Sept. 24, 1935. H. C. HERR 2,015,558

FLIER FOR SPINNING MACHINES

Filed Oct. 29, 1934

Fig. 1.

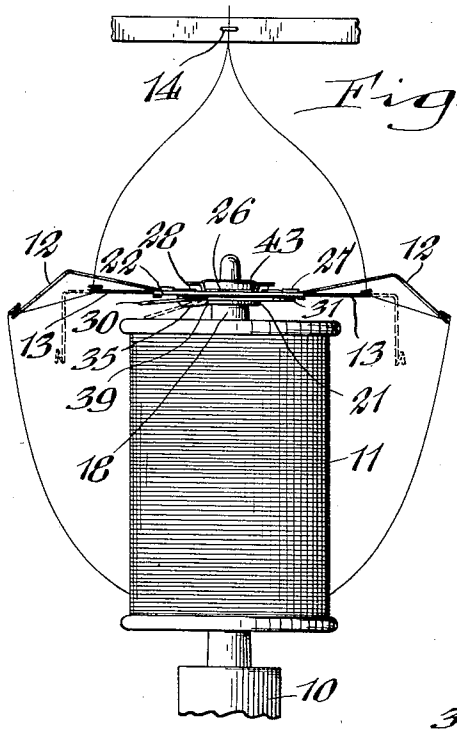


Fig. 2.

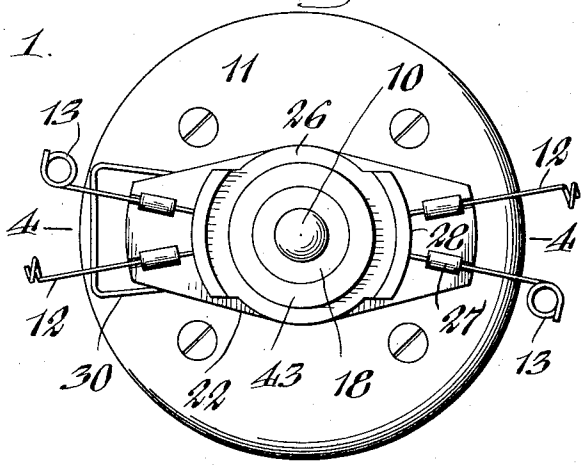


Fig. 3.

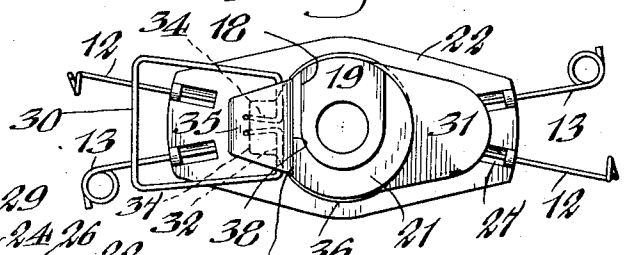


Fig. 4.

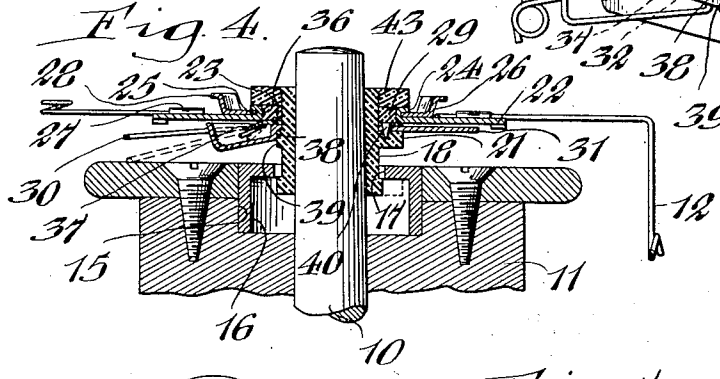


Fig. 8.

