

ing member 46 is made of rigid materials, such as, for example, metals such as steel, aluminum, and brass, and plastics such as, Ethylene-vinyl acetate, Acrylics such as Acrylonitrile-butadiene-styrene and Acrylic-styrene-acrylonitrile, and Polymers such as Polycarbonate, Polyurethane, Polyethylene, Polybutylene, Polyvinyl chloride, Polyphenylene oxide, Chlorinated polyvinyl chloride, Polyamides, and Polybutylene terephthalate.

[0023] The connecting member 46 forms a connecting sidewall 48, wherein the connecting sidewall 48 abuts against a third edge 30 of the display screen 28 when the display screen 28 is received by the mounting apparatus 26, as illustrated in FIGS. 2 and 6. The connecting sidewall 48 prevents the display screen 28 from moving in a direction along the surface of the printed circuit board 32. More specifically, the connecting sidewall 48 prevents the display screen 28 from moving in a direction along the X-axis, as illustrated in FIG. 1.

[0024] Preferably, the top member 34, the bottom member 36, and the connecting member 46 are all integrally formed as one piece, as illustrated in FIGS. 1-2, however, the top member 34, the bottom member 36, and the connecting member 46 may be separately formed and then later attached to or connected with one another. Whichever way the top member 34, the bottom member 36, and the connecting member 46 are formed, eventually the top member 34, the bottom member 36, and the connecting member 46 are all integrated into one single unit.

[0025] The first snap-fit member 40 is connected with and extended outwards from the top member 34, as illustrated in FIGS. 1 and 4. Preferably, at least two snap-fit members 40 are connected with and extended outwards from the top member 34. Additionally, the second snap-fit member 40 is connected with and extended outwards from the bottom member 36, as illustrated in

[0026] FIGS. 1 and 4. Preferably, at least two snap-fit members 40 are connected with and extended outwards from the bottom member 36. The first and second snap-fit members 40 are adapted to connect with the printed circuit board 32 for snap-fit assembly of the mounting apparatus to the printed circuit board, as illustrated in FIGS. 1-4. More preferably, the first and second snap-fit members 40 are adapted to connect with mating holes 50 formed by the printed circuit board 32. Each snap-fit member 40 comprises a flange 52 which extends outwards from a portion of the mounting apparatus 26, such as the top member 34 or the bottom member 36, and a head 54 connected to the flange 52. Preferably, the head 54 has a maximum width  $W_1$  which is greater than the maximum width  $W_2$  of the mating hole 50 that the snap-fit member 40 is adapted to connect with, as illustrated in FIG. 5.

[0027] In one embodiment, the first and second snap-fit members 40 are adapted to connect with an edge 66 of the printed circuit board 32, as illustrated in FIG. 7. If the first and second snap-fit members 40 are adapted to connect with an edge 66 of the printed circuit board 32, the printed circuit board 32 does not need to form mating holes 50.

[0028] The electronics sub-assembly 20 may be used in many devices, such as automobiles, airplanes, hand-held devices, computer equipment, electronic medical devices and any electronic components that include a display screen,

for example. In one preferred embodiment, as illustrated in FIG. 8, the electronics sub-assembly 20 is used in a hand-held device, and more specifically, in a blood glucose instrument 100, an example of which is described in greater detail in U.S. patent application Ser. No. \_\_\_\_\_, filed concurrently, assigned attorney docket no. \_\_\_\_\_, and titled "Blood Glucose Sensor Dispensing Instrument Having A Pull/Push Activation Mechanism", the entire disclosure of which is incorporated herein by reference. By using a modular design for building the blood glucose sensor dispensing instrument 100, the electronics sub-assembly 20 can be tested before assembly into the blood glucose sensor dispensing instrument 100.

[0029] The electronic sub-assembly 20 is assembled by attaching the display screen 28 to the mounting apparatus 26, wherein the edges 30 of the display screen 28 are received by the overhangs 38. Additionally, elastomeric connectors 58 are inserted into connector slots 56 before the mounting apparatus 26 is attached to the printed circuit board 32. The mounting apparatus 26 is then attached to the printed circuit board 32 with the snap-fit members 40, as illustrated in FIG. 1. Preferably, the snap-fit members 40 are pushed through mating holes 50 formed on the printed circuit board 32. Once the snap-fit members 40, and more particularly, the heads 54 of the snap-fit members 40 are pushed through the mating holes 50, the mounting apparatus 26 is then securely attached to the printed circuit board 32, and the elastomeric connectors 58 are electrically connected to the printed circuit board 32 and the display screen 28.

[0030] In one embodiment the mounting apparatus 26 is sufficiently flexible to allow the display screen 28 to be inserted by flexing the mounting apparatus. In this embodiment, the mounting apparatus 26 is flexed or bowed, and the display screen 28 is attached to the mounting apparatus 26 by sliding the display screen 28 along the X axis, between the overhangs 38 and the connecting members 46, as illustrated in FIGS. 1 and 6. When the display screen 28 is fully inserted into the mounting apparatus 26, the mounting apparatus 26 is returned to its unflexed shape, capturing the display screen 28. Once the mounting apparatus 26 is returned to its unflexed shape, further motion of the display screen 28 along the X axis is prevented by the connecting sidewalls 48, further motion of the display screen 28 along the Y axis is prevented by the top sidewall 42 and the bottom sidewall 44, and further motion of the display screen 28 along the Z axis is prevented by the overhangs 38 and the connecting members 46. The elastomeric connectors 28 are inserted into connector slots 56 and retained in place by slot bumps 60. The mounting apparatus 26 can then be attached to the printed circuit board 32, allowing the elastomeric connectors 58 to be electrically connected to the printed circuit board 32 and the display screen 28 to be firmly held in place in relation to the printed circuit board 32.

[0031] Thus, it is apparent that there has been provided, in accordance with the invention, a mounting apparatus for mounting an electronic component to a printed circuit board that fully provides the advantages set forth above. Although the invention has been described and illustrated with reference to specific illustrative embodiments thereof, it is not intended that the invention be limited to those illustrative embodiments. Those skilled in the art will recognize that variations and modifications can be made without departing from the spirit of the invention.