

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and is not binding precedent of the Board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. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CRAIG A. NELSON, HARINARAYANA ARIMILLI,
and RICHARD D. JOHNSON

Appeal No. 1999-0353
Application No. 08/368,291

HEARD: December 4, 2000

Before KRASS, JERRY SMITH, and LALL, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 6-9. The examiner has withdrawn rejections against claims 1-5 and those claims have now been indicated as allowable.

The invention is directed to a modem with a firmware upgrade feature. More particularly, a remote source initiates and conducts software modifications relative to a modem but the software is not overwritten until the entire change or upgrade code is received without loss or error. This ensures that the upgrade in the modem will be made

without loss or error or, if a loss or error should occur, the original modem software is not overwritten by the incomplete or faulty code.

Representative independent claim 6 is reproduced as follows:

6. A modem which communicates with a remote computer over a telephone line, the modem operating under control of operating code to which periodic updates are made, comprising:

storage means in the modem for storing the existing operating code, for storing a boot program and for receiving and storing updated operating code;

data pump means in the modem for receiving the updated operating code from the remote computer over the telephone line; and

control means connected to the storage means and the data pump means for programming the updated operating code into the storage means, said control means including:

receive means for receiving the updated operating code from the remote computer;

protocol means for transferring the updated operating code from the remote computer to the modem over the telephone line according to a predetermined communications protocol and using a packet format;

check means for verifying that the updated operating code was accurately transferred;

programming means for overwriting the existing operating code if the updated operating code was accurately received; and

conversion means for converting the packet of the updated operating code from a first format to a second, binary format.

The examiner relies on the following references:

Izumi et al. (Izumi)	4,725,977	Feb. 16, 1988
Tjahjadi et al. (Tjahjadi)	5,001,729	Mar. 19, 1991
Herh et al. (Herh)	5,268,928	Dec. 07, 1993

Claims 6-9 stand rejected under 35 U.S.C. 103 as unpatentable over Herh in view of Izumi and Tjahjadi.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

We will sustain the rejection of claim 6 under 35 U.S.C. 103 but we will not sustain the rejection of claims 7-9 under 35 U.S.C. 103.

At pages 4-11 of the answer, the examiner spells out, in great detail, how the references are being applied to the instant claims.

With regard to claim 6, the examiner notes that the primary reference to Herh lacks a specific teaching of 1. a remote computer; 2. checking validity of data before replacing existing operating code in memory; and 3. the new codes transmitted in packets. However, the examiner explains his conclusion of obviousness of the claimed subject matter by noting that while Herh does not specifically recite a remote computer, it would have been obvious to skilled artisans that the remote DTE (Data Terminal Equipment) may be a computer “since the modem 10 has a DTE interface 48 which connects to a local computer terminal...and a telephone line interface connected to the remote DTE having a modem which can be a [sic] computer” [answer-page 6]. The examiner also cites Izumi for the teaching of a host computer sending new programs to a terminal via a telephone line.

We agree with the examiner. To whatever extent appellants take the position that Herh fails to teach that it is a remote “computer” which sends the upgraded program, it is our view that the skilled artisan would clearly have gleaned from the disclosure of Herh that the information downloaded over the telephone line comes from a remote “computer.” Herh discloses, at column 3, lines 43-45, that the modem is connected to a telephone line and to a DTE interface which is connected to a DTE “such as a computer terminal.” The artisan would have understood that just as the DTE interface is connected to a computer, so may be the telephone line. Moreover, it is clear, from column 4, lines 32-34 of Herh, that the upgraded instructions are “transmitted from a remote modem to the present modem.” Since a modem is, broadly interpreted, a “computer,” since it may have a microprocessor [see column 3, lines 13-15 of Herh], it is our view that Herh teaches that the upgrade instructions come from a remote “computer.”

