

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 58

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte VPL Research, Inc.

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Appeal No. 97-3827  
Reexamination No. 90/003,122  
Patent No. 4,988,981<sup>1</sup>

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HEARD: March 2, 1998

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Before KRASS, LEE and CARMICHAEL, Administrative Patent Judges.

LEE, Administrative Patent Judge.

**DECISION ON APPEAL**

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<sup>1</sup> Order for reexamination initiated on September 10, 1993, by grant of request for reexamination of the claims of Patent No. 4,988,981, issued January 29, 1991, on application 07/317,107, filed February 28, 1989, entitled "COMPUTER DATA ENTRY AND MANIPULATION APPARATUS AND METHOD," which is a continuation of 07/026,930, filed March 17, 1987, now abandoned.

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This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-82 in the patent being reexamined. The original patent contained claims 1-66.

**The References Relied on by the Examiner**

Grimes 1983	4,414,537	Nov. 8,
Zimmerman 17, 1985	4,542,291	Sep.
King et al. (King) 1986	4,565,999	Jan. 21,
Mori 28, 1988	4,754,268	Jun.
		(filed Aug. 23, 1985)
Milner 1989	4,862,152	Aug. 29,
		(filed Jan. 25, 1985)
Kilpatrick, "The Use of a Kinesthetic Supplement in an Interactive Graphics System," <u>Universal Microfilm International (UMI)</u> , Catalog No.7702061, Iss. 37, Vol. 8B, 1977.		

**The Rejections on Appeal**

Claims 67-74 and 76 stand finally rejected under 35 U.S.C. § 305 as enlarging the scope of the patented invention during reexamination.

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Claims 67-74 and 76 stand finally rejected under 35 U.S.C.

§ 112, first paragraph, as being without adequate written description in the specification.

Claims 67-74 and 76 stand finally rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 13-19, 24-54, 61-74, 76-78 and 80-82 stand finally rejected under 35 U.S.C. § 102(b) as being anticipated by Kilpatrick.

Claims 67-74 and 76 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman and Grimes.

Claims 2-7 and 9 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman and Milner.

Claim 11 stands finally rejected under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman and Mori.

Claim 12 stands finally rejected under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman and King.

In the examiner's answer on page 15, it is stated that claims 1-12, 20-23, 55-60, 75 and 79 are finally rejected

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under 35 U.S.C. § 103 as being unpatentable over Kilpatrick and Zimmerman. However, in the supplemental examiner's answer (Paper No. 37), the same ground of rejection is reiterated on pages 15-16 but only claims 1, 8, 10, 20-23, 55-60, 75 and 79 are included in the rejection. Accordingly, we assume that the later stated rejection superseded the earlier one, and only claims 1, 8, 10, 20-23, 55-60, 75 and 79 are rejected on this ground.

#### **The Invention**

The invention is directed to a computer data entry or manipulation apparatus which controls a computer display. The gestures or flexures of a part of the user's body is sensed and communicated to the computer which uses the sensed information to display a cursor emulating the position and gestures of the user's body part to provide interaction between the user and a program.

The independent claims are claims 1, 13, 26, 46 and 67-74. Some claims specify the user's hand as the part of the user's body and the flexure of fingers as the movements emulated by the cursor being displayed.

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Claims 1, 13 and 26 are reproduced below:

1. Apparatus for interacting with a computer program comprising:

display means connected to the computer for displaying objects on a screen;

glove means adapted to be worn on a hand of a user, the glove means including gesture sensing means coupled to the glove means for detecting flexure of fingers of the user's hand, and position sensing means coupled to the glove means for detecting a position of the hand with respect to the display means;

interface means for coupling the glove means to the computer; and

control means for controlling a cursor indicated on the display means in response to and emulating the flexure of fingers and the position of the hand, the cursor being capable of interactivity acting upon a virtual object represented within the computer to allow communication and interaction between the user and the program.

13. An apparatus for controlling a computer display of the type having a virtual object depicted thereon that is used for communicating and interacting with a computer program comprising:

flex sensing means disposed in close proximity to a part of the body of the user, for sensing flexure of the associated part of the body of the user; and

cursor display means, coupled to the flex sensing means and to the computer display, for displaying a cursor emulating the flexure of the part of the body, the cursor being capable of interactivity acting upon the virtual object to allow communication and interaction between the user and the computer program.

