

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent of: Harvey et al.  
U.S. Patent No.: 8,711,885 Attorney Docket No.: 39843-0033IP2  
Issue Date: April 29, 2014 IPR Control No.: IPR2017-00295  
Appl. Serial No.: 08/459,507  
Filing Date: June 2, 1995  
Title: SIGNAL PROCESSING APPARATUS AND METHODS

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT  
NO. 8,711,885 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. §§ 42.1-  
42.123**

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**EXHIBITS**

SAMSUNG-1001	U.S. Patent No. 8,711,885 to Harvey et al. (“the ’885 Patent” or “’885”)
SAMSUNG-1002	Excerpts from the Prosecution History of the ’885 Patent (“Prosecution History”)
SAMSUNG-1003	Declaration of Dr. John Villasenor (“Dec.”)
SAMSUNG-1004	Curriculum Vitae of Dr. John Villasenor
SAMSUNG-1005	International Publication No. WO 81/02961 (“Campbell-1A”)
SAMSUNG-1006	U.S. Patent No. 4,536,791 (“Campbell-1B”)
SAMSUNG-1007	U.S. Patent Application Serial No. 06/135,987 (“Campbell-1C”)
SAMSUNG-1008	U.S. Patent No. 4,225,884 (“Block”)
SAMSUNG-1009	U.S. Patent No. 4,789,895 (“Mustafa”)
SAMSUNG-1010	U.S. Patent No. 4,829,569 (“Seth-Smith”)
SAMSUNG-1011	Plaintiff’s Disclosure of Asserted Claims and Infringement Contentions Exhibit F, <i>Personalized Media Communications, LLC v. Samsung Electronics America, Inc. et al.</i> , Civil Action No. 2:15-cv-01754-JRG-RSP (E.D. Texas Feb. 8, 2016)
SAMSUNG-1012	Plaintiff’s Joint Claim Construction Submission Exhibit A, <i>Personalized Media Communications, LLC v. Amazon.com, Inc.</i> , Civil Action No. 1:13-cv-01608-RGA (D. Del. Sept. 23, 2014)
SAMSUNG-1013	Proof of Service for PMC Complaint Against Samsung

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively “Petitioner”) petition for *inter partes* review (“IPR”) of claims 1, 102, 105, and 106 (“the Challenged Claims”) of U.S. Patent No. 8,711,885 (“’885 Patent”). IPR should be instituted, as a reasonable likelihood exists that Petitioner will prevail in proving the Challenged Claims unpatentable.

**I. MANDATORY NOTICES UNDER 37 C.F.R §§ 42.8**

**A. Real Party-In-Interest**

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. are the real parties-in-interest.

**B. Related Matters**

Personalized Media Communications, LLC (herein after “Patent Owner”) filed a complaint alleging infringement of the ’885 Patent in a lawsuit against Petitioner in the Eastern District of Texas (Personalized Media Communications, LLC. v. Samsung Electronics America, Inc., et al., Civil Action No. 2:15-cv-01754). Petitioner is concurrently filing a petition for IPR of claims 9, 10, 12, 14, 15, 17, 21, 23, and 27 of the ’885 patent in IPR control no. IPR2017-00294 and petitions for IPR of related patents in IPR control nos. IPR2017-00288-00293.

**C. Lead and Back-Up Counsel**

Petitioner provides the following designation of counsel.

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**D. Service Information**

Please address all correspondence/service to the address listed above.

Petitioner consents to electronic service by email at [IPR39843-0033IP2@fr.com](mailto:IPR39843-0033IP2@fr.com),  
with a copy to [PTABInbound@fr.com](mailto:PTABInbound@fr.com).

**II. PAYMENT**

Petitioner authorizes charge of necessary fees to Deposit Acct. 06-1050.

**III. IPR REQUIREMENTS**

**A. Grounds for Standing**

Petitioner certifies that the '885 Patent is available for IPR. This Petition is being filed within one year of service of a complaint against Petitioner on November 18, 2015. *See* Ex. SAMSUNG-1013. Petitioner is not barred or estopped from requesting review of the Challenged Claims.

**B. Challenge/Relief Requested**

Petitioner requests IPR of the Challenged Claims on the grounds in the table shown below, as explained below and in Exhibit SAMSUNG-1003, the

Declaration of John Villasenor (“Dec.”).

Ground	'885 Patent Claims	Basis for Rejection
Ground 1	1	§ 103: Mustafa
Ground 2A	1	§ 103: Campbell-1A
Ground 2B	1	§ 103: Campbell-1B
Ground 3	102, 105, 106	§ 103: Block in view of Seth-Smith

The '885 Patent issued from U.S. Patent Application Serial No. 08/459,507 (the '507 App.), which was filed on June 2, 1995, and claims priority through a string of continuation applications to September 11, 1987. Therefore, the earliest priority date to which the '885 Patent should be entitled to is September 11, 1987. As shown below, each reference pre-dates this date and qualifies as prior art:

Reference	Date	Prior art §
Mustafa	Apr. 30, 1987 (filed)	§ 102(e)
Campbell	Oct. 15, 1981 (published)	§ 102(b)
Campbell-1B	August 20, 1985 (issued), with priority of March 15, 1980	§ 102(b)
Block	Feb. 7, 1980 (published)	§ 102(b)
Seth-Smith	Jul. 8, 1986 (filed)	§ 102(e)

While Campbell-1B was issued in 1985, it is entitled to priority of Mar. 31, 1980. Campbell-1B was published on August 20, 1985, and was filed June 4, 1984, with claims that are fully supported based on subject matter that appeared within Campbell-1C, filed Mar. 31, 1980. Campbell-1B is a continuation of U.S.

Application Serial No. 06/348,937 (“’937 Application”), which was filed on Nov. 27, 1981 as a CIP of Application No. 06/135,987 (“Campbell-1C”), filed on Mar. 31, 1980. Co-pendency existed at each mentioned filing. The validity of the Campbell-1B priority claim to the Campbell-1C Application is illustrated through citations that appear below relative to claim 1 of Campbell-1B. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015).

<b>Campbell ’791 Claim 1</b>	<b>Campbell ’987 Priority Application Support</b>
1. In television communications system having a central station for transmitting a plurality of television signals at different frequency channels to a plurality of user stations remote from said central stations, each having a tuner for selecting one of said television signals, a method of utilizing said central station to limit access of said user stations to only certain ones of said television signals, comprising:	Claim 1; <i>see also</i> 1:24-2:2, 3:10-14, 5:1-27, FIGS. 1, 2, 6.
transmitting each of said category codes from the central station to its respective user station to precondition each user station by authorization from the central station to selectively access said predetermined categories of television signals;	Claim 1; <i>see also</i> 6:18-26, 7:20-25, 8:1-2, 8:30-37, 16:20-28, 17:21-33, FIG. 11.
generating a plurality of program codes at said central station to limit user access to said predetermined categories of television signals, one of said program codes being generated for each television signal, each of said program codes including predetermined control data	Claim 1; <i>see also</i> FIG. 11, 1:24-2:2, 3:10-14, 6:18-26, 17:1-20.



for enabling access to one of said television signals;	
transmitting one of said program codes with each of said television signals to each of said user stations being tuned to receive one of said television signals;	Claim 1; <i>see also</i> FIG. 11, 6:18-26, 17:1-20.
comparing the control data of said program code to the enabling data of the category code provided by the central station to each user station; and	Claim 1; <i>see also</i> 3:22-25, 21:1-22:18, FIG. 12.
enabling only each user station which has a category code with enabling data corresponding to the control data of said program code, whereby said enabled user station can receive and process any said tuned television signal within a predetermined category of said television signals corresponding to said category code.	Claim 1; <i>see also</i> 15:13-22, 21:1-22:18, FIG. 12.

