

DESCRIPTION

FISHING ROD

Technical Field

[0001]

The present invention relates to a fishing rod.

Background Art

[0002]

Cross Reference

The present application claims priority based on Japanese Patent Application No. 2023-219426 (filed on December 26, 2023), the contents of which are incorporated herein by reference in their entirety.

Conventionally, a fishing rod in which a rod is inserted through a reel seat is known (see, for example, Patent Literature 1). In the fishing rod of Patent Literature 1, the reel seat and the rod are bonded with an adhesive. In the fishing rod of Patent Literature 1, the rear rod extending rearward from the reel seat functions as a portion for supplementarily supporting the fishing rod, for example, by being held on the side or applied to the body at the time of actual fishing, and plays a role of improving the operation of the fishing rod and the reel.

In general, the rear rod of the fishing rod has different lengths and thicknesses depending on the design of the fishing rod, the type of fishing, and the like, and various products are lined up.

Citation List

Patent Literature

[0003]

Patent Literature 1: JP 2022-121083 A

Summary of Invention

Technical Problem

[0004]

However, the fishing rod of Patent Literature 1 has a structure in which one rod is inserted through the reel seat, and also has a structure in which the reel seat and the rod are integrally bonded with an adhesive, and thus there is a problem that customization such as customization to a favorite design or replacement of a rear rod cannot be performed.

[0005]

The present invention has been made to solve the above problems, and an object of the present invention is to provide a fishing rod that enables replacement of a rear rod having a different length and a different thickness and is excellent in customizability.

Solution to Problem

[0006]

In order to solve the above problems, the present invention provides a fishing rod comprising a front rod, a rear rod, and a reel seat having a cylindrical shape. A rear portion of the front rod is bonded to an inner circumferential surface of the reel seat with an adhesive, and a front portion of the rear rod is

attachable to and detachable from a rear portion of the front rod or an inner circumferential surface of the reel seat.

[0007]

In the present invention, the rear rod having a different length and a different thickness can be attached to the rear portion of the front rod or the inner circumferential surface of the reel seat. Therefore, the customizability of the fishing rod is excellent.

In addition, since the rear rod is attached to the rear portion of the front rod or the reel seat inside the reel seat, the joining portion is not exposed to the outside, and a step or the like generated by joining does not touch the gripping fingers. Therefore, fishing operability and design are also excellent.

[0008]

Furthermore, in a configuration in which a front portion of the rear rod is attachable to and detachable from a rear portion of the front rod, a front portion of the rear rod is preferably joined to a rear portion of the front rod by a socket-and-spigot joint structure or an ordinarily jointed structure.

[0009]

In this configuration, the front portion of the rear rod can be directly attached to the rear portion of the front rod inside the reel seat, and thus the strength of the fishing rod can be improved. In addition, since the vibration is transmitted from the front rod to the rear rod by the socket-and-spigot joint structure or the ordinarily jointed structure, the sensitivity at the time of actual fishing is good.

[0010]

Moreover, an outer diameter of a rear portion of the front rod and an

outer diameter of a front portion of the rear rod are preferably different from each other.

[0011]

In this configuration, the structure in which the front portion of the rear rod can be attached to and detached from the rear portion of the front rod or the inner circumferential surface of the reel seat can have variations, and the appearance (design) of the portion exposed to the rear of the reel seat can also be changed. As a result, the fishing rod can be easily customized to a favorite fishing rod by a simple operation of replacing the rear rod with a rear rod of another form.

[0012]

Furthermore, in a configuration in which a front portion of the rear rod is attachable to and detachable from an inner circumferential surface of the reel seat, preferably, a protrusion protruding radially inward is formed on an inner circumferential surface of the reel seat, and a rear portion of the front rod and a front portion of the rear rod abut against the protrusion.

[0013]

In this configuration, the rear portion of the front rod can be bonded to the inner circumferential surface of the reel seat so as to be brought into contact with the protrusion. In addition, since the front portion of the rear rod can be attached to the inner circumferential surface of the reel seat so as to be brought into contact with the protrusion, it is easy to perform the operation of assembling the front rod and the rear rod to the reel seat. Therefore, productivity and assemblability of the fishing rod can be improved.

