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PLASTIC TRAVELER AND RING THEREFOR

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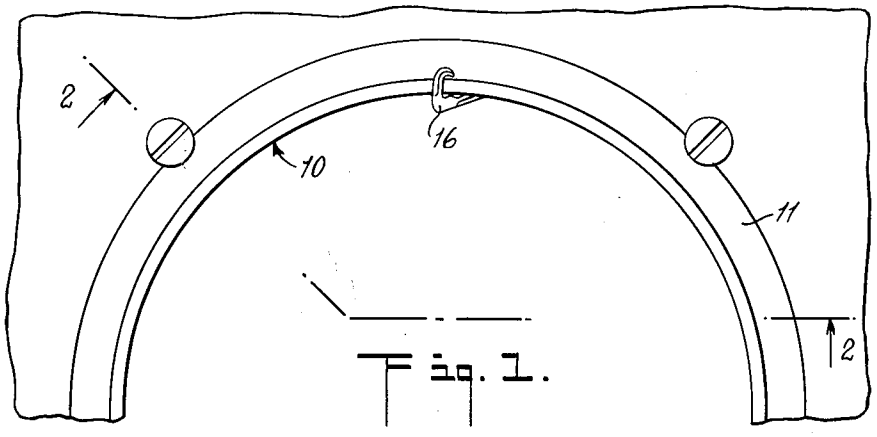


Fig. 1.

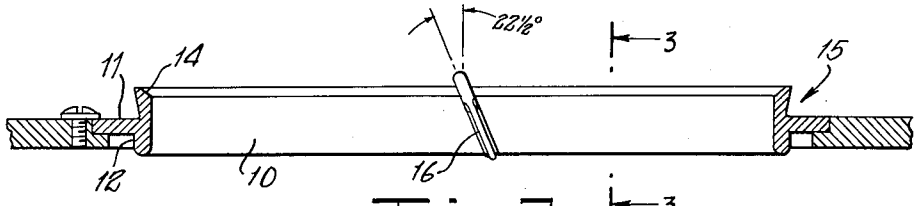


Fig. 2.

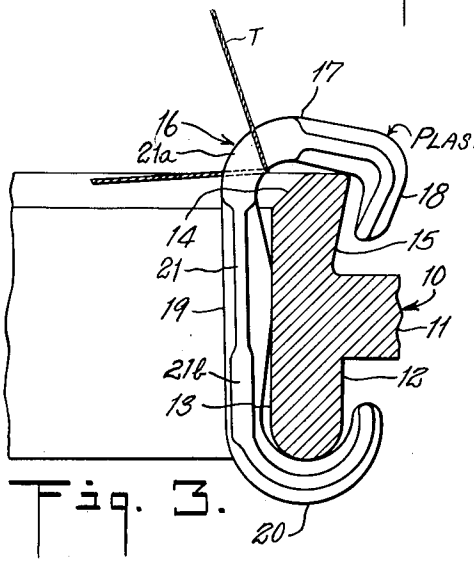


Fig. 3.

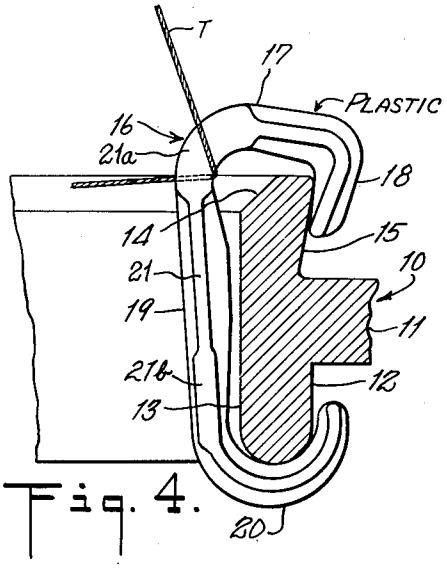


Fig. 4.

