



US 20040089783A1

(19) **United States**

(12) **Patent Application Publication**

Klimke et al.

(10) **Pub. No.: US 2004/0089783 A1**

(43) **Pub. Date: May 13, 2004**

(54) **KEYBOARD MOUNT**

(52) **U.S. Cl.** **248/346.01; 400/489**

(76) Inventors: **Jens Klimke**, Falkensee (DE); **Rudolf Merz**, Berlin (DE)

Correspondence Address:
TEKTRONIX, INC.
Francis I. Gray,
MS 50-LAW
P.O. Box 500
Beaverton, OR 97077 (US)

(21) Appl. No.: **10/422,184**

(22) Filed: **Apr. 23, 2003**

(30) **Foreign Application Priority Data**

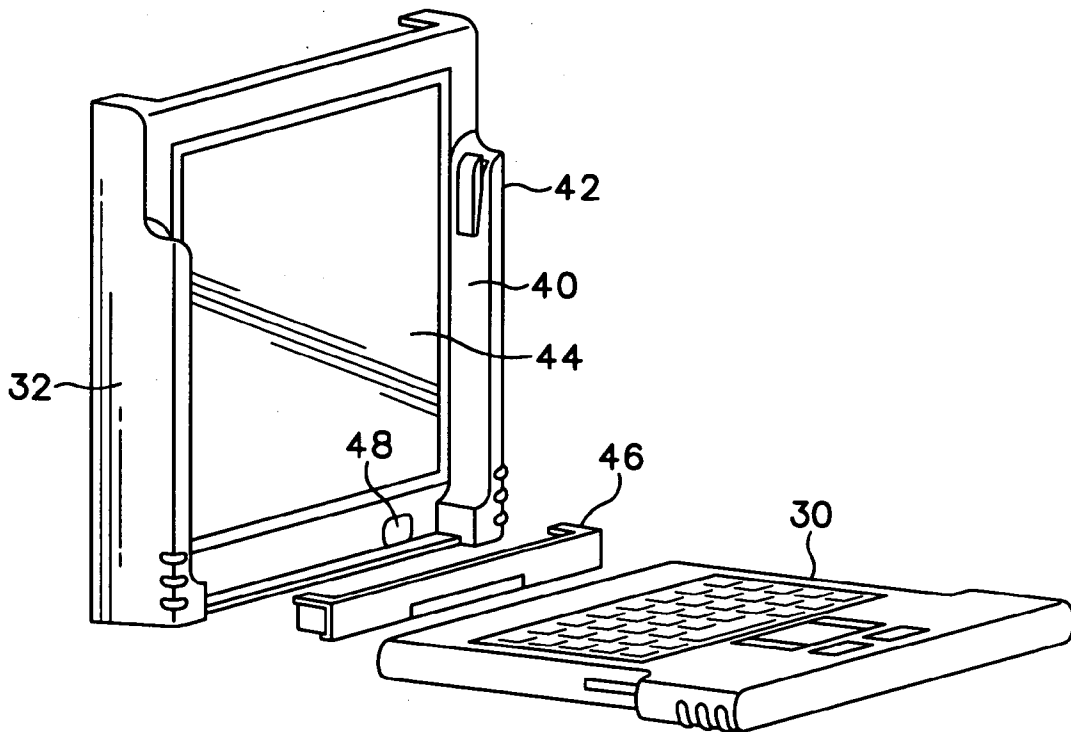
May 22, 2002 (EP) 02 011 296.7

Publication Classification

(51) **Int. Cl.⁷** **B65D 19/00**

(57) **ABSTRACT**

A system of mounting a keyboard on a keyboard mount having a U-shape includes a lateral guide on each interior side of the keyboard mount. The lateral guides engage corresponding lateral projections on exterior sides of the keyboard such that the lateral projections, when inserted into the lateral guides, secure the keyboard in a transport mode. The keyboard has a first section extending from the rear that has a narrower width than a second section, the exterior sides of the first section resting against the interior sides of the keyboard mount and the second section extending above the interior sides. A cavity formed between the rear of the keyboard and the end of the keyboard mount when in the transport mode includes terminals for electrical connection of the keyboard to the keyboard mount, and is enclosed by a removable cover.



