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(54) **KEYBOARD PAD WITH REVERSIBLE MOUSE PAD**

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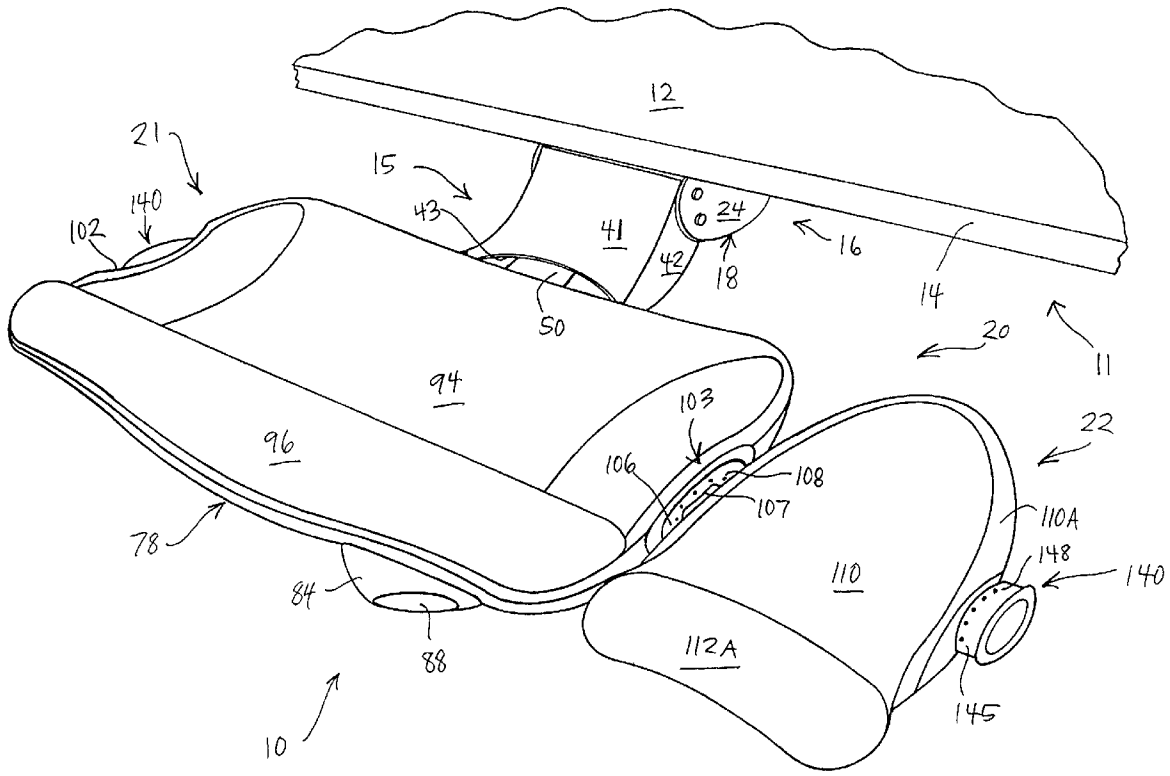
(57) **ABSTRACT**

A keyboard support arrangement which includes both a main support pad for supporting a computer keyboard and an auxiliary support pad for supporting a computer mouse. The auxiliary pad is removably and angularly positionable adjacent either side of the main keyboard pad to provide increased convenience and flexibility of use. The auxiliary mouse pad is totally separable from the main keyboard pad, and a multi-positionable connecting structure enables the auxiliary pad to be positioned relative to the main keyboard pad at one of a plurality of angular positions.



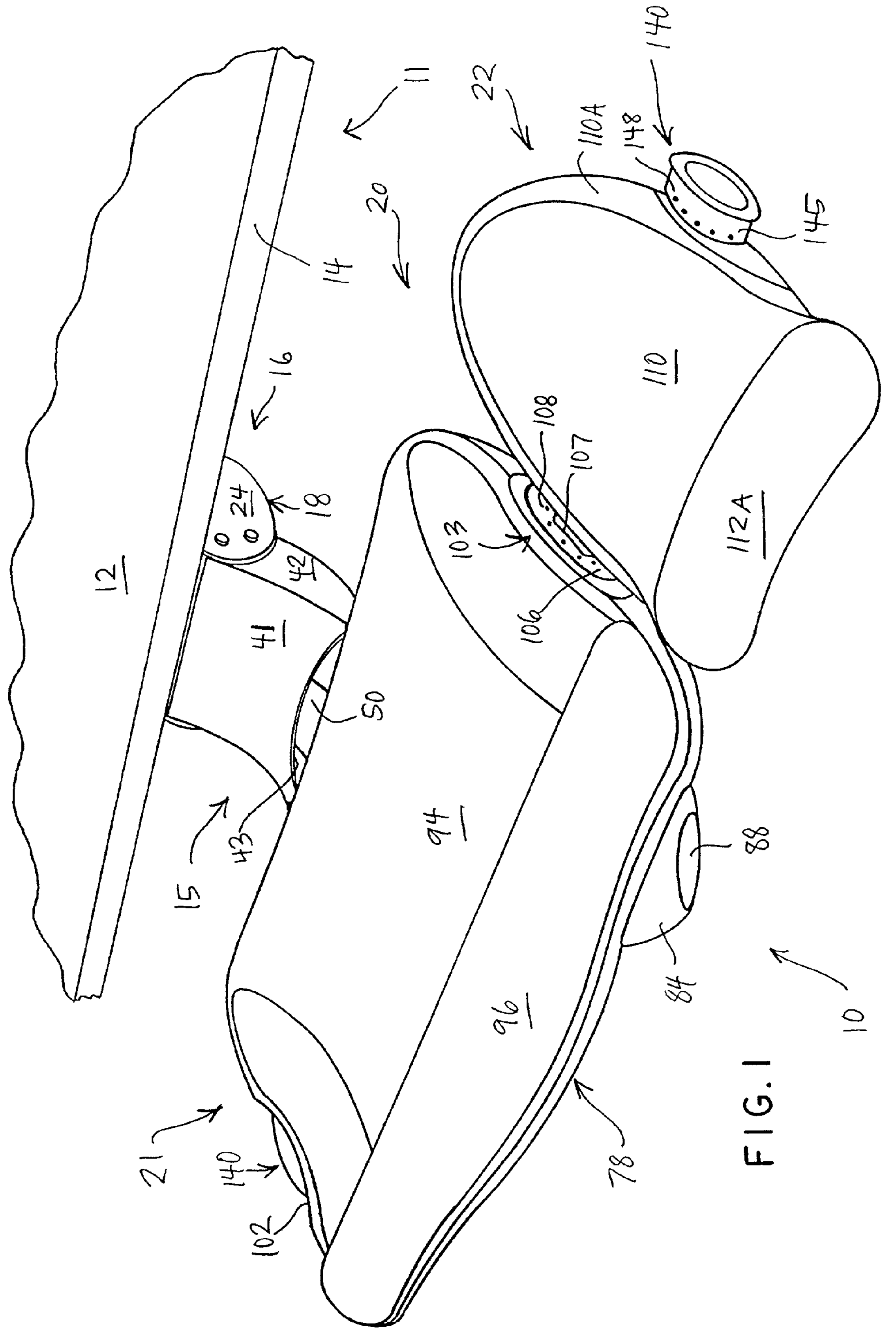

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FIG. 1

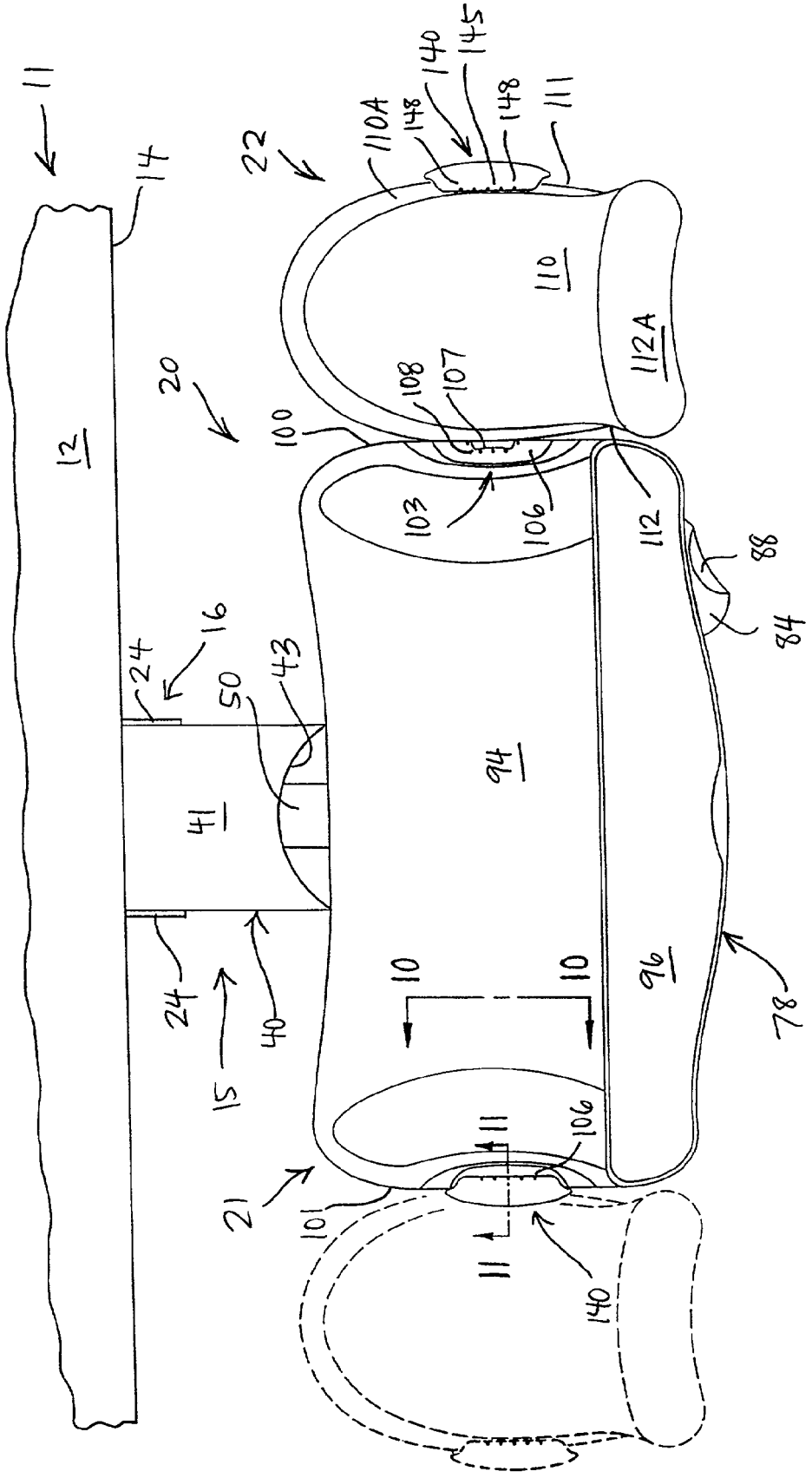
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FIG. 2