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26. An apparatus for interacting with a virtual object represented within a computer, the virtual object being used for communicating and interacting with a computer program, comprising:

position sensing means, disposed in close proximity to a part of a body of a user and for movement therewith, for sensing the position of the associated part of the body of the user with respect to the computer;

flex sensing means, disposed in close proximity to a part of the user's body for movement therewith, for sensing flexure of the associated part of the user's body;

interface means for coupling the position sensing means and the flex sensing means to the computer and for controlling movement of a cursor represented within the computer in response to the position sensing means and the flex sensing means, the cursor emulating the position and flexure of the part of the user's body for interactivity acting upon the virtual object to allow communication and interaction between the user and the program; and

wherein the computer includes contact detecting means for detecting contact between the cursor and the virtual object.

### Opinion

#### The rejection under 35 U.S.C. § 305

Under 35 U.S.C. § 305, no proposed amended or new claim enlarging the scope of a claim of the patent is permitted. We look at original patent claim 1 for purposes of making this

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comparison, because the newly added claims most closely resemble the language and format of original patent claim 1.

Original patent claim 1 is reproduced below:

1. Apparatus for interacting with a computer program comprising:

display means connected to the computer for displaying objects on a screen;

glove means adapted to be worn on a hand of a user, the glove means including gesture sensing means coupled to the glove means for detecting flexure of fingers of the user's hand, and position sensing means coupled to the glove means for detecting a position of the hand with respect to the display means;

interface means for coupling the glove means to the computer; and

control means for controlling a cursor indicated on the display means in response to and emulating the flexure of fingers and the position of the hand, the cursor being capable of interactivity acting upon a virtual object represented within the computer to allow communication and interaction between the user and the program.

None of the newly added claims 67-74 and 76 is limited to detecting and emulating the flexure of the **fingers** of the user's hand. Instead, claims 67 and 68 refer to detecting and emulating gestures of the user's hand; claims 69-74 refer to sensing and emulating gestures of an associated part of the user's body;

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claim 76 refers to sensing the flexure of a part of the body and emulating the gestures of that part of the body.

The issue is not whether "gesture" is more specific than "flexure," as the appellants' brief apparently would have it, but whether "gestures" of a part of the user's body is broader than "flexure of fingers." At oral argument, counsel for the appellant readily admitted that it is and that he has no viable argument to say that the claims rejected under 35 U.S.C. § 305 are in fact not broader than original patent claim 1 which requires flexure of the fingers.

While some of the other original patent claims do not require sensing and emulating of the "flexure of fingers," the rejected claims are still nonetheless broader than original patent claim 1. In our view, that is sufficient to sustain a rejection made under 35 U.S.C. § 305 which prohibits the presenting of an amended or new claim enlarging the scope "of **a claim** of a patent." The idea is that claims may be amended or added during reexamination to distinguish the claimed subject matter from the applied prior art. See 35 U.S.C. § 305.

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In any event, the appellants have not pointed to any original patent claim which is broader in scope than the claims now rejected under 35 U.S.C. § 305. Note also that at oral argument, appellants' counsel could not refute that those original patent claims which do not require sensing and emulating of the flexure of fingers nonetheless contain some other features or elements which are not recited in the now rejected claims. As is indicated in In re Freeman, 30 F.3d 1459, 1464, 31 USPQ2d 1444, 1447 (Fed. Cir. 1994), an amended or new claim has been enlarged if it includes within its scope any subject matter that would not have infringed the original patent. By not requiring every single feature or element of an original patent claim, an amended or new claim would, by definition, cover some structure which would not have infringed the original patent claim. Thus, a claim is broader than another if it is broader in any respect, notwithstanding that it may be narrower in part.

Additionally, it is noted that newly added independent claims 68, 70, 72 and 74 are not recited in means-plus-function format like the original patent claims. In that

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connection, these new claims are broader because they are not limited to the corresponding structures, materials, and acts disclosed in the specification and equivalents thereof for various functional features.

For the foregoing reasons, the rejection of claims 67-74 and 76 under 35 U.S.C. § 305 is sustained.

