April 12, 1938. J. P. McHUGH 2,114,094

SWING SPINDLE ATTACHMENT FOR A SPINNING FRAME

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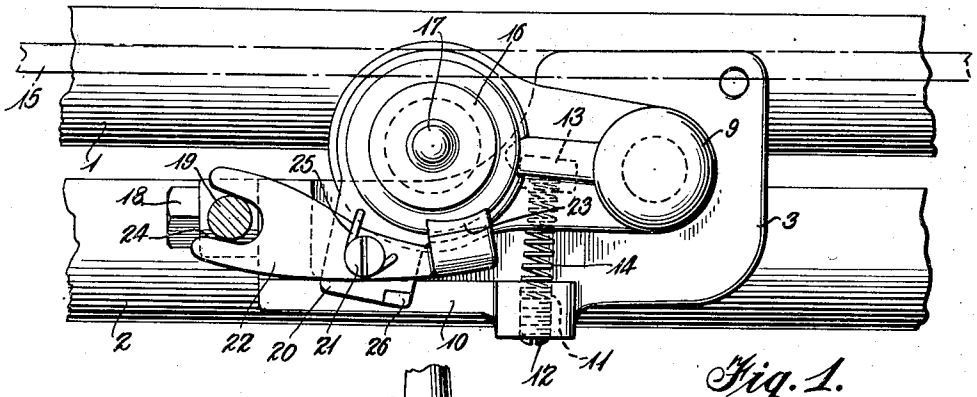


Fig. 1.

