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"Communication Terminal Housing"

5 This invention relates to a communication terminal housing and, more particularly, to a telephone housing having an easily changeable outer shell.

Often it is necessary to change the colour or the design contours of a communication housing. In practice this has been accomplished in the past by unplugging the telephone and substituting a new telephone or other
10 communication device for the removed device. From a cost point of view, such an arrangement is undesirable.

One arrangement for accomplishing the desired result would be to design the housing cover in such a manner that it could be removed easily. However,
15 following this approach, problems exist in several areas. As a first instance, many people approach the idea of removing the cover of a sophisticated electronic device with a great amount of trepidation. These people either are not familiar with mechanical apparatus or do not wish
20 to be bothered with complex instructions which are susceptible to misunderstandings and improper assembly. Thus, it is desired to provide an electronic communication housing having an easily replaceable outer cover.

25 Compounding the problem is the fact that many of the newly designed housings have wrap around styling and thus are not susceptible to the type of assembly where
28 an upper section is fastened to a lower base. In these

25 designs, it is necessary to provide an arrangement which allows a person who may not possess a high degree of expertise in construction techniques and who may not possess a high degree of manual dexterity to nonetheless disassemble and assemble a multipart housing. Such a
5 person, for example, could find it difficult to assemble a multipart housing if two of the parts had to be positioned together and held in place while a third locking part was installed. This operation becomes even more difficult for the novice who must follow instructions while balancing the various parts.

10 Thus it is desired to design a communication housing having the capability of easy changeability with respect to its colour and design contours while also being structurally sound and not susceptible to easy accidental separation.

15 According to one aspect of the present invention there is provided a communication terminal housing having a base, a lower section and an upper section, said upper and lower sections cooperating with each other to form a shell around at least a portion of said base, said lower section having rearward projection means on a back surface thereof, said projecting means adapted for rotatably
20 mating with one or more apertures in a bottom portion of said base thereby allowing said lower section to be rotated upward so that an inner surface of a front face of said lower section becomes positioned on the outside of a corresponding front face of said base, said lower section including latch means located on the inner surface of said
25 front face, said latch means adapted for mating with latch means located on said outside of said base front face, said lower section latch means and said base latch means cooperating with each other when said lower section is rotated upward to inhibit said lower section from rotating downward without first being outwardly separated from
30 said base, and said upper section having at least a front face which is adapted to fit over said base, said upper section front face having means for engaging said front face of said lower section so that when said upper and lower sections are engaged with each other said lower section is prevented from being outwardly separated from said base.

35 According to another aspect of the present invention there is

provided an outer shell housing for a communication terminal base unit, said outer shell housing comprising upper and lower sections adapted to cover said base unit on at least three sides and the top thereof, said lower section having a front face and having left and right faces extending substantially parallel to each other and connected respectively to the left and right ends of said front face, the outside of said faces being visible to a viewer when said two sections partially cover said base unit, said lower section having rearward projecting means on a back surface thereof, said rotating means adapted for rotatably mounting with one or more apertures in a bottom portion of said base unit thereby allowing said lower section to be rotated upward to partially surround said base unit, said lower section further including latch means on the inner surface of said front face, said latch means adapted for mating with latch means located on the outer surface of said base unit such that when said lower section is rotated upward said latch means cooperate to prevent said lower section from rotating downward unless said lower section is moved outwardly with respect to said base unit, and said upper section having left, right, front and top faces, the outside of said faces being visible to a viewer when said two sections partially cover said base unit, said upper section front face having means for engaging said front face of said lower section so that when said upper and lower sections are engaged with each other, said lower section is prevented from being outwardly separated.

In an exemplary embodiment in accordance with the invention the problem of simple assembly has been solved by the realization that the lower section may be assembled to the basic housing i.e. the base or base unit such that they become temporarily interlocked with each other before the upper section is applied. This interlocking is accomplished by arranging the lower section with a rear projecting tab which mates with a slot in the bottom of the basic housing. The tab is then inserted within the slot and the lower section is rotated upward. A protrusion on the inner front surface of the lower section mates with a

ledge on the basic housing to prevent the lower section from rotating downward when pressure is removed. When the two parts are snapped together they form a unit which will not separate unless the lower section is actually pulled forward and away from the housing. Thus, a person who is assembling the unit need not worry about the parts separating prematurely.

