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(54) **HOUSING OF PORTABLE ELECTRONIC DEVICE**

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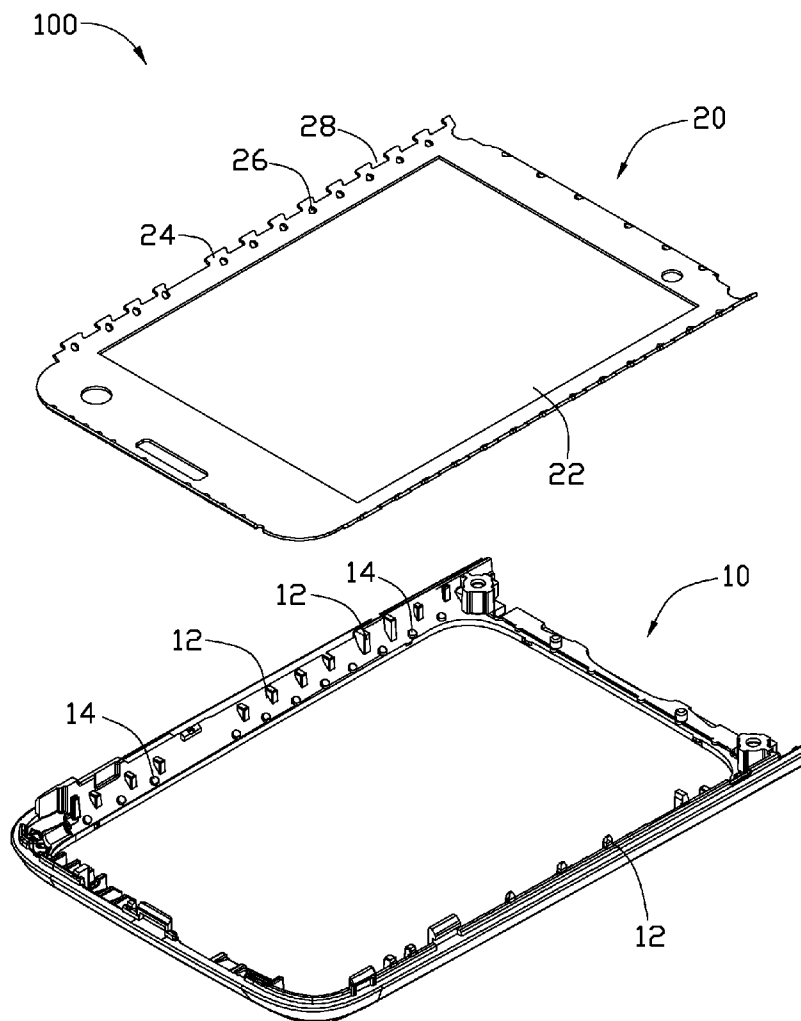
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(57) **ABSTRACT**

A housing includes a molded part and an insert integrally formed with the molded part. The molded part includes a plurality of ribs positioned on two opposite edges thereof. The insert includes a plurality of tabs positioned on two opposite peripheral edges thereof; the tabs are disposed between each pair of adjacent ribs.

