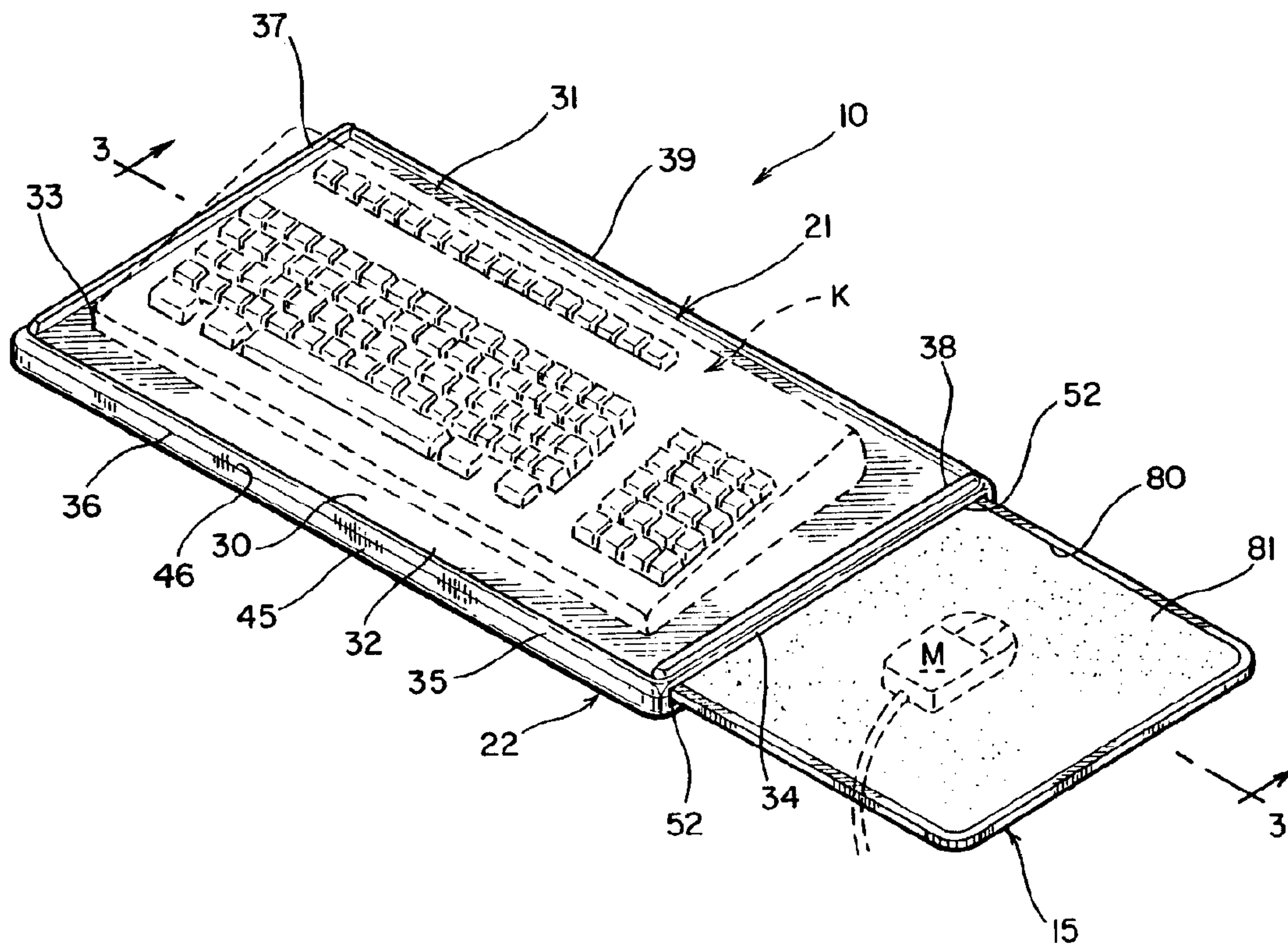




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(57) Abrégé/Abstract:

The invention is a keyboard tray which is formed from two relatively shallow molded bodies united along a periphery thereof to define an internal relatively flat chamber in which is slidable a mouse tray. The mouse tray can project outwardly of the chamber through either of opposite side edges of the keyboard tray. The mouse tray carries a projection which limits sliding movement of the mouse tray in its opposite directions. A rigid block of wood is secured in a recess portion of the keyboard tray to afford rigidity thereto and provide frictional purchase for screws which secure the keyboard to a keyboard tray mounting or support arm.

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ABSTRACT OF THE DISCLOSURE

The invention is a keyboard tray which is formed from two relatively shallow molded bodies united along a periphery thereof to define an internal relatively flat chamber in which is slidable a mouse tray. The mouse tray can project outwardly of the chamber through either of opposite side edges of the keyboard tray. The mouse tray carries a projection which limits sliding movement of the mouse tray in its opposite directions. A rigid block of wood is secured in a recess portion of the keyboard tray to afford rigidity thereto and provide frictional purchase for screws which secure the keyboard to a keyboard tray mounting or support arm.

