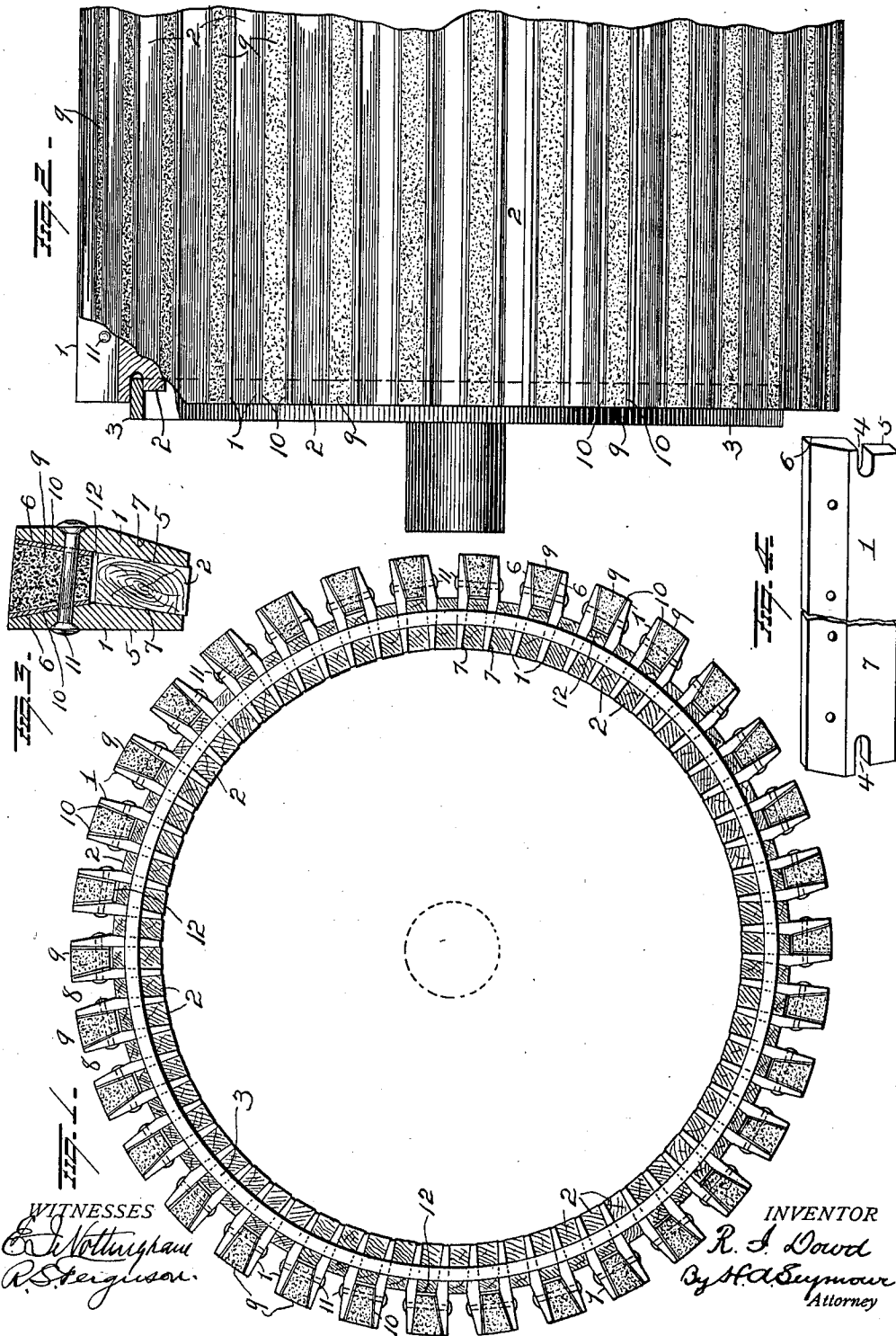


R. I. DOWD.
BEATING ENGINE.
APPLICATION FILED AUG. 15, 1911.

1,019,612.

Patented Mar. 5, 1912.



