

Description

Technical Field

This invention relates to telephones and is particularly concerned with a telephone structure that facilitates assembly of a telephone.

Background of the Invention

In the very competitive realm of telephones, it has become increasingly important to reduce and simplify the steps involved in the manufacture of a telephone. Each step eliminated or simplified reduces the labor content and/or facilitates automated assembly of the telephone.

Heretofore, the keypad used to generate the telephone calling signals has typically been assembled as a discrete component by the use of fastening elements and then it has been secured in place in the telephone by the use of fastening elements. These fastening elements must be individually handled and therefore introduced either a relatively large expenditure of labor or require a relatively large expenditure of capital to provide automated assembly.

US-A-4,593,159 describes a telephone as defined in the preamble of claim 1.

According to the present invention there is provided a telephone as defined in claim 1.

The problem of having to use fastening elements to secure a keypad in place in a telephone is solved in accordance with the present invention by a telephone that comprises a hollow housing including a face portion having a bottom surface, an array of holes extending through the face portion. A member joined to the housing supports an upwardly extending pedestal having a top surface that extends adjacent to the bottom surface of the face portion. A keypad is positioned intermediate the top surface of the pedestal and the bottom surface of the face portion, the keypad having an array of buttons that is accommodated by and extends through the array of holes in the face portion. The keypad is held in place by the top surface of the pedestal pressing the keypad against the bottom surface of the face portion.

The problem of having to use fastening elements to assemble the members of a keypad is solved in accordance with the present invention by one or more locating elements associated with either the housing or the pedestal. In one embodiment of the invention, the locating elements are part of a locating member associated with the face portion of the housing, the locating elements including a multiple of pins extending downwardly from the locating member. The pins are accommodated by conforming holes in the members that comprise the keypad and these members are assembled on the locating member. The keypad members are held together by the top surface of the

pedestal pressing the assembled members against the bottom surface of the face portion.

Brief Description of the Drawing

FIG. 1 is an exploded perspective view of an embodiment of a telephone in accordance with the invention;

FIG. 2 is an enlarged sectional view taken along line 2-2 of FIG. 1;

FIG. 3 is an enlarged sectional view taken along line 3-3 of FIG. 1; and

FIG. 4 is a top view of the assembled telephone.

Detailed Description

Referring to the drawing, and FIG. 1 in particular, a telephone in accordance with the present invention includes a hollow housing 100. The housing 100 includes a face portion 120 that has an array of holes 122 that extend through it. While in the embodiment shown the holes 122 are arranged in a matrix of rows and columns, as will be clear from the subsequent description, the size and arrangement of the holes is selected to correspond to the buttons on a keypad 400 of the telephone. In addition, while in the embodiment shown the face portion 120 is planar and has a level bottom surface 124, the face portion can be curved and the bottom surface can be ridged or have other irregularities in height and still perform its desired function.

The housing 100 has a bottom opening 140 that provides access to its interior including the bottom surface 124 of the face portion 120. In the embodiment shown the opening 140 is closed by a base member 200 that is joined (such as by fasteners not shown) to the housing 100, the combination of the housing and base member providing an enclosure for a desk telephone stand. However, the present invention may equally be embodied in a wall telephone stand including a keypad or in a handset including a keypad. In the case where the invention is embodied in a wall telephone stand, the orientation of the face portion 120 would be modified to facilitate dialing with the housing vertical. In the case where the invention is embodied in a handset, the housing 100 would serve as the face of the handset while the member 200 would serve as the back of the handset.

The base member 200 supports a pedestal 210 that extends upwardly from a bottom portion 220 thereof. The pedestal 210 is advantageously integral to the base member 200, but it can be a discrete member joined to the base member or it can be supported by another member that is joined to the housing 100. The pedestal 210 has a top surface 214 that advantageously conforms to the bottom surface 124 of the face portion 120 of the housing member 100. Thus, in the embodiment shown, the top surface 124 is planar

and is inclined so that when the base member 200 is joined to the housing 100, the top surface extends parallel to the bottom surface 124 of the face portion 120. In addition, the pedestal 210 is of a height that when the base member 200 is joined to the housing 100, the top surface 214 lies adjacent to the bottom surface 124 but is spaced from the bottom surface a particular distance. While in the embodiment shown, the top surface 214 is level, it can be ridged or have irregularities in height and still perform its desired function. In addition, the top surface 214 has a multiple of holes 218 therein the purpose of which is subsequently explained.