Once the lower section is positioned, the upper section is then placed over the assembled unit. The upper section has a lip on its lower front edge which serves to prevent the lower section from moving forward with respect to the basic housing. The upper section then is secured to the basic housing by a fastener which may be concealed behind a face plate. The upper and lower sections form a shell, and once this shell is in position, the unit becomes securely interlocked and can withstand typical falls without separating.

Using this method of construction, a person with minimal skill and experience can easily assemble or disassemble the outer shell of a communication housing thereby allowing that person to quickly change the style or colour of the communication device.

An exemplary embodiment of the invention will now be described, reference being made to the accompanying drawings, in which:

FIG. 1 is a perspective view of a telephone housing according to the present invention;

FIG. 2 is an exploded view of part of the housing depicted in FIG. 1;

FIG. 3 is a partially assembled sectional side view of the parts of the housing of FIG. 2 showing how they fit together; and

FIG. 4 is an assembled sectional side view of the parts of the housing of FIG. 2 co-operatively locked together.

A communication terminal housing 10 in the form of a telephone housing is shown in FIG. 1 having two main sections. 104 is a face plate of one of the sections of

the housing and contains, for example, buttons 107 and lamps (or buttons) 108. The manner in which face plate 104 is secured to the basic housing by slides 101 and 103 is completely described in co-pending patent application
5 No: 8227886 (REF. D. W. Tyler Case 16).

Section 106 is the other main section of the housing and takes the form of a cradle for supporting a hand set 105 and, as shown, comprises lower section 201 and upper section 221, which sections are interlocked
10 together in a clamshell manner which will be more fully described hereinafter. The sections 201 and 221 co-operate to surround a basic housing (not shown in FIG. 1) to provide the design contours and colour co-ordination of the housing.

15 The three main co-operative parts of the housing according to the present invention are shown in FIG. 2 where basic housing 21 is shown in conjunction with lower section 20 and upper section 22. Basic housing 21 can be any width or length desired. FIG. 2 shows only a section
20 of the housing with the right hand section not shown but constructed, for example, as shown in the above identified Tyler disclosure. For purposes of discussion, it will be considered that face 210 of housing 21 will be the left side face and face 212 will be the right side
25 face and face 211 the front face.

On the inside of basic housing 21 there is a ledge 213 which extends circumferentially around the inside of the housing. At a position on the side ledges a width w from the outside of front face 211 spaced on
30 both the right and left sides, there are holes 215 which, as will be seen, form hinging receptacles for mating tabs of the lower section 20.

On the front outside surface of face 211 there is shown two detents 311 and 312 which can be formed by
35 removing some of the material from the outside surface of the front face of basic housing 21.

Mounting post 214 is contained within the housing
38 21 and is used, as will be seen, to secure top section 22.

While housing 21 is shown devoid of any components, it is to be understood, of course, that the electronics and other mechanical apparatus which is necessary for the proper functioning of the telephone or other communicating device, would advantageously be located within the area bounded by the left, right and front faces of the basic housing. Also, if protection is desired for the components, the top, as well as the bottom, of housing 21, may be closed to all but authorized craftspeople.

Lower section 20 has left side 201, right side 203 and front face 202, all of which have ledge 304 designed into their outer top edges. On the inside front surface of section 202 of lower section 20 there is provided tabs 301 and 302, which tabs protrude inward, the purpose of which will be discussed hereinafter. A ledge 204 extends around the inner faces of sections 201, 202 and 203 and at the rearward edges of ledge 204, at a distance w from the inner side of face 202 tabs 205 are formed, which tabs are positioned upward and slightly behind trailing edges 218 of ledge 204. Of course, ledge 204 could be a continuous bottom plate having a width w and a length equal to the length of face 202. The outside surface of lower section 20 carries the desired colour of the housing together with any design contours desired.

Upper section 22 has top surface 220 which surface has design contours 50 and 51 which, in the illustration, accept a telephone handset. Also in top surface 220 there is located a hole 223 through which a screw 225 can be inserted. As will be shown, screw 225 can be threaded into a post 214 of basic housing 21 to securely lock together the combined assembly. For design purposes, a name plate may be located over screw 225 to conceal the screw top from a casual viewer.

Upper section 22 has left side 221, right side 222 and front face 224, all of which have a groove or ledge 320 designed into their lower inside edges.

