

displayed on the display unit 29. The element muscle portion G9 is arranged on the key K9 of numeral "9" of the icon image displayed on the display unit 29. The element muscle portion G10 is arranged on the key K10 of numeral "0" of the icon image displayed on the display unit 29.

[0290] Also, the element muscle portion G11 is arranged on the key K11 of symbol "*" of the icon image displayed on the display unit 29. The element muscle portion G12 is arranged on the key K12 of symbol "#" of the icon image displayed on the display unit 29. The element muscle portion G13 is arranged on the key of determination "O" of the cross key of the icon image displayed on the display unit 29. The element muscle portion G14 is arranged on the left facing arrow key of the icon image displayed on the display unit 29. The element muscle portion G15 is arranged on the upward facing arrow key of the icon image displayed on the display unit 29. The element muscle portion G16 is arranged on the right facing arrow key of the icon image displayed on the display unit 29. The element muscle portion G17 is arranged on the downward facing arrow key of the icon image displayed on the display unit 29.

[0291] Further, the element muscle portion G18 is arranged on the key of "etc" of the icon image displayed on the display unit 29. The element muscle portion G19 is arranged on the key of "REW" of the icon image displayed on the display unit 29. The element muscle portion G20 is arranged on the left facing arrow stop key of the icon image displayed on the display unit 29. The element muscle portion G21 is arranged on the right facing arrow stop key of the icon image displayed on the display unit 29. The element muscle portion G22 is arranged on the left facing fast-forward key of the icon image displayed on the display unit 29. The element muscle portion G23 is arranged on the fast-forward key of the icon image displayed on the display unit 29. The element muscle portion G24 is arranged on the reproduction key of the icon image displayed on the display unit 29. The element muscle portion G25 is arranged on the stop key of the icon image displayed on the display unit 29.

[0292] As the electrode patterns 51a, 51b, 52a, 52b which sandwich these element muscle portions G1 to G25, there is used a transparent thin film material having transmissivity and a refractive index which are approximately equal to transmissivity and a refractive index of the base frame portion 53. As the electrode patterns 51a, 51b, 52a, 52b, there is used, for example, an ITO film of the film thickness of around 0.1 to 0.125 [mm]. The hardness thereof is around 20° to 40°.

[0293] The electrode patterns 51a, 51b and the electrode patterns 52a, 52b are connected with the driving power supply, not shown, which applies the driving voltage to the twenty five element muscle portions G1 to G25 for presenting a sense of touch, for every group, which are sandwiched between the electrode patterns 51a, 51 and the electrode patterns 52a, 52b. The direct-current power supply as explained in FIG. 29B is used for the driving power supply 55.

[0294] The following will describe an operation example of the input device 500. FIGS. 31A and 31B show an operation example of the input device 500.

[0295] The input device 500 shown in FIG. 31A includes the touch-sensitive sheet member 150 shown in FIG. 30. In the touch-sensitive sheet member 150 shown in FIG. 31A, the driving power supply 55 connected to the electrode pattern 51a of the base sheet 51A and the electrode pattern 52a of the base sheet 52A does not supply the driving voltage. In this case, the original shapes of the element muscle portions G1,

G4 and the like which are sandwiched between the electrode pattern 51a and the electrode pattern 52a are kept without swelling.

[0296] In the touch-sensitive sheet member 150 shown in FIG. 31B, the driving power supply 55 supplies the driving voltage to the electrode patterns 51a, 52a. For example, the driving power supply 55 supplies the DC voltage of around +1.5V to the electrode patterns 51a, 52a. In this case, the element muscle portions G1, G4 and the like which are sandwiched between the electrode pattern 51a and the electrode pattern 52a swell and the resulted convex shaped postures thereof are kept.

[0297] In a case in which the first group is selected in the input device 500 according to the above-mentioned operation principle of the touch-sensitive sheet member 150, the voltage of plus polarity is applied to the electrode pattern 51a and the electrode pattern 52a. This applied voltage enables the seventeen element muscle portions G1 to G17 which are sandwiched between the electrode pattern 51a and the electrode pattern 52a to swell at the same time, which changing their postures to the convex shaped ones.

[0298] Similarly, in a case in which the second group is selected in the input device 500, the voltage of plus polarity is applied to the electrode pattern 51b and the electrode pattern 52b. This applied voltage enables the eight element muscle portions G18 to G25 which are sandwiched between the electrode pattern 51b and the electrode pattern 52b to swell at the same time, which changing their postures to the convex shaped ones. Each of the element muscle portions G1 to G25 returns to their original shapes when the applying of the driving voltage to the electrode patterns 51a, 51b, the electrode patterns 52a, 52b or the like is stopped. The convex shaped postures of such element muscle portions G1 to G17 or G18 to G25 respectively give the concave and convex touch feelings to the operator's finger or the like when the slide operation or the press operation is executed.

[0299] The configuration and the information processing example of the mobile phone mounted with the input device 500 are approximately similar as the configuration of the mobile phone 600 shown in FIG. 20 and the information processing example shown in FIG. 23, so that the explanation thereof will be omitted. It should be noted that with respect to mobile phone mounted with the input device 500, the block diagram can be applied by reading the input device 300 with the input device 500 and further, by reading the touch-sensitive variable sheet unit 103 with the touch-sensitive sheet member 150 in the block diagram shown in FIG. 20. Also, the flowchart can be applied by reading the element bag portions with the element muscle portions and by reading air-circulation unit 3A with the driving power supply 55 in the description on the flowchart shown in FIG. 23.

[0300] In the input device 500 thus configured, the driving power supply 55 applies the DC driving voltage to the element muscle portions G1 to G17 or the element muscle portions G18 to G25 for every group. Consequently, in the predetermined positions of the base frame portion 53, the element muscle portions G1 to G25 may present the sense of touch for giving the concave and convex feeling by the protuberant shape or the cave-in shape depending on the swelling of the element muscle portions G1 to G25 or by the original shape without conducting electricity with respect to the operator's finger or the like.

[0301] The following will describe a modification example (No. 1) of the touch-sensitive sheet member 150. FIGS. 32A