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(71) Applicant: HUAWEI TECHNOLOGIES CO., LTD.  
[CN/CN]; Huawei Administration Building Bantian Long-  
gang District, Shenzhen, Guangdong 518129 (CN).

(72) Inventor; and  
(71) Applicant (for US only): HEISKANEN, Juuso [FI/FI];  
Huawei Technologies Sweden AB Skalholtsgatan 9, 16440  
Kista (SE).

(74) Agent: KREUZ, Georg; Huawei Technologies Duessel-  
dorf GmbH Riesstr. 8, 80992 Munich (DE).

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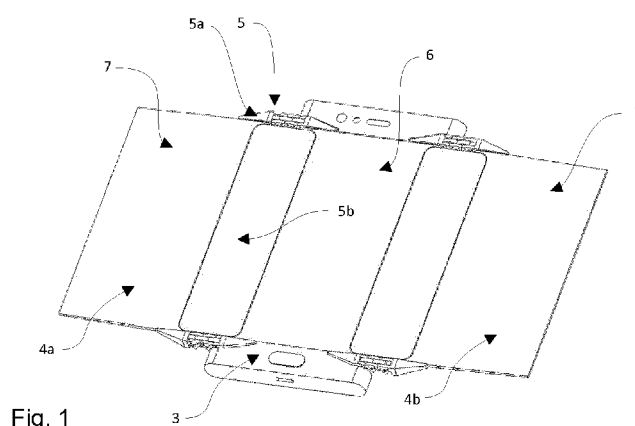


Fig. 1

(57) Abstract: A foldable mobile device (1) comprising a single foldable display (2), a single housing (3), internal components (9) arranged within the housing (3), a device support plate (4) and a second support plate (4b). Connection means (5) connect the support plates (4) to opposing edges of the housing (3) such that the support plates (4a, 4b) are pivotable relative to the housing (3). The foldable display (2) is attached to a front face (6) of the housing and a front face (7) of each support plate (4a, 4b), the first (4a) or second (4b) support plate being superimposed on a rear face (8) of the housing when pivoted to a first end position (P1), the second (4b) or first (4a) support plate being superimposed on the first (4a) or second (4b) support plate when pivoted to a first end position (P1).



FOLDABLE MOBILE DEVICE

TECHNICAL FIELD

The disclosure relates to a foldable mobile device comprising a foldable display, as well as a method of using such a foldable mobile device.

5 BACKGROUND

The size of mobile devices, such as tablets and mobile phones, is an important consideration when designing mobile devices. In order to provide the best mobile device possible, the outer dimensions of the device have to be as small as is technically feasible, while still allowing the display of the device to be as large as possible.

There are flexible mobile devices which comprise multiple housings covered by one large display, or several smaller displays. The multiple housings can be folded together to provide an as small device as possible, and unfolded to provide an as large display as possible. This is disclosed, e.g., in US 9,071,673, which shows a mobile device comprising three separate housing sections and a flexible display unit covering the front faces of all three housing sections. The three housing sections are interconnected by means of hinges such that the two side housing sections can fold inwards over the middle housing section, placing the flexible display unit completely on the inside of the folded mobile device. The rear faces of the housing sections are provided with input and output devices such as a second display or a keyboard, allowing the mobile device to be used also when folded together.

25 Such a tri-fold solution protects the display unit and reduces the width of the device, when folded together. However, the depth of the mobile device is substantial since three housing sections are stacked on top of each other. At times, the depth may

even be larger than the width, wherefore such a folded mobile device is clunky and aesthetically unappealing.

Further, the provision of three housings and multiple input and output devices not only makes the device heavy but also its foldable configuration electronically complicated.

### SUMMARY

It is an object to provide an improved foldable mobile device.

10 The foregoing and other objects are achieved by the features of the independent claims. Further implementation forms are apparent from the dependent claims, the description, and the figures.

According to a first aspect, there is provided a foldable mobile device comprising  
15 a single foldable display, a single housing, internal components arranged within the housing, a first support plate and a second support plate, connection means connecting the support plates to opposing edges of the housing such that the support plates are pivotable relative to the housing, the foldable display being attached to a front face of the housing and a front face of each support plate, the  
20 first or second (support plate being superimposed on a rear face of the housing when pivoted to a first end position, the second or first support plate being superimposed on the first or second support plate when pivoted to a first end position.

25 A foldable mobile device comprising only one foldable display, one housing, and additional support plates can be folded to a far lesser depth than prior art foldable mobile devices. Furthermore, the provision of only one foldable display makes it possible to maintain all internal electronic components within the housing, which allows the support plates to be as thin as possible such that they do not add  
30 significantly to the depth of the folded device. Also, the folded configuration allows

the support plate and foldable display to be securely tucked away behind the housing such that they are not damaged, e.g., during transportation.

5 In a possible implementation form of the first aspect, a second end position comprises the support plate being aligned with the front face of the housing, allowing the support plate and foldable display to be secured in an unfolded position which allows the user to take advantage of the large display in a so-called tablet mode.

10 In a further possible implementation form of the first aspect, a third end position comprises the support plate extending at an obtuse angle or a right angle to the front face of the housing, facilitating use of the device during texting or chatting, and allowing the device to be used in a desk-stand mode.

15 In a further possible implementation form of the first aspect, the first or second support plate superimposed on a rear face of the housing is pivoted from a first end position to a second or third end position by at least  $180^\circ$ , allowing the support plate to be pivoted to a number of useful end positions.

