What is claimed is:

1. A polishing head for pressing a workpiece against a polishing pad to polish the workpiece, comprising:

a first elastic membrane configured to press the workpiece against the polishing pad;

a retainer ring surrounding the first elastic membrane;

a second elastic membrane configured to press the retainer ring against the polishing pad;

a carrier to which the first elastic membrane is secured;

an attachment member arranged in a pressure chamber formed by the second elastic membrane and fixing the second elastic membrane to the carrier; and

a coupling member configured to couple the second elastic membrane to the retainer ring,

the second elastic membrane including:

a bottom wall coupled to the coupling member; and

a side wall coupled to the bottom wall, the attachment member having a support portion extending toward the retainer ring along the side wall,

wherein the attachment member has a groove extending along the support portion in a circumferential direction of the second elastic membrane.

2. The polishing head according to claim 1, wherein:

the side wall comprises a first side wall and a second side wall separated from each other;

the support portion comprises two support portions extending along the first side wall and the second side wall, respectively;

the attachment member has a recessed portion located between the two support portions; and

the coupling member has a protruding portion which is housed in the recessed portion when the coupling member moves toward the attachment member.

3. The polishing head according to claim 1 or 2, wherein:

the bottom wall has a cross-sectional shape curved toward the retainer ring; and

at least a part of the support portion is housed in the curved bottom wall when the coupling member moves toward the attachment member.

4. The polishing head according to any one of claims 1 to 3, wherein at least an outer surface of the support portion has been subjected to a friction reduction treatment.

5. A polishing apparatus comprising:

a polishing table configured to support a polishing pad; and

the polishing head according to any one of claims 1 to 4 for pressing the workpiece against the polishing pad to polish the workpiece.

6. A polishing head for pressing a workpiece against a polishing pad to polish the workpiece, comprising:

a first elastic membrane configured to press the workpiece against the polishing pad;

a retainer ring surrounding the first elastic membrane;

a second elastic membrane configured to press the retainer ring against the polishing pad;

a carrier to which the first elastic membrane is secured;

an attachment member arranged in a pressure chamber formed by the second elastic membrane and fixing the second elastic membrane to the carrier; and

a coupling member configured to couple the second elastic membrane to the retainer ring,

the second elastic membrane including:

a bottom wall coupled to the coupling member; and

a side wall coupled to the bottom wall, the attachment member having a support portion extending toward the retainer ring along the side wall,

wherein the attachment member has through-holes extending through the support portion, and the through-holes are arranged along a circumferential direction of the second elastic membrane.

7. The polishing head according to claim 6, wherein:

the side wall comprises a first side wall and a second side wall separated from each other;

the support portion comprises two support portions extending along the first side wall and the second side wall, respectively;

the attachment member has a recessed portion located between the two support portions; and

the coupling member has a protruding portion which is housed in the recessed portion when the coupling member moves toward the attachment member.

8. The polishing head according to claim 6, wherein:

the bottom wall has a cross-sectional shape curved toward the retainer ring; and

at least a part of the support portion is housed in the curved bottom wall when the coupling member moves toward the attachment member.

9. The polishing head according to claim 6, wherein at least an outer surface of the support portion has been subjected to a friction reduction treatment.

10. A polishing apparatus comprising:

a polishing table configured to support a polishing pad; and

the polishing head according to claim 6 for pressing the workpiece against the polishing pad to polish the workpiece.

11. A polishing head for pressing a workpiece against a polishing pad to polish the workpiece, comprising:

a first elastic membrane configured to press the workpiece against the polishing pad;

a retainer ring surrounding the first elastic membrane;

a second elastic membrane that forms a pressure chamber configured to press the retainer ring against the polishing pad;

a carrier to which the first elastic membrane is secured;

an attachment member arranged in the pressure chamber and fixing the second elastic membrane to the carrier; and

a coupling member configured to couple the second elastic membrane to the retainer ring,

the second elastic membrane including:

a bottom wall coupled to the coupling member; and

a first side wall and a second side wall coupled to the bottom wall, the attachment member having a first support portion and a second support portion extending toward the retainer ring along the first side wall and the second side wall, respectively,

wherein the first support portion and the second support portion are located in the pressure chamber.

12. The polishing head according to claim 11, wherein:

the attachment member has a recessed portion located between the first support portion and the second support portion; and

the coupling member has a protruding portion which is housed in the recessed portion when the coupling member moves toward the attachment member.

13. The polishing head according to claim 11 or 12, wherein:

the bottom wall has a cross-sectional shape curved toward the retainer ring; and

at least a part of the first support portion and at least a part of the second support portion are housed in the curved bottom wall when the coupling member moves toward the attachment member.

14. The polishing head according to any one of claims 11 to 13, wherein the attachment member has grooves extending along the first support portion and the second support portion, respectively, in a circumferential direction of the second elastic membrane.

15. The polishing head according to any one of claims 11 to 14, wherein the attachment member has through-holes extending through the first support portion and the second support portion, and the through-holes are arranged along a circumferential direction of the second elastic membrane.

16. The polishing head according to any one of claims 11 to 15, wherein at least outer surfaces of the first support portion and the second support portion have been subjected to a friction reduction treatment.

17. A polishing apparatus comprising:

a polishing table configured to support a polishing pad; and

the polishing head according to any one of claims 11 to 16 for pressing the workpiece against the polishing pad to polish the workpiece.