As such, Campbell-1A qualifies as prior art under 35 U.S.C. § 102(b) as of October 15, 1981. Campbell-1B qualifies as prior art under 35 U.S.C. § 102(b) as of August 20, 1985, and also qualifies as prior art under 35 U.S.C. § 102(e) as of March 31, 1980 with respect to the same subject matter disclosed in Campbell-1C, the earliest priority document. String citations throughout this Petition indicate the overlapping disclosures of Campbell-1A/1B/1C (collectively “Campbell”).

Campbell-1A and Campbell-1B are asserted in separate, contingent grounds of this Petition—Grounds-2A&2B—to account for any chance that Patent Owner may attempt to avoid full vetting of the Challenged Claims by swearing behind the prior art date of Campbell-1A, which precedes the ’885 Patent’s earliest claimed priority

date.

#### **IV. INTRODUCTION**

##### **A. Overview of the '885 Patent**

The '885 Patent is titled “signal processing apparatus and methods” and generally relates to the transmission, reception, processing, and presentation of information carried on various types of electronic signals (e.g., standard radio and television signals). '885, Abstract. The purported invention of the of the '885 Patent “employs signals embedded in” mass media programming that “contain digital information” for display on a television screen. '885, 7:51-60.

##### **1. Description of the Alleged Invention of the '885 Patent**

The Challenged Claims relate to methods for processing television and/or video signals at a receiver station, where the receiver station receives a conventional television broadcast or cablecast transmission. '885, claim 102; 10:42-44. Digital information, including information that causes the receiver to perform particular functions, is embedded in the broadcast transmission. '885, 7:51-63. A television connected to the receiver then presents received video and audio information. '885, FIG. 1, 11:20-23.

The specification of the '885 Patent uses the phrase “well known in the art” 156 times. As this petition will demonstrate, this is not a coincidence. Neither the exemplary claims nor any other claims recite anything more than trivial variations of what was taught by the prior art.

**B. Level of Ordinary Skill in the Art as of the Critical Date**

A person of ordinary skill in the art as of the Critical Date (hereinafter “APOSITA”) would have had at least an undergraduate degree in computer science, electrical engineering, or a related field, and two years of experience in communications devices and systems. Dec., 16. Alternatively, a person of ordinary skill with less than the amount of educational training noted above could have had a correspondingly greater amount of experience in the relevant field. *Id.*

**V. CLAIM CONSTRUCTION**

The claims of the ’885 Patent should be given their broadest reasonable interpretation. Pursuant to PTO regulations, “[a] claim in an unexpired patent . . . shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b); *see Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144 (2016) (The regulation calling for the use of BRI “represents a reasonable exercise of the rulemaking authority that Congress delegated to the Patent Office.”). This means that the claim terms of the ’885 Patent should be given a meaning “consistent with the ordinary and customary meaning of the term (unless the term has been given a special definition in the specification),” and “must be consistent with the use of the claim term in the interpretation that those skilled in the art would reach.” MPEP § 2111 (citing *In re*

*Cortright*, 165 F.3d 1353, 1359 (Fed. Cir. 1999)).<sup>1</sup>

**A. “a valve for receiving and controlling the communication of signals” (1)**

Under BRI, a “valve” should be construed as “a device that regulates the flow of information.” While the term “valve” appears throughout the specification, the term is not defined with respect to a limitation on the embodiment of the valve. Rather, the specification describes that the valve “receives inputted” transmission information and “outputs information” to “external receiving apparatus.” *See* ’885, 36:1-22; Dec., 38.

**B. “processor” (1, 102, 105, 106)**

Under BRI, a “processor” should be construed as “a device or module that operates on analog or digital signals.” While the term “processor” appears throughout the specification, the term is not defined with respect to a limitation on the functionality of the processor.

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<sup>1</sup> The standard for district court (“ordinary and customary meaning”) is different than the standard applied in *IPR*. Due to the different standards, disclosure of the references identified by Petitioner as teaching a claim term of the ’885 Patent is not an admission that the claim term is met by any disclosure for infringement purposes, or that the claim term is enabled or meets the requirements for written description.

The term processor had a well-known meaning in the art as a component which “operates on data.” Dec., 39-43. Nothing in the specification suggests deviation from this well-accepted definition. The specification recites many different types of processors which perform different types of operation on data. *See, e.g.*, ’885, 8:53-55 (describing a processor that “organize[s] and transfer[s] the in-formation stream”); *id.*, 16:5-7 (describing a “signal processor” which “identifies specific programming and its subject matter as said programming becomes available for use.”) The claims here, though, do not recite any specific type of processor, instead claiming broadly the generic term “processor.”

In the context of other PMC patents that share the same or a similar specification, the Board has consistently interpreted a “processor” as “a device that operates on data.” *See* IPR-2014-01532, Paper 57, 12; IPR2016-00753, Paper, 12; IPR2014-01534, Paper 55, 12. In fact, the PMC itself has proposed a similar construction in district court litigation for a related patent having the same specification: “any device capable of performing operations on data.” Ex. SAMSUNG-1012, 12.

In addition, Board decisions have recognized that a “processor” operates on more than just digital data. For example, the Board was “satisfied” that components of Campbell-1A which unambiguously operate on both digital and analog information “collectively form a ‘video output processor.’” *See* IPR2016-

00753, Paper 8, 48; *see also id.* at 11(rejecting Patent Owner’s proposed constructions as “a device that execute[s] instructions or process[es] data according to instructions. In addition, nothing in the specification suggests that “processors” operate only on digital data. For example, FIG. 2 of the ’885 Patent shows a “signal processor” which unambiguously operates on analog data as well. Dec., 39-43.

**VI. THERE IS A REASONABLE LIKELIHOOD THAT AT LEAST ONE CLAIM OF THE ’885 PATENT IS UNPATENTABLE**

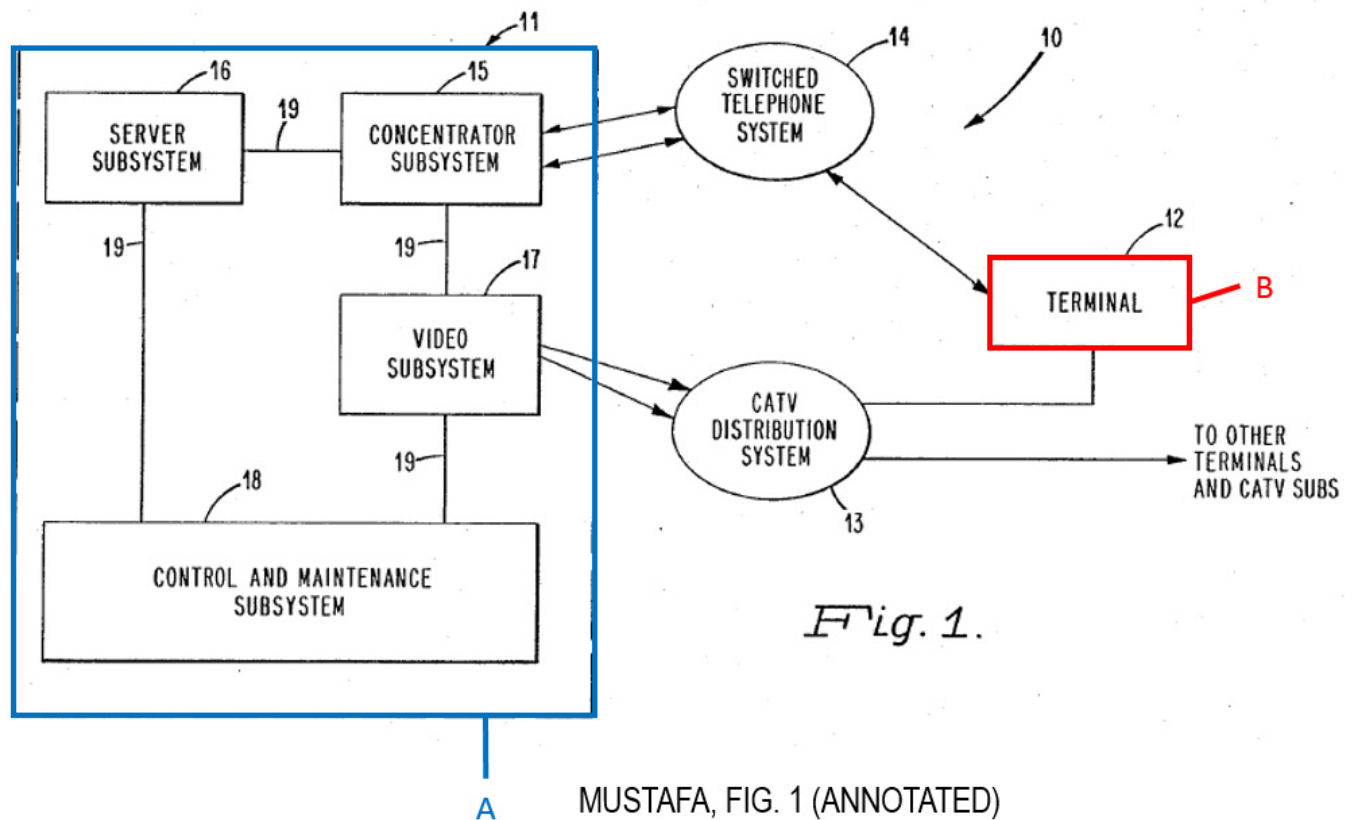
As detailed below, this petition shows a reasonable likelihood that the Petitioner will prevail with respect to the Challenged Claims of the ’885 Patent.