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PLASTIC TRAVELER AND RING THEREFOR

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7 Claims. (Cl. 57—119)

The present invention relates to improvements in travelers and rings for use on ring spinning or twisting frames and relates more particularly to a ring and a plastic traveler.

An object of the present invention is to provide a ring and a plastic traveler which are shaped so as to prevent the plastic traveler from being pulled or otherwise accidentally removed from the ring during the operation thereof. Other objects and advantages of the invention will be apparent and best understood from the following description and the accompanying drawings in which:

Fig. 1 is a fragmentary plan view of a ring and a traveler embodying the invention showing the traveler in running position on the ring;

Fig. 2 is a section view taken along the line **2—2** of Fig. 1;

Fig. 3 is a section view showing the traveler illustrated in Fig. 1 substantially as seen from the line **3—3** on an enlarged scale; and

Fig. 4 is a section view similar to Fig. 3, showing the traveler in a vertical position and moved inwardly with respect to the ring.

Referring now the drawings in detail, there is a ring **10** which has an annular flange **11** extending outwardly from its outer surface. The ring **10** is supported by the flange **11** in the frame of a spinning or twisting machine in the usual manner.

The outer face **12** at the bottom of the ring **10** extends upwardly to the annular flange **11** and is generally parallel to the axis of the ring. The iner surface **13** of the ring is also parallel to the axis of the ring and may be beveled slightly at its top edge as indicated at **14**. The surface **15** on the outside of the ring which extends downwardly from the top of the ring to the flange **11** is undercut and slopes inwardly toward the center of the ring as it extends downwardly to the flange **11**.

A traveler **16** is mounted on the inside of the ring **10** and is free to move around the ring under the influence of a thread T which passes beneath the top bar of the traveler at a point opposite the beveled surface **14** at the top of the inner surface of the ring. The traveler **16** is made of a flexible plastic material such as nylon. Travelers made of such material are shown and described in detail in United States Letters Patent No. 2,326,828, issued August 17, 1943 to William M. Camp.

The traveler **16** has a top bar **17** which extends across the top of the ring and carries a nose or hook **18** which extends downwardly and in opposing relation to the undercut outer surface **15** at the top of the ring. The traveler also has a leg **19** which extends downwardly from the top bar **17** in opposing relation to the inner surface **13** of the ring and carries a foot **20** which extends around the bottom of the ring **10**. Travelers made from plastic material such as nylon may be run at considerably higher speeds than the usual metal travelers such as those made from steel or bronze. However, because of the flexibility of plastic materials such as nylon, such a traveler may be flexed or bent out of its normal shape more

readily than a metal traveler. Thus, if a sudden pull such as may be due to a knot or other obstruction to the movement of the thread through the traveler is exerted on the traveler, the traveler may be flexed or bent sufficiently to release the hook or nose of the traveler from engagement with the ring when the traveler and ring are of the conventional shape and the traveler may then run off of the ring.

To prevent this from happening, the outer surface **15** of the ring is undercut as described above and the surface of the nose or hook **18** of the traveler, which opposes the undercut outer surface **15** of the ring, is sloped inwardly toward the leg of the traveler with the clearance between the end of the hook **18** and the leg of the traveler being reduced.

In addition, a strengthening rib **21** is provided on each side of the traveler extending from the tip of the top hook to the tip of the bottom hook. These strengthening ribs are increased in width at a point where the thread runs, as indicated at **21***a*, to provide an increased wearing surface and at a point near the bottom of the leg, as indicated at **21***b*, to increase the rigidity of the traveler at the point where the traveler is most apt to be bent or flexed.