Positioned intermediate to the bottom surface 124 of the face portion 120 and the top surface 214 of the pedestal 210 is a locating member 300 and a keypad 400. Referring also to FIG. 2, the locating member 300 includes a planar flange portion 320 surrounding an array of holes 322 that corresponds to the array of holes 122 in the face portion 120. The holes 322 are each circumscribed by an upwardly extending collar portion 325 having sloping side walls that converge toward one another in the bottom to top direction. The collar portions 325 are of a size and shape to be respectively accommodated by the holes 122 in the face portion 120 and to occupy the perimeter of these holes when the locating member 300 is positioned on the bottom surface 124 of the face portion. Thus the collar portions 325 serve to locate the locating member 300 with respect to the face portion 120, and the locating member in turn has a multiple of pins 328 that extend downwardly from the flange portion 320 and serve to locate the keypad 400 with respect to the locating member.

Referring to FIGS. 1 and 3, the keypad 400 comprises a static shield 430, a button member 410, and a switch contact member 450. The button member 410 is advantageously a unitary member molded from rubber or a similar resilient material. The button member 410 includes a planar flange portion 420 surrounding an array of button portions 422 that corresponds to and is accommodated by the collar portions 325 of the locating member 300. Furthermore, the button portions 422 are of a height that when the locating member 300, static shield 430, and button member 410 are assembled on the bottom surface 124 of the face portion 120 of the housing 100, the button portions extend through and above both the holes 122 of the face portion and the collar portions 325 of the locating member.

The button portions 422 are respectively joined to the flange portion 420 by thin web portions 424 that circumscribe the button portions. The web portions 424 permit each button portion 422 to move downwardly when a downward force is applied to its top surface. In addition, the bottom surface of each button portion 422 has a downwardly extending conductive protrusion 426 that is moved into engagement

with the switch contact member 450 when the button portion is depressed. When the force is removed, the web portion 424 serves to return its associated button portion 422 to its normal position.

As seen most clearly in FIG. 1, the flange portion 420 of the button member 400 has a multiple of holes 428 that respectively conform to and accommodate the multiple of pins 328 of the locating member 300. The pins 328 cooperate with the holes 428 to essentially center the button portions 422 within the collar portions 325 of the locating member 300. This, combined with the sloping side walls of the collar portions 325 (FIG. 3) avoids interference with the movement of the button portions 422 when they are depressed or when the depressing force is removed.

The switch contact member 450 underlies and is properly located with respect to the button member 410 by a multiple of holes 458 that respectively conform to and accommodate the multiple of pins 328 of the locating member 300. The switch contact member 450 has an array of switch contact elements 452 on the top surface thereof that corresponds to the array of button portions 422 of the button member 410. In the embodiment shown, a pair of switch contact elements 452 is associated with each button portion 422 and the switch contact elements comprise spaced conductive paths on a flexible printed circuit. Each pair of switch contact elements 452 is bridged, that is, electrically connected together, when engaged by the conductive protrusion 426 on the underside of the associated button portion 422 as a result of the associated button portion being depressed. It is to be understood, however, that each button portion 422 could serve just as an actuator of a switch contact element and that each switch contact element could comprise a spring contact, that is deflected by the associated button portion into engagement with another spring contact or a fixed contact.

In the embodiment shown, the conductive paths to which the switch contact elements 452 are connected all extend onto a tail portion 455 of the flexible circuit. The tail portion 455 serves to electrically connect the conductive paths to another component of the telephone such as a multi-frequency signal generator. Since this and other components of the telephone are not part of the present invention, they are not shown and are not described.

