

Sufficiency of Disclosure, Obviousness

This decision deals with the applicant's request for review by the Commissioner of Patents of the Final Action on application 297,338 (class 375-53) filed February 20, 1978. It is assigned to Her Majesty in right of Canada as represented by the Department of Communications, and is entitled INTERACTIVE VISUAL COMMUNICATIONS SYSTEM. The inventors are Herbert G. Bown and C. Douglas O'Brien. The Examiner in charge issued a Final Action on November 30, 1982 refusing to allow the application. A Hearing was held on April 1, 1987, at which the inventors were present, and were represented by their Patent Agent Mr. E. Rymek.

FIG. 2

In the Final Action, the following patents were cited:

Canada

958,490	Nov. 26, 1974	Arnold et al
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United States

3,534,338	Oct. 13, 1970	Christensen et al
3,539,999	Nov. 10, 1970	Houldin et al
3,633,169	Jan. 4, 1972	Bickford
3,833,889	Sept. 3, 1974	Cray
3,350,689	Oct. 31, 1967	Underhill et al
3,794,983	Feb. 26, 1974	Sahin

The Examiner outlines the relevancy of the above patents to Applicant's device, in part, as follows:

...

Arnold et al discloses a multi-terminal interconnected computer system wherein each processor is able to interact with any other processor or peripheral equipment or memory location. Terminals are connected via telephone lines.

...

CHRISTENSEN et al shows it is old to have a network of a multitude of graphics display terminals, each one of those terminals being endowed with its own computer (central processor, display processor, local input devices etc.). In addition, each terminal has access also to a central computer.

CHRISTENSEN et al, too, concerns itself with bandwidth reduction (see column 3 lines 64-59; column 4 lines 13-20), by allocating some computing capacity at the individual stations while retaining some computing capacity at the central station.

CHRISTENSEN et al also discloses the compressing of data by coding, so as to have a small amount of coded data represent a larger amount of uncoded data (columns 7-11; column 17 lines 1-60 etc.) similar to applicant's "GTI"-s.

...

HOULDIN et al shows that the idea of transmitting graphics data from a single source to a multitude of display terminals is old.

HOULDIN et al also discloses coding i.e. compression of data, so as to have a small amount of coded data represent a larger amount of uncoded data, similar to applicant's "GTI"-s (column 1 lines 56-64 etc.)

...

BICKFORD shows the mere idea of maintaining the same display at several data terminals is old. BICKFORD's displays are also interactive: Any one of the terminals is also able to modify the display at all other terminals.

BICKFORD differs from the applicant in that BICKFORD uses a central computer, and the applicant does not.

...

CRAY discloses interaction or exchange of data between a multitude of processors (see column 1 line 17, line 67 etc.). Elaborate data structure and apparatus structure to carry out this interchange is disclosed.

...

UNDERHILL et al shows it is old to connect several processors together interactively, without a central computer.

UNDERHILL et al shows that intricate complex apparatus is required to interconnect several processors together.

...

SAHIN discloses interactive networks of thousands of processors without a central computer. Elaborate circuits are disclosed to make this interaction possible.

The Applicant responded to the objection made in view of the cited art, by discussing the references, in part, as follows:

...

CHRISTENSEN et al does not teach a system where an operator interacting with one terminal also interacts with all of the other terminals... a system in which the satellite terminals are linked to one another by telephone lines or other communication links... a system in which all data is transmitted from one satellite terminal to all other satellite terminals... a system in which the satellite terminals are allocated all of the computing capacity. The Christensen et al patent does not and can not teach the above since its only direction is to provide a central computer which is time-shared between a number of satellite terminals.

...

BICKFORD teaches a communications system in which a large number of stations are connected "in a series connected transmission loop"...such as airline reservation terminals - which when they come on-line, interact with a central computer 10 through the communication loop to receive data from the central computer (flight information) and to transmit data to the central computer (reservation requests). These remote terminals do not interact with one another to maintain a common image.

...

HOULDIN et al, describes a multiple alpha-numeric and graphic display system in which the N displays are connected to a single data source (to provide) data for each individual display through temporary registers. A single character or end point generator is used to convert this data to control the individual displays. The displays do not interact with one another, they do not have a common image and they are all controlled from a central computer.

