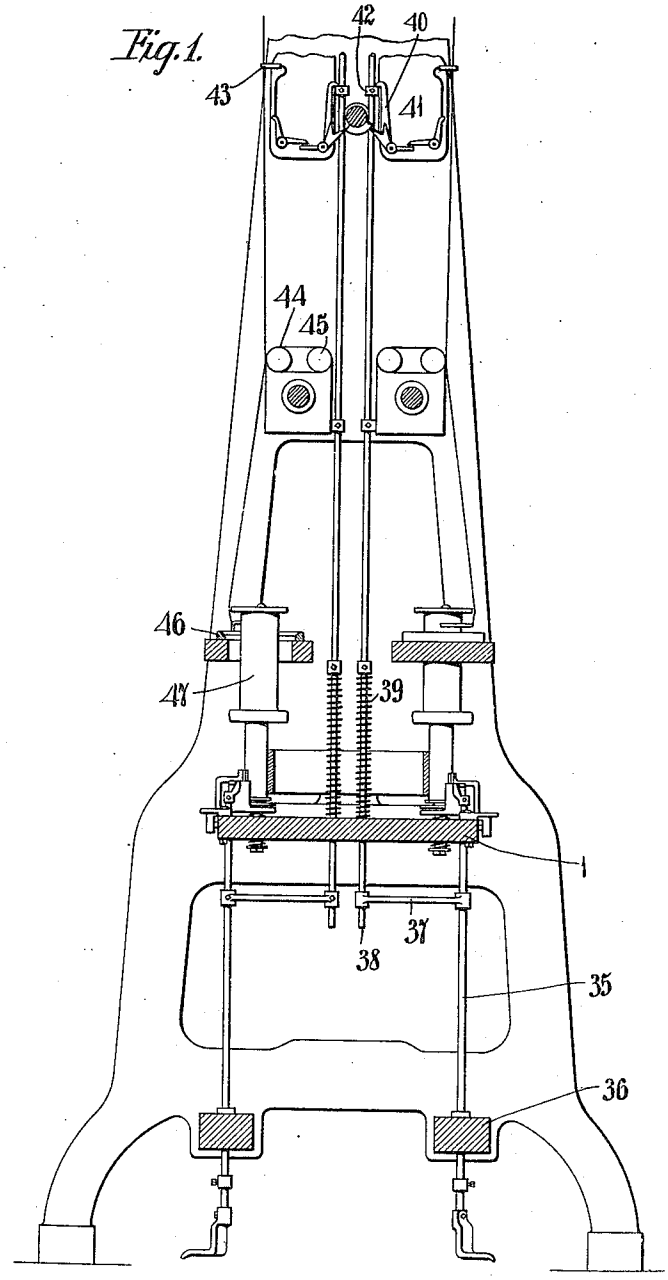
Feb. 5, 1924. 1,482,779

E. E. BRADLEY

STOP MOTION

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Fig. 1.



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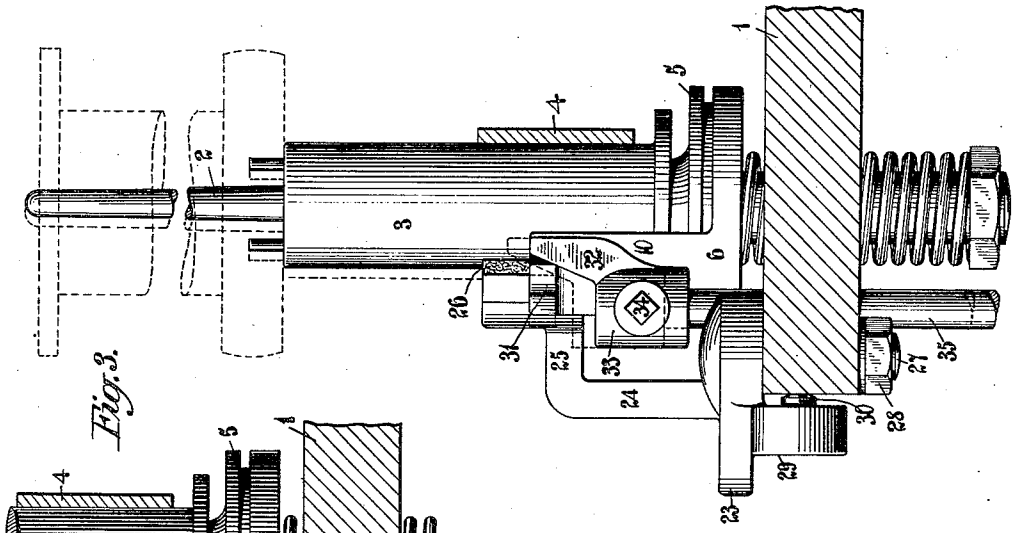


Fig. 3.

