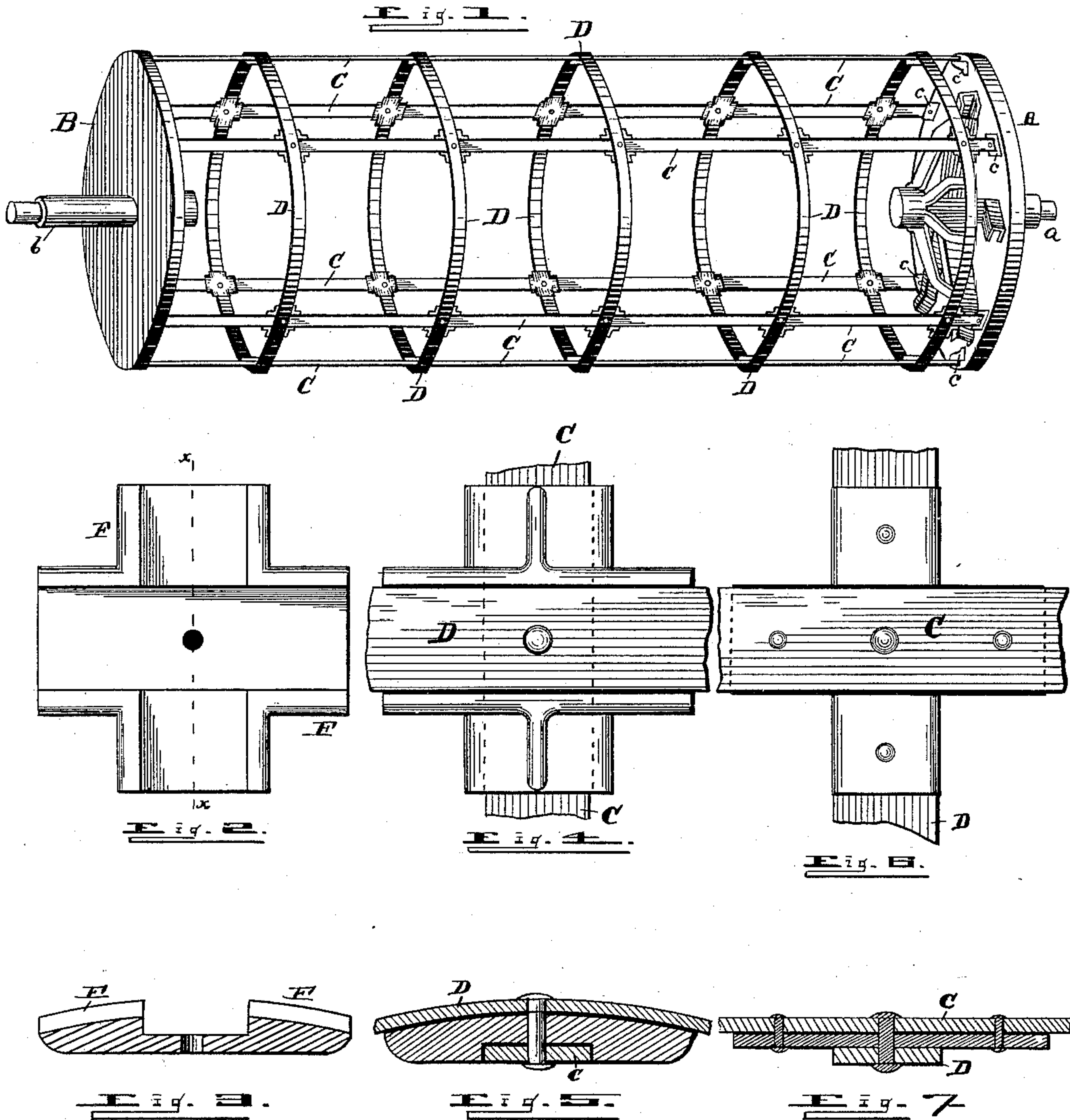


(No Model.)

J. B. CORNWALL.  
ROTARY BOLT.

No. 409,632.

Patented Aug. 20, 1889.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN B. CORNWALL, OF MOLINE, ILLINOIS, ASSIGNOR TO THE BARNARD & LEAS MANUFACTURING COMPANY, OF SAME PLACE.

## ROTARY BOLT.

SPECIFICATION forming part of Letters Patent No. 409,632, dated August 20, 1889.

Application filed April 17, 1889. Serial No. 307,579. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. CORNWALL, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Bolting-Reel Frames; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a view of my improved bolting-reel frame, the cloth being removed. Fig. 2 is a detail view, enlarged, of one of the rib and brace fastening blocks. Fig. 3 is a section through Fig. 2 on line *x x*. Fig. 4 is a detail view of a modified form of block. Fig. 5 is a sectional view through the latter. Fig. 6 is a detail view illustrating a second modification. Fig. 7 is a sectional view through Fig. 6.