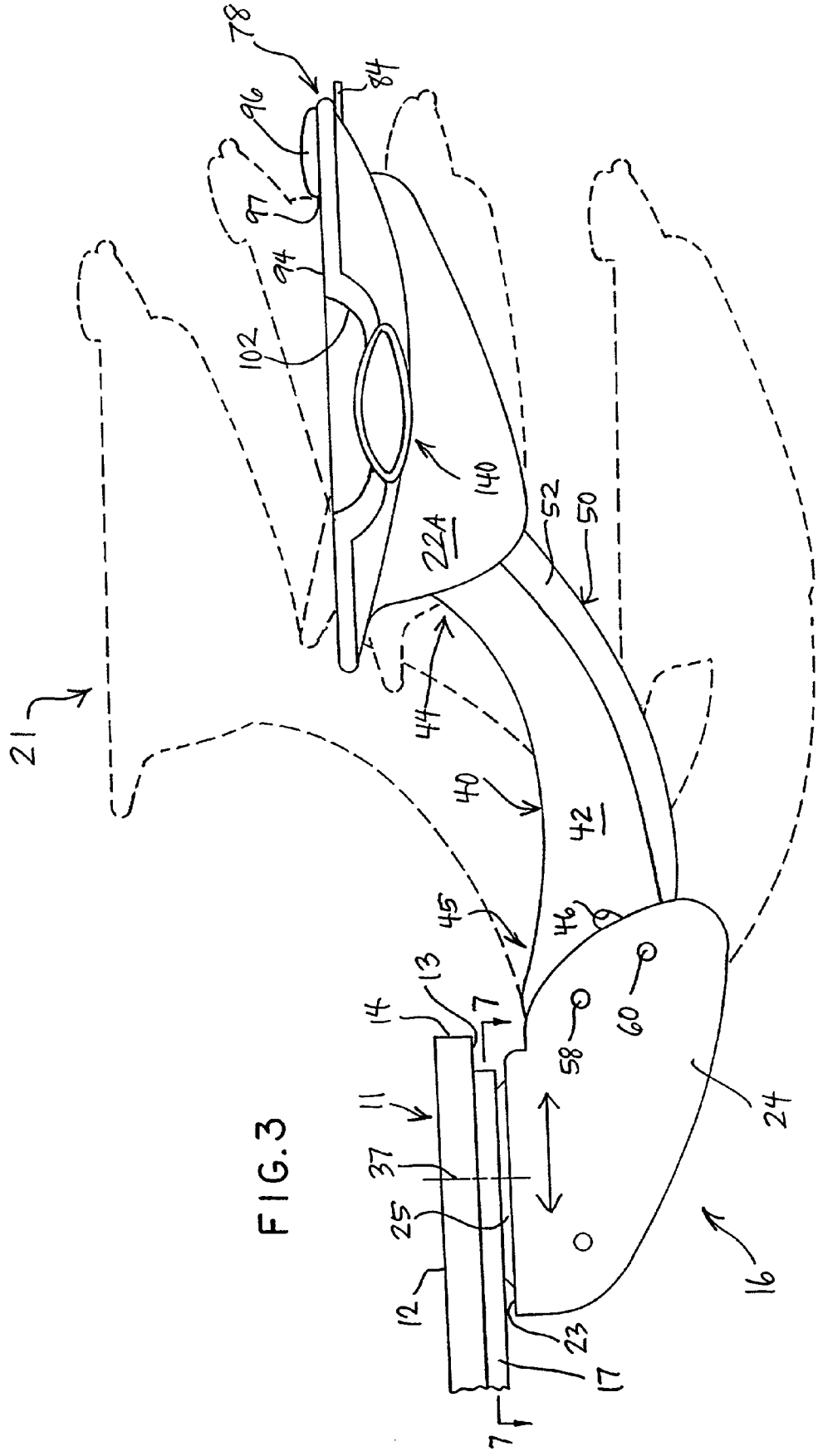
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FIG. 3