*TITLE OF THE INVENTION**A KEYBOARD TRAY**BACKGROUND OF THE INVENTION*

This invention is directed to a keyboard tray particularly adapted for supporting any one of a variety of conventional keyboards and a mouse associated therewith.

The keyboard tray is preferably rigidly secured to a keyboard tray supporting arm which is articulately mounted relatively to a desk upon which is supported a conventional personal computer (PC). The keyboard tray houses a relatively flat mouse tray in slidable relationship thereto. The keyboard tray is preferably constructed from two pieces of compression molded, injection molded, vacuum molded or like formed polymeric/copolymeric synthetic plastic material which when united along a periphery thereof define upper and lower walls and a peripheral wall therebetween. The peripheral wall includes spaced opposite side wall portions each of which has a slot.

The peripheral wall maintains the upper and lower walls in generally spaced relationship and defines therebetween a relatively flat chamber. It is within the flat chamber that the relatively flat mouse tray is slidably housed with each of opposite side edges thereof being disposed generally adjacent the slots of the keyboard tray when the mouse tray is substantially housed within the flat chamber.

The mouse tray can be slid either to the left or to the right, as viewed from the perspective of the user thereof, such that opposite side edge portions and the upper surface thereof can alternately project beyond the slots and movably support thereupon a mouse while the associated keyboard is supported atop the upper wall of the keyboard tray. In this fashion a user can utilize an associated keyboard during the support thereof by the keyboard tray and can also manipulate a mouse associated with the personal computer upon either the left-hand or right-hand upper surface of the mouse tray.

Preferably, the mouse tray includes a projection for limiting the sliding movement thereof to the left and/or the right which assures that a limited predetermined area of the mouse tray can be slid either to the left or to the right which is sufficient to accommodate

manipulation of the mouse, yet the exposure is not so large as to create an imbalance or undesired leverage should, for example, the user heavily rest his/her arm upon the exposed side edge portion of the tray which might tend to break the same or torque the keyboard tray sufficiently to break it away from the articulated mounting arm or at a minimum loosen the fastenings (generally screws) between the keyboard tray and the articulated mounting arm.

The upper surface of the mouse tray preferably has a relatively shallow recess in which is adhesively adhered a sheet of material having an upper surface of a high coefficient of friction which reduces mouse slippage and/or inadvertent mouse movement.

In further accordance with the present invention, the lower wall of the keyboard tray is preferably provided with a recess within which is secured a block of wood, composite board or a like piece of material for imparting reinforced rigidity to the overall keyboard tray. The block of wood is also relatively thick so that fasteners, such as screws, can be threaded therein to securely fasten an articulated or fixed keyboard tray support arm to the bottom of the keyboard tray.

In further accordance with the present invention, the upper wall of the keyboard tray is preferably reinforced at opposite side edges by upwardly projecting reinforcing ribs, whereas the lower wall is similarly reinforced by downwardly opening reinforcing channels.

Preferably, means are provided in the lower wall for providing universal mounting of the keyboard tray relative to a variety of a articulated and/or stationary keyboard tray mounting arms. These universal mounting means are a series of holes which selectively match holes a variety of conventional articulated and stationary keyboard tray mounting arms.

Prior art related to keyboards, keyboard trays, wrist rests and the like are reflected in the following United States patents:

	Taslitz	Design Patent No. 347,422	Issued:	05/31/94
	Vaule	Design Patent No. 352,933	Issued:	11/29/94
	Juster	Design Patent No. 352,934	Issued:	11/29/94
	Dickerson	Design Patent No. 356,785	Issued:	03/28/95
5	Gart	Patent No. 4,862,165	Issued:	08/29/89
	Connor	Patent No. 5,165,630	Issued:	11/24/92
	Nash	Patent No. 5,265,835	Issued:	11/30/93
	Thomsen	Patent No. 5,335,888	Issued:	08/09/94
	Martin	Patent No. 5,340,067	Issued:	08/23/94
10	Kaneko	Patent No. 5,414,445	Issued:	05/09/95
	Rice	Patent No. 5,433,407	Issued:	07/18/95

SUMMARY OF THE INVENTION

In one aspect of the invention the disclosure is directed to a keyboard tray adapted for supporting any one of a variety of keyboards and an associated mouse comprising upper and lower walls, and a peripheral wall therebetween. The peripheral wall includes spaced opposite side wall portions with a slot in each side wall portion, said peripheral wall maintaining said upper and lower walls in spaced relationship and defining a relatively flat chamber therebetween. A single relatively flat slidable tray is housed within the flat chamber, the flat slidable tray having opposite side edges, each generally adjacent one of said side wall portions. The single relatively flat slidable tray being slidable relative to said chamber such that opposite side edge portions of the single relatively flat slidable tray can alternatively project beyond an associate side wall portion to adapt the keyboard tray for selective right hand and left hand utilization of a mouse selectively upon either of said single relatively flat slidable tray side edge portions.

