both the slipperiness of the surface of the transparent plastic film to which the transparent conductive layer is laminated and the physical and chemical properties of the other surface of the transparent plastic film.

[0024] According to the second aspect of the present invention, the transparent conductive film according to the aforementioned first aspect is used as at least one of the pair of sheets having electrodes, constituting the touch panel. The transparent conductive film shows good slipperiness when its surface having the fine irregularities is processed, so that it is possible to easily produce the touch panel.

[0025] According to the third aspect of the present invention, the transparent conductive film according to the aforementioned first aspect is used as at least one of the pair of sheets having electrodes, constituting the electroluminescent display panel. Since the surface of the transparent conductive film on which the fine irregularities are provided is excellent in slipperiness, the electroluminescent display panel can easily be produced.

[0026] In the second and third aspects of the present invention, by making the ten-point mean roughness (Rz) of the fine irregularities provided on the transparent conductive film between 0.35 μm and 1.5 μm, it is possible to obtain, in addition to the above-described effects, the effect of further improving the slipperiness of the surface of the transparent conductive film on which the fine irregularities are provided. Moreover, it is possible to obtain a touch panel or electroluminescent display panel capable of effectively overcoming such drawbacks that its screen appears white and that an image displayed on the screen appears fuzzy.

[0027] According to the fourth aspect of the present invention, after laminating the transparent conductive layer to one surface of the transparent plastic film, the ionizing-radiation-curing resin is interposed between the surface of the transparent plastic film opposite to the above-described surface and the die face of the die for providing fine irregularities having a maximum height (Rmax) of 0.5 to 2.0 μm, and is cured by the application of ionizing radiation to form the cured ionizing-radiation-curing resin layer, which is then separated from the die. Therefore, the surface of the transparent plastic film on which the fine irregularities are provided shows improved slipperiness, so that it is possible to produce smoothly and stably the transparent conductive film without modifying a part of the production unit or adding any particular means to the production unit. There can thus be easily and securely obtained a transparent conductive film free from those problems that occur when a mat paint is applied.

[0028] According to the fifth aspect of the present invention, after interposing the ionizing-radiation-curing resin between one surface of the transparent plastic film and the die face of the die for providing fine irregularities having a maximum height (Rmax) of 0.5 to 2.0 μm and curing the resin by the application of ionizing radiation to form the cured ionizing-radiation-curing resin layer, which is then separated from the die, the transparent conductive layer is laminated to at least one of the two surfaces, that is, the surface of the transparent plastic film to which the ionizing-radiation-curing resin layer is not laminated and the exposed surface of the ionizing-radiation-curing resin layer. Therefore, the surface of the transparent plastic film on which the fine irregularities are provided shows improved slipperiness, so that it is possible to produce smoothly and stably the transparent conductive film without modifying a part of the production unit or adding any particular means to the production unit. There can thus be easily and securely obtained a transparent conductive film free from those problems that occur when a mat paint is applied.

[0029] In the fourth and fifth aspects of the present invention, by making the ten-point mean roughness (Rz) of the fine irregularities that are the inverse of the irregularities of the die face of the die between 0.35 μm and 1.5 μm, it is possible to obtain, in addition to the above-described effects, the effect of further improving the slipperiness of the surface of the transparent plastic film on which the fine irregularities are provided. Moreover, it becomes possible to obtain a transparent conductive film capable of effectively overcoming such drawbacks that a screen on which the transparent conductive film is placed appears white and that an image on the screen visible through the transparent conductive film appears fuzzy.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] In the drawings,

[0031] **FIGS. 1A and 1B** are diagrammatic cross-sectional views showing transparent conductive films according to an embodiment of the present invention;

[0032] **FIG. 2** is a diagrammatic cross-sectional view showing a modification of the transparent conductive films shown in **FIGS. 1A and 1B**;

[0033] **FIG. 3** is a flowchart illustrating a process of producing a transparent conductive film according to an embodiment of the present invention;

[0034] **FIG. 4** is a flowchart illustrating another process of producing a transparent conductive film according to an embodiment of the present invention;

[0035] **FIG. 5** is a view showing a production unit useful for producing a transparent conductive film according to an embodiment of the present invention;

[0036] **FIG. 6** is a diagrammatic cross-sectional view showing a touch panel including a transparent conductive film according to an embodiment of the present invention; and

[0037] **FIG. 7** is a diagrammatic cross-sectional view showing an electroluminescent display panel including a transparent conductive film according to an embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0038] By referring now to the accompanying drawings, embodiments of the present invention will be described hereinafter.

[0039] (Overall Construction of Transparent Conductive Film)

[0040] **FIG. 1A** is a view showing a transparent conductive film according to an embodiment of the present invention. In a transparent conductive film **1** shown in this figure, a fine irregularity layer (transparent resin layer) **3** having fine irregularities on its exposed surface is laminated to one