The static shield 430 is positioned on the button member 410 and serves to remove static electricity discharged from the finger of a person depressing one of the button portions 422. The static shield 430 comprises a thin electrically conductive member having an array of holes 432 that corresponds to the array of button portions 422 of the button member 410. The holes 432 are of a size to permit the button portions 422 and the web portions 424 to pass through the holes so that the static shield rests on the flange portion 420 of the button member 410. The sta-

tic shield 430 also has a multiple of holes 438 that conform to and respectively accommodate the multiple of pins 328 of the locating member 300. The static shield 430 is thereby properly located with respect to the button member 420. Finally, the static shield 430 has a spring-like contact portion 436 that is formed from a tab that extends to one side of the static shield and beyond the corresponding side of the button member 410. The contact portion 436 extends below the plane of the static shield 430 such that when the static shield, button member 410, and switch contact member 450 are assembled on the locating member 300, the contact portion engages a conductive pad 456 on the switch contact member. The conductive pad 456 is connected to ground by means not shown via a conductive path on the switch contact member 450.

In the embodiment shown, the components relative to this inventions are advantageously assembled by inverting all of them. The locating member 300 is then dropped into place on the bottom surface 124 of the face portion 120 with the collar portions 325 positioned in the holes 122. The static shield 430 is then placed on the locating member 300 using the cooperation between the multiple of holes 438 of the static shield and the pins 328 of the locating member to properly locate the static shield with respect to the locating member. This is followed by the button member 410 which is also properly located by the cooperation between the holes 428 therein and the pins 328 of the locating member 300. Finally, the switch contact member 450 is positioned on the button member 410 and also properly located by the cooperation between the holes 438 therein and the pins 328 of the locating member 300. To facilitate this assembly, the height of the pins 328 is greater than the combined thickness of the assembled members of the keypad 400. Consequently, the top surface 214 of the pedestal 210 has the multiple of holes 218 therein to accommodate the ends of the pins 328.

As stated above, when the base member 200 is joined to the housing 100, the top surface 214 of the pedestal 210 is spaced a particular distance from the bottom surface 124 of the face portion 120. The particular distance is essentially the same as the combined thickness of the flange portion 320 of the locating member 300, the static shield 430, the flange portion 420 of the button member 410, and the switch contact member 450. Thus, these members are firmly held together between the face portion 120 and the pedestal 210 when the housing 100 and base member 200 are joined.

It is to be understood that while in the embodiment shown, the locating elements, such as the pins 328, are part of a discrete member associated with the housing 100, they could be integral elements associated with the housing. Furthermore, the locating elements could instead be associated with the pedestal 210 either as integral or discrete elements,

such as upwardly extending protrusions on the pedestal or on a member positioned on the pedestal. These and other variations are fully embraced by the claims that follow.

Claims

1. A telephone comprising a hollow housing (100) with a face portion (120) having a bottom surface (124), an array of holes (122) extending through the face portion, a member (200) joined to the housing, and a keypad (400) positioned adjacent to the bottom surface of the face portion, the keypad having an array of buttons that is accommodated by and extends through the said array of holes (122), CHARACTERISED IN THAT the said member (200) supports an upwardly extending pedestal (210) having a top surface that extends adjacent to the bottom surface of the face portion, and in that the keypad is intermediate the top surface of the pedestal and the bottom surface of the face portion, and is held in place by the top surface of the pedestal pressing the keypad against the said bottom surface.

2. A telephone as in claim 1, further including one or more locating elements (328,218) associated with either the housing or the pedestal for enabling assembly of the keypad without the use of fasteners on the member with which the locating elements are associated.

3. A telephone as in claim 2, wherein the locating elements (328) are part of a locating member (300) associated with the housing, the locating elements locating the keypad with respect to the locating member.

4. A telephone as in claim 3, wherein the locating elements (328) include a multiple of pins extending downwardly from the locating member (300), the pins being accommodated by conforming holes (428) in the keypad to locate the keypad with respect to the locating member.

5. A telephone as in claim 4, wherein the locating member 300 has additional locating elements (325) for locating the locating member with respect to the housing.

6. A telephone as in claim 5, wherein the additional locating elements comprise an array of upwardly extending collar portions (325) that corresponds to the array of holes in the locating member, the collar portions respectively circumscribing an array of holes in the locating member and being respectively accommodated by the holes in the face portion, the collar portions being of a shape and size to respectively occupy the perimeters of the holes in the face portion.

