

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOUNG L. HARVILL, JEAN-JACQUES G. GRIMAUD
and JARON Z. LANIER

Appeal No. 2003-1121
Application 09/189,179

ON BRIEF

Before OWENS, LEVY and BLANKENSHIP, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 17, 18, 20-28, 30-37 and 39, which are all of the claims pending in the application.

THE INVENTION

The appellants claim an apparatus and method for providing a tactile stimulus to a body part of a human operator in response to interaction, in a virtual reality system, of a virtual

depiction of the body part with a virtual object. Claim 17,
directed toward the apparatus, is illustrative:

17. An apparatus for providing a stimulus to a human operator, the apparatus for use in a virtual reality system in which a part of the body of the human operator is depicted as a virtual body part in a visual display, the apparatus comprising:

a position sensing subsystem configured to track a position of the part of the body of the human operator;

a signaling unit coupled to the position sensing subsystem and configured to provide an indication in response to the virtual body part contacting a virtual object; and

a vibrating member for providing a tactile stimulus to the part of the body of the human operator in response to the indication from the signaling unit.

THE REFERENCES

King et al. (King)	4,565,999	Jan. 21, 1986
Fallacaro et al. (Fallacaro)	4,771,344	Sep. 13, 1988 (filed Nov. 13, 1986)
Leysieffer et al. (Leysieffer)	4,791,620	Dec. 13, 1988 (filed Mar. 21, 1986)

S.S. Fisher et al. (Fisher), "Virtual Environment Display System", *ACM 1986 Workshop on Interactive 3D Graphics, Chapel Hill, North Carolina* 1-11 (Oct. 23-24, 1986).

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows:
claim 17 over Fisher in view of Fallacaro, claims 18-28, 32-37
and 39 over Fisher in view of Fallacaro and Leysieffer, and
claims 30 and 31 over Fisher in view of Fallacaro, Leysieffer and
King.

OPINION

We reverse the aforementioned rejections. We need to address only the broadest independent claim, i.e., claim 17. The examiner does not rely upon Leysieffer and King for any disclosure that remedies the deficiency in Fisher and Fallacaro as to the broadest claim.

Fisher discloses a system for visceral interaction of a user with a surrounding virtual environment through gesture technology (page 4). Fisher discloses (pages 4-6):

For tactile interaction with the displayed three dimensional environment, the user wears lightweight glove-like devices that transmit data-records of arm, hand and finger shape and position to a host computer. The gloves are instrumented with flex-sensing devices at each finger joint, between fingers and across the palm of the hand (see Fig. 7). Motion tracking sensors like that described for tracking head motion are mounted on each glove to transmit position and orientation of the hands and arms to the host system (see Fig. 8). One application of this technology is to provide a three-dimensional cursor in the displayed environment. And, in coordination with connected speech recognition technology, the hand and arm gesture information is used to effect indicated gestures in the synthesized or remote environment (e.g. control of robotic arms and end-effectors, and associated control of auxiliary camera positions). Current implementations of this research include a three-dimensional graphic database of an articulated hand that, in the display environment, is spatially correspondent with the viewer's real hand and is directly controlled by the instrumented glove device (see Fig. 9). With this capability, the operator can pick-up and manipulate virtual objects that appear in

the surrounding virtual environment.

Fallacaro discloses a system for stimulating a viewer in real time correspondence with one or more events occurring during an audio and/or visual presentation (col. 1, lines 7-11).

Fallacaro discloses (col. 3, lines 24-41):

By way of example, the events may comprise punches thrown and landed by boxers in a boxing match, and the stimulation may comprise a gentle rap applied across the knuckles of the viewers each time a boxer lands a punch. In this embodiment, the viewers have the option of selecting as between the two boxers such that a rap will be applied across the knuckles of the viewers only in response to punches landed by one or the other of the two boxers. In another embodiment, the events comprise specific frequencies occurring during a concert, and the stimulation comprises impacting some portion of the listener's body each time the specific frequencies occur. In a still further embodiment, the events may comprise shots fired by tanks as viewed on a video monitor in accordance with instruction received from a video cartridge, and the stimulation may comprise simulated firing of a three dimensional toy tank situated in proximity to the participants.

The examiner argues (answer, page 6):

Fisher teaches a tactile input glove device which means a user's hand can feel the touch when a virtual body (a glove on a display) contacting (selecting) a virtual object (see figures 7-8) and **tactile** means for feeling or means proceeding from the sense of touch (see Webster's II New Riverside University Dictionary). On the other hand, if Fischer's tactile input glove is not provided a tactile feedback to a user to indicate a virtual body contacting a virtual object, the **tactile** input glove has no meaning since the tactile glove is for a user to wear to controlling the motion or movement of a virtual object on a display.

The examiner's argument that Fisher's tactile input glove is for a user to wear to control the movement of a virtual object on a display is correct. However, the examiner's interpretation of Fisher as disclosing that a user wearing a tactile input glove feels the touch when a virtual glove contacts a virtual object on a display is incorrect. As indicated by the above-cited portion of Fisher, the term "tactile" as used by Fisher refers to the interaction between the glove and the displayed virtual environment, an exemplified interaction occurring when the tactile input glove is used to cause a virtual glove to pick up and manipulate virtual objects. Fisher does not disclose feedback from the virtual environment to the user through the glove.

The examiner argues that "[i]t would have been obvious to have modified Fisher with the teaching of Fallacaro et al, since Fisher and Fallacaro both provide feedback to an operator" (answer, page 3). Actually, neither Fisher nor Fallacaro provides tactile feedback to an operator. Fisher's tactile input glove provides input to the virtual environment, but there is no feedback to that input through the glove. Fallacaro's system

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provides tactile stimulation to persons observing an audio and/or visual presentation, but those persons do not provide input to which that stimulation is a response.

We therefore conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the appellants' claimed invention.

DECISION

The rejections under 35 U.S.C. § 103 of claim 17 over Fisher in view of Fallacaro, claims 18-28, 32-37 and 39 over Fisher in view of Fallacaro and Leysieffer, and claims 30 and 31 over Fisher in view of Fallacaro, Leysieffer and King, are reversed.

REVERSED

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TERRY J. OWENS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
STUART S. LEVY)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

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