United States District Court,
W.D. North Carolina, Charlotte Division.

Barry W. THOMAS,
Plaintiff.
v.
MOTOROLA, INC,
Defendant.
Barry W. Thomas,
Plaintiff.
v.
Echostar Satellite L.L.C., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
Cingular Wireless L.L.C., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
DirecTV, Inc., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
Nokia, Inc., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
Alltel Communications, Inc., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
Itron, Inc., et al,
Defendants.
Barry W. Thomas,
Plaintiff.
v.
Samsung Electronics America, Inc., et al,
Defendants.

Nos. 3:05cv493-RJC, 3:05cv494-RJC, 3:05cv495-RJC, 3:05cv496-RJC, 3:05cv498-RJC, 3:05cv506-RJC, 3:05cv509-RJC, 3:05cv510-RJC

Feb. 28, 2008.

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ORDER AND MEMORANDUM ON CLAIM CONSTRUCTION

ROBERT C. CONRAD, JR.**, Chief District Judge.**

Having heard oral argument and having reviewed the papers submitted in connection with the parties' proposed claim construction, **IT IS HEREBY ORDERED** that the disputed claim language in United States Patent No. 4,777,354 ("the '354 patent"), shall be construed consistent with the tenets of claim construction set forth by the United States Court of Appeals for the Federal Circuit in Phillips v. AWH Corp., 415 F.3d 1303 (Fed.Cir.2005), as follows: FN1

FN1. For the parties' convenience, the Court has attached at the end of its order a chart summarizing its construction of the disputed claim language.

A. '354 patent**, Claim 1**

Claim one of the '354 patent recites: FN2

FN2. The bolded terms in this claim and the subsequent claims are the terms that at least one of the parties believes needs to be construed by the Court.

A system for controlling the supply of services to a consumer, said system comprising: a **plurality of service supply control means** for **controlling the supply of respective services** to a **consumer location** over **respective predetermined time periods;**
an **actuator card means** for actuating said supply control means, said actuator card means including **a plurality of individual programmable memory means** each for storing respective coded information in relation to a respective service;

said supply control means including actuator card reading means for reading respective coded information stored in said respective memory means on said actuator card means for generating data related to said respective coded information;

timing means connected to said supply control means for timing each said respective predetermined time period over which said supply control means supplies said respective services to said consumer location.

1. "**A plurality of service supply control means**" is a means-plus-function limitation.FN3 Pursuant to 35 U.S.C. s. 112, the function of the claim is controlling the supply of respective services to a consumer location over respective predetermined time periods. The means of the disclosed structure corresponding to this function is two or more FN4 microcomputers and their equivalents,FN5 each of which is programmed to implement the following algorithm for the service controlled by that particular microcomputer: FN6

FN3. Under 35 U.S.C. s. 112 para. 6,"[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." Claim language that includes the word "means" triggers a rebuttable presumption that the claim is drafted according to s. 112 para. 6, as a means-plus-function claim. Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 (Fed.Cir.2004). Nothing in the intrinsic record or elsewhere in this case rebuts this presumption.

FN4. Claim 1 recites a "plurality" of services supply control means, therefore this claim element requires two or more services supply control means (i.e., microcomputers), each of which controls the supply of a respective service.

FN5. The only specific structure disclosed in the '354 patent which can perform the recited function is a "microcomputer." (*See* '354 patent, Col. 3,. 3-8 ("The system includes a service supply control means [ ], for example a microcomputer....")). Nothing else in the patent provides any structure that is "clearly linked" to this function. Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc., 412 F.3d 1291, 1299 (Fed.Cir.2005); *see also* Fonar Corp. v. Gen. Elec. Co. ., 107 F.3d 1543, 1550-52 (Fed.Cir.1997) (holding that when a patent specification discloses a specific structure, but also indicates generally that other unspecified structures may be used, the scope of the claim is limited to the specific structure disclosed and its equivalents). And where the patent discloses only one structure capable of performing the recited function, that is the disclosed structure for claim construction purposes. *See, e.g .,* NOMOS Corp. v. BrainLAB USA, Inc., 357 F.3d 1364, 1368 (Fed.Cir.2004) ("[A] means clause does not cover every means for performing the specified function." (internal quotation marks and emphasis omitted)); Cortland Line Co. v. The Orvis Co., 203 F.3d 1351, 1357 (Fed.Cir.2000) ("Because the specification describes only one structure corresponding to the connecting function, this court limits the connecting means element to [that structure] and equivalents thereof.").

