

polishing device (double-side polishing device) used in the first polishing step. FIG. 3 is a cross-sectional view of the polishing device (double-side polishing device) used in the first polishing step. It should be noted that a configuration similar to this polishing device can also be applied in the grinding device used in the grinding step described above.

[0047] As shown in FIG. 2, the polishing device has a pair of upper and lower surface plates, that is, an upper surface plate 40 and a lower surface plate 50. An annular raw glass plate G is held between the upper surface plate 40 and the lower surface plate 50, and the raw glass plate G and the surface plates are moved relative to each other by moving one or both of the upper surface plate 40 and the lower surface plate 50, so that the two main surfaces of the raw glass plate G can be polished.

[0048] The configuration of the polishing device will be more specifically described with reference to FIGS. 2 and 3.

In the polishing device, planar polishing pads 10 having an annular shape as a whole are attached to the upper surface of the lower surface plate 50 and the bottom surface of the upper surface plate 40. A carrier 30 has a tothing 31 that is provided on its outer circumferential portion and is meshed with a sun gear 61 and an inner gear 62, and one or more hole portions 31 for accommodating and holding the raw glass plate G. The sun gear 61, the inner gear 62 provided on the outer edge and the disc-shaped carrier 30 constitute, as a whole, a planetary gear mechanism that has a central axis CTR as the center. The disc-shaped carrier 30 is meshed with the sun gear 61 on the inner circumferential side and with the inner gear 62 on the outer circumferential side, and accommodates and holds one or more raw glass plates G (workpieces). On the lower surface plate 50, the carrier 30 revolves around the sun gear while rotating on its own axis as a planetary gear, and the raw glass plate G and the lower surface plate 50 are moved relative to each other. For example, when the sun gear 61 rotates in a counterclockwise (CCW) direction, the carrier 30 rotates in a clockwise (CW) direction and the inner gear 62 rotates in the CCW

that has been evacuated and the layers from the adherent layer to the magnetic recording layer are sequentially formed on the main surface of the substrate in an Ar atmosphere by a DC magnetron sputtering method. CrTi can be used in the adherent layer, Ru can be used in the base layer, and a CoCrPt based alloy can be used in the magnetic recording layer, for example. After the film deposition as described above, by forming the protecting layer using C₂H₄ by, for example, a CVD method and performing nitriding processing that introduces nitrogen to the surface in the same chamber, a magnetic recording medium can be formed. Thereafter, by coating the protecting layer with polyfluoropolyether (PFPE) by a dip coat method, the lubricant layer can be formed.

In addition, a soft under layer (SUL), a seed layer, and the like may be formed between the adherent layer and the magnetic recording layer by a known film deposition method such as a sputtering method (including a DC magnetron sputtering method, RF magnetron sputtering method, and the like) or a vapor deposition method. It is possible to refer to, for example, JP 2009-110626A, paragraphs [0027] to [0032] for detailed description on the above-described layers.

[0060] It is thought that it is preferable to use a high Ku magnetic material to form a magnetic recording layer in a magnetic disk for energy-assisted magnetic recording. For example, the magnetic recording layer can be made of an L10 ordered alloy including a magnetic material containing an alloy of Pt, and Fe and/or Co as a main component. In order to obtain such a magnetic recording layer, the magnetic material containing an alloy of Pt, and Fe and/or Co as a main component is deposited on the main surface of the substrate, and then annealing processing for ordering the layer is performed. Here, the above annealing processing is generally performed at a high temperature of higher than 500°C. Accordingly, if glass constituting the substrate has poor heat resistance, the glass is deformed at a high temperature and flatness is impaired. In contrast, the substrate having the above-described composition

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that has been evacuated and the layers from the adherent layer to the magnetic recording layer are sequentially formed on the main surface of the substrate in an Ar atmosphere by a DC magnetron sputtering method. CrTi can be used in the adherent layer, Ru can be used in the base layer, and a CoCrPt based alloy can be used in the magnetic recording layer, for example. After the film deposition as described above, by forming the protecting layer using C₂H₄ by, for example, a CVD method and performing nitriding processing that introduces nitrogen to the surface in the same chamber, a magnetic recording medium can be formed. Thereafter, by coating the protecting layer with perfluoropolyether (PFPE) by a dip coat method, the lubricant layer can be formed.

In addition, a soft under layer (SUL), a seed layer, and the like may be formed between the adherent layer and the magnetic recording layer by a known film deposition method such as a sputtering method (including a DC magnetron sputtering method, RF magnetron sputtering method, and the like) or a vapor deposition method. It is possible to refer to, for example, JP 2009-110626A, paragraphs [0027] to [0032] for detailed description on the above-described layers.

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