None of (the remaining) references teach a system in which all terminals maintain identical displays at all times by simultaneously receiving and processing in an identical manner the instructions generated by an operator interaction at one of the terminals. Simultaneity is the key to the present invention, not an elaborate structure to determine which terminal goes into which state.

...

ARNOLD et al is similar to a telephone exchange which routes different messages to different peripheral terminals. (It) includes a description of a complicated apparatus structure and timing diagrams required to communicate between terminals. Methods of communicating over a narrow band telephone line are well known through the use of apparatus known as modems. In the present invention, a new type of modem is not being claimed, but such standard devices are being used to link the terminals.

...

CRAY presents complicated structure to process computer programs in parallel on different processors and is a central computer only. It in no way describes or infers an interactive visual communications system.

...

SAHIN is not an array of processors but of memory modules and bears no relation to the claimed interactive visual communication system.

...

UNDERHILL et al does not teach a system in which an operator instruction at one terminal will result in identical interactions with all of the terminals.

...

Concerning insufficiency of disclosure, the Applicant refers to the response of January 26, 1982 and the publications accompanying it. He argues that they include the information, terminology, and apparatus available at the time of the invention, and that the application provides sufficient description to enable the making of the invention. Applicant discusses one of the articles submitted, "The Art of Natural Graphic Man-Made Communication", with respect to graphic task instructions, GTI, and their formation. The Applicant identifies parts of pages 12 and 13 of the application as relating the interaction handler arrangement. Also explained are the number of coders/decoders needed when the interaction handler is used with the terminals of the drawings. He says that when an operator's input is converted in component 17, the handler 16 directs the GTI to the processor in that terminal and simultaneously to all processors in all terminals. The Applicant refers to a description of this action, page 7 line 27 to page 9 line 13. Reference is made to conventional coding elements using Standard coding techniques, such as procedures found in the publication ANSI XZ3.28 - 1976 submitted January 26, 1982. Other of the

submitted publications are identified to illustrate that the components outlined by the application find exemplification in practice. Applicant argues that in view of the disclosure and the availability of the information prior to the inventors' particular combination of components, there is provided sufficient information to enable a person skilled in the art to make, construct or use the invention. Applicant considers the novel arrangement of known elements provides an inexpensive communications system which provides to individuals at different locations a common picture that may be altered by any one of them and viewed by all simultaneously.

The issue before the Board is whether or not the application presents sufficient disclosure under Section 36(1) of the Patent Act, and whether or not the subject matter of the application is obvious in view of the cited art. Claim 1 reads:

An interactive visual communications system for maintaining identical visual pictures at a number of terminals linked by narrow bandwidth transmission lines, each of said terminals comprising:

- visual display means;
- input means for providing input instructions at said terminal;
- means coupled to the input means for converting said instructions to graphic task instructions;
- interaction handler means coupled to the converting means for receiving and for transmitting the graphic task instructions over the narrow bandwidth transmission lines to one or more further terminals, and for receiving graphic task instructions generated at the one or more further terminals over the narrow bandwidth transmission lines; and
- processor means coupled to the interaction handler means for receiving the converter graphic task instructions, for processing the graphic task instructions and coupled to the display means for controlling the display means to modify and maintain the picture on the display means in accordance with said graphic task instructions.

We are impressed by the explanation provided by Mr. Rymek and the inventors at the Hearing. Mr. Rymek draws attention to the early use of the invention by the inventors, notably in the development stages of interstation telecommunication, such as in the Telidon system. He emphasizes the concept of the invention, as being to transmit the least

amount of data and yet present all the relevant information that is necessary to control the simultaneous display at each terminal. He argues that the cited references are not directed to a common display at all terminals. He classifies the references into two categories, (1) those describing systems having a central computer to control satellite terminals, for example, the Christensen, Bickford, and Houldin et al patents, (2) the remainder describing systems having multiple process computers linked together to perform complex data processing operations. He explains that none of the cited references teach, suggest, or infer Applicant's system. In noting that Applicant's system is being exploited under licence, he argues forcefully that such licencing would not take place in the industry if the technology is obvious to those persons working with it who are skilled in the art.