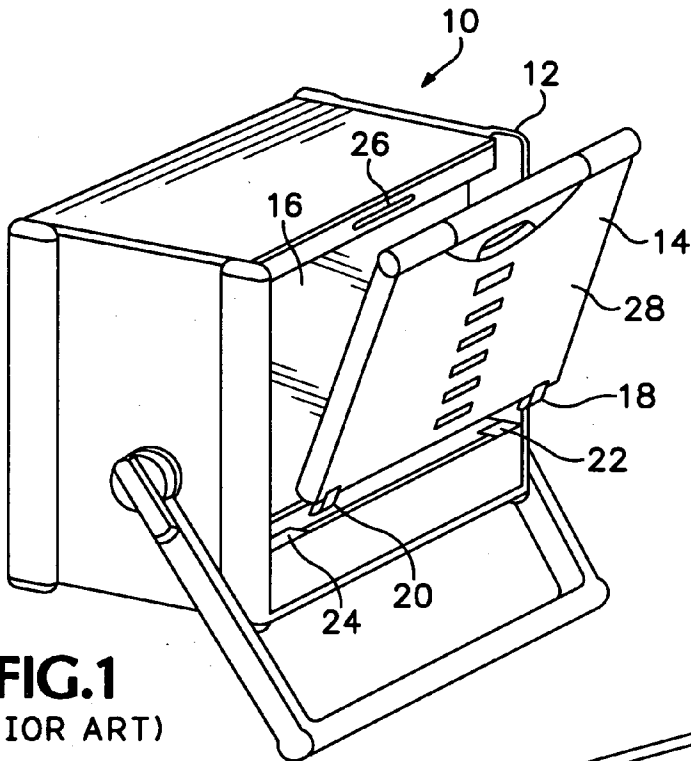


FIG. 1
(PRIOR ART)