In another aspect of the invention the disclosure is directed to a keyboard tray particularly adapted for supporting any one of a variety of keyboards and an associated mouse. The keyboard tray is formed from two relatively shallow bodies of compression mold, injection mold or like molded polymeric/copolymeric material with the shallow bodies being united together by an adhesive along peripheral edges thereof to define a relatively flat keyboard tray having upper and lower walls and a peripheral wall therebetween with opposite side wall portions each having a slot. A mouse tray is housed generally within a chamber between the upper and lower walls of the keyboard tray, and the mouse tray can selectively slide through the slots to be exposed for right-hand or left-hand usage with an associated mouse. Preferably, a stop is carried by the mouse tray which limits outward sliding movement of the mouse tray relative to the keyboard tray. A wooden block is fixed within a chamber portion defined by the lower wall of the keyboard tray and functions to both rigidify the overall keyboard tray and provide sufficient material to achieve the efficient purchase or grip of screws which unite the keyboard tray to an associated articulated or fixed keyboard tray supporting arm.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a top perspective view of a novel keyboard tray of the present invention, and illustrates in phantom outline a conventional keyboard associated therewith and a mouse associated with a mouse tray slid to its right-hand position of use.

FIGURE 2 is a perspective view of the keyboard tray of the invention with a portion of an upper wall broken away for clarity, and illustrates an interior chamber of the keyboard tray within which can be substantially housed the entirety of the mouse tray.

FIGURE 3 is an enlarged cross-sectional view taken generally along line 3-3 of Figure 1, and illustrates details of the keyboard tray including a piece of wood for rigidifying the keyboard tray and a stop depending from a lower surface of the mouse tray for selectively contactingly abutting one of two internal ribs to limit the outward projection of the mouse tray from either side of the keyboard tray.

FIGURE 4 is a cross-sectional view taken generally along line 4-4 of Figure 2, and illustrates the mouse tray housed substantially within a chamber of the keyboard tray defined between upper and lower walls thereof with minor side edges of the mouse tray projecting slightly beyond side wall portions and associated slots of the keyboard tray.

FIGURE 5 is a cross-sectional view taken generally along line 5-5 of Figure 2, and illustrates a plurality of upstanding channels formed in the lower wall of the keyboard tray for guiding the sliding movement of the mouse tray and offering supporting rigidity thereto.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A novel keyboard tray constructed in accordance with this invention is fully illustrated in the drawings and is generally designated by the reference numeral **10** which supports any one of a variety of conventional keyboards **K** (Figure 1).

The keyboard tray **10** includes a slidable mouse tray **15** which can be housed substantially entirely with the keyboard tray **10**, as shown in Figure 2 in solid lines, or can be slid to the right, as shown in Figure 1, and utilized thereat in conjunction with a conventional mouse **M**. The slide **15** can be slid to the left for left-hand use, as indicated in phantom outline in Figure 2.

The keyboard tray **10** is preferably compression molded, injection molded or otherwise molded from polymeric/copolymeric synthetic plastic material into two body portions, namely, an upper body portion **21** and a lower body portion **22**.

The upper body portion **21** includes an upper relatively flat surface or wall **30** of a generally polygonal or rectangular configuration defined by a rear edge or rear edge portion **31**, a front edge or front edge portion **32**, a side edge or side edge portion **33** and another opposite side edge or side edge portion **34**. Each of the edge portions **31** - **34** terminate in a downwardly depending peripheral edge portion or peripheral wall **35** terminating in a peripheral edge **36**. Hollow upstanding ribs **37**, **38** are located adjacent the respective side wall edges **33**, **34** and a hollow upstanding rib **39** is located along the rear edge portion **31**. The height of the hollow upstanding rib **39** is slightly less than the heights of the side ribs **37**, **38**. There is no upstanding rib along the front edge portion **32**.

The lower body portion **22** includes a lower wall **40** which is generally of a stepped configuration, as is best illustrated in Figures 3 through 5 of the drawings. The lower wall **40** is of a polygonal or rectangular configuration corresponding in outline to that of the upper body portion **21**. The lower body portion **22** likewise includes as part of the lower wall **40** an upwardly projecting polygonal peripheral edge or peripheral wall

45 terminating in a terminal peripheral edge **46**. The peripheral wall **45** includes unnumbered front and rear walls and side walls whose peripheral edge **46** mates with and is bonded to the peripheral edge **36** of the peripheral wall **35** of the upper body portion **21**. In this manner the upper body portion **21** and the lower body portion **22** define an interior chamber **50** of the keyboard tray **10** which is essentially closed except for opposite slots or slits **51**, **52** formed in the side wall portions **33**, **34** of the upper body portion **21** and the like side wall portions (unnumbered) of the lower body portion **22**. The slots **51**, **52** function to permit the mouse tray **15** to be housed generally entirely within the chamber **50** (Figure 4) or slid to the right (Figures 1 and 3) or slid to the left (phantom outline in Figure 2) depending upon conditions of use or nonuse and whether the mouse **M** is to be used right-handed (Figure 1) or left-handed (phantom outline, Figure 2).