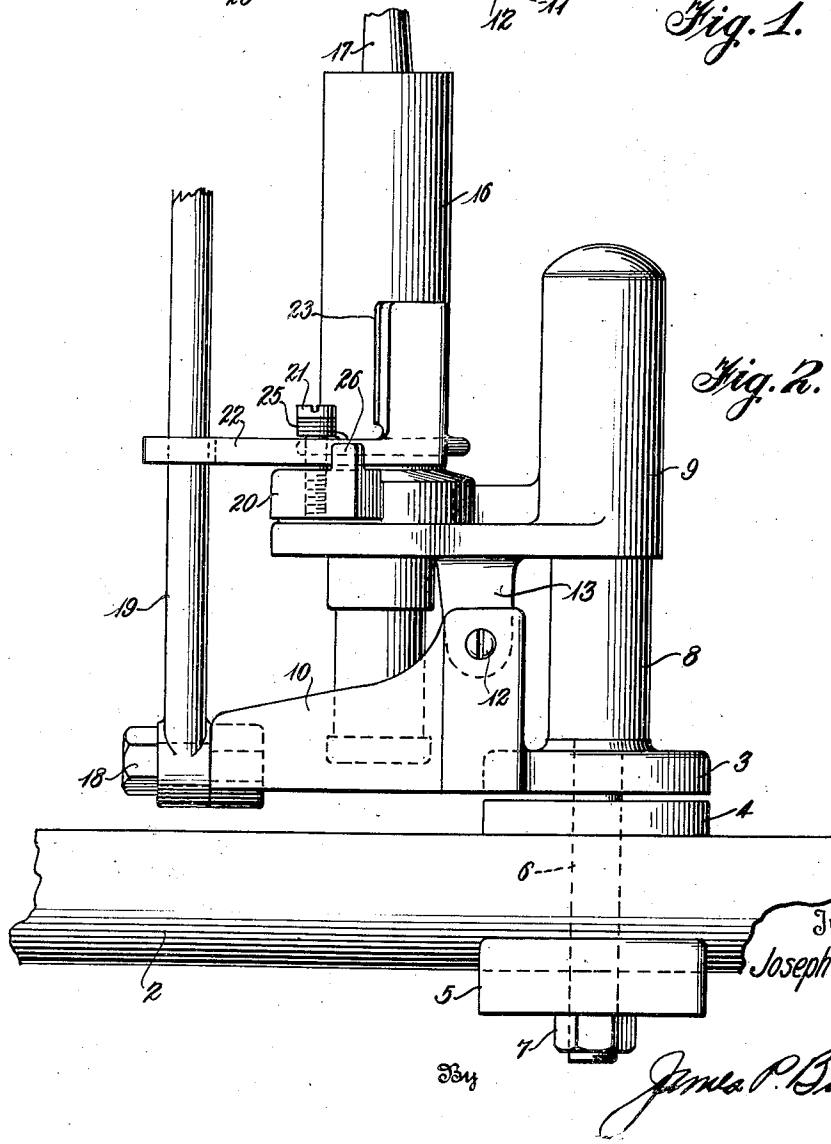


Fig. 2.

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SWING SPINDLE ATTACHMENT FOR A SPINNING FRAME

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20 Claims. (Cl. 118—6)

This invention relates to the provision of a novel and efficient swing spindle attachment for application to spinning frames.

The swing spindle attachment of the present invention is particularly well adapted for application to a silk throwing machine such as illustrated and described in United States Patent No. 2,044,621 issued to me June 16, 1936.

It is the purpose and object of the invention to devise a swing spindle attachment designed to effectively and efficiently cooperate with a stop motion mechanism of simple design. It is additionally an object of the invention to provide a swing spindle attachment embodying a positively actuated brake for the spindle whirl that is immediately applied upon initiation of movement of the stop motion mechanism.

Further and more detailed objects of the invention will become apparent as the description proceeds.

Referring to the drawing:

Figure 1 is a plan view of the novel swing spindle attachment conforming to the invention; and

Figure 2 is a view in side elevation with parts broken away.

Referring to the drawing, the spindle supporting rail embraces the two parallel spaced-apart tubular members 1 and 2. The swing spindle base is indicated generally at 3 and is held in fixed relation to the spindle rail bars 1 and 2 by the clamping members 4 and 5 that are clamped above and below the rods 1 and 2, respectively, through the medium of the bolt 6 having the clamping nut 7.

The base 3 is provided with an upstanding bearing member 8 adapted to be telescopically received within the cap-shaped bearing member of the swing 9. Additionally the base member 3 is provided at its forward edge with the upwardly extending wall 10. The wall 10 is provided with a spring seat 11 and an adjustable spring seat screw 12. The swing 9 is provided with a downwardly extending arm 13, and the coil spring 14 is adapted to be positioned intermediate the spring seat 11 in the wall 10 of the base member 3 and the arm 13 of the swing 9. The spring 14 functions to normally force the swing 9 toward the belt 15 and cause the whirl 16 of the spindle 17 to have driving engagement with the belt.

The end of the base member 3 opposite the bearing member 8 carries a pivotal support 18 for the stop motion rod 19. It will thus be observed that the stop motion rod 19 is adapted to swing outwardly with respect to the base member 3. (For the specific manner of movement of the stop motion rod 19, reference may be had to my issued Patent No. 2,044,621 and particularly to Figure 5 thereof.)

It is, of course, understood that the spindle 17 with its whirl 16 is carried by the swing 9. The specific construction of the spindle and the whirl and their manner of mounting on the swing are more or less conventional and have not been disclosed in specific detail.

Coming now to the brake actuating means, it will be observed that the swing 9 is provided forwardly of the spindle with a projecting lug 20. Threaded into the lug 20 is a pivoted bearing pin 21 on which is pivotally mounted a brake lever 22. The brake lever 22 carries the friction brake contact member 23 at one end thereof in position to be brought into contact with the whirl 16. The opposite end of the lever 22 is bifurcated as shown at 24 to receive the pivotally mounted stop motion rod 19. The small coil spring 25 functions to normally hold the brake member 23 disengaged from the whirl 16. The lug 20 may advantageously be provided with a stop member 26 which limits the backward movement of the brake lever 22.