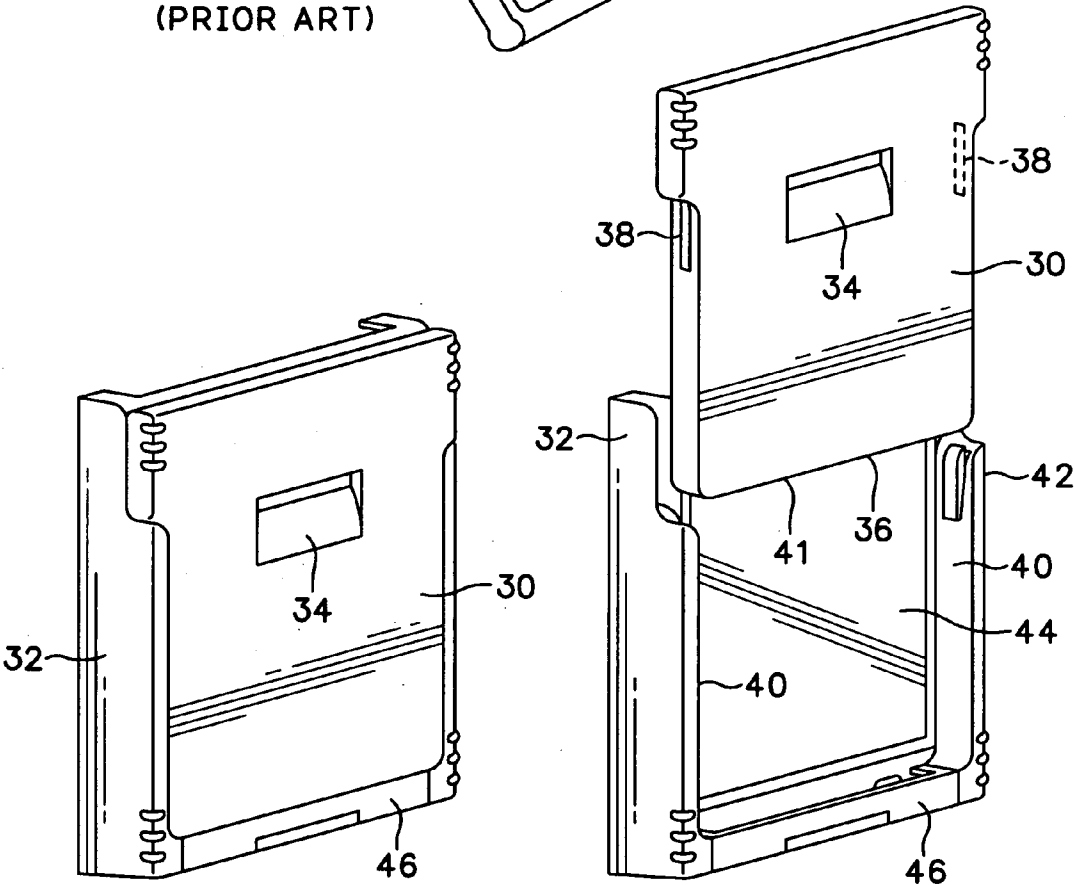
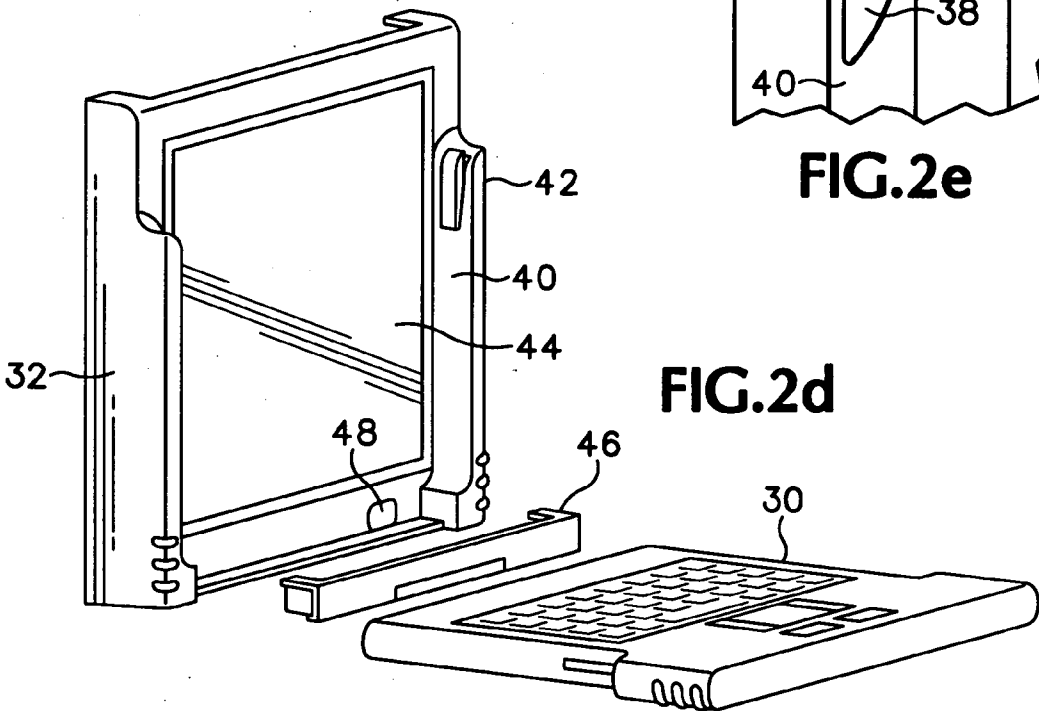
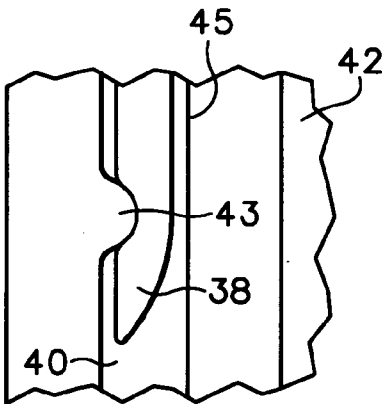