The rejection of claims 67-74 and 76 under 35 U.S.C. § 112, 1st ¶ as lacking written description

The examiner states (answer at 4) that in the specification as originally filed, the meaning of the term "gesture" has not been clearly defined and therefor it cannot be determined from the specification what is the meaning or scope of the term gesture in the claims. The examiner's position is misplaced.

There is no requirement in patent law that there be an explicit definition or any definition at all in the specification for each term used in the claims. Unless a special definition for a claim term is contained in the specification through which the inventor becomes his own lexicographer, the ordinary meaning of the term in the English

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language is applied. On this record, the appellants have not at any time urged that the term "gesture" in the claims or in the specification has any meaning other than or contrary to its ordinary meaning in the English language. Thus, the examiner's search for a special definition in the specification is entirely misplaced.

Moreover, the written description requirement does not concern whether there is a clear meaning for any claim term. Rather, the written description requirement merely requires the specification to convey with reasonable clarity to those with ordinary skill in the art that, as of the filing date sought, the applicant was in possession of the claimed invention. Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed. Cir. 1991); In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983); In re Smythe, 480 F.2d 1376, 1382, 178 USPQ 279, 284 (CCPA 1973).

The pertinent issue is whether the specification reasonably conveys to the artisan that the inventor had possession at the time of the later claimed subject matter. Ralston Purina Co. v. Far-Mar-Co., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985). The function of the written

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description requirement is to ensure that the inventor had possession, as of the filing date of the application relied on, of the specific subject matter later claimed. In re Wertheim, 541 F.2d 257, 265, 191 USPQ 90, 98 (CCPA 1976).

The examiner has not articulated any basis to doubt that the appellants at the time of filing of the original patent application did not have possession of that aspect of the claimed invention which senses or detects the gesture of a part of the user's body such as the hand for providing a cursor on display which emulates the same. Whatever the term "gesture" means, it has the same meaning in the original specification as it has in the amended or added claims. No new matter has been added. The original specification discusses "gesture" on the part of the user and examples of what gestures are detected and emulated on a computer display. On the bottom of page 2 to the top of page 3, the original specification discusses gesture specifying movements of the hand. The Field Of The Invention section of the original specification states:

This invention relates generally to the field of devices for data entry and manipulation in computers, and relates more particularly to an

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apparatus and method for entering data into a computer and manipulating virtual objects defined by the computer based on the gestures and positions of the hand, or other parts of the body, of an operator. (Emphasis added.)

The original Abstract begins with the following description:

Apparatus is disclosed for generating control signals for the manipulation of virtual objects in a computer system according to the gestures and positions of an operator's hand or other body part. (Emphasis added.)

Thus, detecting and emulating gesture is not without original written description in the specification under 35 U.S.C. § 112, first paragraph. It cannot be reasonably disputed that the inventors contemplated the sensing and emulation of the gestures of a user's body part at the time of filing the application.

Accordingly, the rejection of claims 67-74 and 76 under 35 U.S.C. § 112, first paragraph, as being without written description in the specification is not sustained.

The rejection of claims 67-74 and 76 under 35 U.S.C. § 112, second paragraph as indefinite

The examiner contends that the meaning of "gesture" is indefinite. The examiner states (answer at 5) that according to the original specification, the word "gesture" has the

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meaning of "flexure of fingers," but now as explained by the appellants, the word "gesture" has a broader meaning than that. The examiner states that it is confusing what is the meaning of "gesture."

As for claim 76, the examiner points out that "the gestures" is without any antecedent basis in independent claim 13.

Our reading of the original specification does not reveal that the appellants have specifically limited "gestures" to mean only flexing of the fingers. Rather, flexing of the fingers is merely an example of what constitutes a gesture of the user's hand. See column 2, lines 1-3 of the patent. There is nothing confusing about the term "gesture," it is merely broad. Breadth does not equate to indefiniteness under 35 U.S.C. § 112, second paragraph. In re Miller, 441 F.2d 689, 693, 169 USPQ 597, 600 (CCPA 1971); In re Gardner, 427 F.2d 786, 788, 166 USPQ 138, 140 (CCPA 1970).