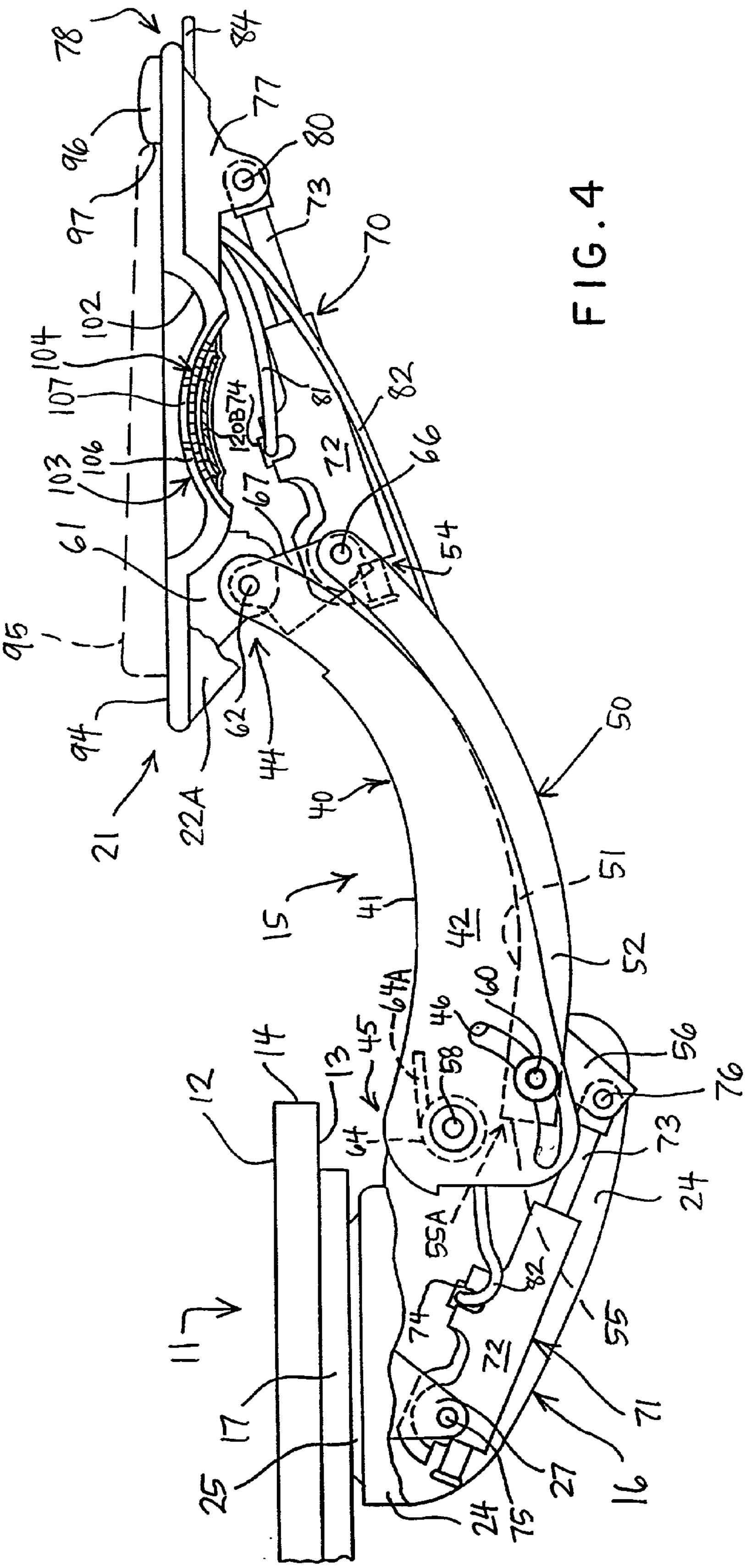

FIG. 4

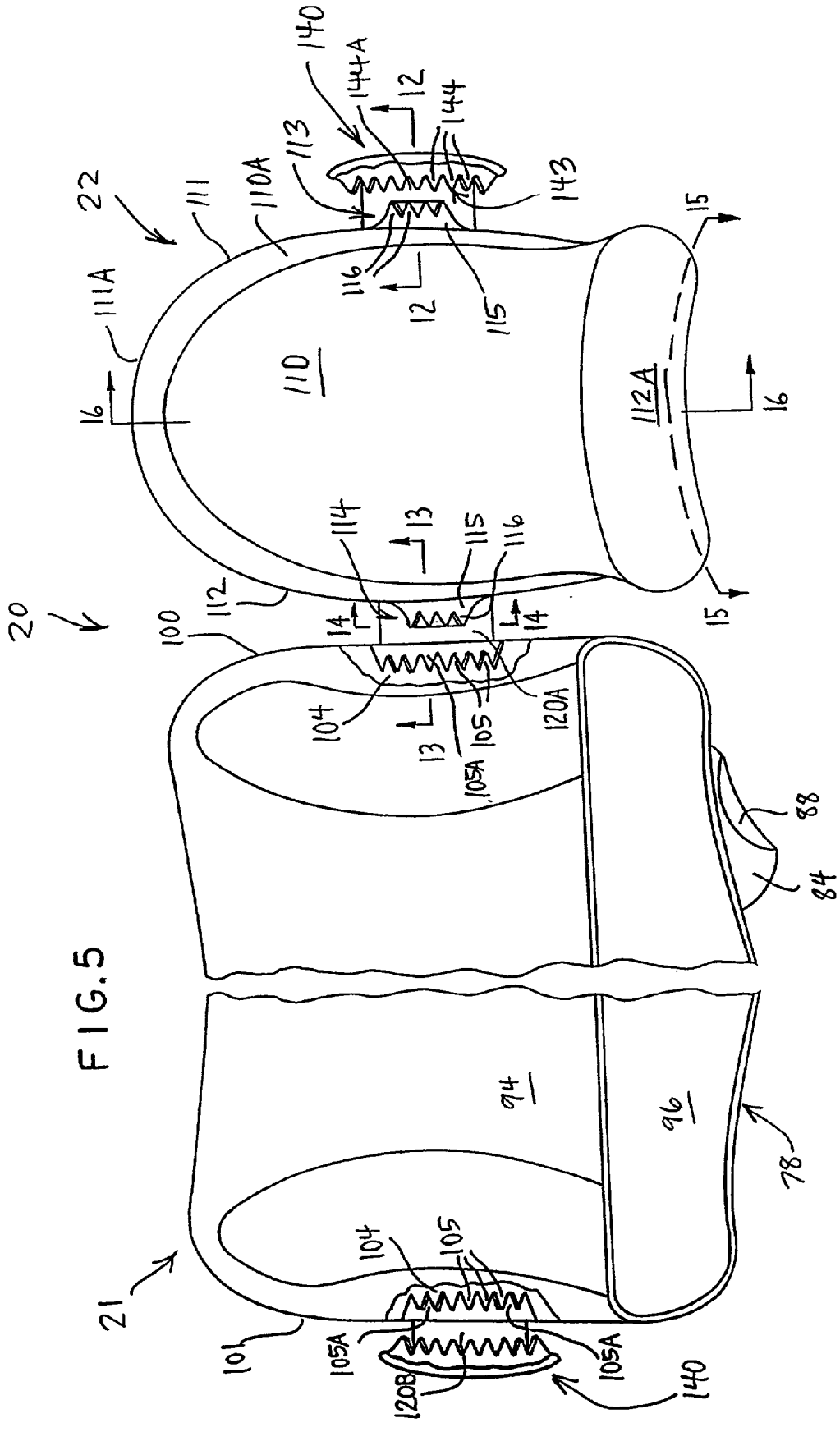
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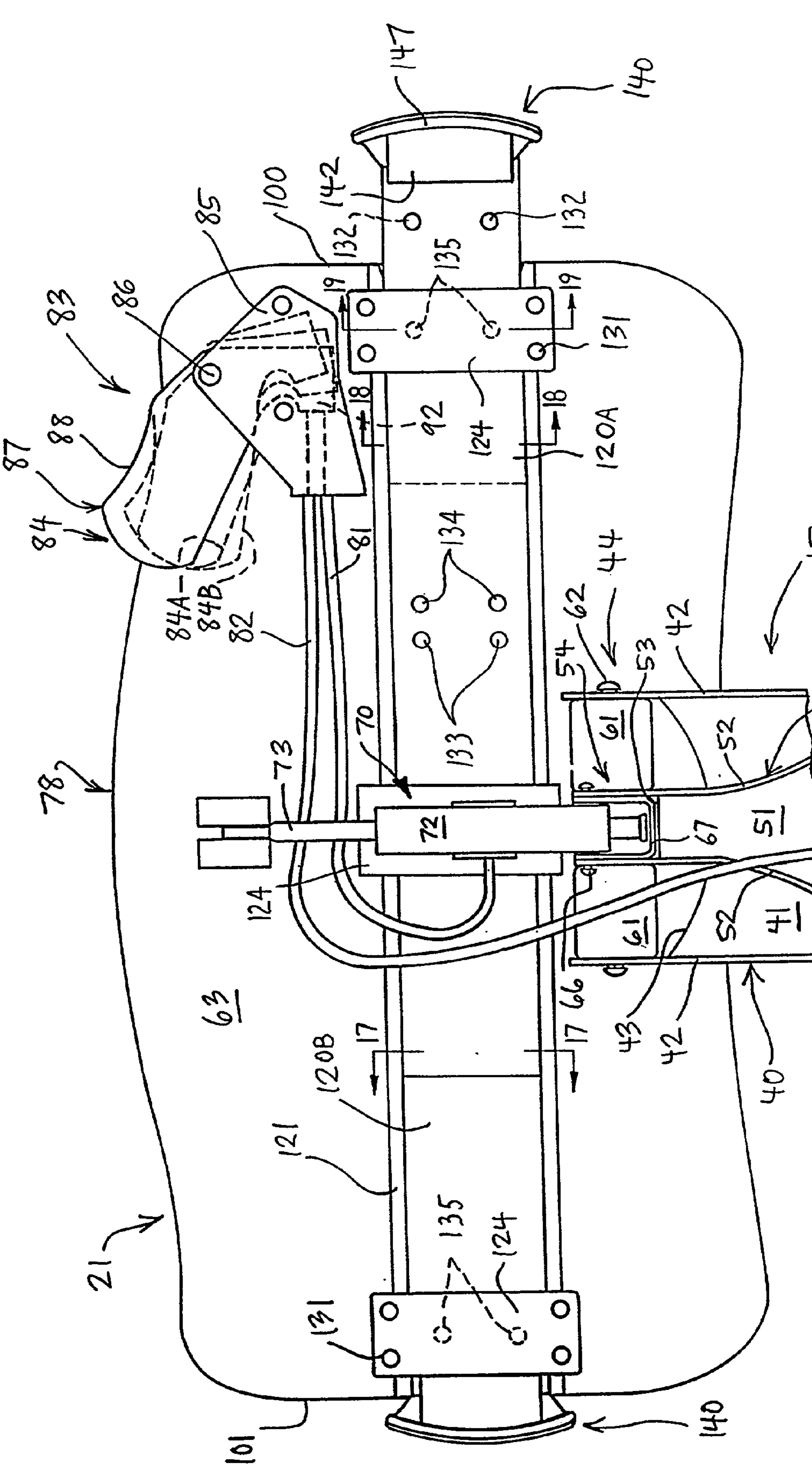
FIG. 5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84A
84B
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120B
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FIG. 6

