United States Patent [19]

Berke

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[45] **Reissued Date of Patent: Mar. 19, 1991**

[54] **COMPUTER TERMINAL SUPPORT AND HAND REST**

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[21] Appl. No.: **416,605**

[22] Filed: **Oct. 2, 1989**

Related U.S. Patent Documents

Reissue of:

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Issued: **Nov. 13, 1984**
Appl. No.: **331,954**
Filed: **Dec. 18, 1981**

U.S. Applications:

[62] Division of Ser. No. 137,808, Apr. 4, 1980, Pat. No. 4,481,556.

[51] **Int. Cl.**[5] **A47F 7/00**

[52] **U.S. Cl.** **211/69.1;** 248/118; 361/222

[58] **Field of Search** ..... 248/118, 118.1, 118.3, 248/205 R, 300, 441 B, 442.2, 673, 678; 108/28, 29, 59; 5/503; 297/188; 24/69.1

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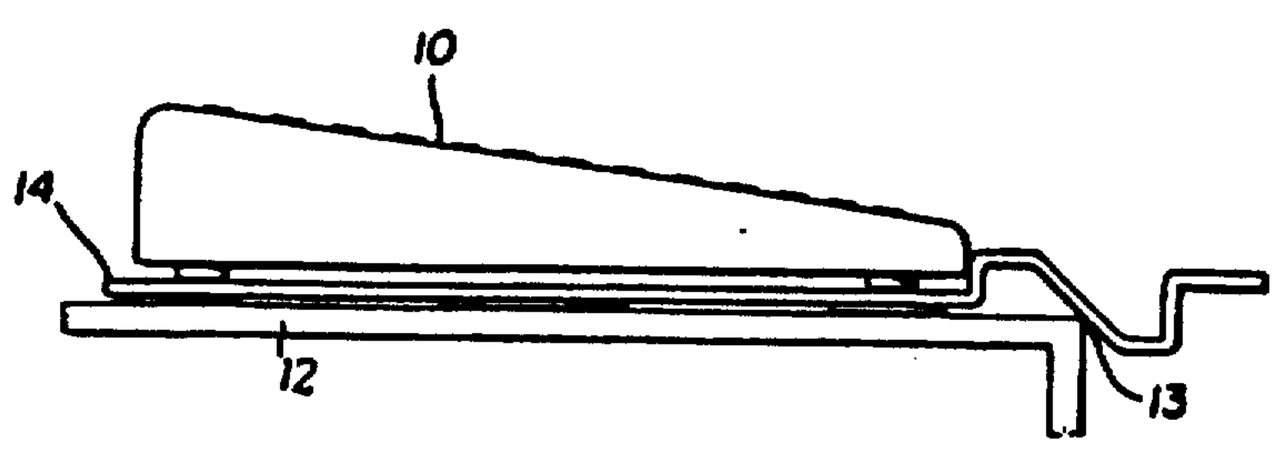
Primary Examiner—Robert W. Gibson, Jr.
Attorney, Agent, or Firm—Dykema Gossett

[57] **ABSTRACT**

A computer terminal support and hand rest to be placed on a desk top and interposed between the computer terminal and a computer operator as well as being interposed between the computer terminal and the desk top. The computer terminal support provides a hand rest for supporting the hands of the computer operator both during use of the computer terminal and during rest intervals. In a preferred embodiment, the support also includes a conductive portion for draining static charges from the computer terminal operator to prevent circuit damage and erroneous command signals to the computer and to prevent electrical shock to the operator.

Several embodiments of the support are disclosed including alternate structures for providing a static discharge path, alternate structures for supporting the hands and alternate structures for supporting the computer terminal. In addition, some embodiments include a trough into which the fingers of the computer operator may be placed during rest intervals and the trough also functions as a receptacle for pens, pencils and the like.

