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PATENTED NOV. 17, 1903.

R. J. CHOWEN & W. HARTLY.

WARPING REEL.

APPLICATION FILED DEC. 11, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

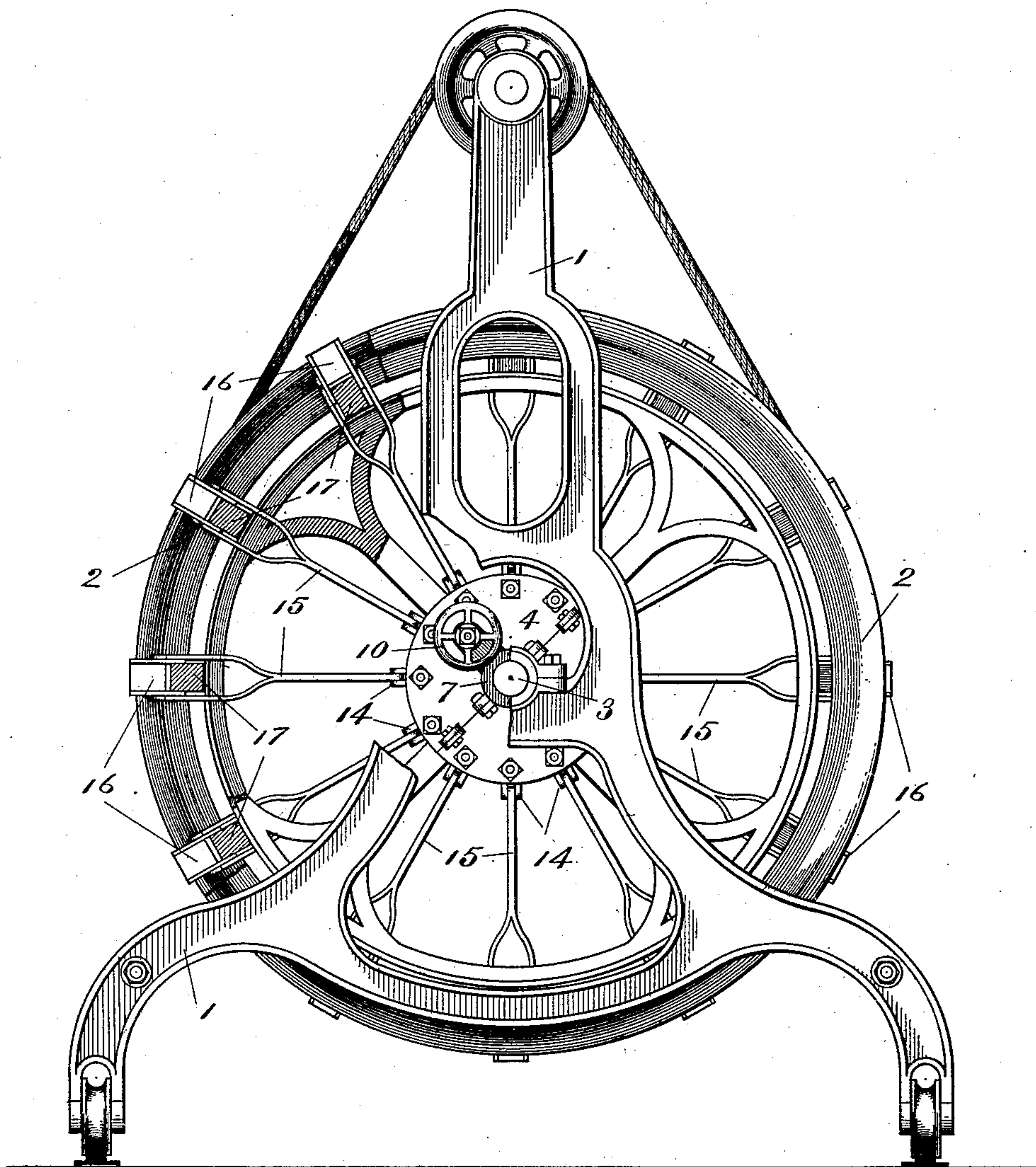


Fig. 1

WITNESSES

L. R. Earle

Stanley J. Paterson

INVENTORS

Richard J. Chowen,

William Hartly,

By A. Dixon
Atty.