20 In a further possible implementation form of the first aspect, the second or first support plate superimposed on the first or second support plate is pivoted from a first end position to a second end position by  $180^\circ$  or less, allowing the support plate to be pivoted to a fixed end position in which the support plate is, e.g., aligned with the housing.

25

In a further possible implementation form of the first aspect, the support plates are solid plates, making the support plates rigid enough to support the foldable display.

30 In a further possible implementation form of the first aspect, the thickness of the support plates is less than, or equal to, half the distance between the front and rear faces of the housing, making the support plates rigid enough to support the foldable

display while still being flexible enough to withstand possible overload without deforming permanently.

5 In a further possible implementation form of the first aspect, the foldable mobile device further comprises interconnect paths, all interconnect paths extending within the housing, within the foldable display, and/or between the housing and the foldable display, such that the connecting means need not be designed to accommodate the interconnect paths.

10 In a further possible implementation form of the first aspect, the connection means comprises pivot means and cover means, the cover means bridging any gap formed between the housing and the support plates such that the foldable display does not move as the user touches it.

15 In a further possible implementation form of the first aspect, the foldable mobile device further comprises locking means adapted for allowing each support plate to be locked in a first end position, a second end position, a third end position, and/or an intermediate position, facilitating a multitude of suitable and fixed modes of use.

20 In a further possible implementation form of the first aspect, the locking means comprises magnets arranged on the rear face of the housing and a rear face of at least one of the support plates, providing simple means of locking the support plates into their folded positions behind the housing.

25 In a further possible implementation form of the first aspect, the housing comprises at least one camera, an aperture of the camera being directed to the front face or rear face of the housing, such that all electronics are maintained within the housing.

30 In a further possible implementation form of the first aspect, the aperture remains unobstructed by the foldable display and the support plates regardless of the

position of the foldable display and the support plates, allowing the cameras to be used in all modes.

5 In a further possible implementation form of the first aspect, the housing comprises at least one antenna, the antenna remaining unobstructed by the foldable display and the support plates regardless of the position of the foldable display and the support plates.

10 According to a second aspect, there is provided a method of using a foldable mobile device according to the above, the method comprising the steps of pivoting a first or second support plate, relative a housing, to a first end position, such that the first or second support plate is superimposed on a rear face of the housing, pivoting a second or first support plate, relative the housing, to a first end position, such that the second or first support plate is superimposed on the first or second  
15 support plate.

A foldable mobile device, used as described above, can be folded to a far lesser depth than prior art foldable mobile devices, while also maintaining all internal components within the housing, allowing the support plates to be as thin as  
20 possible such that they do not add significantly to the depth of the folded device.

In a further possible implementation form of the second aspect, the method further comprises the steps of pivoting the second or first support plate to a second end position, such that the second or first support plate is aligned with a front face of  
25 the housing, or pivoting the second or first support plate to a third end position, such that the second or first support plate extends at an obtuse angle or a right angle to the front face of the housing, pivoting the first or second support plate to a second end position, such that the first or second support plate is aligned with the front face of the housing, or pivoting the first or second support plate to a third  
30 end position, such that the first or second support plate extends at an obtuse angle

or a right angle to the front face of the housing, facilitating several suitable and fixed modes of use.

5 In a further possible implementation form of the second aspect, the method further comprises the steps of pivoting the support plate, relative the housing, between a first position and a second position, the first and second positions being any one of the first end position, the second end position, the third end position, and an intermediate position located between the end positions, facilitating even more several modes of use.

10

In a further possible implementation form of the second aspect, the method further comprises the steps of unlocking the support plate when in a first position, pivoting the support plate to a second position, locking the support plate in the second position, allowing the support plates to be securely locked into a position and the mobile device to be used in a desired mode, such as phone mode, tablet mode, or desk-stand mode.

15

This and other aspects will be apparent from and the embodiment(s) described below.

20

### BRIEF DESCRIPTION OF THE DRAWINGS

In the following detailed portion of the present disclosure, the aspects, embodiments, and implementations will be explained in more detail with reference to the example embodiments shown in the drawings, in which:

25

Fig. 1 shows a perspective front view of a main section of a foldable mobile device in accordance with one embodiment of the present invention;

Fig. 2 shows a front view of a foldable mobile device in accordance with one embodiment of the present invention;

30

Fig. 3 shows a top and bottom view of a foldable mobile device in accordance with one embodiment of the present invention;

- 5 Fig. 4a shows a perspective front view of a foldable mobile device in accordance with one embodiment of the present invention;

Fig. 4b shows a top and bottom view of the embodiment of Fig. 4a.

- 10 Fig. 5a shows a perspective front view of a foldable mobile device in accordance with one embodiment of the present invention;

Fig. 5b shows a top and bottom view of the embodiment of Fig. 5a.

- 15 Fig. 6a shows a perspective front view of a foldable mobile device in accordance with one embodiment of the present invention, in one user mode;

Fig. 6b shows the embodiment of Fig. 6a in a further user mode.

- 20 Fig. 6c shows the embodiment of Figs. 6a and 6b in yet another user mode.

Fig. 7a shows a perspective front view of a foldable mobile device in accordance with one embodiment of the present invention;

- 25 Fig. 7b shows the embodiment of Fig. 7a in another user mode.

Fig. 8a shows a perspective front view of a foldable mobile device in accordance with one embodiment of the present invention;

- 30 Fig. 8b shows the embodiment of Fig. 8a in another user mode, and



Fig. 9 shows perspective front view of a partially disassembled foldable mobile device in accordance with one embodiment of the present invention.