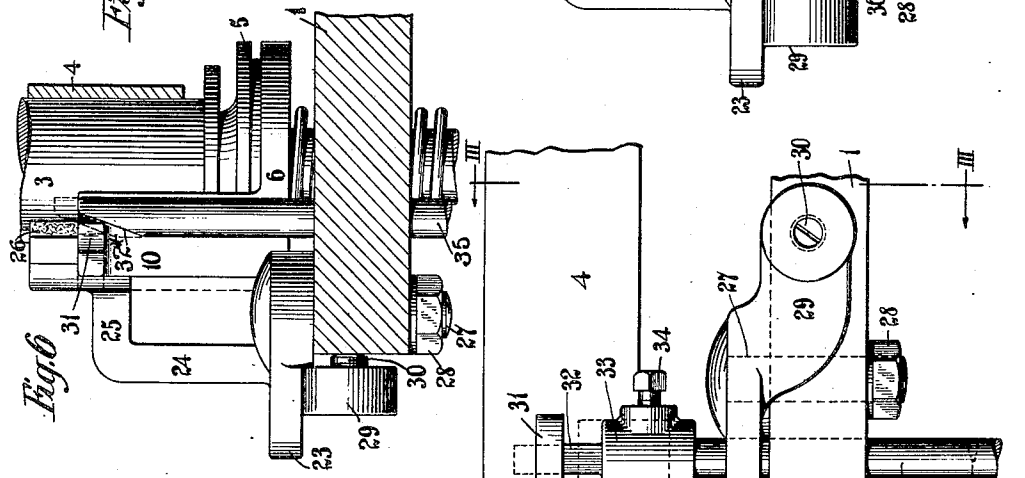


Fig 6

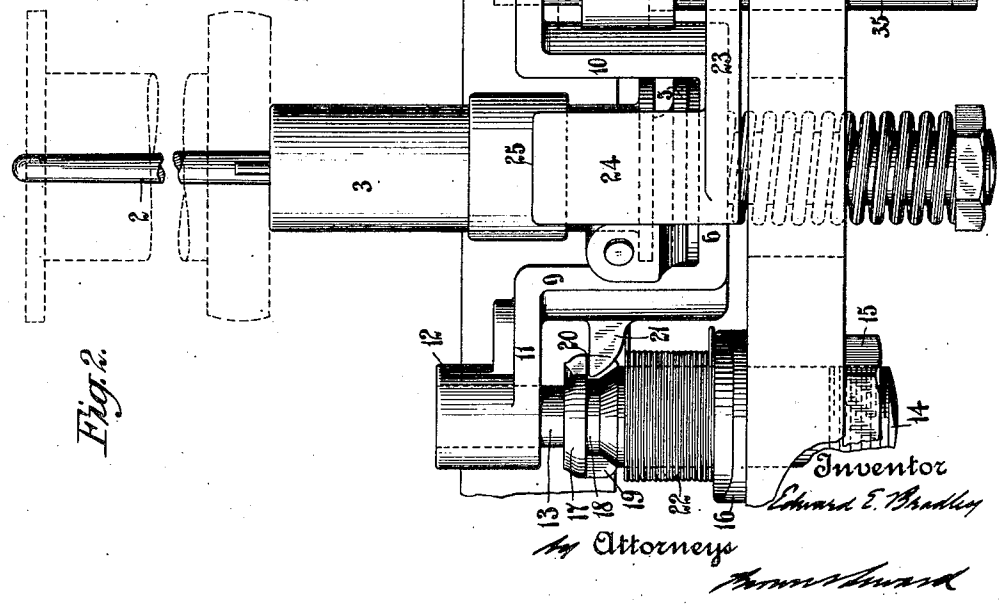


Fig. 2.

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Fig. 4.

