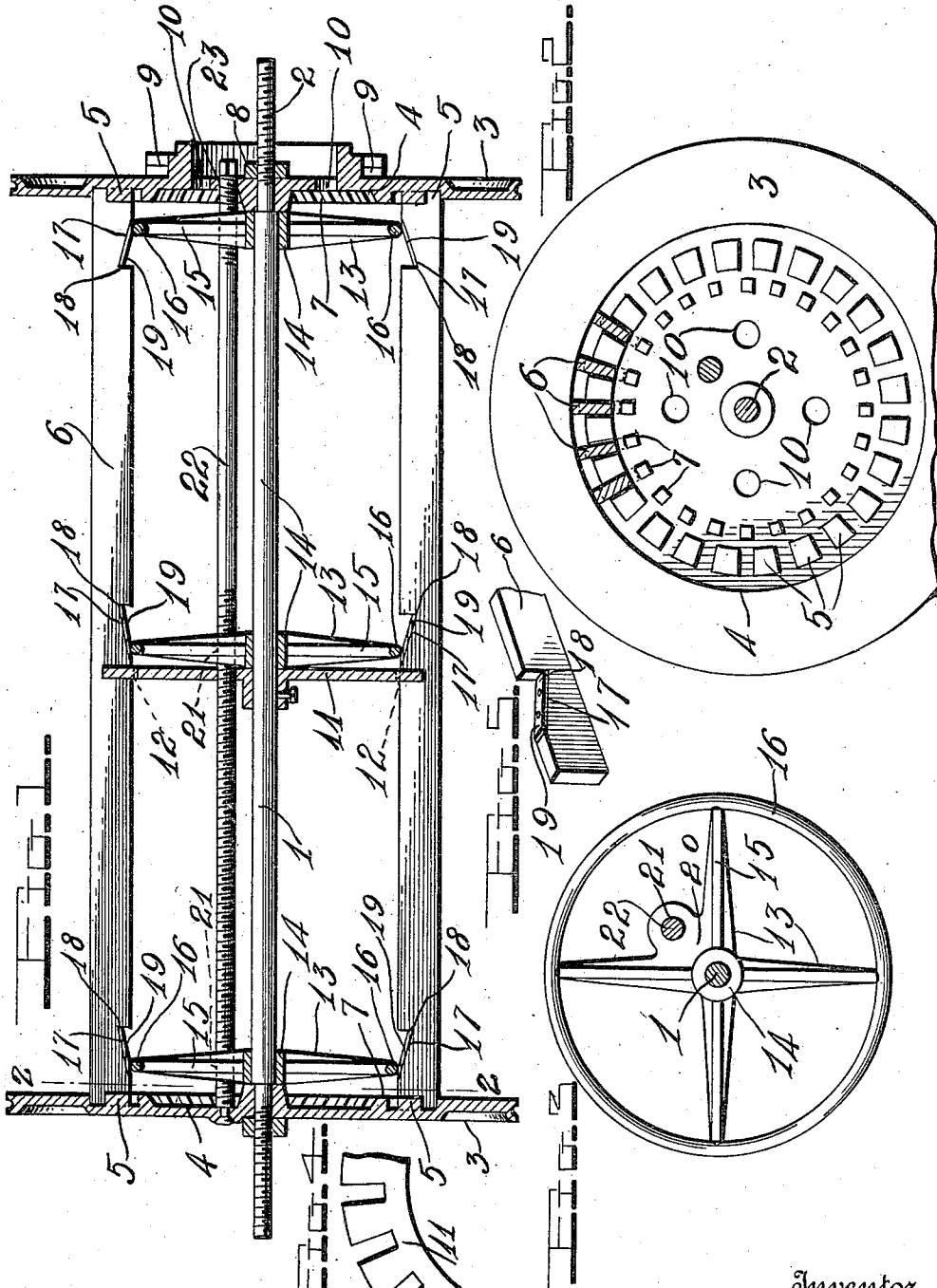


F. M. MORTON.
 REVOLVING COLLAPSIBLE BEAM FOR DYEING MACHINES.
 APPLICATION FILED OCT. 31, 1910.

987,481.

Patented Mar. 21, 1911.



Witnesses

Chas. L. Gristauer
 J. R. Pierce

Inventor
 F. M. Morton,
 A. B. Wilson & Co.
 Attorneys

UNITED STATES PATENT OFFICE.

FRANK MELVIN MORTON, OF PHOENIX, ALABAMA, ASSIGNOR OF ONE-THIRD TO W. H. DISMUKE, OF PHOENIX, ALABAMA, AND ONE-THIRD TO H. L. WOODRUFF, OF COLUMBUS, GEORGIA.

REVOLVING COLLAPSIBLE BEAM FOR DYEING-MACHINES.

987,481.

Specification of Letters Patent.

Patented Mar. 21, 1911.

Application filed October 31, 1910. Serial No. 589,970.

To all whom it may concern:

Be it known that I, FRANK M. MORTON, a citizen of the United States, residing at Phoenix city, in the county of Lee and State of Alabama, have invented certain new and useful Improvements in Revolving Collapsible Beams for Dyeing-Machines; 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 collapsible revolving beams for dyeing machines.