Mr. Rymek believes Applicant's disclosure contains the elements essential to an understanding of the invention by persons skilled in the art. He contends that persons with expertise in the art would be capable of assembling the system without excessive experimentation. Mr. O'Brien indicates that other telecommunication devices might be used to carry out the function represented by the modem set out in the disclosure, and refers to the general use of modems, for example in telecommunication systems such as used by Northern Telecom.

Mr. Bown describes the function carried out by the interaction handler as being to monitor the general base system of the terminal. Its purpose, he notes, is to act as an interface between each terminal and the communications network. This makes use of the GTI, and from the information they provide, the form of what has occurred at an initiating terminal is obtained. A main purpose of the interaction handler, he explains, is to be aware of what communication exists on one side, and what is happening on the other side concerning user input, and to help communicate that information through all the terminals of the system, and he refers to figure 5, which is reproduced below.

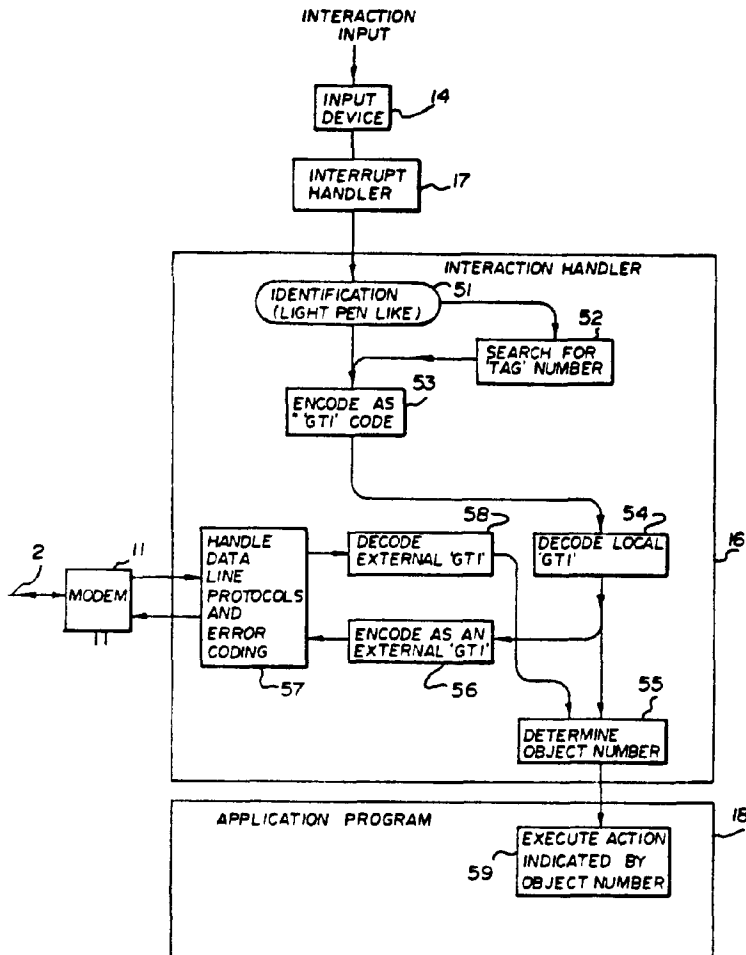


FIG. 5

In figure 5, Mr. Bown says the purpose is to take the input action at the top part of the diagram and communicate certain status information to the program in the lower part of the figure. He adds that the information then flows through the modem to the system. In effect, he says the interaction handler is a central part of the system where all communications flow in and out. It is, in his view, a combination of hardware and software components. He believes that the disclosure adequately sets out sufficient components to enable the disclosed combination of elements to be used by a person skilled in the art to obtain satisfactory operation.

Mr. O'Brien reinforces Mr. Bown's views by pointing out that the interaction handler essentially keeps the encoding numbering straight during receipt and issuance of any interaction to ensure the same thing is done at the same time.

Mr. Bown emphasizes that the GTI do not require a full video band width communication system to work, thus reducing costs. He notes that by using the instructions contained in the GTI, graphical information may be exchanged between a number of stations without using large band width systems.