The prosecution history confirms that, if the claim is to be construed properly, one microcomputer running multiple software programs could not constitute a plurality of service supply control means.

The '345 patent application disclosed in its original specification an embodiment wherein each supply control means can control two or more services. (*See* '354 patent file history, Application at 3). Claim 1 required that the system would comprise "at least one" service supply control means for controlling the supply of a service. (*See id*. at 14). When the patent office rejected the claim as being unpatentable over the

two prior art references (*see* '354 patent file history, January 27, 1987 Office Action ("Office Action") at 2), Thomas amended his claims to require, inter alia, a plurality of service supply control means rather than one (*see* November 27, 1987 Response to Office Action ("Response to Office Action") at 1 (requiring "a *plurality* of service supply control means" (underlining in original)); ('354 patent file history, Response to Office Action at 5 (emphasizing that "the inventive concept underlying the present invention is the provision of a plurality of service supply control means...."))). Thus, a proper construction of the claim cannot include a system where one microcomputer running multiple software programs could constitute a plurality of service supply control means. *See* Purdue Pharma L.P. v. Endo Pharms., Inc., 438 F.3d 1123, 1136 (Fed.Cir.2006) ("Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution. This may occur, for example, when the patentee explicitly characterizes an aspect of his invention in a specific manner to overcome prior art." (internal citations omitted); *see also* Alpex Computer Corp. v. Nintendo Co., 102 F.3d 1214, 1221 (Fed.Cir.1996) ("[P]ositions taken before the PTO may bar an inconsistent position on claim construction under s. 112, para. 6.").

FN6. Means-plus-function claim limitations in which the disclosed structure is a microprocessor programmed to carry out an algorithm are to be construed according to the Federal Circuit's guidance in WMS Gaming Inc. v. Int'l Game Technology, 184 F.3d 1339, 1349 (Fed.Cir.1999) (holding that the court must identify the algorithm disclosed in the specification when construing means-plus-function claim limitations involving a microprocessor programmed to carry out an algorithm).

(a) in response to an actuator card being inserted into the card reading device, transmitting an actuating signal to open a switch or valve, thereby starting the flow of the respective service to the consumer location; FN7

FN7. (*See* '354 patent, Col. 5, ll. 44-54; Col. 6, ll. 3-23)

(b) in response to an actuator card being inserted into the card reading device, causing a timing device to start timing the respective predetermined time period over which the respective service is to be supplied; FN8 and

FN8. (*See* '354 patent, Col. 5, ll. 54-62; Col. 4, ll. 46-52; *see also* Fig. 1; Col. 6, ll. 23-27).

(c) receiving a signal from the timing device when the respective predetermined time period ends and, in response thereto, switching off the switch or valve in order to stop the supply of the respective service to the consumer location when the respective predetermined time period has ended. FN9

FN9. (*See* '354 patent, Col. 5, ll. 57-65).

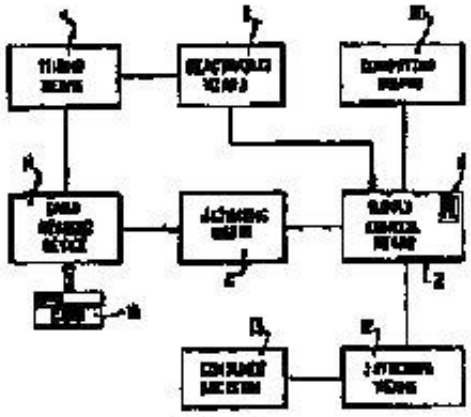


Fig. 1

2. "**Controlling the supply of respective services.**" Turning on and off FN10 access to two or more separate and distinct FN11 utilities or other consumer services, such as electricity, gas, oil, telephone, water, or cable television,FN12 each of whose supply is controlled exclusively by one of the service supply control means.FN13

FN10. The Court finds support for this construction of "controlling" ("turning on and off") in the specification of the '354 patent. (*See* ' 354 patent, Col. 3, ll. 26-41; Col. 4, ll. 51-56; Col. 4, ll. 57-Col. 5, ll. 5; Col. 4, ll. 64-68; Col. 5, ll. 49-51).

