Oct. 25, 1932. H. E. HERR 1,884,684

FLYER FOR SPINNING MACHINES AND THE LIKE

Filed Aug. 7, 1931

Fig. 1.

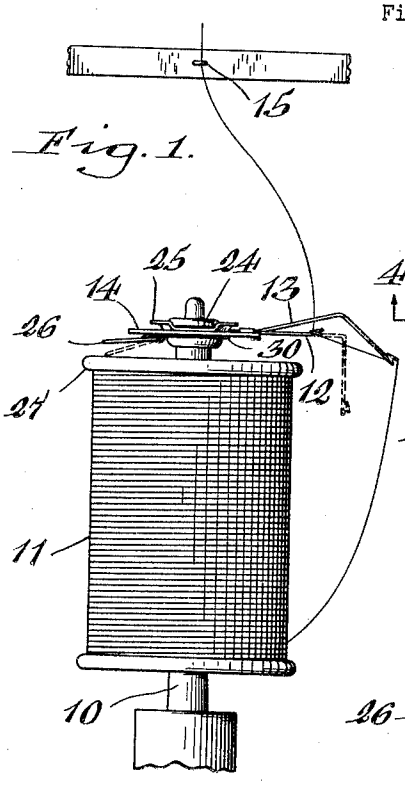


Fig. 2.

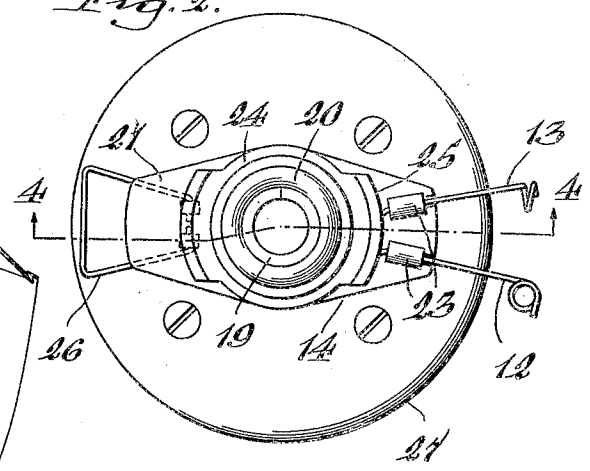


Fig. 3.

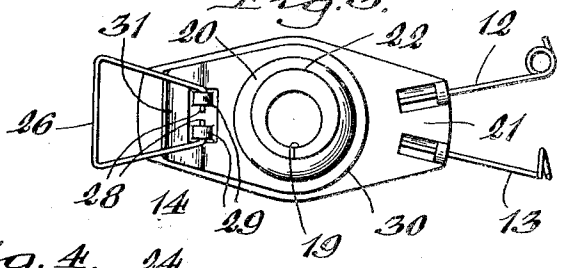


Fig. 4.

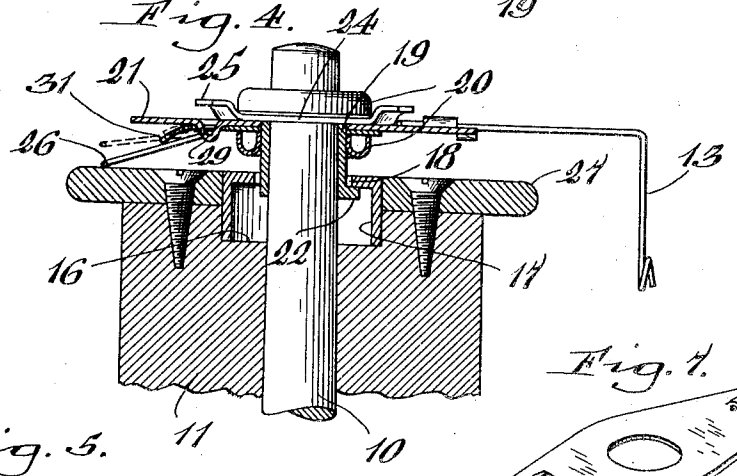


Fig. 5.

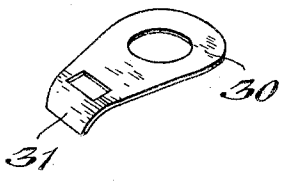


Fig. 6.

