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2,118,873

TRAVELER

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Fig. 1

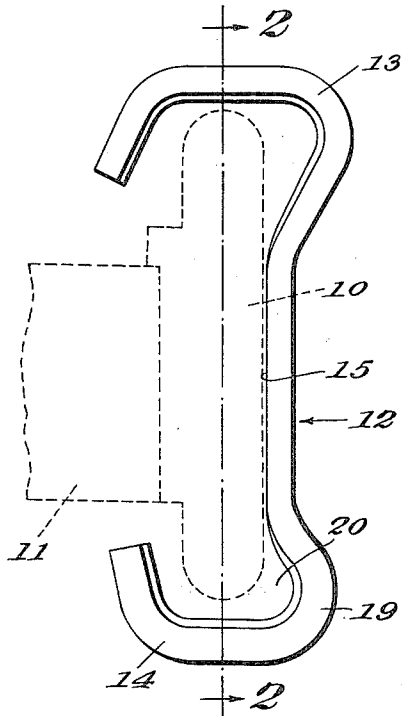
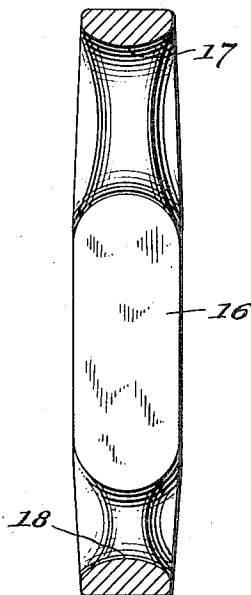


Fig. 2



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TRAVELER

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2 Claims. (Cl. 118—61)

This invention relates to travelers of twister type adapted to be run in a vertical position around a twisting ring. In this type of traveler, and particularly where used in the twisting of the many varied kinds of yarns, the factor of greatest importance is that friction shall be maintained at as near uniformity as possible. Where the friction is variable, the character of the twist imparted to the yarn likewise varies.

If this were the only requirement, however, it could be satisfied by the conventional traveler of flat stock as has always been made, including the old so-called J. P. C. or Coates traveler or the travelers for the Hanton ring. However, the increased friction caused by higher speeds now commonly used in spinning or twisting many of the newer yarns now being spun on this type of traveler introduce greater wearing action of the yarns on the traveler. The old style flat traveler was not adapted to resist or minimize such wear, and hence such traveler soon became cut, and as a result of being cut by the yarn, its posture on the ring became changed and imperfect twisting resulted.

To overcome this objection, while at the same time securing all of the advantages of the flat stock traveler as regards uniformity of friction between the traveler and ring, the traveler shown in the patent to Philip C. Wentworth, No. 1,937,676, was devised. For travelers according to that patent slightly rounded stock is used which presents at both the top or head and the bottom foot of the traveler curved or rounded or partly cylindrical surface. These minimize the wear of the yarn at the top or head and at the same time tend to reduce friction between the bottom foot of the traveler and the lower edge of the ring. Friction between the traveler back and the adjacent face of the ring was brought as close to uniformity as possible by slightly flattening and hardening the traveler back between the top or head and the bottom foot.

The present invention is an improvement upon these patented travelers. It is designed to still further reduce or largely to eliminate friction between the traveler foot and the lower edge of the ring, while retaining all of the advantages of the patented traveler in respect to uniformity of friction between the friction surface of the traveler and the adjacent face of the ring, thus minimizing the action of the yarn at the inwardly rounded top or head of the traveler.

This result is accomplished by a definite out-bowing of the traveler in the region of its foot which for lack of a better term is designated as

the heel of the traveler foot. The area of the new traveler foot and consequently the amount of metal is increased without however altering its cross-sectional shape, and this results in a lowering of the center of gravity of the traveler.

The present traveler may, therefore, be defined as a traveler of the type of the patented traveler above mentioned, but with the outbowed foot giving a set back heel, such heel having additionally the characteristic inwardly rounded friction reducing cross-section of the patented traveler.

The set back heel in travelers of the type of the above noted prior patent results in new and important efficiencies in operation. Chief among these is the avoidance or at least the very considerable minimization of friction at the traveler foot. Examination of used travelers of the type shown in the said patent indicates that despite the rounded cross section of the traveler in this area, in certain uses sufficient wear developed at the traveler foot to throw the traveler out of balance.