With regard to checking validity of data before replacing existing operating code in memory, Herh discloses checking the integrity of the download [see column 4, lines 22-23]. Appellants take the position that Herh does not check the integrity of the download before replacing the existing operating code because “Herh teaches the overwriting of code as it is received, thereby teaching away from Appellant’s storage means” [reply brief-page 2]. While appellants’ statement may be accurate, as far as the subject matter of instant claim 6 is concerned, Herh clearly receives an upgrade from a remote location. If the integrity of the download is verified, the download process is begun and the “complete new set of code to be stored in Emulation RAM 26 is transmitted from a remote modem to the present modem 10” [column 4, lines 31-33] wherein the new code replaces that which was previously stored in the Emulation RAM

26. We find no language in instant claim 6 that precludes the overwriting of code as it is received. We also find no language in claim 6 that requires an integrity check of the download “before” replacing the existing operating code, as argued by appellants. While claim 1 required this “before” language, the examiner has allowed that claim. Nothing in instant claim 6 distinguishes over the validity check disclosed by Herh and appellants have pointed to no specific language in the claim that would distinguish over the validity check of Herh.

Now, it is true that Herh does not specifically identify the downloaded information as being in the form of “packets,” as claimed. The examiner recognizes this and appellants do argue that Herh “does not teach checking validity of packets before replacement of existing operating code” [principal brief-page 12, emphasis ours]. However, Herh does disclose, at column 3, lines 8, that one of the functions of the modem’s microprocessor is “data formatting.” When taken in combination with the cited teaching of Tjahjadi of transmitting information divided into packets wherein a check sum is included to detect transmission errors, it would have been obvious to the artisan that the upgrading information transmitted from the remote location in Herh may be in the form of packets. The “data formatting” feature of the microprocessor in Herh’s modem would be able to handle such information in packet form.

Appellants also argue, with regard to claim 6, that the examiner’s rejection failed “to provide the protocol means and conversion means” [principal brief-page 16]. However, the examiner specifically identified these items in Herh in the stated rejection. The claimed protocol means is identified as “(microprocessor 14 controls programs stored in ROM 22 for steps 102-134 in Fig.2 as communications protocol) for

transferring the updated operating code to the modem over the telephone line according to a predetermined communications protocol (col. 3, lines 46-60; col. 4, lines 5-46; col. 5, lines 15-20)” [answer-page 5]. The examiner specifically identified the claimed conversion means as being disclosed at column 3, lines 2-8 of Herh. The examiner’s explanation appears reasonable to us and appellants have not pointed to anything in Herh, which would convince us of any error in the examiner’s position.

Accordingly, we will sustain the rejection of claim 6 under 35 U.S.C. 103.

Turning now to claim 7, the examiner sets forth the reasoning behind the rejection of this claim at pages 8-10 of the answer, noting that a remote computer and the transmission of updated codes in packets, not specifically disclosed by Herh, have been previously discussed with regard to claim 6. We agree that the same reasoning would apply to claim 7. In addition, the examiner notes that Herh fails to teach the step of creating packets of updated operating code in the remote location wherein the packets have a packet identifier, a length indicator, a programming address and the read portion of the updated operating code. However, the examiner uses the teaching of Tjahjadi to show the obviousness of providing the claimed information in the packets and appellants provide no argument regarding the specifics of the packet.

Appellants argue that whereas claim 7 relates to a system whereby updated operating code is packetized and stored in a temporary storage in the modem prior to storing the code in permanent storage, Herh teaches away from temporary storage and, in fact, teaches overwriting of code as it is received. Again, we note that claim 7, like claim 6, does not preclude overwriting of code as it is received. In Herh, the integrity of the download is validated before downloading and the download is monitored. If there is

some error, the modem continues to operate according to the program stored in the Boot ROM 22 and then proceeds to “normal” modem operation. Thus, if there is an error in the download of the upgraded operation code, just like in the instant invention, the old operating code (normal operation as provided by the code in Boot ROM 22) is used. Emulation RAM 26 stores a complete replacement of the code stored in Boot ROM 22. Thus, RAM 26 may be considered as a “temporary storage” in which new operating code is stored until it is replaced. When a download with an upgrade operating code is received, it may be that this overwrites what is in the Emulation RAM 26 but this still constitutes a “storing...information in temporary storage in the modem,” as claimed. The “normal” mode of operation is stored in Boot ROM 22 so that if the downloaded upgraded code is invalid for some reason, the system continues to operate off of the code in Boot ROM 22. If the downloaded upgraded code is valid, then the system is reset and operates from the new code in Emulation RAM 26.

