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(54) **ROD WINDING APPARATUS**

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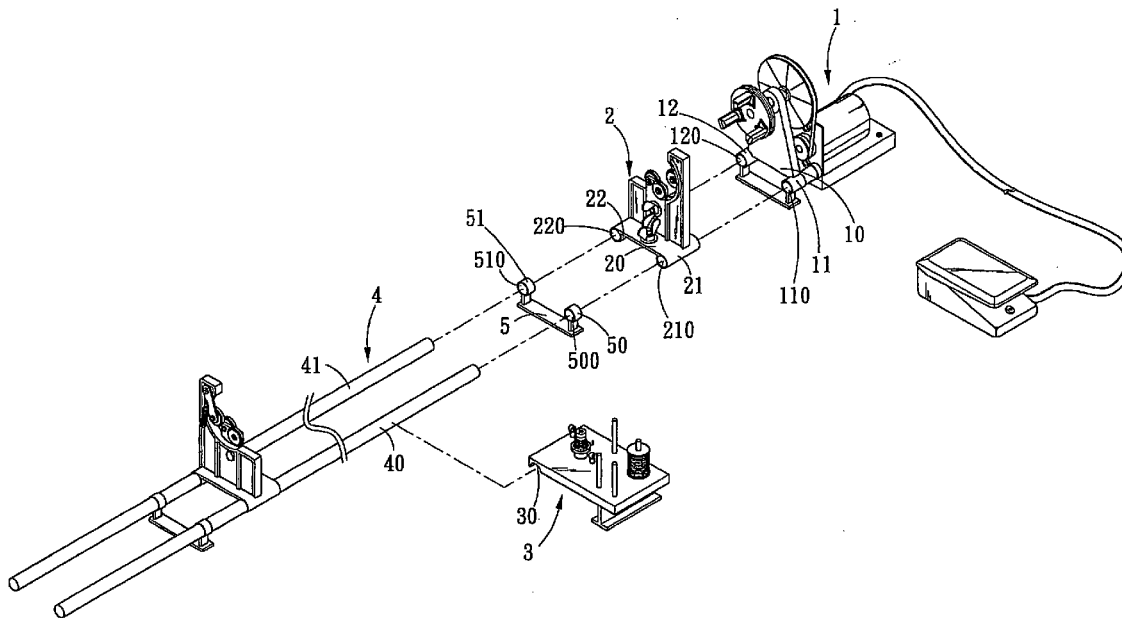
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(57) **ABSTRACT**

An improved rod winding apparatus includes a rack consisting of two opposing round bars, a chuck dock coupled on one end of the rack, adjustment docks and bracing docks mounted on the rack and a winding dock coupled on one round bar of the rack. The chuck dock has a first seat with first coupling rings that have respectively a first bore formed thereon. The adjustment dock has a second seat with second coupling rings that has respectively a second bore formed thereon. The bracing dock has third coupling rings that have respectively a third bore formed thereon. The winding dock has an arched trough to couple on one round bar. The invention allows rods of different lengths to be mounted thereon for winding threads. The adjustment docks, bracing docks and winding dock may be moved to desired locations for adjustment.