**A. Overview of References Relied Upon**

**1. Mustafa**

Claim 1 is obvious over Mustafa in Ground 1.

Mustafa generally teaches “[a] telecommunication system,” which is illustrated in an annotated version of Mustafa’s FIG. 1 below. Mustafa, Abstract; *see id.*, FIG. 1.



The system includes a Central Facility 11 (A) that transmits a cablecast transmission to one or more terminals 12 (B). The Central Facility is coupled to one or more terminals through a transmission medium having bandwidth sufficient to carry standard television frames. *See* Mustafa, FIGS. 1, 5. Each terminal receives a stream of television frames, including a plurality of audio channels, and synchronizes video data with audio data for display on an associated television set. *See id.*

In more detail, Mustafa describes that a set-top module of the terminal “receiv[es] and process[es] video frames and audio frames sent from the Central

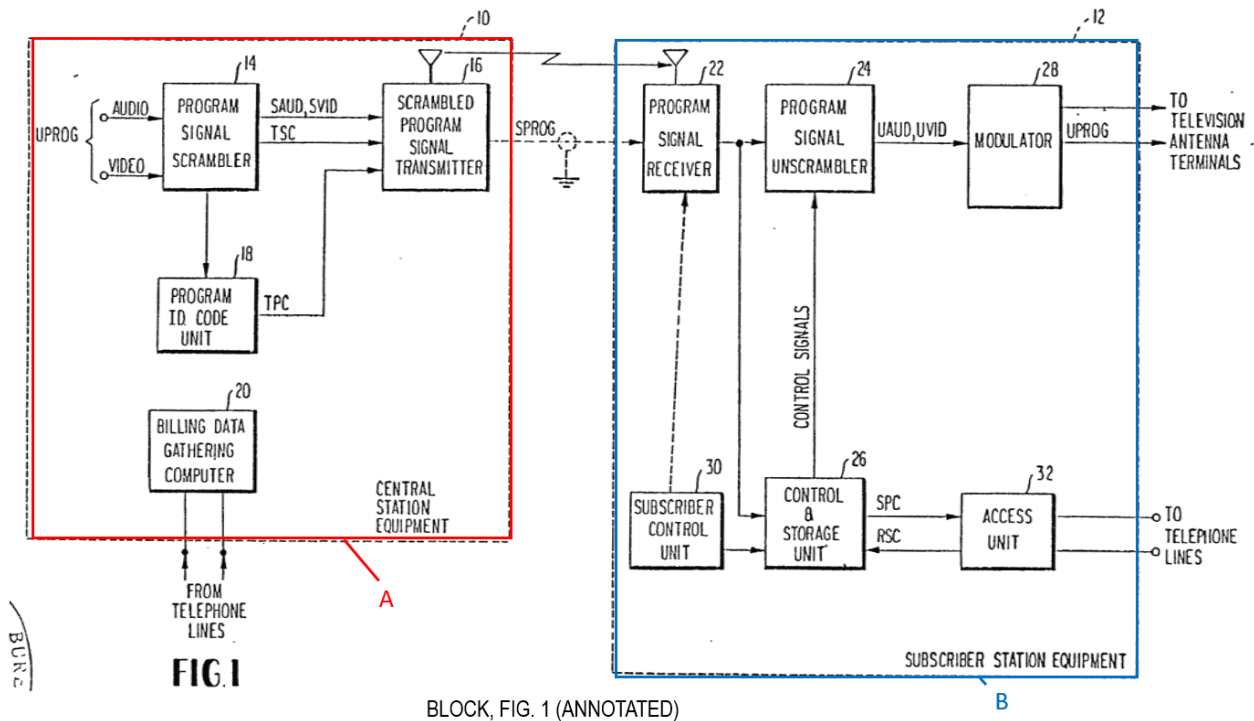
Facility and deliver[s] them to the television receiver.” *See id.*, 6:34-41. A demodulator of the terminal “demodulates the incoming signal to baseband and splits the audio channels from the video and audio frames.” *Id.*, 6:42-68. The audio channels are extracted from the demodulator and connected to an analog switch that selects baseband audio or SAP audio. *Id.* The video frames are passed through a character generator to insert input from a user, and the selected audio channels are combined with the video for display at a television receiver. *Id.*, 7:1-10:62. This process allows increased control over a user’s session. *Id.*, 10:7-62.

## **2. Block**

Claims 102, 105, and 106 are obvious over Block in view of Seth-Smith in Ground 3.

Block generally teaches a “subscription television system,” which is illustrated in an annotated version of FIG. 1 below. Block, Abstract; FIG. 1.





The system includes central station equipment 10 (A) that transmits a scrambled program signal (SPROG) to subscriber station equipment 12 (B). The SPROG includes “scrambled audio and video signals as well as various synchronizing signals and codes,” and can be transmitted to the subscriber station equipment through “conventional broadcast or cable techniques.” See Block, FIG. 1; *id.*, 3:27-37.

The SPROG received at the subscriber station equipment is “selectively unscrambled to permit viewing of the block of program material being transmitted . . .” Block, Abstract. Specifically, the subscriber station equipment compares a received program code, denoted as “TPC,” within the SPROG to a locally generated category code, denoted as “SPC,” to “determine whether the program is

