

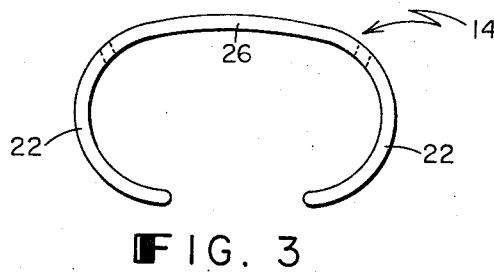
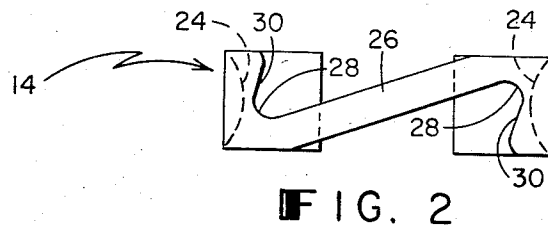
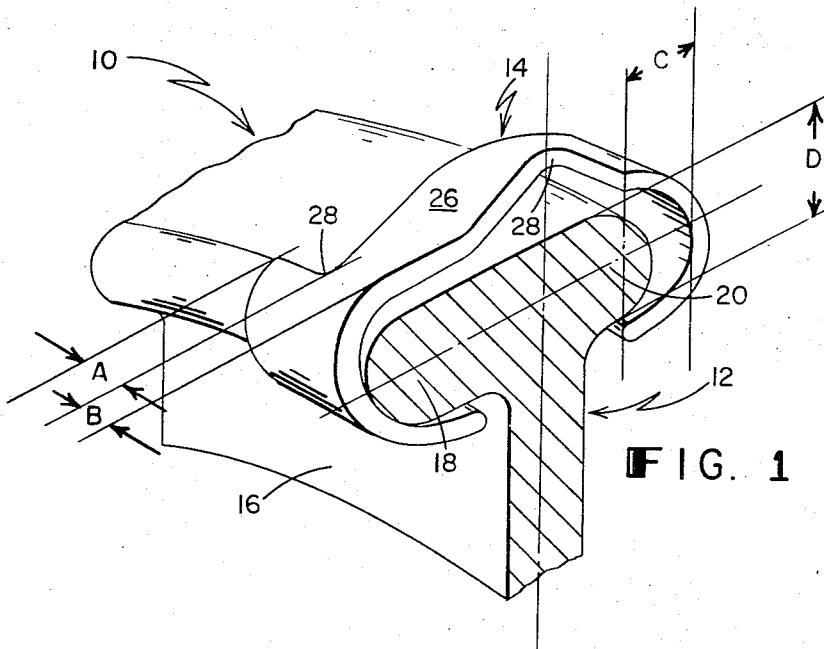
Aug. 29, 1967

K. C. CHILPAN

3,338,044

TRAVELER

Filed April 27, 1966



1

3,338,044
TRAVELER

Kurt Constantine Chilpan, Seneca, S.C., assignor to Marent Corporation, Chicago, Ill., a corporation of Illinois

Filed Apr. 27, 1966, Ser. No. 545,598
7 Claims. (Cl. 57-119)

This invention relates to the art of spinning and twisting yarns and more especially, to a novel traveler for use with a twisting ring for processing such yarn. Although the term twisting is used herein, it should be understood that such term is employed in its broadest sense and is intended to include the spinning process as well.

