April 7, 1925. 1,532,282

A. C. VARNUM

THREAD GUIDING DEVICE FOR SPINNING FRAMES

Filed Dec. 31, 1923.

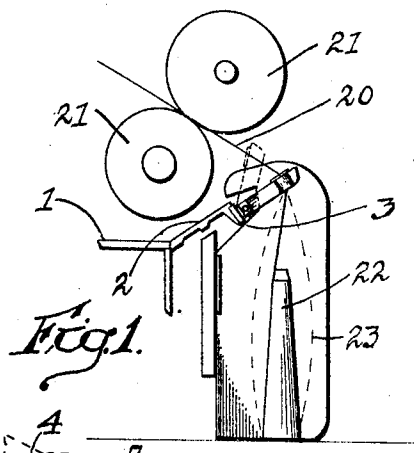


Fig. 1.

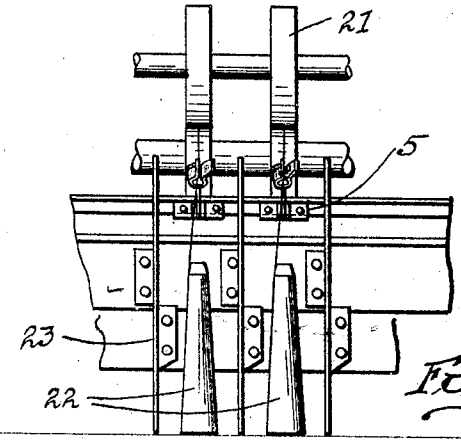


Fig. 2.

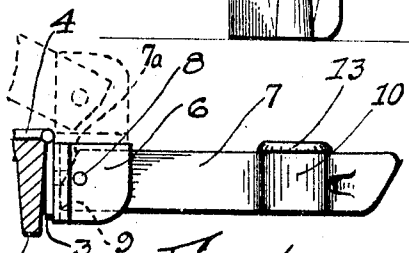


Fig. 4.

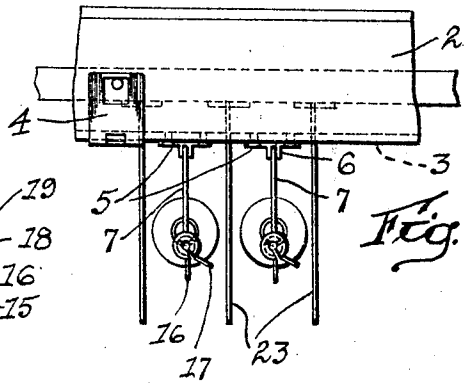


Fig. 3.

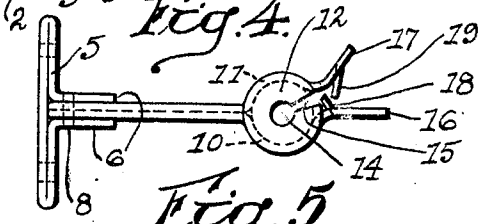


Fig. 5.

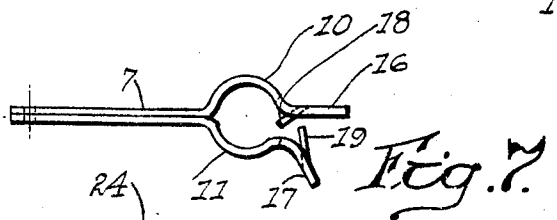


Fig. 7.

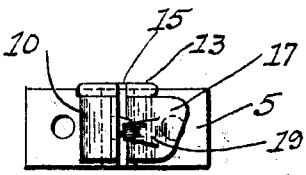


Fig. 6.

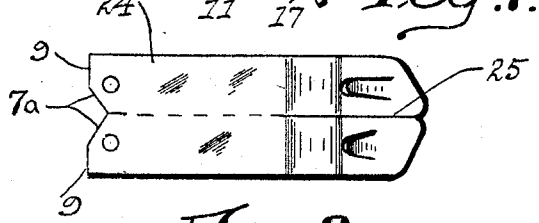


Fig. 8.

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UNITED STATES PATENT OFFICE.