[0014]

Moreover, diameters of a rear portion of the front rod and a front portion of the rear rod are preferably enlarged to a size corresponding to an inner circumferential surface of the reel seat.

[0015]

In this configuration, even in a case where the outer diameter of the front rod is different from the inner diameter of the inner circumferential surface of the reel seat, the rear portion of the front rod can be directly bonded to the inner circumferential surface of the reel seat. In addition, the front portion of the rear rod can be directly attached to the rear portion of the front rod or the inner circumferential surface of the reel seat. As a result, it is not necessary to interpose a spacer or the like in fixing the reel seat and the rod, and the number of parts can be reduced and the weight can also be reduced. Furthermore, since the step of bonding the spacer or the like can be eliminated, the assembly time can be shortened, and the cost can be reduced. Moreover, since the vibration is directly transmitted from the front rod to the reel seat, the sensitivity at the time of actual fishing is good.

Advantageous Effects of Invention

[0016]

According to the fishing rod of the present invention, it is possible to provide a fishing rod that can be attached to a rear rod having a different length and a different thickness and is excellent in customizability.

Brief Description of Drawings

[0017]

Fig. 1 is a cross-sectional view illustrating a main part of a fishing rod according to a first embodiment of the present invention.

Fig. 2 is a cross-sectional view illustrating a main part of a fishing rod according to a second embodiment of the present invention.

Fig. 3 is a cross-sectional view illustrating a main part of a fishing rod according to a third embodiment of the present invention.

Fig. 4 is a cross-sectional view illustrating a main part of a fishing rod according to a fourth embodiment of the present invention.

Fig. 5 is a cross-sectional view illustrating a main part of a fishing rod according to a fifth embodiment of the present invention.

Fig. 6 is a cross-sectional view illustrating a main part of a fishing rod according to a sixth embodiment of the present invention.

Fig. 7 is a cross-sectional view illustrating a main part of a fishing rod according to a seventh embodiment of the present invention.

Description of Embodiments

[0018]

Next, embodiments of a fishing rod according to the present invention will be described with reference to the drawings as appropriate. In the following description, “front” means a tip side, and “rear” means a rod tail side. In each of the embodiments, reference numerals and descriptions of the same members may be omitted. Note that the cross-sectional views in the respective embodiments are schematic views, and the sizes, shapes, and the like of the respective portions are appropriately simplified for easy understanding.

[0019]

(First Embodiment)

Fig. 1 is a cross-sectional view illustrating a main part of a fishing rod 1 according to a first embodiment of the present invention.

As illustrated in Fig. 1, the fishing rod 1 comprises a front rod 10, a rear rod 20, and a cylindrical reel seat 30. The front rod 10 is directly bonded to a cylindrical inner circumferential surface 35 formed in the reel seat 30 with an adhesive. The rear rod 20 is joined to a rear portion of the front rod 10 in the reel seat 30 by a socket-and-spigot joint structure.

[0020]

The front rod 10 and the rear rod 20 are formed as tubular bodies (hollow bodies) made of a fiber-reinforced resin. The front rod 10 and the rear rod 20 are formed through, for example, steps of winding a fiber-reinforced resin prepreg (prepreg sheet) in which reinforcing fibers (mainly carbon fibers, glass fibers, and the like) are impregnated with a synthetic resin such as an epoxy resin around a mandrel, heating, and then removing the mandrel of the prepreg, and the like.

[0021]

The front rod 10 comprises a front rod main body portion 11 and a rear portion 12 continuous with a rear end of the front rod main body portion 11. The rear rod 20 comprises a rear rod main body portion 21 and a front portion 22 continuous with a front end of the rear rod main body portion 21. The diameters of the rear portion 12 of the front rod 10 and the front portion 22 of the rear rod 20 are enlarged to an outer diameter corresponding to the inner diameter of the inner circumferential surface 35 of the reel seat 30.