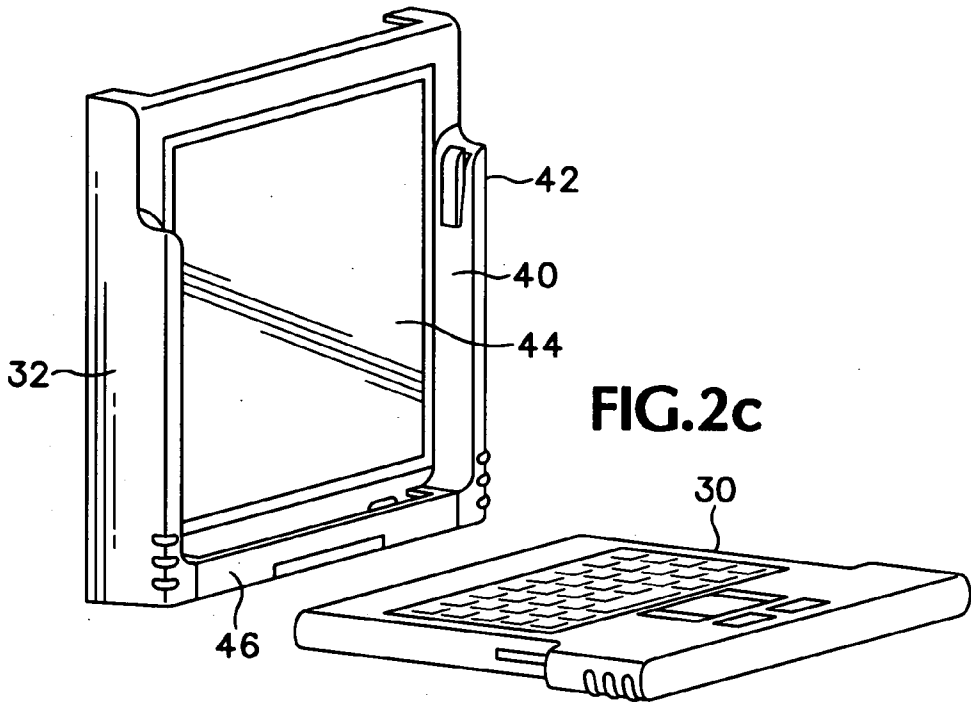
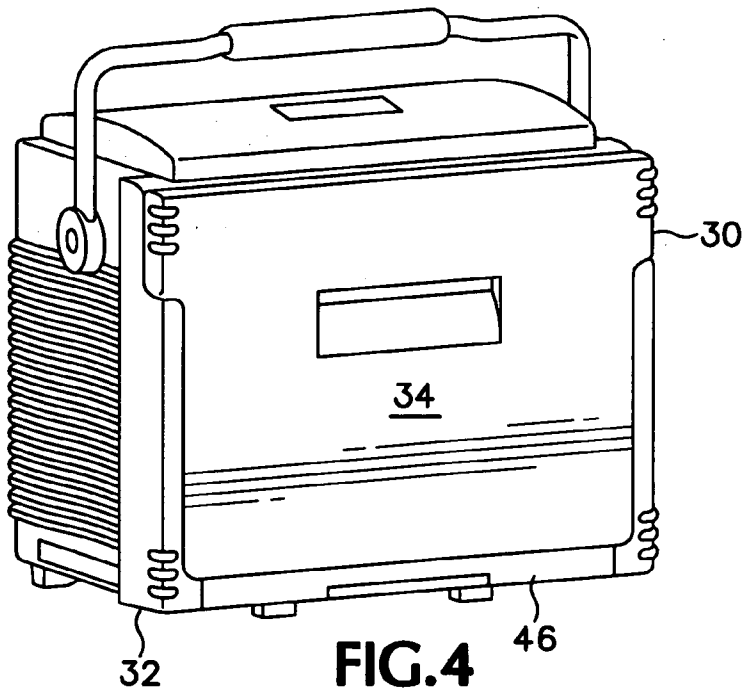
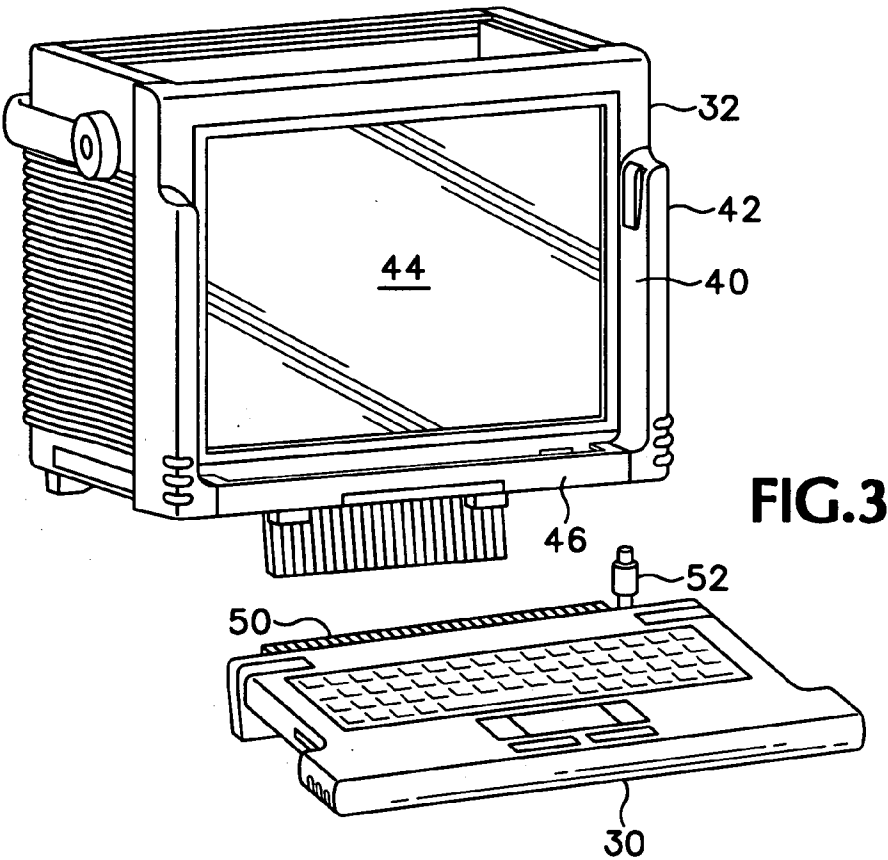


