material and a polishing method capable of reducing a polishing rate of a silicon surface.

The above and other objects, features and advantages of the present disclosure will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not to be considered as limiting the present disclosure.

BRIEF DESCRIPTION OF DRAWINGS

Figs. 1A and 1B are cross-sectional views of an example of a semiconductor substrate to be polished by CMP in STI;

Figs. 2A to 2D are schematic cross-sectional views for explaining an action of a polishing material according to the present disclosure;

Fig. 3 is a schematic diagram showing an example of a polishing device; and Figs. 4A to 4C show changes of one substrate over time. Fig. 4A shows a pattern substrate (intermediate product) before the substrate in Fig. 4B is manufacured; Fig. 4B shows an initial state of the substrate used for evaluating the pattern polishing rate; and Fig. 4C shows the state of the substrate after the pattern polishing rate evaluation test.

DESCRIPTION OF EMBODIMENTS

Hereinafter, embodiments of the present disclosure will be described. The present disclosure is not limited to the following embodiments, and other embodiments may fall within the scope of the present disclosure as long as they are consistent with the spirit of the present disclosure.

In the present disclosure, the term “surface to be polished” means a surface of a polishing target to be polished and is, for example, a surface. In this specification, the surface in an intermediate stage appearing on a semiconductor substrate during the process of manufacturing a semiconductor device is also included in the term “surface to be polished”.

In the present disclosure, the term “silicon oxide” is specifically silicon dioxide, but the present disclosure is not limited to this, and the term “silicon oxide” also includes silicon oxide other than silicon dioxide.

In the present disclosure, the term “selection ratio” means a ratio (R_A/R_B) of a polishing rate (R_A) of a film A (e.g., a stopper film) to a polishing rate (R_B) of a film $_B$ (e.g., a polishing target film).

In addition, the term “to” between numerical values indicating a numerical