[0022]

The front rod main body portion 11 is a cylindrical rod portion having a small diameter over the entire axial direction, and has an outer diameter smaller than the inner diameter of the inner circumferential surface 35 of the reel seat 30. The rear portion 12 comprises a first inclined portion 13 continuous with the rear end of the front rod main body portion 11 and a first large diameter portion 14 continuous with a rear end 13a of the first inclined portion 13. The first inclined portion 13 has a funnel shape (substantially conical shape) in which the outer shape and the inner shape gradually increase in diameter toward the rear. The outer diameter of the front end of the first inclined portion 13 corresponds to the outer diameter of the front rod main body portion 11, and the outer diameter of the rear end 13a of the first inclined portion 13 corresponds to the inner diameter of the inner circumferential surface 35 of the reel seat 30. The rear end 13a of the first inclined portion 13 is located radially inside a front end surface 30a of the reel seat 30. The first inclined portion 13 is thus exposed to the front of the reel seat 30.

[0023]

The first large diameter portion 14 is a cylindrical rod portion having a large diameter over the entire axial direction, and has an outer diameter corresponding to the inner diameter of the inner circumferential surface 35 of the reel seat 30. The first large diameter portion 14 is bonded to the inner circumferential surface 35 of the reel seat 30 with an adhesive.

An annular member 40 for socket-and-spigot joining is bonded in advance to an inner surface of a rear end 14a of the first large diameter portion 14 with an adhesive.

[0024]

The rear rod main body portion 21 of the rear rod 20 is a cylindrical rod portion having a small diameter over the entire axial direction, and has an outer diameter smaller than the inner diameter of the inner circumferential surface 35 of the reel seat 30 similarly to the front rod main body portion 11. The front portion 22 comprises a second inclined portion 23 continuous with the front end of the rear rod main body portion 21 and a second large diameter portion 24 continuous with a front end 23a of the second inclined portion 23. The second inclined portion 23 has a funnel shape (substantially conical shape) gradually increasing in diameter toward the front. The outer diameter of the rear end of the second inclined portion 23 corresponds to the outer diameter of the rear rod main body portion 21, and the outer diameter of the front end 23a of the second inclined portion 23 corresponds to the inner diameter of the inner circumferential surface 35 of the reel seat 30. The front end 23a of the second inclined portion 23 is located radially inside a rear end surface 30b of the reel seat 30. The second inclined portion 23 is thus exposed to the rear of the reel seat 30.

[0025]

The second large diameter portion 24 is a cylindrical rod portion having a large diameter over the entire axial direction, and has an outer diameter that enables press-fitting into the inner circumferential surface 35 of the reel seat 30. As a result, rattling of the second large diameter portion 24 with respect to the inner circumferential surface 35 of the reel seat 30 is suppressed. A front end 24a of the second large diameter portion 24 is externally fitted to a rear outer surface of the annular member 40 in an attachable and detachable manner. The front portion 22 of the rear rod 20 is joined to the rear portion 12 of the front

rod 10 by such a socket-and-spigot joint structure. As a result, the front rod 10 and the rear rod 20 are integrally connected in the reel seat 30.

[0026]

Such a rear rod 20 can be replaced with a rear rod 20 (not illustrated) having a different length and a different thickness. That is, by preparing a plurality of types of the rear rods 20 (not illustrated) having different lengths and thicknesses, it is possible to customize the fishing rod 1 to a favorite fishing rod 1 depending on the fishing type, the fishing field conditions, and the like. In the case of replacing the rear rod 20, joining can be released by pulling the rear rod 20 rearward with respect to the reel seat 30, and thus the replacement operation is easy.

[0027]

Note that the annular member 40 may be configured to be bonded in advance to the inner surface of the front end 24a of the second large diameter portion 24 with an adhesive. In this case, a front outer surface of the annular member 40 is internally fitted to the inner surface of the rear end 14a of the first large diameter portion 14 in an attachable and detachable manner.

[0028]

The reel seat 30 is a member for attaching an attachment leg portion of a fishing reel (not illustrated). In addition, the reel seat 30 functions as a member for fixing the front rod 10 and the rear rod 20, and the front rod 10 and the rear rod 20 are integrally formed via the reel seat 30. The inner circumferential surface 35 of the reel seat 30 is a cylindrical surface having a large diameter over the entire axial direction, and has an inner diameter that allows the first large diameter portion 14 of the front rod 10 and the second

large diameter portion 24 of the rear rod 20 to be inserted.