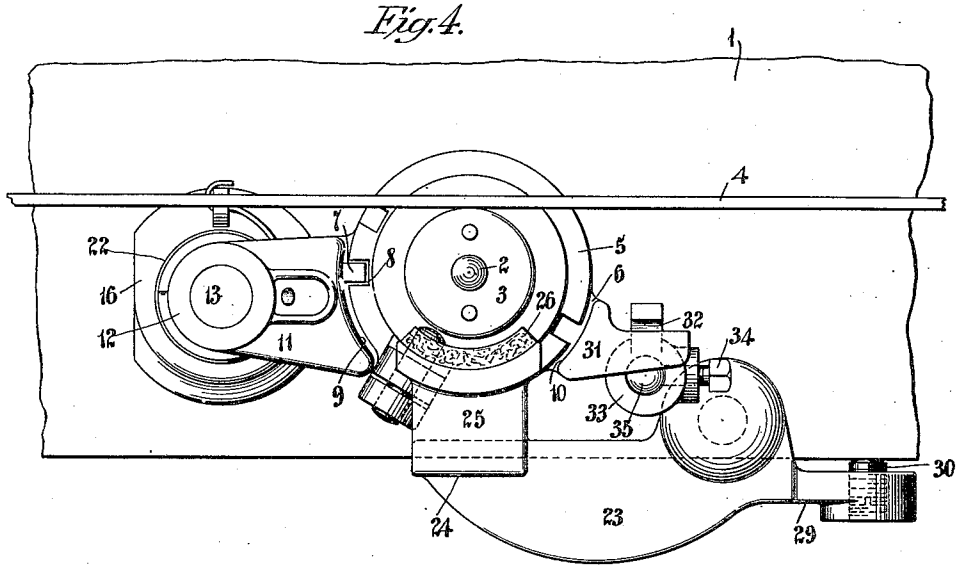
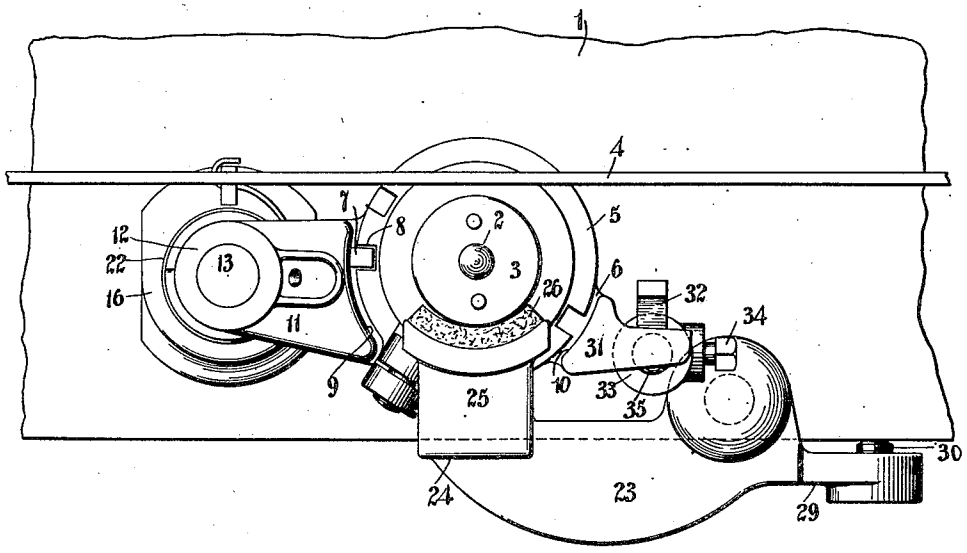


Fig. 5.



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Patented Feb. 5, 1924. 1,482,779

UNITED STATES PATENT OFFICE.

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

STOP MOTION.

Application filed August 26, 1922. Serial No. 584,427.

To all whom it may concern:

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

The object of my invention is to provide novel means for stopping the winding-up spools of a spinning machine in case the thread breaks.

In my invention a laterally movable winding-up spool carrying spindle is normally held in contact with its driving belt, a stationary brake being provided in proximity to the spindle and stop-motion controlled means being also provided for moving the spindle out of contact with its driving belt and into engagement with the stationary brake to stop the winding-up spool when the thread breaks.

Practical embodiments of my invention are represented in the accompanying drawings, in which—

Fig. 1 represents in cross section a portion of a spinning machine with one form of my invention applied thereto.

Fig. 2 represents in side elevation a spindle and its adjacent parts.

Fig. 3 represents a section taken in the plane of the line III—III of Fig. 1.

Fig. 4 represents a detail top plan with the spindle engaged with its driving belt.

Fig. 5 represents a top plan with the spindle engaged with its brake.

Fig. 6 represents a detail section, similar to Fig. 3, of a modified form.