ARTHUR C. VARNUM, OF SOUTHBRIDGE, MASSACHUSETTS.

THREAD-GUIDING DEVICE FOR SPINNING FRAMES.

Application filed December 31, 1923. Serial No. 683,700.

To all whom it may concern:

Be it known that I, ARTHUR C. VARNUM, a citizen of the United States, residing at Southbridge, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in a Thread-Guiding Device for Spinning Frames, of which the following, together with the accompanying drawings, is a specification.

My invention relates generally to spinning frames and has for its object to provide an improved thread guiding device which is particularly adapted for use in connection with cap spinning frames.

In my copending application Serial No. 542,675, filed March 10, 1922, there is shown and described, but not claimed, a pivoted thread guiding device for use in connection with an improved arrangement of separator plates, which latter provide the basis of the claims of said application. The present application seeks to cover the novel features of the thread guiding device shown in the above mentioned application, together with certain additional features hereinafter pointed out.

Among the advantageous results obtained by the use of my improved thread guiding device are the substantial elimination of double spinning and the collection of fly around the thread guides during the operation of the spinning frame, and the possibility of turning each thread guide independently of the others, while spinning, or of lifting all of the thread guides in unison, when doffing. A still further advantage of my improved construction resides in the provision of means whereby a thread is effectively prevented from accidentally coming out of its guide after once having been placed therein, especially when doffing. The above and other advantageous features of my invention will hereinafter more fully appear, reference being had to the accompanying drawings in which—

Fig. 1 is a view in end elevation of a spinning frame embodying my invention.

Fig. 2 is a view in front elevation of the parts shown in Fig. 1.

Fig. 3 is a plan view of the parts shown in Fig. 1.

Fig. 4 is an enlarged view in side elevation of one of my improved thread guides.

Fig. 5 is a plan view of the guide shown in Fig. 4.

Fig. 6 is a view in front elevation of the guide shown in Fig. 5.

Fig. 7 is a view similar to Fig. 5, looking at the underside of the thread guide.

Fig. 8 is a plan view of the sheet metal blank from which the thread guide is formed.

Like reference characters refer to like parts in the different figures.

Referring to Figs. 1 and 4, the roller beam of a spinning frame is indicated at 1, to which is secured a thread board 2. A lifter bar 3 is secured to the front edge of the thread board 2 by hinges 4, as best shown in Fig. 3. A plurality of brackets 5 are secured to the front face of the bar 3, each bracket 5 being preferably formed of a strip of sheet metal bent back on itself at either end to provide projecting ears 6. A thread guide or pot-eye holder 7 is pivotally mounted between each pair of ears 6 by means of a pin 8, the end of each holder 7 being bevelled at 7^a to provide a heel 9 which serves to maintain the holder 7 substantially parallel to the thread board 2, as indicated in Fig. 1.

As best shown in Figs. 4 to 7 inclusive, each holder 7 is provided near its free end with opposed semi-circular portions 10 and 11, which together provide a cylindrical seat for the reception of a guide or pot-eye 12 having a top flange 13 supported by the portions 10 and 11. Each pot-eye 12 is preferably formed of porcelain, or other similar smooth durable material, and is provided with a central thread opening 14 having a radial slot 15 communicating therewith.

The side portions of the holder 7 extend outwardly beyond the pot-eye seat to provide divergent wing portions 16 and 17, and as clearly shown in Figs. 5 and 7, the wing portions 16 and 17 are provided with inwardly extending barbs 18 and 19, respectively. The barbs 18 and 19 point inwardly toward the seat for the pot-eye 12 and are vertically displaced with respect to each other, as shown in Fig. 6. The barbs 18 and 19 are adapted to permit the entrance of a thread into the thread opening 14 of the pot-eye, but to prevent it from accidentally slipping out, especially when doffing, as will hereinafter appear.

Each pot-eye holder 7 normally occupies the position shown in Figs. 1 and 2, so that the pot-eye 12 is positioned to conveniently

receive the thread 20 from a pair of drawing rolls 21. The thread opening 14 in each pot-eye 12 is held substantially in alinement with the vertical axis of a cap 22 and its associated spindle, the thread 20 being shown as passing from between the rolls 21 through a pot-eye 12 to the cap 22.