Claim 76, however, is indeed indefinite. It refers to a cursor "directly emulating the gestures of the part of the body," while claim 13, the independent claim from which it

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depends, refers to "flexure" of the associated part of the body and has no reference to gestures. It is quite reasonably questionable whether the gestures mentioned in claim 76 are strictly limited to the flexures identified in independent claim 13. From that perspective, the claimed subject matter is indefinite and not merely broad.

Accordingly, the rejection of claims 64-74 under 35 U.S.C. § 112, second paragraph, as being indefinite is not sustained, but the rejection of claim 76 under 35 U.S.C. § 112, second paragraph, is sustained.

The rejection of claims 13-19, 24-54, 61-74, 76-78 and 80-82 under 35 U.S.C. § 102(b) as being anticipated by Kilpatrick

Anticipation is established only when a single prior art reference discloses, either expressly or under the principles of inherency, each and every element of the claimed invention. In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). See also

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In re King, 801 F.2d 1324, 1326, 231 USPQ 136, 138 (Fed. Cir. 1986); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984).

The appellants are correct that each feature expressed in means-plus-function format under 35 U.S.C. § 112, sixth paragraph, must be construed to cover the corresponding structure, material, or acts disclosed in the specification and equivalents thereof. In re Donaldson Co., 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994) (in banc). "[T]he 'broadest reasonable interpretation' that an examiner may give means-plus-function language is that statutorily mandated in [35 U.S.C.] paragraph six." In re Donaldson, 16 F.3d at 1194-95, 29 USPQ2d at 1850. By definition, structures disclosed in the specification are properly read into the claims, when interpreting means-plus-function limitations.

The examiner erred by not interpreting the various means-plus-function limitations as covering the correspondingly disclosed structure, material, or acts, and equivalents thereof.

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No attempt was made by the examiner to address how the appellants' disclosed structures which support free, unfettered, and natural hand movements in providing computer inputs and cursor emulation of such free and unfettered motion would find equivalency in Kilpatrick's bulky mechanical interface, i.e., a master manipulator arm which a user must grasp and manipulate, and displayed tongs. We agree with the appellants that the examiner has failed to show the presence in Kilpatrick of the appellants' claimed flex sensing means, orientation sensing means, position sensing means, and display means required by the appellants' claims.

Four claims, however, do not recite the various features in means-plus-function format. They are claims 68, 70, 72 and 74. Claim 68 recites a glove adapted to be worn on the hand of a user, and a sensor coupled to the glove for detecting a position of the hand with respect to the computer display. Kilpatrick discloses neither a glove nor a sensor which detects a position of the user's hand relative to the display, not to mention such a sensor coupled to the glove. Accordingly, Kilpatrick cannot anticipate claim 68.

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The appellants, however, have demonstrated no error with the examiner's finding that claims 70, 72 and 74 are anticipated by Kilpatrick. In that regard, we consider only the appellants' arguments presented in their briefs.

With regard to claim 70, the appellants argue (Br. at 37) that Kilpatrick discloses no gesture sensor disposed in close proximity to a part of the body of the user or a cursor controller that emulates gestures of a body part. The argument is without merit.

Kilpatrick's handgrip on the master manipulator arm is reasonably deemed a gesture sensor. It is disposed in close proximity to the user's hand and senses certain gestures stemming from the user's hand. The claim does not require the sensor to be very sophisticated so as to sense a whole complete range of motions from the user's hand. A sensing of only limited gestures is sufficient to meet the claim. Also, the simulated virtual tong on the computer display constitutes a cursor which emulates the user's gestures, albeit a very limited range of gestures.

The term "gesture" is a broad term and can be met by any motion that is intended to have a meaningful purpose. It

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cannot be reasonably disputed that movements in manipulating the handgrip constitutes gestures. It cannot be reasonably disputed that the handgrip is a major part of the sensor even though remotely positioned servomotors also interpret the user's hand motion. It also cannot be disputed that the virtual tong turns, moves, opens and closes in emulation of the user's hand grasping the handgrip.

The appellants argue that the appellants' sensor and cursor controller are superior to Kilpatrick's mechanical system. However, the claim does not require the best sensor or emulation or even a superior sensor and cursor control than that disclosed in Kilpatrick. Note that claim 70 does not recite the features at issue in means-plus-function language.