[0029]

When assembling the fishing rod 1 described above, the front rod 10 is bonded to the inner circumferential surface 35 of the reel seat 30 with an adhesive. In this case, the adhesive is applied to the outer circumferential surface of the first large diameter portion 14 of the front rod 10 and the inner circumferential surface 35 of the reel seat 30, and the first large diameter portion 14 is inserted into the inner circumferential surface 35 from the front of the reel seat 30 to a predetermined position.

Then, after the adhesive is cured, the second large diameter portion 24 of the rear rod 20 is inserted into the inner circumferential surface 35 from the rear of the reel seat 30, and is externally fitted to the rear outer surface of the annular member 40 of the front rod 10. As a result, the fishing rod 1 in which the front rod 10 and the rear rod 20 are attached to the reel seat 30 is assembled.

[0030]

The joining position (socket-and-spigot joining position) of the front rod 10 and the rear rod 20 is not limited to the central portion in the axial direction of the inner circumferential surface 35, and may be set to be shifted to another position in the axial direction.

[0031]

According to the fishing rod 1 of the present embodiment described above, the rear rod 20 having a different length and a different thickness can be attached to the rear portion 12 of the front rod 10. Therefore, the customizability of the fishing rod 1 is excellent. By enabling the rear rod 20 to

be replaced as described above, it is possible to obtain the optimum fishing rod 1 corresponding to the target fish, the fishing method, the fishing field conditions, and the like. In addition, since it is only required to prepare a plurality of types of the rear rods 20 with different specifications, it is inexpensive as compared with a case where a plurality of types of fishing rods themselves are prepared, and it also contributes to price reduction for a user purchasing the product.

[0032]

In addition, since the rear rod 20 is attached to the rear portion 12 of the front rod 10 inside the reel seat 30, the joining portion is not exposed to the outside, and a step or the like generated by joining does not touch the gripping fingers. Therefore, fishing operability and design are also excellent.

[0033]

Furthermore, the diameters of the rear portion 12 of the front rod 10 and the front portion 22 of the rear rod 20 are enlarged to a size corresponding to the inner circumferential surface 35 of the reel seat 30. As a result, even in a case where the outer diameter of the front rod 10 (the outer diameter of the front rod main body portion 11) is different from the inner diameter of the inner circumferential surface 35 of the reel seat 30, the rear portion 12 of the front rod 10 can be directly bonded to the inner circumferential surface 35 of the reel seat 30. In addition, the front portion 22 of the rear rod 20 can be directly attached to the rear portion 12 of the front rod 10. As a result, it is not necessary to interpose a spacer or the like in fixing the reel seat 30 and the rod, and the number of parts can be reduced and the weight can also be reduced.

Furthermore, since the step of bonding the spacer or the like can be eliminated,

the assembly time can be shortened, and the cost can be reduced. Moreover, since the vibration is directly transmitted from the front rod 10 to the reel seat 30, the sensitivity at the time of actual fishing is good.

[0034]

(Second Embodiment)

Next, a fishing rod 1A according to a second embodiment will be described with reference to Fig. 2. Fig. 2 is a cross-sectional view illustrating a main part of the fishing rod 1A according to the second embodiment of the present invention. The present embodiment is different from the first embodiment in that an ordinarily jointed structure is adopted as the joining structure.

[0035]

As illustrated in Fig. 2, the rear end 14a of the first large diameter portion 14 is formed in a stepped cylindrical shape with a reduced diameter so as to have the ordinarily jointed structure. The front end 24a of the second large diameter portion 24 is externally fitted to the rear end 14a of the first large diameter portion 14 in an attachable and detachable manner. The rear portion 12 of the front rod 10A and the front portion 22 of a rear rod 20A are joined to each other by such an ordinarily jointed structure.

[0036]

Also in the present embodiment, the second large diameter portion 24 is a cylindrical rod portion having a large diameter over the entire axial direction, and has an outer diameter that enables press-fitting into the inner circumferential surface 35 of the reel seat 30. As a result, rattling of the second large diameter portion 24 with respect to the inner circumferential

surface 35 of the reel seat 30 is suppressed.

Note that the ordinarily jointed structure is not limited to this, and the front end 24a of the second large diameter portion 24 may be formed in a stepped cylindrical shape with a reduced diameter so as to have the ordinarily jointed structure, and the front end may be internally fitted to the rear end 14a of the first large diameter portion 14 in an attachable and detachable manner.