FN11. This construction of "respective" comes from its plain meaning.

FN12. This is how the '354 patent expressly defines the meaning of "service." (*See* '354 patent, Col. 2, ll. 56-Col. 3, ll. 2 (defining "service" as used throughout the patent; Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996) ("The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication."). Thomas's proposed "separable and differentiable test" is unpersuasive as practically any two things can be said to be "capable of being used apart" from each other and "capable of being distinguished by their characteristics." *See* Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1379 (Fed.Cir.2006) (rejecting a construction so broad as to render the limitation "nearly meaningless").

FN13. This construction reflects the one-to-one relationship between each service supply control means and each service through its requirement that each of the "plurality" of service supply control means controls the supply of a "respective" service. (*See, e.g.,* '354 patent, Col. 3, ll. 26-30 ("Each of the supply control units is connected to a respective switching device ... for permitting supply of the associated service from the supplier to the desired consumer location."; Col. 5, ll. 34-38; Col. 7, ll. 1-3 (explicitly characterizing the described embodiment as having a separate supply control unit associated with each individual service supplied)).

While the specification also mentions that "each supply control unit may be adapted to manage the supply of two or more services" ('354 patent, Col. 7, ll. 3-5), that embodiment was rejected by the examiner based on

prior art, and expressly disclaimed during prosecution when Thomas amended the claims. A comparison of newly submitted claim 18 (eventually Claim 1 of the '354 patent), provided as follows (with new language compared to original Claim 1 shown in bold underlined and deletions from original Claim 1 shown in strike-through):
A system for controlling the supply of services to a consumer, said system comprising: at least one **a plurality of service** supply control means for controlling the supply of a **respective** services to a consumer location over a **respective** predetermined time periods.

A proper construction of the claims must include this limitation. Purdue Pharma, 438 F.3d at 1136.
3. "**Consumer Location:**" "unvarying geographic location, such as the consumer's home, to which the services are delivered at any time the services are supplied." FN14

FN14. The Court finds support for this construction of the phrase from the specification of the '354 patent.

Thomas is correct that the ordinary "unambiguous English meaning" of the term "consumer location" does not restrict the supply of services to an "unvarying geographic location," and that no language in the specification or elsewhere explicitly demands that the consumer location be an unvarying geographic location. This construction, however, "places too much emphasis on the ordinary meaning of [a term] without adequate grounding of that term within the context of the specification of the [ ] patent," and "is not consistent with the overall context of this invention and this field of art as described in the specification." Curtiss-Wright, 438 F.3d at 1378-79 (limiting a term to a context consistently used throughout the specification); *See also* Nystrom v. Trex Co., 424 F.3d 1136, 1145 (Fed.Cir.2005) ("Nystrom consistently used the term 'board' to refer to wood cut by a log. Although there was no clear disavowal of claim scope, there was nothing in the intrinsic record to support the conclusion that a skilled artisan would have construed the term 'board' more broadly...."). Thus, in this case, the intrinsic record limits the meaning of "consumer location" to an "unvarying geographic location...."

First, in the "Background of the Invention" section, the patent refers to types of services-gasoline delivered from gasoline pumps, various goods and services offered in a hotel room vending system, and stamps supplied from postage meters-which are supplied to an unvarying geographic location. (*See* '354 patent, Col. 1 (referring to a patent that "discloses a vending system which is particularly suited for installation in hotels or the like for permitting guests to buy articles [from a hotel mini-bar]")). Moreover, the type of "consumer location" contemplated elsewhere in the specification suggests an unvarying geographic location. (*See* '354 patent, Col. 2, ll. 19-27; Col. 6, ll. 3-5; Col. 7, ll. 30-37).
The prosecution history likewise supports this construction:

"[T]he inventive concept underlying the present invention is the provision of a plurality of service supply control means for controlling the supply of respective services to a consumer location, typically a consumer's house.... [F]rom the above, it will be seen that the invention provides a convenient and compact system, whereby a consumer is able to actuate and monitor the supply of utility services to the consumer's home using a single actuator card.".

('354 patent file history, Response to Office Action at 5).