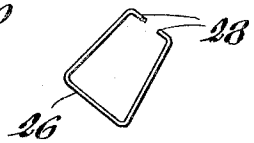
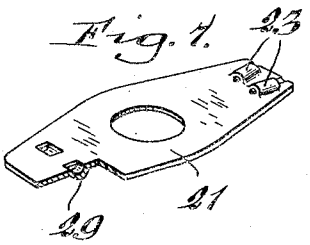


Fig. 7.



Inventor,
Harvey E. Herr
by Walter P. Lyon
Attorney.

Patented Oct. 25, 1932 1,884,684

UNITED STATES PATENT OFFICE

HARVEY E. HERR, OF BUFFALO, NEW YORK, ASSIGNOR TO HERR MANUFACTURING COMPANY, INC., OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK

FLYER FOR SPINNING MACHINES AND THE LIKE

Application filed August 7, 1931. Serial No. 555,705.

This invention relates to certain new and useful improvements in the flyers employed in connection with spinning machines and the like.

Its principal object is to provide the flyer with positive and effective means for preventing the flyer overrunning or continuing to revolve after the bobbin has come to rest, and thereby eliminate the many objections resulting from the overrunning of the flyer.

Another object of the invention is the provision of a flyer of this character having automatic braking or arresting means applied thereto which is designed to permit the normal free-running of the flyer but which will positively arrest its turning at substantially the same time the bobbin is brought to rest.

A still further object is to provide a brake-equipped flyer which is simple, compact and inexpensive in construction, which is reliable in operation, and which is not liable to get out of order.

In the accompanying drawing:—

Figure 1 is a fragmentary front view of a portion of a spinning machine showing my improved flyer applied thereto. Figure 2 is an enlarged top plan view of the flyer. Figure 3 is a bottom plan view thereof. Figure 4 is a fragmentary vertical section taken substantially in the plane of line 4—4, Figure 2. Figure 5 is a perspective view of the braking element spring. Figure 6 is a similar view of the braking element. Figure 7 is a similar view of the wire base.

Similar characters of reference indicate corresponding parts throughout the several views.

This invention is applicable to spinning machines of any suitable and well known construction, 10 indicating the bobbin spindle and 11 the take-off bobbin mounted thereon. The thread or yarn from the bobbin extends upwardly through the eyes of flyer wires 12, 13 mounted on a holder or flyer-body applied to the bobbin-spindle and indicated generally by the numeral 14, and thence upwardly through a guide or centering eye 15 to a driven take-up spool (not shown). The bobbin shown is of the type used with flyers of the eccentric type and has a recess 16 in its top containing an inverted cup-like member 17 having an opening 18 therein arranged eccentric to the axis of the bobbin-spindle.

While the flyer-body, which is revolvably mounted on the spindle 10, may be of any appropriate construction, that shown in the drawing, by way of example, is of the eccentric type and consists of an attaching sleeve or barrel 19 adapted for engagement with the tapered end of the spindle above the bobbin, a hub member or collar 20 fitted on the sleeve, and a base plate or spider 21 applied to the collar and to which the flyer wires 12, 13 are detachably connected. The sleeve 19 extends freely through the cup-opening 18 and terminates at its lower end in an eccentric flange 22 arranged to abut against the bottom of the top side of the cup-like member 17 in the operative position of the parts. As shown in Figure 2, the base plate has wire-retaining loops 23 formed therein which are adapted to receive the shanks of the flyer wires and applied to the collar 20 is a rotatable locking ring 24 having vertically-offset flanges 25 which overlap the bent inner ends of the wires and serve to deflect or spring such bent ends laterally to hold them against displacement in their retaining loops.