14 Claims, 3 Drawing Sheets



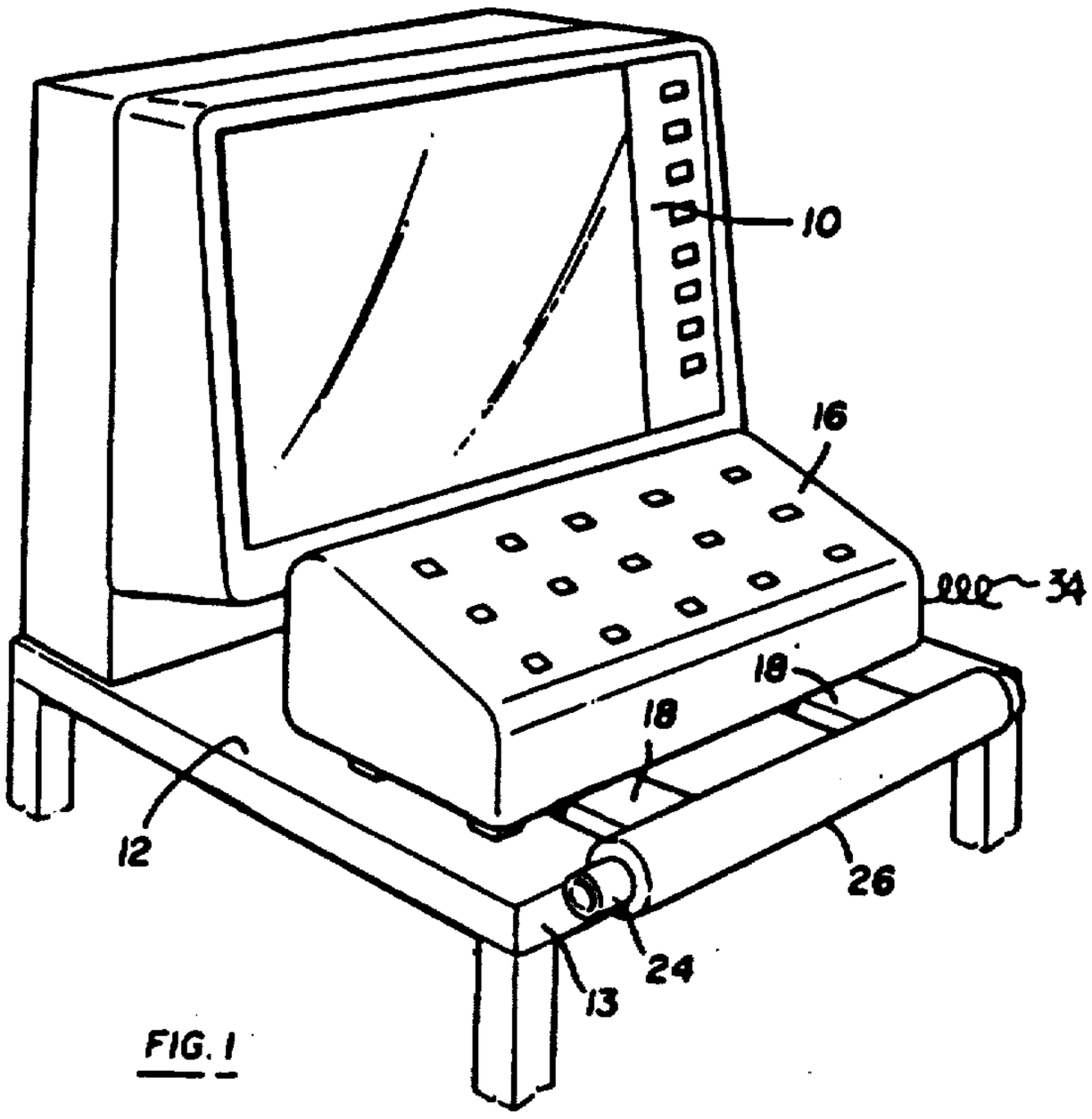


FIG. 1

FIG. 3

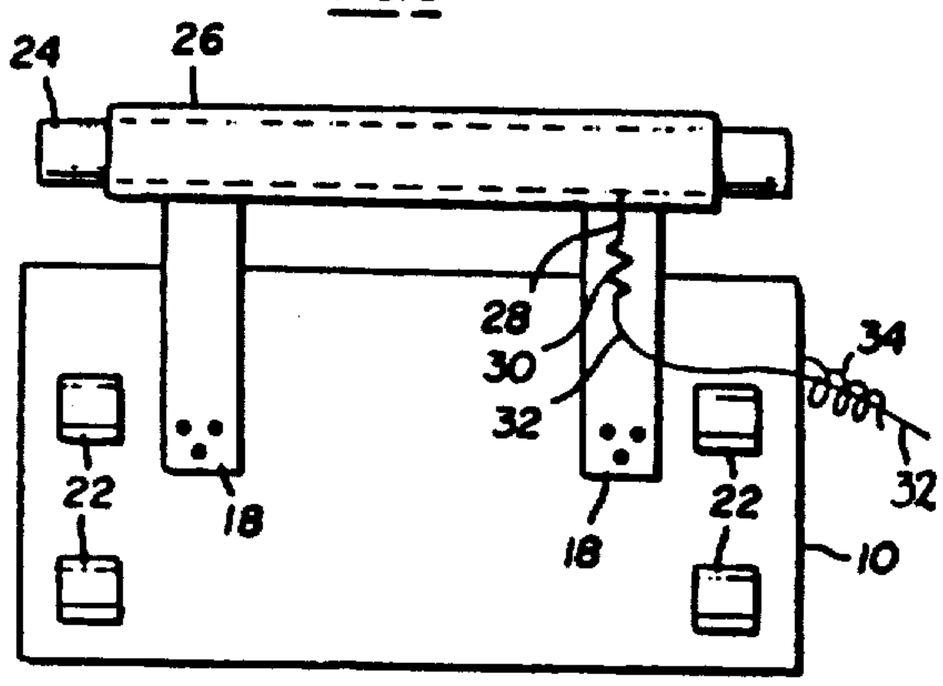


FIG. 2

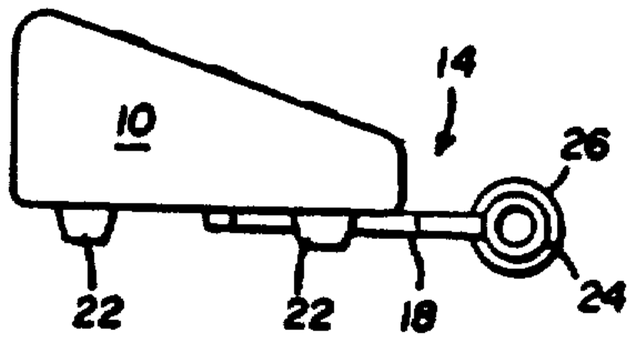
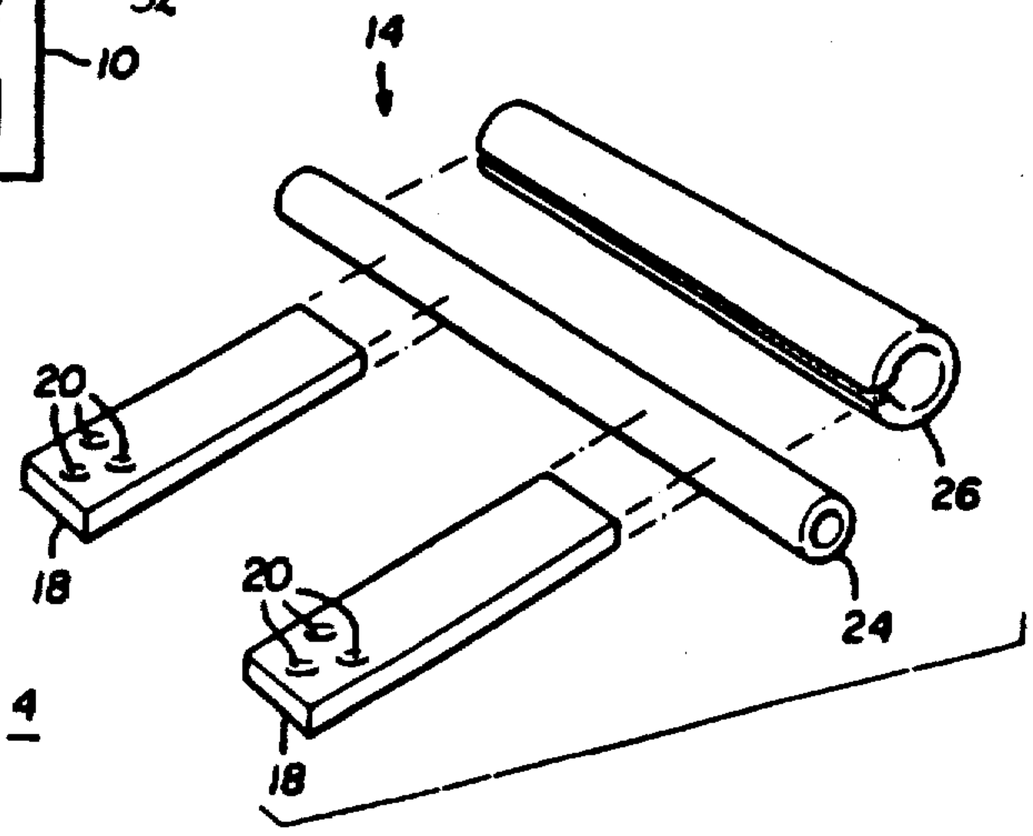


