using two or more parts connected together, base plate 800 can include a spacer layer attached to a main layer. In these examples, the spacer layer can include an opening that defines the recessed channel when attached to the main layer. The spacer layer can comprise a plastic film and the main layer can comprise a metal plate.

[0054] Base plate 800 further includes one or more vertical tabs 808 that each extend from an edge along the perimeter of base plate 800. Vertical tabs 808 are adapted to fit into slots 714 of cover portion 700, thereby increasing the stiffness and strength of the adhesive joint between cover 700 and base plate 800. Base plate 800 also includes one or more horizontal tabs 804a-b. In some examples, horizontal tabs 804a are adapted to attach a motherboard (sometimes called a main board, main logic board, or MLB) to base plate 800. For example, as shown in FIG. 8, horizontal tabs 804a include protruding threaded inserts to which a motherboard can be attached using one or more attaching components (e.g., one or more fasteners). In some examples, horizontal tabs 804b are adapted to attach base plate 800 to the base layer (e.g., base layer 126) of the keyboard assembly. In the present example shown in FIG. 8, horizontal tabs 804b do not include protruding threaded inserts.

[0055] Cover portion 700 includes front wall 702 and sidewalls 704, which form, for example, front wall 224 and sidewalls 234 of fan enclosure 202. Front wall 702 and sidewalls 704 are integrally formed as a single-piece member and are not two discrete pieces that are connected together. Because front wall 702 and sidewalls 704 are integrated as a single piece and not assembled together from two separate pieces, additional tolerance or margin need not be provided for assembly. This enables cover portion 700 to be constructed with a smaller thickness 706 and enables a reduced clearance 228. Cover portion 700 also occupies a smaller horizontal area since additional attaching components (e.g., fasteners, flanges, rivets, adhesives, etc.) to connect front wall 702 and sidewalls 704 are not needed. Moreover, because front wall 702 and sidewalls 704 are integrally formed as one piece, cover portion 700 is, as a whole, structurally stiffer. This enables cover portion 700 to better support base plate 800 to resist translation of the impeller against the front wall of the fan enclosure during keystroke events on the keyboard. Cover portion 700 also includes tabs 708 that are adapted to attach cover portion 700 to base plate 800 or to base layer 126 of keyboard assembly 118 using one or more attaching components (e.g., one or more fasteners or adhesives).

CLAIMS

1. An electronic device having an internal cooling fan, the electronic device comprising:

a fan assembly attached to a keyboard assembly, the fan assembly comprising:

a fan enclosure having, on a surface, an inlet opening and an external protrusion; and

an impeller at least partially inside the fan enclosure; and

a bottom case, the fan assembly positioned between the keyboard assembly and the bottom case and oriented such that the inlet opening and the external protrusion face the bottom case,

wherein the external protrusion maintains a passage between the fan enclosure and the bottom case that allows air to enter the inlet opening.

2. The device of claim 1, wherein a cross-section of the external protrusion has a teardrop shape.

3. The device of claim 2, wherein the cross-section of the external protrusion tapers toward the inlet opening.

4. The device of any of claims 1-3, wherein the external protrusion is separated from the bottom case by a gap.

5. The device of any of claims 1-4, wherein the inlet opening is positioned between the external protrusion and a diffuser portion of the fan enclosure.

6. The device of any of claims 1-5, wherein the external protrusion is positioned closer to a sidewall of the fan enclosure than the inlet opening, and wherein at least a portion of the sidewall of the fan enclosure is parallel to a rotation axis of the impeller.

7. The device of any of claims 1-6, wherein a portion of the impeller extends out from within the fan enclosure through the inlet opening.