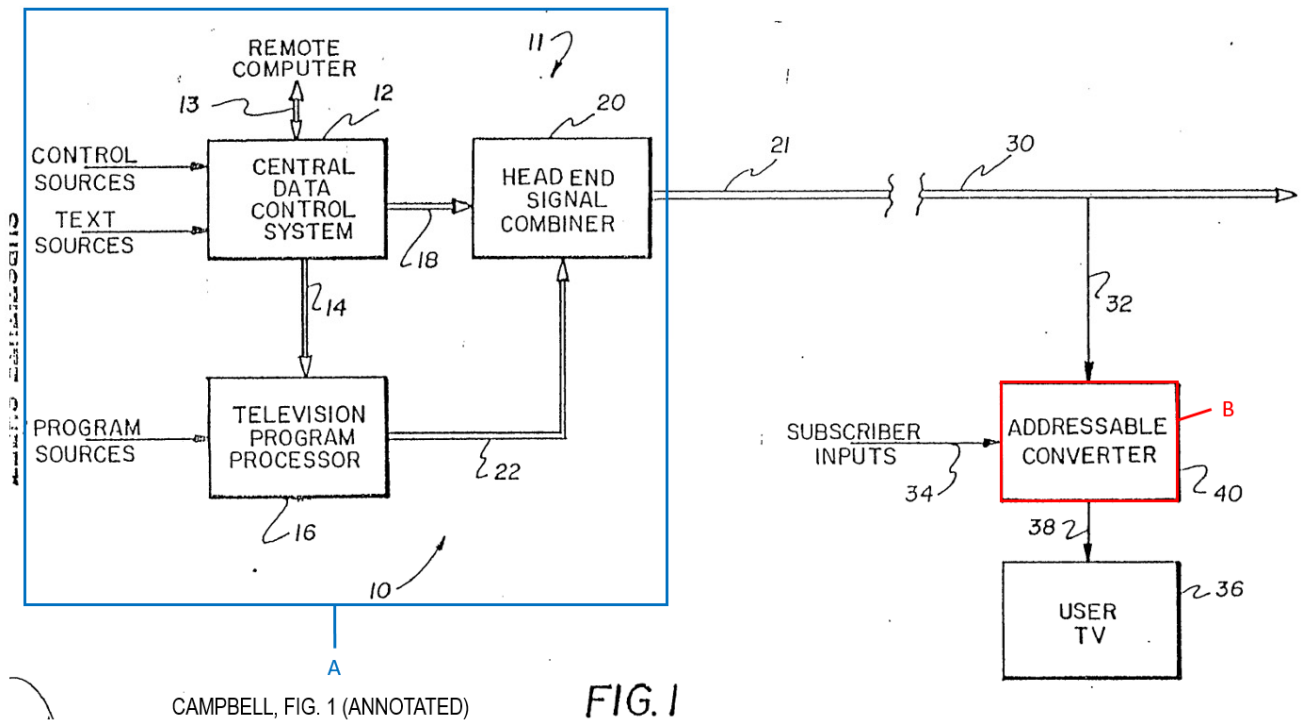
acceptable for viewing” by the subscriber associated with the subscriber station equipment. *Id.* The SPROG also includes a “transmitted scramble code TSC for transmission,” which is used to selectively scramble “respective scrambled audio and video signals SAUD and SVID.” *Id.*, 3:38-49.

An unscrambled program signal UPROG, which includes an unscrambled audio signal UAUD and an unscrambled video signal UVID, is then provided for output on the subscriber’s television. *Id.*, 3:62-4:9. This process “provides subscriber control of program viewing.” *Id.*, 4:10-19.

### **3. Campbell-1A, Campbell-1B, and Campbell-1C**

Claim 1 is obvious over Campbell-1A in Ground 2A. Campbell-1B discloses all of the teachings of Campbell-1A relied upon in Ground 2A as illustrated in the citations below of Campbell-1B relative to the citations of Campbell-1A. String citations throughout this Petition indicate the overlapping disclosures of Campbell-1A/1B/1C (collectively “Campbell”).

Each of Campbell-1A, Campbell-1B, and Campbell-1C generally describe an “addressable cable television control system,” which is illustrated in an annotated version of FIG. 1 of Campbell-1A below. Campbell-1A, Abstract, FIG. 1; Campbell-1B, Abstract, FIG. 1; Campbell-1C, Abstract, FIG. 1.



The system includes a head end station (A) with components that combine (i) video signals obtained from multiple program sources, and (ii) data signals from control sources and text sources. The head end station generates an RF data-loaded television signal that is provided for output at multiple receiver stations (B). The receiver stations, also denoted in Campbell-1A as “addressable converters,” receive the RF data-loaded television signals, process the television signals, and then provide the embedded video signals for output on an associated television. Campbell-1A, FIGS. 6-8; Campbell-1B, FIGS. 6-8; Campbell-1C, FIGS. 6-8.

Campbell-1A teaches that the system uses various “procedures to restrict access to [] television programing” e.g., “restrictions on the basis of addressable

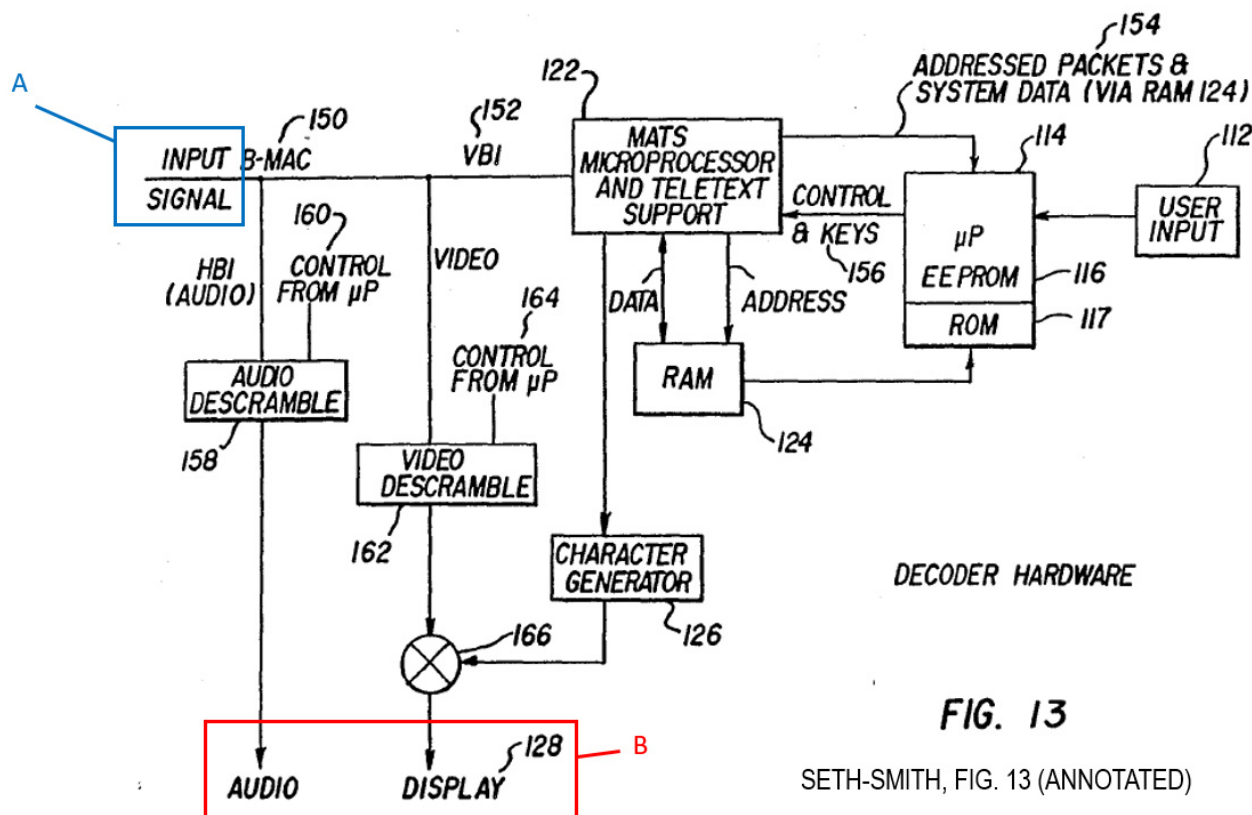
tiers, special events and eligibility codes.” Campbell-1A, 17:33-18:17; Campbell-1B, 11:66-12:26; Campbell-1C, 14:22-15:17. For example, the addressable converter compares the program codes sent from the head end station to user codes identifying the access parameters of each subscriber. Campbell-1A, 17:33-18:17; Campbell-1B, 11:66-12:26; Campbell-1C, 14:22-15:17. The descrambling by the addressable converter can be controlled such that the “descrambling process at the converter is enabled only after the process control parameters are satisfied by the converter.” Campbell-1A, 18:8-12; Campbell-1B at 12:14-18; Campbell-1C, 15:8-12. This capability enables “remote subscribers [to] have access to different tiers of service regardless of the channel selected depending upon the type of service subscribed to by each user.” Campbell-1A, 18:13-15; Campbell-1B, 12:19-22; Campbell-1C, 15:13-15. Thus, Campbell-1A describes that the system “allows many different programs to be transmitted on a given channel while discriminating between subscribers who may view a given program.” Campbell-1A, 18:15-17; Campbell-1B, 12:22-26; Campbell-1C, 15:15-17.