7. A telephone as in claim 6 wherein the keypad comprises an assembly including a button member (410) that underlies the locating member 300, the but-

tic shield 430 also has a multiple of holes 438 that conform to and respectively accommodate the multiple of pins 328 of the locating member 300. The static shield 430 is thereby properly located with respect to the button member 420. Finally, the static shield 430 has a spring-like contact portion 436 that is formed from a tab that extends to one side of the static shield and beyond the corresponding side of the button member 410. The contact portion 436 extends below the plane of the static shield 430 such that when the static shield, button member 410, and switch contact member 450 are assembled on the locating member 300, the contact portion engages a conductive pad 456 on the switch contact member. The conductive pad 456 is connected to ground by means not shown via a conductive path on the switch contact member 450.

In the embodiment shown, the components relative to this inventions are advantageously assembled by inverting all of them. The locating member 300 is then dropped into place on the bottom surface 124 of the face portion 120 with the collar portions 325 positioned in the holes 122. The static shield 430 is then placed on the locating member 300 using the cooperation between the multiple of holes 438 of the static shield and the pins 328 of the locating member to properly locate the static shield with respect to the locating member. This is followed by the button member 410 which is also properly located by the cooperation between the holes 428 therein and the pins 328 of the locating member 300. Finally, the switch contact member 450 is positioned on the button member 410 and also properly located by the cooperation between the holes 438 therein and the pins 328 of the locating member 300. To facilitate this assembly, the height of the pins 328 is greater than the combined thickness of the assembled members of the keypad 400. Consequently, the top surface 214 of the pedestal 210 has the multiple of holes 218 therein to accommodate the ends of the pins 328.

As stated above, when the base member 200 is joined to the housing 100, the top surface 214 of the pedestal 210 is spaced a particular distance from the bottom surface 124 of the face portion 120. The particular distance is essentially the same as the combined thickness of the flange portion 320 of the locating member 300, the static shield 430, the flange portion 420 of the button member 410, and the switch contact member 450. Thus, these members are firmly held together between the face portion 120 and the pedestal 210 when the housing 100 and base member 200 are joined.

It is to be understood that while in the embodiment shown, the locating elements, such as the pins 328, are part of a discrete member associated with the housing 100, they could be integral elements associated with the housing. Furthermore, the locating elements could instead be associated with the pedestal 210 either as integral or discrete elements,

such as upwardly extending protrusions on the pedestal or on a member positioned on the pedestal. These and other variations are fully embraced by the claims that follow.

Claims

1. A telephone comprising a hollow housing (100) with a face portion (120) having a bottom surface (124), an array of holes (122) extending through the face portion, a member (200) joined to the housing, and a keypad (400) positioned adjacent to the bottom surface of the face portion, the keypad having an array of buttons that is accommodated by and extends through the said array of holes (122), CHARACTERISED IN THAT the said member (200) supports an upwardly extending pedestal (210) having a top surface that extends adjacent to the bottom surface of the face portion, and in that the keypad is intermediate the top surface of the pedestal and the bottom surface of the face portion, and is held in place by the top surface of the pedestal pressing the keypad against the said bottom surface.

2. A telephone as in claim 1, further including one or more locating elements (328,218) associated with either the housing or the pedestal for enabling assembly of the keypad without the use of fasteners on the member with which the locating elements are associated.

3. A telephone as in claim 2, wherein the locating elements (328) are part of a locating member (300) associated with the housing, the locating elements locating the keypad with respect to the locating member.

4. A telephone as in claim 3, wherein the locating elements (328) include a multiple of pins extending downwardly from the locating member (300), the pins being accommodated by conforming holes (428) in the keypad to locate the keypad with respect to the locating member.

5. A telephone as in claim 4, wherein the locating member 300 has additional locating elements (325) for locating the locating member with respect to the housing.

6. A telephone as in claim 5, wherein the additional locating elements comprise an array of upwardly extending collar portions (325) that corresponds to the array of holes in the locating member, the collar portions respectively circumscribing an array of holes in the locating member and being respectively accommodated by the holes in the face portion, the collar portions being of a shape and size to respectively occupy the perimeters of the holes in the face portion.

