April 3, 1956 W. E. BIERLIN 2,740,251

TWISTER HEAD TOP

Filed Dec. 3, 1952

Fig. 1.

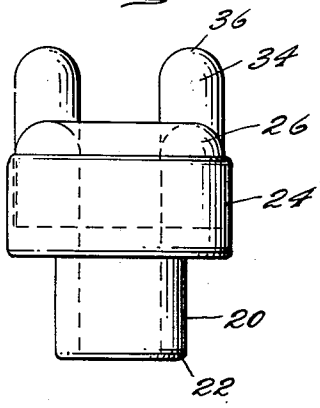


Fig. 4.

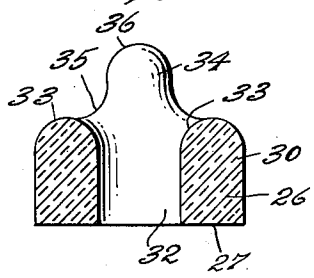


Fig. 5.

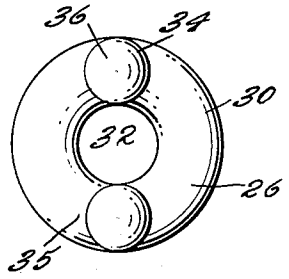


Fig. 2.

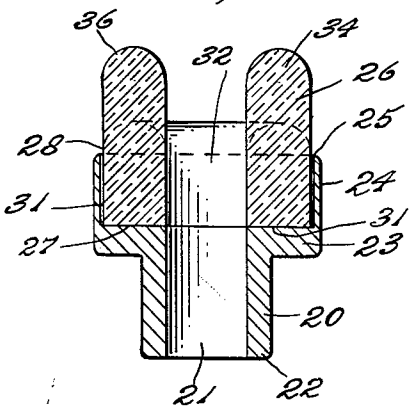


Fig. 6.

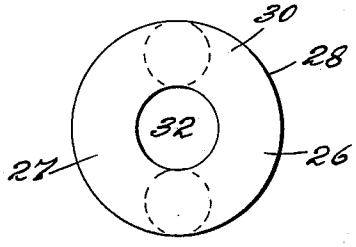
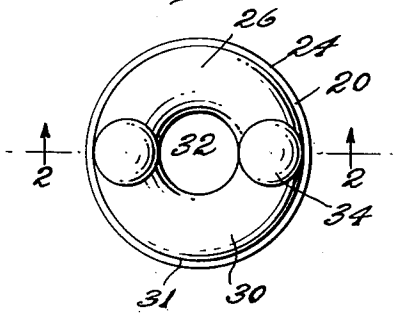


Fig. 3.



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2,740,251
TWISTER HEAD TOP

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Application December 3, 1952, Serial No. 323,900
2 Claims. (Cl. 57—77.30)

The present invention relates to a twister head top of the character suitable for use on twister heads employed in applying false twist to yarns being spun on spinning frames according to the woolen system.

A purpose of the invention is to increase the draft which can be obtained in spinning on the woolen system using spinning frames.

A further purpose is to reduce the wear on twister head tops.

A further purpose is to reduce the waste of short fibers in false twisting woolen yarns.

Further purposes appear in the specification and in the claims.

In the drawings I have chosen to illustrate one only of the numerous embodiments in which my invention may appear, selecting the forms shown from the standpoints of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 is a side elevation of the twister head top and mounting according to the invention.

Figure 2 is an axial section on the line 2—2 of Figure 3.

Figure 3 is a top plan view of Figure 1.

Figure 4 is a section of the twister head top of the invention without the mounting, the section being transverse to that of Figure 2.

Figure 5 is a top plan view of Figure 4.

Figure 6 is a bottom plan view of Figure 4.

Describing in illustration but not in limitation and referring to the drawings:

In spinning yarn on the woolen system using spinning frames, the roving passes through a twister head which rotates it and imparts false twist, usually by pulling the yarn over pins on the twister head.

In the prior art practice the top of the twister head has been made generally flat and the pins have extended up at right angles to the top.

Considerable wear has occurred both on the inner edge of the top and around the base of the pins.

This prior art practice has subjected the roving to a sharp bend almost at right angles where it engages the upper face of the top. A substantial amount of short fibers have dropped out in the process and it is well recognized that the amount of draft is limited.

I have discovered that the draft can be substantially increased, to the extent of at least 25 percent based upon my tests, if an adequate curvature is provided at the upper inner annular edge of the top and adequate merging curvature is provided in the zone of inflection between the upper face of the top and the pins and an adequate crown curvature is provided on the pins. I find that in each case these curvatures should be on a radius between 0.110 inch as a minimum and 0.210 inch as a maximum. I have also discovered that the amount of wastage of short fibers during the false twisting is reduced, and that the life of the spinner head top is increased.

In the drawing I illustrate a suitable metallic mounting **20** having a bore **21** through which the roving passes up at the center, a shank **22** which seats in the spinner head and is suitably anchored by a set screw, an outwardly shouldered portion **23** and an annularly upwardly directed flange **24** forming a socket **25** into which is seated a ceramic twister head top **26**. The twister head top is preferably of porcelain, although it may permissibly be of glass, preferably a hard glass.

The twister head top has a flat bottom **27** and cylindrical outer surface **28** on a body portion **30** which fits into and extends above the socket **25** and is united thereto by any suitable means, desirably adhesive at **31**.

The body portion is a ring and has an internal bore **32** which extends upwardly at the axis in prolongation of the bore **21** in the mounting.

One of the critical features of the top is the curvature at **33** on the inner and upper surface of the ring-like body. I find that in order to obtain the advantages of the invention this should be on a radius between 0.110 and 0.210 inch.

Extending in a direction parallel to the axis at diametrally opposite positions from the body are false twisting pins **34** suitably as wide as the ring thickness of the body. One of the important features of the invention is the curvature at **35** on the zone of demarcation there provided between the pins and the upper surface of the body. This again should be in the range of radius between 0.110 and 0.210 inch.

It is likewise important to have a curvature at **36** all around on the crown of the pins between 0.110 and 0.210 inch.

In operation therefore in accordance with the invention when the roving comes up through the bore **32** as the twister head and its top are turning about the vertical axis the roving is bent more gradually than in prior practice over the curved ring surface **33** on the inside of the body and the top of the body and is pulled over the zone of demarcation **35** at the base of the pin over a gradual curvature at that point and then pulled over the top of one of the pins on the gradual curvature at the crown.

Thus in accordance with the invention the amount of damage to the roving and the yarn due to pulling out short fibers is reduced, and the over-all draft can be increased by about 25 percent. There is less concentration of wear than in the prior art, and therefore the twister head top of the invention is advantageous because of longer life.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A twister head top comprising a ring-like body having a central bore, and pins extending parallel to the axis of the central bore at diametrally opposite positions from one end of the ring-like body, the pins having a width substantially equal to the ring thickness of the body, the ring-like body having in cross section through said axis of the ring a curvature at the end from which the pins extend and the inner corner of said end on a radius between 0.110 and 0.210 inch, the pins merging with the body in curves at the place where the pins extend from the body, which have a curvature on a radius between 0.110 and 0.210 inch and the pins having at their ends remote from the body curves on a radius between 0.110 and 0.210 inch.

2. A twister head top according to claim 1 which is of ceramic material.

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