The lower wall **40** includes a generally centrally located shallow upwardly opening rectangular recess portion **60** within which is seated a relatively thick piece of wood, composite or like material which is generally designated by the reference numeral **61**. The piece of material **61** is adhesively adhered within the recess portion **60** and/or fastened therein by wood screws **W**. The function of the piece of material **61** is to reinforce and rigidify the overall keyboard tray **10** longitudinally or lengthwise, which, as viewed in Figure 4, is left-to-right and vice versa. Thus, the piece of material **61** extends a substantial distance across the overall length of the keyboard tray **10** and thereby significantly effects the rigidity thereof.

Another function of the piece of material **61** is to permit the keyboard tray **10** to be fixed to a conventional stationary or articulated keyboard tray supporting arm **A** by one or more relatively large wood screws **S** or the equivalent thereof which pass through holes **62** in the recess portion **60** and are threaded into the piece of material **61**. The latter affords a rigid connection between the keyboard tray **10** and the supporting arm **A**.

A final function of the piece of material **61** is that of offering central support to the mouse tray **15** by means of a lower projection or block **70** of the latter (Figures 4 and 5) projecting downwardly with a surface **71** thereof in sliding contact with an upper surface **72** of the piece of material **61**. As is readily visualized in Figures 2, 4 and 5 of the drawings, whenever the projection **70** is atop the surface **72**, it will be supported thereby, particularly when the mouse tray **15** is partially projected outwardly of either of the slots **51**, **52**, as opposed to the full outward projection shown in Figure 3. Thus, the piece of material **61** affords the keyboard tray **10** the functions of rigidity/reinforcement, rigid securement to the keyboard tray supporting arm **A**, and support for the sliding mouse tray **15**.

The lower wall **40** also includes several upstanding ribs or downwardly opening channels which are identified by the reference numerals **53**, **54** (Figure 4) and **55**, **56** (Figure 5). The ribs or channels **53**, **54** are located in generally parallel relationship to each other and each is adjacent its respective slot **51**, **52**. The upper walls (unnumbered) of the ribs **53**, **54** underlyingly support the mouse tray **15** when projecting outwardly from the respective slots **51**, **52**, as is most evident from Figure 3. Furthermore, the ribs **53**, **54** function as abutments relative to the projection **70** depending from the mouse tray **15**, as is best illustrated in Figure 3. In this fashion, the projection **70** abuts the respective ribs **53**, **54** to limit the outward projection of the mouse tray **15** from the respective slots **51**, **52**.

The ribs **55**, **56** run longitudinally and generally normal to the ribs **53**, **54**, as is most apparent from Figure 5. Upper walls (unnumbered) of the ribs **55**, **56** support the underside of the mouse tray **15** respectively at the front edge **32** and centrally thereof. A ledge **57** (Figure 5) lies in the horizontal plane of the upper wall portions (unnumbered) of the ribs or channels **55** or **56** and functions to support the rear edge (unnumbered) of the mouse tray **15**. Thus, as is best illustrated in Figure 5, the mouse tray **15** is supported longitudinally by the ribs or channels **55**, **56** and the ledge **57** in any position

of use (Figures 1 through 3) or storage (Figure 4). The rib or channel **56** also functions as a longitudinal guide along which slides the projection **70**, as is best illustrated in Figure 5.

It is to be particularly noted that in the storage position of the mouse tray **15**, the side edges (unnumbered) project slightly beyond the slots **51**, **52**. Therefore, the mouse tray **15** is never totally housed within the chamber **50** and a user need but push either edge to more fully expose the opposite edge so that the user can grasp the same and pull the mouse tray **15** to its desired position.

Preferably the upper surface (unnumbered) of the entirety of the mouse tray **15** is provided with a relatively shallow recess **80** (Figure 1) of a generally rectangular or polygonal configuration. A piece of material having a high coefficient of friction, such as a piece of cloth **81** is seated within and is adhesively bonded within the recess **80**. Since the mouse tray **15** is preferably constructed from molded polymeric/copolymeric plastic material and it's surface is thus relatively smooth or slick, the material **81** assures that the mouse **M** will essentially remain motionless when released by the user and will not, for example, inadvertently slide off the mouse tray **15** during the operation of the keyboard **K**.

Preferably, the openings **62** (Figure 5) are so positioned and arranged that they will accommodate the fastener receiving holes in the numerous supporting arms **A** presently available in the marketplace. For example, the holes **62** are so arranged that no matter the pattern of holes in the supporting arm **A** and no matter the make, model or manufacturer of the supporting arm **A**, the screws **S** will automatically fit the openings in the supporting arm **A** and those openings **62** in the recess portion **60** alignable therewith.

Although a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor variations may be made in the apparatus without departing from the spirit and scope of the invention, as defined the appended claims.