With the above described arrangement, it is obvious that each holder 7 may be lifted about its pivot pin 8 into the position shown in dotted lines in Fig. 1 at any time during spinning, or all the holders 7 may be lifted in unison by turning the bar 3 on its hinges 4 when it is desired to doff the machine as a whole. When an individual holder is lifted, as shown in Fig. 1, the bevelled surface 7^a limits its upward movement so that it returns to its original position as soon as it is released, whereas, when all of the holders are lifted by the bar 3, as shown in dotted lines in Fig. 4, the holders will fall back into the position shown, and remain out of the way during the operation of doffing. It is also apparent that while a thread 20 may be readily passed between the inwardly projecting barbs 18 and 19 of the holder to position it in the thread opening 14, it will be practically impossible for a thread 20 to accidentally leave the opening 14, by reason of the fact that the barbs 18 and 19 would be sure to catch the thread. The divergent wing portions 16 and 17 of the holder guide the thread to the pot-eye seat from either side, the thread easily passing over the barbs 18 and 19 to enter the slot 15.

From an inspection of Fig. 3, it is apparent that the pot-eye holder 7 will collect little or no fly, or lint, during spinning, by reason of the fact that the holders 7 are spaced apart and present smooth surfaces. This open construction is much superior from this standpoint than prior constructions for cap spinning frames, in which the pot-eyes have usually been mounted on a continuous thread board. My elimination of a continuous thread board and the substitution of separate pot-eye holders therefor, also materially reduces the possibility of double spinning, owing to the fact that there is no continuous surface between adjacent pot-eyes upon which the broken end of a thread can pass from one pot-eye to another, thus allowing two ends to pass through one pot-eye to be spun together. When desired, separator plates 23 can be employed which extend between and above adjacent holders 7, as set forth in my above mentioned application, Serial No. 542,675.

Referring now to Fig. 8, there is shown a development of the sheet metal blank, from which one of my improved holders 7 can readily be formed, with a minimum amount of labor. The blank 24 is generally rectangular in form and is provided at one end with a centrally located cut 25. The portions of the blank 24 on opposite sides of the cut 25 are then suitably pressed to form the semi-circular portions 10 and 11, and wings 16 and 17, after which the prongs 18 and 19 are stamped out. The blank 24 is then folded along its middle, as indicated by the dotted line, to bring the folded portions into close engagement, in which position the portions 10 and 11 will be spaced apart to provide a cylindrical seat for the pot-eye 12, as clearly shown in Fig. 7.

From the foregoing it is apparent that by my invention I have provided an improved arrangement of the parts of a cap spinning frame, in which double spinning is substantially eliminated, the collection of fly or lint is reduced to a minimum, and whereby it is possible to lift the thread guides or pot-eyes, either separately during spinning, or in unison when doffing. Furthermore, my invention provides means for preventing the threads from coming out of the pot-eyes after once having been placed therein, especially during the operation of doffing.

I claim:

1. In a spinning frame, a pot-eye holder formed from a strip of sheet metal bent along a median line to provide portions in parallel planes, each of said portions being pressed out to provide oppositely disposed semi-cylindrical seats.

2. In a spinning frame or like machine, a pot-eye holder comprising a flat member hinged to a bracket, said flat member being disposed in a vertical plane, together with a substantially cylindrical wall extending from the flat member, said wall adapted to receive the pot-eye and said wall being broken away, and extensions thereof extending outwardly to form wings to guide the entrance of a thread.

3. In a spinning frame or like machine, a pot-eye holder comprising a flat member hinged to a bracket, said flat member being disposed in a vertical plane, together with a cylindrical wall extending from the flat member, said wall adapted to receive the pot-eye and said wall being broken away, extensions thereof extending outwardly to form wings to guide the entrance of a thread, and barbs on said extensions adapted to normally prevent the exit of the thread.

4. In a spinning frame or like machine, a pot-eye holder formed of strip metal, the strip metal being pressed to form two co-operating semi-cylindrical walls and being further pressed to provide wings for said walls to guide the entrance of a thread, and barbs on said wings adapted to normally prevent exit of the thread.

ARTHUR C. VARNUM.