With respect to claim 72, the appellants argue (Br. at 38-39) that Kilpatrick discloses no position or gesture sensors which are disposed in close proximity to a part of the user's body for movement therewith. Also, the appellants argue that Kilpatrick discloses no interface which connects position and gesture sensors to a computer and which controls a cursor which emulates the position and gestures of a body

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part. These are essentially the same arguments the appellants advanced in the context of claim 70 and have all been discussed above. Specifically, the handgrip is a sensor disposed in close proximity to the user's hand. The computer receives signals sensed through the handgrip and manipulator arm. The virtual tongs on the computer display constitute a cursor that emulates the limited motions of the user's hand acting on the handgrip of the manipulator arm. Nothing in the claims requires more sophistication or wider range of emulation than that.

With respect to claim 74, the appellants advance (Br. at 40-41) the same arguments as those presented for claims 70 and 72, which have been discussed above. Additionally, the appellants argue that Kilpatrick does not disclose an orientation sensor disposed in close proximity to a body part of the user or emulation by a cursor of the orientation of the user's body part. The argument is rejected. As can be seen in Kilpatrick's Figures 2.6 and 2.7, the orientation of the virtual tongs on display is controlled by or follows the user's hand gestures acting on the handgrip of the manipulator arm. Accordingly, the handgrip and associated apparatus

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constitute an orientation sensing means and the cursor does indeed emulate the orientation of the user's hand acting on the handgrip of the manipulator arm. Figure 2.1 of Kilpatrick illustrates three axis of permissible motion for the manipulator arm.

For the foregoing reasons, we sustain the rejection of claims 70, 72 and 74 as being anticipated by Kilpatrick, but do not sustain the rejection of claims 13-19, 24-54, 61-67, 69, 71, 73, 76-78, 80-82, and 68 as being anticipated by Kilpatrick.

The obviousness rejection of claims 1, 8, 10, 20-23, 55-60, 75 and 79 over Kilpatrick and Zimmerman

At the outset, it should be noted that all of these claims recite the sensing and emulating features in means-plus-function format. Accordingly, the applied prior art must reasonably suggest at least an equivalent of the appellants' disclosed embodiments for the various sensing and emulating means.

In the appellants' disclosure, the flexing of the user's fingers is sensed and emulated on screen to permit complete, unfettered, and natural movements of the hand, including the

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flexing of fingers, to be emulated on screen. On the other hand, Kilpatrick's virtual tongs do not and are incapable of such emulation and the handgrip of Kilpatrick is equally incapable of sensing the variety of gestures of the hand equivalent to the appellants' disclosed embodiments. Kilpatrick would not have inspired any desire by one with ordinary skill in the art to have emulated on a computer screen the unfettered and natural gestures of a user's hand or other body part, separate from its engagement with a mechanical interface.

Zimmerman discloses an input device in the form of a glove means to support complete, unfettered, and natural movements of the user's hand to be used to generate input signals. In Zimmerman, it is stated that the device can be used for remote control and man-to-machine interface (column 3, lines 23-25).

However, as in the case of Kilpatrick, that alone would not have reasonably suggested emulation of the unfettered and natural movements of the user's hand as a cursor on a computer display.

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A combination of Kilpatrick and Zimmerman also would not have suggested the specific sensing and emulation required by these claims. The combination would not have suggested how Zimmerman's input glove means can be used to manipulate Kilpatrick's virtual tongs without the presence of Kilpatrick's mechanical manipulator arm. Also, even if the Zimmerman's glove means is used in Kilpatrick in place of the manipulator arm, Kilpatrick's virtual tongs are incapable of emulating user's hand motion in the same way or to the same extent appellants' cursor does in the appellants' disclosed embodiments.

We reject the appellants' arguments focusing on the undeniable fact that using Zimmerman's glove means as an input device in Kilpatrick's system would make unattainable Kilpatrick's specific objective of providing force feedback to the user to help enhance the feel of manipulating objects on screen. It is irrefutable that the concept of free and unconstrained motions contemplated by Zimmerman is not consistent with the objective of Kilpatrick. However, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the

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structure of the primary reference, or that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981); In re Wood, 599 F.2d 1032, 1036-37, 202 USPQ 171, 174 (CCPA 1979).

A reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect. EWP Corp. v. Reliance Universal Inc., 755 F.2d 898, 907, 225 USPQ 20, 25 (Fed. Cir.), cert. denied, 474 U.S. 843 (1985). Kilpatrick must be evaluated for all its teachings and is not limited to its specific embodiments. See, e.g., In re Bode, 550 F.2d 656, 661, 193 USPQ 12, 17 (CCPA 1977); In re Snow, 471 F.2d 1400, 1403, 176 USPQ 328, 329 (CCPA 1973). One with ordinary skill in the art, in light of Kilpatrick, would find it desirable to move virtual objects on screen and to have a moveable cursor which is

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controlled by movements of a user's hand. In that manner, there is nothing inconsistent about combining the teachings of Kilpatrick and Zimmerman.

Nevertheless, despite our rejecting the appellants' argument asserting non-combinability of the teachings of Kilpatrick and Zimmerman, the combined teachings of Kilpatrick and Zimmerman are insufficient to suggest the detailed gesture sensing and emulation aspects of the claimed invention, as we have already discussed.

For the foregoing reasons, we do not sustain the rejection of claims 1, 8, 10, 20-23, 55-60, 75 and 79 as being unpatentable over Kilpatrick and Zimmerman.

The rejection of claims 67-74 and 76 as being unpatentable over Kilpatrick, Zimmerman and Grimes

Of these claims, claims 67, 69, 71, 73 and 76 recite various features in means-plus-function format. Grimes merely discloses a glove means through which gestures may be detected to input electrical signals representing alpha-numeric characters. It does not make up for the deficiency of Kilpatrick and Zimmerman already discussed above with regard

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to having a cursor which emulates the natural, complete and unfettered motion of the user's hand or other body part. Accordingly, we do not sustain the rejection of claims 67, 69, 71, 73 and 76 over Kilpatrick, Zimmerman and Grimes.

That leaves claims 68, 70, 72 and 74. We have already sustained the rejection of claims 70, 72 and 74 as being anticipated by Kilpatrick. We sustain the obviousness rejection of these same claims over Kilpatrick, Zimmerman, and Grimes for substantially the same reasons we sustained the anticipation rejection of these claims. Zimmerman and Grimes do not meaningfully add to Kilpatrick which alone is sufficient to anticipate these claims. The appellants simply read too much into these claims which do not recite their various features in means-plus-function format. In short, Kilpatrick's handgrip and associated apparatus reasonably constitute or suggest a sensor detecting the orientation and gestures of the user's hand, and Kilpatrick's virtual tongs reasonably constitute a display cursor which emulates the gestures and orientation of the user's hand. The claims do not require any more sophisticated

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level of sensing gestures or any more detailed level of emulation.

For the foregoing reasons, we sustain the rejection of claims 70, 72 and 74 as being unpatentable over Kilpatrick, Zimmerman and Grimes.

Claim 68 is different in that it recites a glove adapted to be worn on the hand of a user and a sensor coupled to the glove. While Zimmerman discloses such a glove and sensor for remote control and man-to-machine interface, we have discussed above how the teaching of Zimmerman is not reasonably combinable with that of Kilpatrick. The same is true of Grimes and Kilpatrick. In short, the glove interface of Zimmerman and Grimes are not compatible with and cannot be readily incorporated for use with Kilpatrick's manipulator arm. Accordingly, we do not sustain the rejection of claim 68 as being unpatentable over Kilpatrick, Zimmerman, and Grimes.

Additional rejections based in part on Kilpatrick and Zimmerman

Claims 2-7 and 9 stand rejected as being unpatentable over Kilpatrick, Zimmerman and Milner. Claim 2 depends from claim 1 and further recites a transmitting means affixed to

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the glove for transmitting position signals to a receiving means disposed about the display means in close proximity thereto. Claims 3-7 and 9 ultimately depend from claim 2 and thus include all features of claim 2. Milner has been relied on by the examiner (Paper No. 37, at 18-19) for its teachings of a handheld positioning device which transmits ultrasonic signals to a receiver disposed about a computer display. In light of Zimmerman's teachings of a glove means worn by the hand of a user for remote control and man-to-machine interface, we agree with the examiner that it would have been obvious to one with ordinary skill in the art to incorporate Milner's position transmitter in Zimmerman's glove means.