CLAIMS:

1. A keyboard tray adapted for supporting any one of a variety of keyboards and an associated mouse comprising upper and lower walls and a peripheral wall therebetween, said peripheral wall including spaced opposite side wall portions, a slot in each side wall portion, said peripheral wall maintaining said upper and lower walls in spaced relationship and defining a relatively flat chamber therebetween, a single relatively flat slidable tray housed within said flat chamber, said flat slidable tray having opposite side edges each generally adjacent one of said side wall portions, and said single relatively flat slidable tray being slidable relative to said chamber such that opposite side edge portions of said single relatively flat slidable tray can alternatively project beyond an associate side wall portion to adapt the keyboard tray for selective right hand and left hand utilization of a mouse selectively upon either of said single relatively flat slidable tray side edge portions.

2. The keyboard tray as defined in claim 1 wherein said side edge portions each include an upper surface possessing a relatively high coefficient of friction to preclude inadvertent mouse movement/slippage thereon.

3. The keyboard tray as defined in claim 1 wherein said flat slidable tray includes an upper opening relatively shallow recess, and a piece of material having an upper surface possessing a relatively high coefficient of friction housed in said shallow recess to preclude inadvertent mouse movement/slippage thereon.

4. The keyboard tray as defined in claim 1 wherein said flat slidable tray includes an upper opening relatively shallow recess, and a piece of material having an upper surface possessing a relatively high coefficient of friction adhered in said shallow recess to preclude inadvertent mouse movement/slippage thereon.
5. The keyboard tray as defined in claim 1 including upstanding side reinforcing ribs projecting above said upper wall adjacent each side wall portion.
6. The keyboard tray as defined in claim 1 including upstanding side reinforcing ribs projecting above said upper wall adjacent each side wall portion, and an upstanding rear reinforcing rib projecting above said upper wall and generally spanning the distance between said side reinforcing ribs.
7. The keyboard tray as defined in claim 1 including means in said flat chamber secured to said lower wall for imparting reinforced rigidity thereto.
8. The keyboard tray as defined in claim 1 including means in said flat chamber secured to said lower wall for imparting reinforced rigidity thereto, and said reinforced rigidity imparting means is a block of wood.
9. The keyboard tray as defined in claim 1 including means in said flat chamber secured to said lower wall for imparting reinforced rigidity thereto, and said reinforced rigidity imparting means is a block of wood housed in an upwardly opening recess of said lower wall.
10. The keyboard tray as defined in claim 1 including a plurality of downwardly and outwardly opening channels in said lower wall for imparting rigidity thereto.

11. The keyboard tray as defined in claim 1 including a plurality of downwardly and outwardly opening channels in said lower wall for imparting rigidity thereto, and said channels include at least a pair of channel portions disposed in converging relationship relative to each other.

12. The keyboard tray as defined in claim 1 including a plurality of downwardly and outwardly opening channels in said lower wall for imparting rigidity thereto, and channels include at least a pair of laterally spaced side channel portions, one adjacent each side wall portion and a front channel portion extending between said side channel portions.

13. The keyboard tray as defined in claim 1 including a plurality of downwardly and outwardly opening channels in said lower wall for imparting rigidity thereto, channels include at least a pair of laterally spaced side channel portions, one adjacent each side wall portion and a front channel portion extending between said side channel portions, and said channels further include at least a pair of channel portions disposed in converging relationship relative to each other in a direction away from said front channel portion.

14. The keyboard tray as defined in claim 1 including means in said lower wall for providing universal mounting of said keyboard tray relative to a variety of articulated and/or stationary keyboard tray mounting arms.

15. The keyboard tray as defined in claim 1 including stop means carried by said flat slidable tray for limiting sliding movement of said flat slidable tray in each of opposite directions of sliding movement.

16. The keyboard tray as defined in claim 1 including stop means carried by a lower side of said flat slidable tray for limiting sliding movement of said flat slidable tray in each of opposite directions of sliding movement.

17. The keyboard tray as defined in claim 2 including stop means carried by said flat slidable tray for limiting sliding movement of said flat slidable tray in each of opposite directions of sliding movement.

18. The keyboard tray as defined in claim 17 including means in said flat chamber secured to said lower wall for imparting reinforced rigidity thereto.

19. The keyboard tray as defined in claim 17 wherein said flat slidable tray includes an upper opening relatively shallow recess, and a piece of material having an upper surface possessing a relatively high coefficient of friction housed in said shallow recess to preclude inadvertent mouse movement/slippage thereon.

20. The keyboard tray as defined in claim 19 wherein the distance between terminal side edges of said flat slidable tray is less than the distance between said slots whereby at least one of said flat slidable tray terminal side edges is at all times accessible at one of said slots.

