No. 756,465. PATENTED APR. 5, 1904.

E. E. BRADLEY.

SPINDLE DRIVING MECHANISM.

APPLICATION FILED JAN. 21, 1904.

NO MODEL.

Fig. 1.

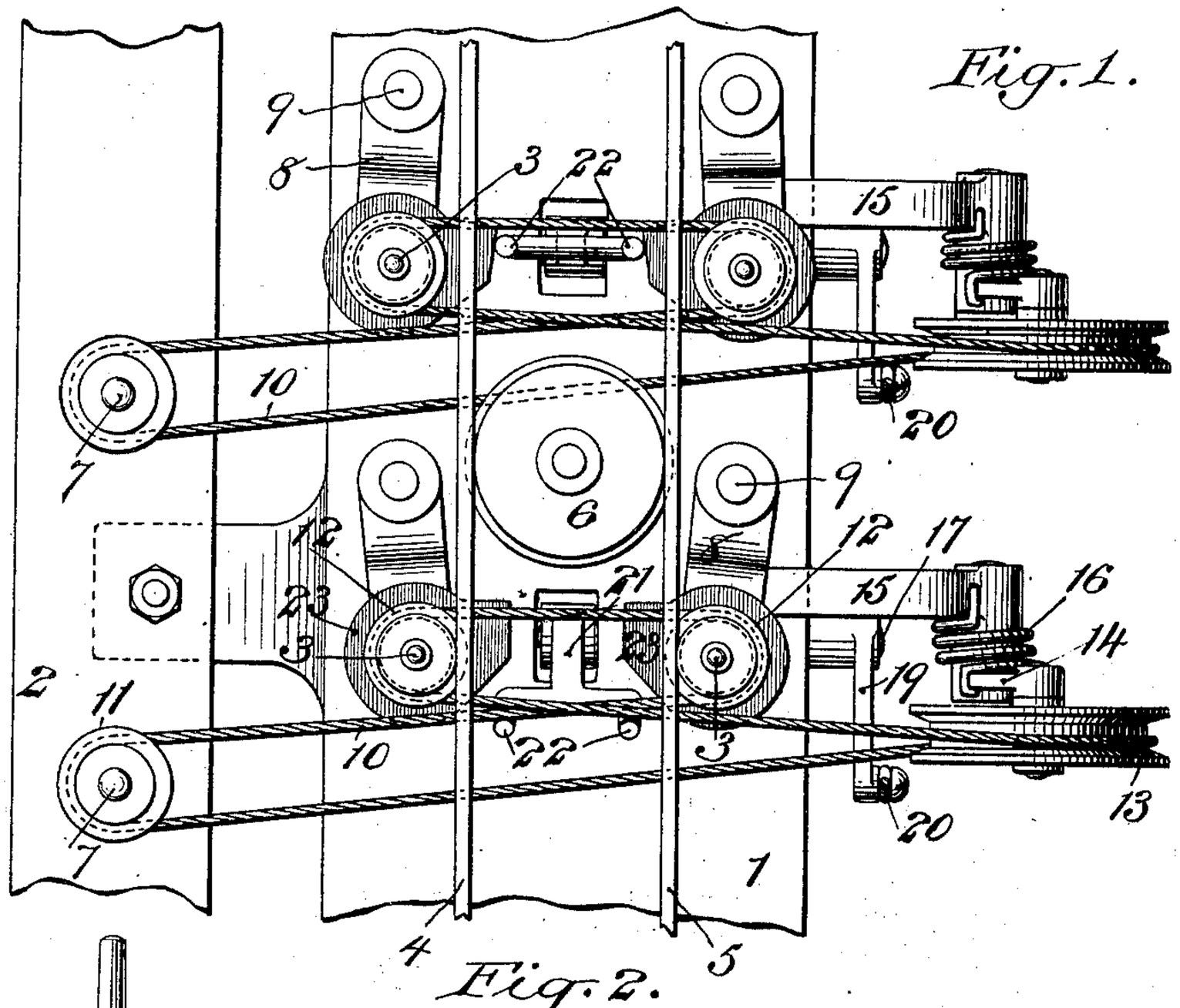
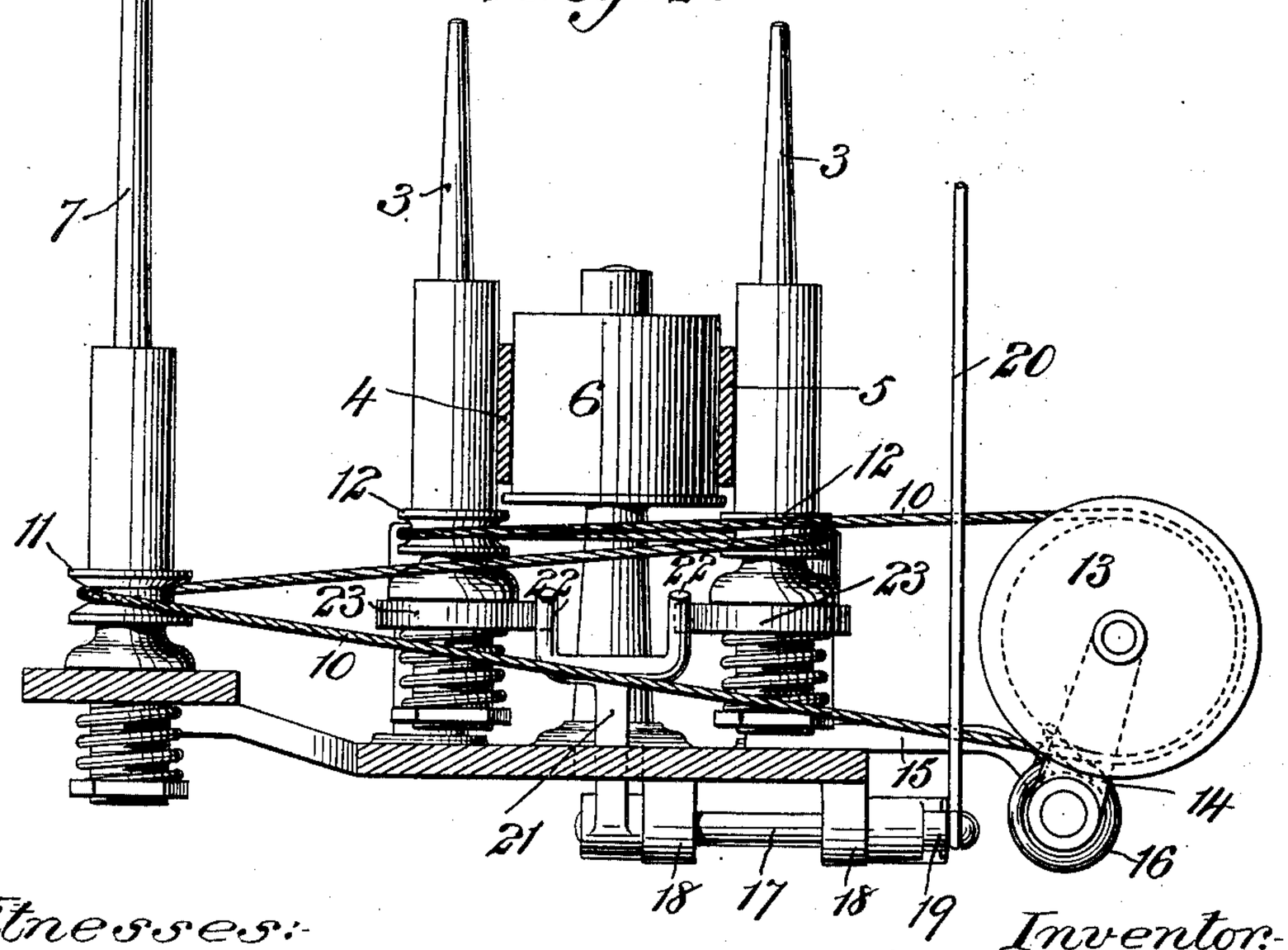