FIG. 9

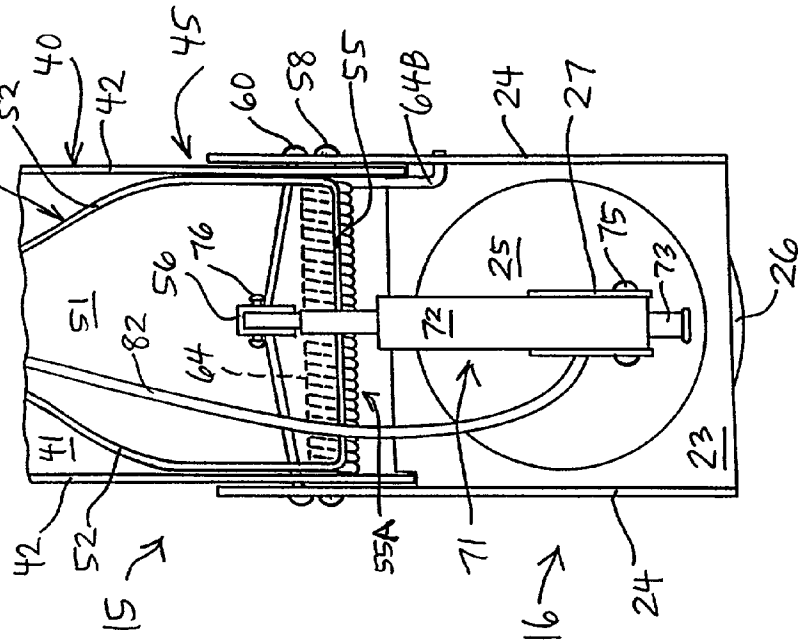


FIG. 8

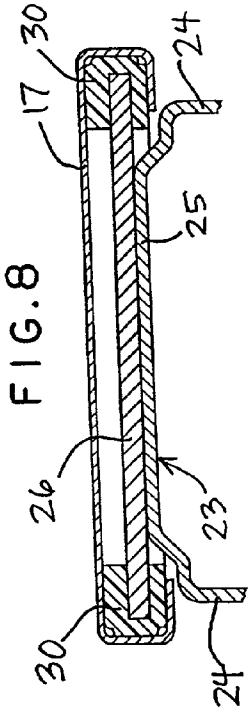


FIG. 7

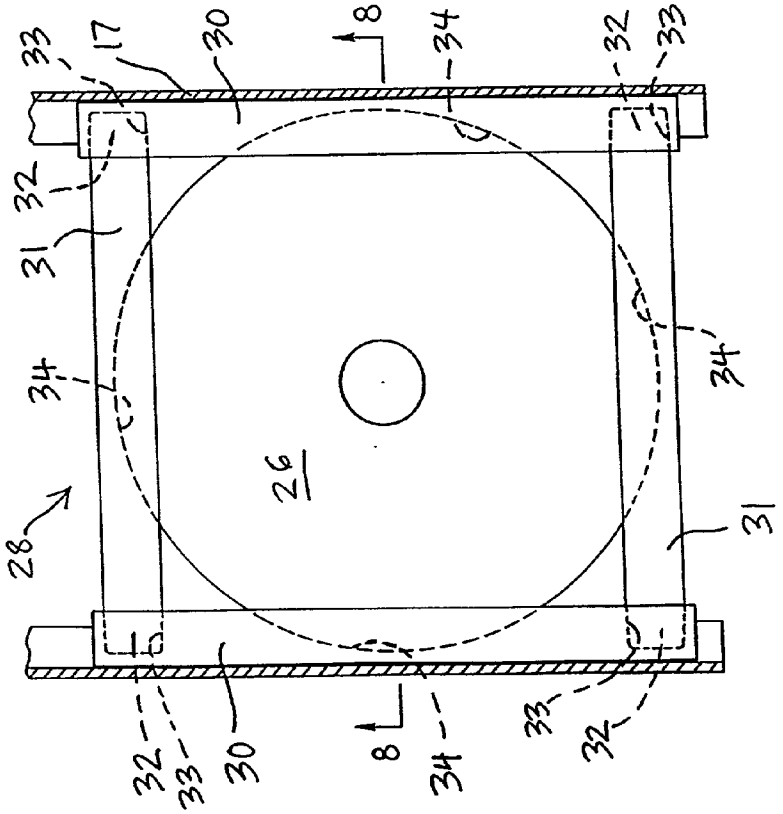


FIG. 10

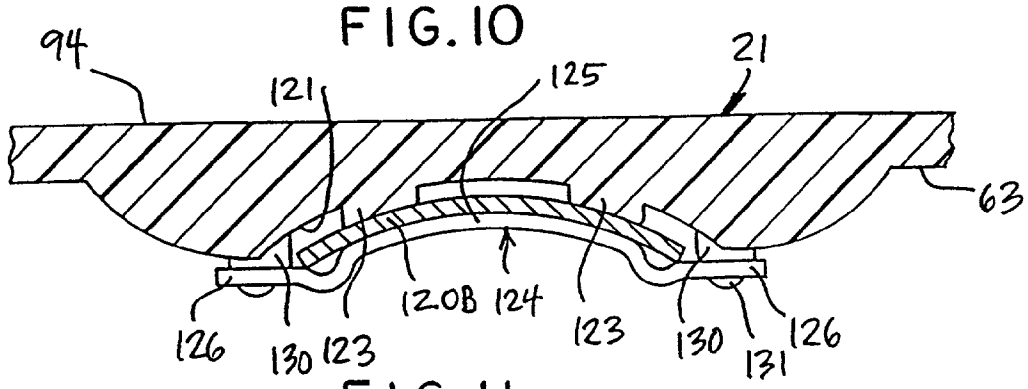


FIG. 11

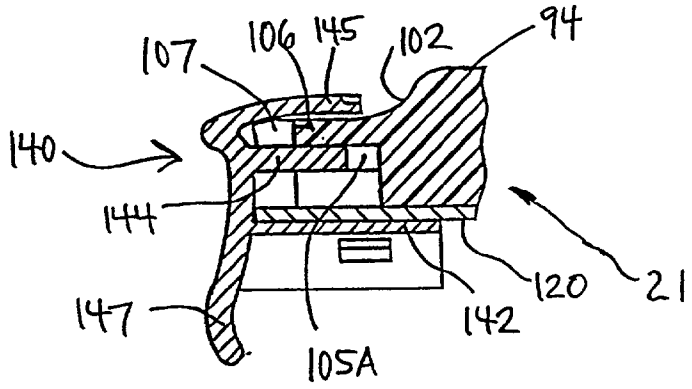


FIG. 12

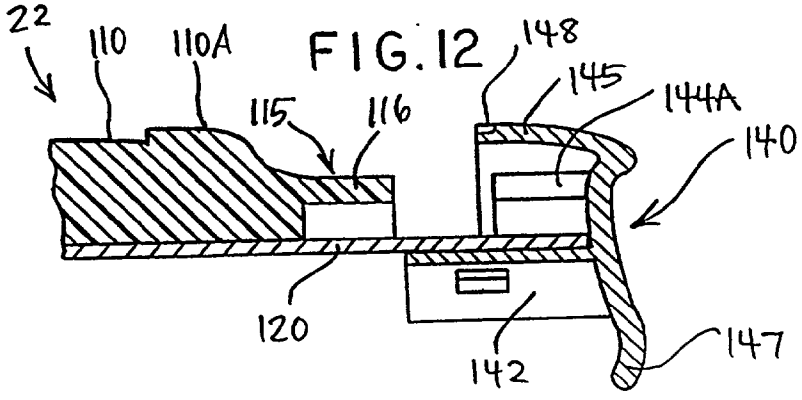


FIG. 13

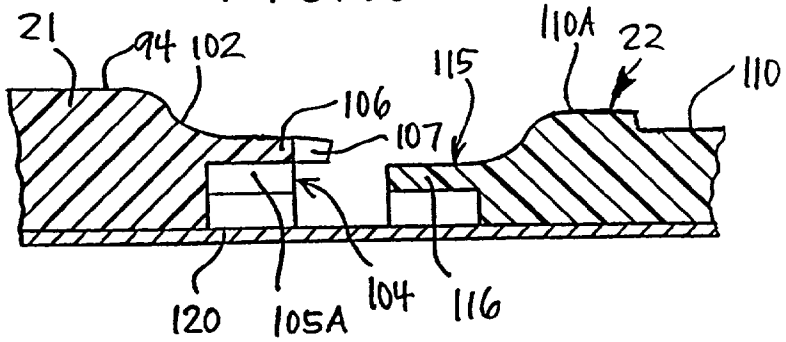


FIG.14

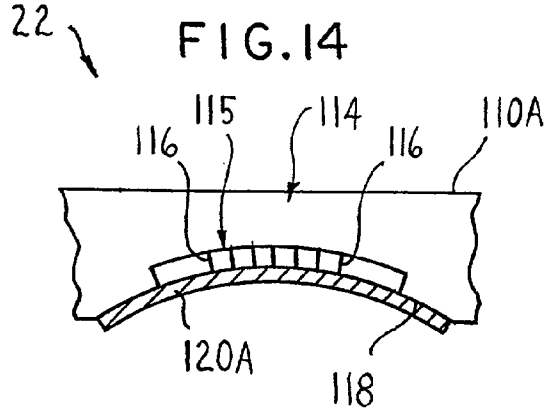


FIG.15

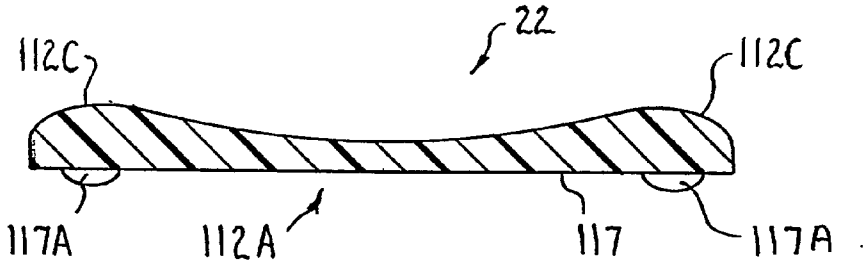


FIG.16

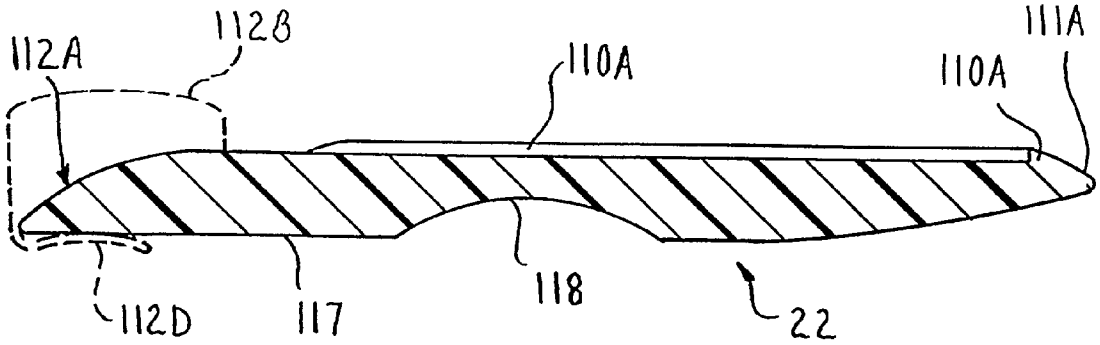


FIG. 17

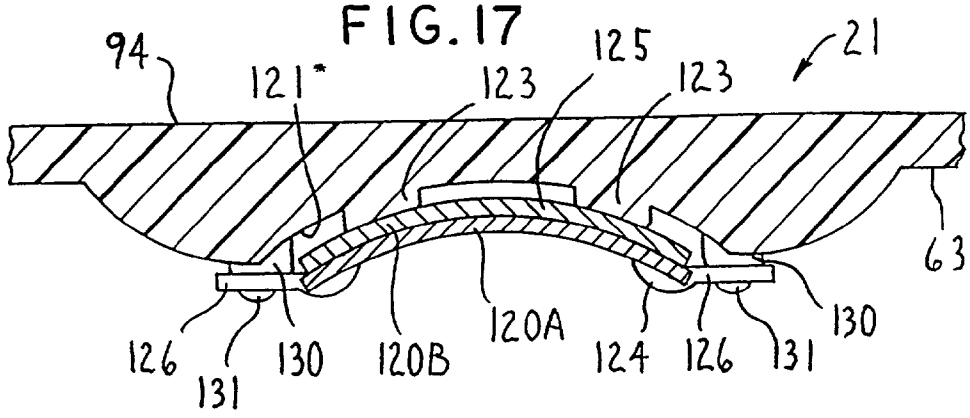


FIG. 18

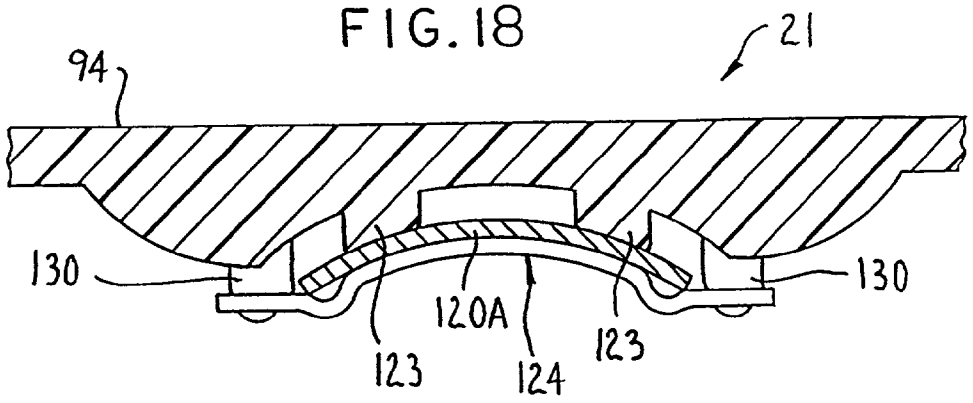
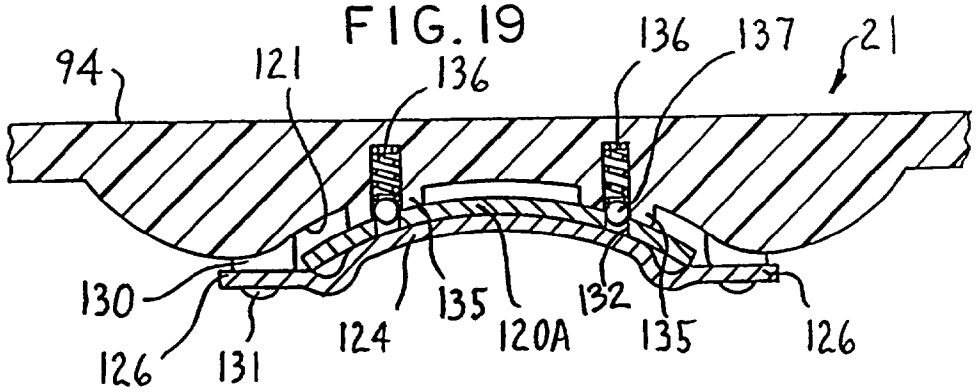


FIG. 19



KEYBOARD PAD WITH REVERSIBLE MOUSE PAD

FIELD OF THE INVENTION

[0001] This invention relates to a keyboard pad arrangement for a computer and, more particularly, to an improved keyboard pad arrangement employing separate keyboard and mouse support pads which are positionable in adjacent and interconnected relationship.

BACKGROUND OF THE INVENTION

[0002] Articulated keyboard mechanisms are typically mounted on and associated with work surfaces and desk tops to support a computer keyboard. Such mechanisms are also often provided with an associated support pad for a computer mouse, and this associated support pad is either integrally related to the keyboard support pad so as to have minimum flexibility, or in the alternative includes a wholly independent mouse support pad which, while providing greater flexibility, nevertheless results in additional complications with respect to both structure and mounting.

[0003] It is an object of the invention to provide an improved keyboard support arrangement which accommodates both a keyboard and a mouse, but which greatly improves upon both the structure and the convenience and flexibility of use in comparison to known structures.

[0004] Prior copending U.S. patent application Ser. No. 08/866 137, which is owned by the same assignee of the instant application and which is hereby incorporated by reference herein, relates to a keyboard pad arrangement with a separate and detachable mouse pad. In an effort to improve on this type of keyboard pad arrangement, the present invention was developed.

[0005] In this regard, the present invention relates to an improved keyboard support arrangement which includes both a main support pad for the keyboard, as well as an auxiliary support pad for the mouse, with the auxiliary support pad being removably and multiply positionable on and relative to the main support pad so as to provide increased convenience and flexibility of use with respect to the mouse support pad and the mouse positionable thereon.

[0006] In the improved support pad arrangement of the invention, the mouse or auxiliary pad is totally separable from the keyboard support pad, and a connecting structure is provided for permitting the auxiliary pad to be mounted directly from the keyboard support pad adjacent either side edge thereof as selected by the user. In addition, the connecting structure enables the auxiliary support pad to be positioned relative to the keyboard support pad at one of a plurality of different angular relationships so as to provide for increased comfort during use. The connecting structure also permits the auxiliary support pad to be totally and easily detached from the keyboard support pad and moved about as a portable unit, thereby enabling it to be carried about for use as a writing surface, or enabling it to be positioned on a desk top or work surface.

[0007] In accordance with a preferred embodiment of the invention, the support pad arrangement includes a main keyboard support pad and an auxiliary support pad adapted to support a computer mouse thereon. The auxiliary pad is detachably supported at either side of the main pad by one of two elongate support elements slidably supported on the main pad and extendible outwardly therefrom. The support pad arrangement additionally includes a fixing structure adapted to hold the auxiliary pad in an engaged position on one of the support elements.

[0008] Other objects and purposes of the invention will be apparent upon reading the following specification and inspecting the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] **FIG. 1** is a perspective view which illustrates the keyboard support arrangement according to the invention and its attachment to and position adjacent a conventional work surface;

[0010] **FIG. 2** is a top view which illustrates the pad assembly including the main keyboard pad and the auxiliary mouse pad;

[0011] **FIG. 3** is a fragmentary left side elevational view of the keyboard support arrangement of **FIG. 1**;

[0012] **FIG. 4** is an enlarged, fragmentary left side view of the keyboard support arrangement similar to **FIG. 3** with the bottom cover removed therefrom;

[0013] **FIG. 5** is an enlarged, fragmentary top view illustrating the right support beam in an extended position;

[0014] **FIG. 6** is a fragmentary bottom view of the keyboard support arrangement of **FIG. 1**, but with the bottom cover removed and without the auxiliary mouse pad;