This invention is an improvement in bolting-reels; and its object is to simplify and cheapen the construction of such machines, and at the same time not impair the strength of the frame. Its objects are also to dispense with the necessity of a through-shaft or for spiral ribs or braces, and to enable the longitudinal ribs to be kept clear of the bolting-cloth and run in parallel lines with the axis of the reel proper, whereby a large amount of bolting-surface is presented to the material and the flow of the latter thereover unobstructed; and to these ends the invention consists in the novel construction and combination of parts in the reel-frame, as will be clearly understood from the following description, when taken in connection with the annexed drawings.

Referring to the drawings by letter, A designates the head-spider of the reel, and B the tail-spider of the reel, of any suitable construction, and having outstanding trunnions or hubs *a b*, by which the reel-frame is journaled in proper bearings in position for use.

C C designate a number of parallel equidistant ribs extending longitudinally of the frame and attached at their ends to studs or ears *c c* on the inner faces of the spiders, as shown, or otherwise secured thereto, the con-

struction of the spiders and the attachment of the ribs C thereto not forming an essential feature of the present invention. These ribs C are made of steel or strap-iron, preferably, and small in cross-section, and lie parallel with the axial line of the reel.

D D designate a number of circumferential braces or hoops, also made of steel or strap-iron similar to ribs C. The braces D are placed at regular intervals apart along the length of the reel, and are secured at each of their points of intersection with the ribs C to the said ribs, crossing the latter at right angles, and preferably exteriorly thereto.

The connections between the braces D and ribs C are preferably made by means of fastening-blocks, as indicated in the drawings, which blocks consist, essentially, of a casting having four arms, two of each lying in the same plane and at right angles to the other arms, lines drawn between two opposite arms intersecting at right angles lines drawn between the other arms.

The castings are placed on the inside of the reel at the point of intersection of a rib and brace, the rib bearing on two arms and the brace on the other two. Then a bolt or rivet is passed through holes in the rib and brace and a central opening in the casting and firmly tightened, locking the rib to the casting and to each other, as is evident from the drawings. The casting then re-enforces both the rib and brace by transferring strain from one to the other. The castings are preferably formed with side flanges on their arms, as shown in Figs. 2 and 4, so that the ribs or brace resting in the arms will be kept from lateral movement thereon, and thus the rigidity of the reel-frame assured, as the ribs and brace are positively secured and kept at right angles to each other.

In Figs. 6 and 7, in lieu of the flanges additional rivets are employed, the central rivet uniting the rib and brace to the casting, and the additional rivets securing the ribs and brace, respectively, to the respective arms of the casting.

In Figs. 2 and 3 the arms are flanged on the same side of the casting, as at F F, so that the ribs and braces will impinge at their



point of intersection; but in Figs. 4 and 5 the arms are flanged on opposite sides, forming channels in the opposite faces of the casting, which channels run at right-angles, as described. By using these blocks, however, the ribs and braces are kept out of contact at the point of intersection, and by thickening the castings the ribs can be set to the inside of and out of contact with the bolting-cloth, which is stretched over the braces, so that the middlings or material being bolted can pass between the longitudinal ribs and the cloth, as is obvious.

Where the flanges are employed the use of additional rivets would be superfluous in many cases; but the additional rivets could be employed with the flanged castings, if desired.

My principal object is to make a secure and rigid joint or connection between the brace and rib at the intersecting point, and to do this with as little expenditure of metal as possible. The arms of the casting on which the circumferential braces are to rest are preferably curved slightly, as indicated, on an arc corresponding to the curvature of the brace.

From the foregoing and the drawings it will be seen that I have a very strong, light, and easily-constructed reel-frame, in which each longitudinal rib is braced by the medium of the castings, thus enabling me to dispense with a through-shaft or any connection between the circumferential walls of the reel, excepting at the tail and head thereof. The reel can be mounted upon the trunnions on the head and tail blocks or spiders and rotated thereon, being sufficiently rigid to carry the weight of material therein without yielding or sagging.

Having thus described my invention, what I claim as new is—

1. In a bolting-reel, the combination of the ribs and braces, with the castings secured to

said ribs and braces at their point of intersection on the inside of the reel, so as not to interfere with the cloth or protrude above the outer brace or rib, substantially as described.

2. In a bolting-reel, the combination of longitudinal ribs and circumferential braces, with the castings secured to said ribs and braces at their points of intersection and bracing the same, and curved to accommodate the braces, substantially as and for the purpose specified.

3. In combination with the ribs and intersecting braces of a bolting-reel, castings having flanged arms attached to said ribs and braces at the points of intersection thereof, the flanges of the arms preventing lateral movement of the ribs or braces thereon and strengthening the same, substantially as described.

4. The combination of the longitudinal ribs and the circumferential braces, with the castings having pairs of arms flanged, as described, and centrally perforated and placed upon said ribs and braces at their points of intersection to the inside of the circumferential braces to prevent contact thereof with the cloth, and the rivet or bolt passing centrally through the casting and through the rib and brace, substantially in the manner and for the purpose set forth.

5. In a bolting-reel, the combination of longitudinal ribs and circumferential braces, with castings having arms arranged in pairs at right angles to each other and flanged on opposite sides and interposed between and secured to the ribs and braces, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN B. CORNWALL.

Witnesses:

ELMER E. MORGAN,  
WM. C. BENNETT.