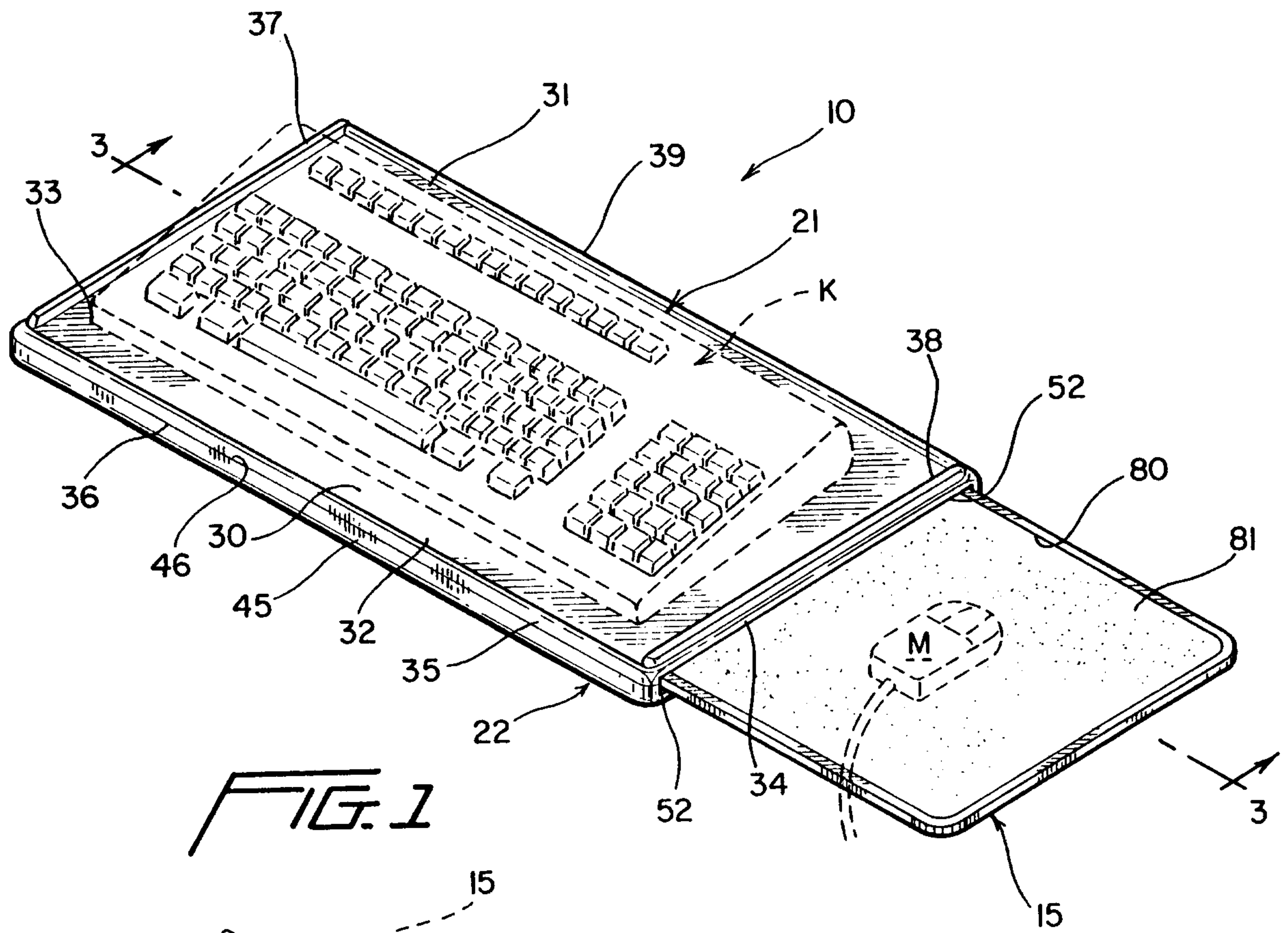


FIG. 1

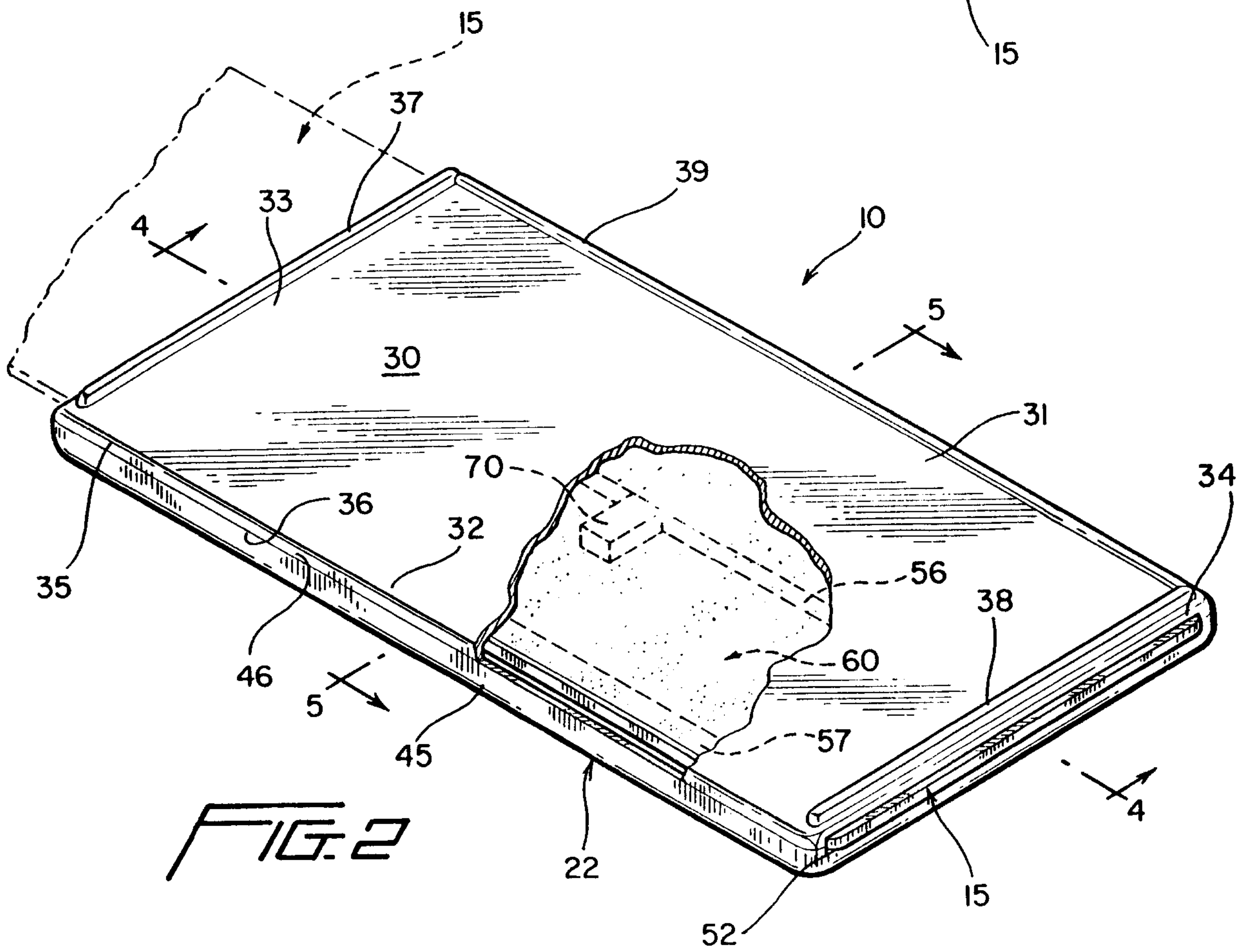


