

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte AMIT GUPTA and RAPHAEL ROM

Appeal No. 2002-1383
Application No. 08/868,972

ON BRIEF¹

Before DIXON, GROSS, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1, 2, 6-19, and 21-30.

We affirm-in-part.

¹ Appellants waived an oral hearing via facsimile communication filed December 18, 2002 (Paper No. 16).

BACKGROUND

The invention relates to communication systems and, in particular, to the creation, maintenance, use, and deletion of virtual channels in a network environment. We will discuss “virtual channels” (or “virtual circuits”) and “a virtual bunch” in the claim interpretation section of this opinion. Claims 1 and 11, representative of the invention, are reproduced below.

1. A switching node, comprising:
 - a. a switching matrix; and
 - b. a controller to control said switching matrix, said controller configured to set up at least one group of virtual circuits to respective one or more destinations as a virtual circuit bunch.

11. In a digital switching network having a plurality of interconnected nodes, a method of allocating virtual circuits, comprising the step of:
 - a. providing an element for performing the step of establishing a plurality of virtual circuits from one node to at least one other node as a virtual circuit bunch in response to a single request.

The examiner relies on the following references:

Suzuki	4,884,263	Nov. 28, 1989
Fisk	5,274,643	Dec. 28, 1993
Hiller et al. (Hiller)	5,345,445	Sep. 6, 1994
Subramanian et al. (Subramanian)	5,519,707	May 21, 1996

Claims 1, 2, 6, 7, 10, 11, 16, 19, 21, and 22 stand rejected under 35 U.S.C. § 102 as being anticipated by Subramanian.

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Claim 17 stands rejected under 35 U.S.C. § 102 as being anticipated by Fisk.

Claims 8, 12, 18, 23, 25, 27, and 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Subramanian.

Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Subramanian and Suzuki.

Claims 14, 15, 24, and 28 stand rejected under 35 U.S.C. § 103 as being unpatentable over Subramanian and Fisk.

Claims 13, 26, and 30 stand rejected under 35 U.S.C. §103 as being unpatentable over Subramanian and Hiller.

Claims 3-5 and 20 have been objected to as depending from rejected claims.

We refer to the Rejection (Paper No. 12) and the Examiner's Answer (Paper No. 14) for a statement of the examiner's position and to the Brief (Paper No. 13) for appellants' position with respect to the claims which stand rejected.

OPINION

Claim interpretation

In determining novelty, the first inquiry must be into exactly what the claims define. In re Wilder, 429 F.2d 447, 450, 166 USPQ 545, 548 (CCPA 1970). Similarly, a section 103 analysis begins with a key legal question -- what is the invention claimed? Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987).

The terms used in the claims bear a “heavy presumption” that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202, 64 USPQ2d 1812, 1817 (Fed. Cir. 2002). Dictionaries, encyclopedias, and treatises are particularly useful resources in determining the ordinary and customary meanings of claim terms. Id. at 1202, 64 USPQ2d at 1818. Indeed, these materials may be the most meaningful sources of information in better understanding both the technology and the terminology used by those skilled in the art to describe the technology. Id. at 1203, 64 USPQ2d at 1818.

In the instant case, all the independent claims contain the term “virtual circuit bunch.” A “virtual circuit,” or “virtual channel,” is a recognized term of art in the field of digital networks. Appellants note that a virtual, rather than a physical, connection is defined between the source of a packet and its destination. A virtual circuit gives the appearance of maintaining a hardware connection, but utilizes the resources of the connection only when data need to be sent. (Spec. at 1, l. 11 - 2, l. 6.)

Subramanian, applied against the claims by the examiner, further indicates the meaning of virtual channels, and virtual paths, in the context of a general overview of ATM (asynchronous transfer mode) communications.

In an ATM network, the information is actually transmitted through the network in fixed-length cells through virtual paths/virtual channels which are set up to facilitate such communications. The virtual paths may comprise a plurality of virtual channels. The use of virtual channels/virtual paths allows a large number of connections to be supported on a single

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physical communications link. Virtual Path/Virtual channels are generally allocated during set-up of a communication transmission between two devices (e.g., between two clients) and “torn down” after the communication has completed. For example, in an ATM network implemented to support telephone communications, virtual channels may be set up along the communications link between the caller and the called party at the time the call is placed and then tom [sic; torn] down when the telephone conversation ends.

Subramanian col. 6, ll. 9-22.

Information in an ATM network is transmitted within these fixed-length cells, or packets, which have a defined format. The header information includes virtual path and virtual channel identifiers (VPI/VCI) for routing the cell through the network. Id. at col. 1, l. 52 - col. 2, l. 11; col. 8., ll. 48 -col. 9, l. 45; Figs. 1A-1C.

