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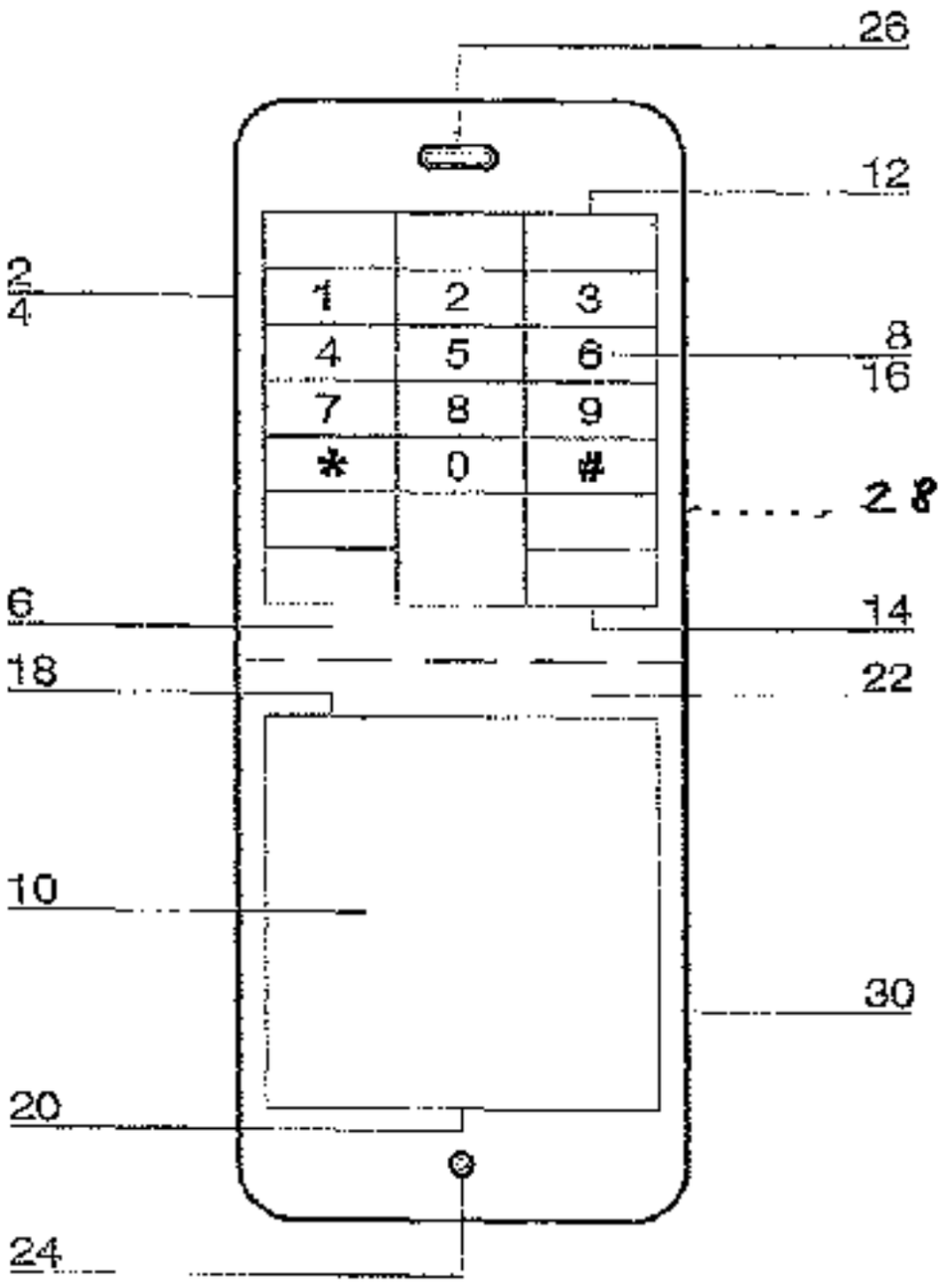
(54) Title: MOBILE TELEPHONE HANDSET



(57) Abstract: A mobile telephone handset having a housing, a manually operable data input portion and a display portion, the manually operable data input portion and the display portion being disposed on a common front face of the housing when the handset is oriented for operation by a user, the data input portion including an upper edge and a lower edge between which a plurality of data input elements are oriented in an upright configuration, and the display portion including an upper edge and a lower edge between which the display portion is adapted to display at least one of alphanumeric characters and pictorial images in the same upright configuration, characterized in that the upper edge of the display portion is proximal or adjacent to the lower edge of the data input portion.

