

are introduced into openings **133a** and **133b** of the rear plate **130**. The width of the rear plate **130** in the Y-direction is smaller than that of the front plate **116**, so that the back surface of the front plate **116** is exposed at side portions of the rear plate **130** at opposite positions in the Y-direction, as shown in **FIG. 7**, if it is seen from a point at the rear of the notebook PC **11**.

[0045] Shafts **126a** and **126b** (first pivots) of tie members **125a** and **125b** for rotatably connecting the front plate **116** to the base **150** are inserted in holes **117a** and **117b** formed in the front plate **116** at the lower end. The tie members **125a** and **125b** are fixed to side portions **150s** of a front end **150f** of the base **150** in a state where the front plate **116** and the rear plate **130** are connected to each other, as shown in **FIG. 7**.

[0046] Shafts (fourth pivots) **137a** and **137b** rotatably held by hitch portions **136a** and **136b** of the rear plate **130** at the lower end are inserted in holes **141a** and **141b** of connecting plates **140a** and **140b** for connecting the rear plate **130** to the base **150**. Fixation surfaces **142a** and **142b** of the connecting plates **140a** and **140b** are fixed on the back surface of the base **150** with the hitch portions **136a** and **136b** positioned at the front end **150f** of the base **150**. A cushioning component **170** for reducing a shock due to an abrupt change in angle is provided substantially at a center in the Y-direction at the lower end of the rear plate **130**, as shown in **FIG. 7**.

[0047] According to various embodiments of the present invention and for exemplification, the structure of the arm **20**, the first hinge portion **22** and the second hinge portion **23** is set forth in additional detail below.

[0048] **FIG. 8** is a cross-sectional view of the arm **20**, the first hinge portion **22** and the second hinge portion **23** shown in **FIG. 7**, showing the portions in the assembled state. **FIG. 9** is a cross-sectional view of a state where the arm **20** shown in **FIG. 8** is tilted. **FIG. 10** is a cross-sectional view of a state where the arm **20** shown in **FIG. 8** is laid completely flat. **FIG. 11** is a cross-sectional view taken along the line A-A in **FIG. 10**.

[0049] As shown in **FIG. 8**, the arm **20** is formed in such a manner that the front plate **116** and the rear plate **130** are opposed to each other while being set in parallel with each other. In the second hinge portion **23**, the hook-like hitch portion **113a** engages with the shaft **111a** with its opening facing in a direction (outward) opposite from the side where front plate **116** and the rear plate **130** are opposed to each other. The front plate **116** is thereby connected to the second hinge portion **23**. Similarly, the hook-like hitch portion **132a** engages with the shaft **131a** with its opening facing outward. The rear plate **130** is thereby connected to the second hinge portion **23**. In the first hinge portion **22**, the hook-like hitch portion **136a** engages with the shaft **137a** with its opening facing outward. The rear plate **130** is thereby connected to the front end **150f** of the base **150**. Thus, the plurality of hook-like hitch portions **113a** and **136a** are used for connection to prevent shift and rattling in the connecting portions.

[0050] At the front end **150f** of the base **150**, the cushioning component **170** is constituted by a gear **171** provided on the arm **20** and a gear **172** provided on the base **150**. The gear **172** is provided in a state of projecting on the back surface **150d** side of the base **150**. The base **150** is placed in

the recessed portion **21** of the main unit **13** of the notebook PC **150**. The gears **171** and **172** start meshing with each other when the arm **20** is brought closer to the base **150** as shown in **FIG. 9**.

[0051] The gear **172** is provided with a spring **180** which is engaged with the gear **172** and the back surface **150d** of the base **150**. A force is thereby constantly applied to the gear **172** to make the gear **172** rotate counterclockwise as viewed in the figure. That is, the force is applied in such a direction that the arm **20** is moved away from the base **150**. Therefore, when the arm **20** is further folded from the state shown in **FIG. 9** to such a state of being in contact with the base **150** as shown in **FIG. 10**, the arm **20** is prevented from being abruptly folded and can be completely folded by being moved and latched when a pressing force is applied thereto from the above. On the other hand, when the arm **20** is raised as shown in **FIG. 9** from the folded state shown in **FIG. 10**, a user can easily raise the arm **20** by a comparatively small force since the above-mentioned rotating force is applied. Thus, the arm **20** can be moved with stability and safety when raised or retracted. Also, the monitor **15** or precision components of the main unit **13** can be prevented from being damaged by an impact caused when the monitor **15** is moved.

[0052] To apply the above-mentioned rotating force to the arm **20**, a method other than the above-described method using the gears **171** and **172** and the spring **180** may be used. For example, a mechanism for applying the above-mentioned rotating force can be realized by combining a plurality of gears or by providing a resilient component. However, if the mechanism having components such as the gears **171** and **172** and the spring **180** shown in **FIG. 8** is used, a rotating force can be effectively produced without making the gear **172** considerably large in size. In this case, the volume of the space for accommodating components in the main unit **13** is not considerably reduced.

[0053] When the arm **20** is completely folded as shown in **FIG. 10**, the rear plate **130** is accommodated in a recessed portion **116c** of the front plate **116**, as shown in the cross-sectional view of **FIG. 11**. Therefore, the actual thickness of the arm **20** in the folded state is equal to the maximum thickness of the front plate **116** and the arm **20** can be completely accommodated in the thin base **150**. Consequently, the notebook PC **11** can be closed with the monitor unit **12** placing or the main unit **13**, as is an ordinary conventional notebook PC.

[0054] **FIG. 12** is a diagram showing a change in state from the state shown in **FIG. 10** to the state shown in **FIG. 8** in the notebook PC **11**. **FIG. 13** is a diagram for explaining the movements of the arm **20** and the monitor **15** at the time of the change in state shown in **FIG. 12**.

[0055] When in the notebook PC **11**, as shown in **FIG. 12**, the arm **20** is moved from the folded state shown in **FIG. 10** to the raised state shown in **FIG. 8**, the angle θ of the display screen **14** of the monitor **15** with respect to a viewing point **301** in front of the notebook PC **11** from which a user **300** views the display screen **14** is not substantially changed. The mechanism enabling the monitor **15** to be changed in height with substantially no change in the angle of the monitor **15** with respect to the viewing point **301** of the user **300** will be described below.

[0056] First, as shown in **FIG. 13**, the arm **20** forms a parallelogram having vertexes corresponding to the shaft