Fig. 2.



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No. 756,465. Patented April 5, 1904.

UNITED STATES PATENT OFFICE.

EDWARD E. BRADLEY, OF STONINGTON, CONNECTICUT, ASSIGNOR TO THE ATWOOD-MORRISON COMPANY, OF STONINGTON, CONNECTICUT, A CORPORATION OF NEW JERSEY.

SPINDLE-DRIVING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 756,465, dated April 5, 1904.

Application filed January 21, 1904. Serial No. 189,964. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. BRADLEY, a citizen of the United States, and a resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Spindle-Driving Mechanism, of which the following is a specification.

My invention relates to an improvement in spindle-driving mechanism for combined spinning, doubling, and twisting machines, and has more particularly for its object to provide a novel mechanism controlled by the thread-stop-motion device for throwing the different pairs of delivery or spinning spindles and their corresponding receiving or twisting spindle out of operation, the mechanism being of that class in which the two spun threads which leave the spinning or delivery bobbins pass through the usual stop-motion device, are then brought together as one thread, and afterward delivered by suitable mechanism to the twisting or receiving bobbin, which may be of the well-known ring, flier, or cup type.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents in top plan a portion of a spinning, doubling, and twisting machine, showing two pairs of delivery-spindles and their respective receiving-spindles, one set of spindles being shown in operation and the other set thrown out of operation; and Fig. 2 is a transverse vertical section through a portion of a spinning, doubling, and twisting machine, showing one set of receiving and delivery spindles in side elevation in their operative position.

The delivery-spindle rail is denoted by 1, and the receiving-spindle rail by 2, which rails may be of any well-known or approved construction.

The delivery-spindles are denoted by 3, which spindles are arranged in two longitudinal rows along the rail 1, the spindles of the two rows being arranged in pairs, as shown.

