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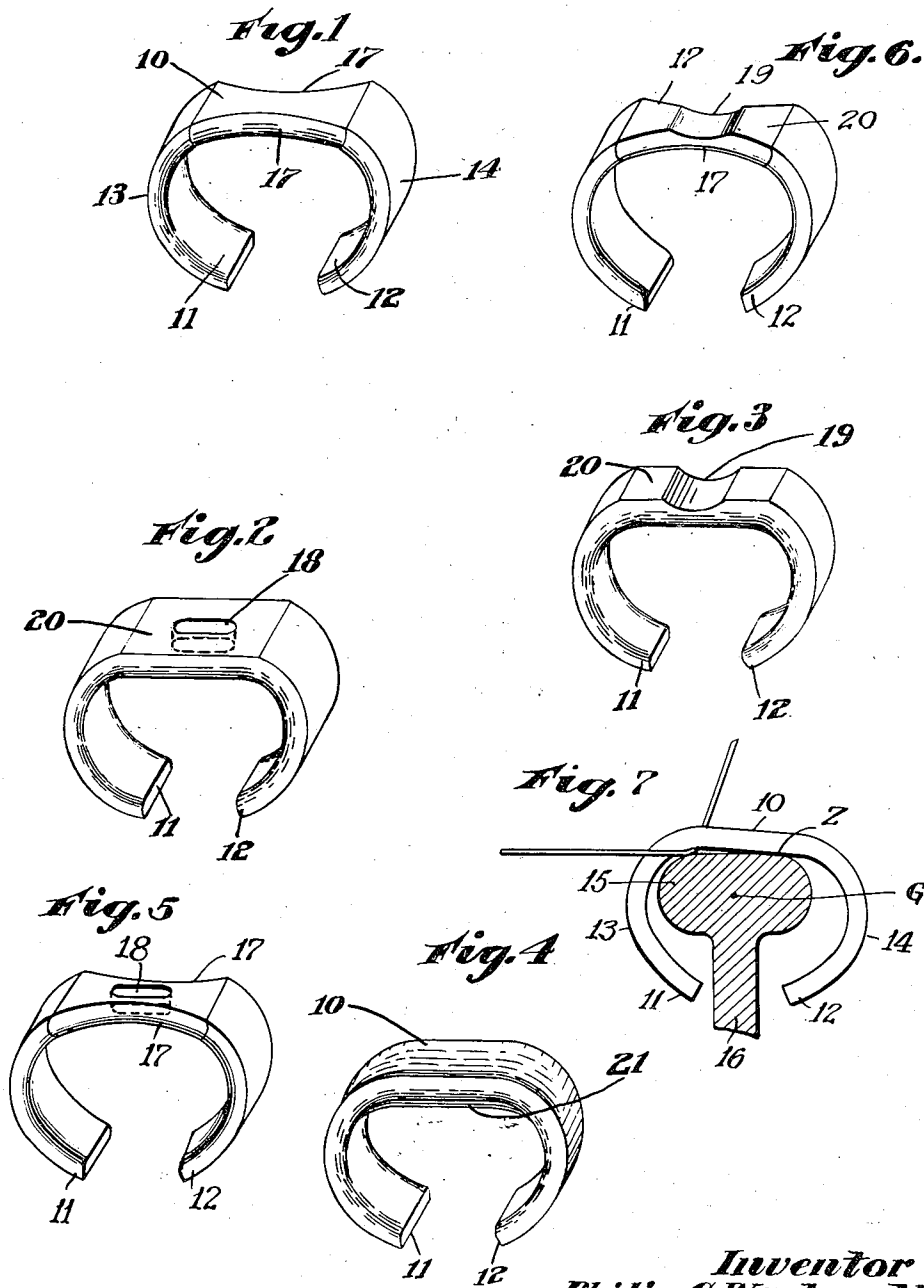
P. C. WENTWORTH