Moreover, while it is true that Herh does not disclose storing “packet” information in a temporary storage, we agree with the examiner, for the reasons set forth supra, with regard to claim 6, that it would have been obvious, within the meaning of 35 U.S.C. 103, to have provided the upgraded information in Herh in packet form.

The problem is that claim 7 not only requires a “temporary” storage but it also requires, at a later step, “transferring the updated operating code in temporary storage to permanent storage.” If Emulation RAM 26 of Herh is the claimed “temporary” storage, then there is no “permanent” storage, as required by the claim. The examiner’s view is that the Emulation RAM 26 is the “permanent” storage and the “temporary” storage is found in the data pump 44 of Herh. The examiner points to references which are not part

of the statement of rejection as evidence of such storage in a data pump. Since these references are not part of the rejection, we cannot consider them. In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). Reliance on Herh, alone, does not provide sufficient detail of the data pump in order to make a determination as to whether it, indeed, contains a storage area for any packet information which might be sent from a remote computer. While it appears from Herh's Figure 1 that any information coming from the telephone line and some information coming from the DTE interface goes through the data pump, there is not enough disclosure about data pump 44 within the disclosure of Herh to determine whether there is any type of storage therein that would qualify as the claimed "temporary storage." We note that the instant specification describes a data pump [page 5] as performing functions such as "modulation, demodulation and echo cancellation" but we will not speculate regarding the storage capabilities of Herh's data pump 44. Accordingly, since we cannot discern, from Herh's disclosure, both a temporary and permanent storage, as required by instant claim 7, we will not sustain the rejection of claim 7 under 35 U.S.C. 103 based on Herh, Izumi and Tjahjadi. Neither Izumi nor Tjahjadi provides for the deficiency of Herh.

With regard to claims 8 and 9, these claims will stand with claim 7 since they depend therefrom.

We note our earlier decision of February 24, 1999 in parent application Serial No. 08/087,164. While we reversed the examiner in that case, but sustain the examiner in the instant case with regard to claim 6, the claimed subject matter in that case, and the references applied therein, were different from the claims and references in the instant case. While the Herh reference is common to both cases and we found, in the earlier

case, that Herh did not suggest the claimed packets, there is no inconsistency with the instant decision since it is the teaching of Tjahjadi, which provides the suggestion for such packets in the instant case. While we held in the earlier case that Herh has no need for the claimed “packets,” we do not find an inconsistency between that case and the instant case wherein we hold that it would have been obvious to provide for such packeted information in Herh. This is because the instant claims do not require the same processing by a local computer as recited in the earlier case. In fact, there is no “local computer” recited in the instant claims. Moreover, Tjahjadi, not applied in the earlier case, now provides ample motivation for employing packets in transmitting the information in Herh. The instant claims do not preclude processing within the modem itself, unlike the claims in the earlier case which recited a local host computer separate from the modem and used for processing and for communicating with the remote computer. Accordingly, while at first blush, these two decisions might appear a bit inconsistent, in view of the greater breadth of the instant claims and the different combination of references applied herein, we find no inconsistency.

We have sustained the rejection of claim 6 under 35 U.S.C. 103 but we have not sustained the rejection of claims 7-9 under 35 U.S.C. 103. Accordingly, the examiner’s decision rejecting claims 6-9 under 35 U.S.C. 103 is affirmed-in-part.

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)
)
)
)
JERRY SMITH)
Administrative Patent Judge)
)
)
)
PARSHOTAM S. LALL)
Administrative Patent Judge)

BOARD OF PATENT
APPEAL AND
INTERFERENCES

EK/RWK

Appeal No. 1999-0353
Application No. 08/368,291

SCHWEGMAN LUNDBERG WOESSNER & KLUTH
P.O. BOX 2938
MINNEAPOLIS MN 55402