The spindle rail of the spinning machine, herein shown as a ring spinner, is denoted by 1, the spindle which removably carries the winding-up spool by 2, the spindle whirl by 3 and the spindle driving belt by 4. The spindle bolster is denoted by 5 and it is suitably supported in the usual manner in a laterally movable spindle support 6. In the present instance this spindle support 6 is provided with a lug 7, located in a slot 8 of the bolster 5 to hold the bolster against rotary movement. The spindle support is herein shown as provided with oppositely arranged uprights 9 and 10, the upright 9 having a laterally directed arm 11 provided with a sleeve 12 fixed to a depending pivot pin 13, which pivot pin is inserted axially into a flanged bolt 14, the lower end of which bolt is inserted through the spindle rail 1, of the machine, a nut 15 being threaded on the lower end of said bolt for clamping the spindle rail between the flange 16 and the said nut. The upper end 17 of this stationary bolt 14 is provided with a groove 18 terminating in shoulders 19, 20, the shoulder 20 being located in position to engage a lug 21 projecting from the upright 9 of the spindle support for limiting the inward movement of the spindle support. By loosening the nut 15, the bolt 14 may be rotatively adjusted to bring the shoulder 20 into the desired position. The nut 15 may then be tightened. This serves as a means for adjusting the inward movement of the spindle support. A coil spring 22 surrounds the bolt 14, one end of which spring is engaged with the flange 16 and the other end of which spring is engaged with the upright 9. The said spring 22 acts to normally hold the whirl 3 of the winding-up spool carrying spindle 2 in driving contact with the belt 4.

A stationary brake is provided in position to engage the spindle whirl 3 to automatically stop the winding-up spool when the whirl is moved away from its contact with the driving belt 4 by the automatic action of the stop-motion, which brake comprises a bracket 23 provided with an uprising branch 24 having a lateral arm 25, the free end of which arm may be provided with a lining 26, forming a brake shoe normally spaced a short distance from the spindle whirl 3. A bolt 27 passing through the brake, bracket 23 and the spindle rail 1 is provided with a nut 28, between which nut and the bracket 23 the spindle rail is clamped. This bracket 23 is provided with an arm 29. A screw 30, carried by the arm 29 has its inner end engaged with the outer side of the spindle rail. By loosening the nut 28, the position of the brake shoe 26 with respect to the spindle whirl may be accurately adjusted by turning the screw 30. After the proper adjustment has been made, the nut 28 may be tightened to clamp the brake in said adjustment.

The stop-motion controlled means for automatically moving the spindle out of en-

gagement with its driving belt and into engagement with the stationary brake is constructed as follows:—

The upright 10 of the spindle support is provided with a lateral arm 31 which is located in the path of a cam 32, the sleeve 33 of which is adjustably secured by a set scerw 34 to the upper end of a vertically movable rod 35, which passes through the spindle rail 1 and beam 36 of the machine frame and is provided with a lateral arm 37 attached to the lower end of a vertically slidable rod 38. A spring 39 presses the rod 38 upwardly. The rod is held at the limit of its downward movement by a hook 40 forming part of a tripping mechanism 41, which hook engages a collar 42 on the rod 38. The tripping mechanism may be of well known and approved form and operates automatically when the thread breaks, to release the hook 40 and permit the spring 39 to lift the rod 38 and thereby the rod 35 to bring its cam 32 into operative engagement with the arm 31 of the upright 10 of the spindle support, to move the spindle support and thereby the spindle out of contact with the belt 4 and into contact with the brake shoe 26. Here again the position of the cam 32 with respect to the arm 31 can be adjusted to secure the desired outward swinging movement of the spindle support, it being remembered that the inward swinging movement of the said support is controlled by the coaction of the shoulder 20 and lug 21.

In the modified form, illustrated in Fig. 6, the vertically movable stop-motion controlled rod 35 has its upper end bevelled as shown at 32* to form a cam arranged to be brought into operative engagement with the lateral arm 31 of the spindle support.

It will be understood that the thread in the usual manner passes downwardly from the unwinding spools (not shown herein) through the eye 43 to and around the feed rolls 44, 45, and from thence through the ring travelers 46 onto the winding-up spools 47.

It is also to be understood that the twisting spindle might be of the flyer type but the invention is more particularly applicable to ring spinners of the general type in which the material to be twisted is fed downwardly by the delivery or feed rolls to the twisting spindle.