FIG. 4



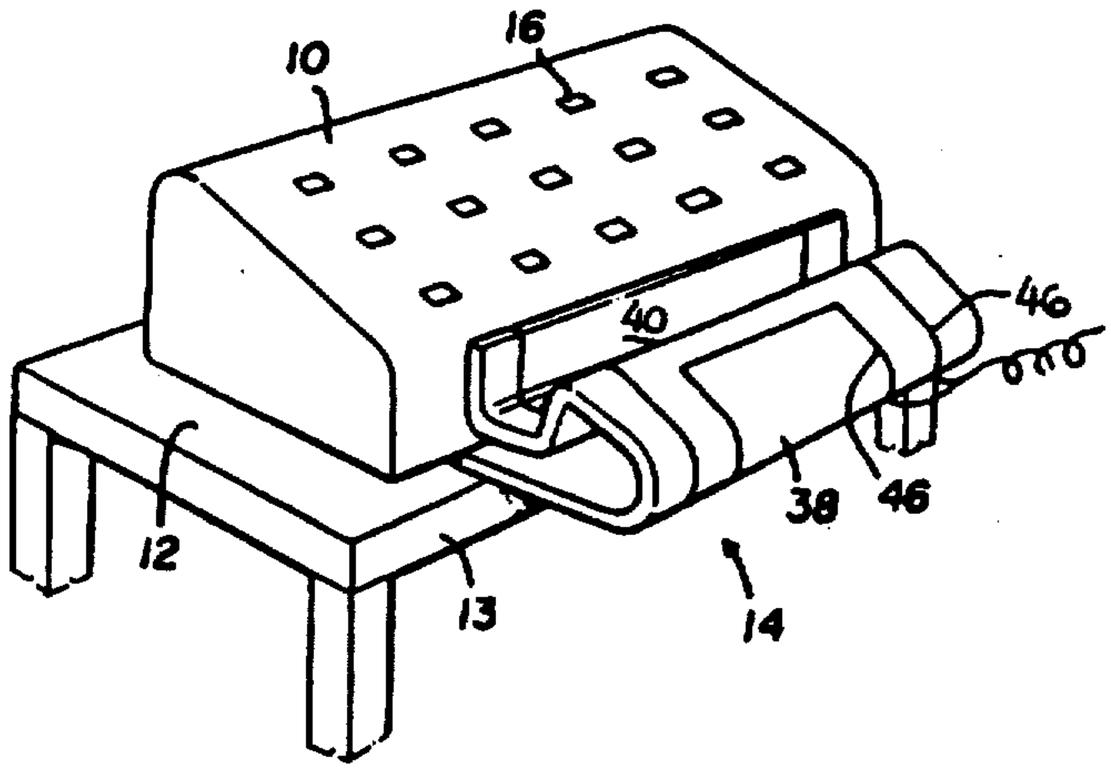
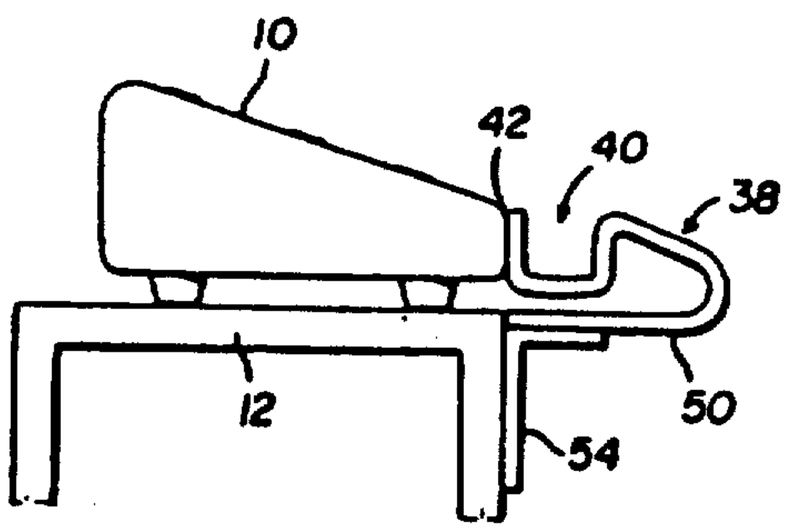