7. A telephone as in claim 6 wherein the keypad comprises an assembly including a button member (410) that underlies the locating member 300, the but-



ton member having an array of button portions that corresponds to and is accommodated by the array of holes in the locating member, the button member further having a multiple of holes (428) that respectively conform to and accommodate the multiple of pins (328) of the locating member whereby the button member is located with respect to the locating member.

8. A telephone as in claim 7, wherein the keypad assembly includes a switch contact member (450) that underlies the button member, the switch contact member having an array of switch contact elements (452) on a top surface thereof that corresponds to the array of button portions of the button member, at least one switch contact element being associated with each button portion for engagement by the associated button portion when the associated button portion is depressed, the switch contact member further having a multiple of holes (458) that respectively conform to and accommodate the multiple of pins (328) of the locating member whereby the switch contact member is located with respect to the button member.

9. A telephone as in claim 8, wherein the keypad assembly further includes a static shield (430) positioned on the button member, the static shield having an array of holes (432) that corresponds to and accommodates the array of button portions of the button member, the static shield further having a multiple of holes (438) that respectively conform to and accommodate the multiple of pins (328) of the locating member whereby the static shield is located with respect to the button member.

10. A telephone as in claim 1 wherein the housing has a bottom opening that provides access to the bottom surface of the face portion and the member on which the pedestal is supported provides a closure for the bottom opening of the housing.

11. A telephone as in claim 10 wherein the pedestal is integral to the member on which it is supported and the member serves as a base for the telephone.

Patentansprüche

1. Fernsprecher mit folgenden Merkmalen ein hohles Gehäuse (100) mit einem Vorderteil (120) weist eine Bodenfläche (124) auf; eine Anordnung von Durchbrüchen (122) erstrecken sich durch das Vorderteil; ein Teil (200) ist mit dem Gehäuse verbunden; ein Tastaturblock (400) ist benachbart zu der Bodenfläche des Vorderteils angeordnet und weist eine Anordnung von Tastknöpfen auf, die von der Anordnung der Durchbrüche (122) aufgenommen wird und sich durch diese erstreckt, dadurch gekennzeichnet, daß das Teil (200) einen sich nach oben erstreckenden Sockel (210) trägt, der eine Oberseite aufweist, die sich benachbart der Bodenfläche des

Vorderteils erstreckt und daß der Tastaturblock zwischen der Oberseite des Sockels und der Bodenfläche des Vorderteils gelegen ist und an Ort und Stelle durch die Oberseite des Sockels gehalten wird, welche den Tastaturblock gegen die Bodenfläche preßt.

2. Fernsprecher nach Anspruch 1, dadurch gekennzeichnet, daß ein oder mehrere Festlegungselemente (328, 218) vorgesehen sind, die entweder dem Gehäuse oder dem Sockel zugeordnet sind, um den Zusammenbau des Tastaturblocks zu ermöglichen, ohne daß Schrauben an dem Teil, denen die Festlegungselemente zugeordnet sind, angewendet werden müßten.

3. Fernsprecher nach Anspruch 2, dadurch gekennzeichnet, daß die Festlegungselemente (328) Teil eines Festlegungsgliedes (300) sind, welches dem Gehäuse zugeordnet ist und daß die Festlegungselemente den Tastaturblock mit Bezug auf das Festlegungsglied festlegen.

4. Fernsprecher nach Anspruch 3, dadurch gekennzeichnet, daß die Festlegungselemente (328) eine Vielzahl von Stiften umfassen, die sich von dem Festlegungsglied (300) nach unten erstrecken und daß die Stifte von dazu passenden Bohrungen (428) in dem Tastaturblock aufgenommen werden, um den Tastaturblock mit Bezug auf das Festlegungsglied festzulegen.

5. Fernsprecher nach Anspruch 4, dadurch gekennzeichnet, daß das Festlegungsglied (300) zusätzliche Festlegungselemente (325) aufweist, um das Festlegungsglied mit Bezug auf das Gehäuse festzulegen.