[0037]

Also in the present embodiment, the rear rod 20A having a different length and a different thickness can be attached to the rear portion 12 of the front rod 10A. Therefore, the customizability of the fishing rod 1A is excellent.

In addition, since the rear rod 20A is also attached to the rear portion 12 of the front rod 10A inside the reel seat 30, the joining portion is not exposed to the outside, and a step or the like generated by joining does not touch the gripping fingers. Therefore, fishing operability and design are also excellent.

[0038]

(Third Embodiment)

Next, a fishing rod 1B according to a third embodiment will be described with reference to Fig. 3. Fig. 3 is a cross-sectional view illustrating a main part of the fishing rod 1B according to the third embodiment of the present invention. The present embodiment is different from the first and second embodiments in that a rear rod 20B is configured to be attachable to and detachable from the inner circumferential surface 35 of a reel seat 30B by screwing.

[0039]

As illustrated in Fig. 3, the first large diameter portion 14 of a front rod

10A is bonded to the inner circumferential surface 35 of the reel seat 30 with an adhesive similarly to the first and second embodiments.

On the other hand, a male screw 24n is formed on the outer circumferential surface of the second large diameter portion 24 of the rear rod 20B. The male screw 24n is formed over substantially the entire outer circumferential surface of the second large diameter portion 24 in the axial direction. Note that the region in which the male screw 24n is formed can be appropriately set.

[0040]

A female screw 35n to which the male screw 24n of the second large diameter portion 24 is screwed is formed on the inner circumferential surface 35 of the reel seat 30B. The female screw 35n is formed in a substantially half region on the rear side of the inner circumferential surface 35, and faces the second large diameter portion 24 of the rear rod 20B. Note that the region in which the female screw 35n is formed can be appropriately set corresponding to the region in which the male screw 24n of the second large diameter portion 24 is formed.

[0041]

A front end surface 25 of the second large diameter portion 24 is in contact with a rear end surface 15 of the first large diameter portion 14 of the front rod 10B in a state where the second large diameter portion 24 is tightened to the inner circumferential surface 35. As a result, the rear rod 20B is press-fitted and fixed to the reel seat 30B, and is firmly attached thereto.

[0042]

Also in the present embodiment, the rear rod 20B having a different

length and a different thickness can be attached to the inner circumferential surface 35 of the reel seat 30B. Therefore, the customizability of the fishing rod 1B is excellent. In addition, the joining portion is not exposed to the outside, and a step or the like generated by joining does not touch the gripping fingers. Therefore, fishing operability and design are also excellent.

Furthermore, since the rear rod 20B is attached to the inner circumferential surface 35 of the reel seat 30 by screwing, the rear rod is hardly detached, and the attached state can be reliably maintained without rattling.

[0043]

(Fourth Embodiment)

Next, a fishing rod 1C according to a fourth embodiment will be described with reference to Fig. 4. Fig. 4 is a cross-sectional view illustrating a main part of the fishing rod 1C according to the fourth embodiment of the present invention. The present embodiment is different from the first to third embodiments in that a contact protrusion 36 is provided on the inner circumferential surface 35 of a reel seat 30C. Note that, similarly to the third embodiment, the male screw 24n is formed on the second large diameter portion 24 of a rear rod 20C, and the female screw 35n is formed on the inner circumferential surface 35 of the reel seat 30C.

[0044]

As illustrated in Fig. 4, the protrusion 36 circumferentially protrudes radially inward from the inner circumferential surface 35 of the reel seat 30C. The rear end surface 15 of the first large diameter portion 14 of a front rod 10C abuts against the front surface of the protrusion 36, and is bonded thereto with an adhesive. In addition, the front end surface 25 of the second large diameter

portion 24 abuts against the rear surface of the protrusion 36 by screw tightening. The front surface and the rear surface of the protrusion 36 have sizes to face the rear end surface 15 of the front rod 10C and the front end surface 25 of the rear rod 20C, respectively.