FIG. 5



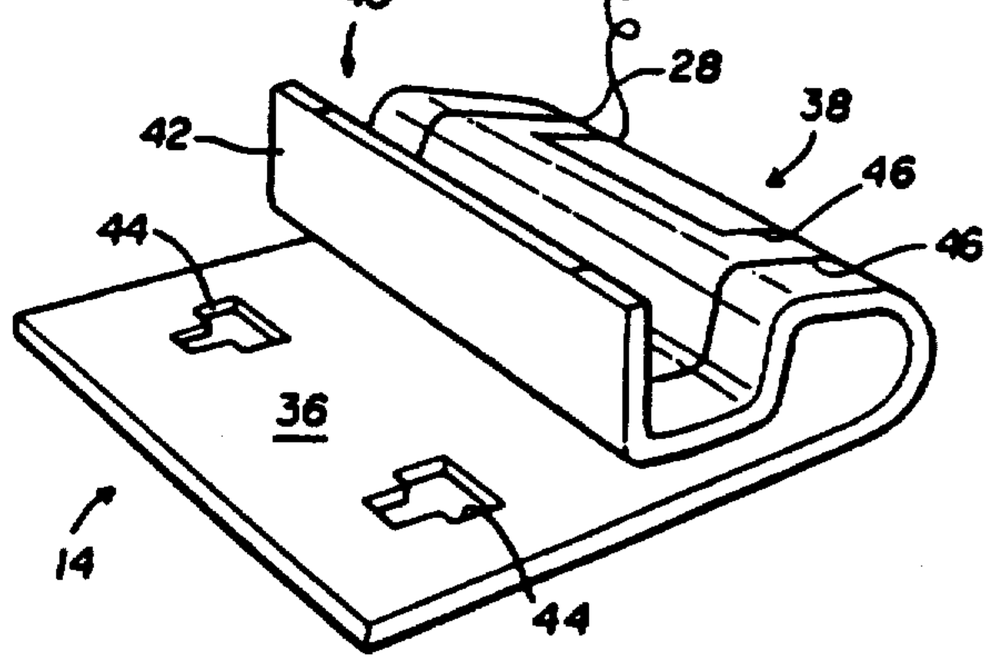


FIG. 7

FIG. 6

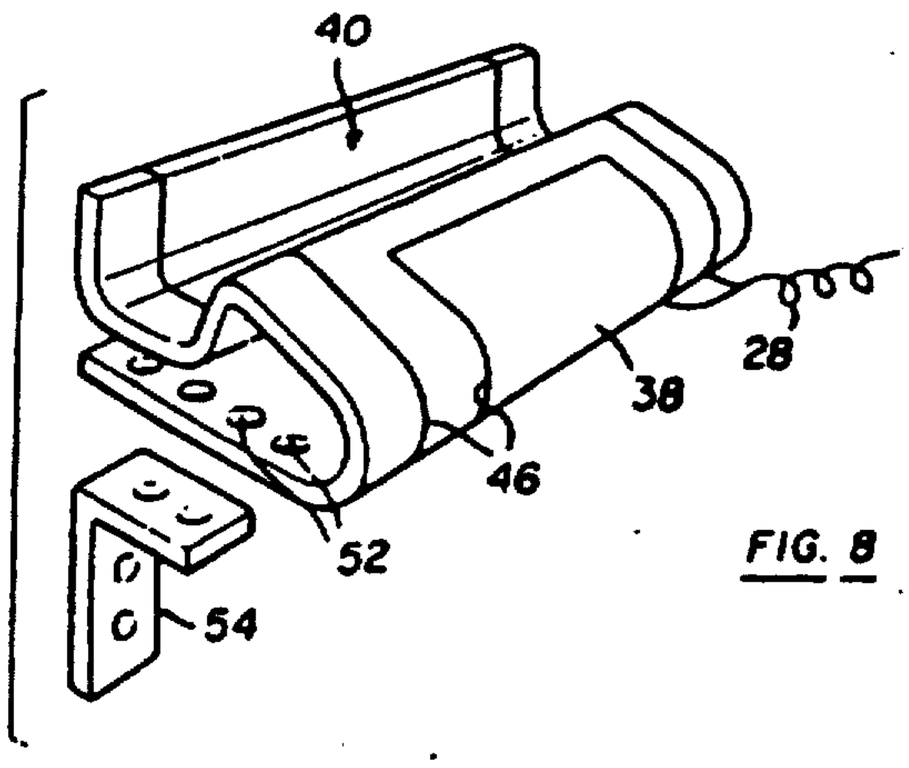


FIG. 8

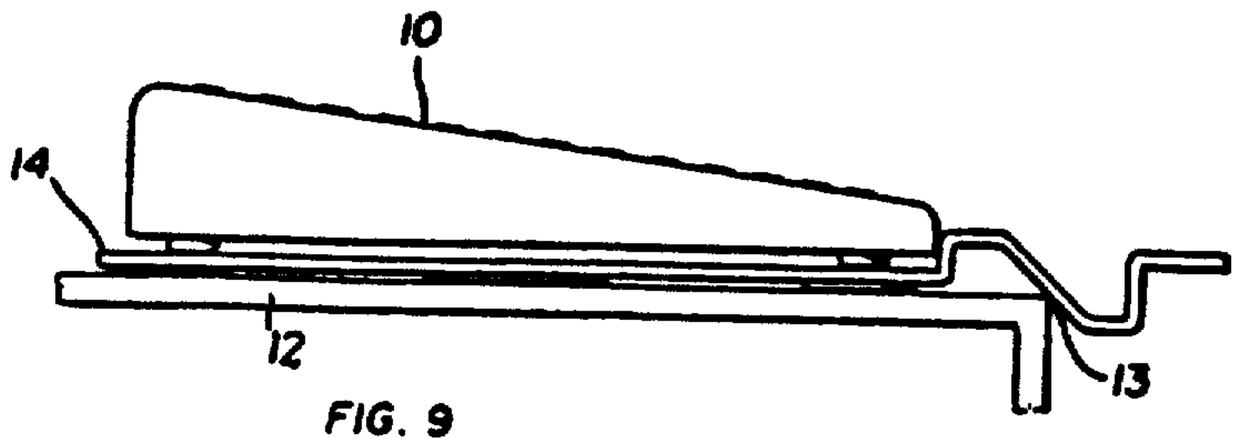


FIG. 9

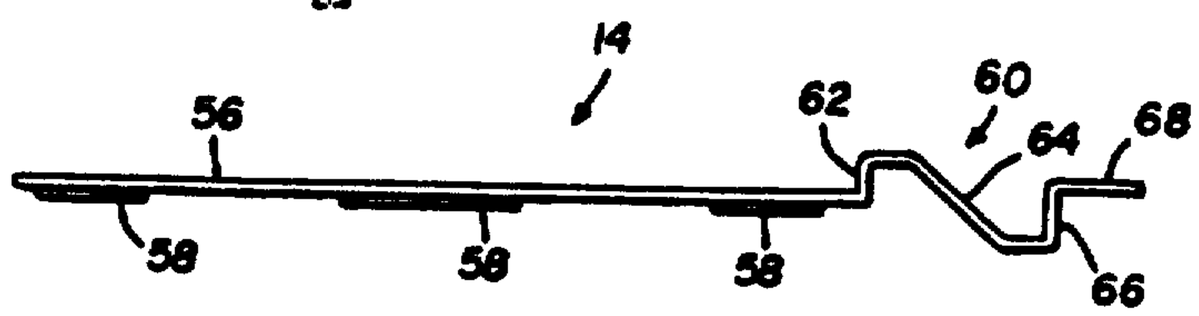


FIG. 10

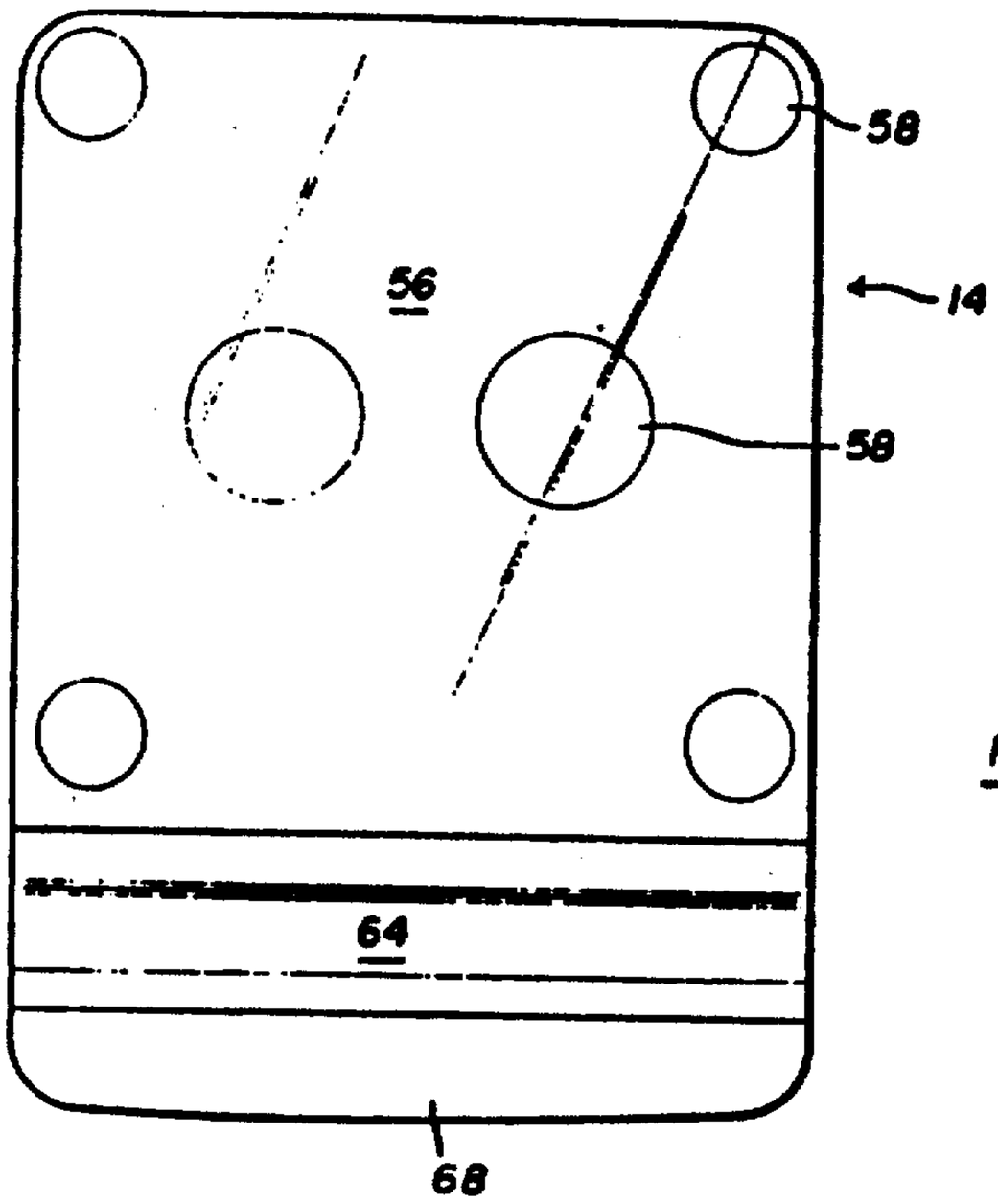


FIG. 11

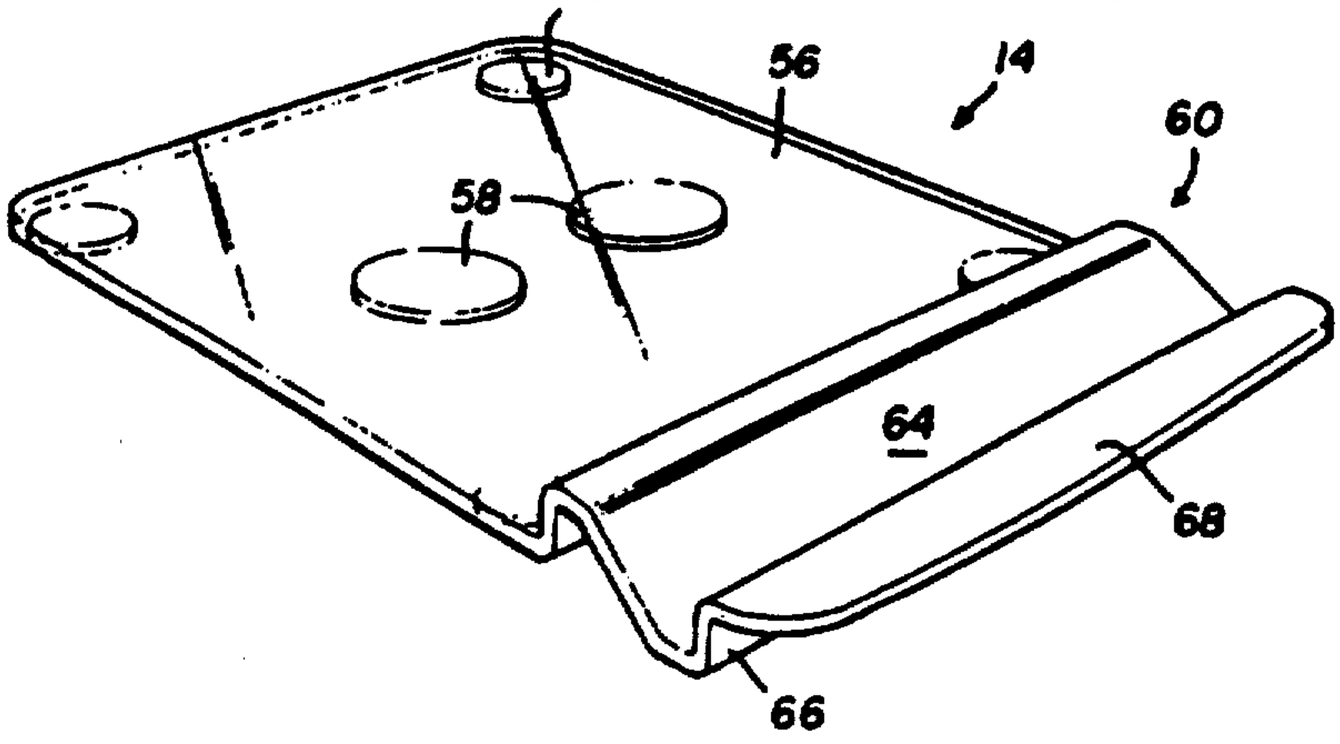


FIG. 12

COMPUTER TERMINAL SUPPORT AND HAND REST

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

CROSS REFERENCE TO RELATED APPLICATIONS

This is a division of application Ser. No. 137,808, filed Apr. 4, 1980, *now U.S. Pat. No. 4,481,556.*

BACKGROUND OF THE INVENTION

This invention relates generally to a support member to be interposed between a computer terminal, electric typewriter or other piece of office equipment and the equipment operator, and which is also interposed between a table top, desk top or the like and and the equipment.

In the use of computer terminals and other electric office equipment, there are usually time intervals when the hands of the operator are not on the keyboard such as when the operator is waiting for a command or instruction from the computer. Because the keyboards of computers are extremely sensitive to touch, it is imperative that the operator's hands be completely removed from the keyboard during these intervals.

Heretofore, it has been the practice for the computer operator's hands to be moved sufficiently far from the keyboard, such as being placed on the lap of the computer operator, as to create a substantial loss of efficiency when the computer operator's hands are then placed back on the keyboard. Prior to the present invention, there has been no suitable hand rest provided for computer terminals or other types of office equipment.

In addition, it is well known that a computer operator may develop a static charge which can cause a substantial shock when the operator touches the computer equipment. There are also instances where the draining of the static charge from the computer operator to the computer result in an erroneous response from the computer and/or damage to the computer circuitry.

Various techniques have been developed for draining the static charge from the computer operator such as a suitably grounded conductive pad on the desk top or a suitably grounded conductive pad on the floor underneath the feet of the computer operator. Most of these mechanisms are unacceptable because of their appearance and difficulty of use. The difficulty of use is that a deliberate effort must be made to touch the conductive pad prior to touching the equipment to obtain the benefit of a static discharge.