#### DETAILED DESCRIPTION

5 The present invention relates to a foldable mobile device, which in an open configuration, a so-called tablet mode, has one large visible display extending farther to the sides than the housing of the device. In a closed, folded configuration, a so-called phone mode, only approximately one third of the large visible display is shown on the front of the device, and one third of the large visible display is shown at the back of the device. This allows the user to use a full-size display when, e.g., viewing video (tablet mode), and to use a smaller display (phone mode) when using the device as a phone or during transport. The device may also be used in at least one desk-stand mode, in which two thirds of the display are visible to the user. The mobile device 1 can be used with a landscape view or a portrait view, regardless of it being in the tablet mode, phone mode, or desk-stand mode.

The full-size display may show the same home screen as a folded display, only in a larger format, or the extension(s) of the initial, folded device home screen, which usually require sideways swiping to appear. Furthermore, the full-size display and the display configurations in which only one third or two thirds of the display is/are visible could have completely independent interfaces such that each display configuration, ranging from one full-size visible display to three individual visible displays, is optimized for its own size.

25 Fig. 1 shows a single housing 3 as well as a first support plate 4a and a second support plate 4b, the housing and support plates being adapted for supporting a single foldable display 2. The support plates 4a, 4b are connected to opposing sides of the housing 3, i.e. the longitudinal edges, by means of connection means 5 in a way such that the support plates 4a, 4b are pivotable relative to said housing

3. Each support plate 4a, 4b can be pivoted around an axis extending along the previously mentioned longitudinal edge of the housing.

Fig. 2 shows one embodiment of a foldable mobile device 1 comprising the above mentioned single foldable display 2. The foldable display 2 is attached to the front face 6 of the housing and, in one embodiment, to the front face 7 of each support plate 4a, 4b. The foldable display 2 may be attached by means of an adhesive or by laminating the display 2 onto the housing/support plates. The embodiment shown in Fig. 2 is provided with a foldable display 2 which has a height which is lesser than the height of the housing 3, leaving upper and lower parts of the front face of the housing 3 exposed. Figs. 7a-7b show an embodiment in which height of the display 2 is larger than in Fig. 2, such that the display leaves only an upper part of the front face of the housing 3 exposed. Figs. 8a-8b show an embodiment in which the height of the display 2 corresponds to the entire height of the housing 3, such that all of the front face 6 of the housing is covered by the foldable display 2. For clarification purposes, Fig. 2 shows the width and the height of the mobile device 1, while Fig. 3 shows the width and the depth of the mobile device 1. As is clear from these figures, the outer dimensions of the folded mobile device according to the present invention are either significantly reduced or essentially maintained. Prior art solutions, on the other hand, reduces one outer dimension while significantly increasing another outer dimension.

The support plates 4a, 4b may be designed in the form of a sheet and made of, e.g., any suitable metal, plastic, elastomer, composite, or combination of such materials. Preferably, the support plates are rigid enough to support the unfolded display when being used, while still being flexible enough to withstand possible overload without deforming permanently. Furthermore, the support plates 4a, 4b may be solid plates, or provided with cut-outs in order to reduce the weight of the mobile device. The support plates 4a, 4b are, however, by no means hollow, for the purpose of receiving electrical components, but have solid and through-going cores adapted only for providing support to the foldable display 2. The thickness

T1 of the support plates 4a, 4b is less than, or equal to, half the distance D1 between the front 6 and rear 8 faces of the housing 3, significantly reducing the depth of the device when in the folded position. In one embodiment, T1 is approximately 1 mm while D1 is approximately 7 mm.

5

Fig. 9 shows one embodiment of a foldable mobile device which is partly disassembled in order to show internal components 9 and interconnect paths 10. The internal components 9, such as battery, main board, integrated circuits, processors, memory, cameras, speakers, etc. are all arranged within the housing 3, and all interconnect paths 10, such as flexible circuit boards and cables, extend within the housing 3, within the foldable display 2, and/or between the housing 3 and the foldable display 2. Hence, there are no electronic components within the support plates 4a, 4b, or electronic connections between the support plates 4a, 4b and the foldable display 2 or the housing 3. This allows for a simpler electronic structure, since none of the interconnect paths 10/electronic connections have to be adapted to the folding movement of the support plates 4a, 4b, which would be the case if there were interconnect paths 10 between the support plates 4a, 4b and the housing 3. In such a case, the connection means 5 would have to be designed to accommodate the interconnect paths 10.

20

The support plates 4a, 4b may be connected to the housing 3 such that the edges of the support plates and the housing are in direct connection with each other. However, the support plates 4a, 4b may also be connected to the housing 3 such that there is a slight gap 11 between the support plates 4a, 4b and the housing 3.

25

In one embodiment, the connection means 5 comprises pivot means 5a and cover means 5b, the cover means 5b bridging any gap 11 formed between said housing 3 and said support plates 4a, 4b. The connection means 5 may be a hinge, wherein the pivot means 5a is a foldable structure made of a bendable material or a foldable mechanism. The pivot points of the pivoting means 5a may be located within the foldable structure/mechanism or outside the very same, e.g. in the form of sliding

30

surfaces. The connection means 5 may be completely hidden by the foldable display, as shown in Fig. 4a, or be visible, as shown in Fig. 5a.

5 The foldable mobile device 1 may also comprise locking means 12 adapted for allowing each support plate 4a, 4b to be locked in a desired position such as an end position P1, P2, and P3 or an intermediate position P4. In one embodiment, the locking means 12 comprises magnets arranged on the rear face 8 of the housing 3 and a rear face 13 of at least one of the support plates 4a, 4b, as shown in Fig. 4b. The locking means 12 may also comprise of movable components such  
10 as mechanical slides.

