

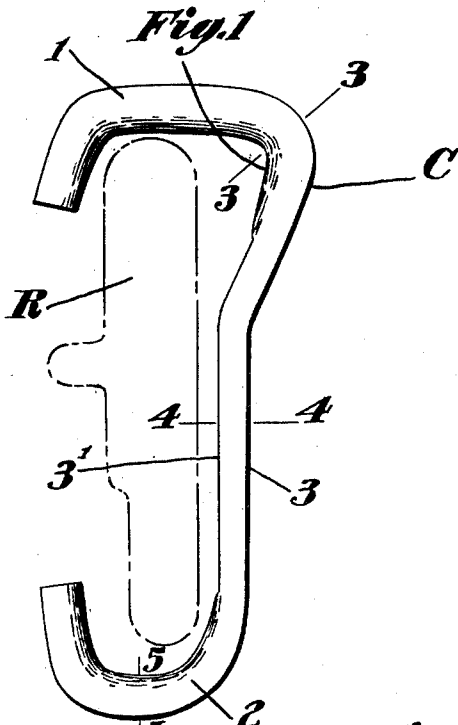
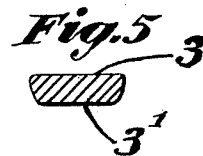
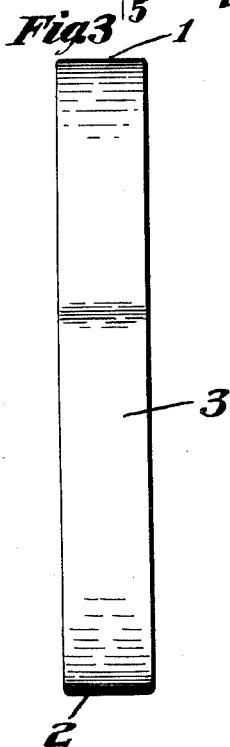
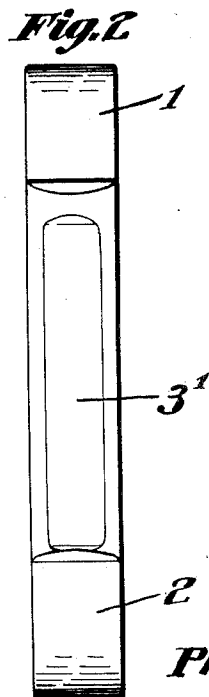
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P. C. WENTWORTH

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TRAVELER

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Inventor
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TRAVELER

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2 Claims. (Cl. 118—61)

My present invention relates to travelers and their manufacture. Such travelers may be for various purposes, but as a basis of illustration and discussion I will refer more particularly to the twister traveler. This type of traveler has been required to meet unusual demands of accuracy and uniformity. For example, in the twisting of tire cords it is of the utmost importance that friction be maintained at as close to absolute uniformity as possible.

In travelers generally there has been previously recognized a need of avoiding the fraying of the yarn, thread or cord, as it runs under the traveler. My previous Patent No. 1,415,071 dealt with one phase of this problem and I found the general theory correct. In fact, the principle involved carries further concepts which are important in themselves and in combination with other factors, as will hereinafter appear.

As a simple illustrative basis of reference for discussing my invention, I have shown in the accompanying drawing a twister traveler.

Fig. 1 shows a side view of the traveler on an indicated section of ring.

Fig. 2 a face view of the traveler looking between its ends and towards the ring contacting surface of its back.

Fig. 3 is a rear view of the traveler.

Fig. 4 is a section on the line 3—3, Fig. 1.

Fig. 5 is a section on the line 4—4, of Fig. 1, and

Fig. 6 is a section on the line 5—5, Fig. 1.

The traveler comprises the usual top flange 1, bottom foot 2 and back 3. As shown in Fig. 1, it is indicated as sprung into position on a ring R. The cord C runs under the upward arch between the top flange and the back and it is highly desirable that over this area the traveler present a rounded cross section which will not scrape the cord but permit it to run free.

In producing travelers commercially in large quantities and great varieties of sizes and styles, it is of the utmost necessity that the manufacturing method provide for quantity production and economy while at the same time producing the high degree of accuracy demanded for all travelers.

My invention contemplates the utilization of a slightly half rounded stock or of rolling such stock from ordinary wire so as to get the desired cross section. It may be here noted that the matter of rolling, bending and forming of such travelers involves a still further factor which has heretofore given rise to many difficulties.

For such travelers I preferably use a bronze

alloy including phosphor bronze and so-called American bronze. Initially these materials are relatively soft, but according to my invention I bring them to the desired hardness while rolling to the cross section indicated. Travelers so formed and of such cross section gave no trouble in any fraying of the cord or thread, but another and more serious difficulty was encountered. In forming the inner face of the traveler with a curved or rounded or partly cylindrical surface and with the materials used, there was a tendency to wear on the inner face of the traveler along its back where it contacted with the ring. That is to say, as the traveler ran it eventually developed a flattening of its curvature or convexity along that line or plane of contact. This increased as the wear continued and it was found that such conditions introduced a variation in friction that was unfavorable to uniformity and accuracy of the twist.

According to my concept of such structure the amount or area of such a contact surface while of course it should be relatively small, does not make much difference. The important proposition is that of uniformity and that such surface does not wear away or wears only very, very slowly. Then the difficulties are correspondingly decreased.

My invention therefore contemplates the formation of a slightly flattened and hardened contact surface along the inside of the back where the traveler frictions the ring. The difficulty of forming such a surface would seem to be great, but as my concept has developed I have found it possible to make manufacturing assets out of what would have been liabilities. It is desirable that the traveler be formed while still of uniform cross section, but after the travelers are formed it is, of course, difficult to rework the inner face of the traveler.

In this connection my partly rounded flat back stock and the use of a material such as an alloy which will harden under rolling provides the solution. I form preferably by an impacting hammer or die on the inner surface of the back a slight flattening 3¹ which at the same time gives an extra hardening to this surface. I find that the Rockwell hardness tester indicates that this surface is about twenty-two points harder than the rest of the surface of the traveler. Here again the problem of the originally soft stock and the originally rounded inner surface of the back and the new factors of flattening and hardening by impact have overcome the difficulties.

My invention is capable of being produced in various shapes, styles and sizes and in travelers of all sorts for all sorts of purposes and within the limits indicated may be made of any desired materials.

Travelers in accordance with my invention may be run for a long time without developing undue variations in friction and such travelers exert a minimum of fraying upon the thread or cord. They may be produced in accordance with my invention economically and are applied to the ring and otherwise operated according to standard practices in ring twisting or spinning.

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

1. A ring twisting traveler adapted to be run in a vertical position about a twisting ring consisting of a member formed to present a top flange, a bottom foot and a back connecting said flange and foot, said top flange and said foot both having areas of inwardly rounding cross

section which offer minimum friction to the yarn and to the lower edge of the ring respectively, and said back having a flattened area intermediate of said rounded areas which offers a substantially uniform friction as distinguished from a varying friction to the generally correspondingly flattened back face of the ring in the run of the traveler on the ring.

2. A ring twisting traveler adapted to be run in a vertical position about a twisting ring, consisting of a member having a top flange of inwardly rounding cross section, a bearing foot, and a back connecting said flange and foot, said flange and foot of substantially equal hardness, and said back having a flattened area of greater hardness than the flange and foot and offering a substantially uniform friction to the generally correspondingly flattened back face of the twisting ring in the run of the traveler on the ring.

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