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MOBILE TELEPHONE HANDSET

The present invention relates to a mobile telephone handset.

Various mobile telephone handsets are known in the art. Some consist of a single rigid body having, on one face thereof, a keypad and a display. Others consist of a hinged "clam shell" design comprising two hinged parts of the handset, one having a keypad and the other having a display. When the two hinged parts are unfolded to reveal the previously hidden keypad and display, in the unfolded configuration, as for the design having the single rigid body, the keypad and the display are arranged on one face of the handset.

These known mobile telephone handsets conventionally configure the display relative to the keypad so that when the alphanumeric characters of the keypad and the display are correctly oriented to enable them to be seen by a user, the display is positioned above the keypad. In other words, the keypad is located below the bottom edge of the display, and the display is located above the top edge of the keypad, in particular above the top line of keys, which conventionally consists of the keys for the numerals "1", "2" and "3" (and their corresponding associated letters for sending text messages). Such known handsets can be held in a user's hand so that the keys representing the alphanumeric characters can readily be pressed by the thumb of the user's hand, and with the display extending above the extent of the hand so that it can readily be seen by the user.

It has been known to vary the shape and dimensions of both the keypad and the display so as to make them easy to use and aesthetically pleasing or distinctive. Also, the exterior shape and dimensions of the mobile telephone handsets have also been varied for the same reasons.

However, despite the plethora of different prior mobile telephone handset designs, these known designs suffer from the common problem that the handset, in particular the

keypad, is not particularly comfortable to use and/or the handset may not securely be held in the hand when using the keypad.

The present invention aims to solve these problems.

Accordingly, the present invention provides a mobile telephone handset having a housing, a manually operable data input portion and a display portion, the manually operable data input portion and the display portion being disposed on a common front face of the housing when the handset is oriented for operation by a user, the data input portion including an upper edge and a lower edge between which a plurality of data input elements are oriented in an upright configuration, and the display portion including an upper edge and a lower edge between which the display portion is adapted to display at least one of alphanumeric characters and pictorial images in the same upright configuration, characterized in that the upper edge of the display portion is proximal or adjacent to the lower edge of the data input portion.

A part of the housing having the display portion may be shaped and dimensioned so as to fit within the palm of a user's hand.

The housing may comprise a single rigid body, or two hinged parts thereof, one part having the data input portion and the other part having the display portion.

The data input portion may comprise a keypad or a touch sensitive screen.

The handset may include circuitry to provide at least one additional function other than a telephone function, for example an organizer, a camera, etc.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawing, in which:

Figure 1 is a schematic front view of the operating face of a mobile telephone handset in accordance with an embodiment of the present invention;

Figure 2 is a schematic front view of the operating face of the mobile telephone handset of Figure 1 when used by a user manually to operate the keypad; and

Figure 3 is a schematic front view of the operating face of a known mobile telephone handset when used by a user manually to operate the keypad.

Referring to Figure 1, a mobile telephone handset 2 has a housing 4. The housing 4 contains circuitry for the telephone function and an electrical power source, such as a rechargeable battery. The handset may further include circuitry to provide at least one additional function than a telephone function, for example an organizer, a camera, etc..

An operating front face 6 of the mobile telephone handset 2 comprises a manually operable data input portion 8 and a display portion 10. Both the manually operable data input portion 8 and the display portion 10 are disposed on the common front face 6 of the housing 4 when the handset 2 is oriented for operation by a user. In this way, the data input portion 8 can readily be manually operated by the user and also simultaneously the display portion 10 can be viewed by the user. The data input portion 8 may comprise a keypad or a touch sensitive screen. The housing 4 may comprise a single rigid body, or two hinged parts thereof, one part having the data input portion 8 and the other part having the display portion 10. The display portion 10 is typically a display screen, for example a liquid crystal display (LCD) screen.