Finally, there is a lack of description in the patent to demonstrate that consumer location should be construed as "where[ever] the consumer is located" at the time services are to be supplied.
4. "**respective predetermined time periods.**" Separate and distinct FN15 time intervals for each service whose length is determined before that service is supplied to the customer.FN16

FN15. This construction ("separate and distinct") reflects the one-to-one correlation the claim establishes between each service and the separate and distinct predetermined time period over which that service is to be supplied.

FN16. The Court finds support for its interpretation of "predetermined" from its ordinary meaning. *See* American Heritage Dictionary of the English Language (2d College ed.1985) (definition of "predetermined"). Here, the "something" that is decided in advance is the length of each specific time period over which each "respective" service is supplied. The express claim language and the specification also supports this construction. (*See* '354 patent, Col. 2, ll. 14-18 & 25-27; Col. 4, ll. 46-56; Col. 4, ll. 57-Col. 5, ll. 5; Col. 7, ll. 12-20).

5. "**An actuator card means**" is a means-plus-function limitation. 35 U.S.C. s. 112, para. 6. The function of the claim is actuating the supply control means. The disclosed structure is a *single insertable card* FN17 having the structure disclosed in Fig. 4 (including two or more 'individual programmable memory means').

FN17. The only specific structure that the patent discloses to perform this function is a single, insertable card with a plurality of individual programmable memory means on it. (*See* '354 patent, Col. 3, ll. 16-17 & 61-64; Col. 4, ll. 14-20; Figs. 3, 4).

While the specification in Col. 4, ll. 31-35 refers to an embodiment of the system in which the actuator card is dispensed with and the actuating function is supplied by the "main computer," (1) the claim language at issue is "actuator card means," and thus expressly requires a card; and (2) in numerous places, the patent states that the invention requires a card with individual programmable memory devices used in connection with a card reader. (*See, e.g.,* '354, Col. 3, ll. 61-Col. 4, ll. 9; Col. 4, ll. 5-13; Col. 6, ll. 3-10; Col. 6, ll. 44-50; Col. 6, ll. 51-54). To omit a card from the system would render unnecessary and superfluous other claim language, such as the words "actuator card," the card reading means, and the individual programmable memory means. This would be improper. *See* Maxwell v. J. Baker, Inc., 86 F.3d 1098, 1105 (Fed.Cir.1996); Texas Instruments Inc. v. U.S. Int'l Trade Comm'n, 988 F.2d 1165, 1171 (Fed.Cir.1993) ("[c]ourts can neither broaden nor narrow claims to give the patentee something different than what he has set forth." (internal quotation marks omitted)); *see also* Bicon, Inc. v. The Straumann Co., 441 F.3d 945, 950 (Fed.Cir.2006) ("Allowing a patentee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous.... For that reason, claims are interpreted with an eye toward giving effect to all terms in the claim....").

Furthermore, in response to the PTO's rejection of his original claims based on the prior art and instruction that he clarify the claims to point out the novelty of the system, Thomas amended his claims during

prosecution to include the "actuator card means" element (*see* '354 patent file history, Response to Office Action at 5-6), and thus disclaimed any other structure, including the "main computer" embodiment, that can be used in place of an actuator card to actuate the system. *See* Purdue Pharma, 438 F.3d at 1136; Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325, 1327 (Fed. Cir.2002(finding that while "[r]eading the written description alone, this argument might be effective, but in light of the prosecution history, which was generated after the written description was drafted, it is apparent that Rheox relinquished any coverage of TSP").

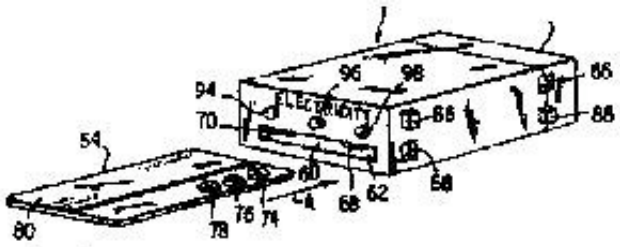
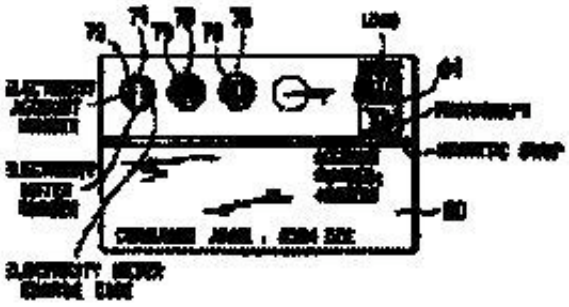