The housing 3 may comprise at least one camera 14, the aperture of the camera being directed to the front face 6 or the rear face 8 of the housing 3. In one embodiment, the foldable device comprises one front camera and one rear  
15 camera. In one embodiment, the aperture of each camera 14 remains unobstructed by the foldable display 2 and the support plates 4a, 4b regardless of which positions, such as end positions P1, P2, and P3 and intermediate position P4, the foldable display 2 and the support plates 4a, 4b are in.

20 The housing may furthermore comprise at least one antenna 15, see Fig. 7a, the antenna also remaining unobstructed by the foldable display 2 and the support plates 4a, 4b regardless of which positions, such as end positions P1, P2, and P3 and intermediate position P4, the foldable display 2 and the support plates 4a, 4b are in. The unobstructed antenna will retain its performance regardless of the user  
25 mode of the mobile device.

Each support plate, i.e. both the first support plate 4a and the second support plate 4b, may be pivoted to a position where it is superimposed on the rear face 8 of the housing 3, see e.g. Figs. 5a-5b. The support plate is, in other words, folded in  
30 a direction towards the rear face 8 of the mobile device 1 which reduces the width of the mobile device 1, while only slightly increasing the depth of the mobile device.

The position where a support plate 4a, 4b is superimposed on the rear face 8 of the housing 3 is referred to as the first end position P1a.

5 After having pivoted either the first support plate 4a or the second support plate 4b to the first end position P1, the remaining support plate, i.e. the second support plate 4b or the first support plate 4a, may be pivoted to a position where it is superimposed on the previously mentioned support plate 4a, 4b. This superimposed position is also referred to as the first end position P1b.

10 In one embodiment, the support plates 4a, 4b are arranged in parallel with the front face 6 of the housing, when in the first end position P1, P1a, P1b.

The first end position P1 corresponds to a 0° pivot angle. In a second end position P2, the support plates 4a, 4b are folded outwards and aligned with the front face 6  
15 of the housing 3, which corresponds to a 180° pivot angle from the first end position P1 to the second end position P2.

In one embodiment, at least one of the support plates 4a, 4b may be folded to a third end position P3, in which position the support plate has been pivoted such  
20 that it extends at an obtuse angle, or even a right angle, to the front face 6 of the housing. The pivot angle, in this case corresponds to over 180°, preferably up to 270°.

In a further embodiment, the support plate 4a, 4b which is superimposed on the  
25 rear face 8 of the housing 3, is not parallel with the front face 6, but rather points in a direction inwards towards the front face 6. In other words, the support plate edge which is connected to the housing 3 is located at a larger distance from the front face 6 than the opposing free edge, which edge which may lie in direct abutment with the rear face 8 in the first end position P1a. Should the rear face 8  
30 not be a flat surface, then it is possible that both edges of the support plate lie in direct abutment with the rear face 8 in the first end position P1a. Regardless, the

support plate 4a, 4b is pivoted from the first end position P1a to the second end position P2a by at least 180°.

The remaining support plate 4b, 4a may extend in parallel with the housing 3, corresponding to a 180° pivot angle from end position P1b to end position P2b, or point inwards in a direction towards the front face 6 such that the support plate edge which is connected to the housing 3 is located at a larger distance from the front face 6 than the opposing free edge which may lie in direct abutment with the other support plate 4a, 4b, or more specifically, the foldable display 2 arranged on the front face 7 of the support plate 4a, 4b. In the latter case, the pivot angle is over 180° from end position P1b to end position P2b. A further option is that the remaining support plate 4b, 4a points in a direction slightly outwards from the front face 6, when folded into the phone mode, such that the support plate edge which is connected to the housing 3 is located at a smaller distance from the front face 6 than its opposing free edge. In this case, the pivot angle from end position P1b to end position P2b is less than 180°.

The foldable mobile device described above may be used by means of the steps described below. For ease of reading, the steps below state the first support plate 4a as being pivoted to a position superimposed onto the rear face 8 of the housing 3, and the second support plate 4b as being superimposed onto the first support plate 4a, but of course, the order could be the opposite such that the second support plate 4b is superimposed onto the rear face 8 of the housing 3 while the first support plate 4a is superimposed onto the second support plate 4b.

When folding the support plates inwards towards the first end position P1, from any position in which the support plate is at least somewhat pivoted outwards in a direction from the rear face of the housing such as the second end position P2, the following steps may be taken.

30

The first support plate 4a is pivoted, relative the housing 3, to a first end position P1a, such that the first support plate 4a is superimposed on the rear face 8 of the housing 3.

- 5 Subsequently, the second support plate 4b is pivoted, relative the housing 3, to a first end position P1b, such that the second support plate 4b is superimposed on the first support plate 4a. Hence, the rear face of the first support plate 4a is pivoted in a direction towards the rear face of the housing 3, and the rear face of the second support plate 4b is pivoted towards the front face of the first support  
10 plate 4a/the foldable display 2. This is shown in Figs. 5a, 5b. In one embodiment, only the display section which is attached to the front face of the housing is activated when the foldable mobile device 1 is in this user mode.

- When folding the support plates outwards from, e.g., the first end position P1, or  
15 any position in which the support plate is at least somewhat pivoted outwards in a direction from the rear face of the housing, the following steps may be taken.

- The second support plate 4b is pivoted to a more extended display position such as the second end position P2b, the third end position P3b, or an intermediate  
20 position P4. The first support plate 4a may be maintained in the first end position P1a, such as shown in Fig. 6b.