From the above description it will be seen that I have provided a very simple and compact means for automatically moving the spindle out of contact with the belt and into contact with the brake when the thread breaks, said means not interfering in any way with the usual mounting of the spindle in its bolster and the mounting of the bolster in its support. It will also be seen that I have provided very simple means for adjusting the movement of the spindle support and the position of the brake, whereby the best results may be obtained.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, hence I do not wish to be limited to the particular embodiments herein shown and described, but

What I claim is:—

1. A spindle driving belt, a stationary brake, a laterally movable spindle normally held away from the brake and in contact with the belt, and stop-motion controlled means for automatically moving the spindle away from the belt into engagement with the brake.

2. A spindle driving belt, a stationary brake, a laterally movable spindle normally held away from the brake and in contact with the belt, stop-motion controlled means for automatically moving the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

3. A spindle driving belt, a stationary brake, a laterally swinging spindle normally held away from the brake and in contact with the belt, and stop-motion controlled means for automatically swinging the spindle away from the belt into engagement with the brake.

4. A spindle driving belt, a stationary brake, a laterally swinging spindle normally held away from the brake and in contact with the belt, stop-motion controlled means for automatically swinging the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

5. A spindle driving belt, a stationary brake, a laterally movable spindle support, spring means acting thereon to normally hold the spindle away from the brake and in contact with the belt, and stop-motion controlled means arranged to act on the spindle support for automatically moving the spindle away from the belt into engagement with the brake.

6. A spindle driving belt, a stationary brake, a laterally movable spindle support, spring means acting thereon to normally hold the spindle away from the brake and in contact with the belt, stop-motion controlled means arranged to act on the spindle support for automatically moving the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

7. A spindle driving belt, a stationary brake, a laterally swinging spindle support, spring means acting thereon to normally hold the spindle away from the brake and in contact with the belt, and stop-motion

controlled means arranged to act on the spindle support for automatically swinging the spindle away from the belt into engagement with the brake.

8. A spindle driving belt, a stationary brake, a laterally swinging spindle support, spring means acting thereon to normally hold the spindle away from the brake and in contact with the belt, stop-motion controlled means arranged to act on the spindle support for automatically swinging the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

9. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, and a vertically movable stop-motion controlled rod arranged to act on the spindle support for automatically moving the spindle away from the belt into engagement with the brake.

10. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod arranged to act on the spindle support for automatically moving the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

11. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, and a vertically movable stop-motion controlled rod arranged to act on the spindle support for automatically swinging the spindle away from the belt into engagement with the brake.

12. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod arranged to act on the spindle support for automatically swinging the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

13. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, and a vertically movable stop-motion controlled rod having a cam engagement with the spindle support for automatically moving the spindle away from the belt into engagement with the brake.

14. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod having a cam engagement with the spindle support for automatically moving the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

15. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, and a vertically movable stop-motion controlled rod having a cam engagement with the spindle support for automatically swinging the spindle away from the belt into engagement with the brake.

16. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod having a cam engagement with the spindle support for automatically swinging the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

17. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod, and a cam carried thereby in position to engage the spindle support for automatically moving the spindle away from the belt into engagement with the brake.

18. A spindle driving belt, a stationary brake, a laterally movable spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod, a cam carried thereby in position to engage the spindle support for automatically moving the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

19. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod, and an adjustable cam carried thereby in position to engage the spindle support for automatically swinging the spindle away from the belt into engagement with the brake.

20. A spindle driving belt, a stationary brake, a laterally swinging spindle support normally held away from the brake and in contact with the belt, a vertically movable stop-motion controlled rod, an adjustable cam carried thereby in position to engage the spindle support for automatically swinging the spindle away from the belt into engagement with the brake, and means for adjusting the brake relatively to the spindle.

21. A spindle driving belt, a stationary brake, a laterally swinging spindle support, spring means acting thereon to swing the spindle into contact with the belt, adjustable means for limiting this movement of the spin-

dle, and stop-motion controlled means arranged to act on the spindle support for automatically moving the spindle into engagement with the brake.

22. A spindle driving belt, a stationary brake, a laterally swinging spindle support, spring means acting thereon to swing the spindle into contact with the belt, adjustable means for limiting this movement of the spindle, stop-motion controlled means arranged to act on the spindle support for automatically moving the spindle into engagement with the brake, and means for adjusting the brake relatively to the spindle.

In testimony, that I claim the foregoing as my invention, I have signed my name this seventeenth day of August, 1922.

EDWARD E. BRADLEY.