There is no evidence in the record that the word “bunch,” which is modified by the art-recognized term “virtual circuit” in the instant written description and claims, had any special meaning to the artisan at the time of disclosure.² Nor do we find any particular definition of the word in the instant specification. See In re Paulsen, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994) (repeating the principle that where an inventor chooses to be his own lexicographer and gives terms uncommon meanings, he must set out the uncommon definition in the patent disclosure). See also Beachcombers Int’l, Inc. v. WildeWood Creative Prods., Inc., 31 F.3d 1154, 1158, 31 USPQ2d 1653, 1656 (Fed. Cir. 1994) (“As we have repeatedly said, a patentee can be

² A search for the relevant term in the U.S. Patent text database, available on the USPTO website, yielded one hit, for U.S. Patent 6,278,714. The ‘714 patent, with a filing date of February 6, 1998, was thus filed later in time than the instant application. Moreover, the ‘714 patent issued to an ostensible co-inventor of the instant invention.

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his own lexicographer provided the patentee's definition, to the extent it differs from the conventional definition, is clearly set forth in the specification."); Johnson Worldwide Assocs., Inc. v. Zebco Corp., 175 F.3d 985, 989, 50 USPQ2d 1607, 1610 (Fed. Cir. 1999) (there is a "heavy presumption" that claim language has its ordinary meaning).

We thus interpret the word "bunch" in accordance with its ordinary meaning: "a number of things of the same kind <a ~ of grapes>," or "a homogeneous group." See Webster's Ninth New Collegiate Dictionary 187 (1990). The broadest reasonable interpretation of "virtual circuit bunch" is thus a number of virtual circuits of the same kind, or a number of similar virtual circuits. Under this definition, a virtual path may contain one or more of a virtual circuit bunch. A virtual circuit bunch, however, would not necessarily be limited to a single virtual path.

Finally, we note that appellants' specification could be construed as offering a very broad definition for "virtual circuit bunch," at least no narrower than that we can infer from the art-recognized meaning of "virtual circuit" and the general dictionary definition of "bunch." "The Virtual Circuit Bunch, as set forth herein, enables groups of Virtual Circuits to be established between one or more points of origin and one or more definitions." (Spec. at 4, ll. 9-12.)

Subramanian

Subramanian is applied against all the claims on appeal, except for claim 17. Subramanian teaches that two primary tasks of ATM switches are (1) translation of

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VPI/VCI information and (2) transport of cells from the input port to the correct output port. Normally, the VPI/VCI information is translated by each switch and changed prior to the cell being output from the switch. In a typical ATM network, there is an overhead penalty in setting up and tearing down communications links. A significant resource overhead is the allocation of VPI/VCI translation table entries within switches. Each time a communication link is set up or torn down, the translation tables in each switch involved in the communication link must be allocated and updated. Col. 2, l. 15 - col. 3, l. 4.

Subramanian discloses a system whereby a central management supervisor 202 (Fig. 2) transmits table updates to each involved switch over a virtual service channel. Col. 6, ll. 33-38. One virtual path link may exist from client 214 to switch 211, another virtual path link may exist from switch 211 to switch 221, etc. Each of these virtual path links may comprise a plurality of virtual channels. For example, one virtual channel may be set up on each of the various virtual path links between client 214 and client 244 to allow communication of multiple cells which make up the information to be communicated from client 214 to client 244. The various virtual channels and virtual path links may be torn down after the complete message has been transmitted. Id. at ll. 40-51.

The supervisor 202 provides for central management of calls, connection resources, point-to-point or multi-point routing, topology, and fault-recovery. Col. 7, ll. 41-44. The supervisor provides various services such as:

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(2) signalling services allowing each client to communicate with the supervisor 202 to establish user-to-user connectivity (e.g., call set-up and tear-down). For example, network clients, such as client 214, can request the supervisor 202 to set-up and tear down virtual paths/virtual channels over a signalling channel. The supervisor 202 ensures the proper resources are available to support the data transfer. The supervisor then notifies each intermediate switch to update broadcast and translation tables in the switch to allow for proper switching of cells transmitted by the client....

Subramanian col. 7, l. 66 - col. 8, l. 9.

Although the preferred embodiment of Subramanian implements the functions of central supervisor in a separate device, the supervisory functions may also be implemented in one of the switch module controllers. Col. 6, ll. 60-67; col. 14, ll. 35-39. The network thus may logically, although not necessarily physically, be viewed as a star network having the supervisor as the hub (Fig. 6). See col. 14, ll. 11-29.

Grouping of Claims

Appellants contend that most of the claims stand or fall independently, and that all claims are argued separately. (Brief at 9.) We disagree that all claims are argued separately. In our view, the relevant rule makes clear that merely repeating the limitations of a claim is not an argument for separate patentability. We will select a single representative claim with respect to each ground of rejection, except for the instances in which appellants have presented separate arguments. See 37 CFR § 1.192(c)(7). See also In re McDaniel, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) (“If the brief fails to meet either requirement [of 37 CFR § 1.192(c)(7)],

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the Board is free to select a single claim from each group of claims subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim.”).