#### **4. Seth-Smith**

Claims 102, 105, and 106 are obvious over Block in view of Seth-Smith in Ground 3.

Seth-Smith generally teaches a subscription television system which is illustrated in an annotated version of FIG. 13 below. Seth-Smith, Abstract, FIG.

13.



The system includes an input signal (A) that is processed by a decoder of a receiver (B) of a television system. *Id.*, FIG. 13.

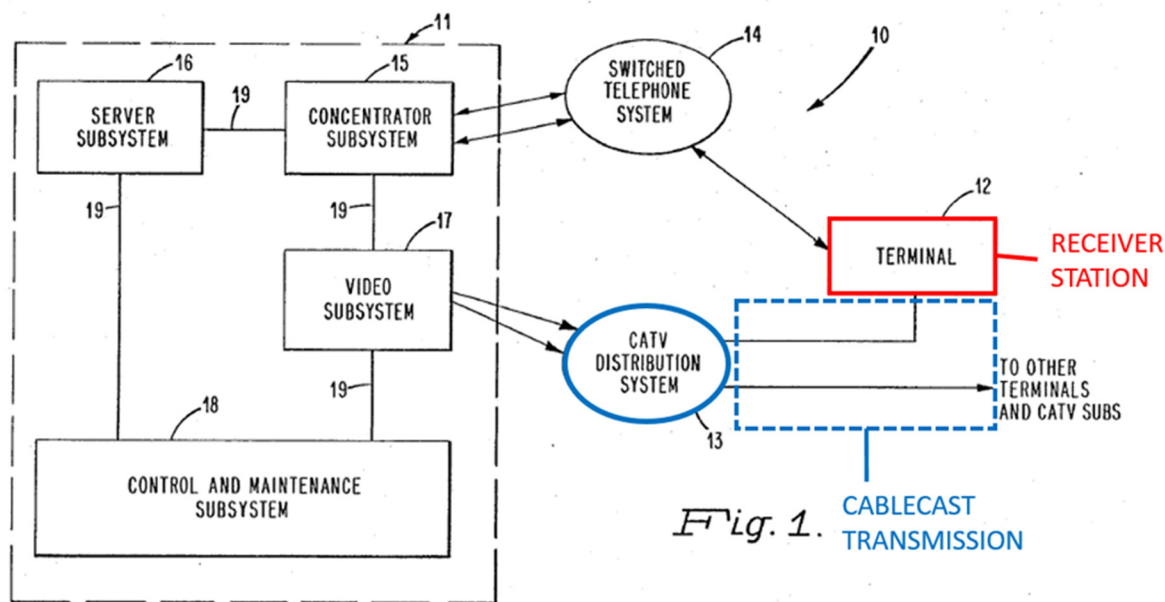
Seth-Smith teaches that the input signal includes “teletext, video, and audio signal” that is “encrypted and/or scrambled.” *Id.*, 6:3-64. The signal includes television frames that contain system data “necessary for operation of a subscription television system,” as well as “data needed for the operation of individual decoders and for transmission of messages to individual subscribers.” *Id.*, 7:23-45. This information provides an “indication of the tier to which [a]

program being transmitted on a particular channel at that time belongs,” and allows “individual decoders to use the tier number transmitted” to “either enable or disable the viewing of a particular program at a particular time.” *Id.*, 10:43-68.

**B. GROUND 1—Claim 1 is Obvious Over Mustafa**

**[1.0] A method of controlling the communication of signals at a receiver station, said receiver station comprising**

Mustafa teaches a telecommunication system that includes a terminal of a wired television system. *See* Mustafa, Abstract; *see id.* FIG. 1. Because the terminal receives cablecast signals through a CATV distribution system, the wired television system of Mustafa is “a receiver station.” *See id.* FIG. 1 of Mustafa illustrates an exemplary terminal, labeled with reference number 12 within the system taught by Mustafa.



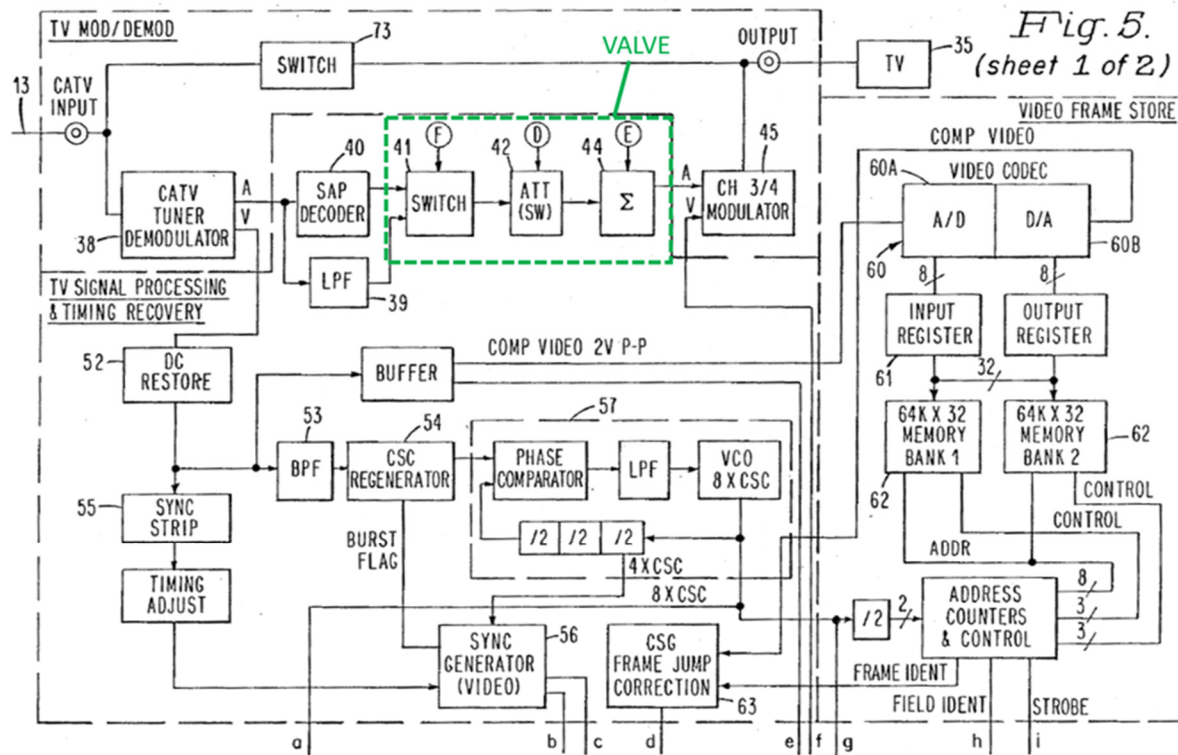
MUSTAFA, FIG. 1 (ANNOTATED)

Through its description of the interaction between the terminal 12 [“said receiver station”] and the CATV distribution system 13 which “synchroniz[es] a digital bit stream sent from a central facility” and provided through the CATV distribution system 13 “to a terminal on lines of television frames,” Mustafa renders obvious controlling the communication of signals at a receiver station. *Id.*, Abstract; Dec., 65-67.