- In one embodiment, the second support plate 4b is pivoted to a second end position P2b, such that said second 4b or first 4a support plate is aligned with a  
25 front face 6 of said housing 3, and the first support plate 4a is thereafter pivoted to an intermediate position P4, as shown in Fig. 6a. In this position, the mobile device is in a desk-stand mode, suitable for, e.g., video conferencing.

- In another embodiment, the second support plate 4b is pivoted to a third end  
30 position P3b, such that the second support plate 4b extends at an obtuse angle or a right angle to the front face 6 of the housing, and the first support plate 4a is

pivoted to a first end position P1a, such that the first support plate 4a is superimposed onto the rear face 8 of the housing 3. In this position, the user may easily use the display section arranged on the front face 6 of the housing as a keyboard, and the display section arranged on the second support plate 4b as the display, for example when texting or chatting. This is shown in Fig. 6c.

Either one of the support plates 4a, 4b may be pivoted towards the front to either extended position, and either support plate may be pivoted back in a direction towards the rear face of the housing to, e.g., the first end position P1 or an intermediate position P4.

For example, Figs. 4a-4b show both support plates being in intermediate positions P4. Figs 5a-5b, 7b, and 8b show both support plates being in the first end position P1. Furthermore, Fig. 6a shows one support plate in an intermediate position P4 and one support plate in the second end position P2. Fig 6b. shows one support plate in the first end position P1 and one support plate in the second end position P2. In the latter embodiment, and as mentioned above, the first support plate 4a is maintained in the first end position P1a allowing the user to use the display section arranged on the front face 6 of the housing as a keyboard, and the display section arranged on the second support plate 4b, being in the second end position P2, as the display.

In summary, a support plate 4a, 4b may be pivoted, relative the housing 3, between a first position and a second position, the first and second positions being any one of the first end position P1, the second end position P2, the third end position P3, and an intermediate position P4 located between the end positions.

In one embodiment, wherein the foldable mobile device 1 comprises locking means 12, the support plate 4a, 4b may be unlocked by the user when in the first position P1, whereafter at least one support plate 4a, 4b is pivoted to a second position, in which second position the support plate 4a, 4b is yet again locked.



The various aspects and implementations has been described in conjunction with various embodiments herein. However, other variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the claimed subject-matter, from a study of the drawings, the disclosure, and the appended claims. In the claims, the word “comprising” does not exclude other elements or steps, and the indefinite article “a” or “an” does not exclude a plurality. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measured cannot be used to advantage.

The reference signs used in the claims shall not be construed as limiting the scope.

15

CLAIMS

1. 1. A foldable mobile device (1) comprising  
-a single foldable display (2),  
5 -a single housing (3),  
-internal components (9) arranged within said housing (3),  
- a first support plate (4a) and a second support plate (4b),  
-connection means (5) connecting said support plates (4) to opposing  
edges of said housing (3) such that said support plates (4a, 4b) are  
10 pivotable relative to said housing (3),  
said foldable display (2) being attached to a front face (6) of said  
housing and a front face (7) of each support plate (4a, 4b),  
said first (4a) or second (4b) support plate being superimposed on a  
rear face (8) of said housing when pivoted to a first end position (P1),  
15 said second (4b) or first (4a) support plate being superimposed on said  
first (4a) or second (4b) support plate when pivoted to a first end  
position (P1).
2. The foldable mobile device (1) according to claim 1, wherein a second  
20 end position (P2) comprises said support plate (4a, 4b) being aligned  
with said front face (6) of said housing.
3. The foldable mobile device (1) according to claim 1 or 2, wherein a third  
25 end position (P3) comprises said support plate (4a, 4b) extending at an  
obtuse angle or a right angle to said front face (6) of said housing.
4. The foldable mobile device (1) according to any one of the previous  
claims, wherein said first (4a) or second (4b) support plate  
superimposed on a rear face (8) of said housing is pivoted from a first  
30 end position (P1) to a second or third end position (P2, P3) by at least  
180°.

5. The foldable mobile device (1) according to claim 2 or 3, wherein said second (4b) or first (4a) support plate superimposed on said first (4a) or second (4b) support plate is pivoted from a first end position (P1) to a second end position (P2) by 180° or less.
6. The foldable mobile device (1) according to any one of the previous claims, wherein said support plates (4a, 4b) are solid plates.
7. The foldable mobile device (1) according to any one of the previous claims, wherein the thickness (T1) of said support plates (4a, 4b) is less than, or equal to, half the distance (D1) between said front (6) and rear (8) faces of said housing (3).
8. The foldable mobile device (1) according to any one of the previous claims, further comprising interconnect paths (10), all interconnect paths extending within said housing (3), within said foldable display (2), and/or between said housing (3) and said foldable display (2).
9. The foldable mobile device (1) according to any one of the previous claims, wherein said connection means (5) comprises pivot means (5a) and cover means (5b), said cover means (5b) bridging any gap (11) formed between said housing (3) and said support plates (4a, 4b).
10. The foldable mobile device (1) according to any one of the previous claims, further comprising locking means (12) adapted for allowing each support plate (4a, 4b) to be locked in a first end position (P1), a second end position (P2), a third end position (P3), and/or an intermediate position (P4).

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11. The foldable mobile device (1) according to claim 9, wherein said locking means (12) comprises magnets arranged on said rear face (8) of said housing (3) and a rear face (13) of at least one of said support plates (4a, 4b).

