression top plate for a dyeing apparatus provided with truss-braces bent into V-shaped form, secured to the top thereof for increasing its strength, said truss-braces having their arms extending radially therefrom, and means for reinforcing the plate at the center thereof.

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

JAMES A. WILLARD.

Witnesses:

E. T. MACLEAN,
E. W. ARNOLD.