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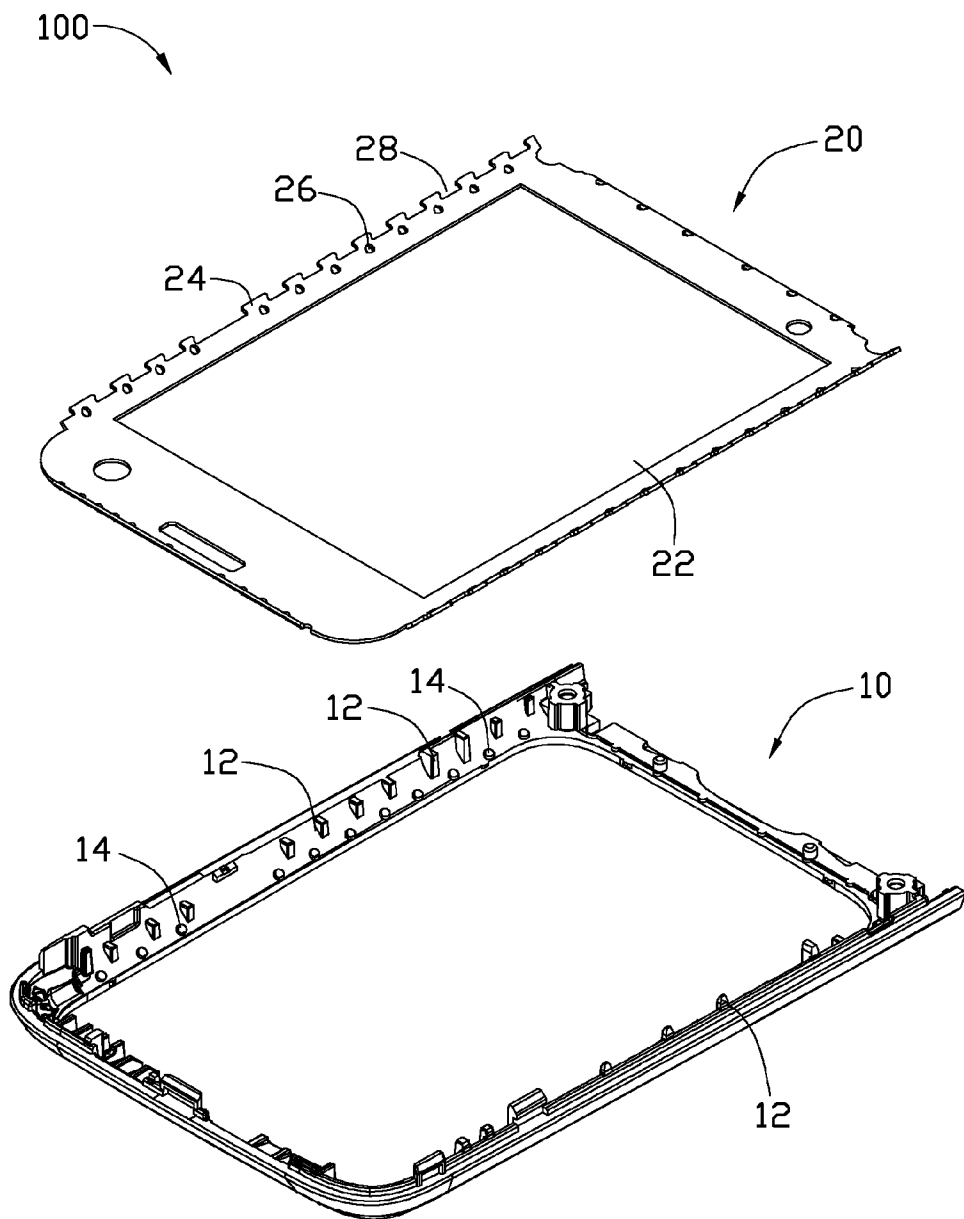