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12. The foldable mobile device (1) according to any one of the previous claims, wherein said housing (3) comprises at least one camera (14), an aperture of said camera being directed to the front face (6) or rear face (8) of said housing (3).

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13. The foldable mobile device (1) according to claim 11, wherein said aperture remains unobstructed by said foldable display (2) and said support plates (4a, 4b) regardless of the position of said foldable display and said support plates.

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14. The foldable mobile device (1) according to any one of the previous claims, wherein said housing (3) comprises at least one antenna (15), said antenna remaining unobstructed by said foldable display (2) and said support plates (4a, 4b) regardless of the position of said foldable display and said support plates.

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15. A method of using a foldable mobile device (1) according to any one of claims 1-13, comprising the steps of:

-pivoting a first (4a) or second (4b) support plate, relative a housing (3), to a first end position (P1a), such that said first (4a) or second (4b) support plate is superimposed on a rear face (8) of said housing (3),

25

-pivoting a second (4b) or first (4a) support plate, relative said housing (3), to a first end position (P1b), such that said second (4b) or first (4a) support plate is superimposed on said first (4a) or second (4b) support plate (4a).

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16. The method according to claim 14, further comprising the steps of:

- pivoting said second (4b) or first (4a) support plate to a second end position (P2b), such that said second (4b) or first (4a) support plate is aligned with a front face (6) of said housing (3), or
- pivoting said second (4b) or first (4a) support plate to a third end position (P3b),  
5 such that said second (4b) or first (4a) support plate extends at an obtuse angle or a right angle to said front face (6) of said housing,
- pivoting said first (4a) or second (4b) support plate to a second end position (P2a), such that said first (4a) or second (4b) support plate is aligned with said front face (6) of said housing (3), or
- 10 pivoting said first (4a) or second (4b) support plate to a third end position (P3a), such that said first (4a) or second (4b) support plate extends at an obtuse angle or a right angle to said front face (6) of said housing.

17. The method according to claim 14 or 15, further comprising the steps  
15 of:
- pivoting said support plate (4a, 4b), relative said housing (3), between a first position and a second position,  
said first and second positions being any one of said first end position (P1), said second end position (P2), said third end position (P3), and an intermediate position  
20 (P4) located between said end positions.

18. The method according to any one of claims 14 to 16, further comprising the steps of:
- unlocking said support plate (4a, 4b) when in a first position,
  - 25 -pivoting said support plate (4a, 4b) to a second position,
  - locking said support plate (4a, 4b) in said second position.