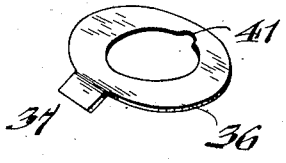
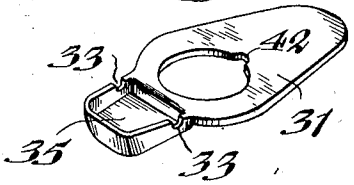


Fig. 7.



Fig. 6.



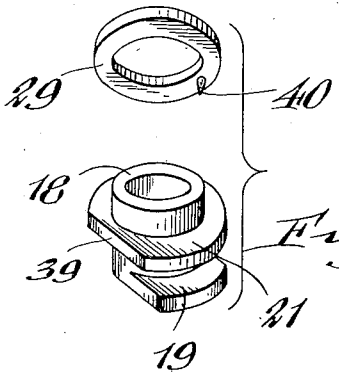


Fig. 5.

Inventor;
Henry C. Herr,
by Walter P. Gayer
Attorney.

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2,015,558

FLIER FOR SPINNING MACHINES

Henry C. Herr, Buffalo, N. Y., assignor to Herr Manufacturing Company, Inc., Buffalo, N. Y., a corporation of New York

Application October 29, 1934, Serial No. 750,463

18 Claims. (Cl. 117—26.5)

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

One of its objects is to provide a flier of this character having automatic braking or arresting means which is designed to permit the normal, free running of the flier but which will positively arrest its turning at substantially the same time the bobbin is brought to rest.

A further object of the invention is the provision of a brake-equipped flier which is simple, compact and inexpensive in construction and wherein the brake element is so mounted as to be effectually protected against breakage and against interference with the threads and at the same time limited in its downward or brake-engaging position.

A still further object is the provision of an efficient flier wherein its several parts may be quickly assembled and interlocked as a unit.

Other features of the invention reside in the construction and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawing:—

Figure 1 is a fragmentary front view of a portion of a spinning machine showing my improved flier positioned on the spindle. Figure 2 is an enlarged top plan view of the flier. 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 bearing sleeve and retaining washer. Figure 6 is a perspective view of the brake-carrying element. Figure 7 is a perspective view of the brake. Figure 8 is a similar view of the resilient brake-engaging element.

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 the flier wires 12, 13 mounted on a holder or flier-body applied to the bobbin-spindle and thence upwardly through a guide or centering eye 14 to a take-up spool (not shown). The bobbin shown is of the type used with fliers of the eccentric type and has a recess 15 in its top containing an inverted cup-like member 16 having an opening 17 therein arranged eccentric to the axis of the bobbin-spindle.

The flier-body preferably consists of an attaching sleeve or barrel 18 made of fiber or like material and adapted to be fitted over the spindle 10 above the bobbin. At its lower end this sleeve has an eccentrically-shaped flange 19 adapted to be passed through the cup-opening 17 during the application and removal of the flier to and from the spindle and its flange is arranged to abut against the underside of the cup-like member 16 in the operative position of the parts. Spaced above the eccentric flange is a substantially circular flange 21 and disposed above the latter and fitted about the sleeve 18 is a base plate or spider 22 to which the flier wires 12, 13 are detachably connected, the base plate being firmly and securely anchored to the sleeve to produce a practically unitary structure.

The base plate 22 is provided centrally thereof with an opening 23 about which is an outwardly-facing annular bead or flange 24 spaced from the top side of said plate to provide an annular groove 25 in which is disposed a rotatable locking ring 26. Stamped from the base plate near its opposite ends are wire-retaining loops 27 which are adapted to receive the shanks of the flier wires 12, 13 in the manner shown in Figures 2, 3 and 4. At its diametrically opposite sides, the locking ring has vertically-offset flanges 28 which overlap the bent inner ends of the flier wires in the locked position thereof, the vertical webs of the flanges serving to deflect or spring such bent ends of the wires laterally to hold them in their retaining loops 27. Secured by a pressed fit in the base plate opening 23 is a washer 29 which serves to anchor the base plate to the sleeve 18.