6. Fernsprecher nach Anspruch 5, dadurch gekennzeichnet, daß die zusätzlichen Festlegungselemente eine Anordnung von sich nach oben erstreckenden Rahmenleistenteile (325) aufweisen, die der Anordnung der Durchbrüche in dem Festlegungsglied entsprechen, daß die Rahmenleistenteile jeweils eine Anordnung von Durchbrüchen in dem Festlegungsglied umschreiben und jeweils von den Durchbrüchen in dem Vorderteil aufgenommen werden und daß die Rahmenleistenteile von einer Gestalt und Größe sind, um jeweils den Umfang der Durchbrüche in dem Vorderteil einzunehmen.

7. Fernsprecher nach Anspruch 6, dadurch gekennzeichnet, daß der Tastaturblock aus einzelnen Teilen zusammengesetzt ist und ein Tastenknopfglied (410) aufweist, das unterhalb des Festlegungsgliedes (300) angeordnet ist und eine Anordnung von Knopfteilen besitzt, die jeweils der Anordnung der Durchbrüche in dem Festlegungsglied entsprechen und von diesen aufgenommen werden, daß das Tastenknopfglied ferner eine Mehrzahl von Durchbrüchen (428) aufweist, die jeweils der Mehrzahl der Stifte (328) des Festlegungsgliedes entsprechen und diese aufnehmen, wobei das Tastenknopfglied mit Bezug auf das Festlegungsglied festgelegt wird.

8. Fernsprecher nach Anspruch 7, dadurch



gekennzeichnet, daß der zusammengesetzte Tastaturblock ein Schaltkontaktglied (450) aufweist, welches unterhalb des Tastenknopfgliedes angeordnet ist und eine Anzahl von Schalterkontaktelementen (452) auf seiner Oberseite aufweist, die der Anordnung der Tastenknopfteile auf dem Tastenknopfglied entsprechen, daß mindestens ein Schalterkontaktelement jedem Tastenknopfteil zur Berührung durch diese zugeordnet ist, wenn der zugeordnete Tastenknopfteil gedrückt wird, und daß das Schaltkontaktglied eine Mehrzahl von Durchbrüchen (458) aufweist, die jeweils der Mehrzahl der Stifte (328) des Festlegungsgliedes angepaßt sind und diese aufnehmen, wobei das Schalterkontaktglied mit Bezug auf das Tastenknopfglied festgelegt wird.

9. Fernsprecher nach Anspruch 8, dadurch gekennzeichnet, daß der Tastaturblock eine statische Abschirmung (430) aufweist, die auf dem Tastenknopfglied sitzt und eine Anzahl von Durchbrüchen (432) aufweist, die der Anordnung der Tastenknopfteile des Tastenknopfgliedes entsprechen und diese aufnehmen und daß die statische Abschirmung weiterhin eine Mehrzahl von Durchbrüchen (438) aufweist, die jeweils den Stiften (328) des Festlegungsgliedes entsprechen und diese aufnehmen, wobei die statische Abschirmung mit Bezug auf das Tastenknopfglied festgelegt wird.

10. Fernsprecher nach Anspruch 1, dadurch gekennzeichnet, daß das Gehäuse eine Bodenöffnung aufweist, die Zugang zur Bodenfläche des Vorderteils gewährt und das Teil, auf dem der Sockel abgestützt ist, einen Verschuß für die Bodenöffnung des Gehäuses bietet.

11. Fernsprecher nach Anspruch 10, dadurch gekennzeichnet, daß der Sockel integral zu dem Teil ausgebildet ist, auf dem es gestützt ist und daß das Teil als Basis für den Fernsprecher dient.

Revendications

1. Un téléphone comprenant un boîtier creux (100) avec une partie de face (120) présentant une surface inférieure (124), un réseau de trous (122) traversant la partie de face, une pièce (200) réunie au boîtier, et un clavier (400) placé en position adjacente à la surface inférieure de la partie de face, ce clavier comportant un réseau de touches qui est logé dans le réseau de trous (122) et traverse celui-ci, CARACTERISE EN CE QUE la pièce précitée (200) supporte un piédestal (210) qui s'étend vers le haut et qui présente une surface supérieure s'étendant en position adjacente à la surface inférieure de la partie de face, et en ce que le clavier se trouve entre la surface supérieure du piédestal et la surface inférieure de la partie de face, et il est maintenu en place par le fait que la surface supérieure du piédestal presse le clavier contre la surface inférieure précitée.