***[1.1] (i) a valve for receiving and controlling the communication of signals and***

As described above at Section V.A, “valve” should be construed broadly enough to include a “device that regulates the flow of information.” *See* ’885, 36:1-22 (valve that receives and outputs information); Dec., 74. By its description of switch 41, switched attenuator 42, summer 44, and other related components, Mustafa renders obvious such a device. *See* Mustafa, 6:49-7:3; *see id.* FIG. 5 sheet 1; Dec., 75.

Mustafa’s FIG. 5 sheet 1, an annotated version of which is presented below, illustrates a detailed view of the terminal 12 [“said receiver station”]. *See* Mustafa, FIG. 5 sheet 1. The portion of the system within FIG. 5 sheet 1’s dotted lines is part of a set-top module 33 that “contains hardware and software for data communications to and from the Central Facility 11 and for receiving and processing video frames and audio frames sent from the Central Facility and delivering them to the television receiver 35.” *Id.*, 2:29-61 (emphasis added).



MUSTAFA, FIG. 5 sheet 1 (ANNOTATED)

The terminal 12 [“said receiver station”] includes switch 41, which receives an “incoming signal” from a demodulator and “select[s] [a] desired continuous audio signal” from the received “audio channels extracted from the audio output” of the demodulator. *Id.*, 6:23-7:3 (emphasis added). The selected channel is communicated to switched attenuator 42, summer 44, and then modulator 45 for further processing. *Id.* The processed signal is then coupled “to television set 35 for playing.” *Id.*

Switch 41 is “controlled by a control signal from the Central Facility 11” through a “selection code stripped from a [video or audio] frame.” *Id.* Because



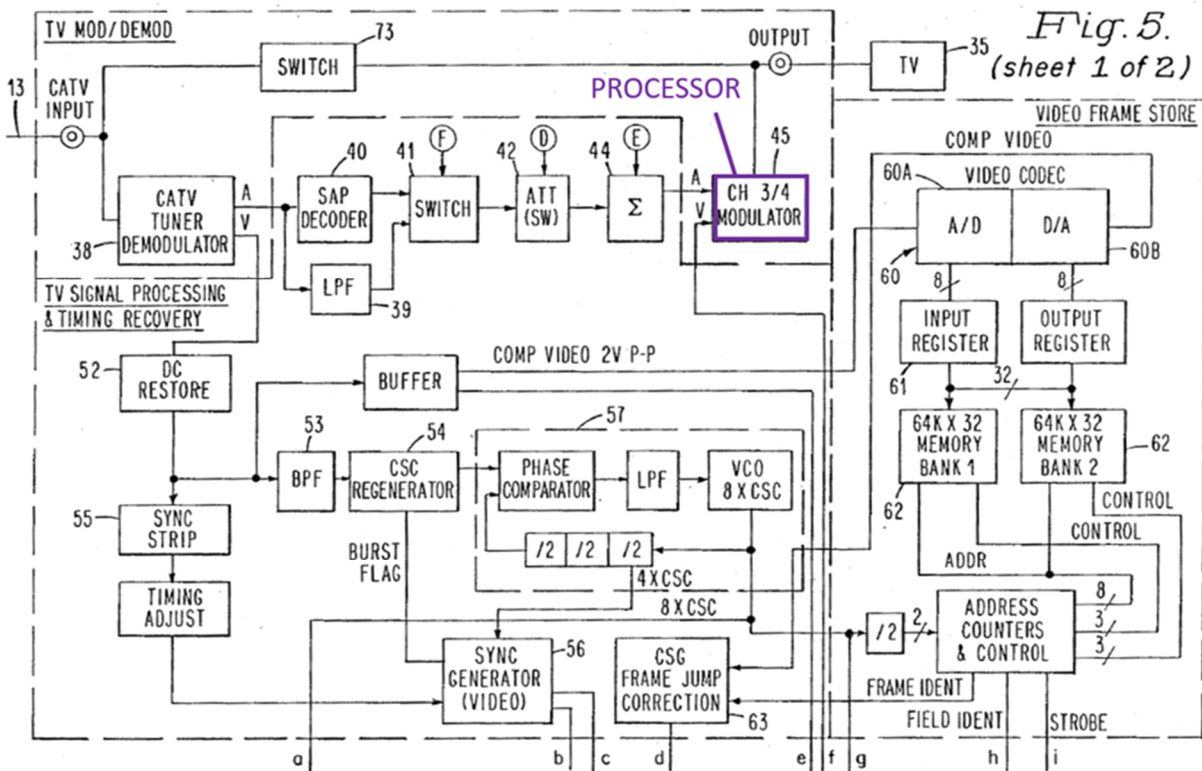
switch 41, attenuator 42, and summer 44 collectively receive an incoming signal, select a desired portion of the incoming signal for transmission, and provide the signal to modulator 45 for processing, the collective logic of Mustafa's system labelled as "valve" in annotated FIG. 1 above, including switch 41, attenuator 42, and summer 44, regulates the flow of information, and is a valve for receiving and controlling the communication of signals. *Id.*; Dec., 74-81.

***[1.2] (ii) at least one processor that processes said signals, said method comprising the steps of:***

As described above at Section V.B, "processor" should be construed broadly enough to include "a device or module that operates on analog or digital signals." *See* '885, 135:52-56 (decoders 30 and 40 that process information), 76:11-13 (buffers/comparators 8 that process information); Dec., 88. By its description of modulator 45 and of and microprocessor 67, Mustafa discloses two such devices. *See* Mustafa, 6:49-8:68; *see id.* FIG. 5 sheet 1, sheet 2; Dec., 88.

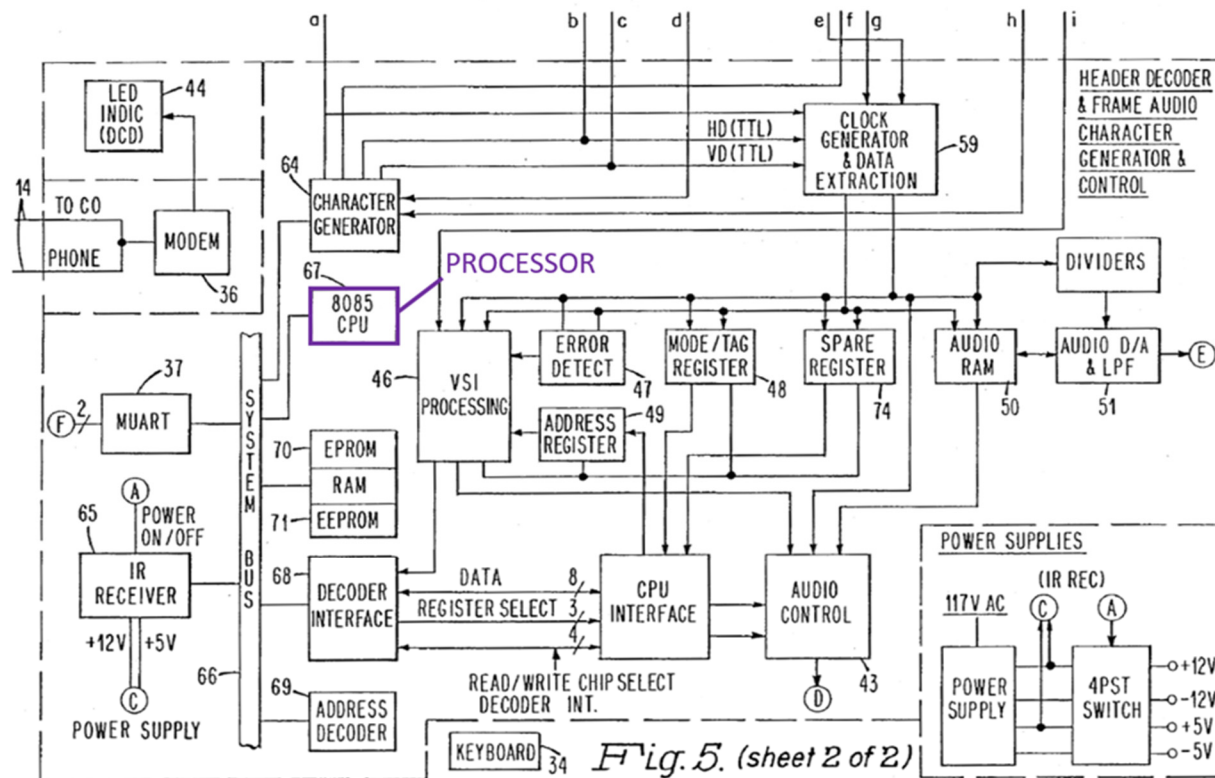
As noted above at 1.1, Mustafa's set-top module 33 is a part of terminal 12 that "contains hardware and software ... for receiving and processing video frames and audio frames sent from the Central Facility and delivering them to the television receiver 35." Mustafa, 2:29-61. FIG. 5 sheet 1 of Mustafa illustrates that Mustafa's set-top box module 33 includes, for example, modulator 45 ["at least one processor"], which modulates signals input through its "audio input" and