FIG. 1

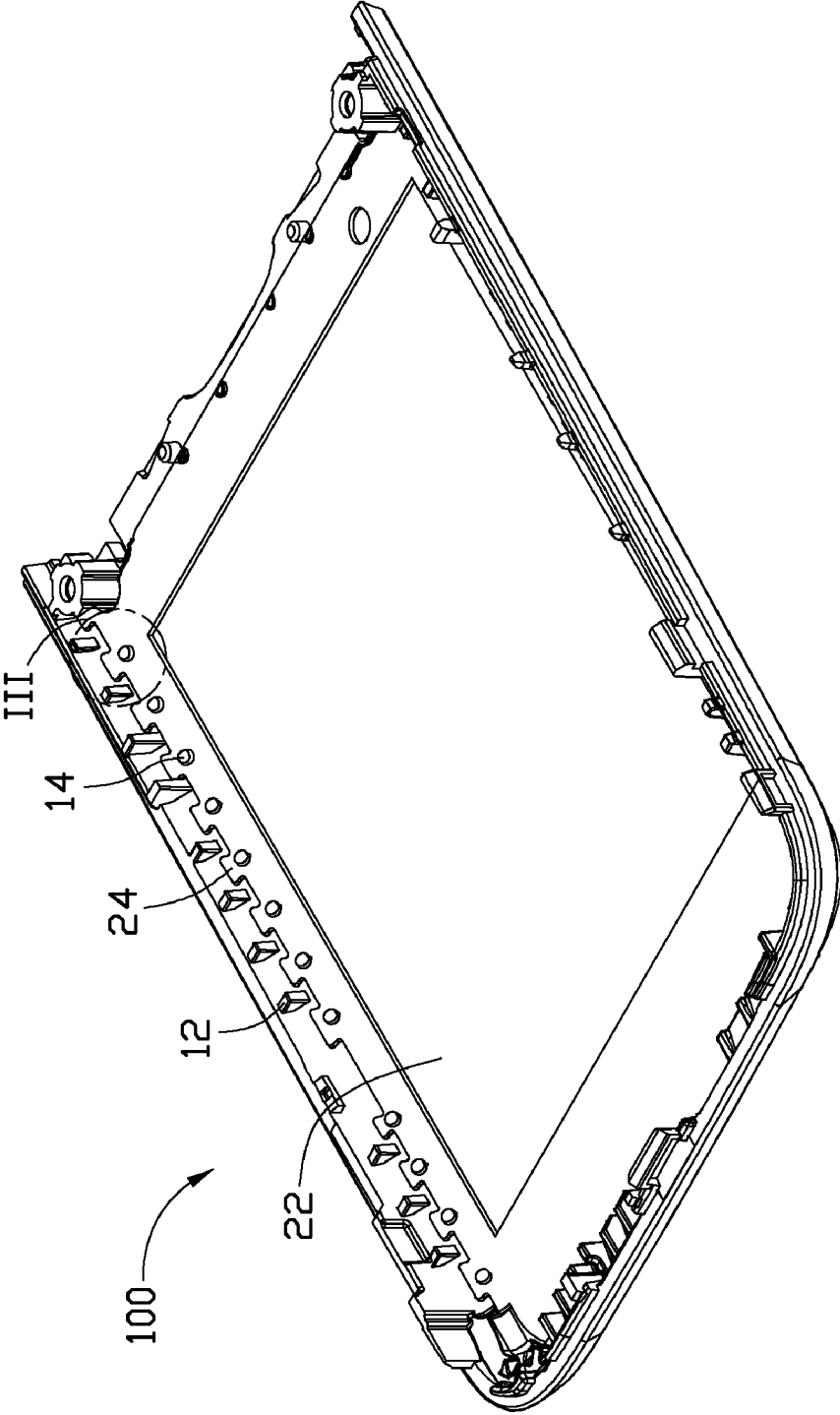


FIG. 2

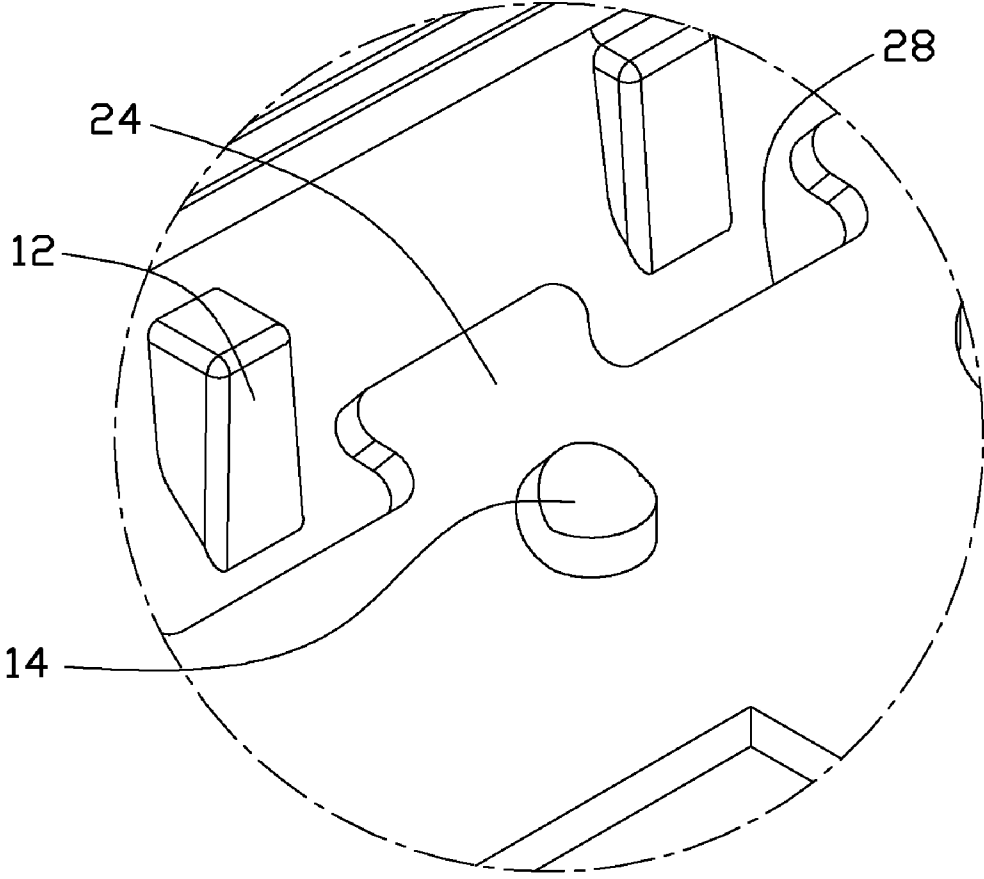


FIG. 3

**HOUSING OF PORTABLE ELECTRONIC DEVICE**

**BACKGROUND**

[0001] 1. Technical Field

[0002] The present disclosure relates to housings of portable electronic devices.

[0003] 2. Description of Related Art

[0004] Portable electronic devices, such as mobile phones, personal digital assistants (PDAs), and laptop computers are widely used. Most of these portable electronic devices include a housing to protect electronic elements therein.

[0005] A typical housing is usually made of thin light-weight plastic, thus, structural strength of the housing is weak. To reinforce the housing, during the manufacturing process, a metal piece may be molded into the plastic. However, because plastic and metal cool and harden at different speeds during the molding process, a tight bond does not form between the plastic and the metal of the housing.