The data input portion 8 includes an upper edge 12 and a lower edge 14 between which a plurality of data input elements 16 are oriented in an upright configuration. In the illustrated embodiment the data input elements 16 are shown as conventional numeric keys, for the numerals 0 to 9, and keys having other symbols and functions, in particular the known "star" and "hash" keys. The keys may also have letters associated therewith for inputting text. Other and/or additional keys may be provided. The display portion 10 includes an upper edge 18 and a lower edge 20 between which the display portion 10 is adapted to display at least one of alphanumeric characters and pictorial images in the

same upright configuration. A microphone 24 and a loudspeaker 26 are respectively provided at the lower and upper edges of the front face 6.

In accordance with the present invention, the upper edge 18 of the display portion 10 is proximal or adjacent to the lower edge 14 of the data input portion 8. There may be some spacing between the upper edge 18 of the display portion 10 and the lower edge 14 of the data input portion 8, depending upon the particular shape and dimensions of those functional parts of the mobile telephone handset 2, which in turn may depend on the aesthetic design of the mobile telephone handset 2. In the illustrated embodiment, a non-functioning intermediate region 22 of the front face is provided between the display portion 10 and the lower edge 14 of the data input portion 8. However, further functional keys or switches (not shown) may be provided in that region 22. Correspondingly, the upper edge 12 of the data input portion 8 is remote from to the lower edge 14 of the display portion 10. However, they may be adjacent. With either arrangement, to the user, when the mobile telephone handset 2 is held in the hand for operational use, the data input portion 8 is located above the display portion 10.

The housing 4 correspondingly includes a first upper portion 28 containing the data input portion 8 and an adjacent second lower portion 30 containing the display portion 10. With the need for miniaturisation, the upper and lower portions 28, 30 of the housing 4 are shaped and dimensioned so as to be, subject to the aesthetic design of the handset 2, sufficient to contain their respective functional elements, and not unnecessarily enlarged. The lower portion 30 of the housing having the display portion is shaped and dimensioned so as to fit comfortably within the palm of a user's hand.

The use of the mobile telephone handset 2 in accordance with the present invention when using the data input portion 8 is shown in Figure 2. When the data input portion 8 is to be used by the user, in particular the thumb T of the user when the handset 2 is held in the hand, the lower portion 30 of the housing 4 having the display portion 8 fits comfortably within the palm P of the user's hand. The data input portion 10 is conveniently and comfortably located beneath the thumb T, with the upper portion 28 of the housing 4 between the thumb T and first two fingers F1, F2 of the hand, which are accordingly

behind the housing 4. Therefore the entire handset 2 is held securely and comfortably in the hand, and is generally surrounded by the palm P, thumb T and fingers of the hand.

In contrast, as shown in Figure 3, known handsets 52 have an opposite configuration of the keypad 54 (data input portion) and the display portion 56, in particular the keypad 54 being located below the display portion 56. Accordingly, when the user uses the keypad 54 with his thumb T, the housing 58 cannot sit comfortably in the palm P of the hand. Instead, the lower portion 60 of the housing 58 containing the keypad 54 has to sit in an upper position, away from the palm P, between the thumb T and first two fingers F1, F2 of the hand. This is less comfortable than using the handset of the present invention, because the known handset 52 must be held firmly by the thumb T and fingers F1, F2 while also using the keypad 54 with the thumb T. Since a proportion of the handset 52, in particular the upper portion 62, is required to extend out of the grip of the user's hand, the manual grip on the handset 52 is less comfortable and less secure than obtainable with the handset of the present invention.

With the handset of the present invention, the snug fitting of the palm around the lower portion of the handset supports the handset while the data input portion 8 is being operated by the thumb. This is more comfortable and secure for the user. The shape of the lower portion of the thumb permits the display portion 10 to be readily viewable by the user while the data input portion 8 is being operated by the thumb.

In addition, the present invention similarly facilitates greater comfort and a more secure grip when the user inputs data using the thumb of both hands, simultaneously, in particular when sending text messages (otherwise known as "texting").

CLAIMS:

1. A mobile telephone handset having a housing, a manually operable data input portion and a display portion, the manually operable data input portion and the display portion being disposed on a common front face of the housing when the handset is oriented for operation by a user, the data input portion including an upper edge and a lower edge between which a plurality of data input elements are oriented in an upright configuration, and the display portion including an upper edge and a lower edge between which the display portion is adapted to display at least one of alphanumeric characters and pictorial images in the same upright configuration, characterized in that the upper edge of the display portion is proximal or adjacent to the lower edge of the data input portion.

