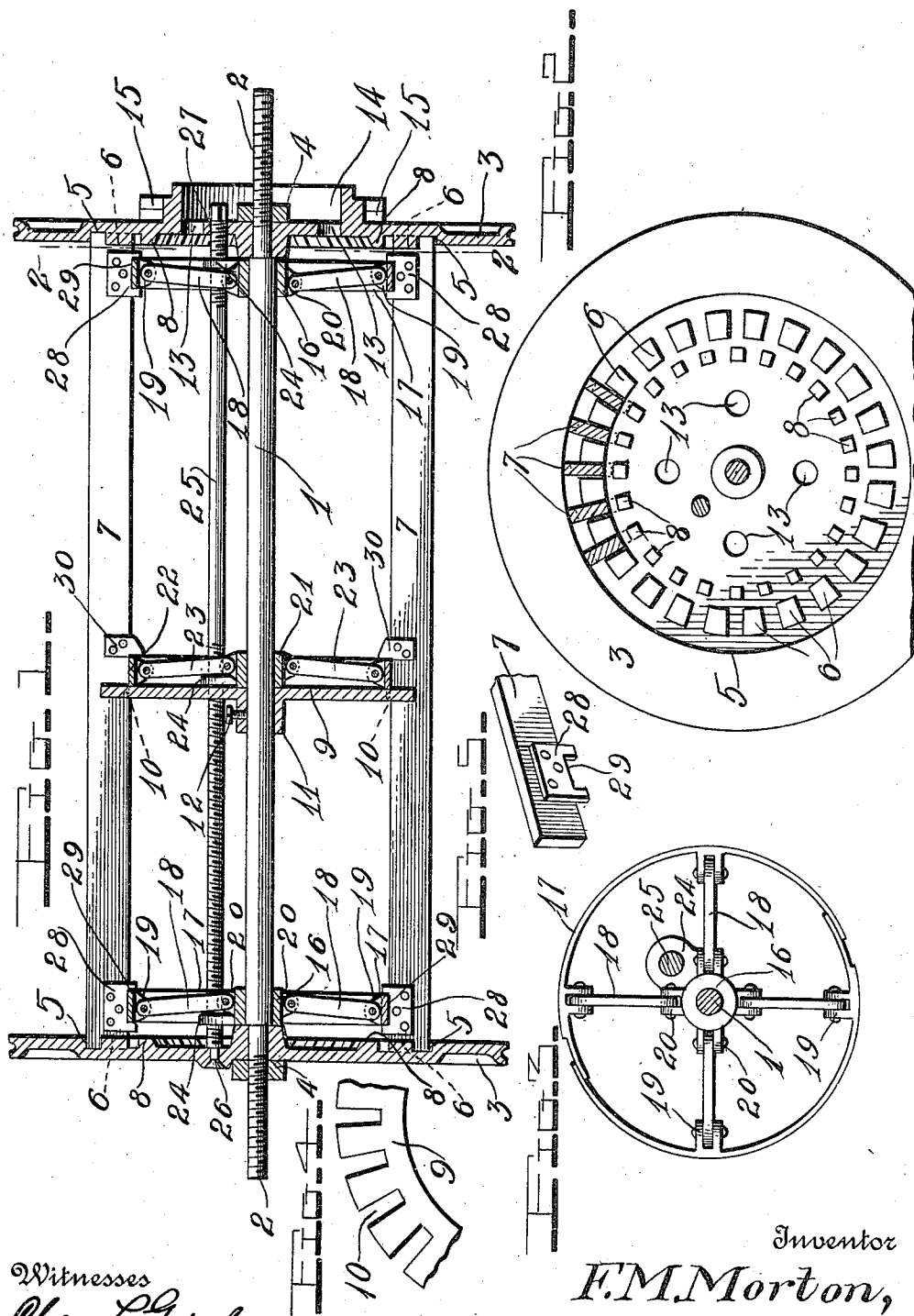


F. M. MORTON.
 REVOLVING COLLAPSIBLE BEAM FOR DYEING MACHINES.
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987,480.

Patented Mar. 21, 1911.



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Specification of Letters Patent.

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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 an improved means whereby the slats of the beam are expanded and held in an expanded position, whereby the same may be permitted to retract thus collapsing or reducing the size of the beam before being placed in the dyeing liquid thereby relieving or slackening the tension of the yarn wound on the slats and permitting the strands of the yarn to open and thus become thoroughly saturated with the dyeing liquid.

Another object is to provide an improved construction and arrangement of slat supporting heads for the beam whereby the slats are supported and held in position to permit the same to expand and retract.

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 vertical longitudinal section of a beam constructed in accordance with the invention; Fig. 2 is an incomplete cross sectional view taken on the line 2-2 of Fig. 1 showing one of the heads of the beam in side elevation and a part of the slats in cross section; Fig. 3 is a sectional view through the supporting and operating shafts of the beam showing an end view of one of the slat expanding rings; Fig. 4 is a

fragmentary view of the outer portion of the intermediate slat holding disk of the beam; 50 Fig. 5 is a similar view of one end of one of the beam slats showing one of the guide plates for the slat expanding spring.

Referring more particularly to the drawings, 1 denotes the supporting shaft of my improved beam, said shaft having reduced threaded ends 2 on which are arranged the circular heads 3 of the beam. The heads 3 are clamped against the shoulders formed by the reduced ends of the shaft by means of clamping nuts 4 thereby securely holding the heads in position on the shaft. On the inner surfaces of each of the heads 3 is formed an annular recess 5 in which adjacent to the outer edge of the recessed portion is formed an annular series of slat spacing and holding lugs 6, said lugs forming between themselves an annular series of radially disposed spaces which are adapted to receive the opposite ends of the slats 7 of the beam. The slats 7 when thus engaged with the spaces between the lugs 6 are adapted to be shifted radially toward and from the center of the beam. When in a full retracted position the slats 7 are adapted to engage and rest on an annular series of stop lugs 8 which are arranged in the recesses of the heads 3 opposite to each of the spaces between the lugs 6 as clearly shown in Fig. 2 of the drawing.

