(No Model.)

W. E. GORTON.

BOLTING REEL FRAME.

No. 304,682. Patented Sept. 2, 1884.

Fig. 1.

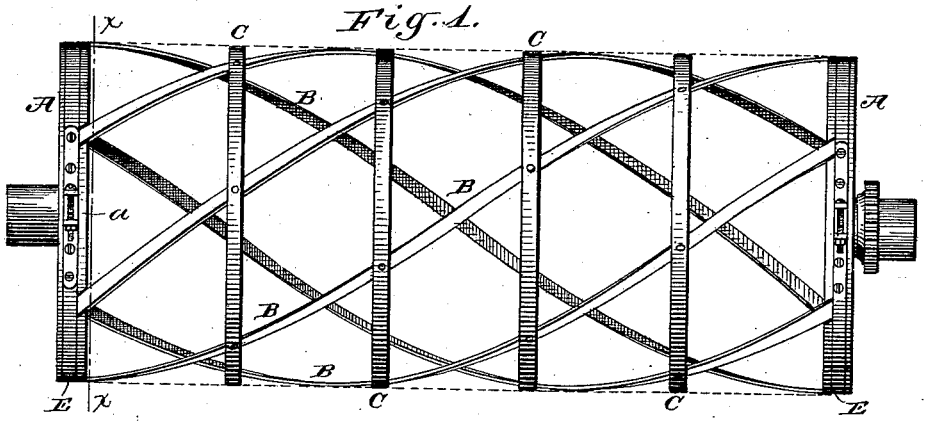


Fig. 2.

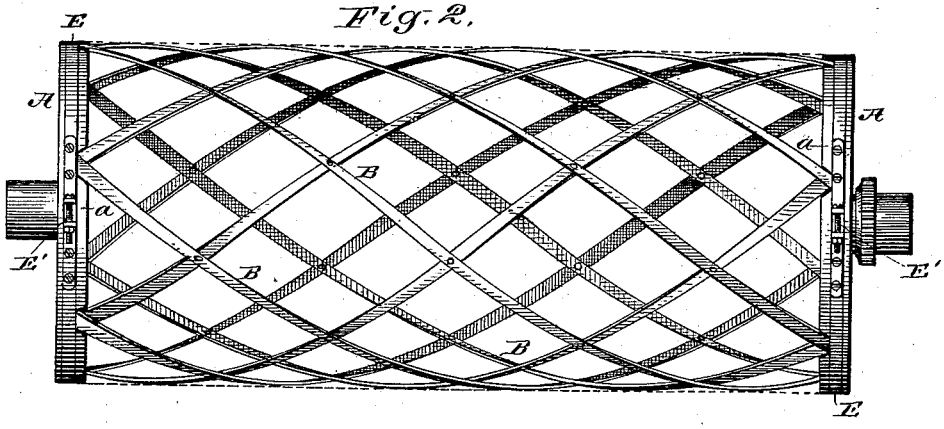


Fig. 3.

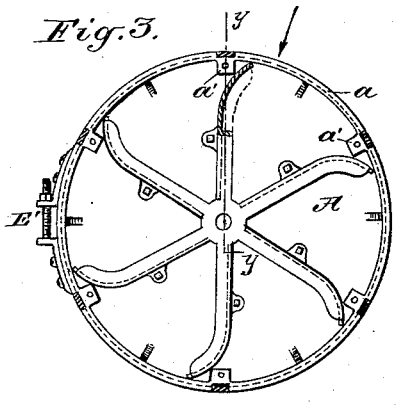
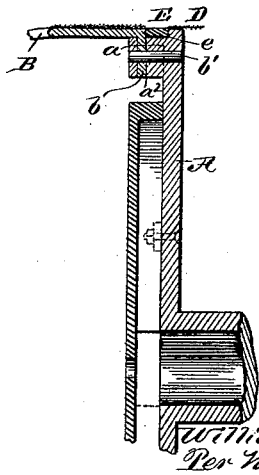


Fig. 4.



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WILLIAM E. GORTON, OF CHICAGO, ILLINOIS.

BOLTING-REEL FRAME.

SPECIFICATION forming part of Letters Patent No. 304,682, dated September 2, 1884.

Application filed August 20, 1883. Renewed July 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. GORTON, of Chicago, in the county of Cook 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 a part of this specification.

The improvements herein described relate to the construction of bolting-reel frames, such as are used in milling and for other similar purposes.

More particularly stated, the invention relates to the construction and arrangement of the ribs by which the bolting-cloth is supported.

The object of the invention is to provide a construction in reel-frames calculated to insure greater strength or rigidity, while at the same time securing a desired lightness in the frame. It is also an object to give to the reel a more nearly cylindrical form and to better support the reel-cloth.

To these ends the invention consists, primarily, in a reel provided with spiral ribs, combined either with other spiral ribs arranged in an opposite direction and secured thereto, or with other forms of connections uniting the spiral ribs in such manner as to mutually support each other and produce the effect, practically, of a truss.