The operation of the device is as follows: When the stop motion rod 19 is released because of the breaking of a thread, the stop motion rod 19 pivots about the pivotal mounting 18 moving outwardly with respect to the spindle bearing 8. During its initial movement, the rod 19 actuates the brake lever 22 about the pivot bearing 21 and immediately effects a contact between the brake member 23 and the whirl 16. Further pivotal movement of the stop motion rod 19 acts to carry with it the swing 9, causing the same to pivot about the bearing 8 and to move the whirl 16 out of contact with the belt 15. It will be observed that the lever 22, after the brake 23 contacts with the whirl 16, becomes a rigid extension projecting from the free end of the swing 9. When the stop motion rod 19 is returned to normal position, the spring 14 acts to again return the swing 9 to operative position, i. e., with the whirl 16 in driving contact with the belt 15, and the spring 25 acts to release the brake 23 from the whirl.

The present invention provides a positive brake actuating means that insures immediate actuation of the brake during the first movement of the stop motion rod. In ring spinning operations where the spindles are operating at excessively high speeds, it is important that the spindle be stopped immediately after a break occurs in a

thread. The mechanism of the present invention provides for the simple and expeditious attainment of this result through means that may be economically produced and installed. From the foregoing it will, therefore, be observed that I have devised a novel and efficient swing spindle attachment for spinning frames.

Having thus described my invention, what I claim is:

1. A swing spindle attachment for spinning frames of the character employing a continuously operating spindle driving belt comprising a base member adapted to be clamped to the spindle supporting rail, a spindle supporting swing member pivotally mounted on said base, a spindle carried by said swing, a brake pivotally mounted on the swing, and a stop motion rod adapted when released to automatically actuate said brake member to initially apply the brake to the spindle whirl and thereafter move the swing to free the whirl from the belt.

2. A swing spindle attachment for spinning frames of the character employing a continuously operating spindle driving belt embodying a spindle supporting swing member pivotally mounted with respect to the spindle supporting rail, a spindle carried by the swing member, a brake pivotally mounted on the swing member, and a stop motion rod adapted to have pivotal movement with respect to the spindle supporting rail, said stop motion rod and brake being so constructed that said stop motion rod when released acts to initially apply the brake to the spindle whirl and upon further movement to move the swing and free the whirl from the belt.

3. A swing spindle attachment for spinning frames of the character employing a continuously operating spindle driving belt comprising a base member adapted to be clamped to the spindle supporting rail, a spindle supporting swing member pivotally mounted on said base, a spindle carried by said swing member, a brake pivotally mounted on said swing member, a stop motion rod pivotally mounted on said base, and means on said swing member operatively associated with said brake and adapted to be engaged by said stop motion rod whereby, when said stop motion rod is released for pivotal movement, it acts through said means to apply said brake to the spindle whirl and to move the swing member to free the spindle whirl from the belt.

4. A swing spindle attachment for a spinning frame comprising a base member adapted to be held in fixed relation to the spindle supporting rail, said base member carrying a bearing member for the spindle supporting swing and also carrying a pivotal bearing for a stop motion rod, a spindle supporting swing mounted on said first mentioned bearing and a stop motion rod mounted on said second mentioned bearing, a brake positioned to be engaged with a spindle whirl on said swing, and means adapted on pivotal movement of said stop motion rod to pivotally move the spindle supporting swing and apply the brake to the spindle whirl.

5. A swing spindle attachment for a spinning frame comprising a spindle supporting member, a whirl, means for pivotally mounting said spindle supporting member, a brake member pivotally mounted on said spindle supporting member, and a stop motion rod adapted on initial movement to automatically apply the brake and on continued movement to swing said spindle supporting base.

6. A spindle attachment for a spinning frame comprising a swingable support for a spindle having a whirl, and a brake member mounted on said swingable support and movable into engagement with said whirl.