Applied to the flier-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 flier 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 30 hingedly suspended from a carrier plate or member 31 fitted about the sleeve 18 between its flange 21 and the base plate 22. The inner or free ends of this brake element terminate in transverse hinge-pintles 32 detachably fitted in upwardly-opening notches 33 formed in the carrier plate 31 and projecting outwardly from the opposing ends of such pintles are arms 34 which are housed within a pocket 35 formed on said carrier plate, as shown in Figures 4 and 6. Interposed between this carrier plate and the base plate 22 about the sleeve 18 is a washer 36 having a resili-

ent lip 37 overhanging the pocket 35 and bearing against the bail-arms 34 to constantly urge the bail 30 to swing downwardly into braking contact with the bobbin as well as yieldingly resist its upward swinging movement. These bail arms are deflected downwardly at a slight angle to the plane of the bail and abut against the bottom side of the pocket 35 to thereby limit the downward-swinging movement of the bail.

As shown in Figure 4, the pocket 35 projects downwardly below the plane of the carrier plate 31 and thus forms a shoulder 38 which abuts against a flat face 39 formed on the sleeve-flange 21 to prevent relative turning of said plate on the sleeve 18. To prevent turning of the base plate 22 relative to the sleeve, its anchoring washer 29 has a depending prong 40 which extends through alining openings 41 and 42 in the washer 36 and the bail-carrying plate 31, respectively, and which pierces or is driven into the sleeve-flange 21, as shown in Figure 4.

Applied to the top of the sleeve 18 above the flier-wire bearing plate 22 is a fiber washer 43 which acts to hold the parts 18, 31 and 36 as a unit on the sleeve, the upper end of the latter having its outer edge rolled over said washer to prevent its vertical displacement.

During the rotation of the bobbin 11 at its normal speed, the centrifugal force urges the braking element 30 upwardly against the resistance offered by the resilient lip 37 to a substantially horizontal position where it is clear and free of the bobbin and does not interfere with its normal operation. However, should the speed of the bobbin be lowered, as when stopping the machine, the braking element or bail will gradually be urged to swing downwardly by the spring lip 37 contacting the bail-arms 34, until, at a predetermined speed of the bobbin, the bail will contact gently with the top face of the bobbin and the resulting friction between the parts will cause the movement of the flier to be arrested with that of the bobbin, the friction effect being increased as the speed of the bobbin is lowered.

I claim as my invention:—

1. A flier for spinning machines and the like, comprising a flier-wire body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath and structurally independent of said body and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, and means for connecting said brake-carrying member with said body.

2. A flier for spinning machines and the like, comprising a flier-wire body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath and structurally independent of said body and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, said brake-carrying member having notches in its top side and said brake element having hinge-pintles seated in said notches, and means for connecting said brake-carrying member with said body.

3. A flier for spinning machines and the like, comprising a flier-wire body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath and structurally independent of said body and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, means for connecting said brake-carrying member with said body, and a washer-like member disposed between the brake-carrying member and the body and having a resilient portion thereon for engagement with the brake element to urge it into frictional contact with the bobbin.

4. A flier for spinning machines and the like, comprising a body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath said body and having a pocket at one side of the body-axis, and a brake element hinged to the pocket-side of said member for movement into and out of frictional contact with the bobbin and having hinge-pintles engaging said member and outwardly-facing arms housed in said pocket and arranged to abut against its bottom wall for limiting the movement of the brake element toward the bobbin.

5. A flier for spinning machines and the like, comprising a body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath said body and having a pocket at one side of the body-axis, a brake element hinged to the pocket-side of said member for movement into and out of frictional contact with the bobbin and having hinge-pintles engaging said member and outwardly-facing arms housed in said pocket and arranged to abut against its bottom wall for limiting the movement of the brake element toward the bobbin, and means engageable with the arms of said brake element for yieldingly urging the latter into frictional contact with the bobbin.