Turning to FIG. 3, for assembly purposes the tabs 205 of lower section 20 are inserted through the holes 215 of housing 21. The entire lower section 20 is then rotated upwards so that tab 301 (and tab 302 not shown) on the inner front surface of face 202 rests on top of detent 311 (312) on the front outer surface of basic housing 21.

When section 20 is rotated fully upward so that tab 301 rests on detent 311, pressure may be removed from section 20 without section 20 separating from section 21. This co-operation is a result of the ramp action of ramp 217 pushing the entire unit 20 backward so that unless pressure away from face 21

is exerted on section 20 it will remain in place on a semi-permanent basis.

At this point, upper section 22 is positioned over the combined lower assembly so that ledge 320 thereof fits outside of ledge 304 in the outer upper edge of lower section 20, as shown in FIG. 4. The overlapping occurs around the periphery of section 20. When upper section 22 is in position, a screw 225 may be inserted to mate with post 214 thereby effectively locking the entire assembly together. This locking occurs because the overlapping of sections 22 and 20 prevent lower section 20 from rotating outwards. Since section 202 is not free to rotate outwards, tab 301 remains locked with detent 311 preventing the downward rotation of section 20. Also, even without the detent, lower section 20 cannot now rotate downward because to do so would require that the upper edge of face 202 rotate outward due to the radius pivoting around tabs 205. This outward swing is prevented by the overlap of upper section 22. The entire assembly is thus securely interlocked easily and economically with a minimum of instructions and balancing required.

It will be noted that even without top section 22 in place, sections 20 and 21 are relatively firmly engaged by the simple motion of inserting tabs 205 in

slots 215 and rotating section 20 upward. Any person with any degree of dexterity who is capable of following very basic and simple directions can then disassemble and reassemble the telephone housing outer shell and may change the colour bearing and design surfaces without in any way endangering or exposing the electronic components of the telephone set.

It should also be noted that if the lower section comprises a continuous plate then only one tab would be necessary to hinge into a single receptacle on the bottom of the housing base. Also, if it is desired to removably cover the open side of basic housing 21, it would be possible to use a second bottom section 20, turned in the opposite direction to the first. In such a situation top 22 would have a downwardly extending face on the back thereof.



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1. A communication housing having a base, a lower section and an upper section, said upper and lower sections cooperating with each other to form a shell around at least a portion of said base, said lower section having rearward projecting means on a back surface thereof, said projecting means adapted for rotatably mating with one or more apertures in a bottom portion of said base thereby allowing said lower section to be rotated upward so that an inner surface of a front face of said lower section becomes positioned on the outside of a corresponding front face of said base, said lower section including latch means located on the inner surface of said front face, said latch means adapted for mating with latch means located on said outside of said base front face, said lower section latch means and said base latch means cooperating with each other when said lower section is rotated upward to inhibit said lower section from rotating downward without first being outwardly separated from said base, and said upper section having at least a front face which is adapted to fit over said base, said upper section front face having means for engaging said front face of said lower section so that when said upper and lower sections are engaged with each other said lower section is prevented from being outwardly separated from said base.

2. A housing as claimed in claim 1, in which said rearward projecting means is a tab extending rearward and upward from said back surface, and wherein a slot is provided in said base for accepting said tab.

3. A housing as claimed in claim 2, in which said lower section latch means is a tab and wherein said base latch means is a detent.

4. An outer shell housing for a communication terminal base unit, said outer shell housing comprising upper and lower sections adapted to cover said base unit on at least three sides and the top thereof, said lower section having a front face and having left and right faces extending substantially parallel to each other and connected respectively to the left and right ends of said front



face, the outside of said faces being visible to a viewer when said two sections partially cover said base unit, said lower section having rearward projecting means on a back surface thereof, said projecting means adapted for rotatably mounting with one or more apertures in a bottom portion of said base unit thereby allowing said lower section to be rotated upward to partially surround said base unit, said lower section further including latch means on the inner surface of said front face, said latch means adapted for mating with latch means located on the outer surface of said base unit such that when said lower section is rotated upward said latch means cooperate to prevent said lower section from rotating downward unless said lower section is moved outwardly with respect to said base unit, and said upper section having left, right, front and top faces, the outside of said faces being visible to a viewer when said two sections partially cover said base unit, said upper section front face having means for engaging said front face of said lower section so that when said upper and lower sections are engaged with each other, said lower section is prevented from being outwardly separated.

5. A telephone housing substantially as hereinbefore described with reference to the accompanying drawings.