[0015] **FIG. 7** is an enlarged, fragmentary, cross-sectional view taken generally along line **7—7** in **FIG. 3**;

[0016] **FIG. 8** is an enlarged, fragmentary, cross-sectional view taken generally along line **8—8** in **FIG. 7**;

[0017] **FIG. 9** is a fragmentary bottom view of the support arm and carriage;

[0018] **FIG. 10** is an enlarged, fragmentary, cross-sectional view taken generally along line **10—10** of **FIG. 2**;

[0019] **FIG. 11** is an enlarged, fragmentary, cross-sectional view taken generally along line **11—11** of **FIG. 2**;

[0020] **FIG. 12** is an enlarged, fragmentary, cross-sectional view taken generally along line **12—12** of **FIG. 5**;

[0021] **FIG. 13** is an enlarged, fragmentary, cross-sectional view taken generally along line **13—13** of **FIG. 5**;

[0022] **FIG. 14** is an enlarged, fragmentary, cross-sectional view taken generally along line **14—14** of **FIG. 5**;

[0023] **FIG. 15** is a front end view of the auxiliary pad taken generally along line **15—15** of **FIG. 5**;

[0024] **FIG. 16** is a cross-sectional view taken generally along line **16—16** of **FIG. 5**;

[0025] **FIG. 17** is an enlarged, fragmentary, cross-sectional view taken generally along line **17—17** of **FIG. 6**;

[0026] **FIG. 18** is an enlarged, fragmentary, cross-sectional view taken generally along line **18—18** of **FIG. 6**; and

[0027] **FIG. 19** is an enlarged, fragmentary, cross-sectional view taken generally along line **19—19** of **FIG. 6**.

[0028] Certain terminology will be used in the following description for convenience in reference only, and will not be limiting. For example, the words "upwardly", "downwardly", "leftwardly" and "rightwardly" will refer to directions in the drawings to which reference is made. The word "forwardly" will be used in conjunction with the portions of the keyboard arrangement positioned closest to the user, and similarly the word "rearwardly" will refer to portions of the keyboard arrangement positioned remote from the user. The words "inwardly" and "outwardly" will refer to directions toward and away from, respectively, the geometric center of the overall arrangement and designated parts thereof. Said terminology will include the words specifically mentioned, derivatives thereof, and words of similar import.

DETAILED DESCRIPTION

[0029] Referring to the drawings, and specifically **FIGS. 1 and 3**, there is illustrated an articulated keyboard support arrangement **10** according to the present invention. The arrangement **10** is adapted to be mounted on a conventional work surface or table top **11**, the latter having generally horizontal and substantially planar upper and lower surfaces **12** and **13**, respectively, with the work surface **11** terminating at a free front edge **14**.

[0030] The keyboard support arrangement **10** in the illustrated embodiment includes an elongate support arm **15** which at the rear end thereof couples to a carriage **16** which is positionable under the table top **11**. The carriage **16** is preferably confined for sliding movement in a front-to-back direction of the table top **11** by means of an elongate track **17** stationarily and horizontally mounted on the lower surface **13** of table top **11**. The forward end of the support arm **15** mounts thereon a pad assembly **20**, which pad assembly **20** includes a main keyboard support pad **21** and an auxiliary support pad **22** for supporting a computer keyboard and a computer mouse, respectively. As shown in **FIG. 3**, the main pad **21** preferably includes a bottom cover **22**A.

[0031] With reference to **FIGS. 3, 4** and **9**, the carriage **16** is preferably embodied by a bracket **18** which is substantially U-shaped in cross-section. Bracket **18** includes a top wall **23** and a pair of side walls **24** which extend generally perpendicularly and downwardly from opposite sides of top wall **23**. Top wall **23** includes an upwardly projecting boss portion **25** which substantially defines the upper surface thereof and which nonrotatably mounts thereon a circular plate or disc **26** (**FIG. 7**). The bottom surface of top wall **23** fixedly mounts thereon a rear brake bracket **27** (**FIGS. 4 and 9**) for a purpose as discussed below.

[0032] As illustrated in **FIGS. 7 and 8**, carriage **16** additionally includes a frame-like slide arrangement **28** having a pair of generally parallel and elongate guide members **30** and a pair of generally parallel and elongate cross members **31** which extend perpendicularly to guide members **30**. Each cross member **31** extends between adjacent ends of the respective guide members **30**, and terminal ends **32** of each cross member **31** extend into an inwardly opening recess **33** located adjacent the ends of the guide members **30**. Each guide and cross member **30** and **31** respectively includes an inwardly opening, semi-circular groove **34** in which the outer periphery of disc **26** engages to fixedly but rotatably confine disc **26** within frame-like arrangement **28**.