Section 102 -- Claims 1, 2, 6, 7, 10, 11, 16, 19, 21, and 22 over Subramanian

Instant claim 11 recites the step of providing an element for performing the step of establishing a plurality of virtual circuits from one node to at least one other node as a virtual circuit bunch in response to a single request. In view of the proper interpretation of “virtual circuit bunch,” as set forth supra, we find the claim to be anticipated at least by Subramanian’s description at columns 7 and 8, quoted supra, of establishing user-to-user connectivity (call set-up and tear-down) by a single request from the client to the supervisor. A client can thus request the supervisor to set up and tear down virtual channels to another user (i.e., another client). Although not a requirement of claim 11, we also note that the supervisor notifies each intermediate switch to update broadcast and translation tables in the respective switch to allow for proper switching of cells transmitted by the client.

Appellants’ remarks in response to the rejection, in the main, ultimately rely on the term “virtual circuit bunch.” The arguments are founded on the allegation that Subramanian fails to disclose a “virtual circuit bunch.” Although we agree to the extent that Subramanian does not use the term, we are not persuaded that the number of related virtual circuits set up by request to the supervisor cannot be considered a “virtual

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circuit bunch” within the meaning of the claims. For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference, but this is not an “ipsissimis verbis” test. In re Bond, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990).

The two “characteristics” of a virtual circuit bunch offered at page 10 of the Brief do not appear to be in the form of a limiting definition, but the remarks apparently refer to embodiments of the invention disclosed in the specification. Claims are to be given their broadest reasonable interpretation during prosecution, and the scope of a claim cannot be narrowed by reading disclosed limitations into the claim. See In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550 (CCPA 1969).

In any event, we fail to see how even the “characteristics” may be thought missing from the reference. In Subramanian, the virtual circuits are established as a result of a single request. Further, appellants have not pointed out any disclosure in Subramanian of a requirement for “additional hardware changes” in a switch for implementation of the virtual circuits.

Finally, appellants assert that, since instant claim 19 depends from claim 18 (rejected under 35 U.S.C. § 103), claim 19 should not have been rejected under 35 U.S.C. § 102. (Brief at 11-12). While that may be true, appellants provide no convincing reasoning as to why the subject matter of claim 19 should not be considered

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as anticipated by Subramanian. On this record, we are not persuaded that both of claim 18 and claim 19 are not fully met by Subramanian, particularly in view of the breadth of claim 19. The claim recites that a packet is assigned a virtual channel identifier “without setting up a connection.” The claim does not specify what type of “connection” is not to be set up. In any event, Subramanian teaches that a virtual, but not physical, connection is set up between clients.

We are not persuaded that the examiner’s finding of anticipation is in error. We sustain the rejection of claims 1, 2, 6, 7, 10, 11, 16, 19, 21, and 22 under 35 U.S.C. § 102 as being anticipated by Subramanian.

Section 102 -- Claim 17 over Fisk

Appellants’ response to the section 102 rejection of claim 17 over Fisk (Brief at 12-13) relies on the allegation that Fisk does not teach or suggest a virtual circuit bunch. Under a proper interpretation of the relevant term, we are not persuaded that virtual circuits grouped and routed, as described by Fisk, cannot be considered a virtual circuit bunch.

Appellants’ additional arguments in support claim 17, regarding how virtual paths may be set up or broken down, and the details of “actual, real-time establishment and use of virtual circuits,” are not commensurate with the actual requirements of the claim. Claim 17 purports, after all, a “method of allocating virtual circuits in a switching system,” rather than being limited to any so-called real-time system.

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We therefore sustain the rejection of claim 17 under 35 U.S.C. § 102 as being anticipated by Fisk.

Section 103 -- Claims 8, 12, 18, 23, 25, 27, and 29 over Subramanian

The majority of appellants' arguments in response to the section 103 rejection over Subramanian (Brief at 13-15) rely on the view that the reference fails to disclose or suggest a virtual circuit bunch. We find the position untenable.³

Instant claim 12 recites that the step of establishing a plurality of virtual circuits "includes setting up switching tables when at least one subsequent node has acknowledged the request." As we have noted previously, Subramanian at column 7 teaches that the supervisor ensures the proper resources are available to support data transfer. The supervisor subsequently notifies each intermediate switch to update broadcast and translation tables in the switch to allow for proper switching of cells transmitted by the client. Manifestly, the supervisor must receive acknowledgment from at least one subsequent node -- i.e., ensures that the proper resources are available to support data transfer -- before causing each intermediate switch to set up the proper switching tables.