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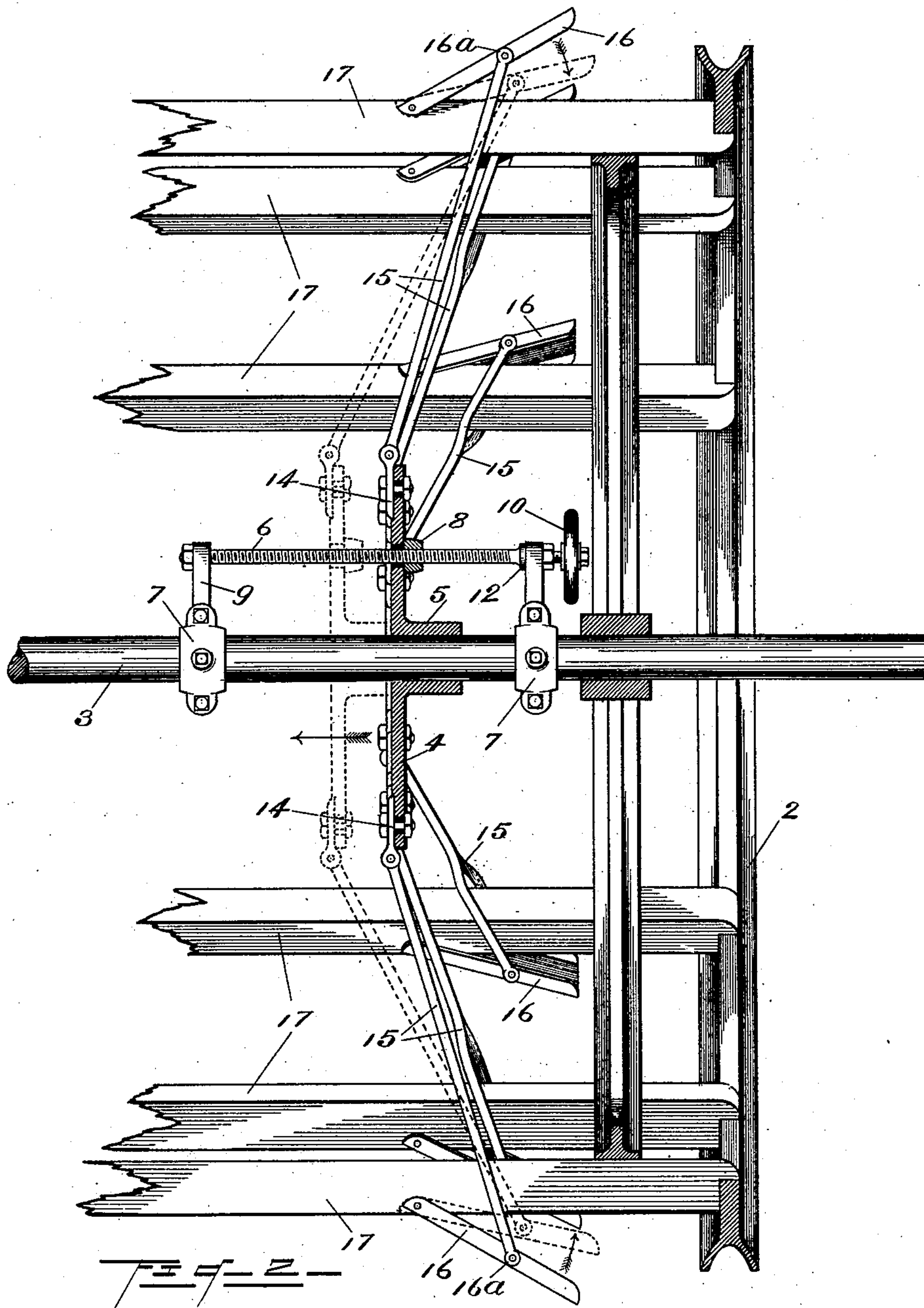
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L. R. Earle
Stanley Palmer

INVENTORS

Richard J. Chowen,
William Hartly,
By A. Dixon
Atty.