[0033] As best shown in **FIG. 7**, the frame-like slide arrangement **28** is confined within track **17**. Specifically, guide members **30** slidably engage within track **17** and enable slidable movement of the keyboard support arrangement **10** relative to the work surface **11** in a front-to-back direction as indicated by the arrow in **FIG. 3**. Further, the above-discussed grooved configuration of members **30** and **31** allows rotation of the disc **26** therewithin about a generally vertical axis **37**, which permits the keyboard support arrangement **10** to be angularly displaceable relative to the work surface **11**. In this regard, depending upon the particular length and width dimensions of the work surface, the keyboard support arrangement **10** according to the invention may horizontally swivel 360° relative to the work surface.

[0034] The guide and cross members **30** and **31** are preferably constructed of a hard plastic so as to properly function as slide or bearing members.

[0035] Considering now the construction of the support arm **15**, same includes an outer or upper arm **40** which is generally U-shaped in cross-section and has an upper wall **41** which is arcuate when viewed from the side (**FIG. 3**), and a pair of generally parallel and flat side walls **42** which extend generally perpendicularly and downwardly from opposite longitudinal edges of upper wall **41**. The upper wall **41** preferably terminates at an edge **43** which is recessed with respect to side walls **42** (i.e. side walls **42** project in the forward direction further than upper wall **41**) to provide outer arm **40** with a forked front end **44** (**FIG. 6**). Each side wall **42** of outer arm **40** includes a generally arcuately shaped slot **46** (**FIG. 4**) at a rear end **45** of outer arm **40**.

[0036] Support arm **15** also includes an inner or lower arm **50** which is also U-shaped in transverse cross-section and has an upper wall **51** having a generally arcuate shape when viewed from the side (**FIG. 4**). Planar side walls **52** preferably extend transversely and downwardly from opposite longitudinal edges of upper wall **51**. Upper wall **51** terminates at an edge **53** which is recessed to provide inner arm **50** with a forked front end **54** (**FIG. 6**). For added rigidity, inner arm **50** also includes a rear wall **55** (**FIG. 9**) which extends downwardly from upper wall **51** and transversely between side walls **52**, which rear wall **55** defines a rear end **55**A of inner arm **50**. A rear brake bracket **56** (**FIGS. 4 and 9**) is fixedly mounted on a bottom surface of upper wall **51** and projects generally downwardly therefrom.

[0037] Rear end **45** of outer arm **40** is joined to carriage bracket **18** by generally horizontal upper and lower pivots **58** and **60** (**FIGS. 4 and 9**). Lower pivot **60** preferably extends through slots **46** of outer arm **40**. Front end **44** of outer arm **40** is joined by a generally horizontal pivot **62** (**FIG. 6**) to a pair of spaced-apart support brackets **61**, which support brackets **61** are stationarily mounted to a lower surface **63** of main pad **21**. A coil spring **64** is preferably disposed about upper pivot **58** to surround same. One end **64**A (shown in dotted lines in **FIG. 4**) of coil spring **64** engages with a lower surface of upper wall **41** of outer arm **40** and the other end **64**B is fixedly held in an opening in side wall **24** of carriage bracket **18** (**FIG. 9**). Rear end **55**A of inner arm **50** is joined to carriage bracket **18** by lower pivot **60** (**FIG. 4**), and front end **54** of inner arm **50** is joined to an inner arm bracket **67** (**FIG. 6**) by a pivot **66**. The inner arm bracket **67**, in the illustrated embodiment, is preferably movably disposed between the pair of stationary support brackets **61** on main

pad **21**, and is arranged so as to be pivotable about pivot **62**. As best shown in **FIGS. 6 and 9**, inner arm **50** nests within outer arm **40**, i.e. between the side walls **42** thereof.

[**0038**] The pivot arrangement defined by the outer and inner arms **40** and **50** effectively defines a four-bar linkage so that the entire pad assembly **20** can be vertically raised and lowered to a suitable height by upward and downward swinging of the support arm **15** about pivots **58** and **60**, as discussed in further detail below. The four-bar linkage preferably substantially defines a parallelogram when the main support pad **21** is horizontally oriented or is in reasonably close orientation thereto.

[**0039**] Keyboard support arrangement **10** additionally includes a brake assembly including front and rear brakes **70** and **71**, each of which has a housing **72**, a shaft **73** slidably disposed within housing **72**, and a generally circular clamping member **74** located within housing **72** and in surrounding relation to shaft **73**. Clamping member **74** is preferably normally biased into frictional contact with shaft **73** to lock same in a desired position relative to housing **72** and is releasable for shaft **73** as discussed below. Brakes such as those discussed above are conventional, and are commonly known and commercially available as PL Porter Brakes. As shown in **FIGS. 4 and 9**, housing **72** of rear brake **71** at one end thereof is joined to rear brake bracket **27** of carriage bracket **18** by a generally horizontal pivot **75**, and the terminal end of shaft **73** of rear brake **71** located exteriorly of the housing **72** thereof is joined to rear brake bracket **56** of inner arm **50** by a generally horizontal pivot **76**. Housing **72** of front brake **70** at one end thereof is joined to inner arm pivot bracket **67** by pivot **66**, and the terminal end of shaft **73** of front brake **70** is joined to a front brake bracket **77** fixedly mounted on lower surface **63** of main pad **21** adjacent a forwardmost edge **78** thereof by a pivot **80**. Brake assembly also includes conventional sheathed flexible cables **81** and **82** each having a terminal end fixed to the clamping member **74** of one of the respective front and rear brakes **70** and **71**. Thus, when cables **81** and **82** are actuated, the respective clamping member **74** releases shaft **73**.

[**0040**] With reference to **FIG. 6**, keyboard support arrangement **10** also includes an actuator assembly **83** having a generally L-shaped actuator lever **84** and an actuator bracket **85**. Actuator bracket **85** is preferably U-shaped and is fixedly mounted on the lower surface **63** of main pad **21** adjacent front edge **78** thereof. Actuator lever **84** is pivotably mounted between respective legs of actuator bracket **85** by a generally vertical pivot **86**. A front portion **87** of actuator lever **84** preferably extends outwardly past front edge **78** of main pad **21** to provide ready access to actuator lever **84**, and a recessed finger grip **88** is formed in the front portion **87** for the convenience of the user. The actuator lever **84** additionally includes a rear portion **92** opposite front portion **87**, which rear portion **92** fixedly mounts thereat terminal ends of cables **81** and **82**.

[**0041**] The actuator **84** lever is movable about pivot **86** within a plane which is generally parallel to the plane defined by main pad **21**. In this regard, in accordance with one embodiment of the invention, the actuator lever **84** is preferably pivotably movable inwardly (i.e. towards the front edge **78** of main pad **21**) into one of two actuating positions as indicated by dotted lines **84**A and **84**B in **FIG. 6**. Actuating positions **84**A and **84**B respectively permit tilting of main pad **21** with respect to the horizontal, and vertical height adjustment of the keyboard support arrangement **10** with respect to the work surface **11**, as discussed below.

[**0042**] The inner arm bracket **67** enables main pad **21** to be vertically tilted into a desired position about horizontal pivot **62** as indicated by dotted lines in **FIG. 3**. The degree of tilt of main pad **21** is in a range of between about 10° to about 20° upwards or downwards from the horizontal, and is preferably tiltable about 15° upwards or downwards from the horizontal. In order to adjust the angular position of main pad **21** with respect to the horizontal, pressure is exerted by the user on front portion **87** of actuator lever **84** to pivot lever **84** inwardly a small amount into position **84**A (**FIG. 6**). This pivoting movement of lever **84** actuates front brake cable **81** which operates to release clamping lever **74** of front brake **70** from shaft **73** thereof and allows tilting of main pad **21** in either a clockwise or counterclockwise direction about pivot **62**. In order to lock the main pad **21** in the selected angular position, the actuator lever **84** is released, which causes clamp **74** to reengage with shaft **73** and lock front brake **70**.

[**0043**] This pivoting movement of actuator lever **84** into position **84**A (i.e. the "tilt" position) also actuates rear brake cable **82**. However, rear brake cable **82** preferably includes a sufficient amount of slack so that pivoting actuator lever **84** into position **84**A does not release the rear brake **71**.

[**0044**] In order to adjust the vertical height of the keyboard support arrangement **10**, the actuator lever **84** is pivoted inwardly a greater amount into position **84**B by exerting pressure on the front portion **87** thereof, which serves to release both front and rear brakes **70** and **71** and allows either upward or downward swinging movement of support arm **15** with respect to the work surface **11**. In this regard, the slot **46** of outer arm **40** preferably defines and limits the upward and downward movement of support arm **15**. During upward and downward movement of the support arm **15**, the inner arm bracket **67** pivots about pivot **62** to enable the inner arm **50** and the front brake **70** to move as necessary with respect to outer arm **40**. Further, the coil spring **64** preferably biases the support arm **15** upwardly with respect to work surface **11**, and therefore assists the user in raising the keyboard support arrangement **10** from a lowered position.

[**0045**] In accordance with an alternative embodiment of the invention, the slack in rear brake cable **82** may be removed, and both front and rear brakes **70** and **71** may be released upon a single actuating movement of actuator lever **84** so that the tilt of main pad **21** and the vertical height of keyboard support arrangement **10** can be adjusted simultaneously.

[**0046**] Considering now the construction of the pad assembly **20** and specifically the main pad **21** thereof, same includes a generally horizontally enlarged and substantially planar upper surface **94** for supporting a conventional computer keyboard **95** thereon (shown in dotted lines in **FIG. 4**). The main pad **21** is also preferably provided with an elongate wrist or palm rest **96** disposed adjacent the front edge **78** thereof. The wrist rest **96** is preferably embodied by an elongate foamed or gel cushion which may be supported directly on the main pad **21** so as to project upwardly above upper surface **94**, whereby the wrist rest **96** defines an

upwardly projecting abutment surface **97** on the rear edge thereof, the latter functioning to confine the keyboard **95** on the main pad **21**. If desired, the wrist rest **96** may be adjustable in height to suit the individual operator, and for this purpose may be provided with one or more adjustment levers or knobs (not shown) adjacent the front edge **78** of the main pad **21**, for example.

