

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte ALBERT D. BAKER and JAMES CHENG-PING LIU

Appeal No. 2003-1841
Application No. 09/272,956

ON BRIEF

Before FLEMING, RUGGIERO, and BARRY, *Administrative Patent Judges*.
BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

A patent examiner rejected claims 1, 2, 4-14, and 16-26. The appellants appeal therefrom under 35 U.S.C. § 134(a). We reverse.

BACKGROUND

The invention at issue on appeal concerns wireless terminals featuring soft-labeled keys ("SLKs"). Because the functions associated with SLKs can be varied, the same physical keys can represent multiple features at different times. A wireless terminal featuring SLKs generally includes a screen displaying labels associated with

the SLKs. According to the appellants, in a conventional switching system, a switch updates the labels based on functional modes associated with an operating context of the wireless terminal or in response to commands entered by a user of the wireless terminal. (Spec. at 1.)

The appellants explain that the conventional update strategy can produce problems. If the switch provides updates on a "per-key-depression basis," it expends a great part of its processing capacity simply updating the labels of the SLKs, which delays the updating. (*Id.*) The delays, in turn, can lead to an "interpretive race condition." (*Id.* at 2.) For example, when the user depresses multiple SLKs, the switch sends a collection of updates to the wireless terminal, and the first update is processed and displayed. If the user then depresses another SLK, the switch cannot know if all the prior updates have been processed by the terminal and must impose interpretive assumptions about the labels being displayed then. Furthermore, add the appellants, the conventional update strategy of transmitting updates to the wireless terminal requires much bandwidth. (*Id.*)

In contrast, the appellants' invention uses a user interface state machine to control the SLKs and their associated labels of a wireless terminal. More specifically, a

switch initially downloads the user interface state machine into the terminal. The appellants assert that use of the state machine resolves interpretive race conditions by maintaining an explicit set of state-based assignments in the terminal and reduces bandwidth consumption by reducing or eliminating system updates to the terminal. (*Id.* at 7.)

A further understanding of the invention can be achieved by reading the following claim.

13. An apparatus comprising:

a terminal operative to store information representative of at least a portion of a state machine, wherein each of a plurality of states in the state machine specifies a set of labels for a corresponding plurality of soft-labeled keys of the terminal, and to process the information to generate a display including a given one of the sets of labels, wherein the information representative of the state machine is downloaded from a switch of the system into the terminal;

the state machine being configured to run substantially in its entirety within the terminal, independent of the switch, so as to control assignment of the sets of labels to the soft-labeled keys in response to user input without requiring further information from the switch, and being configured such that a transition between a given pair of states of the state machine in response to the user input automatically alters the assignment of the sets of labels to the soft-labeled keys and causes an identifier of a corresponding switch-based feature to be transmitted from the terminal to the switch.

Claims 1, 2, 4-14, and 16-26 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,965,655 ("Suzuki") and U.S. Patent No. 5,416,831 ("Chewing").

OPINION

Rather than reiterate the positions of the examiner or the appellants *in toto*, we focus on the main point of contention therebetween. The examiner admits, "Suzuki et al fail to download the information representative of the state machine from a switch of the system into the terminal." (Examiner's Answer at 3.) He finds, however, that "Chewing, III et al teach a method for downloading the information representative of the state machine (e.g. softkey function definitions) from a switch of the system (13) into terminal (14) (see figures 1, 11; column 6, lines 16-68 and column 11, lines 25-40)." (*Id.* at 6.)

The examiner concludes with the following assertions.

It would have been obvious to have modified Suzuki et al with the teaching of Chewing, III et al, because Suzuki has been suggested the information representative of a portion of a state machine (e.g. a name and a telephone number) can be downloading from a switch of the system into the terminal (see figures 24; column 24, lines 50-68; column 25, lines 1-5 and column 26, lines 15-19), and downloading information from a switch system to a terminal (a telephone) would be more convenient or easy than prestoring those information in the terminal since a switch system would not need to consume the power of the portable terminal for operating a memory, so that it would extend the durable time of the battery in the portable terminal (see column 25, lines 45-56) and the information could be easy to modified or changed in the switch system

since the switch system having more keys for entering the alphanumeric information than a portable terminal (see Suzuki's column 24, lines 50-63 and column 25, lines 45-56).