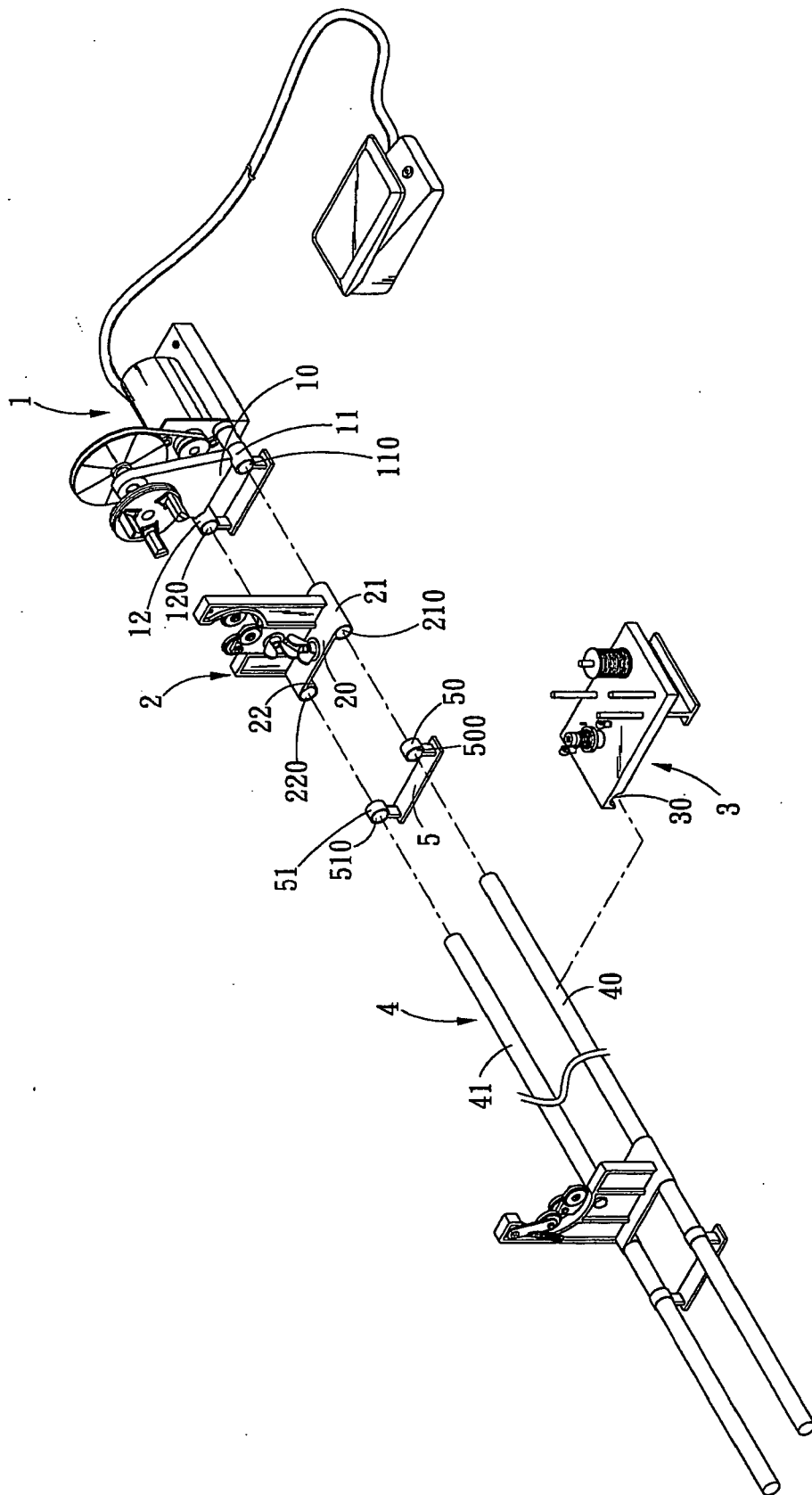


Fig. 1

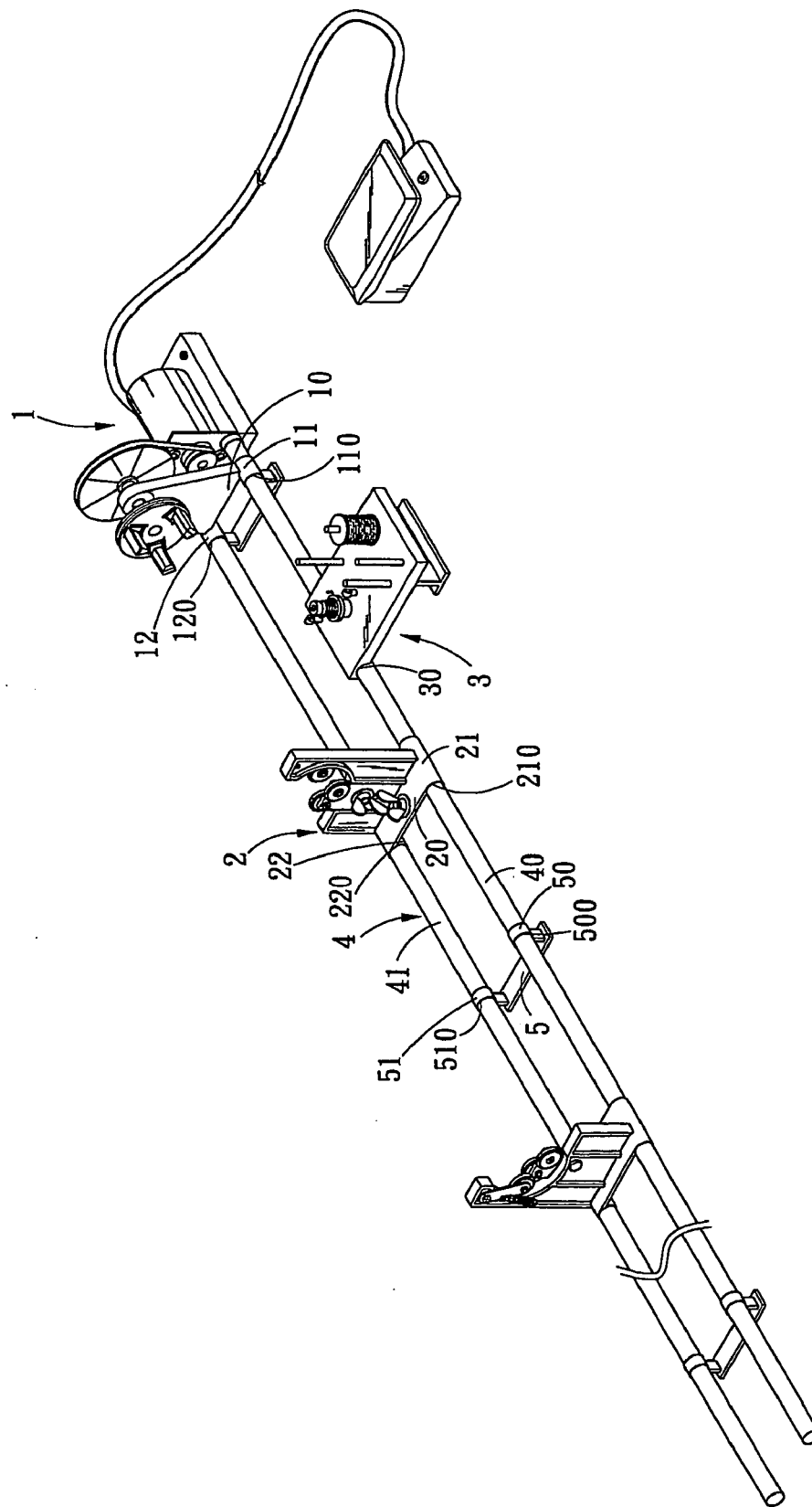


Fig. 2

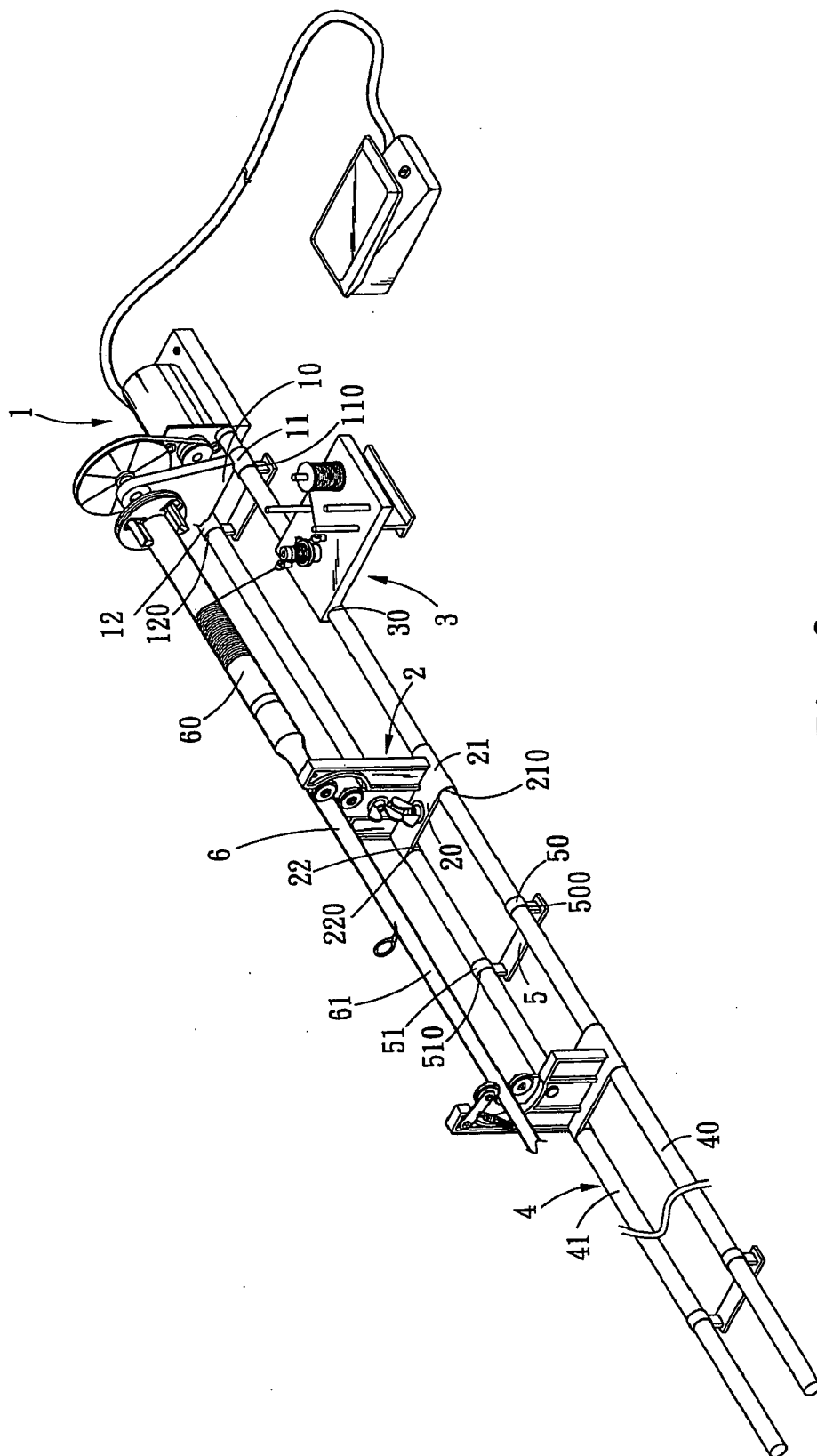


Fig. 3



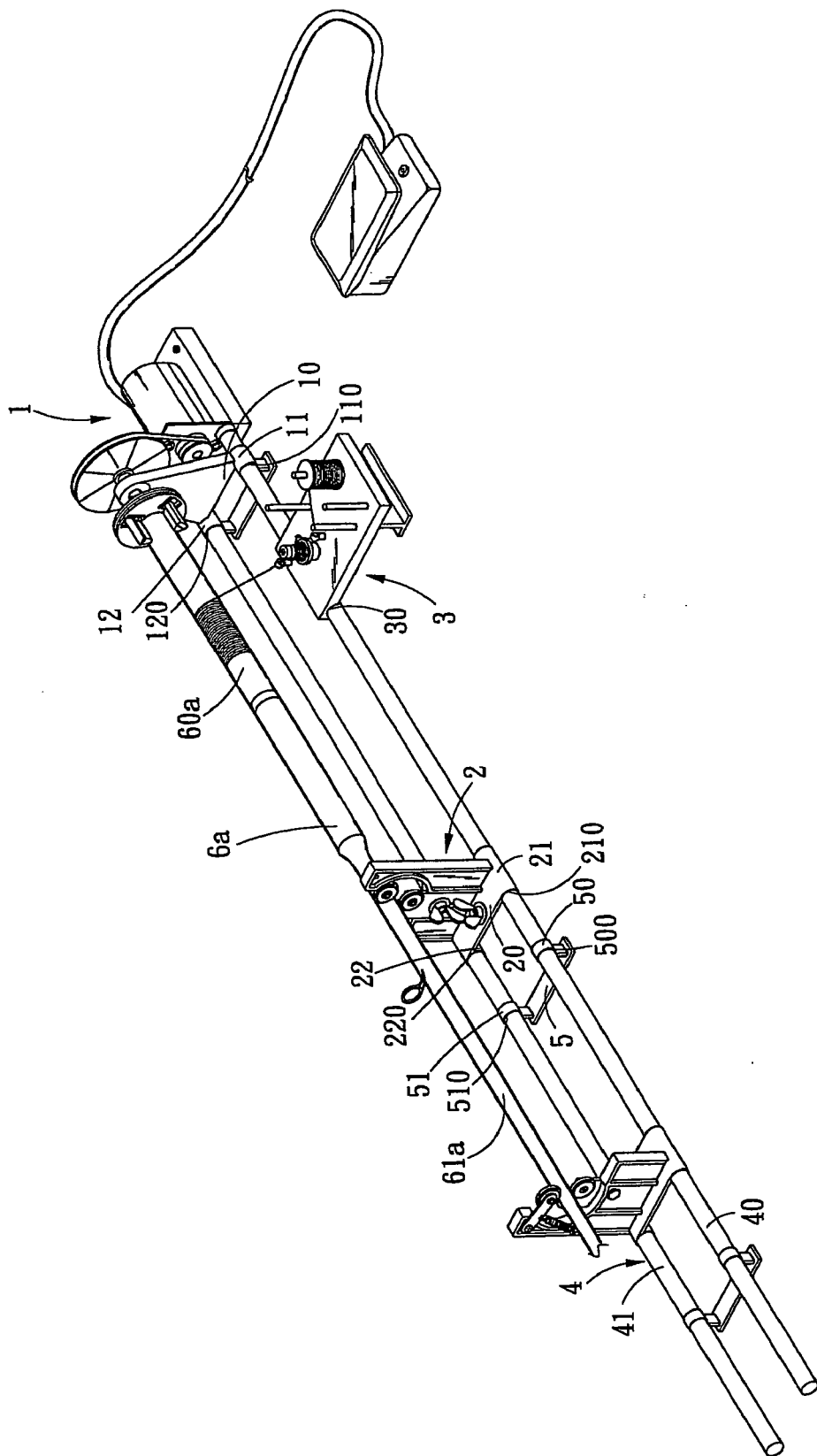


Fig. 5

## ROD WINDING APPARATUS

### FIELD OF THE INVENTION

[0001] The present invention relates to an improved rod winding apparatus adaptable to different rods that has adjustable adjustment docks, bracing docks and a winding dock.

### BACKGROUND OF THE INVENTION

[0002] The conventional method for winding a leather band on fishing rods, golf clubs, suspension rods, wooden rods or the like generally has to coat a layer of adhesive on the rods first. In operation, the common practice is to coat the adhesive while the rod is turning. Different lengths