2. A mobile telephone handset according to claim 1 wherein a part of the housing having the display portion is shaped and dimensioned so as to fit within the palm of a user's hand.

3. A mobile telephone handset according to claim 1 or claim 2 wherein the housing comprises a single rigid body.

4. A mobile telephone handset according to claim 1 or claim 2 wherein the housing comprises two hinged parts thereof, one part having the data input portion and the other part having the display portion.

5. A mobile telephone handset according to any foregoing claim wherein the data input portion comprises a keypad.

6. A mobile telephone handset according to any one of claims 1 to 4 wherein the data input portion comprises a touch sensitive screen.

7. A mobile telephone handset according to any foregoing claim wherein the handset includes circuitry to provide at least one additional function other than a telephone function.

8. A mobile telephone handset substantially as hereinbefore described with reference to Figure 1 of the accompanying drawings.

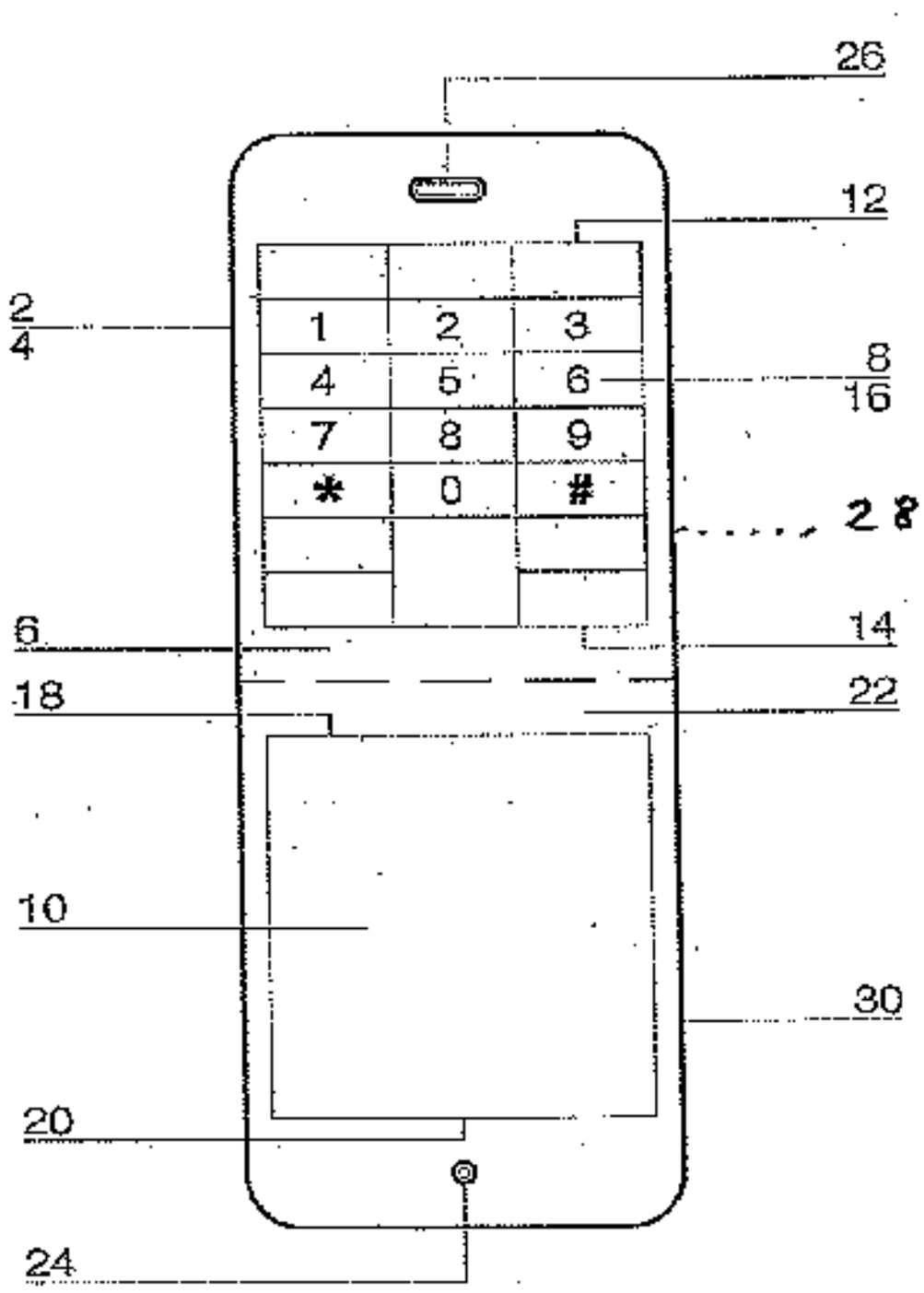

Figure 1

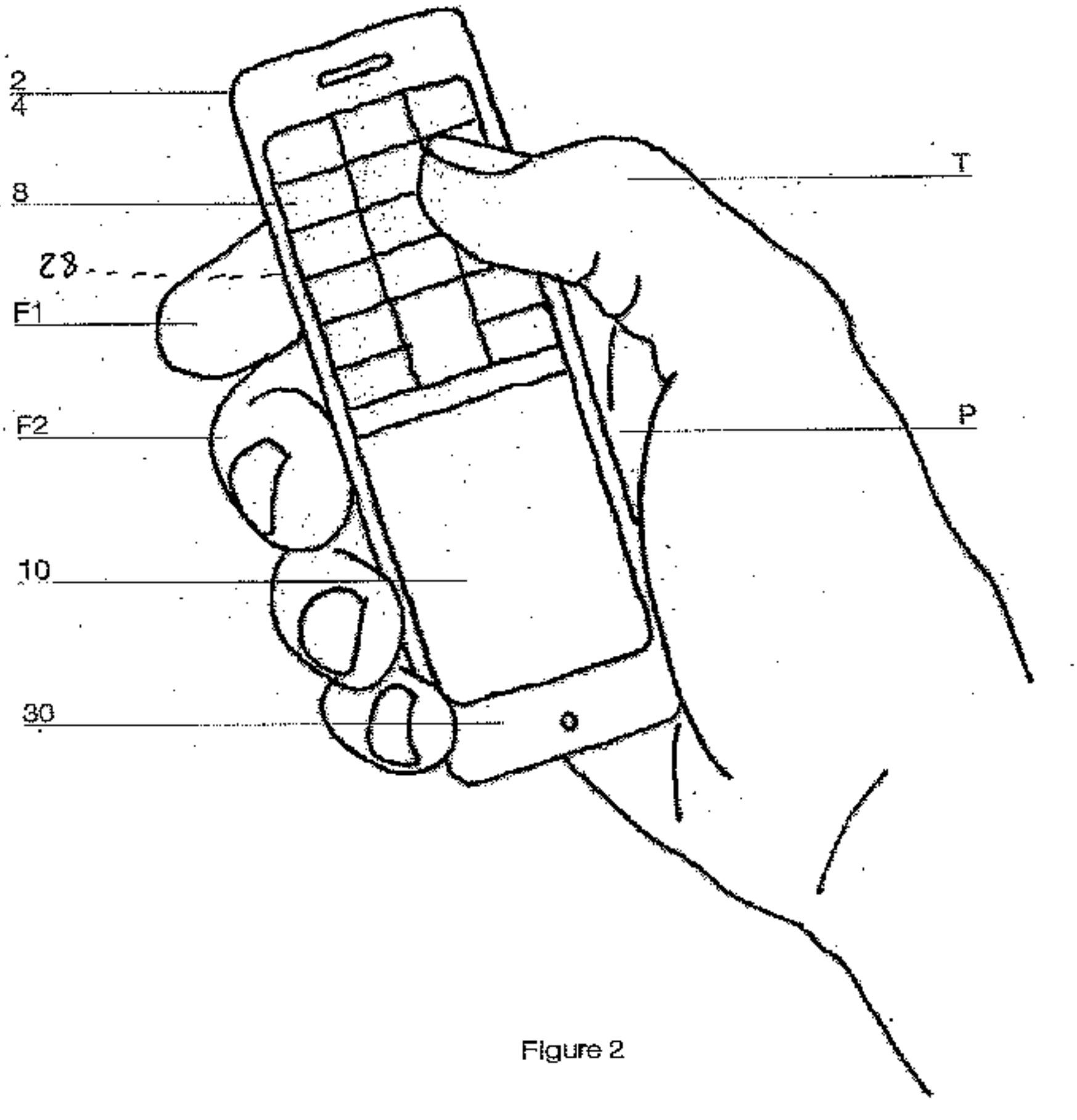

Figure 2

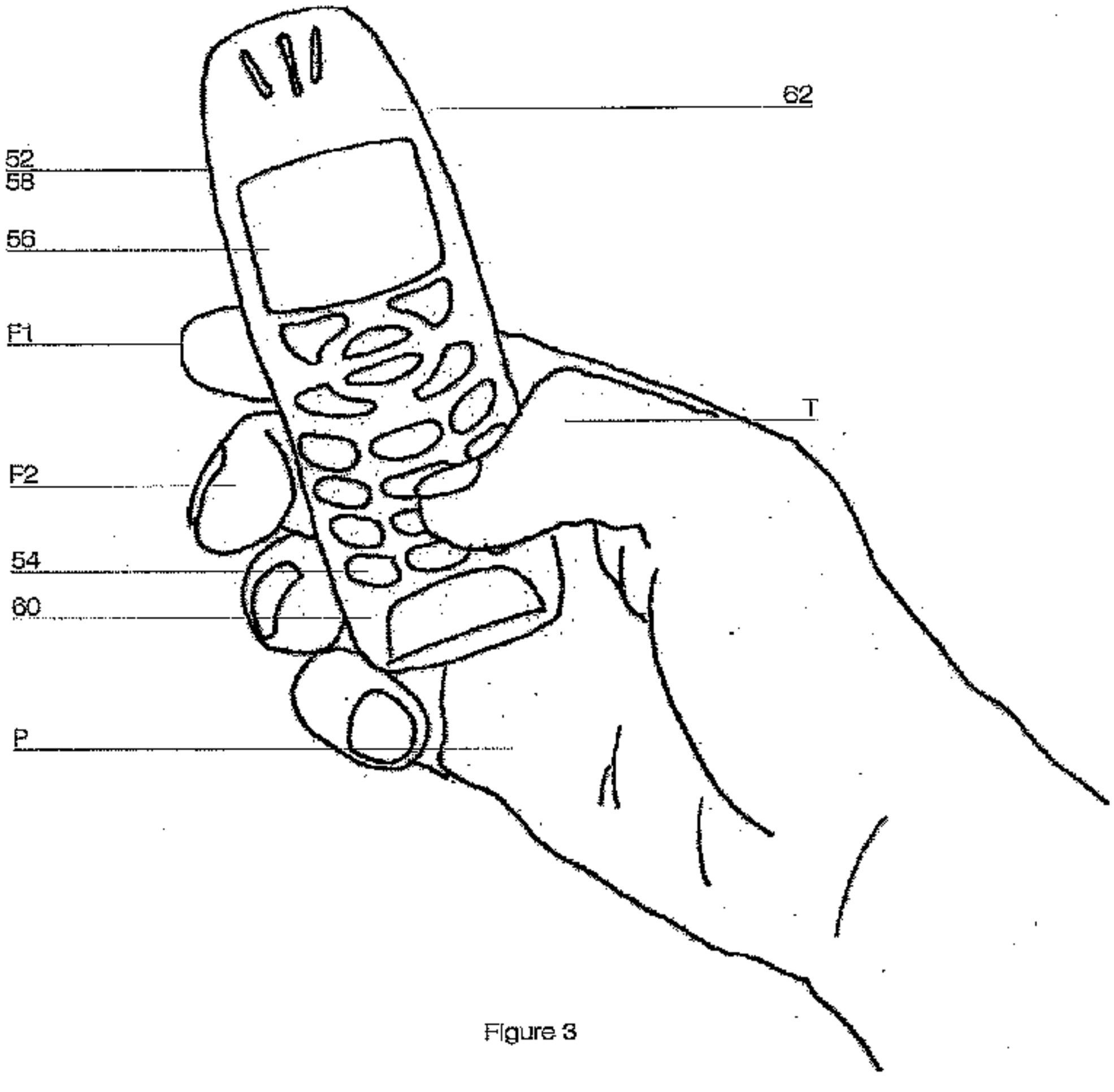

Figure 3