

No. 619,266.

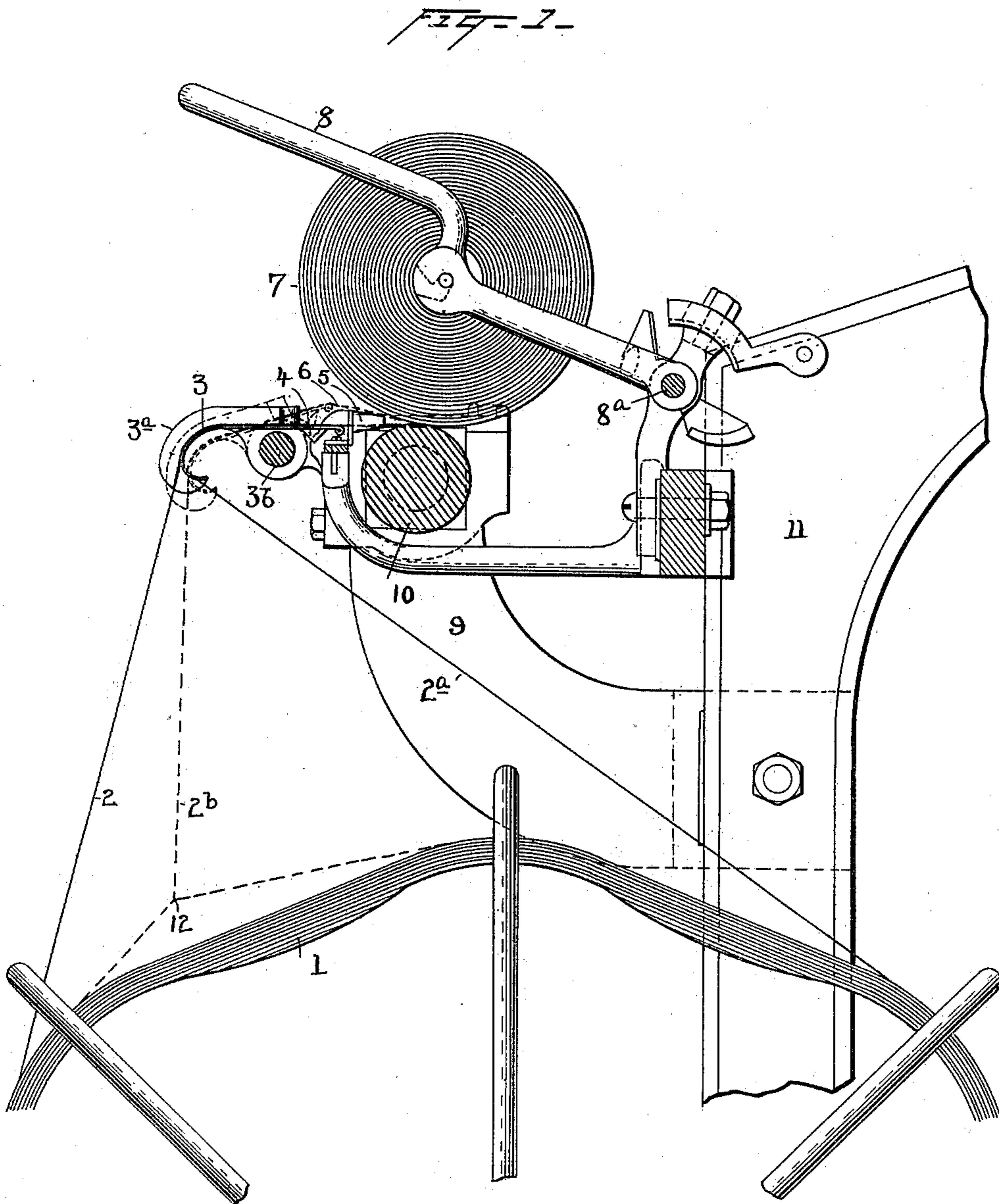
Patented Feb. 14, 1899.