6. A flier for spinning machines and the like, comprising a body adapted for application to a bobbin-spindle, a brake-carrying member disposed beneath said body and having a pocket at one side of the body-axis, a brake element hinged to the pocket-side of said member for movement into and out of frictional contact with the bobbin and having hinge-pintles engaging said member and outwardly-facing arms housed in said pocket and arranged to abut against its bottom wall for limiting the movement of the brake element toward the bobbin, and a washer-like member interposed between the brake-carying member and the body and having a resilient lip thereon overhanging the arms of said brake element for yieldingly urging the latter into frictional contact with the bobbin.

7. A flier for spinning machines and the like, comprising a sleve adapted for attachment to a bobbin-spindle, a wire-base fitted to said sleeve, means formed integrally on said sleeve for preventing downward displacement of the wire-base thereon, and a washer applied to the sleeve above the wire-base and interlocked with said sleeve to prevent upward displacement of the wire-base thereon.

8. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having an integrally-formed, substantially annular flange below its upper end, a wire-base fitted to said sleeve above said flange, and a brake-carrying member structurally independent of the wire-base and disposed between said wire-base and said flange and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin.

9. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, a wire-base fitted to said sleeve above said flange, a brake-carrying member disposed between said wire-base and said flange and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, and means for

coupling the wire-base and the brake-carrying member to the sleeve, respectively, to provide a unitary structure therewith.

10. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, and a wire-base having an anchoring hub fitted thereto for engagement with said sleeve above its flange, said hub having a spur thereon for engagement with said flange to prevent relative turning of the wire-base on the sleeve.

11. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, a wire-base having an anchoring hub fitted thereto for engagement with said sleeve above its flange, said hub having a spur thereon for engagement with said flange to prevent relative turning of the wire-base on the sleeve, and a brake element hinged beneath said wire-base for movement into and out of frictional contact with the bobbin.

12. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, a wire-base having an anchoring hub fitted thereto for engagement with said sleeve above its flange, said hub having a spur thereon for engagement with said flange to prevent relative turning of the wire-base on the sleeve, and a brake-carrying member applied to said sleeve between its flange and said wire-base and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin.

13. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, a wire-base having an anchoring hub fitted thereto for engagement with said sleeve above its flange, said hub having a spur thereon for engagement with said flange to prevent relative turning of the wire-base on the sleeve, a brake-carrying member applied to said sleeve between its flange and said wire-base and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, and a washer-like element interposed between said wire-base and said brake-carrying member and having a resilient portion projecting therefrom for engagement with the brake element for yieldingly urging it toward the bobbin.

14. A flier for spinning machines and the like, comprising a sleeve adapted for attachment to a bobbin-spindle and having a substantially annular flange below its upper end, said flange having a flat portion thereon, a wire-base fitted to said sleeve above its flange, and a brake-carrying member disposed between said wire-base and said flange and having a brake element hinged thereto for movement into and out of frictional contact with the bobbin, said member having a shoulder thereon engaging the flat portion of said sleeve-flange to prevent relative turning of said member on the sleeve.

15. A brake attachment for the fliers of spinning machines, comprising a brake-carrying member having hinge-seats thereon and an abutment wall below the same, and a brake element hinged to said member and consisting of a wire bail having transverse hinge-pintles engaging said hinge-seats and arms projecting therefrom for engagement with said abutment wall to limit the movement of the bail in one direction.

16. A brake attachment for the fliers of spinning machines, comprising a brake-carrying member having hinge-seats thereon and an upwardly-opening pocket adjoining said seats, and a brake element hinged to said member and consisting of a wire bail having transverse hinge-pintles engaging said hinge-seats and outwardly-facing arms projecting from said pintles into said pocket, said arms being arranged to abut against the bottom wall of said pocket to limit the downward-swinging movement of the bail.

17. A brake element for the fliers of spinning machines, comprising a wire bail having transverse hinge-pintles at its inner end and arms projecting radially outward from said pintles.

18. A brake element for the fliers of spinning machines, comprising a wire bail having transverse hinge-pintles at its inner end terminating in radially projecting arms, said arms being disposed obliquely to the general plane of the bail.

HENRY C. HERR.