[0006] Therefore, there is a room for improvement within the art.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0007] Many aspects of a housing can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, the emphasis instead being placed upon clearly illustrating the housing. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

[0008] FIG. 1 is an exploded view of a housing according to an exemplary embodiment.

[0009] FIG. 2 is an assembly view of the housing shown in FIG. 1.

[0010] FIG. 3 is an enlarged view of circled area III shown in FIG. 2.

**DETAILED DESCRIPTION**

[0011] The present housing may be used for electronic devices, such as mobile phones and so on.

[0012] FIG. 1 shows a housing 100 including a molded part 10 and an insert 20. As described below, the molded part 10 is integrally formed with the insert 20.

[0013] The molded part 10 can be made of a resin material selected from a group consisting of polypropylene (PP), polyamide (PA), polycarbonate (PC), polyethylene terephthalate (PET), and polymethylmethacrylate (PMMA), etc. The molded part 10 includes two edges opposite to each other. Each of the edges include a plurality of ribs 12 and protrusions 14 spaced from each other and uniformly staggered.

[0014] Referring to FIG. 2, the insert 20 can be made of metal defining an opening 22 for receiving a display screen. A plurality of spaced tabs 24 extends from opposite peripheral edges of the insert 20. A latching notch 28 is defined between each pair of adjacent tabs 24. The insert 20 is used with the molded part 10 for improving the structural strength of the molded part 10. Each tab 24 defines a through hole 26 corresponding to one protrusion 14.

[0015] The ribs 12 are inserted in each notch 28, and the protrusions 14 are respectively inserted into the through holes 26 to improve the bonding strength between the molded part 10 and the insert 20. Thus, the insert 20 is secured to the molded part 10, thereby increasing structural strength of the housing 100.

[0016] An exemplary embodiment of a method for making the housing 100 may include the following steps:

[0017] An insert 20 is provided. The insert 20 includes a plurality of tabs 24 spaced from each other. A latching notch 28 is defined between each pair of adjacent tabs 24.

[0018] An injection molding machine is provided. The resin material can be injected into a mold of the injection molding machine to form the molded part 10. The resin material is selected from a group consisting of polypropylene (PP), polyamide (PA), polycarbonate (PC), polyethylene terephthalate (PET), and polymethylmethacrylate (PMMA), etc.

[0019] The insert 20 is placed in the injection molding machine. Then, the resin material is injected into the mold to form the molded part 10. The molded part 10 is therefore integrally formed with the insert 20. The molded part 10 includes the spaced-apart ribs 12. A tab 24 is respectively disposed between each pair of adjacent ribs 12.

[0020] The molded part 10 is integrally formed with the insert 20, and the protrusions 14 are respectively inserted into the through hole 26 to improve bonding strength and increase contact area between the molded part 10 and the insert 20. Thus, the insert 20 is secured to the molded part 10 and the structural strength of the housing 100 is improved.

[0021] It is to be understood, however, that even through numerous characteristics and advantages of the present disclosure have been set forth in the foregoing description, together with details of the structure and function of the disclosure, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the disclosure to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A housing, comprising:

a molded part including a plurality of ribs positioned on two opposite edges thereof; and  
an insert, the molded part integrally formed with the insert; wherein the insert includes a plurality of tabs positioned on two opposite peripheral edges thereof; one tab disposed between each pair of adjacent ribs.

2. The housing as claimed in claim 1, wherein each pair of adjacent tabs defines a latching notch, each rib inserted into one of the notches.

3. The housing as claimed in claim 1, wherein each tab defines a through hole, the molded part further includes a plurality of protrusions, each protrusions respectively inserted into one of the through holes.

4. The housing as claimed in claim 3, wherein the ribs and protrusions are spaced from each other and uniformly staggered.

5. The housing as claimed in claim 1, wherein the molded part is made of a resin material selected from a group consisting of polypropylene, polyamide, polycarbonate, polyethylene terephthalate, and polymethylmethacrylate.

6. A housing, comprising:

a molded part including a plurality of ribs positioned on opposite edges thereof, and a plurality of protrusions; and  
an insert, the molded part integrally formed with the insert, the insert including a plurality of tabs positioned on opposite peripheral edges thereof;

wherein each pair of adjacent tabs defines a latching notch, one rib is inserted in each notch, the tabs are disposed

between each pair of adjacent ribs; each tab defines a through hole, each protrusion respectively inserted into one of the through holes.

7. The housing as claimed in claim 6, wherein the ribs and protrusions are spaced from each other and uniformly staggered.

8. The housing as claimed in claim 6, wherein the molded part is made of a resin material selected from a group consisting of polypropylene, polyamide, polycarbonate, polyethylene terephthalate, and polymethylmethacrylate.

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