Heretofore, various attempts have been made to control and stabilize the position of the traveler during its flight as by increasing the bearing surface area between the ring and traveler and by providing a recess in the top of the traveler for accommodating the yarn in order to reduce the leverage exerted on the traveler by the yarn as disclosed in U.S. Patent No. 478,256 to S. S. Fowler, dated July 5, 1892. These attempts have been only partially successful inasmuch as the final operating position of the traveler is still subject to a balancing of various forces such as the tension of the balloon forming by the yarn and the tension exerted when winding the yarn onto the bobbin. It is generally accepted by those having skill in the art, that if the above condition could be maintained constant, a wider traveler providing the increased bearing surface would be preferable, however, the added width increases the leverage exerted by the yarn on the traveler and permits the traveler to reposition itself by tipping to one side. This has a deleterious effect on both the ring and traveler resulting in increased wear to both, and where the tipping becomes excessive, the traveler becomes overheated and loses its temper and hardness thereby increasing maintenance cost due to worn traveler replacement. Further, a traveler that is tilted, decreases the space for yarn passage between the ring flange and the traveler and in order to compensate for this, ring manufacturers have found it necessary to sacrifice valuable bearing area from the flange or use a narrow traveler in order to insure that an adequate space for the yarn is maintained at all times.

It is therefore the primary object of the invention to overcome the above difficulties by providing a novel traveler having a yarn receiving recess along at least one edge thereof positioned from an adjacent bearing surface of the traveler a distance up to, but not substantially exceeding one half the vertical thickness of the ring flange and extending at least one half the width of the top connecting portion, thus, substantially reducing leverage exerted by the yarn on the traveler and in turn reducing tipping of the traveler that usually results from such leverage thereby permitting use of the wider and more desirable traveler in the twisting operation.

It is another object of the invention to provide a novel traveler which runs in a substantially upright position, thus permitting use of the full bearing area of the twisting ring associated therewith.

It is also an object of the invention to provide a more stable traveler having a lower center of gravity in which the mass in the bearing areas of the traveler has been increased.

It is a further object of the invention to provide a novel traveler in which the yarn is positioned in the recess provided therefor, thus, preventing fusing of the yarn in spinning and twisting of synthetics by maintaining the same in a predetermined position away from the heated bearing surfaces.

Other objects and advantages will become apparent

2

as the description proceeds when taken in conjunction with the accompanying drawings in which:

FIG. 1 is an enlarged diagrammatic perspective illustration in section of a traveler and ring according to the invention;

FIG. 2 is a top view of the traveler according to the invention; and

FIG. 3 is a side view of the traveler according to the invention.

Referring now to the drawing, the numeral 10 generally denotes the twisting ring 12 and the novel generally elliptical traveler 14 carried thereby. The ring 12 includes the usual upstanding annular web 16 and an upper horizontal flange having inwardly extending bearing portions 18, 20, respectively, of arcuate cross section.

Turning now to the novel traveler 14 of the invention, the same includes a pair of opposed intumed arcuate leg members 22, the inner portions of which serve as bearing surfaces to slidably engage the bearing portions of said twisting ring. These bearing surfaces of the traveler may be rounded slightly as illustrated at 24 in FIG. 2, however, this surface should be maintained as nearly flat as possible in order to insure a large contact area with the ring thus providing for a longer traveler life and better heat dissipation. A top connecting portion 26 which connects the leg members is provided with a yarn receiving recess 28 on each side thereof at a point closely located to the respective leg member 22. Each of these recesses are identical and therefore only one will be explained in detail. It should be understood that a single recess is sufficient to accomplish the desired result and the second recess is provided for symmetry and balance of the traveler as well as for ease in installing. Further, the recess may be arranged to accommodate either S or Z twist yarn, with the traveler illustrated being utilized for S twist yarn.

The location of the recess 28 with respect to the inner bearing surface of the adjacent leg member is critical. Its location may be varied slightly to take into consideration ring size, traveler weight and/or intended use, however, I have found that the maximum distance C (FIG. 1) of the recess from the inner bearing surface of the leg portion should not substantially exceed one half of the vertical thickness D of the twisting ring associated therewith. In most instances, the optimum distance C will be less than the maximum defined above. If the location of the recess is extended beyond this maximum distance, the traveler becomes unstable and will not operate in an acceptable manner.