FIG. 2a

FIG. 2b





KEYBOARD MOUNT

BACKGROUND OF THE INVENTION

[0001] The present invention relates to keyboard mounting systems, and more particularly to a system for mounting a keyboard on a keyboard mount which provides ease of use in transitioning the keyboard from a transport mode to an operational mode, and vice versa.

[0002] A prior art keyboard mounting system is shown in FIG. 1. An information processing apparatus 10, for example a protocol tester, includes a keyboard mount 12 as well as a keyboard 14. For transport the keyboard 14 is brought into a so-called transport mode in which it is fixedly connected to the information processing apparatus 10. At the same time in transport mode it covers a display 16 and thereby protects it. In order to operate the keyboard 14 it is brought into an operational mode, i.e., it is removed from the information processing apparatus 10 and placed in front of it. In order to change the keyboard 14 from the operational mode back into the transport mode two movable feet 18, 20, which serve for raising it at its rear end for easier operability in the operational mode, are inserted into openings 22, 24 of the keyboard mount 12 provided for this. After inserting the feet 18, 20 the keyboard 14 is rotated about the rotation axis formed thereby, wherein a projection 26 of the keyboard mount engages a recess of the keyboard 14 provided for this and the keyboard is resiliently retained. Thus unintended detachment of the keyboard 14 during transport is prevented. For detaching the keyboard 14 from the projection 26 a region 28 unfolds and thereby releases the projection 43.

[0003] The disadvantage of this known solution is that, due to the mobility of the feet 18, 20 it is complicated to mount the keyboard 14 in the keyboard mount 12. On the one hand both feet 18, 20 have to be equally aligned, on the other hand the region of the openings 22, 24 is difficult to see so that often multiple attempts are required to insert the feet 18, 20 into the openings 22, 24. Especially it often happens that during inserting the feet 18, 20 are moved out of their equal alignment and the entire process has to be repeated. Since the feet 18, 20 cannot carry weight forces without thereby displacing due to the required inclination, the keyboard 14 cannot be transferred from the operational mode into the transport mode with one hand since otherwise the projection 26 is in the way. Further from the projection 43 there is the risk that the top of the keyboard 14 may be scratched or damaged.

[0004] What is desired is a keyboard mounting system that is easier to manipulate between transport and operational modes.