Fig. 3


Fig. 4

6. "**Plurality of individual programmable memory means.**" This is a means-plus-function limitation. 35 U.S.C. s. 112, para. 6. The function is storing coded information about a single service in the memory means corresponding to that service.FN18 The disclosed structure is two or more FN19 magnetic strips or 'chip discs,' FN20 each of which stores information for a separate service.FN21

FN18. The claim expressly states that "each" memory means must store information in relation to "a respective service."

FN19. From the use of the words "plurality" and "individual," the patent makes it clear that there must be two or more memory structures on the card.

FN20. The only specific structures that the '354 patent discloses for performing the function of storing coded information relating to a service are two or more "chip discs" or "magnetic strips." (*See* '354 patent, Col. 4,

ll. 15-20 ("The actuator card includes one or more memory devices [ ] which may be in the form of chip discs, magnetic strips or other suitable means capable of storing coded information....")). The reference to "memory devices" and "other suitable means" is not sufficient to expand the scope of the claim beyond the structures disclosed for this means-plus-function claim element. *See* Fonar, supra n. 5, 107 F.3d at 1551-52

FN21. The Court finds support for this construction ("each of which stores information for a separate service") from Claim 1, which expressly requires that each disc or strip contain information specific to one of the services that the system controls. (*See* Claim 1 (providing that the "each" of the memory means is used "for storing respective coded information in relation to a respective service"); Fig. 4, *supra* page 9 (depicting card with multiple "chip discs," each for a service)).

Furthermore, in response to the examiner's initial rejection of those claims due to prior art, Thomas amended his original claims as follows:
[T]he inventive concept underlying the present invention is the provision of a *plurality* of service supply control means for controlling the supply of respective services to a consumer location, typically a consumer's house, by using an actuator card having a plurality of individual programmable memory means. The Examiner indicated that further structure should be included in the main claim of the application to bring out this concept, and new Claim 18 [issued Claim 1] is believed to include that further structure by ... an actuator card means ..., with the actuator card means including a plurality of individual programmable memory means each for storing respective coded information in relation to the respective service.

(*See* '354 patent file history, Response to Office Action at 5 (underlining in original)). Fig. 4, *supra* p. 9, which shows three separate chip disks (74, 76, 78), is then cited as illustrating such an actuator card. Id. Thus, the disclosed structure cannot include a design that stores all the information about two or more services on a single programmable memory structure, such as a single chip. *See* Purdue Pharma, 438 F.3d at 1136 (patentee cannot recapture in claims construction anything that was surrendered in the prosecution of the patent to overcome objections to the patentability of the claimed invention).
7. "**Said supply control means including actuator card reading means.**" Each supply control means must include an actuator card reading means.FN22 An actuator card reading means is a means plus function limitation. The function is reading coded information related to each service stored in the specific individually programmable memory means for that service on the actuator card means and generating data related to the coded information for each service. FN23 The disclosed structure is a "conventional card reading device" with a card receiving slot and reading heads.FN24

FN22. This claim phrase explicitly requires that each of the plurality of service supply control means must include an actuator card reading means, thus there must be more than one actuator card reading means in the system. Although the word "means" could include singular or plural, the Court finds support for its construction that this limitation must be construed as requiring a plurality of actuator card reading means from the specification. (*See, e.g.,* numeral 60 in Fig. 2; Fig. 3; and numerals 110, 112, 115 in Fig. 5; Col. 3, ll. 52-Col 4, ll. 13 ("FIG. 3 Illustrates an individual supply control unit ... The unit [ ] comprises a card reading device [ ] disposed at a convenient location in the unit. The card reading device [ ] may be any conventional card reading device such as one of those described in the above-Identified [patents].... *Each card* receiving slot [ ] is provided with reading heads [ ] for generating one or more signals corresponding to information carried by the card [ ] when it is inserted into the slot...."); Col. 5, ll. 43-46 (" *[e]ach* supply control unit includes a card reading device" (emphasis added))).

