assembly.

Furthermore, in prior art, the pressing mechanism is not provided with an elastic buffer component. Thus, when the carrier is pressed, it is possible that the pressing force exerted on the carrier is suddenly increased from zero to a predetermined value, which will impact the carrier and affect the polish accuracy of the fiber optic ferrule assembly.

SUMMARY OF THE INVENTION

Embodiments of the present invention seek to overcome or alleviate at least one aspect of the above mentioned disadvantages.

Accordingly, embodiments of the present invention seek to provide a polishing apparatus capable of adapting to carriers having various shapes.

Embodiments of the present invention also seek to provide a polishing apparatus to make sure that pressing force exerted on the carrier is always held to be perpendicular to the surface of the carrier.

Embodiments of the present invention also seek to provide a polishing apparatus to make sure that the pressing force exerted on the carrier is gradually increased from zero to a predetermined value.

According to an aspect of the present invention, there is provided a polishing apparatus, comprising: a base seat; a carrier constructed to carry a plurality of work pieces to be polished thereon; an elevating mechanism mounted on the base seat and having a pair of positioning plates constructed to install and position the carrier thereon; a pressing mechanism mounted on the base seat and having a pair of pressing heads constructed to press both ends of the carrier against the pair of positioning plates, respectively; and a polishing mechanism mounted on the base seat and constructed to polish the work pieces carried on the carrier, wherein the pressing heads each has an arc-shaped protrusion which is constructed to press a surface of the carrier.

According to an exemplary embodiment of the present invention, the arc-shaped protrusion is formed as hemisphere-shaped or hemicylinder-shaped.

According to another exemplary embodiment of the present invention, the work pieces to be polished are fiber optic ferrule assemblies each comprising a ferrule and a optical fiber fixed within an internal hole of the ferrule; a plurality of positioning slots are formed on the carrier, the fiber optic ferrule assemblies being clamped and positioned within a plurality of positioning slots of the carrier, respectively; and the polishing mechanism is constructed to polish end surfaces of the fiber optic ferrule assemblies.

What is claimed is,

1. A polishing apparatus, comprising:

a base seat;

a carrier constructed to carry a plurality of work pieces to be polished thereon;

an elevating mechanism mounted on the base seat and having a pair of positioning plates constructed to install and position the carrier thereon;

a pressing mechanism mounted on the base seat and having a pair of pressing heads constructed to press both ends of the carrier against the pair of positioning plates, respectively; and

a polishing mechanism mounted on the base seat and constructed to polish the work pieces carried on the carrier,

wherein the pressing heads each has an arc-shaped protrusion which is constructed to press a surface of the carrier.

2. The polishing apparatus according to claim 1, wherein, the arc-shaped protrusion is formed as hemisphere-shaped or hemicylinder-shaped.

3. The polishing apparatus according to claim 1, wherein,

the work pieces to be polished are fiber optic ferrule assemblies each comprising a ferrule and a optical fiber fixed within an internal hole of the ferrule;

a plurality of positioning slots are formed on the carrier, the fiber optic ferrule assemblies being clamped and positioned within a plurality of positioning slots of the carrier, respectively; and

the polishing mechanism is constructed to polish end surfaces of the fiber optic ferrule assemblies.

4. The polishing apparatus according to claim 3, wherein, the elevating mechanism comprising:

a pair of vertical support plates oppositely mounted on the base seat;

a pair of vertical slide rails provided on the support plates, respectively;

a pair of slide blocks slidably mated with the vertical slide rails, respectively;

a connection beam constructed to connect the pair of slide blocks and the pair of positioning plates so as to simultaneously move the slide blocks and the positioning plates; and

a first driving mechanism mounted on one of the vertical support plates to drive the slide blocks to move up and down along the vertical slide rails, respectively.

5. The polishing apparatus according to claim 4, wherein, the first driving mechanism comprises a linear actuator.

6. The polishing apparatus according to claim 5, wherein, the first driving mechanism comprises an air cylinder, a hydraulic cylinder or an electrical actuator.

7. The polishing apparatus according to claim 4, wherein, the carrier is positioned on the positioning plates in the manner of pin-hole mating.

8. The polishing apparatus according to claim 7, wherein,

each of the pair of positioning plates has a positioning pin extending vertically upward;

each of both ends of the carrier is formed with a positioning hole; and

the positioning pins of the positioning plates are fitted into the positioning holes of the carrier, respectively.

9. The polishing apparatus according to claim 8, wherein, the positioning pins and the positioning holes are clearance-fitted to allow to change a posture of the carrier.

10. The polishing apparatus according to claim 8, wherein,

each of the positioning plates has a horizontal extending portion, the positioning pin being located on an end of the horizontal extending portion; and

both ends of the carrier are placed on the horizontal extending portions of the pair of positioning plates, respectively.

11. The polishing apparatus according to claim 9, wherein,

the polishing mechanism comprises a horizontal support plate provided below the positioning plates, and a polishing film placed on the horizontal support plate; and

the polishing film constructed to reciprocatingly move along with the horizontal support plate so as to polish the end surfaces of the fiber optic ferrule assemblies.

12. The polishing apparatus according to claim 1, wherein,

the pressing mechanism comprises a pair of second driving mechanisms mounted on the pair of vertical support plates respectively; and

the pair of second driving mechanisms are constructed to drive the pair of pressing heads respectively to press the pair of pressing heads against the surface of the carrier.

13. The polishing apparatus according to claim 12, wherein,

the pressing mechanism further comprises an elastic buffer component, the second driving mechanisms pressing the elastic buffer component, to press the pressing heads against the surface of the carrier through the elastic buffer component, such that the pressing force exerted on the carrier being gradually increased from zero to a predetermined value.

14. The polishing apparatus according to claim 13, wherein,

the pressing heads each comprises an upper body portion and a lower body portion separate from the upper body portion; and

receiving grooves are formed on the upper body portion and the lower body

portion, respectively, the elastic buffer component being received in the receiving grooves.

15. The polishing apparatus according to claim 14, wherein,

guiding holes are formed in the upper body portion and the lower body portion , respectively; and

guide rods are inserted into guiding holes, respectively, such that during pressing the elastic buffer component, the upper body portion is guided to move in vertical direction with respect to the lower body portion.

16. The polishing apparatus according to claim 12, wherein,

actuation ends of the second driving mechanisms are provided with horizontal pressing plates, respectively; and

upper end surfaces of the pressing heads are attached to the horizontal pressing plates, respectively.

17. The polishing apparatus according to claim 16, wherein,

the pressing heads are made of elastic materials such that the pressing force exerted on the carrier is gradually increased from zero to a predetermined value.

18. The polishing apparatus according to claim 12, wherein,

the second driving mechanisms each comprises a linear actuator.

19. The polishing apparatus according to claim 18, wherein,

the second driving mechanisms each comprises an air cylinder, a hydraulic cylinder or an electrical actuator.

20. The polishing apparatus according to claim 12, wherein,

the vertical slide rails, the slide blocks and the first driving mechanism are mounted on outer sides of the vertical support plates, respectively; and

the second driving mechanisms are mounted on inner sides of the vertical support plates, respectively.

21. The polishing apparatus according to claim 1, wherein,

the carrier has a rectangle profile.