of rods have matching winding apparatus. While the winding apparatus has adjustment docks which may be moved forwards and backwards according to different lengths of the rods, it still has problems during assembly or use, notably:

[0003] 1. The adjustment docks are difficult to move for extension or retraction.

[0004] The rack usually is directly formed by aluminum extrusion, and a plurality of adjustment docks are mounted on the rack and movable forwards and backwards through the guiding of a bending plate on two sides of the rack.

[0005] The bending plate usually is made of a flat sheet which forms surface contact with the adjustment dock. Such a structure is not desirable for guiding (as surface contact usually is not smooth).

[0006] 2. The winding apparatus is suitable only for rods of a limited range of length, but not applicable to the rods that have the length varying in a wide range. To adjust the winding apparatus for the rods that have great length differences, movement on the rack for extension or retraction is difficult or even impossible. Sometimes another winding apparatus of a different model (larger one) has to be procured.

### SUMMARY OF THE INVENTION

[0007] In view of the aforesaid disadvantages occurred to the conventional winding apparatus, the object of the present invention is to provide an improved winding apparatus that has a rack consisting of two round bars opposing each other and a chuck dock, adjustment docks and bracing docks mounting on the rack that may be moved and adjusted smoothly.

[0008] In one aspect of the invention, the chuck dock is coupled to one end of the rack, and the adjustment docks and the bracing docks are mounted on the rack and a winding dock is coupled on one round bar so that the rods of different lengths may be mounted on the same winding apparatus, and the adjustment docks, bracing docks and winding dock may be moved to desired locations to match the rods.

[0009] In another aspect, the chuck dock, adjustment docks and bracing docks that couple on the rack have respectively a seat which has jutting coupling rings with bores formed therein. They are movable forwards and backwards on the rack through the coupling rings to adjust the mounting locations and distance.