Fixedly mounted on the shaft 1 at an intermediate point between the heads 3 is an annular slat holding plate or disk 9 having in its outer edge an annular series of radially disposed notches 10 with which are engaged the slats 7. The disk 9 is provided with a centrally disposed hub 11 which engages the shaft 1 and is fixedly secured thereto by a set screw 12. In one of the heads 3 is formed a series of passages 13 through which the dyeing liquid is adapted to be forced. On the outer side of the head 3 having the passages 13 is formed an annular coupling flange 14 in the outer side of which is formed a series of T shaped notches 15 which are adapted to receive the

heads of coupling bolts by means of which the tubular trunnion (not shown) is adapted to be coupled onto the flange 14 of the beam.

5 Slidably mounted on the shaft 1 adjacent to the inner sides of the heads 3 are the hubs 16 of outer slat expanding rings 17 which are connected to the hubs 16 by a series of expanding and retracting arms 18. The
10 arms 18 are pivotally connected at their outer ends to apertured lugs 19 formed on the inner sides of the rings as shown. The arms are pivotally connected at their inner ends to apertured ears 20 formed on the hubs
15 16. The rings 17 are open and have their ends in overlapping engagement whereby when the hubs 16 are shifted longitudinally on the shaft the arms 18 will retract the rings, and when said hubs are shifted in op-
20 posite directions said arms will expand the rings thus expanding and retracting the slats.

On the shaft 1 adjacent to the disk 9 is also arranged the sliding hub 21 of a centrally disposed slat expanding ring 22 which
25 is connected to the hub by a series of expanding and retracting arms 23 in the same manner as described in connection with the rings at the ends of the beam. On the hubs 16
30 and 21 are formed radially projecting operating lugs 24 having formed therein threaded apertures with which are engaged the right and left hand threaded ends of a hub shifting screw or shaft 25 one end of
35 which is reduced and has a pivotal connection in one of the heads 3 as shown at 26, while the opposite end projects through an aperture 27 formed in the opposite head 3. The end of the shaft which projects through
40 the passage 27 is squared to receive a wrench or similar tool whereby the shaft may be revolved in one direction or the other thereby shifting the hubs of the rings 17 and 22 longitudinally thus causing said rings to be ex-
45 panded or retracted for the purpose of expanding the slats or permitting the slats to retract. On the slats 7 adjacent to their opposite ends and projecting beyond their inner edges are arranged a series of ring guid-
50 ing and holding plates 28 having in their inner edges guide notches 29 with which the expanding rings 17 are engaged. On the slats 7 adjacent to and spaced a suitable distance from the disk 9 are ring guiding lugs
55 30 which project inwardly a suitable distance beyond the inner edges of the slats and together with the disk 9 form guide spaces for the intermediate ring 22.

By means of the expanding rings 17 and
60 22 and their operating mechanism it will be seen that the slats of the beam may be readily expanded and held in an expanded position or permitted to retract under the elasticity of the yarn when wound on the slats.
65 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
70 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.
75

Having thus described my invention, what I claim is:

1. A beam for dyeing machines comprising a supporting shaft, heads arranged on the opposite ends of said shaft, said heads
80 having recessed inner faces, an annular series of slat holding and spacing lugs formed in the recesses of said heads, an annular series of stop lugs also formed in the recesses of said heads opposite to the inner ends of
85 the spaces between said holding lugs, an annular series of slats having their opposite ends slidably engaged between the lugs of said heads, and means whereby said slats are expanded and permitted to retract.
90

2. A beam for dyeing machines comprising a supporting shaft, heads arranged on the opposite ends of said shaft, a series of slats having a sliding engagement at their
95 opposite ends with the inner sides of said heads, a slat supporting disk arranged on said shaft, said disk having formed in its outer edge a series of radially disposed notches adapted to receive said slats, a series of open slat expanding rings, a series of ring
100 operating hubs slidably mounted on said shaft, ring expanding and contracting arms pivotally connected at their outer ends to said rings and at their inner ends to said hubs whereby when the hubs are shifted in
105 one direction the rings will be expanded and when shifted in the opposite direction the rings will be contracted thereby projecting or expanding said slats and permitting the same to be retracted, and means whereby
110 said hubs are shifted on said shaft to operate said rings.

3. A beam for dyeing machines comprising a supporting shaft, heads secured on the
115 opposite ends of said shaft, a series of slats having a sliding engagement at their opposite ends with the inner sides of said heads, a series of open slat expanding rings, a series of ring operating hubs slidably mounted on said shaft, ring expanding and contract-
120 ing arms adapted to operatively connect said rings with said hub whereby when the latter are shifted on said shaft in one direction or the other, said rings will be expanded or contracted, shifting lugs formed on said
125 hubs, said lugs having threaded passages, a right and left hand threaded operating screw revolubly mounted in said heads and having a threaded engagement with the holes in said lugs whereby when the shaft is
130

turned in one direction or the other, the lugs
will be shifted inwardly and outwardly on
said shaft thereby expanding and contract-
ing said rings and a series of ring guiding
5 and holding plates arranged on said slats
and adapted to be engaged by said rings.

In testimony whereof I have hereunto set

my hand in presence of two subscribing wit-
nesses.

FRANK MELUIN MORTON.

Witnesses: .

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

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