A driving-belt for the delivery-spindles passes back and forth between the two rows of spindles, the portion 4 of the belt being fitted to engage and drive the spindles of the outer row and the portion 5 being fitted to engage and drive the spindles of the inner row.

An idler-pulley 6 is carried by the rail 1 wherever required between the outer and inner portions of the driving-belt for guiding the belt in its movement between the rows of spindles.

The receiving-spindles 7 are suitably mounted in the rail 2, one spindle 7 being arranged to coact with each pair of delivery-spindles 3.

The delivery-spindles 3 are mounted to swing toward and away from their driving-belt by mounting each of the spindles in a swinging support 8, pivoted at 9 on the rail 1 adjacent to the belt.

A driving-band 10 is provided for each set of delivery and receiving spindles, whereby the receiving-spindle is driven by its two corresponding delivery-spindles. This band 10 passes around a whirl 12 on each of the two delivery-spindles of a pair and from thence around the whirl 11 of the receiving-spindle in a direction to drive the receiving-spindle in the reverse direction to the two delivery-spindles.

The means which I have shown for causing the band to normally hold the two delivery-spindles at the limit of their inward movement in engagement with the driving-belt and for keeping the tension on the band comprises an idler-pulley 13, around which the band passes, which pulley is suitably mounted in a spring-actuated rocking arm 14, carried by a bracket 15, projecting from the rail 1. The spring 16 of the said arm has one end engaged with the bracket 15 and the other end engaged with the arm 14 in position to yieldingly swing the arm and its idler away from the spindles until limited by the driving-band 10.

The means which I have shown for throwing the spindles out of operation is as follows: A rock-shaft 17 is mounted in suitable bearings 18, carried by the rail 1, one arm, 19, of which shaft is connected to the lifting-rod 20 of a thread-stop-motion device. (Not shown herein.) The rock-shaft 17 is further provided with an arm 21, having branches 22 fit-

ted to be brought into engagement with cams 23, carried by the two delivery-spindles 3 of a pair, the cam-surfaces of the two spindles being inclined toward each other, so that when the arm 21 of the shaft 17 is rocked by the lifting of the thread-stop-motion-controlled rod 20 the two spindles are forced outwardly away from engagement with their driving-belt. When the two delivery-spindles are forced outwardly away from engagement with their driving-belt, they will stop their rotary movement, and the rotary movement of the receiving-spindle will also be stopped.

The spring-actuated idler around which the driving-band passes serves to hold the band under the desired tension to yieldingly keep the delivery-spindles in engagement with their belt and at the same time permit the spindles to be forced away from the belt. This spring-actuated idler-pulley also serves to take up the stretch of the band.

What I claim is—

1. A spindle-driving mechanism comprising two delivery-spindles, a belt for driving them, a receiving-spindle and a band connecting the receiving and delivery spindles arranged to normally hold the delivery-spindles in engagement with their driving-belt.

2. A spindle-driving mechanism comprising two delivery spindles, a belt for driving them, a receiving-spindle, a band connecting the receiving and delivery spindles arranged to normally hold the delivery-spindles in engagement with their driving-belt and a thread-stop-motion device fitted, when brought into action, to move the delivery-spindles away from their driving-belt.

3. A spindle-driving mechanism comprising two delivery-spindles, a belt for driving them, a receiving-spindle, a band connecting the receiving and delivery spindles and a spring-actuated idler-pulley engaging the band for yieldingly holding the delivery-spindles under tension in engagement with their driving-belt.

4. A spindle-driving mechanism comprising two delivery-spindles, a belt for driving them, a receiving-spindle, a band connecting the receiving and delivery spindles, a spring-actuated idler-pulley engaging the band for yieldingly holding the delivery-spindles in engagement with their driving-belt and a thread-stop-motion-controlled device for moving the delivery-spindles out of engagement with their driving-belt.

5. A spindle-driving mechanism comprising two delivery-spindles, a belt for driving them, a receiving-spindle, a band connecting the receiving and delivery spindles for normally holding the delivery-spindles in engagement with their driving-belt and a thread-stop-motion-controlled device for moving the delivery-spindles out of engagement with their driving-belt comprising cams carried by the spindles and a rocking arm fitted to engage the cams for forcing the spindles apart.

6. A spindle-driving mechanism comprising two delivery-spindles, a belt for driving them, a receiving-spindle, a band connecting the spindles and normally holding the delivery-spindles in engagement with their driving-belt and a thread-stop-motion-controlled device for disengaging the delivery-spindles from the belt comprising cams carried by the spindles, a rock-shaft, an arm thereon fitted to engage the cams for forcing the spindles apart and a second arm fitted to be engaged with the thread tension.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 18th day of December, 1903.

EDWARD E. BRADLEY.

Witnesses:

ROBERT B. SEWARD,

HENRY E. WILLIAMS.