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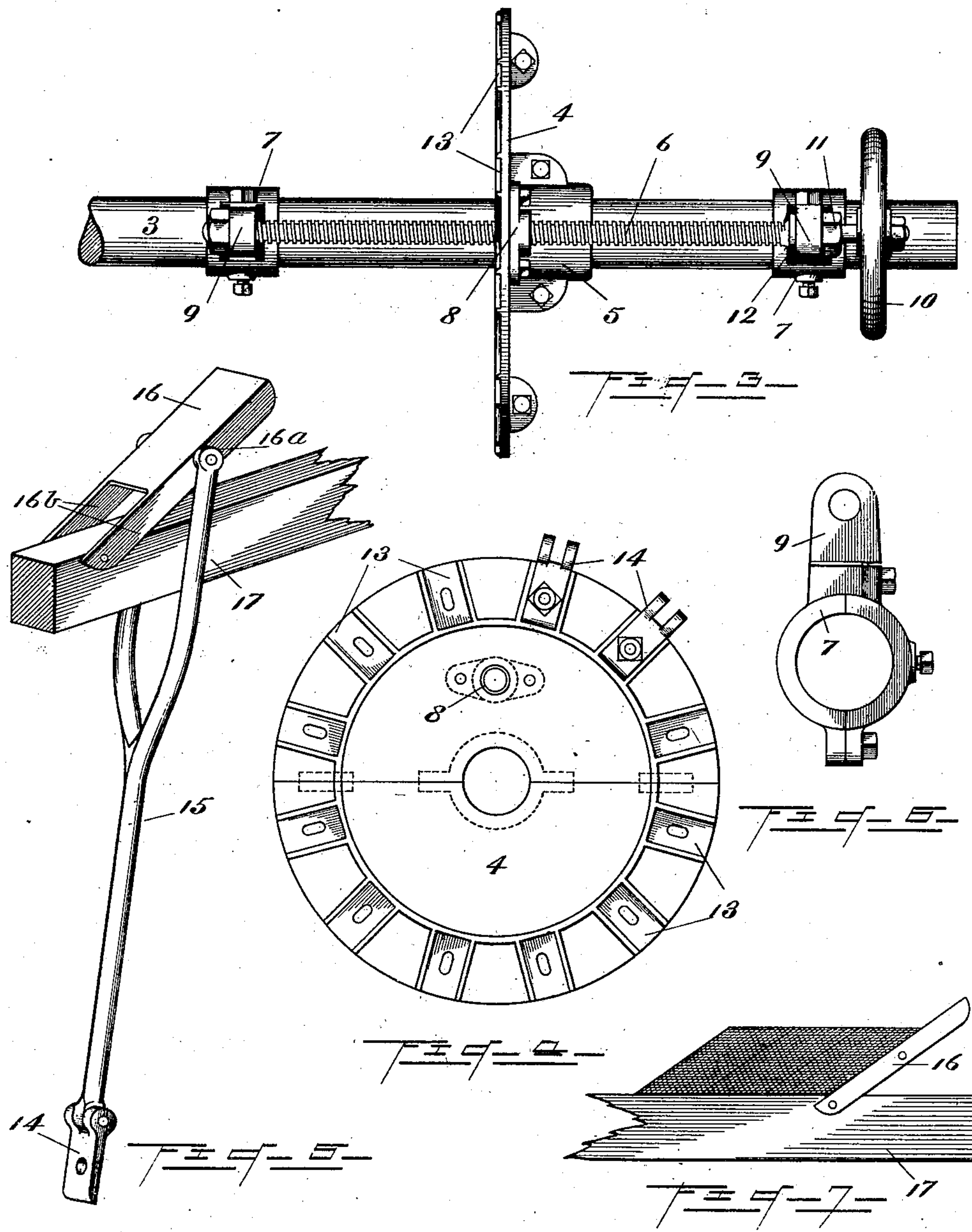
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L. R. Earle

Frank J. Palmer

INVENTORS

Richard J. Chowen,

William Hartly,

By A. Dixon
Atty.