1,990,358

RING TRAVELER

Filed Jan. 18, 1934

2 Sheets-Sheet 1



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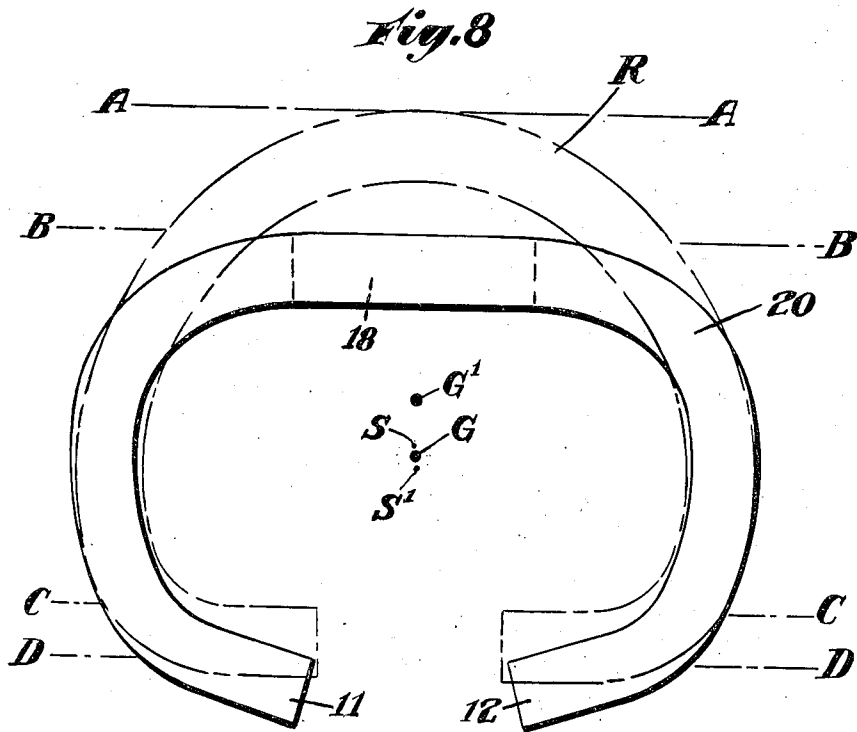
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,990,358

RING TRAVELER

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Application January 18, 1934, Serial No. 707,116

4 Claims. (Cl. 118—61)

This invention relates to ring travelers of the type used in ring spinning or twisting. Such travelers are used on a spinning or twisting ring having a horizontal flange.

5 The tendency of the industry has been constantly towards greater spindle speeds. As spindle speeds have increased the traveler has necessarily been required to operate at higher surface speeds. The matter of traveler balance has therefore become increasingly important, for unless the
10 traveler is in balance, it "drags" rather than "floats" the ring.

Stroboscopic examination of travelers heretofore considered standard in the art has shown the
15 traveler to be badly out of balance, riding high on the ring with all the wear coming between the innermost traveler horn and the adjacent edge of the ring flange, due to the fact that the center of gravity of such travelers was not low enough
20 to bring yarn tension and centrifugal force into substantial counterbalance.

Various proposals for improving traveler performance have been made, all looking towards bringing the traveler into better balance by definitely lowering the center of gravity of the traveler.
25 I have myself patented several travelers heretofore wherein a substantial lowering of the center of gravity was achieved by reducing the amount of metal in the traveler bow. See my prior Pat-

30 ents No. 1,415,069 of May 9, 1922; No. 1,512,254 of October 21, 1924, and No. 1,663,289 of March 20, 1928.

The travelers illustrated in said patents are the so-called "regular circle" traveler with characteristically high center of gravity. By reducing the amount of metal in the bow of such a traveler, I succeeded in lowering the center of gravity to a point substantially corresponding to the geometrical center or center of symmetry of the
40 traveler.

There is however a practical limit beyond which it is impossible to go in respect to reduction of weight in the bow area, so that any further lowering of the center of gravity of the traveler must
45 be otherwise accomplished.

This I do in my present invention by a combination of factors each mutually contributing to the desired result, viz, the lowering of the center of gravity to a point which is quite decidedly lower
50 than any point possible to obtain in my prior patented travelers, thus to impart to the traveler a stability of equilibrium and counter-poise which enables it to assume a more truly gyroscopic or floating position on the ring and to traverse
55 the ring with the minimum of frictional contact.

