CLAIMS

1. A Fabry-Perot interference filter comprising:

a substrate having a first surface;

a first layer having a first mirror portion disposed on the first surface;

a second layer having a second mirror portion facing the first mirror portion with an air gap interposed therebetween on a side opposite to the substrate with respect to the first mirror portion; and

an intermediate layer defining the air gap between the first layer and the second layer,

wherein the substrate has an outer edge portion positioned outside an outer edge of the intermediate layer when viewed from a direction perpendicular to the first surface,

wherein the second layer further includes:

a covering portion covering the intermediate layer; and

a peripheral edge portion positioned on the first surface in the outer edge portion,

wherein the second mirror portion, the covering portion, and the peripheral edge portion are integrally formed, and

wherein the peripheral edge portion is thinned along an outer edge of the outer edge portion so as to include a non-thinned portion continuous with the covering portion and a thinned portion surrounding the non-thinned portion, and

wherein a surface of the second layer on the first surface side in the peripheral edge portion is positioned more toward the first surface side than a surface of the first layer defining the air gap with the second

layer.

2. The Fabry-Perot interference filter according to claim 1, wherein the covering portion covers an outer edge of the first layer.

3. The Fabry-Perot interference filter according to claim 1, wherein the first layer is a laminate including a silicon nitride layer.

4. The Fabry-Perot interference filter according to claim 1,

wherein the second layer is a laminate including a plurality of layers, and

wherein the peripheral edge portion is thinned along the outer edge of the outer edge portion by removing a portion of the plurality of layers.

5. The Fabry-Perot interference filter according to claim 1, further comprising a third layer disposed on a second surface of the substrate opposing to the first surface,

wherein the third layer is thinned along the outer edge of the outer edge portion.

6. A method for producing a Fabry-Perot interference filter, the Fabry-Perot interference filter comprising:

a substrate having a first surface;

a first layer having a first mirror portion disposed on the first surface;

a second layer having a second mirror portion facing the first mirror portion with an air gap interposed therebetween on a side opposite to the substrate with respect to the first mirror portion; and

an intermediate layer defining the air gap between the first layer and the second layer,

wherein the substrate has an outer edge portion positioned outside an outer edge of the intermediate layer when viewed from a direction perpendicular to the first surface,

wherein the second layer further includes:

a covering portion covering the intermediate layer; and

a peripheral edge portion positioned on the first surface in the outer edge portion,

wherein the second mirror portion, the covering portion, and the peripheral edge portion are integrally formed, and

wherein the peripheral edge portion is thinned along an outer edge of the outer edge portion so as to include a non-thinned portion continuous with the covering portion and a thinned portion surrounding the non-thinned portion, and

wherein a surface of the second layer on the first surface side in the peripheral edge portion is positioned more toward the first surface side than a surface of the first layer defining the air gap with the second layer,

the method comprising:

a first step of preparing a wafer including a plurality of portions corresponding to the substrate and forming the first layer having the first mirror portion for each of the portions corresponding to the substrate;

a second step of forming the intermediate layer having a removal scheduled portion corresponding to the air gap for each of the portions corresponding to the substrate after the first step;

a third step of forming the second layer having the second

mirror portion having a plurality of through holes formed therein, the covering portion covering the intermediate layer, and the peripheral edge portion thinned along the outer edge of the outer edge portion for each of the portions corresponding to the substrate after the second step;

a fourth step of forming the air gap positioned between the first mirror portion and the second mirror portion for each of the portions corresponding to the substrate by removing the removal scheduled portion by etching through the through hole after the third step; and

a fifth step of obtaining the Fabry-Perot interference filter by cutting the wafer along the outer edge of the outer edge portion after the fourth step.

7. The method for producing the Fabry-Perot interference filter according to claim 6, wherein, in the fifth step, the wafer is cut along the outer edge of the outer edge portion by forming a modified region in an inner portion of the wafer along the outer edge of the outer edge portion by irradiation with a laser beam and by extending a crack from the modified region in a thickness direction of the wafer.