FIG. 2

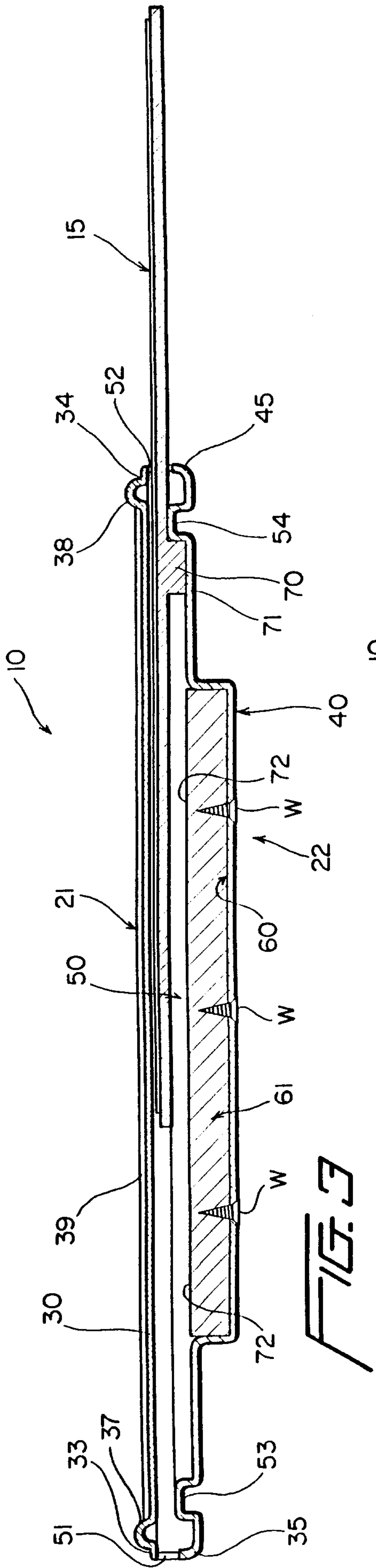


FIG. 3