BRIEF SUMMARY OF THE INVENTION

[0005] Accordingly the present invention provides a keyboard mount wherein a keyboard may be transferred from an operational mode to a transport mode with only one hand. The keyboard mount and keyboard have cooperating lateral guides and projections on their sides so that inserting the keyboard into the keyboard mount in an erect position is possible with only one hand. A lateral guide of the keyboard mount includes a slot in which a lateral projection of the keyboard is guided. The keyboard is not necessarily mounted on the keyboard mount by inserting exactly from

above, but may be inserted initially into the keyboard mount at half height, be leaned against it and tilted to an erect position. This results in simple adjustment of the keyboard relative to the keyboard mount. Subsequently the keyboard may be lowered so the lateral projections engage the lateral guides to place the keyboard in the transport mode. The lateral guide of the keyboard mount has a retainer, preferably a resilient snapping mechanism, which is formed to cooperate with a counterpart of the keyboard in order to secure the keyboard in the transport mode. A laterally mounted retainer has the advantage that in mounting the keyboard on the keyboard mount there is no risk that the keyboard top is damaged. At the same time the retainer is activated automatically in inserting the keyboard into the keyboard mount without additional measures by the operator being required. The retainer is formed such that it may be released by pulling at the keyboard in a direction parallel to the lateral guides. This allows for secure connection between keyboard and keyboard mount during transport, and yet transferring the keyboard from the transport mode into the operational mode is accomplished with one hand. The retainer includes a resiliently supported projection on the lateral guide and the respective counterpart is a recess in the lateral projection into which the resiliently supported projection is pressed in the transport mode. The resiliently supported projection thus mounted is not a risk for the surface of the keyboard due to its lateral arrangement at the keyboard and/or the keyboard mount. When the keyboard is in the transport mode a cavity is formed between the keyboard mount and the rear end of the keyboard. This cavity accommodates a connecting cable of the keyboard within the keyboard mount. Therefore the keyboard does not have to be disconnected from the keyboard mount for transport. Also in the region of the cavity a terminal is provided for electrically connecting the keyboard to the keyboard mount. This allows the exchange of a defective keyboard or the connection of another keyboard with minimal effort. The cavity may be covered by a removable cover, facilitating the access to the terminal for the keyboard or another terminal disposed in the cavity. The keyboard mount may be mounted on a processing apparatus about a display which is covered by the keyboard in the transport mode. Thereby the display is protected from damages in a simple manner.

[0006] In order to simply transfer the keyboard from the operational mode into the transport mode and inversely, on the underside of the keyboard a grip, preferably disposed centrally, is present by means of which the keyboard is pulled out of the keyboard mount if it is in the transport mode. Inversely, the keyboard is placed in the transport mode using this grip in a simple manner if it is in the operational mode. In the transverse direction the keyboard has a first section having a first width so that the exterior sides contact the interior sides of the keyboard mount in the transport mode of the keyboard, and a second section having a second width greater than the first width which extends above the interior sides of the keyboard mount in the transport mode. The rear end of the keyboard may have another projection which cooperates with a retainer in the end of the keyboard mount and/or the cover to secure the keyboard in the transport mode.

[0007] The objects, advantages and other novel features of the present invention are apparent from the following detailed description when read in conjunction with the appended claims and attached drawing.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0008] FIG. 1 is a perspective view of an information processing apparatus known from the prior art with a known system of keyboard and keyboard mount.

[0009] FIGS. 2a-2d are perspective views in sequential representation of the transfer of the keyboard from the transport mode to the operational mode in a keyboard mounting system according to the present invention.

[0010] FIG. 2e is an enlarged detail view of a resilient snapping mechanism for securing the keyboard in the keyboard mount according to the present invention.

[0011] FIG. 3 is a perspective view of an information processing apparatus with a keyboard mounting system according to the invention where the keyboard is in the operational mode.