J. E. BARBOUR.
WINDING DEVICE.

(Application filed Mar. 10, 1898.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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INVENTOR

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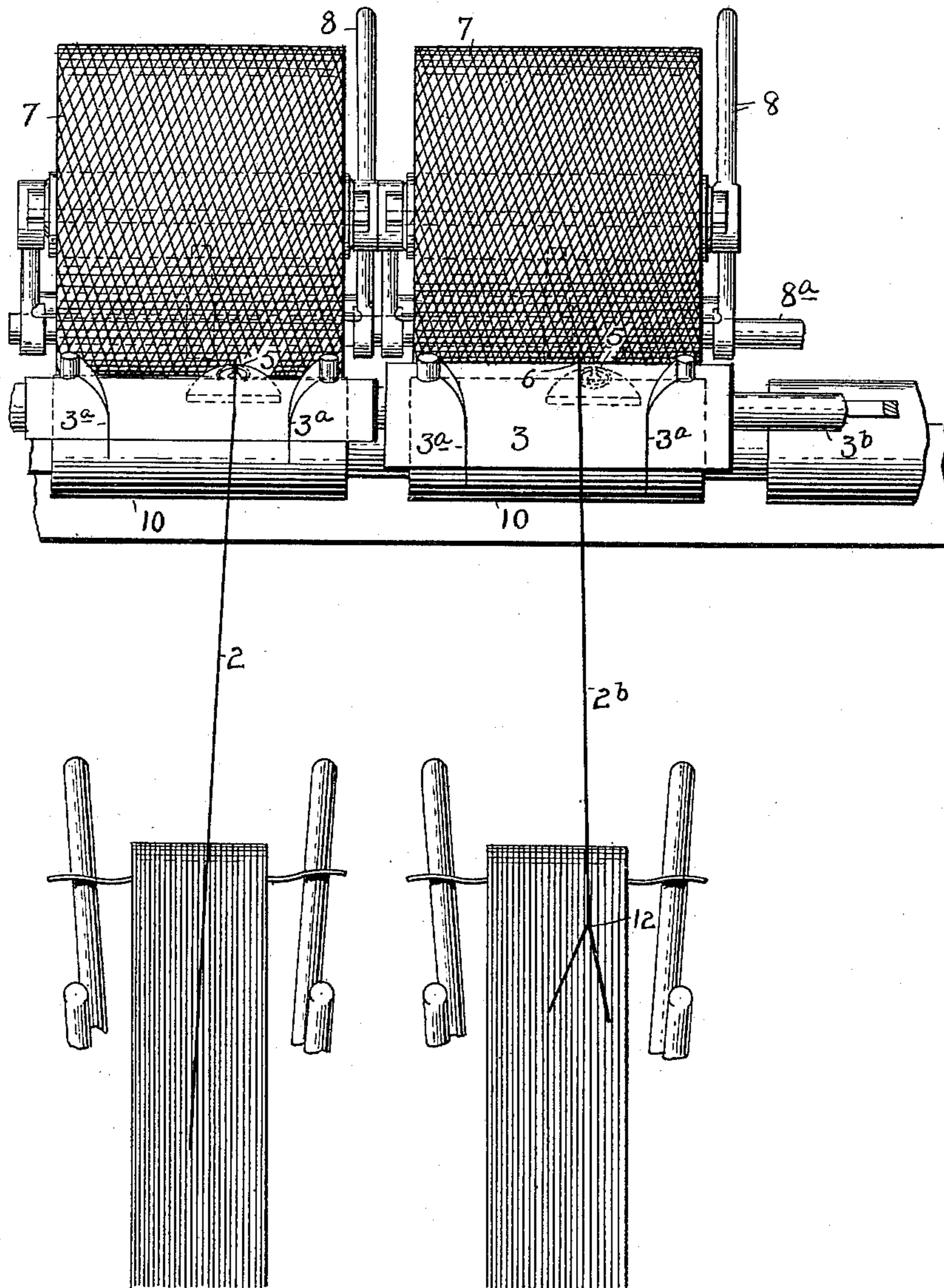