According to my present invention I lower the center of gravity of the traveler to a new low point both by reducing the amount of metal in the bow and by definitely dropping or lowering both the bow and the horns or terminals of the traveler. 5

As a result, the center of gravity of my traveler is lowered to a point within the ring flange, instead of above it as heretofore, and I establish as the principal zone of wearing contact between the traveler and the ring a zone of momentary contact between the under face of the traveler bow and the top face of the ring flange, substantially to the exclusion of any wearing contact between the innermost traveler terminal and the adjacent edge of the ring flange or ring web. 15

The terms "lowered" or "dropped" or their equivalents, as used herein to describe the lowered bow or lowered terminals of my traveler are used comparatively with a regular circle traveler, that is to say, when I describe the bow and terminals of my traveler as having been lowered, I mean that they are lowered with respect to the positions which they would occupy in a regular circle traveler. 20

As illustrative of the principles of my invention I show in the accompanying drawings several embodiments thereof which I have found highly satisfactory under actual service conditions and well adapted to the requirements of commercial manufacture. 25

In such drawings:—

Fig. 1 is a perspective view showing one embodiment of my invention in which the lowered center of gravity is attained by both lowering the traveler bow and the traveler terminals with respect to the positions which they would occupy in a regular circle traveler and also by reducing the amount of metal in the traveler bow by milling off equal amounts of the metal at opposite edges of such bow. 35

Fig. 2 is a perspective view showing another embodiment wherein both the traveler bow and the traveler terminals are lowered with respect to the positions which they would occupy in a regular circle traveler, the amount of metal in the traveler bow being reduced by removing some of the metal of the bow intermediate of its edges, as by slotting the same. 40

Fig. 3 is a perspective view showing still another embodiment of my invention wherein both the traveler bow and the traveler terminals are lowered with respect to the positions which they would occupy in a regular circle traveler, the amount of metal in the traveler bow being re- 45

duced by milling transversely across the bow, the traveler in this embodiment presenting different cross-sectional configurations in different areas, the configuration of the bow being flat and that of the remaining areas of the traveler being oval.

Fig. 4 is a perspective view showing a still further modification in which both the traveler bow and the traveler terminals are lowered with respect to the positions which they would occupy in a regular circle traveler, and wherein also the bow is given a concavo-convex configuration.

Fig. 5 is a perspective view of still another embodiment of my invention wherein the features of Figs. 1 and 2 are combined.

Fig. 6 is a perspective view of a still further embodiment of my invention wherein the features of Figs. 1 and 3 are combined.

Fig. 7 is a diagrammatic indication thereof in operative position upon a ring, and Fig. 8 is a greatly enlarged view showing the traveler of Fig. 2 superimposed on a regular circle traveler for purposes of comparison, the regular circle traveler being shown in dotted lines.

In all of the several embodiments of my invention the traveler operates on the ring in real balance, having a truly floating action with minimum friction between the traveler and the ring and with such friction as does occur coming essentially between the undersurface of the traveler bow and the top surface of the ring flange, substantially to the exclusion of any wearing contact between the innermost terminal of the traveler and the inner edge of the ring flange.

With the principal zone of wearing contact thus caused to come between the traveler bow and the top surface of the ring flange, it is no longer necessary that the inner terminal of the traveler shall function as a bearing horn against which the inner edge of the ring flange bears, and such terminal therefore acts only as a retaining hook to keep the traveler from flying off the ring flange in use.

As a result of eliminating pronounced wear between the inner terminal and the ring flange, the traveler runs so lightly on the ring as actually to require the use of travelers which are from two to three numbers heavier than the travelers heretofore considered standard in the art in order to meet the same spinning condition.

In all embodiments the traveler bow is indicated at 10, the traveler terminals at 11 and 12 and the oppositely arched lateral portions which connect the bow with the terminal portions are indicated at 13 and 14.

In all embodiments both the bow and the terminals are lowered with respect to the positions which they would occupy in a regular circle traveler. This is indicated diagrammatically in Fig. 8, wherein the approximate plane which the bow of a regular circle traveler R (shown in dotted lines in Fig. 8) such as have been long standard in the art, would occupy is indicated at A—A, and the plane of the bow of my novel traveler is indicated at B—B. The plane which the horns of these old type travelers would occupy is indicated at C—C and the plane of the terminals of my novel traveler is indicated at D—D.