7. A spindle attachment for a spinning frame comprising a swingable support for a spindle having a whirl, a brake member mounted on said swingable support and movable into engagement with said whirl, and common means for moving both said swingable support and said brake member.

8. A spindle attachment for a spinning frame comprising a swingable support for a spindle having a whirl, a brake member mounted on said swingable support and movable into engagement with said whirl, and means for moving said swingable support through the mounting for said brake member.

9. A spindle attachment for a spinning frame comprising a movable support for a spindle having a whirl, a brake member mounted on said support and movable into engagement with said whirl, and means for first moving said brake member relative to said support and then moving said brake member and support together.

10. A spindle attachment for a spinning frame comprising a movable support for a spindle having a whirl, a brake member mounted on said support and movable into engagement with said whirl, and means for moving said support through the medium of said brake member.

11. A spindle attachment for a spinning frame comprising a movable support for a spindle having a whirl, a brake member mounted on said support and movable into engagement with said whirl, means for first moving said brake member relative to said support and then moving said brake member and support together, and means for causing the movement of the support to increase the braking action of the brake member.

12. A swing spindle attachment for spinning frames of the character employing a continuously operating spindle driving belt comprising a base member adapted to be clamped to the spindle supporting rail, a spindle support movably mounted on said base, a spindle carried by the support, a brake movably mounted on said support, and a stop motion rod adapted when released to automatically actuate said brake member to initially apply the brake to the spindle and thereafter move the support to free the spindle whirl from the driving belt.

13. A swing spindle attachment for spinning frames of the character employing a continuously operating spindle driving belt embodying a spindle supporting member movably mounted with respect to the spindle supporting rail, a spindle carried by said support, a brake movably mounted on said support, and a stop motion rod adapted to have pivotal movement with respect to the spindle supporting rail, said stop motion rod and brake being so constructed that said stop motion rod, when released, acts to initially apply the brake to the spindle whirl and upon further movement to move the spindle supporting member for freeing the spindle whirl from the belt.

14. A spindle attachment for a spinning frame comprising a spindle supporting member, means for movably mounting said spindle supporting member, a brake member movably mounted on said spindle supporting member, and a stop rod adapted on initial movement to automatically apply the brake and on continued movement to move said spindle supporting base.

15. A spindle attachment for a spinning frame

comprising a spindle supporting swing, a spindle having a whirl journaled on said swing, a brake member for said whirl, and a pivot for the brake member mounted on the swing adjacent the spindle.

16. A spindle attachment for a spinning frame comprising a spindle supporting swing, a spindle having a whirl mounted on said swing, a brake member for said whirl, and means for mounting said brake member on the swing to pivot about an axis parallel with the spindle axis.

17. A spindle attachment for a spinning frame comprising a spindle supporting swing, a spindle having a whirl journaled on said swing, a lug projecting laterally from the spindle supporting portion of the swing, a brake member for said whirl, and a pivot bearing for the brake member mounted on said lug.

18. A spindle attachment for a spinning frame comprising a spindle supporting swing, a spindle having a whirl journaled on said swing, a brake member for said whirl, a pivot for the brake member mounted on the swing adjacent the spindle, and means for first moving said brake member relative to said swing into engagement with said whirl and then, as a result of said engagement, moving said swing and brake member together.

19. A spindle attachment for a spinning frame comprising a spindle supporting swing, a spindle having a whirl journaled on said swing, a brake member for said whirl, means for mounting said brake member on the swing to pivot about an axis parallel with the spindle axis, and means for first moving said brake member relative to said swing into engagement with said whirl and then, as a result of said engagement, moving said swing and brake member together.

20. A spindle attachment for a spinning frame comprising a spindle supporting swing, a spindle having a whirl journaled on said swing, a lug projecting laterally from the spindle supporting portion of the swing, a brake member for said whirl, a pivot bearing for the brake member mounted on said lug, and means for first moving said brake member relative to said swing into engagement with said whirl, and then, as a result of said engagement, moving said swing and brake member together.

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