Sept. 2, 1924. 1,507,137

E. A. PERKINS

SPINDLE

Filed June 6, 1919

Fig. 5.

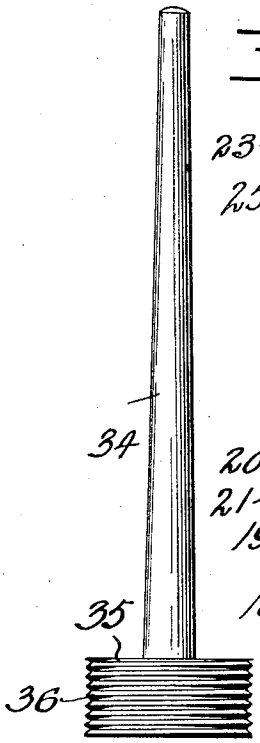


Fig. 4.

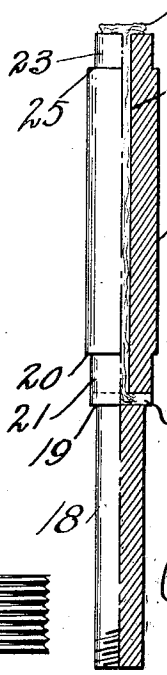


Fig. 1.

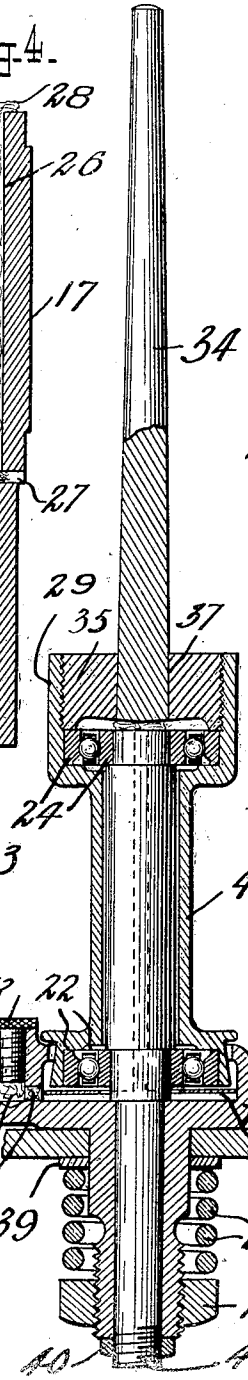


Fig. 3.

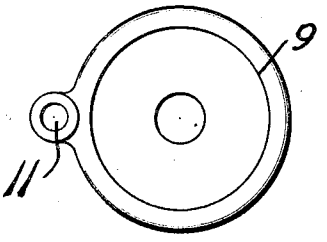


Fig. 2.

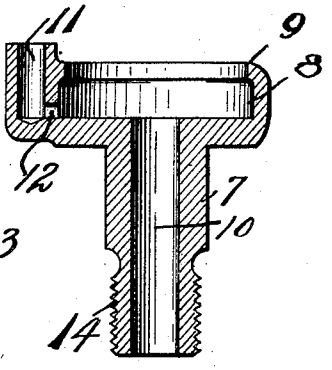
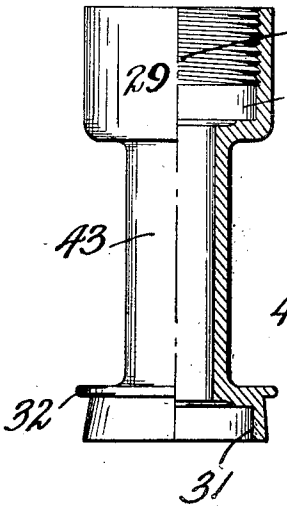


Fig. 6.



Edwin A. Perkins

INVENTOR

BY Clarence G. Campbell

his ATTORNEY

Patented Sept. 2, 1924. 1,507,137

UNITED STATES PATENT OFFICE.

EDWIN A. PERKINS, OF JAMAICA, NEW YORK.

SPINDLE.

Application filed June 6, 1919. Serial No. 302,173.

To all whom it may concern:

Be it known that I, EDWIN A. PERKINS, a citizen of the United States, residing at 74 Middletown Street, Jamaica, Long Island, in the county of Queens and State of New York, have invented certain new and useful Improvements in Spindles, of which the following is a specification.

This invention relates to silk spindles, and more particularly to that type of silk spindle which is called self-balancing.

Because of the combined speed and tremendous vibration caused to the silk spindle while in use on the silk spinning machine it has been impossible heretofore to mount said spindle on ball bearings as they would not stand the combined speed and vibration.

My spindle has solved the problem in a simple manner, and is so mounted as to overcome the continuous variation in the strain which throws the spindle minutely off the center, and allows the spindle to be driven at any required speed.

Referring to the drawings Fig. 1 is a vertical sectional view of my spindle. Fig. 2 is a vertical sectional view of the base portion. Fig. 3 is a top plan view of Fig. 2. Fig. 4 is a vertical view of the central post with a vertical portion cut away to show the lubricating means. Fig. 5 is a perspective of the blade member. Fig. 6 is a vertical view of the whirl with a portion cut away in order to show the construction.

In the drawings 7 is a base member which is adapted to be secured in the usual manner to the frame of a silk spinning machine. It has a cup-like oil containing cut out portion 8, which has a lip portion 9 of narrower diameter, and from the base of said cup member 8 through the center of the base member 7 is a boring 10. An oil filling member 11 is also bored in one portion of the base member 7, which is connected to the cup member 8 by means of a hole 12. The oil filling member 11 is covered by means of the plug 13. The lower end of said base member 7 is threaded at 14, and the spring 15 is adapted to fit loosely over the lower portion of the base member 7 and be held in position under tension by means of the nut 16 which is adapted to engage threads 14.