Also, the edges of the recess may be inclined at an angle for yarn cleaning purposes, if so desired. The side 30 of the recess is angled slightly toward the leg member 22 in order to assist in retaining the yarn therein. This is important in the processing of synthetics in that it assists in holding the yarn in its predetermined position thereby obviating the possibility of the yarn contacting the heated bearing surfaces and becoming fused.

The extent A of the recess 28 into the top connecting portion is also important in that it determines the amount of leverage exerted by the yarn on the traveler, i.e., as the depth of the recess should be restricted only by the properties of the material employed in the traveler, therefore, the distance A in FIG. 1 is preferably greater than remaining portion B of the top connecting portion although in some instances, these distances may be equal.

As indicated earlier, the employment of such a deep recess in a traveler which is specifically positioned in the manner set forth above permits the use of a more desirable wide traveler having a longer life. This is especially true since, in a traveler having a specific weight, the mass of the material removed from the recesses may be added

to the traveler bearing areas for increased life and stability.

The employment of such a yarn receiving recess to increase stability also permits use of the entire bearing area of the twisting ring. As far as I am aware, this has not been possible prior to my invention in the spinning and twisting operations of today where spindle speeds of 15,000 r.p.m. and above are becoming more common.

Having described the preferred embodiment of my invention, it is understood that other constructions and configurations, obvious to those skilled in the art, are incorporated within the spirit of the invention as defined in the following claims.

I claim:

1. In a twisting ring and traveler for guiding and twisting a textile yarn, the combination with a twisting ring having an up-standing annular web with an upper flange having radially inwardly and outwardly extending portions of arcuate cross section of a generally elliptical traveler including a top connecting portion and an axially extended opposed arcuate running surface positioned inwardly adjacent the horns of said traveler at each end of said top connecting portion, said top connecting portion of said traveler being provided with a recess along at least one edge thereof positioned from the innermost of said running surfaces a distance up to but not substantially exceeding one half the vertical thickness of said upper flange whereby said yarn is engaged in said recess during winding thereof.
2. The combination as claimed in claim 1 wherein said recess extends from said edge to at least the center of said top connecting portion.
3. The combination as claimed in claim 1 wherein said recess extends from said edge to a point beyond the center of said top connecting portion.
4. The combination as claimed in claim 1 wherein the other edge of said top connecting portion is provided with a similar recess.
5. The combination as claimed in claim 4 wherein the second mentioned recess is positioned adjacent the other of said running surfaces whereby said traveler is symmetrical.
6. A traveler for use with a twisting ring having a horizontal flange,

said traveler including a top connecting portion having an inwardly curved leg portion at either end thereof forming a pair of opposed arcuate running surfaces for engagement with said flange,

said top connecting portion being provided with a recess along at least one edge thereof closely adjacent one of said leg portions, said recess extending from said edge to a point beyond the center of said top connecting portion whereby the leverage exerted on said traveler by a yarn engaged in said recess is substantially reduced.

7. In a twisting ring and traveler for guiding and twisting a textile yarn, the combination with a twisting ring having an up-standing annular web with an upper flange having radially inwardly and outwardly extending portions of arcuate cross section of a symmetrical generally elliptical traveler including a top connection portion and an axially extending opposed arcuate running surface positioned inwardly adjacent the horn of said traveler at each end of said top connecting portion, each side of said top connecting portion of said traveler being provided with a yarn receiving recess, one of said recesses being positioned adjacent the innermost of said running surfaces and the other of said recesses being positioned adjacent the outermost of said running surfaces a distance up to but not substantially exceeding one half the vertical thickness of said upper flange, said recesses extending at least one half the width of said top connecting portion whereby the leverage exerted by said yarn on said traveler during winding is substantially reduced.

References Cited

UNITED STATES PATENTS

478,256	7/1892	Fowler	57—125
778,923	1/1905	Trowbridge	57—125
1,735,469	11/1929	Morin	57—125
1,743,263	1/1930	Bowen	57—125

FRANK J. COHEN, *Primary Examiner.*
 W. H. SCHROEDER, *Assistant Examiner.*