Fig. 2 -

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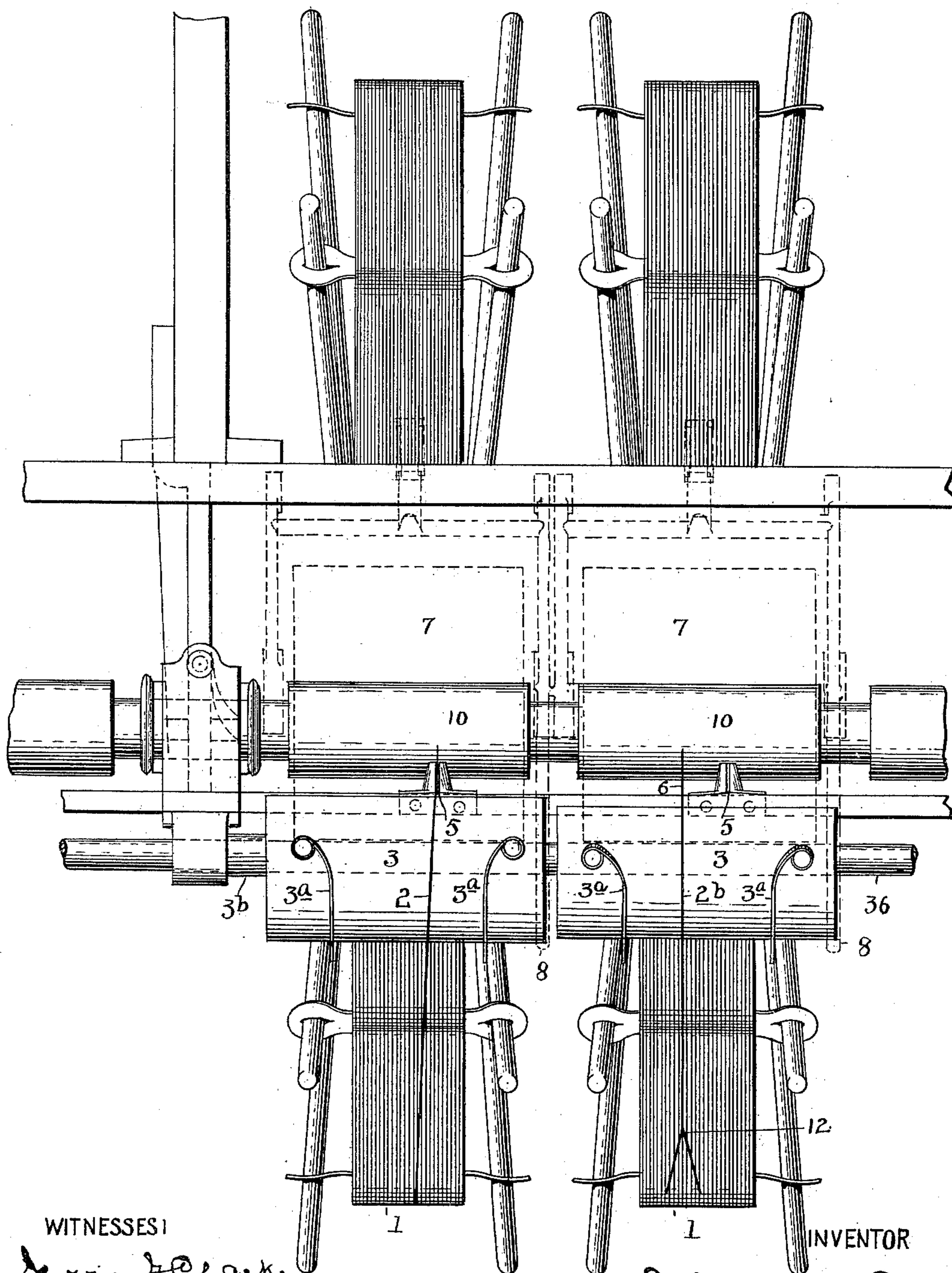
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN EDWARDS BARBOUR, OF PATERSON, NEW JERSEY.

WINDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 619,266, dated February 14, 1899.

Application filed March 10, 1898. Serial No. 673,350. (No model.)

To all whom it may concern:

Be it known that I, JOHN EDWARDS BARBOUR, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Winding Devices, of which the following is a specification.

My invention relates to devices for winding cord, and especially to those devices in which the cord is drawn from reels or any other form of cord-supply and wound by machinery upon balls or cops, and more especially to that special device in which the cord passes through a reciprocating guide in the process of winding.

The objects of my invention are to provide, first, a means for saving time in winding; second, means for saving labor, and, third, means for preventing injury to the cord. I attain these ends by the device illustrated in the accompanying drawings and hereinafter fully described, like numerals of reference referring to similar parts throughout the various views and the description. Heretofore in devices of this class when the free withdrawal of the cord from the reels became prevented, owing to various causes, among which were some obstacle tending to prevent the rotation of the reel itself, or more often the formation of a knot or tangle in the cord, the cord remaining in the guide would saw back and forth with the reciprocations of the latter, constantly chafing on portions of the machine and the ball or cop itself, and thus resulting in wear, roughening, weakening, and sometimes rupture of the cord, and always, if the motion long continued, in its injury. As it is customary to build these machines containing a large number of separate winding elements, all driven by the primary power, it is evident that it was impracticable to stop the whole machine when one element became obstructed. Therefore it frequently occurred that one or more elements might be obstructed for a less or greater period of time before the obstruction could be removed, and during such time the motion of the reciprocating devices continuing resulted in the aforesaid injury. By my invention, however, each separate element is provided with an automatic release or stop motion by which, as is hereinafter more particularly described, the cord is

instantly removed from the reciprocating guide upon the stopping or hindrance of the feed from the supply and is as immediately thrown in again upon the resumption of the feed after the removal of the interfering cause.

Figure 1 represents a partly-sectional end view of my improvement as applied to an organized machine for winding balls or cops in which a number of elements are combined and driven by the usual means. Fig. 2 is a front elevation of a portion of the organized machine, showing two elements with my improvement applied, the one on the left normally operating, while the one on the right shows my device operating to stop the motion or sawing of the cord. Fig. 3 is a plan view of the same.

Referring now to the figures, 1 is the reel of cord; 2, a strand of the cord as it leaves the reel before passing over the safety device. 2^a illustrates such strand when the reel is reversed and the cord is unwinding from the rear, the operation of my improvement being the same in either instance. 2^b illustrates such strand when drawn down from its normally tangential position with respect to the reel by the knot or tangle 12.

3 represents the apron or main body of the safety device, made curved, so as to present a smooth surface without an obstructing edge, although I do not limit myself to such shape. 3^a are ribs constructed thereon to keep the cord or strand within proper limits.

3^b is an axis about which the safety device is free to turn, being normally maintained in a substantially horizontal position by means of the weight or counterbalance 4. 4 is this counterbalance, of such weight as to maintain the flat portion of the apron 3 substantially horizontal save when unusual or abnormal strain is imposed on the strand 2 2^b, when in such case the safety device is revolved partially about 3^b in spite of the counterweight, for the purpose hereinafter explained.

5 is the strand-guide, which reciprocates in front of and close to the cop or ball 7 for the purpose of laying the strand properly upon the cop. It is usually formed with smooth edges, so that the cord or strand may be easily and without injury placed in or out of it, but is of such form and dimensions as to normally retain the strand. As this is well known

in the arts, I do not claim it and need not further describe it.

6 represents the strand lifted out of the guide 5 by the operation of the safety device, as shown in the dotted lines.

7 represents the cop or ball being wound. (Shown in dotted lines in Fig. 3.)

