The present invention relates generally to fishing, and more particularly to an improved casting rod.

For many years it has been recognized that a fishing rod used for casting, particularly fly casting, should be light in weight, possess certain elastic properties, and be resistant to moisture and water. The ideal relative to the elastic properties of casting rods is that they should not be so flexible as to bend unduly under their own weight, or when under the considerable force to which they are subjected in the hands of a fisherman during casting or when landing a fish.

Initially, and still in current use to some degree, casting rods were made from strips of bamboo which were glued together after being subjected to an extensive preliminary treatment. However, within the past few years casting rods have been fabricated from a tapered tuber glass member, or a series thereof, fabricated from a polymerized resin that is infusible and insoluble, and in which a plurality of strands of unitary glass fibres are embedded in a side-by-side longitudinal relationship. In actual use fibre glass reinforced tubular members have been found to be substantially impervious to the action of both fresh water and sea water, and in weight and performance provide advantages superior to rods of split bamboo construction.

A major object of the present invention is to provide a sectional fly casting rod that implements the improved physical characteristics provided by fibre glass embedded in a polymerized resin from which it is fabricated, and one that may be easily assembled and dismantled without the use of tools, is free of metallic connections which are subject to corrosion, and may be arranged in a compact package when not in use to permit the rod to be carried through heavily wooded or brush-covered areas with a minimum of inconvenience.

A still further object of the invention is to provide a sectional casting rod in which the end portions of the sections that are in telescopic engagement are further reinforced by means which provide their greatest strength when under tension, with these reinforcing means minimizing deformation of the interlocking portions of the rod sections when they are subjected to substantial forces.

These and other objects and advantages of the invention will become apparent from the following description of a preferred embodiment thereof, and from the accompanying drawing illustrating that form in which:

FIGURE 1 is a side elevational view of a sectional fly casting rod embodying the present invention;

FIGURE 2 is an enlarged side elevational view of the sections comprising the rod as shown in FIGURE 1 illustrating the manner in which the forward end portion of one section is movably and frictionally engages the rear interior end portion of the section immediately forward thereof;

FIGURE 3 is a fragmentary cross-sectional view of a portion of the rod taken on line 3--3 of FIGURE 1;

FIGURE 4 is an enlarged fragmentary cross-sectional view of that portion of the rod enclosed in the circle 4 shown in FIGURE 3;

FIGURE 5 is an enlarged fragmentary side elevational view of the rod taken at the junction of the rear and intermediate sections showing both of these sections deformed by a force to which the rod is subjected during use; and

FIGURE 6 is an enlarged transverse cross-sectional view of one of the end portions of the rod taken on line 6--6 of FIGURE 3.

With continuing reference to the drawing for the general arrangement of the invention it will be seen in FIGURE 1 to comprise a fly casting rod A, which includes an elongated handle B having a mounting C for a reel D extending rearwardly therefrom. A first forwardly tapering tubular section E is rigidly connected to the rear end of handle B and in coaxial alignment therewith. Second and third elongate tubular sections F and G respectively are also provided. The rearward portions 10 and 12 of second and third sections F and G respectively have frustroconical interior surfaces of such dimensions as to snugly but frictionally engage the forward end portions 14 and 16 of first and second sections E and F. Although but three sections E, F and G have been chosen to illustrate the invention herein, either more or less sections can be provided as desired. The angle of taper at which the end portions 14 and 16 are formed as well as that of the interior surfaces 10 and 12 is relatively slight, so that as a result these exterior and interior surfaces may engage one another with a wedging action and be removably held together by friction.

In FIGURE 6 it will be seen that a plurality of strands 18 are provided that are each formed from a number of unitary glass fibres 20. Strands 18 are disposed in side-by-side relationship and are embedded in a matrix of a polymerized resin 22, which may be any one of the types of resin commercially available for this purpose. The strands 18 are disposed substantially parallel to the axis of the rod A, and have their greatest strength when they are stressed under tension which occurs when the rod is being used for casting or in playing a fish.