2. Un téléphone selon la revendication 1, comprenant en outre un ou plusieurs éléments de positionnement (328, 218) qui sont associés au boîtier ou au piédestal, pour permettre d'assembler le clavier, sans utiliser des éléments d'assemblage, sur la pièce à laquelle les éléments de positionnement sont associés.

3. Un téléphone selon la revendication 2, dans lequel les éléments de positionnement (328) font partie d'un organe de positionnement (300) qui est associé au boîtier, et les éléments de positionnement positionnent le clavier par rapport à l'organe de positionnement.

4. Un téléphone selon la revendication 3, dans lequel les éléments de positionnement (328) comportent un ensemble de doigts qui s'étendent vers le bas à partir de l'organe de positionnement (300), et ces doigts sont logés dans des trous de forme adaptée (428) dans le clavier, pour positionner le clavier par rapport à l'organe de positionnement.

5. Un téléphone selon la revendication 4, dans lequel l'organe de positionnement (300) comporte des éléments de positionnement supplémentaires (325), pour positionner l'organe de positionnement par rapport au boîtier.

6. Un téléphone selon la revendication 5, dans lequel les éléments de positionnement supplémentaires comprennent un réseau de parties de cadre s'étendant vers le haut (325), qui correspond au réseau de trous dans l'organe de positionnement, les parties de cadre entourant respectivement les trous d'un réseau de trous dans l'organe de positionnement, et étant respectivement logées dans les trous dans la partie de face, et les parties de cadre ayant une forme et une taille telles qu'elles occupent respectivement les périphéries des trous dans la partie de face.

7. Un téléphone selon la revendication 6, dans lequel le clavier consiste en un assemblage comprenant une structure de touches (410) qui se trouve au-dessous de l'organe de positionnement (300), la structure de touches comportant un réseau de touches qui correspond au réseau de trous dans l'organe de positionnement et qui est logé dans ce réseau de trous, la structure de touches comprenant en outre un ensemble de trous (428) qui sont respectivement adaptés aux doigts de l'ensemble de doigts (328) de l'organe de positionnement, et qui reçoivent ces doigts, grâce à quoi la structure de touches est positionnée par rapport à l'organe de positionnement.

8. Un téléphone selon la revendication 7, dans lequel l'assemblage du clavier comprend une structure de contacts d'interrupteurs (450) qui se trouve au-dessous de la structure de touches, la structure de contacts d'interrupteurs comprenant sur sa surface supérieure un réseau d'éléments de contacts d'interrupteurs (452) qui correspond au réseau de touches de la structure de touches, au moins un élé-



ment de contact d'interrupteur étant associé à chaque touche de façon à venir en contact avec la touche associée lorsque cette dernière est enfoncée, la structure de contacts d'interrupteurs comprenant en outre un ensemble de trous (458) qui sont respectivement adaptés aux doigts de l'ensemble de doigts (328) de l'organe de positionnement, et qui reçoivent ces doigts, grâce à quoi la structure de contacts d'interrupteurs est positionnée par rapport à la structure de touches.

9. Un téléphone selon la revendication 8, dans lequel l'assemblage du clavier comprend en outre un écran antistatique (430) qui est positionné sur la structure de touches, l'écran antistatique comportant un réseau de trous (402) qui correspond au réseau de touches de la structure de touches et qui reçoit ce dernier, l'écran antistatique comportant en outre un ensemble de trous (438) qui sont respectivement adaptés aux doigts de l'ensemble de doigts (328) de l'organe de positionnement, et qui reçoivent ces derniers, grâce à quoi l'écran antistatique est positionné par rapport à la structure de touches.

10. Un téléphone selon la revendication 1, dans lequel le boîtier comporte une ouverture inférieure qui donne accès à la surface inférieure de la partie de face, et la pièce qui supporte le piédestal ferme l'ouverture inférieure du boîtier.

11. Un téléphone selon la revendication 10, dans lequel le piédestal est intégré à la pièce qui le supporte et cette pièce constitue une base pour le téléphone.

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