[0010] In yet another aspect, the winding dock has an arched trough on the bottom of one side mating the curvature of the round bar of the rack to facilitate installation of the winding dock.

[0011] Thus the mounting locations of the adjustment docks, bracing docks and winding dock may be moved and adjusted to suit the rods of different lengths. Assembly may be done rapidly and easily.

[0012] The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is an exploded view of the present invention.

[0014] FIG. 2 is a perspective view of the present invention.

[0015] FIG. 3 is a schematic view of the present invention for coupling with a general rod.

[0016] FIG. 4 is a schematic view of the invention for moving the adjustment docks and the bracing docks.

[0017] FIG. 5 is a schematic view of the present invention for coupling with a rod of a different length.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Please referring to FIGS. 1 and 2, the present invention includes a rack 4 consisting of two opposing round bars 40 and 41, a chuck dock 1 anchored on one end of the rack 4, a plurality of adjustment docks 2 and bracing docks 5 mounting on the rack 4 and a winding dock 3 coupled on the round bar 40.

[0019] The chuck dock 1 includes a first seat 10 which has two opposing first coupling rings 11 and 12 extending downwards from two sides. The first coupling rings 11 and 12 have respectively a first bore 110 and 120 to couple with the round bars 40 and 41 of the rack 4.

[0020] The adjustment dock 2 includes a second seat 20 on a lower side that has two opposing second coupling rings 21 and 22 formed on two sides. The second coupling rings 21 and 22 have respectively a second bore 210 and 220 to couple with the round bars 40 and 41 of the rack 4.

[0021] The winding dock 3 has an arched trough 30 formed on the bottom of one side mating the curvature of the round bars 40 and 41.

[0022] The bracing dock 5 includes a third seat which has two opposing third coupling rings 50 and 51 extending upwards from two sides. The third coupling rings 50 and 51 have respectively a third bore 500 and 510 to couple with the round bars 40 and 41 of the rack 4.

[0023] For assembly, the chuck dock 1 is mounted on one end of the rack 4 by coupling the first coupling rings 11 and 12 with one end of the round bars 40 and 41, and the bracing dock 5 is coupled on other end of the round bars 40 and 41. The adjustment docks 2 are mounted on the rack 4 by coupling the second coupling rings 21 and 22 on the round

bars **40** and **41**. Depending on the length of rods **6** and **6a** (referring to FIGS. **3** through **6**), the adjustment docks **2** may be located on desired locations opposing each other. The arched trough **30** of the winding dock **3** may be coupled on the round bar **40** to enable the winding dock **3** to slide and be moved to the handgrips **60** and **60a** of the rods **6** and **6a** where winding is required. Then the handgrips **60** and **60a** may be coupled by the chuck dock **1**, while the stems **61** and **61a** of the rods **6** and **6a** may be coupled on the opposing adjustment docks. Depending on the length of the rods **6** and **6a**, the adjustment docks **2**, bracing docks **5** and winding dock **3** may be moved to desired locations. The round bars **40** and **41** are coupled with the coupling rings **21**, **22**, **50** and **51**. Thus moving and adjusting of the adjustment docks **2** and bracing docks **5** may be done smoothly and easily.

What is claimed is:

1. An improved rod winding apparatus, comprising:
  - a rack having two opposing round bars;
  - a chuck dock located on one end of the rack having a first seat which has two first coupling rings extended downwards from two sides thereof;
  - an adjustment dock mounted on the rack having a second seat on a lower side that has two second coupling rings formed on two sides thereof;

- a bracing dock mounted on the rack having two third coupling rings extended upwards from two sides thereof; and
  - a winding dock located on one side of the rack having an arched trough on the bottom of one side thereof;
- wherein the mounting locations of the adjustment dock, the bracing dock and the winding dock are adjustable according to the length of rods.
2. The improved rod winding apparatus of claim 1, wherein the first coupling rings have respectively a first bore to receive the round bars.
  3. The improved rod winding apparatus of claim 1, wherein the second coupling rings have respectively a second bore to receive the round bars.
  4. The improved rod winding apparatus of claim 1, wherein the third coupling rings have respectively a third bore to receive the round bars.
  5. The improved rod winding apparatus of claim 1, wherein the arched trough mates the curvature of the round bar.

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