It will be apparent from an examination of FIGURES 3 and 5 that as the rod is used during casting or when landing a fish that a force is exerted on the second section F in the direction of the arrow 24 shown in FIGURE 4. As a result, the end portion 10 of the second tubular section F imposes a turning moment upon the end 14 indicated by the arrows 26 and 28. Accordingly, the end portion 14 of the first section E must be sufficiently long that it will not collapse or shear from the balance of the section when subjected to the turning moment 26-28. When the second section F imposes this turning moment 26-28 on the first section E, the portion 10 is subjected to a force that tends to expand and split the same. It will be particularly noted in FIGURE 6 that when such a turning moment is imposed on the end portion 10, the resistance to expansion of end portion 10 is that provided by the strength of the polymerized resin 22.

Layers 29 of thread encircle the rear end portions 10 and 12, with each of the layers 29 overlapping one longitudinally extending leg 30 of a line guide ferrule 32. A second leg 34 of the ferrule 32 extends forwardly and has a second wrapping of thread 36 extending over it and circumferentially around the section on which the ferrule is mounted. Each wrapping of thread 36 extends forwardly to a second layer of wire 38 that also is tightly wound on and extends around one of the sections, as may best be seen in FIGURES 2 and 5. A waterproof coating of varnish or lacquer is applied over the upper surface of layers of thread 29 and 36 to prevent moisture and the elements from causing deterioration thereof. The third section G, as may best be seen in FIGURE 2, has a tip 40 on the forward extremity thereof, in which an opening is formed that is in coaxial alignment with the openings provided for the ferrules 32. A fishing line is wrapped on the reel D and extends forwardly therefrom.
through the ferrules 32 and tip 40 to a leader (not shown) on which a fly or other lure is mounted. The wire 38 serves to circumferentially reinforce the rear portion of each section to the extent that it will not crack, split or fracture when subjected to the maximum force which will be exerted on the rod, or allow the rear portions to radially expand to a degree where they will not frictionally grip the forward portions.

The operation of the invention is extremely simple. The fly rod A is normally carried to the fishing site in the form shown in FIGURE 2, but with the sections being longitudinally disposed and closely held together to define a compact package. When the fishing rod sections are so arranged, the rod A may be carried through heavily wooded or brush-filled areas with a minimum of inconvenience, and with the assurance that it will not be damaged or broken in traversing such areas. After the fishing site has been reached, the sections E, F and G are removed from the packaged condition in which they were carried, and the sections then assembled as previously explained without the use of tools, to define the casting rod A shown in FIGURE 1. The casting rod A is, of course, used in the same manner when assembled as fly casting rods available heretofore, and no detailed explanation as to this operation is required. After the fishing is finished, the rod A is taken apart, again without the aid of tools, and sections E, F and G arranged side-by-side in a compact package to facilitate the carrying thereof.

Although the invention has been shown and described as embodied in a fly casting rod, it will be apparent that it can also be included in the structure of a spinning rod, and other forms of casting rods.

Although the invention herein shown and described is fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred embodiment of the device, and that we do not mean to be limited to the details of construction herein shown, other than as defined in the appended claims.

We claim:

1. A sectional casting rod, comprising:

(a) a plurality of tapered tubular sections formed of a plurality of longitudinally extending fibre glass strands disposed side-by-side and embedded in a resilient polymerized resin, which sections are of such dimensions that a forward end portion of one of said sections slidably and frictionally engages a rear interior end portion of another of said sections with a wedging grip, with each of said sections having its greatest strength when a deforming force applied thereto places said strands under tension, each of which forward end portions possesses sufficient strength in a transverse direction as to remain an integral part of said section with which it is associated when said rod is subjected to the maximum force it will encounter when in use;
(b) a plurality of elongated reinforcing members tightly wound about the exterior surfaces of said rear end portions, with said reinforcing members minimizing the radial expansion of said rear portions to the extent that they retain said wedging grip with said forward portions even when said rod is subjected to said maximum force; and
(c) a plurality of line guide ferrules, each of which includes two aligned oppositely disposed legs, with said elongate member extending over said legs to hold the same in fixed abutting contact with the exterior surfaces of said sections.

2. A sectional casting rod as defined in claim 1 wherein an elongate handle is provided which is rigidly connected to the rear end portion of the rearwardmost of said sections.

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