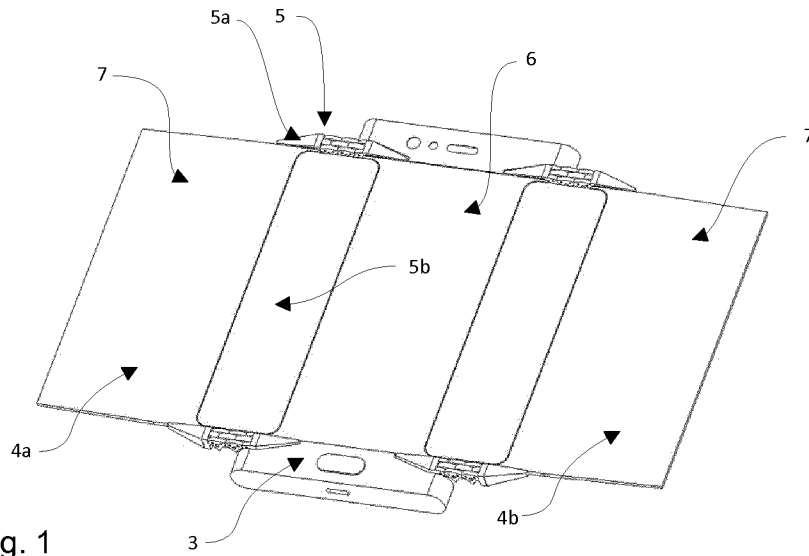


Fig. 1

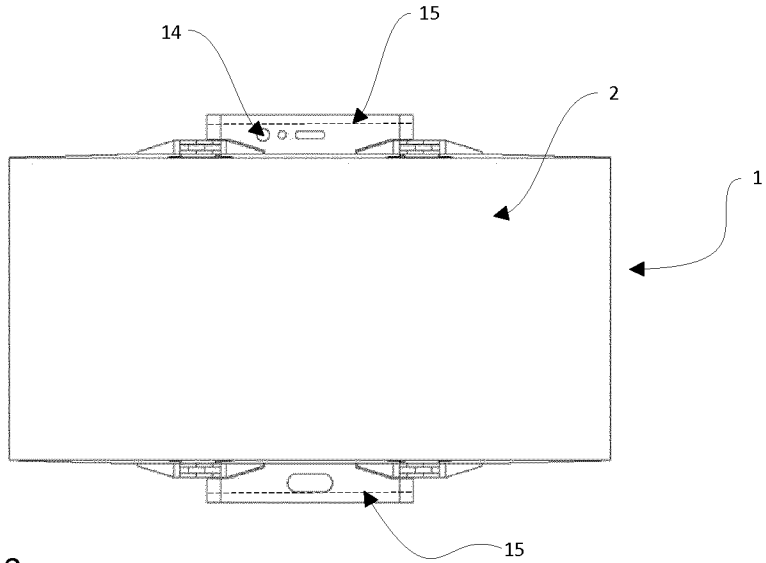


Fig. 2

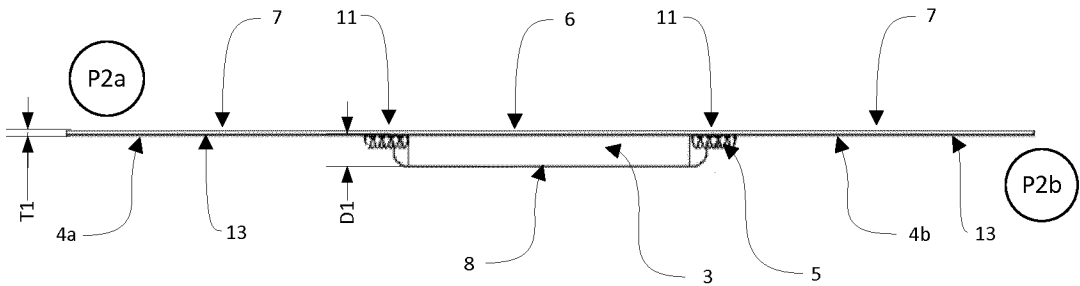


Fig. 3

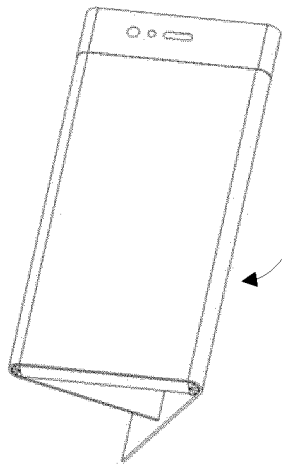


Fig. 4a

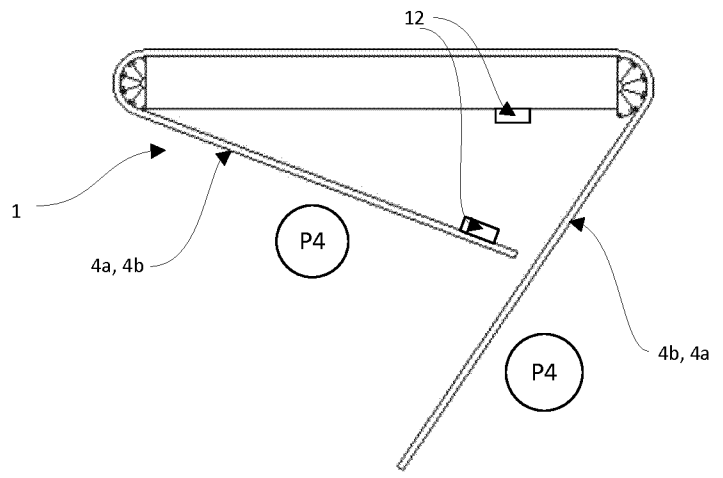


Fig. 4b

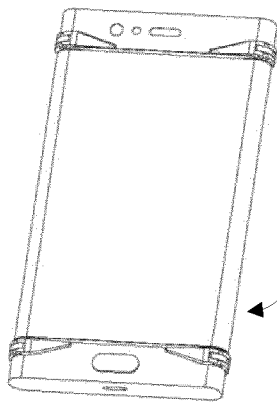


Fig. 5a

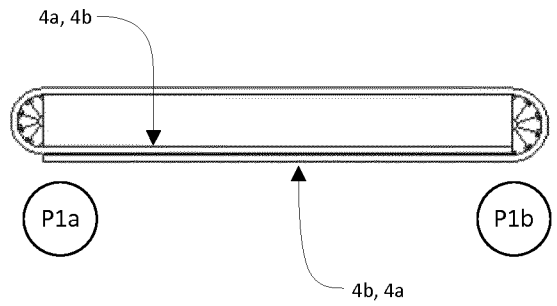


Fig. 5b

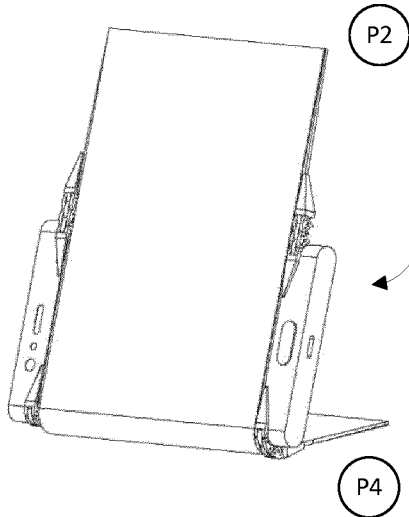


Fig. 6a

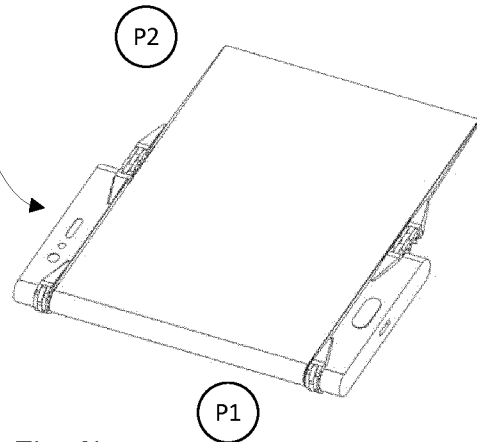


Fig. 6b

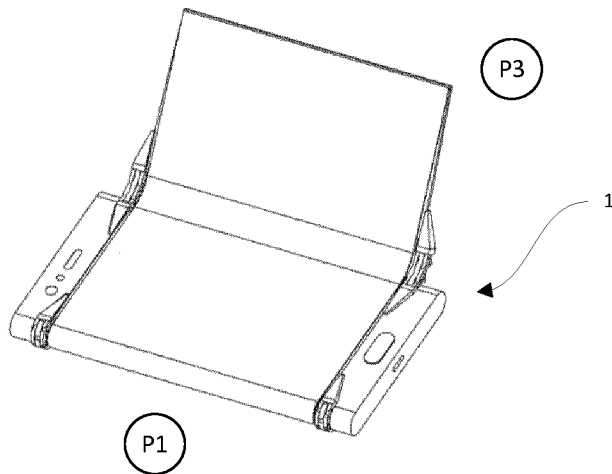


Fig. 6c



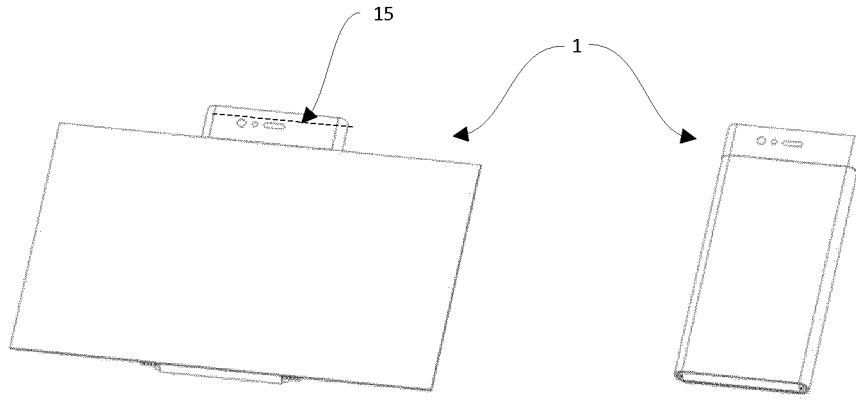


Fig. 7a

Fig. 7b

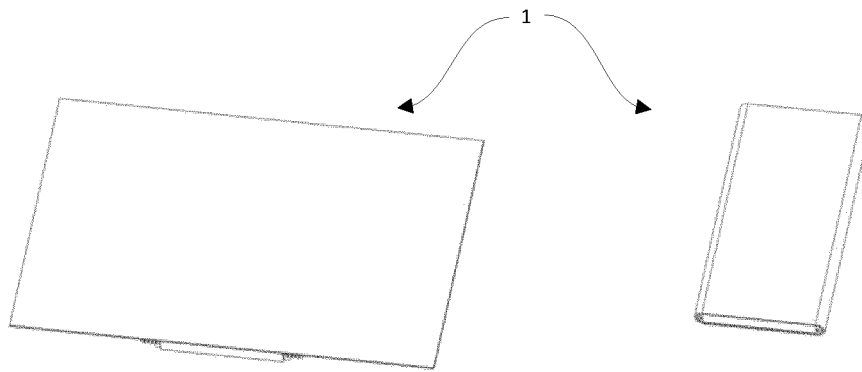


Fig. 8a

Fig. 8b

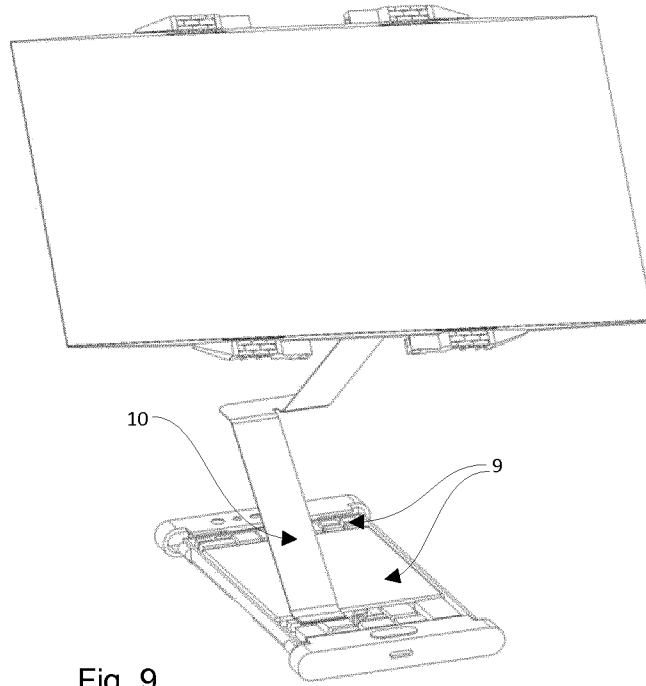


Fig. 9

INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2017/080334

A. CLASSIFICATION OF SUBJECT MATTER  
INV. G06F1/16 H04M1/02  
ADD.  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
G06F H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|-----------|--|-----------------------|
| X         | WO 2017/044246 A1 (INTEL CORP [US])<br>16 March 2017 (2017-03-16)<br>abstract<br>figures 1, 4-8, 11, 12<br>paragraph [0023] - paragraph [0034]<br>paragraph [0037] - paragraph [0090]<br>claim 1 | 1-18                  |
| A         | -----<br>US 2016/302314 A1 (BAE YU-DONG [KR] ET AL)<br>13 October 2016 (2016-10-13)<br>figures 6, 7<br>paragraph [0072] - paragraph [0074]<br>paragraph [0136] - paragraph [0137]<br>-----       | 9,11,13               |

Further documents are listed in the continuation of Box C.

See patent family annex.

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Date of the actual completion of the international search  
11 July 2018

Date of mailing of the international search report  
23/07/2018

Name and mailing address of the ISA/  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040,  
Fax: (+31-70) 340-3016

Authorized officer  
Ronke, Rebecca

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/080334

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