SUMMARY OF THE INVENTION

The present invention overcomes the aforementioned problems by providing an improved computer terminal support. The present invention, in certain embodiments, provide a hand rest, terminal support and electrical grounding apparatus which is complimentary to and cooperative with the keyboards and keyboard-equipped operator terminals of various types.

In addition, a preferred form of the electrical grounding apparatus is formed and positioned so that it is routinely touched or grasped by the computer operator, allowing for easy removal of any capacitively created voltages from the operator when they are generated,

while also providing for restful breaks in hand movement of the operator with minimum loss of efficiency. In addition, the computer terminal support of the present invention is adapted to be interposed between the computer terminal and the desk top to support and distribute the weight of the computer terminal and to prevent the computer terminal from skidding or moving relative to the table top.

The present invention provides a new and improved support member and, more particularly, an improved support member for a computer terminal or the like which provides a convenient resting or grasping place for the hands of the computer operator both during use of the computer and during periods of non-use thus increasing operator efficiency and decreasing operator fatigue.

Furthermore, a preferred embodiment of the present invention provides a combined hand rest and carrying handle. The handle provides added convenience where a computer terminal keyboard is a separate unit since the handle permits easy lifting, positioning and carrying of the keyboard unit.

The present invention further provides an improved computer terminal support including means to position the computer terminal relative to the desk top and to restrict movement of the computer terminal relative to the desk top.

Furthermore, the present invention provides for convenient and safe draining of static charge from the computer operator for the protection of circuits and instructions within the computer.

Finally, several embodiments of the present invention also include a trough or receptacle for the storage of pens, pencils and the like.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing objects and advantages of the present invention, together with other advantages which may be attained by its use, will become more apparent upon reading the following detailed description of the invention taken in conjunction with the drawings.