UNITED STATES PATENT OFFICE.

RICHARD J. CHOWEN AND WILLIAM HARTLY, OF PETERBOROUGH,
CANADA.

WARPING-REEL.

SPECIFICATION forming part of Letters Patent No. 744,294, dated November 17, 1903.

Application filed December 11, 1902. Serial No. 134,849. (No model.)

To all whom it may concern:

Be it known that we, RICHARD J. CHOWEN and WILLIAM HARTLY, of the town of Peterborough, in the county of Peterborough and Province of Ontario, Canada, have invented certain new and useful Improvements in Warping-Reels; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

The present invention relates particularly to the section-builder or coning attachment and is applicable to that class of warping or reeling machines in which the section-pins are entirely dispensed with and the more modern practice of section-building employed, whereby the deposits of yarn or fibrous material are formed in regular layers one upon the other into substantially truncated cones and in such a manner that one of such sections—namely, the first—becomes a form or guide for the building or laying of the subsequent sections in a regular series of like cone-shaped deposits on the reel in the rotation thereof until the desired number of ends constituting the warp are obtained.

The object of this invention, stated in general terms, consists of a warp-reel provided with section-builders or coning attachments adjustably connected therewith and an improved universal adjusting mechanism for readily and quickly adjusting the coning attachments to any desired inclination with uniformity throughout.

To such ends the invention consists in the construction and combination of parts hereinafter particularly described and claimed, reference being had to the accompanying drawings, which form part thereof, in which similar figures of reference refer to like parts throughout.

Figure 1 is an end elevation of a warping-reel with part of the end frame and warp-reel cut away to show the adjusting mechanism of the coning attachments. Fig. 2 is a longitudinal sectional view of a portion of the warp-reel—that is, the right-hand end—which clearly shows in partial section the means employed for adjusting the coning attachments. Fig. 3 is a plan view in detail of a

portion of the warp-reel axle, showing mounted thereon the sliding annular collar and adjusting-screw. Fig. 4 is a detail view, in elevation, of the sliding annular collar. Fig. 5 is a perspective view, in detail, of the bifurcated connecting-rod and coning attachment. Fig. 6 is a detail view of the stationary collar which carries the adjusting-screw, and Fig. 7 is a side elevation of a portion of one of the cross-arms of the warp-reel with the adjustable section-builder attached thereto and showing a longitudinal section through the yarn or thread wound thereon.

Referring to the drawings, with special reference to Figs. 1 and 2, it will be seen that the parts which have more immediately to do with our invention are mounted upon the warp-reel, preferably in the manner shown. The construction and arrangement are such that the mechanism is applicable to all varieties of pinless warping or reeling machines, with but few exceptions, either to be applied as an additional attachment to existing machines or as a combination in the manufacture of new machines.

The essential features comprise an annular collar mounted on the reel axle or shaft and adapted to slide longitudinally thereon and controlled by an adjusting-screw and a series of radial pivoted arms connecting said annular collar with the adjustable coning attachments, of which the following is a detailed description:

Supported in the usual manner in the end frames 1 and carrying thereon the warp-reel 2 is the reel-shaft 3, upon which is mounted the universal adjusting mechanism of the coning attachments, as shown. The means employed to rotate the warp-wheel and the manner of operating “pinless section-builders” are unimportant and pertain not to our present invention.

Carried upon the reel-shaft 3 and located adjacent to one end of the warp-reel 2, preferably the right-hand end, and adapted to slide longitudinally thereon is the annular collar 4, said collar provided with a hub 5 of liberal length, the object of which is obvious.