To the extent that this limitation is ambiguous, the Court finds that this construction is supported by the specification, which does not disclose any embodiment with a plurality of service supply control means and a single actuator reader. Renishaw PLC. v. Marposs Societa' per Azioni, 158 F.3d 1243, 1250 (Fed.Cir.1998) ("The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction."); Athletic Alternatives, Inc. v. Prince Mfg. Inc., 73 F.3d 1573, 1581 (Fed.Cir.1996) ("Where there is an equal choice between a broader and a narrower meaning of a claim, and there is an enabling disclosure that indicates that the applicant is at least entitled to a claim having the narrower meaning, we consider the notice function of the claim to be best served by adopting the narrower meaning.").
FN23. This construction is supported by the specification ("each supply control unit includes a card reading device").

FN24. The patent makes clear that the card reading means must include a slot or opening for insertion of the card. (*See* '354 patent, Col. 3, ll. 61-62; Figs. 2, 3, 5, *supra* page 11).

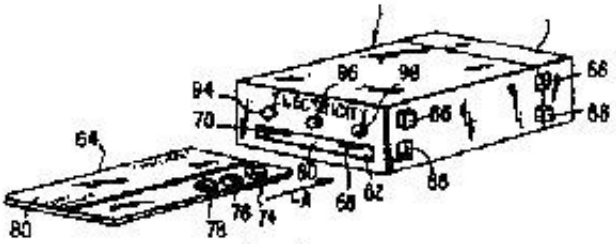


Fig. 3

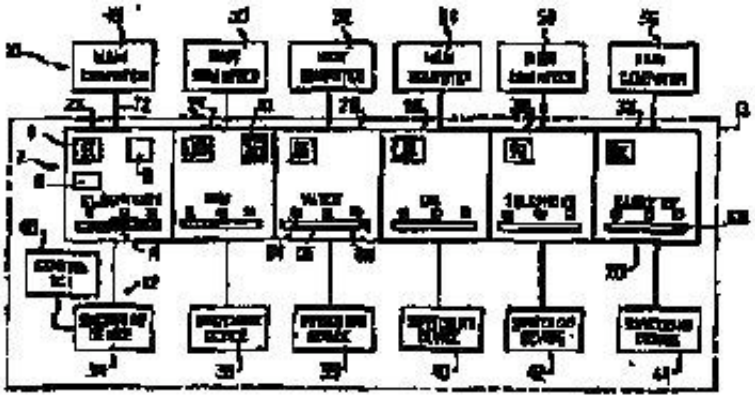


Fig. 2

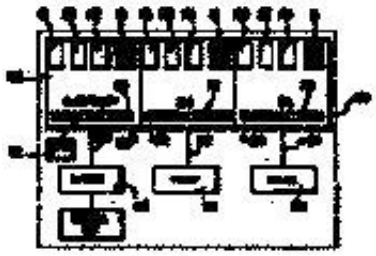


Fig. 5

8. "**Timing means**" is a means-plus-function limitation. 35 U.S.C. s. 112, para. 6. The function is recognizing the length of predetermined time period over which each service is to be supplied, measuring the passage of time over the predetermined time period, and informing the supply control means when the predetermined time period has expired.FN25 The disclosed structure is a programmable pulse counter and equivalent structures programmed to (1) recognize the length of the predetermined time period over which each service is to be supplied; (2) measure the passage of time over the predetermined time period; and (3) inform the supply control means when the predetermined time period has expired.FN26

FN25. Claim 1 specifies that the timing means must perform the function of "timing each said respective predetermined time period over which said supply control means supplies said respective services to said consumer location." ('354 patent, Col. 8, ll. 4-7). Thus, the timing means must recognize the starting time and duration of the predetermined time period, measure the passage of time over that time period, and announce to the system when that time period has ended. (*See, e.g.,* '354 patent, Col. 4, ll. 40-56 (explaining that the timing device "enables the supply control unit to operate over a predetermined time period ... so that services are provided to the consumer over that time period, [and at] the expiry of the predetermined time period, the timing device effects termination of the supply of services, for example by transmitting a signal");Col. 5, ll. 54-68; Col. 6, ll. 23-37)).