In the drawings, where like reference numerals identify corresponding components:

FIG. **1** is a perspective illustration of a computer terminal positioned on a desk top and including the preferred embodiment of the computer terminal support of the present invention;

FIG. **2** is a side elevation view of the computer terminal and computer terminal support of FIG. **1**;

FIG. **3** is a bottom view of the computer terminal and the computer terminal support of FIGS. **1** and **2**;

FIG. **4** is an exploded illustration of the preferred form of computer terminal support of the present invention;

FIG. **5** is a perspective illustration of an alternate embodiment of the computer terminal support of the present invention interposed between a computer terminal and a desk top;

FIG. **6** is a perspective illustration of the computer terminal support of FIG. **5**;

FIG. **7** is a side elevation view of a computer terminal and a desk top including another embodiment of the computer terminal support of the present invention;

FIG. **8** is an exploded perspective illustration of the computer terminal support means of FIG. **7**;

FIG. **9** is a side elevation view of a computer terminal and a desk top illustrating yet another embodiment of

the computer terminal support of the present invention interposed between the computer terminal and the desk top;

FIG. **10** is a side elevation view of the computer terminal support of FIG. **9**;

FIG. **11** is a top plan view of the computer terminal support of FIGS. **9** and **10**; and

FIG. **12** is a perspective illustration of the computer terminal support of FIGS. **9**, **10** and **11**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIGS. **1**, **2**, **3** and **4** there is illustrated a computer terminal keyboard or other type of electric office equipment **10** positioned on the top of a desk or table **12**, having a front or forward edge **13**. Interposed between the computer terminal and the desk **12** is the preferred embodiment of the computer terminal support **14** of the present invention. The computer terminal **10** may include a keyboard **16** and thus the present invention may be utilized with all types of office equipment including keyboards such as computer terminals, adding machines, typewriters and other types of word processing equipment.

