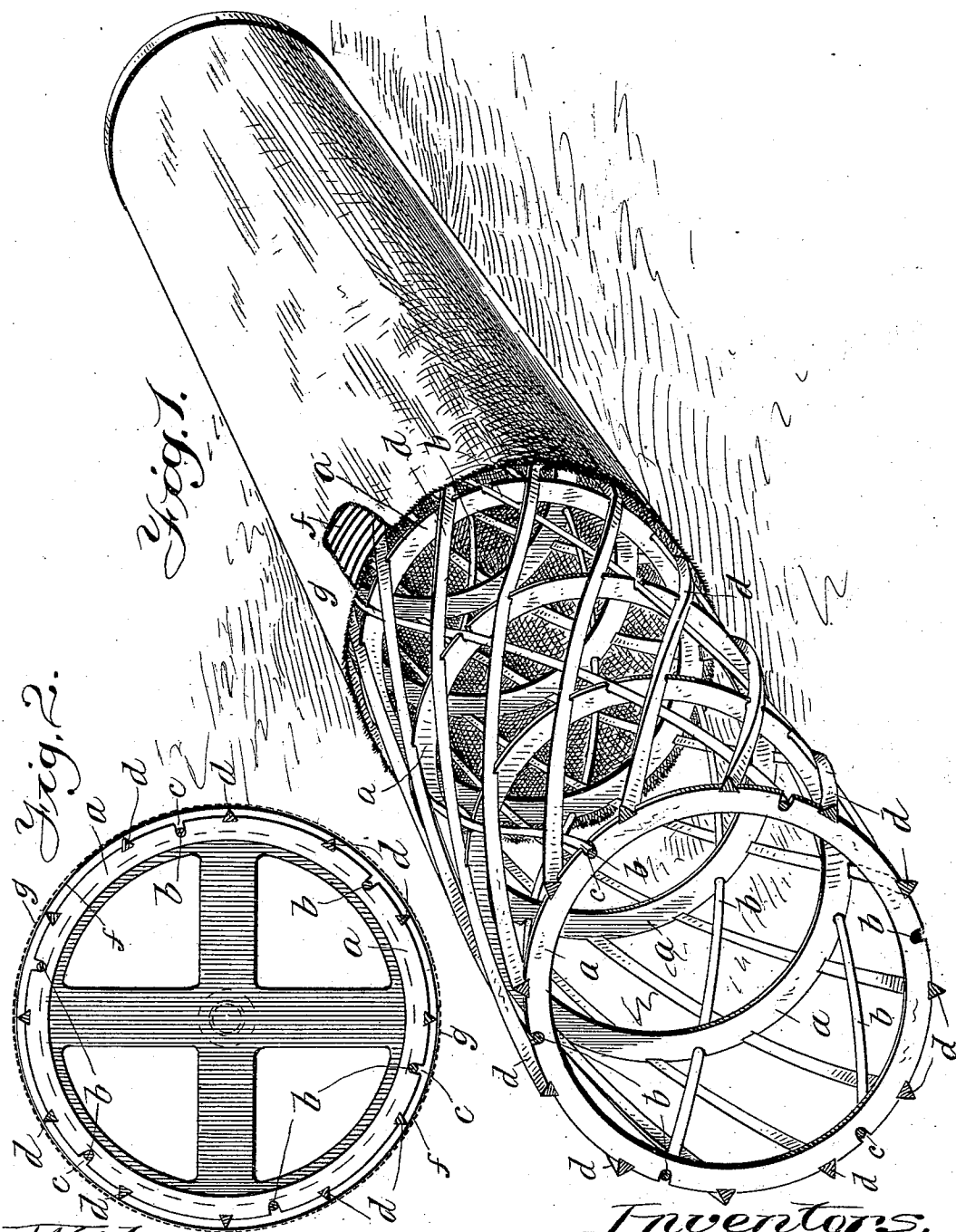


(No Model.)