However, Milner does not make up for the deficiencies of Kilpatrick and Zimmerman with regard to the features of claim 1 from which claim 2 depends. Milner would not have reasonably suggested sensing of the unfettered and natural movements of the hand and emulation of the same on a computer display. Accordingly, we do not sustain the rejection of claims 2-7 and 9 as being unpatentable over Kilpatrick, Zimmerman and Milner.

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Claim 11 stands rejected as being unpatentable over Kilpatrick, Zimmerman and Mori. Claim 11 depends from claim 1 and further recites an electromagnetic transmitter connecting the glove means to the computer. Mori has been relied on by the examiner (Paper No. 37, page 19) for its teachings of a wireless mouse control device for controlling the positioning of a cursor on display. We agree with the examiner that in light of Mori, it would have been obvious to one with ordinary skill in the art to use an electromagnetic transmitter such as wireless communication between Zimmerman's glove means and the computer. However, as is the case with Milner, Mori does not make up for the deficiencies of Kilpatrick and Zimmerman with regard to the features of claim 1 from which claim 11 depends. Milner would not have reasonably suggested sensing of the unfettered and natural movements of the hand and emulation of the same on a computer display. Thus, we do not sustain the rejection of claim 11 as being unpatentable over Kilpatrick, Zimmerman and Mori.

Claim 12 stands rejected as being unpatentable over Kilpatrick, Zimmerman and King. Claim 12 depends from claim 1 and further recites an optical transmitter/receiver connecting

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the glove means to the computer. King has been relied on by the examiner (Paper No. 37, page 20) for its teachings of a light pencil worn on a part of the user's body or held by a user for controlling the cursor positions on a display screen. We agree with the examiner that in light of King, it would have been obvious to one with ordinary skill in the art to use an optical transmitter/receiver to establish communication between Zimmerman's glove means and the computer. However, as is the case with Milner and Mori, King does not make up for the deficiencies of Kilpatrick and Zimmerman with regard to the features of claim 1 from which claim 12 depends. King would not have reasonably suggested sensing of the unfettered and natural movements of the hand and emulation of the same on a computer display. Therefore, we do not sustain the rejection of claim 12 as being unpatentable over Kilpatrick, Zimmerman and King.

#### **Conclusion**

The rejection of claims 67-74 and 76 under 35 U.S.C. § 305 is **affirmed**.

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The rejection of claims 67-74 and 76 under 35 U.S.C. § 112, first paragraph, as lacking written description in the specification is **reversed**.

The rejection of claims 67-74 under 35 U.S.C. § 112, second paragraph, as being indefinite is **reversed**.

The rejection of claim 76 under 35 U.S.C. § 112, second paragraph, as being indefinite is **affirmed**.

The rejection of claims 13-19, 24-54, 61-67, 68, 69, 71, 73, 76-78 and 80-82 under 35 U.S.C. § 102(b) as being anticipated by Kilpatrick is **reversed**.

The rejection of claims 70, 72 and 74 under 35 U.S.C. § 102(b) as being anticipated by Kilpatrick is **affirmed**.

The rejection of claims 1, 8, 10, 20-23, 55-60, 75 and 79 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick and Zimmerman is **reversed**.

The rejection of claims 67, 68, 69, 71, 73 and 76 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman, and Grimes is **reversed**.

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The rejection of claims 70, 72 and 74 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman, and Grimes is **affirmed**.

The rejection of claims 2-7 and 9 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman, and Milner is **reversed**.

The rejection of claim 11 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman, and Mori is **reversed**.

The rejection of claim 12 under 35 U.S.C. § 103 as being unpatentable over Kilpatrick, Zimmerman, and King is **reversed**.

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No time period for taking any subsequent action  
in connection with this appeal may be extended under  
37 CFR § 1.136(a).

**AFFIRMED-IN-PART**

ERROL A. KRASS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
JAMESON LEE	)	)
Administrative Patent Judge	)	APPEALS AND
	)	)
	)	INTERFERENCES
	)	)
JAMES T. CARMICHAEL	)	)
Administrative Patent Judge	)	)

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