“video input.” *Id.*, 7:38-8:43. Because modulator 45 operates on information in the form of audio and video input signals received by the terminal 12, it is a processor.



MUSTAFA, FIG. 5 sheet 1 (ANNOTATED)

FIG. 5 sheet 2 continues a detailed illustration of the terminal 12 [“said receiver station”], which Mustafa describes as being “controlled by microprocessor 67” [“at least one processor”]. *Id.*, 8:66-67. In more detail, Mustafa’s microprocessor 67 operates on information received by terminal 12, and is, therefore, a processor.



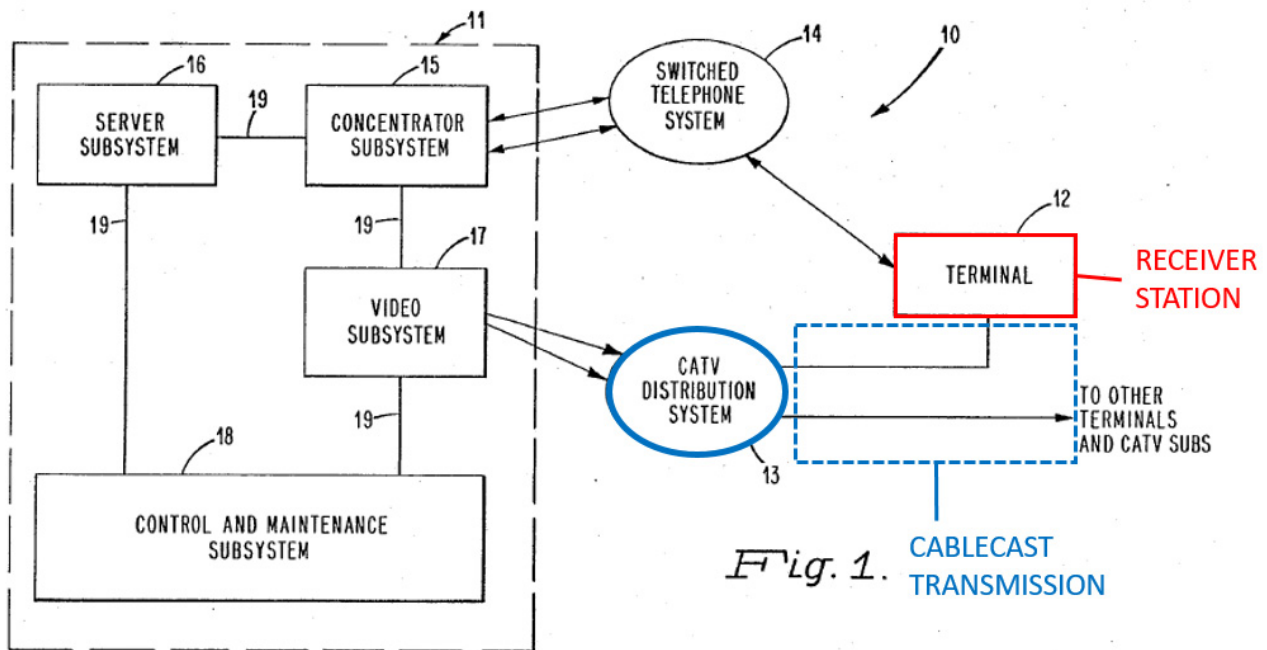
MUSTAFA, FIG. 5 sheet 2 (ANNOTATED)

Thus, through its descriptions of modulator 45 and microprocessor 67, Mustafa renders obvious at least one processor that processes signals, the communication of which are controlled by a valve. Dec., 88-91.

*[1.2.1] receiving one of a broadcast transmission and a cablecast transmission that includes an information transmission that includes embedded signals;*

Mustafa teaches that “[a] Central Facility 11 is coupled to a plurality of terminals 12 [“said receiver station[s]”] through a first transmission medium 13” that “may be cable, such as a CATV network.” *Id.*, 2:64-3:2. FIG. 1, annotated and reproduced below, illustrates an exemplary terminal 12 “receiving and processing video frames and audio frames sent from the Central Facility [11].” *Id.*,

6:23-41.



MUSTAFA, FIG. 1 (ANNOTATED)

Mustafa teaches that Central Facility 11 “provides both video and audio information” to terminal 12 through the CATV distribution system. *Id.*, 2:64-3:19. Because this video and audio information is transmitted over a CATV network, it is a cablecast transmission. *See id.*; Dec., 97-98.

Mustafa further teaches that the video and audio information includes a “composite signal [that] contains video frames, digitally encoded audio frames, and BTSC encoded audio channels.” *Id.*, 6:42-48. The composite signal includes video frames, audio frames, and audio channels, all of which are information; therefore, the composite signal is an information transmission. *Id.*, 2:64-3:2; 6:23-

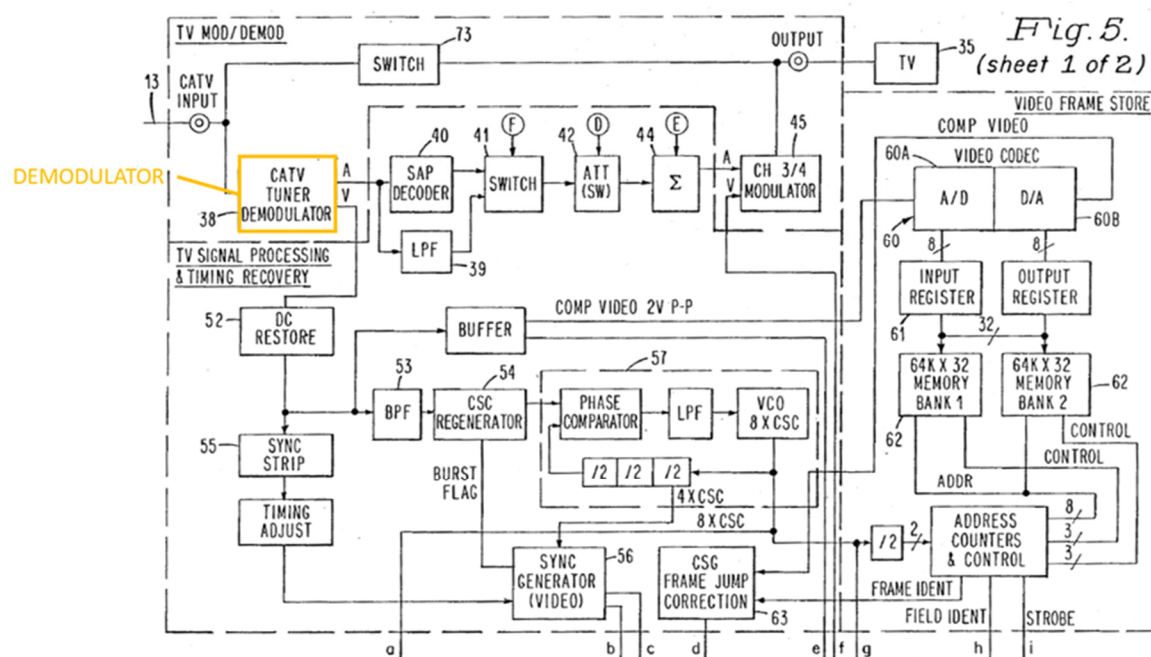
48; Dec., 99.