UNITED STATES PATENT OFFICE.

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BEATING-ENGINE.

1,019,612.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed August 15, 1911. Serial No. 644,262.

To all whom it may concern:

Be it known that I, ROBERT I. DOWD, of Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Beating-Engines; and I do hereby 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 beating engines for use in paper manufacture and my present improvements has particular reference to the beating roll of the engine,—the object of the invention being to construct the roll in such manner that the proper circulation of the stock will be maintained and so that the paper stock will be drawn-out or shredded in such manner that the said stock shall be long, fibrous and frayed out and not cut or clipped up as is done with beating engines now in use.

With this and other objects in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a transverse sectional view of a beating roll showing an embodiment of my invention; Fig. 2 is a partial side elevation partly broken away; Fig. 3 is an enlarged sectional view showing two beater-bars and interposed abrasive material, and Fig. 4 is a detail of one of the beater bars.

1 represents an annular series of beater-bars, properly spaced apart by wooden filler strips 2 and securely held in position between the heads of the roll, by means of steel rings 3 which engage in notches or recesses 4 in the beater-bars,—said rings being disposed beyond but adjacent to the peripheral edges of the roll heads, between which latter the beater-bars and wooden fillers are confined. Each radial beater-bar is made on one side with a straight flat face 5 and on the reverse side with two beveled faces 6—7, those portions of the bars having the beveled faces 7 being confined between the wooden fillers 2 and having the notches 4 in their ends for the reception of the steel bands 3.

The space between the beater-bars form an annular series of pockets 8, one wall of each of which is beveled. Located in alternate pockets 8 are slabs 9 of abrasive mate-

rial and between the side faces of these slabs and the faces of adjacent beater-bars, thin strips 10 of wood are disposed. The abrasive material may consist of emery, corundum, carborundum, alundum, grind-stone or any other suitable abrasive substance. It will be observed that the pockets 8 have a wedge shape and the slabs of abrasive material with their side facings of wood are securely held in place in the alternate pockets of the roll by means of bolts 11. These bolts pass transversely through two beater-bars and the abrasive slabs between them,—each bolt having suitable heads at its ends. The abrasive slabs are so arranged within the pockets of the roll, that clearance spaces 12 will be left between the inner faces of said slabs and the adjacent outer faces of the wooden fillers 2 to allow for the swelling or expansion of the latter.

When my improved roll is operated in conjunction with a suitable bed-plate in a beater engine, the slabs of abrasive material acting in conjunction with the beater-bars and the elements of the bed will operate to shred the stock and draw the same out in long fibers,—the cutting of the fiber of the stock into short lengths being effectually obviated. The alternate open pockets of the roll will act to receive the stock and water and carry the same down over the bed plate thus maintaining proper circulation of the stock.

With the use of my improvements, the capacity of the machine will be doubled; the beater can be dumped twice as often; and the stock will be drawn out into a good long felting fiber.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is,—

1. A beater roll comprising an annular series of beater bars forming pockets between them each of which extends the width of the roll, abrasive material secured in alternate pockets, and fillers disposed between the abrasive material and beater bars, substantially as set forth.

2. A beater-roll comprising an annular

series of beater bars forming pockets between them, abrasive material secured in alternate pockets, fillers disposed between the abrasive material and beater bars, and bolts
5 extending through the beater bars, abrasive material and fillers, substantially as set forth.

3. A beater roll, comprising an annular series of beater-bars, wooden fillers disposed
10 between the beater-bars and separating them to form an annular series of pockets, and slabs of abrasive material located in alternate pockets, said slabs having such depth as to leave clearance spaces between their
15 inner faces and the outer faces of the adjacent wooden fillers.

4. A beater roll comprising a series of beater bars arranged to form pockets between them, abrasive material secured in alternate pockets, wooden spacing strips interposed between the inner ends of the beater bars, and wooden strip interposed between the abrasive material and the adjacent faces of the beater bars, substantially as set forth.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

ROBERT I. DOWD.

Witnesses:

J. DANA PEET,
ROBT. L. PEET.

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