Theoretically all twister type travelers operate on the ring in a vertical position. Actually under the pull of the yarn, the action of centrifugal force and other factors, the twister traveler tends to assume a diagonal plane with respect to the inner face of the ring, and hence develops a certain amount of wearing contact between the traveler foot and the lower edge of the ring.

The outbowed foot, however, tends to introduce a more perfect balance between the lesser weight of the foot and the generally preponderant weight of the top or head so as to capitalize to the fullest extent the hardened friction surface of the patented traveler.

The top or head in most travelers of this type has the larger bend as well as the greater weight. The outbowed foot gives to the lesser weight of the foot a mechanical advantage due to the tendency of the outbowed foot to stabilize traveler posture by acting as a counterbalance to the forces which tend to cause the traveler to assume a diagonal position on the ring. In this action, the outbowed foot affords a clearance space at the lower edge of the ring, thus minimizing frictional contact in this region. Thus, the traveler assumes a more nearly vertical position when operating on the ring, and hence friction between the traveler foot and the lower edge of the ring is reduced to a minimum. This gives a maximum uniformity of friction drag and a perfection in posture and balance.

Examination of used travelers embodying the present invention show a minimum of wear at

the foot of the traveler itself, and at the same time a lessening in like proportion of the wear and tear on the ring. The converse is that the life of the traveler is increased, as the perfection of contact of friction surfaces between traveler and ring or ring and traveler are corollaries of each other.

Throughout the specification and drawing like reference characters are employed to indicate corresponding parts, and in the drawing:

Fig. 1 is an enlarged view of a traveler in accordance with the present invention applied to a conventional twister ring, and

Fig. 2 is a vertical section on the line 2—2, of Fig. 1.

Indicated at 10 is a conventional twister ring and at 11 a portion of the ring rail.

The traveler indicated generally at 12 comprises a top or head 13, a bottom foot 14, and a connecting back 15.

Such traveler is made either of slightly half-rounded stock, or of flat stock which is rolled to give the desired cross-section in different areas thereof. If made of half-round stock, it is flattened or hardened throughout all or any desired portion of its back 15, as designated at 16. This may be done in any suitable manner, as by impact with a hammer or its equivalent.

If made of initially flat stock, it is rolled to impart a curved or rounded or partly cylindrical cross-section thereto in its top or head portion 13 and its foot portion 14. These rounded areas are designated respectively at 17 and 18, in Fig. 2.

Regardless of by what method it is made, these travelers when completed have inwardly rounding areas 17 and 18 at their top and bottom portions 13 and 14, and a flattened and hardened area 16 at the back or connecting portion 15.

Regardless also of by what method they are made, such travelers have the heel part 19 of their foot 14 definitely outbowed or inset from the adjacent lower edge of the ring. This leaves a clearance space 20 enabling the traveler to assume its normal running posture on the ring without binding or cramping at this region, thus minimizing friction.

The action of centrifugal force, the gravity

pull of the traveler due to its weight, and the pull of the yarn are all factors which with the ordinary traveler tend to alter the traveler posture from a theoretically vertical one to an actual diagonal.

With this traveler, however, the outbowed heel 19 provides the clearance space 20, and the extra area and thus extra weight of the traveler at the foot, counterbalance to a noticeable extent this tendency of the traveler in operation to assume a diagonal posture on the ring, and hence greatly minimize friction between the traveler and the lower edge of the ring.

The principal wearing contact is therefore between the flattened and hardened surface 16 of the traveler back and the inside face of the ring, as always intended in traveler design, but never heretofore so completely achieved.

The principles of the present invention may be embodied in various shapes, styles and sizes, depending upon the nature of the yarn being twisted and the type of twister frame and ring for both twisting and spinning and for all sorts of materials.

What is therefore claimed and desired to be secured 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 head portion, a bottom foot portion, and a portion connecting said head and foot portions, said connecting portion having a flattened area which offers a substantially uniform friction surface to the inner face of the ring, and said head and foot portions being of inwardly rounded cross-section and offering minimum friction to the yarn and bottom edge of the ring respectively, and said foot portion having an outwardly bowed heel providing a clearance space between the traveler foot and the inner face of the bottom edge of the ring, said outwardly bowed heel portion assisting to maintain the traveler in vertical position during operation.

2. The traveler of claim 1, the outwardly bowed heel being also of inwardly rounded cross-section.

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