Thus in all embodiments the bow of my traveler is lowered the distance A—B and the terminal portions are lowered the distance C—D. This results in materially lowering the center of gravity G of the traveler, such center being actually lowered to a point where it approximately coincides with the center of symmetry S of my

new traveler. The distance that the center of gravity of my new traveler has thus been lowered, as compared with the regular circle traveler, is also graphically illustrated in Fig. 8 wherein the center of gravity of the regular circle traveler is approximately indicated by the reference character G' and its center of symmetry at S'.

The distance G—G' thus represents the actual amount that the center of gravity of my new traveler has been lowered comparatively with the center of gravity of the regular circle traveler.

As a result of the center of gravity of my new traveler being lowered this appreciable distance, the principal wearing contact between ring and traveler comes between the under surface of the traveler bow and the top surface of the flange 15 of the ring 16, as indicated at Z, substantially to the exclusion of any pronounced wearing contact between the innermost terminal of the traveler and the inner edge of the ring flange. The traveler therefore rides the ring with the minimum friction, the action being a floating action in which the traveler runs lightly on the ring in true balance, as shown by the fact that when on the ring the center of gravity G is actually somewhere within the ring flange (see Fig. 7) instead of above it, as heretofore. Hence the traveler terminals are no longer required to function as bearing portions adapted for wearing contact against the edge of the ring flange but simply serve as retaining hooks to prevent the traveler from flying off the ring in use.

In all embodiments, the traveler bow is lowered with respect to the position which it would occupy in a regular circle traveler and extends as a substantially straight member, being substantially included in the plane E—B (Fig. 8). Such lowered bow not only assists to lower the center of gravity of the traveler but being straight also provides a better contact at Z with the top face of the ring flange, such contact being of course only a momentary contact according to the position of the ring rail. The straight area of the lowered bow in all forms of my new traveler is substantially equal to the width of the ring flange 15 on which the traveler is designed to operate as clearly appears in Fig. 7.

The lowering of the center of gravity of the traveler may be further increased by reducing the amount of metal in the traveler bow as compared with that in the remaining areas of the traveler. This is variously illustrated in Figs. 1, 2 and 3.

In Fig. 1 equal portions at the opposite edges of the traveler bow are removed as by milling, as indicated at 17.

In Fig. 2 some of the metal between the bow edges is definitely removed as by slotting, as indicated at 18. There may be one or more slots in the traveler bow, although as shown the bow has only a single slot symmetrically thereof.

In Fig. 3 metal is removed from the traveler bow by milling it transversely as indicated at 19. In this form of traveler the traveler is made from round or oval wire, the bow area being flattened as indicated at 20 and transversely milled as at 19 to reduce the weight of the bow as compared with the remaining portions of the traveler.

In Fig. 4 the traveler bow is given a concavo-convex formation, as indicated at 21, the convexity being disposed towards the ring flange to provide a good contacting surface for momentary

contact with the top face of the ring flange at zone Z.

In Fig. 5 the traveler bow has both the laterally milled cut-outs 17 of Fig. 1 and the central slot 18 of Fig. 2.

In Fig. 6 the traveler bow has both the laterally milled cut-outs 17 of Fig. 1 and the transversely milled cut-out 19 of Fig. 3.

Many other variants are possible, and the foregoing are only suggestive of the many variations which may be made within the spirit and scope of my invention as defined by the appended claims.

What I therefore claim and desire to secure by Letters Patent is:—

1. A symmetrical traveler for use on a ring having a horizontal flange, consisting of a member having a straight bow, horns having terminal portions extending downwardly to be positioned beneath a ring flange, and curved connecting portions joining said bow and horns, said bow being of a length substantially equal to the width of the ring flange on which the traveler is designed

to operate, some of the material in the bow being removed whereby to reduce the cross-sectional area of the material of the bow, the center of gravity of the traveler being lowered to a point within the ring flange whereby the principal wearing contact of the traveler with the ring flange is caused to come between the under surface of the bow and the top surface of the ring flange substantially to the exclusion of wearing contact between the innermost terminal portion of the traveler and the inner edge of the ring flange.

2. A traveler as claimed in claim 1 wherein equal portions of the metal at opposite edges of the bow is removed.

3. A traveler as claimed in claim 1 wherein a portion of the metal transversely of the bow is removed.

4. A traveler as claimed in claim 1 wherein equal portions of the metal at opposite edges of the bow is removed and wherein a portion of the metal transversely of the bow is also removed.

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