³ As previously noted, we consider all limitations of claim 18 to be met by Subramanian. A claim that is anticipated by a reference is also obvious under 35 U.S.C. § 103, since "anticipation is the epitome of obviousness." See, e.g., Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1548, 220 USPQ 193, 198 (Fed. Cir. 1983); In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982); In re Pearson, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974).

Appellants also allege that claim 29 distinguishes over Subramanian because of an alleged lack of showing transmission (of instructions for assigning a packet to a virtual circuit) to a destination over a communications interface. On the contrary, Subramanian shows a communications interface in several figures (e.g., Figure 2) connecting the supervisor to the network nodes. Subramanian, further, expressly describes (col. 7, ll. 10-20) several communications interfaces (e.g., Ethernet) suitable for sending the instructions for assigning packets to particular virtual circuits.

We are thus not persuaded that any of the claims rejected as obvious over the teachings of Subramanian have been rejected in error. We sustain the rejection of claims 8, 12, 18, 23, 25, 27, and 29 under 35 U.S.C. § 103 as being unpatentable over Subramanian.

Section 103 -- Claim 9 over Subramanian and Suzuki

Appellants argue that, although Suzuki refers to “heavy traffic” and “trouble” in the passages cited in the rejection over Subramanian and Suzuki, the reference does not specify “cell interleaving.” Retransmission due to a cell interleaving problem is thus not shown by the references. (Brief at 16.)

We find appellants’ argument persuasive because the only clear description of a “cell interleaving” problem that we have on this record appears to reside in the instant specification, at page 31, line 1 et seq. Although we have found that all limitations of base claim 1 are met by Subramanian, it is not clear that the cell interleaving problem

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described by appellants would be relevant in operation of the Subramanian system, or in operation of the Subramanian system as modified by the teachings of Suzuki. Certainly, the examiner has not provided any convincing explanation as to why the specific requirements of claim 9 are disclosed or suggested by the references.

We conclude that the rejection of claim 9 lacks the proper factual foundation for a showing of prima facie obviousness. We do not sustain the rejection of claim 9 under 35 U.S.C. § 103 as being unpatentable over Subramanian and Suzuki.

Section 103 -- Claims 14, 15, 24, and 28 over Subramanian and Fisk

Instant claim 14 incorporates the limitations of claim 13. The combination of Subramanian and Hiller has been applied against claim 13, and we consider that rejection to be unfounded (infra). Since Fisk does not remedy the deficiencies in the rejection applied against claim 13, we cannot sustain the rejection of claim 14.

We have considered the remainder of appellants' arguments (Brief at 16-17), which are not persuasive for the reasons previously discussed. We select claim 28 as representative, and find that transmitting the instructions over a "communications interface" is taught at least by Subramanian, as we noted in the discussion regarding claim 29.

We thus sustain the rejection of claims 15, 24, and 28 under 35 U.S.C. § 103 as being unpatentable over Subramanian and Fisk, but do not sustain the rejection of claim 14.

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Section 103 -- Claims 13, 26, and 30 over Subramanian and Hiller

We cannot sustain the section 103 rejection of claims 13, 26, and 30 over Subramanian and Hiller, for the reasons articulated at pages 18 and 19 of the Brief. We are persuaded that the rejection fails to show disclosure or suggestion in the references for a request specifying a plurality of destinations (claim 13) or instructions for allocating a virtual circuit to all nodes participating in a multicast (claims 26, 30).

We thus do not sustain the rejection of claims 13, 26, and 30 under 35 U.S.C. §103 as being unpatentable over Subramanian and Hiller.

CONCLUSION

The rejection of claims 1, 2, 6, 7, 10, 11, 16, 19, 21, and 22 under 35 U.S.C. § 102 as being anticipated by Subramanian is affirmed.

The rejection of claim 17 under 35 U.S.C. § 102 as being anticipated by Fisk is affirmed.

The rejection of claims 8, 12, 18, 23, 25, 27, and 29 under 35 U.S.C. § 103 as being unpatentable over Subramanian is affirmed.

The rejection of claim 9 under 35 U.S.C. § 103 as being unpatentable over Subramanian and Suzuki is reversed.

The rejection of claims 15, 24, and 28 under 35 U.S.C. § 103 as being unpatentable over Subramanian and Fisk is affirmed. The rejection of claim 14 under 35 U.S.C. § 103 as being unpatentable over Subramanian and Fisk is reversed.

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The rejection of claims 13, 26, and 30 under 35 U.S.C. §103 as being unpatentable over Subramanian and Hiller is reversed.

The examiner's decision in rejecting claims 1, 2, 6-19, and 21-30 is thus 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

JOSEPH L. DIXON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
ANITA PELLMAN GROSS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

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