[0045]

Note that the protrusion 36 protrudes circumferentially on the inner circumferential surface 35, but it is not limited thereto, and the protrusion may partially protrude on the inner circumferential surface 35. In addition, the protrusion height (the amount of radially inward protrusion) of the protrusion 36 can be appropriately set. Furthermore, the shape of the protrusion 36 may be formed in a wall shape that radially partitions the inner circumferential surface 35, and the rear end surface 15 of the front rod 10C and the front end surface 25 of the rear rod 20C may abut against the front surface and the rear surface of the protrusion.

[0046]

According to the present embodiment, operational effects similar to those of the embodiments described above can be obtained, and at the time of assembling the fishing rod 1C, the rear portion 12 of the front rod 10C can be easily positioned with respect to the inner circumferential surface 35, and the assembling operation can be easily performed. As a result, the assembly time can be shortened, and cost reduction and productivity improvement can be achieved.

[0047]

In addition, at the time of screwing the rear rod 20C, the front end surface 25 of the second large diameter portion 24 is brought into contact with

the protrusion 36 in a state where the rear rod 20C is tightened, so that the rear rod 20C is press-fitted and fixed to the reel seat 30C. As a result, the rear rod 20C can be firmly attached to the reel seat 30C.

[0048]

(Fifth Embodiment)

Next, a fishing rod 1D according to a fifth embodiment will be described with reference to Fig. 5. Fig. 5 is a cross-sectional view illustrating a main part of the fishing rod 1D according to the fifth embodiment of the present invention. The present embodiment is different from the first to fourth embodiments in that the outer diameter of the rear portion 12 of a front rod 10D and the outer diameter of the front portion 22 of a rear rod 20D are made different from each other. Note that, similarly to the third and fourth embodiments, the male screw 24n is formed on the second large diameter portion 24 of the rear rod 20D, and the female screw 35n is formed on a small-diameter inner circumferential surface 35b of a reel seat 30D.

[0049]

As illustrated in Fig. 5, the rear portion 12 of the front rod 10D has a larger diameter as a whole than the front portion 22 of the rear rod 20D. The front portion 22 of the rear rod 20D has a relatively smaller diameter as a whole than the rear portion 12 of the front rod 10D. In addition, the inner circumferential surface 35 of the reel seat 30D has a stepped cylindrical shape comprising a large-diameter inner circumferential surface 35a and the small-diameter inner circumferential surface 35b having different inner diameters in a corresponding manner. A stepped surface 35c is formed at a boundary portion between the large-diameter inner circumferential surface 35a and the small-

diameter inner circumferential surface 35b.

[0050]

The first large diameter portion 14 of the front rod 10D is bonded to the large-diameter inner circumferential surface 35a with an adhesive. The rear end surface 15 of the first large diameter portion 14 is bonded to the stepped surface 35c of the inner circumferential surface 35 such that a part of the rear end surface abuts against the stepped surface.

The second large diameter portion 24 of the rear rod 20D is attached to the small-diameter inner circumferential surface 35b by screwing. A part of the front end surface 25 of the second large diameter portion 24 abuts against the rear end surface 15 of the first large diameter portion 14 by screw tightening.

[0051]

According to the present embodiment, operational effects similar to those of the embodiments described above can be obtained, and at the time of assembling the fishing rod 1D, the rear end surface 15 of the first large diameter portion 14 can be bonded to the stepped surface 35c so as to be brought into contact therewith, so that positioning is easily performed and the assembling operation is also easily performed. As a result, the assembly time can be shortened, and cost reduction and productivity improvement can be achieved. In addition, since the front end surface 25 of the second large diameter portion 24 can be tightened so as to be brought into contact with the rear end surface 15 of the first large diameter portion 14, the rear rod 20D can be firmly attached to the reel seat 30D.

[0052]

Furthermore, the structure in which the front portion 22 of the rear rod 20D can be attached to and detached from the inner circumferential surface 35 of the reel seat 30D can have variations, and the appearance (design) of the portion exposed to the rear of the reel seat 30D can be changed. As a result, the fishing rod 1D can be easily customized to a favorite fishing rod 1D by a simple operation of replacing the rear rod 20D with a rear rod with another specification.