(*Id.* at 3-4.) The appellants argue, "one skilled in the art at the time of the invention would not be motivated to combine Chewing with Suzuki." (Appeal Br. at 7.)

"[T]o establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicants." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (citing *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). "[T]he factual inquiry whether to combine references must be thorough and searching." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). "This factual question . . . [cannot] be resolved on subjective belief and unknown authority." *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). "It must be based on objective evidence of record." *Id.* at 1343, 61 USPQ2d at 1434.

Here, Suzuki discloses a "radio communication system . . . which comprises: portable communication devices 1100-a and 1100-b . . . ; radio base stations 1200-a,

1200-b, 1200-c and 1200-d for relaying the communication among the portable communication devices; switching devices 1300-a and 1300-b for switching connections among the radio base stations; and a transmission device 1400 for connecting between the switching devices. . . ." Col. 23, ll. 32-41. We agree with the examiner that the reference "teach[es] a state machine (1100a, 1100b (see figures 2, 24), operating from one state to another state (see figures 4A-4G, 9)) . . . so as to control assignment of the sets of labels (see figures 4A-4G) to soft-labeled keys (1A-1D) (see figure 2) in response to user input without requiring further information from the switch. . . ." (Examiner's Answer at 4.) More specifically, Suzuki explains that each state machine includes "an initial communication waiting state," col. 5, ll. 25-26; "a 'memory call' state," *id.* at ll. 27; and "a speaking state (line connected state). . . ." *Id.* at ll. 28-29.

Furthermore, Figures 4A-4C of Suzuki show that the labels for the SLKs of each device are controlled according to the state machines. "In th[e] initial communication waiting state of FIG. 4A, the input key 1A is [labeled] as an input key for switching the operation state into a 'memory call' mode, the input key 1C is [labeled] as an input key for switching the operation state into an 'auxiliary function' mode, and the input key 1D is [labeled] as an input key for switching the operation state into a 're-dial' mode.

Col. 5, ll. 37-44. In the memory call state of Figure 4B, in contrast, "the input key 1A is [labeled] as a 'call' key, the input key 1B is [labeled] as an upward cursor key, the input key 1C is [labeled] as a 'return' key, and the input key 1D is [labeled] as a downward cursor key. . . ." *Id.* at ll. 60-64.

In summary, each of Suzuki's portable communication devices (1100-a, 1100-b) includes a state machine that controls the functions assigned to the device's SLKs. We are unpersuaded that downloading the functions from an external switch would have been "more convenient or eas[er]," (Examiner's Answer at 4), than having the device use its internal state machine. Furthermore, the portable communication device consumes power from its battery when the device is operating. Because the portable communications device would need to be operating to download the functions from the external switch, we are unpersuaded that such downloading would have "extend[ed] the durable time of the battery in the portable [device]. . . ." (*Id.*)

Downloading the functions from an external switch rather than having the device use its internal state machine, moreover, would introduce the disadvantages mentioned in the BACKGROUND section of this opinion. To wit, the switch would expend a great part of its processing capacity simply updating the labels of the SLKs, which would

delay the updating. (Spec. at 1.) The delay, in turn, could lead to "interpretive race condition[s]." (*Id.* at 2.) Furthermore, transmitting updates to the portable communication devices would require much bandwidth. (*Id.*)

In view of the disadvantages of downloading functions assigned to a device's SLKs from an external switch, absent a persuasive explanation or showing of the desirability of such downloading, we are unpersuaded of a *prima facie* case of obviousness. Therefore, we reverse the obviousness rejection of claims 1, 2, 4-14, and 16-26.

CONCLUSION

In summary, the rejection of claims 1, 2, 4-14, and 16-26 under § 103(a) is reversed.

REVERSED

MICHAEL R. FLEMING)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
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Administrative Patent Judge)	AND
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