When the traveler **16** is in running position, it assumes an angular position of approximately 22½ degrees with respect to the vertical (or the axis of the ring), as indicated in Fig. 2, and the inner surface of the leg **19** of the traveler bears against the inner surface **13** of the ring, as shown in Fig. 3. However, when a pull of sufficient force is exerted on the traveler by the thread, the leg of the traveler is moved out of contact with the inner surface of the ring and the nose **18** is brought into engagement with the undercuit outer surface **15** at the top of the ring, as shown in Fig. 4. Under such a condition, as will be seen from Fig. 4, the inner surface of the lower end of the nose **18** of the traveler will lie inside of or overlap with the top of the undercut surface **15** of the ring and the resistance to the traveler being pulled from the ring is materially increased thereby. It has been found that with a ring and plastic traveler made in this manner, a force of 8¼ pounds was required to pull the traveler off of the ring whereas a pull of 4½ pounds would pull a plastic traveler of the usual shape off of a conventionally shaped ring. Despite the increased resistance of the traveler **16** with the inwardly directed nose **18** being accidentally pulled from the ring, such a traveler may be readily placed on or removed from the ring.

It will be understood that various modifications may be made by those skilled in the art in the embodiments of the invention illustrated and described herein without departing from the scope of the invention as defined by the claims appended hereto.

We claim:

1. In a device of the character described, the combination of a vertical ring, said ring having an inner face extending parallel to the axis of the ring and an outer face extending downwardly and sloping inwardly from the top of the ring toward the center thereof and a traveler made of a flexible plastic material mounted on and movable around said ring, said traveler having a leg located inside of the ring, a foot extending around the bottom of the ring and a top extending over the top of the ring, said top having a nose extending downwardly in opposing relation to the inwardly sloping outer surface at the top of the ring, said nose having an inner surface opposing and sloping inwardly toward the leg of the traveler.

2. In a device of the character described, the combination as set forth in claim 1 wherein the traveler is made of nylon.

3. In a device of the character described, the combina-

tion as set forth in claim 1 wherein the traveler has a strengthening rib extending along each side thereof, said ribs being of increased width at a point near the bottom of the leg of the traveler.

4. In a device of the character described, the combination of a ring, said ring having an inner face extending parallel to the axis of the ring and an outer face at the top thereof extending downwardly from the top of the ring and sloping inwardly toward the center of the ring and a traveler made of a flexible plastic material mounted on and movable around said ring, said traveler having a leg opposing the inner surface of the ring, a foot extending around the bottom of the ring and a top extending over the top of the ring, said top having a nose portion extending downwardly in opposing relation to the inwardly sloping outer surface at the top of the ring, said nose portion having an inner surface opposing and sloping inwardly toward the leg of the traveler and having a lower end overlapping the outer surface of the ring at the top thereof when the traveler is in running position.

5. A spinning and twisting ring for use with a flexible traveler of plastic material, said ring having an inner surface extending parallel to the axis of the ring and having an outer surface extending downwardly from the top of the ring and sloping inwardly toward the center thereof.

6. A traveler made of a flexible plastic material for use on a spinning and twisting ring, said traveler having a leg portion extending vertically with a foot portion formed at one end thereof, said foot portion having an end extending upwardly in spaced relation to the leg portion, said traveler being characterized by a top bar formed at an end of the leg portion opposite the foot portion, said top bar extending downwardly at an angle to the leg portion in opposing relation to the foot portion and a nose portion depending from the outer end of the top bar in spaced relation to the leg portion, said nose portion being directed toward the upwardly extending end of the foot portion and having an inner surface sloping inwardly toward the leg portion.

7. A traveler for use on a spinning and twisting ring having an outer surface which slopes downwardly and inwardly from the top thereof, said traveler being made of a flexible plastic material and comprising a leg portion extending vertically, a foot portion formed at one end of the leg portion, said foot portion having an end extending upwardly in spaced relation to the leg portion for engagement with an outer surface of a ring at the bottom thereof, a top bar formed at the other end of said leg portion, said top bar extending downwardly at an angle to the leg portion in opposing relation to the foot portion and a nose portion depending from the outer end of the top bar, said nose portion being directed toward the upwardly extending end of the foot portion in spaced relation to the leg portion for engagement with the outer surface of the ring at the top thereof and having an inner surface sloping inwardly toward the leg portion at an angle corresponding to the inclination of the outer surface of the ring at the top thereof.

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