[0012] FIG. 4 is a perspective view of the system of FIG. 3 where the keyboard is in the transport mode according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0013] Referring now to FIG. 2a a keyboard 30 and a keyboard mount 32 are shown where the keyboard 30 is in a transport mode. On the underside of the keyboard 30 a grip 34 is provided centrally in order to pull the keyboard 30 out of the keyboard mount 32. FIG. 2b shows the situation after raising the keyboard 30 vertically from the keyboard mount 32 using the grip 34. The keyboard 30 has a first width from a rear end 36 to about two thirds of its height which is less than a second width of the remaining height of the keyboard. Laterally, a lateral projection or sword 38 is shown which is guided into a corresponding slot 40 of a lateral guide 42 on the keyboard mount 32. The sword 38 only extends in the upper region of the part of the keyboard 30 which has the first width. The lateral guide 42 of the keyboard mount 32 is a resiliently supported snapping mechanism, illustrated in detail in FIG. 2e, which serves for securing the keyboard 30 against slipping out after insertion into the keyboard mount 32. Here a resiliently supported projection 43 of the keyboard mount 32 engages a corresponding recess 45 provided at the end of the sword 38. The spring tension is designed such that by pulling the keyboard 30 upwards, the projection 43 and the recess 45 may be detached from each other in order to release the keyboard 30 again. As is further seen from FIG. 2b, a display 44 of the processing apparatus, on which the keyboard mount 32 is mounted, is covered by the keyboard 30 in the transport mode. Thereby, the keyboard 30 protects the display 44 from damages in transport. FIG. 2b further shows at the rear end 36 of the keyboard 30 a projection 41 which is disposed behind a removable cover 46 coupled to the keyboard mount 32 in the transport mode, and thus additionally prevents slipping of the keyboard out of the keyboard mount in the transport mode by engaging a corresponding retainer in the keyboard mount. FIG. 2c shows the system of keyboard 30 and keyboard mount 32 in the operational mode where for reasons of clarity a spiral cable connecting the keyboard to the keyboard mount has been omitted. FIG. 2d shows the system of keyboard 30 and keyboard mount 32 also in the operational mode where the cover 46 is removed to facilitate access to terminals 48 disposed behind the cover 46 on the keyboard mount.

[0014] FIG. 3 shows an information processing apparatus, such as a protocol tester, to which the keyboard mount 32 is fixedly mounted. In the representation of FIG. 3 the keyboard 30 is in the operational mode where the spiral cable 50 is still to be connected to the terminal 48 of the keyboard mount 32 by means of a plug 52. FIG. 4 shows the information apparatus of FIG. 3 with the keyboard 30 in the transport mode.

[0015] Thus the present invention provides a system for mounting a keyboard to a processing apparatus that has a keyboard mount with a lateral guide and a resiliently supported snapping mechanism at the top of the lateral guide into which a sword or lateral projection on a lateral side of the keyboard engages, the sword having a notch that engages a projection in the snapping mechanism.

What is claimed is:

1. A system for mounting a keyboard on an essentially U-shaped keyboard mount comprising:

a lateral guide on an interior side surface of the U-shaped keyboard mount; and

a lateral projection on an exterior side surface of the keyboard, the lateral projection engaging the lateral guide to secure the keyboard to the keyboard mount in a transport mode.

2. The system according to claim 1 wherein the lateral guide comprises a slot in which the lateral projection is guided.

3. The system according to claim 2 wherein lateral guide is in a region of the interior side surface away from an end of the keyboard mount.

4. The system according to claim 2 wherein the lateral guide comprises a resilient snapping mechanism which is formed to cooperate with the lateral projection to secure the keyboard in the transport mode.

5. The system according to claim 4 wherein the resilient snapping mechanism is formed such that the keyboard is released from the keyboard mount by pulling in a direction parallel to the lateral guide.

6. The system according to claim 1 further comprising a second lateral projection on an opposing side exterior surface of the keyboard which is formed to cooperate with a second lateral guide on an opposing interior side surface of the keyboard mount to secure the keyboard in the transport mode.

7. The system according to claim 4 wherein the resilient snapping mechanism comprises:

a resiliently supported projection mounted in the slot; and

a recess in the lateral projection into which the resiliently supported projection is pressed when in the transport mode.

8. The system according to claim 1 further comprising a cavity formed between the keyboard mount and a rear end of the keyboard when in the transport mode.

9. The system according to claim 8 further comprising a terminal mounted on the keyboard mount in the cavity for providing electrical connection of the keyboard to the keyboard mount.

10. The system according to claim 8 further comprising a removable cover for covering the cavity.

11. The system according to claim 1 wherein a display is covered by the keyboard when in the transport mode.

12. The system according to claim 1 further comprising a grip disposed centrally at an underside surface of the keyboard by means of which the keyboard is pulled out of the keyboard mount when in the transport mode to place the keyboard in an operational mode.

13. The system according to claim 1 further comprising a first section of the keyboard having a first width which is in contact with the interior side surfaces of the keyboard mount when in the transport mode, and a second section of the keyboard having a second width greater than the first width

which extends above the interior side surfaces of the keyboard mount when in the transport mode.

14. The system according to claim 13 wherein the first section extends from a rear end of the keyboard.

15. The system according to claim 1 further comprising a rear end projection on the keyboard which cooperates with a retainer in an interior end of the keyboard mount to secure the keyboard in the transport mode.

* * * * *