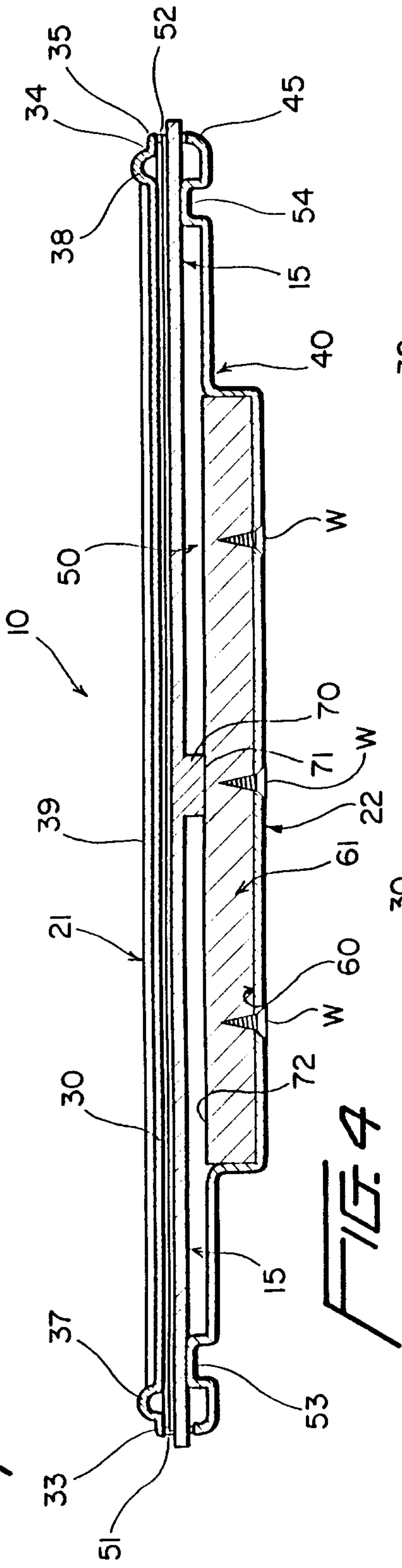


FIG. 4

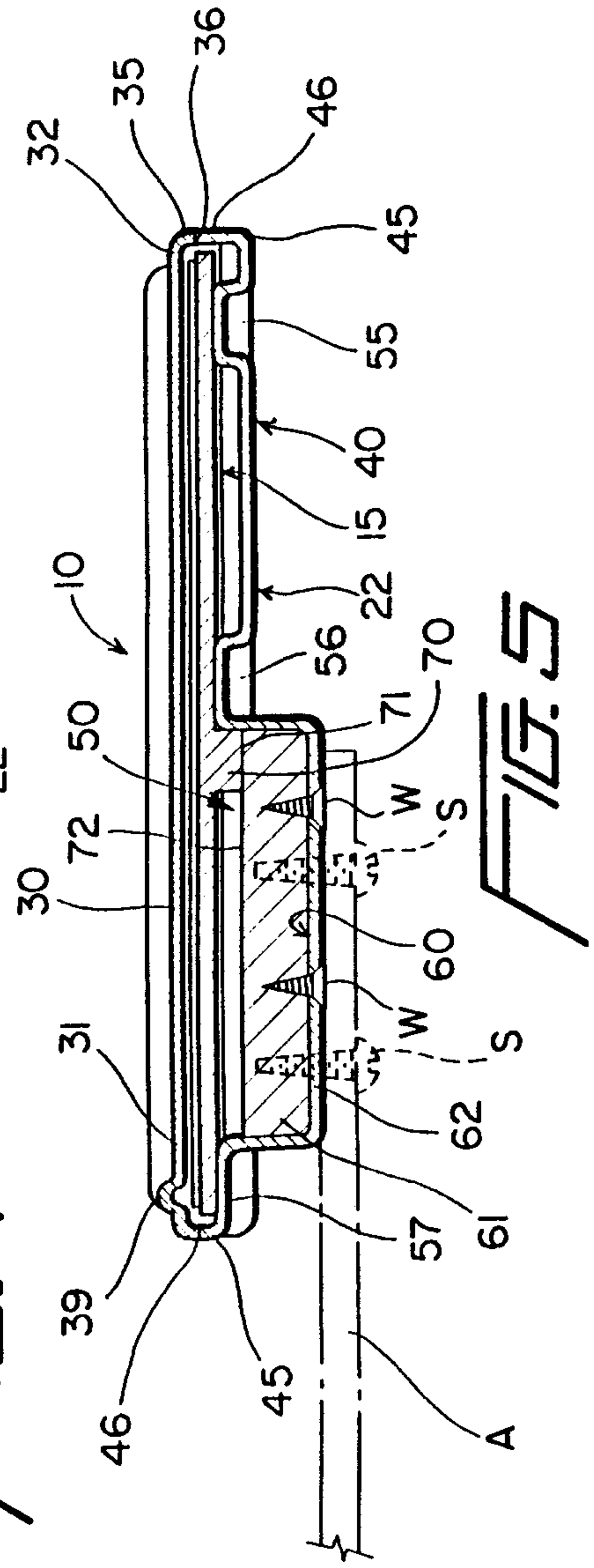


FIG. 5