C. B. RICHARDSON & W. H. POOL.
DANDY ROLL.

No. 473,180.

Patented Apr. 19, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

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MASSACHUSETTS.

DANDY-ROLL.

SPECIFICATION forming part of Letters Patent No. 473,180, dated April 19, 1892.

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To all whom it may concern:

Be it known that we, CHARLES B. RICHARDSON and WILLIAM H. POOL, citizens of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Dandy-Rolls, of which the following is a specification.

The object of the present invention is to materially improve the construction of dandy-rolls. Among the improvements aimed at and derived under the exercise of this invention may be mentioned that by the peculiar combination or arrangement of certain of the ribs or wires the necessity of longitudinally running wires to form the direct support for the roll-covering is dispensed with, for certain of the ribs themselves more efficiently form the direct support for the gauze covering; that the roll is, consistent with a proper degree of strength, rendered lighter, stronger, and stiffer than usual in dandy-rolls, and a minimum number of joints or engagements between the wires and the supports therefor are found in which pulp or stock may lodge, the joints being of themselves formed without crimping, and are thereby for such reason much less likely to constitute traps into which the stock may settle.

The objects of the invention are attained by combinations and arrangements of parts, all substantially as will hereinafter be more apparent and as covered by the claims.

Referring to the accompanying drawings, in which an embodiment of the invention is illustrated, Figure 1 is a perspective view of the dandy-roll with the nearer end portion thereof comprising one of the heads cut away, and also showing a portion of the wire-cloth covering removed for the purpose of more clearly indicating the arrangement of the parts constituting the roll-frame. Fig. 2 is a cross-section of the roll.

In the drawings, *a a* represent the rings or casts, and *b b* and *d d* the inner and outer series of wires or ribs, which extend more or less longitudinally and at the same time in gradual helical lines from one end of the roll to the other, and said rings *a* and inner and outer sets of wires constitute the open-work annulus or frame of the dandy-roll. The con-

nection of the ribs *b* of the inner series with the rings *a*, which, as indicated in Fig. 1, are spaced at suitable intervals, with their sides parallel and their centers in the common axial line of the roll, is made by forming notches or pockets *c* in the edges of the rings of a depth greater than the diameter of the wires *b* and sinking said wires at their portions which cross the rings within said notches, so that the wire lies slightly below the outer faces or edges of the rings. The wires *b* are preferably soldered in their engagements with the notched portions of the said rings. The said inner wires in practice have such a gradual helical or spiral course in their run from one end of the roll to the other that they do not make a complete convolution—that is, a wire commencing at one end of the roll at the upper edge of a ring *a* thereat will on reaching the other end of the roll by its helical course be in engagement with an under portion of the ring at such farther end. The wires of the outer series have about the same degree of twist or helical course as the wires *b*, but they run oppositely to and at intervals cross over the said wires *b*. The wires or ribs *d* of the outer series have practically dovetailed connections with the outer edge portions of the rings *a*, over which they cross, the rings having suitable dovetail notches formed across their edge portions and the wires at their sides next to the rings having suitable form for the engagement.

It is deemed advantageous to have the inner set of ribs formed of round wire and the outer set of wire of prismatic form, triangular wire preferred, the base portion of the triangle effectively conducting in the dovetail engagement. While by forming the dovetail engagement between the outer ribs and the rings by closely-fitted joints, as is entirely practicable, whereby such dovetail joints may usually be sufficient in themselves, it is, however, preferred to also strengthen the joints by solder, thereby preventing any possibility of lash or rattling. It will be seen that the ribs *d* of the outer set are throughout the entire length of each at the same distance from the axis of the roll, so that all supporting-points for portions of the outer covering on all of said ribs are coincident with an imaginary peripheral

surface of a cylinder of a given diameter, and it will also be observed that, as specifically shown, the ribs *b* of the inner set are throughout the entire length of each at the same but
 5 a lesser distance from the axis of the roll to also correspond with an imaginary peripheral surface of a cylinder of a slightly smaller diameter, so that the ribs of one set cross those of the other without any departure from their
 10 true helical courses and yet are in bearing the one on the other, there being no kink or crimp in any of the ribs, as would be the case were the wires interlaced.