[0053]

(Sixth Embodiment)

Next, a fishing rod 1E according to a sixth embodiment will be described with reference to Fig. 6. Fig. 6 is a cross-sectional view illustrating a main part of the fishing rod 1E according to the sixth embodiment of the present invention. The present embodiment is a modification in which the fourth embodiment and the fifth embodiment are combined, and the outer diameter of the rear portion 12 of a front rod 10E and the outer diameter of the front portion 22 of a rear rod 20E are different from each other, and the rear portion 12 of the front rod 10E and the front portion 22 of the rear rod 20E abut against (are brought into contact with) a protrusion 36E provided on the inner circumferential surface 35. Also in the present embodiment, the male screw 24n is formed on the second large diameter portion 24 of the rear rod 20E, and the female screw 35n is formed on the small-diameter inner circumferential surface 35b of a reel seat 30E as in the fourth and fifth embodiments.

[0054]

As illustrated in Fig. 6, the rear portion 12 of the front rod 10E has a larger diameter as a whole than the front portion 22 of the rear rod 20E. The

front portion 22 of the rear rod 20E has a relatively smaller diameter as a whole than the rear portion 12 of the front rod 10E. In addition, the inner circumferential surface 35 of a reel seat 30E comprises the large-diameter inner circumferential surface 35a and the small-diameter inner circumferential surface 35b having different inner diameters in a corresponding manner. The inner circumferential surface 35 has a stepped cylindrical shape.

[0055]

The protrusion 36E circumferentially protrudes radially inward at a boundary portion between the large-diameter inner circumferential surface 35a and the small-diameter inner circumferential surface 35b. The rear end surface 15 of the first large diameter portion 14 of the front rod 10E abuts against the front surface of the protrusion 36, and is bonded thereto with an adhesive. In addition, the front end surface 25 of the second large diameter portion 24 of the rear rod 20E abuts against the rear surface of the protrusion 36 by screw tightening.

[0056]

According to the present embodiment, operational effects similar to those of the fourth and fifth embodiments described above can be obtained. That is, at the time of assembling the fishing rod 1E, since the rear end surface 15 of the first large diameter portion 14 can be bonded to the protrusion 36E so as to be brought into contact therewith, positioning is easy and the assembling operation is easily performed. As a result, the assembly time can be shortened, and cost reduction and productivity improvement can be achieved. In addition, since the front end surface 25 of the second large diameter portion 24 can be tightened so as to be brought into contact with the protrusion 36E,

the rear rod 20E can be firmly attached to the reel seat 30E.

[0057]

(Seventh Embodiment)

Next, a fishing rod 1F according to a seventh embodiment will be described with reference to Fig. 7. Fig. 7 is a cross-sectional view illustrating a main part of the fishing rod 1F according to the seventh embodiment of the present invention. The present embodiment is different from the first to sixth embodiments in that press-fitting is adopted as the structure of attaching a rear rod 20F. Note that the first large diameter portion 14 of a front rod 10F is bonded to the inner circumferential surface 35 of a reel seat 30F with an adhesive.

[0058]

The second large diameter portion 24 of the rear rod 20F has an outer diameter that enables press-fitting into the rear portion of the inner circumferential surface 35 of the reel seat 30F. The rear portion 12 of the front rod 10F and the front portion 22 of the rear rod 20F are arranged in a non-contact state with a space S1 in the axial direction of the reel seat 30F. As a result, when the rear rod 20F is attached by press-fitting, the front end surface 25 of the second large diameter portion 24 does not abut against the rear end surface 15 of the first large diameter portion 14 of the front rod 10, and the front rod 10 has a structure not to receive stress from the rear rod 20 by press-fitting. Note that the size of the space S1 can be appropriately set.

[0059]

According to the present embodiment, the rear rod 20F having a different length and a different thickness can be attached to the inner

circumferential surface 35 of the reel seat 30F similarly to the embodiments described above. In addition, since the structure of attachment (joining) is simple, the cost of the fishing rod 1F can be reduced.

[0060]

The embodiments of the present invention have been described above, but design change can be appropriately made without contradicting the spirit of the present invention.

For example, the rear portion 12 of the front rod 10 (10A and the like) and the front portion 22 of the rear rod 20 (20A and the like) are formed to have a large diameter, but it is not limited thereto, and may be formed to have a small diameter. In this case, the front portion 22 of the rear rod 20 (30B and the like) is configured to be attachable to and detachable from at least the reel seat 30 (including a reel seat having a spacer interposed therebetween).