In the accompanying drawings, Figure 1 is a side elevation of the reel, showing one form of my improvement in which a single series of parallel longitudinal ribs are applied spirally to the heads, and in which said longitudinal ribs are made to mutually support each other by circumferential ribs or hoops arranged parallel with the heads of the reel and fastened to the spiral ribs at their points of intersection. Fig. 2 is a second form of the improvement, in which two series of longitudinal ribs are applied spirally to the reel, the said two series being spirally arranged in opposite directions, so as to intersect each other, and fastened to each other at their points of intersection, so as to give a trussing or bracing effect in their rib structure. Fig. 3 is a vertical section through *x x* of Fig. 1, looking toward the adjacent head of the reel. Fig. 4 is a fragmentary vertical section through the head A in the line *y y* of Fig. 3.

A A are the heads of the reel, which, so far as relates to the improvement herein claimed, may be made either of solid disk form or with radial arms. As shown, said heads are understood to be of the disk or solid form, with provision for feeding and discharging through hollow gudgeons.

B B are the longitudinal ribs of the reel. The distinctive feature of these ribs is that they are extended from one head A to the other in a spiral direction. To give the desired trussing or bracing effect, said ribs are combined either with a similar series of spirally and oppositely directed ribs, as shown in Fig. 2, or with a series of circumferential ribs or hoops, C C, as shown in Fig. 1, or are otherwise similarly connected for the purpose stated.

Referring first to Fig. 1, the longitudinal ribs B are shown as passing from one side of the heads A to the opposite side of the other reel-head. In other words, said longitudinal ribs are shown as being made to pass halfway around the entire reel in their spiral course from one to the other thereof. The degree or pitch of the spirality of the ribs may, however, be either greater or less than shown, according to the length of the reel or to the weight of the load it is intended to carry. In the use of a single series of such ribs B B, arranged parallel with each other, as shown in Fig. 1, the necessary bracing effect may be obtained by means of one or more circumferential hoops, C C, applied either exteriorly or interiorly to the ribs B, and secured to said ribs at the points of their intersection, as clearly indicated in the drawings. In this construction it is obvious that each one of the spiral ribs operates as a diagonal brace, and that by the connection of the said ribs with each other between their ends by means of the ribs C the ribs B upon one side of the reel are made to coact with those of the other in such manner as to form a unitary truss, calculated to give great rigidity to the reel, and to prevent its sagging under the load which it is called upon to carry in operation.

Referring next to Fig. 2, two series of oppo-

sitely-directed spiral ribs B B are employed, which are riveted or otherwise secured to each other at their several points of intersection, so that a very perfect bracing effect is obtained and great rigidity in the reel-structure is secured without the aid of the ribs C C of Fig. 1, albeit the latter may be in this case employed, if desired.

For the general purposes of my invention I do not limit myself to any particular material or sectional form of the several ribs B B C C; but while said ribs may be made either of iron or wood, I prefer, generally, to make them of flat metal strips or of wire. It is also immaterial to the general invention herein described in what manner said ribs are secured to the heads A A of the reel, but I have shown a desirable construction in the present case for the attachment of the flat metal ribs shown, which mode of attachment will be understood from the following description:

Referring to Figs. 3 and 4, the head A of the reel has a marginal inwardly-directed cylindric flange, *a*, deepened or thickened inwardly at as many points *a'* as are to form places for the attachment of the longitudinal ribs B B. Radially through these flanges *a* and enlargements or lugs, *a'* are cast or otherwise formed apertures a^2 of proper size to admit the inwardly-bent ends *b* of the ribs B, and said inserted ends are secured in place by pins *b'*, or other similar or suitable device. The circumferential surfaces of the flanges *a* are also cut away or recessed to admit the superposed part of the rib B flush therewith, in order that the cloth D, when applied to the frame, may lie smooth thereon. Secure attachment of the cloth D may be effected by providing annular recesses *e* in the outer circular surface of the heads, into which the cloth D is drawn by the clamping-bands E, provided with tightening devices E', all of familiar construction.

While I prefer to make the frame-ribs B of iron, it is evident that, owing to the spiral direction of the said ribs, they may be advantageously made of light bars of tough wood bent to the desired shape, and that a frame so constructed will have the merits of great lightness and strength.

The construction shown will evidently give a cylindric shape to the frame and its clothing, from which the reel is calculated to run with greater ease and steadiness than attends the rotation of the prismatic form of reel heretofore generally in use, with the obvious advantage of imposing a more uniform strain upon the cloth.

The best way to construct the reel-frame shown, in order to give it accurately cylindric shape, is probably to employ an exterior semi-cylindric form, within which the several ribs may be bent to shape and secured to the heads and to each other while thereby held in proper position.

I claim as my invention—

1. In a bolting-reel, the combination, with the cloth, of a frame composed of a series of spirally-directed longitudinal ribs, means for supporting them concentric with the axis of the reel, and transverse connecting-strips attached to the ribs, whereby the said ribs and strips are mutually sustained, substantially as described.

2. In a bolting-reel, the combination, with the cloth, of a frame composed of longitudinal ribs B, constructed of metal strips bent in spiral form, means for supporting them concentric with the axis of the reel, and transversely-arranged strips secured to and connecting the ribs, whereby the said ribs and strips are mutually sustained, substantially as and for the purpose set forth.

3. In combination with the reel-head provided with a flange, *a*, having radial apertures a^2, the metal ribs B, having the ends *b* bent to enter said apertures, and means for securing the said bent ends in the apertures, substantially as described.

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

WILLIAM E. GORTON.

Witnesses:
M. E. DAYTON,
JESSE COX, Jr.