fixed to the polishing-head drive shaft **11**, and driven pins (not shown) fixed to the housing **2***a*. The driving pins and the driven pins are vertically movable relative to each other. Accordingly, even when the head body **2** is tilted, the pins still engage each other, with contact points of the pins being shifted. The rotation transmitting mechanism thus securely transmits the torque of the polishing-head drive shaft **11** to the head body **2**.

[0128] In the space formed in the head body **2** and the retainer ring **3** fixed integrally to the head body **2**, there are housed an elastic pad **4** to be in contact with the substrate W, an annular holder ring **5**, and a substantially disk-shaped chucking plate **6** for supporting the elastic pad **4**. The elastic pad **4** is sandwiched, at its peripheral portion, between the holder ring **5** and the chucking plate **6** fixed to a lower end of the holder ring **5**. The elastic pad **4** is shaped so as to cover a lower surface of the chucking plate **6**. A space is thus formed between the elastic pad **4** and the chucking plate **6**.

[0129] A pressure sheet **7**, composed of an elastic membrane, is provided so as to stretch between the holder ring **5** and the head body **2**. One end of the pressure sheet **7** is sandwiched between the housing **2***a* and the pressure-sheet support **2***b* of the head body **2**, and another is sandwiched between an upper end portion **5***a* and a stopper portion **5***b* of the holder ring **5**. A pressure chamber **21** is formed inside the head body **2**. This pressure chamber **21** is defined by the head body **2**, the chucking plate **6**, the holder ring **5**, and the pressure sheet **7**. The pressure chamber **21** is located above the chucking plate **6**. As shown in FIG. **5**, a fluid passage **31**, which comprises a tube and connectors, is provided so as to communicate with the pressure chamber **21**. The pressure chamber **21** is coupled to the compressed air source **120** via a regulator RE**2** provided in the fluid passage **31**. The pressure sheet **7** is made from, for example, a rubber material having excellent strength and durability, such as ethylene-propylene rubber (EPDM), polyurethane rubber, or silicon rubber.

[0130] If the pressure sheet **7** is made from an elastic material, such as rubber, and is sandwiched between the retainer ring **3** and the head body **2**, a desirable flat plane may not be obtained in the lower surface of the retainer ring **3**, because of elastic deformation of the elastic pressure sheet **7**. In order to avoid such a drawback, the pressure-sheet support **2***b* is separately provided, according to this embodiment, so as to sandwich and fix the pressure sheet **7** between the housing **2***a* and the pressure-sheet support **2***b* of the head body **2**.

[0131] It is possible to make the retainer ring **3** vertically movable relative to the head body **2** or to make the retainer ring **3** operable to press the polishing pad **101** independent of the head body **2**, as disclosed in Japanese Patent Application No. 8-50956 (Laid-Open Publication No. 9-168964) or Japanese Patent Application No. 11-294503. In such a case, the above-described structure of fixing the pressure sheet **7** may not necessarily be employed.

[0132] A center bag (a central contact member) **8** and a ring tube (an outer contact member) **9**, which are contact members to be in contact with the elastic pad **4**, are provided in the space formed between the elastic pad **4** and the chucking plate **6**. As shown in FIGS. **5** and **6**, in this embodiment, the center bag **8** is disposed on the central portion of the lower surface of the chucking plate **6**, and the ring tube **9** is disposed outside of the center bag **8** so as to surround the center bag **8**. The elastic pad **4**, the center bag **8**, and the ring tube **9** are made from rubber having excellent strength and durability, such as ethylene-propylene rubber (EPDM), polyurethane rubber, or silicon rubber, as with the pressure sheet **7**.

[0133] The space formed between the chucking plate **6** and the elastic pad **4** is divided by the center bag **8** and the ring tube **9** into plural chambers: a pressure chamber **22** formed between the center bag **8** and the ring tube **9**; and a pressure chamber **23** formed outside the ring tube **9**.

[0134] The center bag **8** comprises an elastic membrane **81**, which is to be in contact with an upper surface of the elastic pad **4**, and a center bag holder (holding member) **82** detachably holding the elastic membrane **81**. The center bag holder **82** has screw holes **82***a* formed therein. Screws **55** are inserted into the screw holes **82***a* to thereby allow the center bag **8** to be detachably mounted on the central portion of the lower surface of the chucking plate **6**. Inside the center bag **8**, a central pressure chamber **24** is defined by the elastic membrane **81** and the center bag holder **82**.

[0135] Similarly, the ring tube **9** comprises an elastic membrane **91**, which is to be in contact with the upper surface of the elastic pad **4**, and a ring tube holder (holding member) **92** detachably holding the elastic membrane **91**. The ring tube holder **92** has screw holes **92***a* formed therein. Screws **56** are inserted into the screw holes **92***a* to thereby allow the ring tube **9** to be detachably mounted on the lower surface of the chucking plate **6**. Inside the ring tube **9**, an intermediate pressure chamber **25** is defined by the elastic membrane **91** and the ring tube holder **92**.

[0136] Fluid passages **33**, **34**, **35**, and **36**, each including a tube and connectors, are provided so as to communicate with the pressure chambers **22** and **23**, the central pressure chamber **24**, and the intermediate pressure chamber **25**, respectively. The pressure chambers **22** to **25** are coupled to the compressed air source **120** as a pressurized-fluid supply source via regulators RE**3**, RE**4**, RE**5**, and RE**6** respectively provided in the fluid passages **33**-**36**. The above-described fluid passages **31**, **33**-**36** are coupled to the respective regulators RE**2**-RE**6** via rotary joints (not shown) provided at an upper end of the polishing-head drive shaft **11**.

[0137] A pressurized fluid (e.g., pressurized air) is to be supplied to the above-described pressure chambers **21**-**25**, or atmospheric pressure or vacuum is to be produced in the pressure chambers **21**-**25** via the fluid passages **31**, **33**-**36**. As shown in FIG. **4**, the pressures of pressurized fluids to be supplied to the pressure chambers **21**-**25** can be adjusted by the regulators RE**2**-RE**6** provided in the fluid passages **31**, **33**-**36**. The pressures in the pressure chambers **21**-**25** can thus be controlled independently, or atmospheric pressure or vacuum can be produced in the pressure chambers **21**-**25**.

[0138] In this manner, by changing the pressures in the pressure chambers **21**-**25** independently via the regulators RE**2**-RE**6**, the elastic pad **4** can press the substrate W against the polishing pad **101** with pressing forces adjusted for respective portions (divisional areas) of the substrate W. The pressure chambers **21**-**25** may be coupled to a vacuum source **121**, as desired.

[0139] As shown in FIG. **4**, the upper surface of the polishing table **100** of the electrochemical mechanical polishing apparatus **250** is covered with a disk-shaped insulating plate **252**, and a first electrode (cathode) **256**, coupled to one of poles of a power source **254**, is disposed on an upper surface of the insulating plate **252**. In this embodiment, the first electrode **256** is comprised of plural (three) ring-shaped divided electrodes **256***a* to **256***c* which are concentrically arranged. A cylindrical core **258** is disposed in a center of the