[0061]

In addition, in each of the above embodiments, the first inclined portion 13 and the second inclined portion 23 are provided so as to be exposed to the outside of the reel seat 30 (30B and the like). However, it is not limited thereto, and it may be configured that a part of the first inclined portion 13 and the second inclined portion 23 is disposed inside the inner circumferential surface 35 of the reel seat 30. Furthermore, the first large diameter portion 14 and the second large diameter portion 24 may be provided so as to be partially exposed to the outside of the reel seat 30 (30B and the like).

[0062]

In addition, for example, a hole may be formed in the reel seat 30 (30B and the like) such that the joining state (abutment state) between the rear

portion 12 of the front rod 10 (10A and the like) and the front portion 22 of the rear rod 20 (20A and the like) can be visually observed from the outside of the reel seat 30.

[0063]

In addition, in each of the above embodiments, the front rod 10 (10A and the like) and the rear rod 20 (20A and the like) are formed as tubular bodies (hollow bodies), but it is not limited thereto, and one or both of the front rod 10 (10A and the like) and the rear rod 20 (20A and the like) may be formed of a solid body. Furthermore, a part of them may be formed of a solid body.

[0064]

Furthermore, the rear portion 12 of the front rod 10 (10A and the like) may be formed of a fiber-reinforced resin prepreg (prepreg sheet) different from that of the front rod main body portion 11. Similarly, the front portion 22 of the rear rod 20 (20A and the like) may be formed of a fiber-reinforced resin prepreg (prepreg sheet) different from that of the rear rod main body portion 21.

[0065]

Moreover, in the first and second embodiments, the outer diameter of the first large diameter portion 14 of the front rods 10 and 10A is substantially the same as the outer diameter of the second large diameter portion 24 of the rear rods 20 and 20A. However, it is not limited thereto, and the outer diameters may be different from each other.

[0066]

In addition, in the third, fifth embodiments and the like, the front portion 22 (second large diameter portion 24) of the rear rod 20B (20D) may be configured to be attachable to and detachable from the rear portion 12 (first

large diameter portion 14) of the front rod 10B (10D) by screwing.

[0067]

Furthermore, in the third to sixth embodiments, the reel seat 30B (30C and the like) and the rear rod 20B (20C and the like) can be attached to and detached from each other by screwing. However, it is not limited thereto, and the second large diameter portion 24 of the rear rod 20B (20C and the like) may be attached to and detached from the inner circumferential surface 35 of the reel seat 30B (30C and the like) by press-fitting.

Reference Signs List

[0068]

1 to 1F fishing rod

10, 10A to 10F front rod

12 rear portion

20, 20A to 20F rear rod

22 front portion

30, 30B to 30F reel seat

35 inner circumferential surface

36, 36E protrusion

CLAIMS

[Claim 1]

A fishing rod comprising a front rod, a rear rod, and a reel seat having a cylindrical shape, wherein

a rear portion of the front rod is bonded to an inner circumferential surface of the reel seat with an adhesive, and

a front portion of the rear rod is attachable to and detachable from a rear portion of the front rod or an inner circumferential surface of the reel seat.

[Claim 2]

The fishing rod according to claim 1, wherein

in a configuration in which a front portion of the rear rod is attachable to and detachable from a rear portion of the front rod,

a front portion of the rear rod is joined to a rear portion of the front rod by a socket-and-spigot joint structure or an ordinarily jointed structure.

[Claim 3]

The fishing rod according to claim 1, wherein an outer diameter of a rear portion of the front rod and an outer diameter of a front portion of the rear rod are different from each other.

[Claim 4]

The fishing rod according to claim 1, wherein

in a configuration in which a front portion of the rear rod is attachable to and detachable from an inner circumferential surface of the reel seat,

a protrusion protruding radially inward is formed on an inner circumferential surface of the reel seat, and

a rear portion of the front rod and a front portion of the rear rod abut against the protrusion.

[Claim 5]

The fishing rod according to claim 1, wherein diameters of a rear portion of the front rod and a front portion of the rear rod are enlarged to a size corresponding to an inner circumferential surface of the reel seat.