To control and operate longitudinally the annular collar 4 upon the shaft 3, there is an adjusting-screw 6, supported parallel of the

shaft in stationary collars 7 and adapted to operate in the nut 8, secured to the annular collar 4, as shown. The collars 7 are carried fixedly upon the said shaft and suitably spaced to allow of ample adjustment of the annular collar and provided with a projecting lug or extension 9, in which is carried the adjusting-screw 6. For convenience of operating, the adjusting-screw 6 is provided with a hand-wheel 10, carried fixedly upon one end, and to insure against turning after being set there is a lock-nut 11, which operates in conjunction with the collar or shoulder 12 an integral part of the screw 6, between which is gripped the lug 9.

On the face of the annular collar 4 and extending inwardly from the periphery there are formed rectangular pockets or recesses 13, in which are adjustably secured the cleats 14. By employing the recesses 13 for the reception of the cleats 14 one bolt for each cleat, as shown, entering an elongated slot or opening in either the annular collar or the cleat (in this instance it is shown in the annular collar) is sufficient to retain the cleat in position and permit of ample adjustment. Through the adjustment of the cleats 14 compensation is made for any inaccuracy of workmanship in the operating mechanism of the coning attachment, thereby enabling the setting of the coning attachments to be accomplished with uniformity throughout, which is a desideratum.

Pivoted in the cleats 14 and radiating from the periphery of the annular collar 4 are the bifurcated connecting rods or yokes 15 of the coning attachments 16, divided, as shown, and straddling each of the series of cross-arms 17, and the coning attachments 16, to the depending sides of which they are pivotally connected at the point 16^a.

The coning attachments 16 are pivotally secured to the cross-arms 17 of the warp-reel 2, as shown. This coning device comprises a rectangular casting having two opposite depending sides 16^b, elongated and extended to form a yoke which straddles each of the series of cross-arms and pivoted thereto in the manner shown.

The operation of the device hereinbefore described from the drawings will be better understood by referring to Fig. 2, which, by showing an assumed position (in dotted lines) and the direction (indicated by arrows) in which the several parts move from their initial position, clearly illustrates the operation that takes place in the universal adjustment of the coning attachments. This adjustment is operated and controlled by the adjusting-

screw, and through the intermediary mechanism any inclination of the coning attachments can be acquired—that is, within their working radius. Hence the width of warp-section can be varied, and consequently the coning of yarn or fibrous material of any grade or quality is accomplished with uniformity, thus producing a warp readily transferred in its entirety, as in the usual operation of beaming.

In order to enable the parts of our device which have more immediately to do with the reel-shaft to be mounted thereon and remove or replace without disturbing the mechanism of the machine, the collars mounted upon the said shaft are constructed in halves and secured together in the usual manner, by bolts, as shown.

In applying the present device to existing machines this construction is found preferable and also convenient in other contingencies.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a warping-reel provided with cross-arms, a shaft carrying the said reel, a series of coning attachments pivoted at their inner ends to said cross-arms, a collar mounted on the said shaft and movable longitudinally thereon, connections from the said collar to the said coning attachments, brackets on the said shaft, a screw-threaded adjusting-shaft mounted in the said brackets and a nut connected to the said collar and engaged by the said adjusting-shaft, substantially as set forth.

2. In combination with a warping-reel and its shaft, pivoted coning attachments of said reel, a disk or collar movable lengthwise of said shaft, a screw-threaded adjusting-shaft, engaging a part or attachment of said collar and arranged substantially parallel to the reel-shaft, and connections between said collar and said coning attachments substantially as set forth.

3. In combination with a warping-reel and its shaft, pivoted coning attachments of said reel, a disk or collar movable lengthwise of said shaft, means independent of said shaft for adjusting said collar and pivoted connections between said collar and said coning attachments substantially as set forth.

Signed at Peterborough this 7th day of November, 1902.

RICHARD J. CHOWEN.
WILLIAM HARTLY.

Witnesses:

JOHN BAIN,
SAMUEL J. MCINTYRE.