FN26. The only structure disclosed for performing the recited function is a "pulse counter means" programmed to: (1) recognize the length of the predetermined time period over which each service is said to be supplied; (2) measure the passage of time over the predetermined time period; and (3) inform the supply control means when the predetermined time period has expired. (*See* '354 patent, Col 4, ll. 41-42 ("The timing device may be any conventional timing device such as a pulse counting means or similar device"); Col. 4, ll. 51-56 ("[a]t the expiry of the predetermined time period, the timing device effects termination of the supply of services, for example by transmitting a signal ... causing the control unit to switch off the switching device 34."); Col 5, ll. 58-62 ("The timing device may be any conventional timing device such as a pulse counting means or similar device and operates to time the period over which services are supplied to the consumer location [ ]."')). Only a "specifically identif[ied]" structure counts as corresponding structure. *See* Fonar, supra note 4, 107 F.3d at 1551.

9. "**Connected to:**:" requires that the timing means be included within or attached to the exterior of the supply control unit.FN27

FN27. The Court finds support for this construction from the specification. (*See* '354 patent, Col. 4, ll. 40-46 ("The timing device may be ... incorporated within the unit, as represented schematically in FIG. 2, or

may be attached to the exterior of the unit as shown in FIG. 4.")).

B. '354 patent**, Claim 2**

A system according to claim 1 and further including **actuating means** connected to said supply control means for initiating the supply of respective services to said consumer location.

1. "Actuating means"

"Actuating means" is a means-plus-function limitation. 35 U.S.C. s. 112, para. 6. The function is initiating the supply to the consumer location of the separate and distinct service FN28 controlled by the supply control means to which the actuating means is connected. The disclosed structure is a switching device and equivalent structures.FN29

FN28. The ordinary meaning of the word "respective" in this phrase requires that the actuating means initiates the separate and distinct service that is controlled by the particular supply control means to which the actuating means is connected. This is consistent with the specifications' description of the actuating control means. (*See* '354 patent, Col. 3, ll. 30-34 ("[W]ith regard to the supply of electricity, actuating of the 'Electricity' supply unit causes ... the switch to open and allow electricity to flow from the electricity supply source to the consumer's control box.")).

FN29. This is the only structure disclosed for performing the recited function. ('354 patent, Col 3, ll. 10-12).

C. '354 patent**, Claim 3**

A system according to claim 1, and further **including deactuating means** connected to said supply control means for effecting termination of the supply of said respective services upon expiry of a said respective predetermined time period.

1. "Deactuating means"

"Deacuating means" is a means-plus-function limitation. 35 U.S .C. s. 112, para. 6. The function is effecting the shut-off of the supply of the separate and distinct services controlled by the supply control means to which the deactuating means is connected upon expiry of the predetermined time period for that service." The disclosed structure for the deactuating means also is a switching device and its equivalents.FN30

FN30. (*See* '354 patent, Col. 3, ll. 10-12).

D. '354 patent**, Claim 9**

A system according to claim 1, wherein said **supply control means** includes a plurality of supply control units for controlling the supply of different services, said units being **connected together in the form of a panel.**

1. "Supply control units"

"Supply control units" is a means-plus-function limitation. 35 U.S.C. s. 112, para. 6. The function is

controlling the supply of different services. The disclosed structure is shown in FIG. 2 as item 22. Each supply control unit comprises the structures disclosed as service supply control means, timing means, actuating means, deactuating means, timing device, and card reading device (as described herein) within or attached to the exterior of each unit.

2. "Connected together in the form of a panel."

"Connected together in the form of a panel": Linked together in a side-by-side configuration to form a control board which allows direct consumer access to the control mechanisms of each unit.FN31

FN31. The Court finds support for this interpretation from the specific embodiments described in Fig. 2 and Fig. 5 (*see supra* page 11), in which multiple separate supply control units are arranged in a single device, side-by-side, to allow direct access by the consumer to their respective control mechanisms, as explained in the specification. (*See* ' 354 patent, Col. 3, ll. 68-Col. 4, ll. 4; Col. 5, ll. 31-34).