The outer contour of the roll-frame as constituted by the outwardly-presented edges of the prismatic ribs *d* is practically that of the periphery of a true though apertured cylinder and provides an entirely suitable and very efficient support on which the winding-
 20 wire *f* and the outer gauze covering *g* of the dandy-roll may be placed without the necessity of the evening-up longitudinally-running rods, as usual heretofore.

Of course, as is plain, the reversely-running
 25 ribs of the two sets, with the rings, constitute a very stiff trussed roll-frame, and the outer series of ribs, dovetail-interlocked with the rings and overlying evenly at all points of intersection the ribs of the inner set, hold the
 30 said ribs of the inner set firmly against any movement even in the event of the solder becoming loosened at the places of connection of the inner ribs with the supporting-rings. If desired, the ribs of each series may be soldered together at the points where the outer
 35 ones cross over and upon the inner ribs.

Owing to the production of the roll-frame substantially as described, the outer surfaces of the outer ribs of which are, as stated, practically truly peripheral, and the necessity for
 40 longitudinally-running wires, as common in dandy-rolls, for directly supporting the winding-wire or covering being obviated the expense and weight of such factors in the roll
 45 are avoided, and, furthermore, due to the construction and arrangement of the parts, substantially as set forth, in a roll of a given length a lesser number of the supporting-rings *a* is required than has heretofore been
 50 the case in dandy-rolls of the class embodying such rings. The roll is thereby rendered lighter and more open.

It is deemed an important advantage, therefore, to use an inner set of wires and an outer
 55 set, of whatever cross-sectional form, so long as there is no interlacing and the outer set of wires has connections, substantially as described, with the rings *a*, and a further particular advantage arises from the use of the
 60 triangular wires with their apex-lines outermost, as shown, for thereby there is the least

possible amount of contact or bearing directly between the outer set of wire ribs and the covering of the roll, which is understood to consist in part of the winding-wire *f* and in
 65 part of the gauze *g*.

What we claim as our invention is—

1. In a dandy-roll, a series of spaced supporting-rings having their edges notched, and a series of ribs running from end to end of the roll in gradual helical lines and let into
 70 said ring-notches and held in confinement thereat, and an outer series of ribs running from end to end of the roll in reversed helical lines and having dovetail connections
 75 with the said rings, substantially as and for the purpose set forth.

2. An improved dandy-roll, the same consisting of a series of supporting-rings having their edges notched, and a series of ribs running from end to end of the roll in gradual
 80 helical lines and let into said notches of the rings, and an outer series of ribs running from end to end of the roll in gradual helical lines and being throughout the entire length of
 85 each at the same distance from the axis of the roll, so that all supporting-points for portions of the outer covering on all of said outer ribs are coincident with an imaginary peripheral surface of a cylinder, and said outer ribs
 90 crossing over and in contact with the ribs of the inner series without crimping or departure from their general helical course, and the usual dandy-roll covering placed directly upon the said outer helical series of ribs, for
 95 the purposes set forth.

3. In a dandy-roll, a series of spaced supporting-rings having their edges notched, and a series of ribs running from end to end of the roll in gradual helical lines and let into
 100 said notches to lie below the edges of the rings and held in confinement thereat, and an outer series of ribs of prismatic form running from end to end of the roll in reversed helical lines, the same crossing over and in contact
 105 with the ribs of the inner series and having dovetailed connections with the outer edge portions of said rings, which are properly notched therefor, substantially as and for the purposes set forth.

4. In a dandy-roll, a suitable annular supporting-frame having an outer series of prismatic wire ribs running from end to end of the roll in suitable lines and having dovetail engagements with the portions of the supporting-frame next within said ribs, for the
 115 purpose set forth.

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