8 represents a lever-frame bearing the cop or ball (Shown in dotted lines in Fig. 3 to avoid confusion in the drawings.) This frame is free to partially revolve about the axis 8^a and normally permits the cop 7 to rest on the driving-rolls 10, which rotate the cop by the resulting surface friction. These rolls are supported in the arm 9, forming a part of the frame 11 of the machine.

The operation of the device is as follows: When the reel bearing the skein of cord 1 is placed in position on the machine, or when another means of cord-supply is used, when the strand is to be connected, the strand is led, as at 2 or 2^a, over the apron 3 of the safety or stop-motion device and between the ribs 3^a thereon, then through the guide 5 and onto the cop-tube held in the lever-frame 8, which bears, as has been said, on the driving-rollers 10. So long as the motion and feed continue constant the safety device is inoperative and the strand is retained in the guide 5, performing its usual functions. If, however, a knot forms in the skein or the reel is caught or undue tension is otherwise applied to the strand 2, this tension pulls down the apron 3, revolving the safety device about the axis 3^b, the counterweight 4 being adjusted so as to allow this revolution upon the imposition of abnormal tension or strain. The effect of such revolution is to raise the weighted end, over which the strand passes, normally into the guide, and such raising at once lifts the strand out of the reciprocating guide 5, allowing the guide to continue its reciprocations under the strand, but not in contact therewith, as shown at 6, Figs. 1, 2, and 3. The strain is also sufficient to cause the cop to stop, slipping upon its driving-roller 10, but not in any way injuring the strand. As soon as the difficulty has been removed and the tension become normal the counterbalance brings the apron back into its usual position and permits the strand to drop down, so as to engage with the guide, into the eye or notch of which it drops, and thereupon the winding is resumed.

While I am aware that similar guides, reels, driving mechanism, and cops are well known in the art, and therefore do not claim them broadly, I still do not wish to be limited to machines for winding cops alone or balls alone or any other peculiar form of product, as it is evident that my invention is applicable to any form of device for winding or putting up cord or similar material. Nor do I confine my invention to machines or means for tak-

ing the cord from any special or single form of reel, skein, ball, cop, or other cord-supply, as it is evident that my invention is applicable in connection with any kind of cord-supply, and when the word "reel" or "skein" or other specific word is used herein it is to be understood as simply indicating a general idea of a cord-supply.

What I do claim, and desire to protect by Letters Patent, is—

1. The combination of a supply, a holder, a strand-guide, and a counterbalanced tilting apron, engaged by the strand and controlled by the tension thereof, whereby said strand may be engaged with or disengaged from the strand-guide.

2. In a winding device, a supply, a holder, a counterbalanced tilting apron over which the strand passes, controlled by the tension of the strand, and means on the same for limiting the lateral movement of the strand, and a strand-guide.

3. In a winding device, a counterbalanced tilting apron controlled by the strand, in combination with a strand-guide, and means thereon for automatically engaging or disengaging the strand in the guide.

4. In an organized winding-machine the combination of a cord-supply, the object to which the cord is being transferred a strand-guide open on a line perpendicular to the said object, a counterbalanced tilting apron provided with guiding-ribs and operated by tension of the strand to disengage or engage the strand in the guide.

5. The combination with cord-winding mechanism, of a cord-supply and a counterbalanced tilting apron intermediate the cord-supply and winding mechanism over which the cord passes, said apron being adapted to swing upon its axis to raise or depress the cord out of or into engagement with the winding mechanism, substantially as described.

6. A cord-supply, a holder for the object being wound, means for moving the same, a strand-guide, and means for operating the same, a counterbalanced tilting apron engaged by the cord, means on said apron for guiding the cord, means to maintain the apron normally in such position, that the cord engages the strand-guide, said tilting apron being adapted to automatically move the strand out of engagement with the guide upon the application of abnormal tension.

Signed at Paterson, in the county of Passaic and State of New Jersey, this 8th day of March, A. D. 1898.

JOHN EDWARDS BARBOUR.

Witnesses:

S. REBECCA BARBOUR,
LEONARD PIKAART,
ROBERT WILLIAMS.