[**0047**] Main pad **21** additionally includes, substantially midway along each of right and left side edges **100** and **101** thereof, a recess **102** (**FIG. 3**) and a connecting member **103** (**FIG. 4**) located within recess **102**. Each connecting member **103** includes a serrated or toothed sector **104**. Each toothed sector **104** includes a plurality of teeth **105** (**FIG. 5**), with a space **105**A between adjacent pairs of teeth **105**. The toothed sectors **104** are generally arcuate in configuration when viewed from the side as illustrated in **FIG. 4**. Each of the connecting members **103** also includes a shroud **106** disposed above the respective toothed sector **104** to cover same as shown in **FIGS. 11 and 13**. Shroud **106** is shown in broken section in **FIG. 5** to more clearly illustrate teeth **105**. In accordance with a preferred embodiment of the invention, the shrouds **106** each include an inwardly extending recess **107**, along the edge of which recess **107** a plurality and preferably five position markers **108** are located on shroud **106** for a purpose discussed below.

[**0048**] The auxiliary pad **22** of the pad assembly **20** includes a generally horizontally enlarged upper surface **110** which has a suitable smoothness and softness so as to provide optimum support and performance for a conventional computer mouse. A raised shoulder **110**A (**FIG. 5**) preferably substantially surrounds surface **110** so as to confine the mouse (not shown) on pad **22**. Shoulder **110**A preferably extends along right and left side edges **111** and **112** of pad **22** and also along a rear edge **111**A of pad **22**. With reference to **FIG. 2**, the right and left side edges **111** and **112** which are configured so as to be positionable adjacent and compatible with respective corresponding left and right side edges **101** and **100** of main pad **21**. That is, the edges **111** and **101** are of corresponding and complementary configuration so as to be positionable directly adjacent one another substantially as shown in **FIG. 2**, and the remaining edges **112** and **100** are also of similar configuration so as to be positionable directly adjacent one another. As such, the auxiliary pad **22** can be disposed closely adjacent the right side edge **100** of main pad **21**, as shown in **FIG. 2**, or alternatively the auxiliary pad **22** can be positioned directly adjacent the left side edge **101** of main pad **21** as indicated by dotted lines in **FIG. 2**.

[**0049**] As best shown in **FIG. 15**, the auxiliary pad **22** preferably includes a front edge portion **112**A which, in transverse cross-section as shown in **FIG. 15** is generally concave in a middle region thereof such that smoothly curved and convex shoulders **112**C are formed at opposite ends of front portion **112**A. As shown in **FIG. 16**, the front edge portion **112**A of auxiliary pad **22** in longitudinal cross-section curves smoothly downwardly in a generally convex configuration.

[**0050**] The auxiliary pad **22** may, if desirable, also include a or palm wrist rest **112**B (**FIG. 16**) of a soft cushion construction adjacent the front edge thereof similar to wrist rest **96** of the main pad **21**. The wrist rest **112**B can preferably be held on pad **22** by resilient, lower clips **112**D which engage the lower surface **117** of pad **22**. Wrist rest **96** can preferably have an inner contour which conforms to front edge portion **112**A of pad **22**.

[**0051**] The auxiliary pad **22** additionally includes right and left connecting members **113** and **114** (**FIG. 5**), each having a toothed sector **115** including a plurality of teeth **116**, with four such teeth **116** included in the illustrated embodiment. The toothed sectors **115** preferably have a generally arcuate configuration when viewed from the side as best illustrated in **FIG. 14**. More specifically, toothed sectors **115** lie along a similar curve as toothed sectors **104** of main pad **21** (both curves being generated about a common axis). The lower surface **117** of auxiliary pad **22**, as shown in **FIG. 14**, preferably has an elongate channel **118** formed therein which is generally arcuate in cross-section and extends in a generally linear manner transversely across lower surface **117** and between the connecting members **113** and **114**.

[**0052**] The auxiliary pad **22** according to the invention is detachable from main pad **21** and mountable directly thereon by means of a support assembly including right and left elongate and generally linear support beams **120** (**FIG. 6**). Each support beam **120**A and **120**B is generally arcuate in transverse cross-section with the longitudinal edges thereof preferably facing downwardly.

[**0053**] The support beams **120**A, **120**B are preferably slidably mounted so as to engage with an elongate guide member or track **121** (**FIG. 6**) which is disposed on the lower surface **63** of main pad **21** and is oriented generally parallel to the longitudinal dimension thereof. The guide track **121** is preferably arcuate in transverse cross-section as illustrated in **FIG. 10**, so as to generally conform to the arcuate shape of the support beams **120**A, **120**B. Guide track **121** preferably includes a pair of parallel guide ribs or ridges **123** (**FIG. 10**) which extend along the length thereof and make contact with the upper surface of the support beams **120**A, **120**B. Further, as shown in **FIG. 18**, guide track **121** and ridges **123** thereof are configured so as to allow the overlap of the beams **120**A, **120**B, i.e. the ridges **123** project further downwardly adjacent support beam **120**A so that beam **120**A can ride beneath or over beam **120**B.

[**0054**] Each support beam **120**A, **120**B is slidably secured to the lower surface **63** of main pad **21** by means of a beam support bracket **124** (**FIGS. 6 and 10**) two of which are located adjacent a respective side edge **100** and **101** of main pad **21**, and a third of which is located in a middle region of lower surface **63**. The beam support brackets **124** each include a middle portion **125** having a similar contour as the lower surface of the respective support beam **120**A, **120**B, and terminal ends **126** which are secured to lower surface **63** by means of appropriate mounting projections **130** and fasteners **131**. The support beams **120**A, **120**B are thus individually slidable outwardly relative to the respective side edge **100** and **101** into an extended position, and are individually slidable inwardly into a retracted position so that the support beam **120**A, **120**B is located substantially completely beneath the main pad **21**. In this regard, three pairs of holes **132**, **133** and **134** are provided in each support beam **120**A and **120**B. Holes **132** are preferably located adjacent the outer terminal end of each beam **120**A and **120**B, holes **133** are located approximately midway along each beam **120**A and **120**B, and holes **134** are located

adjacent holes **133**. With reference to **FIG. 19**, main pad **21** preferably includes a pair of bosses **135** adjacent end brackets **124** which project generally downwardly from main pad **21**. Each boss **135** confines therein a coil spring **136**, which coil spring **136** preferably biases a spherical roller bearing **137** adjacent the upper surface of the respective support beam **120**A and **120**B. When the support beam **120**A, **120**B is moved into a fully retracted position under main pad **21**, each roller bearing **137** is biased by spring **136** so as to partially project into the respective hole **132** of the support beam which serves to hold the support beam in the retracted position. The roller bearings **137** also serve to hold the respective support beam in extended and partially extended positions for mounting auxiliary pad **22** on main pad **21** as discussed further below.

[**0055**] Each support beam **120**A, **120**B preferably includes a cap or handle **140** fixedly mounted at the outer free end thereof by a mounting flange **142** which extends inwardly and generally horizontally along the lower side of the respective support beam **120**A, **120**B and is fastened thereto. Mounting flange **142** preferably has an arcuate cross-sectional shape which conforms to the arcuate cross-sectional shape of the support beam **120**A, **120**B. As best shown in **FIG. 5**, each handle **140** includes an arcuate toothed sector **143** having a plurality of teeth **144** with spaces **144**A therebetween, and a shroud **145** (**FIGS. 11 and 12**) which extends inwardly and above teeth **144** to cover same. Each shroud **145** also includes a plurality of position markers **148** which generally longitudinally align with markers **108**. For the convenience of the user, each handle **140** also includes a lower portion **147** which can be utilized to assist the user in moving the respective support beam **120**A, **120**B.

[**0056**] Main paid **21**, including brackets **61** and **77** and guide track **121** may be formed as a one-piece injection molded plastic component, or may be separate components and appropriately fastened to one another. Similarly, auxiliary pad **22** may be formed as an injection molded plastic component. Support beams **120**A, **120**B, support arm **15** and carriage **16** may be formed of a lightweight metal such as aluminum.

[**0057**] To mount the auxiliary pad **22** on the main pad **21**, and for example on the right side **100** of the main pad **21**, the handle **140** of the right support beam **120**A is grasped and support beam **120**A is pulled outwardly into its fully extended position (**FIG. 5**) so that the roller bearings **137** disengage from holes **132**, slide along beam **120**A and then engage in the respective holes **133** of beam **120**A. The auxiliary pad **22** is then lowered towards the support beam **120**A until the upper surface of beam **120**A engages in the correspondingly configured recess **118** of the auxiliary pad **22**. To lock the auxiliary pad **22** into position with respect to the main pad **21**, the support beam **120**A is then pushed inwardly into a partially retracted position until the teeth **144** of the support beam handle **140** engage with the correspondingly configured teeth **116** of the auxiliary pad **22** located along the right side edge **111** thereof, the teeth **116** of the auxiliary pad **22** located along the left side edge **112** thereof engage with the teeth **105** located along the right side edge **100** of the main pad **21**, and the roller bearings **137** engage in the respective holes **134** of beam **120**A.

[**0058**] As shown in **FIG. 2**, when the auxiliary pad **22** is locked in place along one side of main pad **21**, the shroud **145** of support beam handle **140** covers and thus hides the teeth **144** thereof and teeth **116** of auxiliary pad **22**, and the shroud **106** of main pad **21** preferably covers and thus hides the teeth **105** thereof and teeth **116** of auxiliary pad **22**.