A central post or bolster 17 has a lower portion 18 adapted to fit into the boring 10 of the base 7. The central post 17 also has a shoulder 19 adapted to rest on the bottom of the cup member 8. The central post 17 also has a shoulder 20, and between 19 and 20 is a bearing 21 over which a ball bearing 22 of usual cage and inner and outer race construction is adapted to be placed so that it contacts against the shoulder 20. At the upper end of the central post 17 is a bearing 23 over which a second ball bearing 24 of the same construction as 22 is adapted to be placed resting on a shoulder 25 of the central post 17. Through the longitudinal axis of the central post 17 is a small boring 26, at the foot of which is a cross boring 27 connected therewith. In the longitudinal boring 26 is placed a wick 28.

A whirl 29 having cut out bearing faces 30 in the upper end, and 31 in the lower end is adapted to slip over the center post 17, the bearing face 31 being in contact with the ball bearing 22, and the bearing faces 30 in contact with the ball bearing 24. At the lower end of the whirl 29 is a circular flange 32, and at the upper end of the whirl 29 is an internal threading 33 to which a blade 34 is adapted to be rigidly secured by means of a plug 35, which is externally threaded at 36 and adapted to engage the internal threading 33.

The blade 34 is adapted to fit the plug 35 tightly so that it can be driven in to a snug fit at 37.

A baffle plate 38 having perforations to permit the oil to pass through slowly is fitted over the bearing 21 so as to prevent the oil in the cup member 8 from being thrown centrifugally when the spindle is traveling at high speed.

A washer 39 is adapted to fit over the lower end of the base 7, against which the spring 15 is adapted to rest on its upper end, and a nut 40 is adapted to screw on to the threaded portion 41 at the lower end of the central post 17.

A felt plug 42 is placed in the bottom of the oil filling chamber 11 so that the oil will run slowly.

The spindle is assembled by placing the ball bearing 22 in proper position on the bearing face 21, and sliding the lower member 18 of said central post 17 into the boring 10, so that shoulder 19 rests on the lower portion of the cup member 8. The whirl 29 will then be placed in position so that the bearing face 31 is over the ball bearing 22, and the ball bearings 24 can then be placed in position in the bearing face 30 over the bearing 23. The plug member 36 with the

blade 34 rigidly driven thereinto can be screwed into the head of the whirl 29. The spring 15 can then be placed in position over the washer 39 on the under side of the base member 7, and tightened into the position to be used by means of the nut 16.

The oil as it is poured into the oil filler 11 runs through the opening 12 into the cup 8, thence through the hole 27 to the wick 28, and by capillary attraction will be carried through the wick 28 and out at the top where it will flow down through the ball bearings 24 over the outer surface of the center post 17, thence through the ball bearings 22 into the cup 8 and through the holes 27 again, and will continue the circuit described as long as the oil lasts.

The central post 17 is secured to the frame of the silk spinning machine, so as to allow the spindle to re-center itself on the spring 15 as it is constantly being pulled from the exact center by the variation in the tension and belt pressure. The central portion of the whirl 29 designated as 43 is the portion where the belt of the spinning machine contacts with the whirl to drive it.

I claim:—

1. The combination in a self-balancing spindle of a central post adapted to be secured to the frame of a spinning machine, a base member under continuous downward spring tension, a whirl mounted thereon, ball bearings in planes one above and one below the band-pull, adapted to carry said whirl, and a blade rigidly secured to the whirl in combination with means for continuously lubricating said bearings, consisting of an oil cup in the base member and a horizontal channel in the central post connecting said cup with a vertical boring in the central post.

2. A spindle, an oscillatably mounted bolster, a socket therefor, a sleeve whirl surrounding said bolster and having diametrically enlarged portions above and below the driving band, ball bearings arranged within said enlarged portions of the whirl, said socket having a lubricant receiving chamber, means for automatically maintaining a continuous circulation of the lubricant between said chamber and the two bearings, and a baffle arranged in said chamber to prevent agitation of the lubricant.

3. A spindle, a bolster associated therewith, a socket member receiving the bolster and having a chamber for lubricant, a whirl lying about the bolster, bearing means disposed between the bolster and whirl and arranged to receive lubricant from said chamber, and means in the chamber to prevent agitation of the lubricant.

4. In a self-balancing spinning spindle a whirl, a blade carried thereby, said whirl being mounted on ball bearings in planes one above and one below the band-pull, a spring, a base member mounted on said spring and a central post therein, in combination with means for continuously lubricating said bearings, consisting of an oil cup in the base member and a horizontal channel in the central post connecting said cup with a vertical boring in the central post, and means for preventing the loss of lubricant from the path of circulation of the same.

5. The combination in a self-balancing spinning spindle, of a central post adapted to be secured to the frame of a spinning machine, a spring, a base member under continuous downward spring tension, a central post therein, a whirl mounted thereon, ball bearings in planes one above and one below the band-pull, adapted to carry said whirl, and a blade rigidly secured to the whirl in combination with means for continuously lubricating said bearings, consisting of an oil cup in the base member and a horizontal channel in the central post connecting said cup with a vertical boring in the central post, in which is mounted a wick, and means in said oil cup for preventing the loss of lubricant from the same.

In testimony whereof I affix my signature.

EDWIN A. PERKINS.