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1. A system for controlling the supply of services to a consumer, said system comprising:	
a **plurality of service supply control means** for **controlling the supply of respective services**	**A plurality of service supply control means** is a means-plus-function limitation. **Function:** controlling the supply of respective services to a consumer location over respective predetermined time periods.
Disclosed Structure: corresponding to this function is two or more microcomputers and their equivalents, which is programmed to implement the following algorithm for the service controlled by that particular microcomputer:	(a) in response to an actuator card being inserted into the card reading device, transmitting an actuating signal to open a switch or valve, thereby starting the flow of the respective service to the consumer location, (b) in response to an actuator card being inserted into the card reading device, causing a timing device to start timing the respective predetermined time period over which the respective service is to be supplied; and (c) receiving a signal from the timing device when the respective predetermined time period ends and, in response thereto, switching off the switch or valve in order to stop the supply of the respective service to the consumer location when the respective predetermined time period has ended. **Controlling the supply of respective services:** turning on and off access to two or more separate and distinct utilities or other consumer services, such as electricity,

	gas, oil, telephone, water, or cable television, each of whose supply is controlled exclusively by one of the service supply control means.
	Each "supply control means" also includes "actuator card reading means."
to a **consumer location**	"**Consumer location**": unvarying geographic location, such as the consumer's home, to which the services are delivered at any time the services are supplied.
over **respective predetermined time periods;**	"**Respective predetermined time periods**": separate and distinct time interval for each service whose length is determined before that service is supplied to the consumer.
an actuator card means for actuating said supply control means,	"**actuator card means**" is a means-plus-function limitation. **Function:** actuating each supply control means. **Disclosed Structure:** A single insertable card having the structure disclosed in Fig. 4 (including two or more of the disclosed individual programmable memory means). Each "actuator card means" also includes "individual programmable memory means."
said actuator card means including a **plurality of individual programmable memory means** each for storing respective coded information in relation to a respective service;	**A plurality of individual programmable memory means** is a means-plus-function. **Function:** Storing coded information about a single service in the memory means corresponding to that service.
	Disclosed Structure: Two or more magnetic strips or "chip discs," each of which stores information for a separate service.
said supply control means including actuator card reading means for reading respective coded information stored in said respective memory means on said actuator card means for generating data related to said respective coded information;	**said supply control means including:** Each supply control means must include an actuator card reading. "**actuator card reading means**" is a means-plus-function limitation. **Function:** reading coded information related to each service stored in the specific individually programmable memory means for that service on the actuator card means and generating data related to the coded information for each service.
	Disclosed Structure: A "conventional card reading device" with a card receiving slot and reading heads.
timing means connected to said supply	**Timing means** is a means-plus-function limitation.

control means for timing each said respective predetermined time period over which said supply control means supplies said respective services to said consumer location.	**Function:** recognizing the length of the predetermined time period over each service is to be supplied, measuring the passage of time over the predetermined time period, and informing the supply control means when the predetermined time period has expired. **Disclosed Structure:** Programmable pulse counter programmed to: (a) recognize the length of the predetermined time period over which each service is to be supplied; (b) measure the passage of time over the predetermined time period, and (c) inform the supply control means when the predetermined time period has expired.
	Connected to: included within or attached to the exterior of.
2. A system according to claim 1 and further including **actuating means** connected to said supply control means for initiating the supply of respective services to said consumer location.	"**Actuating means:**" means-plus-function limitation. **Function:** initiating the supply to the consumer location of the separate and distinct service controlled by the supply control means to which the actuating means is connected.
	Disclosed Structure: a switching device.
3. A system according to claim 1, and further including **deactuating means** connected to said supply control means for effecting termination of the supply said respective services upon expiry of said respective predetermined time period.	"**Deactuating means**" is a means-plus-function limitation. **Function:** causing the shut-off of the supply of the separate and distinct service controlled by the supply control means to which the deactuating means is connected upon expiry of the predetermined time period for that service.
	Disclosed Structure: a switching device.
9. A system according to claim 1, wherein said supply control means includes a plurality of **supply control units** for controlling the supply of different services,	"**Supply control units**" is a means-plus-function limitation.

said units being **connected together in the form of a panel.**

Function: controlling the supply of different services

Disclosed Structure: Shown in Fig. 2 as item 22. Each supply control unit comprises the structures disclosed as service supply control means, timing means, actuating means, deactuating means, timing device, and card reading device (as described herein) within or attached to the exterior of each unit.

"**connected together in the form of a panel**": linked together in a side-by-side configuration to form a control board which allows direct consumer access to the control mechanisms of each unit.

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