[**0059**] To adjust the angular position of the auxiliary pad **22** with respect to the main pad **21**, the support beam **120** is again moved outwardly relative to right side edge **100** of main pad **21** a sufficient amount so that both pairs of teeth (i.e. teeth **105** of main pad **21** and left-side teeth **116** of auxiliary pad **22**, and right-side teeth **116** of auxiliary pad **22** and teeth **144** of beam handle **140**) disengage from one another, the auxiliary pad **22** is then pivoted on the beam **120**A into the desired position, and the support beam **120**A is then pushed inwardly until the pairs of teeth re-engage one another and lock the auxiliary pad **22** in the newly selected angular orientation. The position markers **108** of main pad **21** and the position markers **148** of handle **140** can preferably assist the user in selecting the desired position of pad **22**.

[**0060**] The auxiliary pad **22** may be repositioned adjacent the left side **101** of the main pad **21** simply by sliding the right support beam **120**A outwardly to disengage the pairs of teeth from one another, lifting pad **22** away from beam **120**A, and positioning auxiliary pad **22** on left side beam **120**B in a similar manner as described above.

[**0061**] Due to the ease with which the auxiliary pad **22** can be mounted on and interchanged from either a right side **100** to a left side **101** position relative to the main pad **21**, or in fact detached totally from the main pad **21**, the auxiliary pad **22** hence can be readily used for other purposes or conveniently repositioned. For example, the auxiliary pad **22** may be completely removed from main pad **21** in the manner discussed above, and positioned on an adjacent work surface or desk top if so desired. In this regard, auxiliary pad **22** can be provided with support feet **117**A (**FIG. 15**) adjacent front and rear corners of pad **22** which project downwardly from the lower surface **117** of the pad **22**. Alternately, the auxiliary pad **22**, when detached from main pad **21**, can be carried about and used separately as a writing surface or otherwise.

[**0062**] Although a particular preferred embodiment of the invention has been disclosed in detail for illustrative purposes, it will be recognized that variations or modifications of the disclosed apparatus, including the rearrangement of parts, lie within the scope of the present invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A support pad arrangement for a computer keyboard, comprising:

a main keyboard support pad having first and second ides and a generally horizontally enlarged upper surface adapted for supporting a computer keyboard thereon;

an auxiliary support pad having a generally horizontally enlarged upper surface adapted for supporting a computer mouse thereon;

a supporting structure connected to said main pad for movably supporting said support pad arrangement from a work surface, said supporting structure being free of connection to said auxiliary pad; and

a connecting structure connecting said auxiliary pad directly to said main keyboard support pad, said con-

necting structure including first and second connecting members respectively mounted on said first and second sides of said main pad, and a third connecting member mounted on said auxiliary pad configured to cooperatively engage with one of said first and second connecting members to create a plurality of discrete angular positions of said auxiliary pad with respect to said main pad when said auxiliary pad is positioned adjacent one of said first and second sides, respectively.

2. The arrangement of claim 1 wherein said connecting structure defines a generally horizontal pivot axis which extends transversely of said main and auxiliary pads, said auxiliary pad being positionable in a plurality of discrete angular positions about the pivot axis.

3. The arrangement of claim 1 wherein said third connecting member of said auxiliary pad is mounted on a first side thereof, and said auxiliary pad further includes a fourth connecting member mounted on a second side of said auxiliary pad, said fourth connecting member being configured to cooperatively engage with the other of said first and second connecting members to create a plurality of discrete angular positions of said auxiliary pad with respect to said main pad when said auxiliary pad is positioned adjacent the other of said first and second sides of said main pad.

4. The arrangement of claim 3 wherein said connecting structure includes first and second elongate connecting elements slidably supported on said main pad and extendible outwardly from the respective first and second sides thereof into an extended position, said auxiliary pad being removably supported on one of said first and second connecting elements when in said extended position.

5. The arrangement of claim 4 wherein each said first and second connecting element includes a connecting member at an outer terminal end thereof, each said connecting member of said first and second connecting elements being configured to cooperatively engage with one of said third and fourth connecting members of said auxiliary pad to lock said auxiliary pad in a desired angular orientation relative to said main pad.

6. The arrangement of claim 1 wherein said supporting structure includes a support arm having a first end associated with said main pad and a second end remote therefrom, and a bracket disposed adjacent the work surface and associated with said second end of said support arm, said bracket non-rotatably mounting thereon a circular member defining a vertical axis, said supporting structure further including a frame-like arrangement movably disposed within an elongate track fixedly mounted to a lower surface of the work surface, said frame-like arrangement being slidably disposed within said track for permitting movement of said support pad arrangement toward and away from the work surface, and said frame-like arrangement being configured to confine said circular member therewithin such that said circular member is rotatable relative to said frame-like arrangement to permit said support pad arrangement to be pivoted about the vertical axis with respect to the work surface.

7. The arrangement of claim 1 wherein said supporting structure includes a support arm assembly adapted to permit said support pad arrangement to be positioned in a plurality of vertical positions with respect to the work surface, and to permit said main pad to be positioned in a plurality of angular positions with respect to a generally horizontal plane defined by the work surface.

8. The arrangement of claim 7 further including an actuator assembly having an actuator lever movably mounted on said main pad and being movable into a first position for permitting said main pad to be positioned in said plurality of angular positions and a second position for permitting said support pad arrangement to be positioned in said plurality of vertical positions.

9. The arrangement of claim 8 wherein said support arm assembly includes a support arm having a first end pivotably connected to said main pad and a second end remote therefrom, said connecting structure including a support member connected to the work surface and pivotably supporting said second end of said support arm, said support arm assembly further including a first braking member associated with said first end of said support arm adapted to fix said main pad in one of said angular positions, and a second braking member associated with said second end of said support arm adapted to fix said support pad arrangement in one of said vertical positions, said actuator lever when moved into said first position releasing said first braking member to permit movement of said main pad into a selected one of said angular positions, and said actuator when moved into said second position releasing said second braking member to permit movement of said support pad arrangement into a selected one of said vertical positions.

10. The arrangement of claim 1 wherein said first and second connecting members each include a toothed portion, and said third connecting member includes a toothed portion configured to cooperatively engage with said one first and second connecting member to create said plurality of discrete angular positions.

11. The arrangement of claim 1 wherein said connecting structure is configured and disposed to permit removal and separation of said auxiliary pad from said one first and second side and reattachment of said auxiliary pad to the other of said one first and second sides.

12. The arrangement of claim 1 wherein said connecting structure includes first and second elongate connecting elements slidably supported on said main pad and extendible outwardly from the respective first and second sides thereof into an extended position, said auxiliary pad being removably supported on one of said first and second connecting elements when in said extended position.

13. A support pad arrangement for a computer keyboard, comprising:

a main keyboard support pad having first and second sides and a generally horizontally enlarged upper surface adapted for supporting a computer keyboard thereon;

an auxiliary support pad having a generally horizontally enlarged upper surface adapted for supporting a computer mouse thereon, said auxiliary pad being wholly and readily separable from said main pad;

a supporting structure connected to said main pad for movably supporting said support pad arrangement from a work surface; and

a connecting structure configured to detachably connect said auxiliary pad to said main pad adjacent either of said first and second sides and defining a generally horizontal pivot axis which extends transversely of said first and second sides, said connecting structure including an elongate support element having a first end slidably supported on said main pad and a second end

for supporting said auxiliary pad, and a locking arrangement cooperating between said main and auxiliary pads to permit said auxiliary pad to be positioned in a plurality of discrete and fixed angular positions with respect to said main pad by pivoting said auxiliary pad about the pivot axis.

14. The arrangement of claim 13 wherein said connecting structure includes a pair of said elongate support elements each slidably supported on said main pad, a first of said support elements being extendible outwardly from said first side of said main pad into an extended position, and a second of said support elements being extendible outwardly from said second side of said main pad into an extended position for supporting said auxiliary pad thereon adjacent the respective said first and second side of said main pad.

15. The arrangement of claim 14 wherein said first and second support elements are longitudinally aligned with one another and are slidably mounted on a bottom surface of said main pad.

16. The arrangement of claim 13 wherein said locking arrangement includes first and second connecting members mounted adjacent said first and second sides of said main pad, respectively, and a third connecting member mounted on said auxiliary pad configured to cooperatively engage with one of said first and second connecting members to provide the plurality of discrete angular positions of said auxiliary pad relative to said main pad.

17. The arrangement of claim 16 wherein each said first and second connecting member includes a toothed portion configured to engage with a correspondingly configured toothed portion of said third connecting member.

18. The arrangement of claim 13 wherein said auxiliary pad is slidably supported on said elongate support element for pivoting about the pivot axis.

19. A keyboard support pad arrangement for connection to a work surface, comprising:

a main keyboard support pad having first and second sides and a generally horizontally enlarged upper surface adapted for supporting a keyboard thereon;

an auxiliary support pad having a generally horizontally enlarged upper surface adapted for supporting a computer mouse thereon;

first and second elongate support elements slidably supported on said main pad, each said first and second support element being extendible outwardly from the respective first and second sides of said main pad into an extended position, said auxiliary pad being supported on one of said first and second support elements when in said extended position, and said auxiliary pad being detachable from the respective said support element and positionable adjacent either of said first and second sides of said main pad; and

a fixing structure adapted for holding said auxiliary pad in an engaged position on said one first and second support element.

20. The arrangement of claim 19 wherein said fixing structure includes a first and second connecting members respectively mounted adjacent said first and second sides of said main pad, and third and fourth connecting members respectively mounted adjacent first and second sides of said auxiliary pad, each said third and fourth connecting member being configured to cooperatively engage with one of said first and second connecting members.

21. The arrangement of claim 19 wherein said auxiliary pad includes a generally flat surface for supporting the computer mouse thereon and accommodating movements thereof, a shoulder which projects upwardly from and substantially surrounds said flat surface to confine the mouse on said auxiliary pad.

22. The arrangement of claim 21 wherein said auxiliary pad includes a front edge portion having a generally concave configuration in transverse cross-section and generally convex configuration in longitudinal section.

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