With further reference to the drawings, the computer terminal support **14** of FIGS. **1–4** includes a first section which is to be interposed between the computer terminal and the desk top. This first section comprises two thin, flat elongated members **18** which may be made of a plastic material. Each of these flat members **18** includes, at a first end, a plurality of apertures **20** to receive screws therethrough so that the flat members **18** may be fastened to the underside of the computer terminal keyboard **16**. FIG. **3** illustrates these flat members **18** attached to the underside of the computer terminal keyboard **16**. The computer terminal keyboard **16** usually includes a plurality of downwardly depending feet **22** and the flat members **18** which comprise the first section of the computer terminal support are illustrated as being positioned inwardly of these feet **22**. The flat members **18** may be joined under the keyboard and may include a non-slip surface material.

The preferred embodiment of the computer terminal support also includes a second section attached to the first section **18** of the support. In the preferred embodiment this second section includes an elongated tubular member **24**, also preferably formed of plastic, around which is secured a conductive means **26**. In the preferred embodiment, the conductive means does not extend the full length of the tube **24**. Preferably the conductive means may be a conductive material such a Velcro-type loop fastening material sold under the trademark HI-MEG. HI-MEG VELCRO refers to a hook and loop type fastening medium which is electrically conductive.

As illustrated in FIG. **3**, the conductive means **26** is connected by a short length of wire **28** to a current limiting resistor **30**. The other side of the resistor **30** is connected by a wire **32** to a suitable ground to provide for static charge drain for the operator. The grounding wire **32** is shown as being separate and distinct from the computer power line **34** to indicate that the conductive means is not grounded to the keyboard circuit ground but to a primary power ground such as that found at a wall outlet. This avoids the creation of a ground loop. In a preferred embodiment the short length of wire **28** is a stranded copper wire with the strands fanned out and

secured to the conductive means **26**. The conductive means **26** is adhesively secured around the tube **24**.

In use, the support **14** of the present invention is shown as being interposed between the computer terminal keyboard and the top of a desk **12**. When an operator is sitting at the desk **12** to utilize the computer terminal keyboard, the support of the present invention is also interpese between the computer terminal operator and the computer terminal and the second section or tube **24** of the support thus provides for drain of any static charge on the computer terminal operator. In addition, the conductive means and tube provide a convenient resting place for the hands of the computer operator during periods of non-use of the computer terminal and furthermore, the wrists of the computer terminal operator may rest on the support while the operator is actually using the computer terminal keyboard. Finally, it may be appreciated that since the computer terminal support **14** is secured to the computer terminal keyboard unit, the support also functions as a handle so that the keyboard unit may be carried to other locations.

Having thus described the preferred embodiment of the present invention, reference should now had to FIGS. **5** and **6** of the drawings for an explanation of an alternate embodiment of the present invention. In FIGS. **5** and **6** the computer terminal support is illustrated as having a generally flat first section **36** which is interposed between the computer terminal **10** and the top of the desk **12**. As is the case in the embodiment of FIGS. **1–4**, the flat section of the computer terminal support of FIGS. **5** and **6** extends generally parallel to the top of the desk and inwardly of the forward edge **13** of the desk. The first or flat section also extends outwardly of the forward edge of the desk toward the computer operator.

The flat section **36** is curved back upon itself toward the computer terminal and at a slight upward incline to define a second section **38**. This second section **38** provides a rest for the hands of the computer operator during periods of non-use of the computer terminal and also a resting place for the computer terminal operator's wrists when the hands or fingers of the computer operator are on the keyboard.

The second section **38** of the computer terminal support terminates in an upwardly opening U-shaped trough **40** which provides a convenient resting place for the fingers of the computer operator during periods of non-use of the computer terminal and also provides a receptacle for pens, pencils, erasers and the like. That portion of the U-shaped trough **40** which is closest to the computer terminal is a generally vertical wall **42** against which the leading edge of the computer terminal may be aligned. In the embodiment of FIGS. **5** and **6** the flat first section **36** of the support includes a plurality of apertures **44** through which the feet **22** of the computer terminal may extend and thus be in contact with the table top. By the provision of these apertures **44**, the computer terminal is retained in a level position on the table top rather than having the front portion of the computer terminal elevated slightly because of the thickness of the flat section of the computer terminal support.

In the embodiment of FIGS. **5** and **6** conductive means **46** are provided to allow for the drain of the static charge from the computer operator. Specifically, gold plated grounding wires are embedded in the surface of the second section **38** of the computer terminal

support. These gold plated grounding wires are connected by a wire **28** to a resistor (not shown in FIGS. **5** and **6**) and then to a power ground as described with respect to the prior embodiment. The conductive material **26** of FIGS. **1–4** may be used in the embodiment of FIGS. **5** and **6** in place of the grounding wires **46**.

Referring next to FIGS. **7** and **8** yet another embodiment of the present invention is illustrated. The embodiment of FIGS. **7** and **8** provides for a relatively permanent attachment of the support **14** to the desk **12**. To accomplish this objective, the computer terminal support **14** of FIGS. **7** and **8** includes a flat first section **50** which is shorter than the corresponding flat section **36** of the embodiment of FIG. **6**. The flat first section of the computer support **14** of FIGS. **7** and **8** is also curved back upon itself on a slight upward incline to define a second section which also includes a U-shaped trough corresponding to the embodiments of FIGS. **5** and **6**. Conductive means such as the grounding wire or conductive mat may also be provided.

With respect to the embodiment of FIGS. **7** and **8**, instead of apertures for the feet of the computer terminal, the edges of the flat first section **50** are provided with a series of apertures **52** through which suitable screws may extend. Angle brackets **54** are provided and the angle brackets, which include apertures for fasteners, are secured both to the flat section **50** of the support and the front of the desk **12**.