Applied to the flyer-body is a braking device which is adapted to frictionally contact with the adjoining portion of the bobbin 11 for arresting the rotation of the flyer relative to the latter and preventing its over-running the same. In the preferred construction of the braking device shown in the drawing, the same consists of a brake element in the form of a wire bail or loop 26 applied to the bottom side of the base plate 21 at one side of the flyer axis and pivoted at its inner end thereto to swing vertically into and out of frictional engagement with the head or cap-plate 27 of the bobbin. This brake element may be bent up into any desired shape and its inner or free ends preferably terminate in hinge-pintles 28 which detachably engage loops 29 pressed directly from the base plate of the flyer. As shown in Figures 1 and 4, the brake element is disposed substantially radially of the flyer and may be made so as to counter-balance the

flyer wires 12, 13. In order to yieldingly urge the brake element 26 into frictional contact with the bobbin-head 27, I preferably employ a flat spring 30 which is suitably attached to the underside of the base plate 21 and whose free end or bearing portion 31 is bent downwardly away from said plate and rests against the top side of the braking element adjacent its hinged end. This spring is comparatively light and when the bobbin is running at its normal speed, say 10,000 to 11,000 R. P. M., the centrifugal force urges the braking element upwardly against the resistance offered by the spring-end 31, to a substantially horizontal position against the underside of the base plate, where it is clear and free of the bobbin and does not in any way interfere with its normal operation. However, should the speed of the bobbin be lowered, as when stopping the machine, the braking element will gradually be urged by its spring to a downwardly, inclined position, until, at a predetermined speed of the bobbin, say about 4,000 R. P. M., it will contact gently with the top face of the bobbin-head and the resulting friction between the parts will cause the flyer to be arrested with that of the bobbin, the friction effect being increased as the speed of the bobbin is lowered.

By providing a braking device of this character, the flyer is positively and effectually prevented from over-running the bobbin, thereby eliminating the unwinding of the thread from the bobbin and the resulting formation of objectionable kinking of the thread.

I claim as my invention:—

1. A flyer for spinning machines and the like, comprising a body adapted for attachment to a bobbin-spindle, a brake element hinged to said body for movement into and out of frictional contact with the bobbin, and yieldable means for urging said brake element into frictional contact with the bobbin.

2. A flyer for spinning machines and the like, comprising a body adapted for attachment to a bobbin-spindle, a brake element hinged to the underside of said body for movement into and out of frictional contact with the bobbin, and a spring applied to said body and engaging the brake element for urging it toward the bobbin.

3. A flyer for spinning machines and the like, comprising a body adapted for attachment to a bobbin-spindle, a bail-shaped brake element hinged to said body for vertically-swinging movement toward and from the adjoining end of the bobbin, and a spring applied to said body and engaging the free end of said brake element for yieldingly resisting its movement out of contact with the bobbin.

4. A flyer comprising a wire-attaching base, means for connecting flyer wires at one side of the axis of said base, a brake element pivotally attached to the underside of the base at the opposite side of its axis, and a spring for urging said brake element to its operative position.

5. A flyer comprising a wire-attaching base having a hinge eye thereon, and a brake element hinged to said base for movement toward and from the same and terminating at its inner end in a pintle engaging said hinge eye.

6. A flyer comprising a wire-attaching base having a hinge eye thereon, a brake element hinged to said base for movement toward and from the same and terminating at its inner end in a pintle engaging said hinge eye, and a flat spring secured to the base and terminating at its outer end in a downwardly-bent bearing portion engaging the adjoining end of said brake element.

7. A flyer, comprising a wire-attaching base, means for connecting flyer wires to said base at one side of its axis, and a brake element pivoted to the underside of said base at the opposite side of its axis for movement toward and from the base.

8. The combination with a revolving spindle and a bobbin, of a flyer applied to the spindle above the bobbin and having flyer wires thereon, and an automatic brake element separate and independent of the flyer wires applied to said flyer between the same and the top side of the bobbin for frictional contact with the latter, said brake element clearing the top side of the bobbin at normal operating speeds and frictionally contacting with the bobbin at reduced speeds.

9. A flyer for spinning machines and the like, comprising a body adapted for attachment to a bobbin-spindle above the bobbin and having flyer wires thereon, and a speed-controlled brake independent of the flyer wires applied to said body, said brake consisting of a substantially radially-disposed element hinged to the underside of the flyer-body and including yielding means for urging it into frictional contact with the top side of the bobbin at low speeds and for permitting movement of the brake element out of frictional contact to clear the bobbin at high speeds.

HARVEY E. HERR.