One object of the invention is to provide a beam of this character having a simple and improved means for expanding and retracting the slats of the beam for the purpose of allowing the tension of the yarn to slacken, thus permitting the strands to relax and open and thoroughly absorb the dyeing liquid forced through the same.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is an incomplete central longitudinal sectional view of a beam constructed in accordance with the invention; Fig. 2 is an incomplete cross sectional view through the machine showing an inner side view of one of the heads with a portion of the slats in section, taken on line 2—2 of Fig. 1. Fig. 3 is a cross sectional view through the supporting and operating shafts of the beam showing a side elevation of one of the slat expanding rings of the beam; Fig. 4 is a detail fragmentary view of the central slat holding disk of the beam; and, Fig. 5 is a detail perspective view of one end of one of the beam slats showing the expanding notch formed therein.

Referring more particularly to the drawing, 1 denotes the supporting shaft of the beam, said shaft having reduced threaded outer ends 2 with which are engaged the operating heads 3 of the beam. In the inner sides of each of the heads 3 is formed an annular recess 4 in which adjacent to its outer edge is formed an annular series of radially disposed slat spacing and holding lugs 5 be-

tween which are formed a series of radially disposed spaces with which are engaged the opposite ends of an annular series of slats 6. In the recesses 4 of the plates 3 opposite the inner end of each of the spaces between the lugs 5 is arranged a stop lug 7. The lugs 7 are adapted to receive and support the slats 6 when the latter are in a full retracted position.

On the outer side of one of the heads 3 is formed an annular coupling flange 8 on the outer side of which is formed a series of T-shaped notches 9 with which are adapted to be engaged the heads of the coupling bolts of the tubular beam trunnion (not shown). In the head 3 on which the coupling flange 8 is arranged is formed a series of passages 10 through which the dyeing liquid is pumped into or from the beam.

On the shaft 1 near the center of the beam is secured an annular slat supporting plate or disk 11 in the outer edge of which is formed an annular series of radially disposed notches 12 which are adapted to receive and support the slats 6 of the beam.

Slidably mounted on the shaft 1 are a series of slat expanding rings 13 one of which is arranged adjacent to the inner side of each of the heads 3, while another is arranged midway between said heads as shown. The rings 13 each comprise a centrally disposed hub 14 having a series of integral radially projecting spokes 15 on the outer ends of which is arranged a rim 16 which is preferably round in cross section as shown. The round rims 16 of the rings are slidably engaged with the angular walls 17 of notches 18 formed in the inner edges of the slats adjacent to each of the rings as shown. On the inclined surfaces of the notches 17 are arranged wear plates 19 which the rims of the wheels engage thereby preventing said rims from wearing the walls of the notches. By thus arranging the expanding and retracting rings 13 it will be readily seen that when the same are shifted in one direction that the rims thereof will be drawn toward the outer edges of the inclined walls of the notches 17 in the slats thereby forcing the slats outwardly to an expanded position and that when said rings are shifted in the opposite direction or toward the inner ends of the inclined

walls of the notches the slats will be permitted to retract thereby reducing the diameter of the beam. The retraction of the slats when released by the shifting of the rings 13 is occasioned by the elasticity of the yarn which when wound on the beam is more or less stretched so that when the slats are released this tension of the yarn will cause the slats to retract and thus permit the strands of the yarn to open whereby the same will be thoroughly saturated with the dyeing liquid forced through the beam. Each of the rings 13 is provided between two of its spokes 15 with a web 20 in which is formed a threaded passage 21. With the passages 21 in the webs of the rings is engaged a right and left hand threaded ring shifting screw or shaft 22 one end of which is reduced and pivotally connected with one of the heads 3, while the opposite end projects through a passage 23 formed in the opposite head. The end of the shaft or screw projecting through the passage 23 is squared to receive a wrench or other instrument whereby the shaft or screw may be turned in one direction or the other for shifting the rings and thereby expanding or permitting the slats to retract.

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 the invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. A beam for dyeing machines comprising a supporting shaft, heads secured to the opposite ends of said shaft, a series of slats slidably engaged at their opposite ends with said heads, said slats having formed therein notches one wall of which is inclined, a series

of slat expanding elements slidably mounted on said shaft and adapted to engage the inclined wall of said notches and means to shift said elements.

2. A beam for dyeing machines comprising a supporting shaft, heads secured to the opposite ends of said shaft, a series of slats having a sliding engagement at their opposite ends with said heads, said slats having formed therein a series of notches, one wall of which is inclined, wear plates arranged on the inclined walls of said notches, slat expanding rings slidably mounted on said shaft and adapted to engage the wear plates on the inclined walls of said notches, shifting lugs formed on said rings, said lugs having threaded passages and a right and left hand threaded adjusting screw revolvably mounted in said heads and having an operative engagement with the threaded passages in said lugs whereby said rings are shifted in one direction or the other to expand said slats or permit the same to retract.

3. A beam for dyeing machines comprising a supporting shaft, heads secured to the opposite ends of said shaft, a series of slats having sliding engagement at their opposite ends with said heads, said slats having on their inner edges longitudinally extending inclines, a series of slat expanding elements slidably mounted on said shaft and adapted to engage the inclines on said slats, a right and left hand screw threaded adjusting shaft in operative engagement with said elements, one end of said shaft being rotatably mounted in one of said heads and having a wrench engaging extremity and a swivel connection between one end of said shaft and the other head.

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

FRANK MELUIN MORTON.

Witnesses:

J. S. KIMBROUGH,
GEO. A. HAYS.