Thus according to the embodiment of FIGS. **7** and **8**, the computer terminal support may be permanently secured to angle brackets which angle brackets in turn are permanently secured to the front of the desk **12**. In this embodiment, the front vertical wall **42** of the U-shaped trough provides a surface against which the front of the computer terminal may be aligned. That is, the computer terminal may be moved so that the front edge of the computer terminal is in abutting contact with the vertical wall **42** of the support member.

Since the terminal support may be formed by extrusion, the side-to-side width may be increased to permit a plurality of terminals to be aligned along the forward edge of a counter-type work surface.

Referring next to FIGS. **9–12**, still another embodiment of the present invention is illustrated. In the embodiment of FIGS. **9–12**, the computer terminal support **14** includes a flat first section **56** which is to be interposed between the computer terminal and the top of the desk **12**. Optionally, a plurality of pads **58** of non-marring, non-skid material such as felt may be provided on the underside of the flat section **56**. Non-skid material of the type described is commercially available with an adhesive material on one side so that such material may be adhesively secured to the computer terminal support.

The first section of the computer terminal support of FIGS. **9–12** is thereafter curved to define a second section which is of generally Z-shaped configuration and, in the preferred embodiment, is integrally formed with the first section **56**. Thus the second section **60** of the computer terminal support includes a first vertical portion **62** which extends upwardly from the plane of the flat section **56** and then curves back into an inclined portion **64**. The inclined portion **64** is angled downwardly and forwardly relative to the first flat section **56** and is thereafter curved back upwardly to form a second vertical portion **66**. The first vertical portion **62**, the inclined portion **64** and the second vertical portion **66** comprise the Z-shaped second section **60** of the computer terminal support and the first and second vertical portions are parallel to each other. The second vertical portion extends upwardly to the plane of the flat first section **56** and is then curved to extend forwardly as a horizontal extension **68** parallel to and in the same plane as the flat first section **56**.

In the embodiment of FIGS. **9–12**, the flat first section **56** of the computer terminal support is interposed between the computer terminal **10** and the top of the desk **12**. The front edge of the computer terminal may be abutted against the first vertical portion **62** of the computer terminal support. The entire computer terminal support may be moved so that the forward corner **13** of the desk **12** abuts and aligns against the underside of the inclined portion **64**. Thus the inclined portion **64** provides a positive stop for aligning the support relative to the desk **12**. The hands of the computer terminal operator may be rested either on the horizontal extension **68** or alternatively at the intersection of the inclined portion and the first vertical portion. Furthermore, the area between the inclined portion **64** and the second vertical portion **66** provides a trough for storage of pens, pencils, erasers and the like. The upper surface of portion **64** and extension **68** may carry conductive means such as the grounding wires or means **26** as previously described.

The foregoing is a complete explanation of the various embodiments of the present invention. In the embodiments of FIGS. **1–4**, the flat section as well as the second section including the tube **24** may be integrally formed of plastic, acrylic, plexiglass, polypropylene or similar material or may optionally be formed as separate members secured together. In the embodiments of FIGS. **5–12** it is preferred that the computer terminal support be formed as a unitary integral structure of plastic, acrylic, plexiglass, polypropylene or similar material. However, it must be appreciated that the various sections may be separately made. In any event, it is preferred that where the flat first section and the second section meet, there be a suitable curving rather than a sharp edge and similarly the Z-shaped portion of the embodiment of FIGS. **9–12** should be suitably curved or rounded rather than sharp edges to ensure operator safety.

Furthermore, in all embodiments, conductive means of either wire or conductive mat-like material may be used. In all embodiments where the support rests on the desk top, non-marring, non-skid pads may be used.

It should thus be appreciated that many changes may be made without departing from the spirit and scope of the present invention. The present invention, therefore, should be limited only by the following claims.

What is claimed is:

1. A computer terminal, [keyboard or the like,] and a computer terminal support adapted to be placed on a desk top [or the like,] the desk top being of the type having a generally flat upper surface terminating in a forward edge, the computer terminal support comprising:

a first generally flat section to be interposed between the desk top and the computer terminal, said first generally flat section adapted to extend generally parallel to the desk top essentially the same width as the computer terminal; and

a second section [attached] *immovably fixed relative* to said first section, said second section adapted to be interposed between the computer terminal and a

computer terminal operator in close proximity to the computer terminal;

said second section extending side-to-side an amount generally the same as the width of the computer terminal;

said second section being at least partly positioned in a plane different from the plane of said first generally flat section.

2. The invention as defined in claim 1 wherein said second section includes an elongated tubular member.

3. The invention as defined in claim 1 wherein said first section and said second section are integrally formed.

4. The invention as defined in claim 1 wherein said first section and said second section are attached to the computer terminal.

5. The invention as defined in claim 1 wherein said first section includes a pair of parallel spaced apart members each of which is secured to said second section.

6. The invention as defined in claim 1 wherein said first generally flat section extends outwardly of said desk top forward edge.

7. The invention as defined in claim 1 wherein said computer terminal has a plurality of feet depending downwardly from the bottom thereof and said computer terminal support includes apertures therethrough so that the computer terminal feet extend through said apertures thereby maintaining the computer terminal level relative to the generally flat upper surface of the desk top.

8. The invention as defined in claim 1 wherein said second section includes a U-shaped member, said U-shaped member including first and second portions interconnected by an intermediate portion.

9. The invention as defined in claim 1 wherein said first generally flat section is secured to said computer terminal.

10. The invention as defined in claim 1 wherein said second section includes a stop member against which the front of said computer terminal may be aligned.

11. The invention as defined in claim 1 wherein said second section includes a trough for the storage of pens, pencils, erasers and the like.

12. The invention as defined in claim 1 wherein said second section includes a generally Z-shaped member including first and second generally parallel portions interconnected by an inclined portion.

13. The invention as defined in claim 1 wherein said second section includes a bulbous portion for supporting the hands of a computer terminal operator.

14. The invention as defined in claim 1 wherein said second section extends vertically upwardly from said first section.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : **RE 33,556**
DATED : **March 19, 1991**
INVENTOR(S) : **Joseph J. Berke**

It is certified that error appears in the above-indentified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, Item [56] Other Publications insert --The Writing Machine, Michael H. Adler, pp.176 and 254--.

Signed and Sealed this

Fourth Day of January, 1994

Attest:

Attesting Officer

BRUCE LEHMAN

Commissioner of Patents and Trademarks