Mr. Bown explains that in the art pertaining to an air lines ticketing system, the information is made available to the terminal on the basis of it being called to be viewed there, and not elsewhere. Such a system he notes is asynchronous in that it does not permit the change of information that is made at one terminal to be seen at another terminal. He stresses the synchronous nature of the present system that presents not only the same image at all terminals, but also permits any change made at any screen to be updated and displayed simultaneously there and at all others. Mr. Bown relates his observations about the two systems on the basis that he has worked on the design of each, and in his view the two are totally different. He says the system of the application will produce changes on each screen at the same time, something that is not possible in an air lines ticketing system.

Mr. Rymek feels that Applicant's disclosure distinguishes sufficiently between what is essential and what may be extra. He believes all the necessary information has been provided to enable a person skilled in the art to practice the invention with no extensive experimentation. He comments the disclosure need not provide all the information of what would be interesting, or could or would be used with Applicant's system.



We have studied the Examiner's characterization of some of the Applicant's disclosed apparatus as being blank boxes, and his concern that the application is not complete with respect to their parts. Against that, we have weighed the Applicant's written arguments and the oral explanation by the inventors that their arrangement of elements represents an understandable grouping of components. The inventors' statements, in our opinion, crystallize their disclosed structures as forming an acceptable combination of elements that permits the use of a narrow-band wavelength channel to transmit graphic instructions from one station to another simultaneously without need for a computer central to them all. We are persuaded by the inventors' explanation that the various structures and their make up and functions as set forth by the description and drawings in the application are not in the category of a blank box. We are satisfied, therefore, that the disclosure contains a description of the invention which is sufficient, in view of Section 36(1) of the Patent Act, to permit persons skilled in the art to practice the invention.

We now turn to the cited art, and consider those cited patents Mr. Rymek places in his first category. The Christensen et al patent presents an interactive system in which a central computer is time-shared between a number of stations. We find no description of any interaction between the stations. The Bickford patent discloses a type of system used by airlines for making information in a central computer available to a number of stations in a communication loop. No provision is described to permit the stations to interact with one another whereby a common display occurs. The Houldin et al patent relates to a multiple graphic and alphanumeric display system. Individual displays are controlled and provide different images. We find no means to obtain an interaction of the displays with one another.

We now look at the information provided by the patents in the second category as grouped by Mr. Rymek. The Arnold patent relates to a telephone exchange that transmits information to different terminals. The Cray patent describes a system using a central computer and provides no interactive visual communication system. The Sahin intercommunication system causes an exchange of information between a plurality of memory nodules but provides no means for interactive visual communication. The

Underhill et al patent pertains to a transfer system for interconnecting a plurality of computers and synchronizing the memories of the computers. We find no description related to producing an interactive visual communication system. We are satisfied that none of the references, whether considered singly or together, pertain to Applicant's system of interlinking satellite terminals to produce a common display simultaneously responsive to change instructions from any of the terminals.

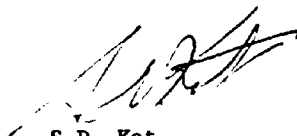
We recommend therefore that the rejection of the application for containing insufficient description and for being directed to subject matter that is obvious in view of cited art, be withdrawn.

During a discussion of the claims at the Hearing, the relevance of the terms "maintaining" in the preamble and "maintain" in the second last line of claim 1, raised some questions. Subsequent to the Hearing, Mr. Rymek submitted proposed amendments to the claims on April 10, 1987. In the preamble of claim 1, he suggests "maintaining" be replaced by "continuously producing", and that in the definition of the processor means in claim 1, the "converter" be replaced by "converting means", and that an additional limitation be added thereafter by changing the term to read "and the graphic task instructions received from the one or more further terminals." In our view, the amendments clarify the operation, and the above changes to claim 1, and the other changes to claims 2, 3 and 4 are acceptable in view of the system's operation.

We further recommend that the amendments to claims 1 to 4 be accepted.

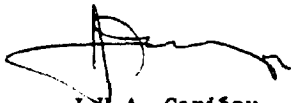


M.G. Brown  
Acting Chairman  
Patent Appeal Board



S.D. Kot  
Member

I concur with the findings and the recommendations of the Patent Appeal Board. Accordingly, I withdraw the final action and I remand the application for prosecution consistent with the recommendations.



J.H.A. Gariépy  
Commissioner of Patents

Date at Hull, Quebec  
This 10th day of June 1987

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