Additionally, because the video frames, digitally encoded audio frames, and encoded audio channels, are contained within the composite signal [“an information transmission”], these components of the composite signal are embedded in the composite signal. Mustafa, 2:64-3:2; 6:23-48; Dec., 100.

Thus, through its description of terminal 12 which receives video and audio information [“a cablecast transmission”] including a composite signal [“an information transmission”] that contains video frames, audio frames, and audio channels [“embedded signals”] through a CATV network, Mustafa renders obvious receiving a cablecast transmission that includes an information transmission that includes embedded signals. Mustafa, 2:64-3:19; 6:23-48; Dec., 97-101.

***[1.2.2] demodulating said one of a broadcast transmission and a cablecast transmission to detect said information transmission therein;***

As explained at 1.2.1, Mustafa teaches that terminal 12 receives video and audio information. Mustafa, 6:42-48. This video and audio information is received by terminal 12 as an incoming signal [“said cablecast transmission”] that includes “a composite signal [“said information transmission”].” *Id.* Mustafa’s FIG. 1, annotated and reproduced below, illustrates that the incoming signal is received by a CATV demodulator 38 of the terminal 12.



MUSTAFA, FIG. 5 sheet 1 (ANNOTATED)

The “CATV demodulator 38 receives a selected NTSC channel signal over the CATV network,” and “demodulates the incoming signal [“said cablecast transmission”] to baseband and splits the audio channels from the video and audio frames [collectively “said information transmission”].” *Id.*, 6:42-48 (emphasis added).

Thus, through its description of the demodulation of the incoming signal [“said cablecast transmission”] to baseband and detecting the video frames, digitally encoded audio frames, and encoded audio channels of the composite signal [“said information transmission”], in order to separate the audio channels from the video and audio frames, Mustafa renders obvious demodulating a cablecast transmission to detect an information transmission. Dec., 107-109.

***[1.2.3] detecting said embedded signals in said information transmission;***

As explained at 1.2.1, Mustafa teaches that the terminal 12 receives a cablecast transmission that includes “a composite signal [“said information transmission”]” that “contains video frames, digitally encoded audio frames, and BTSC encoded audio channels [each of which is one of the “said embedded signals”].” Mustafa, 6:42-48. As explained at 1.2.2, these video and audio frames and audio channels are contained within the composite signal and, therefore, are embedded signals within the composite signal. Dec., 112.

Through its description of the demodulation of “the incoming signal to baseband” and “split[ting] the audio channels from the video and audio frames [“said embedded signals”],” Mustafa describes detecting and extracting embedded components of the composite signal [“said information transmission”]. Thus, Mustafa renders obvious detecting the embedded signals. Mustafa, 6:42-48; Dec., 112-113.

***[1.2.4] communicating said embedded signals to said valve;***

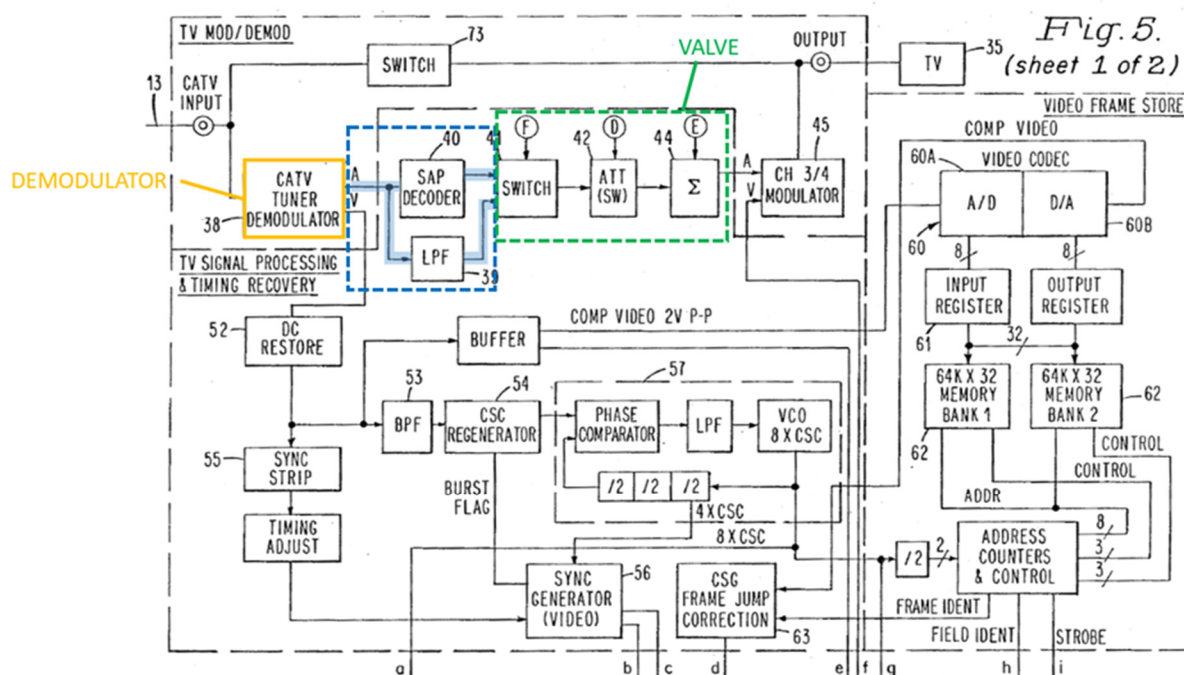
As explained at 1.2.3, Mustafa describes detecting video frames, audio frames, and audio channels [“said embedded signals”] from a composite signal [“said information transmission”]. See Mustafa, 6:42-48; Dec., 120.

FIG. 5 sheet 1 of Mustafa, annotated and reproduced below, illustrates that “[t]he audio channels [“said embedded signals”] extracted from the audio output of

demodulator 38 are separated by a low-pass filter 39 and a SAP channel decoder

40” and “are connected into an analog switch 41 [“said valve”].” Mustafa, 6:45-68

(emphasis added).



MUSTAFA, FIG. 5 sheet 1 (ANNOTATED)

APOSITA would have found it obvious that connecting an output of a first device to a second device teaches communicating the output of the first device to the second device. Thus, through its description of the passing of audio channels extracted from the demodulator 38 to the switch 41, Mustafa renders obvious communicating embedded signals to a valve for receiving and controlling the communication of signals. *Id.*, 6:42-68; Dec., 120-122.

**[1.2.5] detecting, at said valve, valve control signals that are embedded in said embedded signals; and**



As explained at 1.2.4, Mustafa describes transmitting audio channels [“said embedded signals”] extracted from the demodulator 38 to the switch 41 [“said valve”]. Mustafa, 6:42-68; Dec., 126. “Preferably ... a selection code stripped from a[n audio] frame [“said embedded signal”] controls switch 41.” *Id.*, 6:49-68. Because Mustafa’s selection code controls switch 41 [“said valve”], the selection code is a valve control signal. Dec., 126. Through its description of receiving a selection code at switch 41, in response to which switch 41 selects an audio channel, Mustafa renders obvious detecting valve control signals that are embedded in embedded signals received at the valve. Mustafa, 6:42-68; Dec., 126.

Thus, APOSITA would have understood that through its description of using a selection code from a video or audio frame embedded within a composite signal received by the terminal 12 to control the switch 41, Mustafa renders obvious detecting, at a valve, valve control signals embedded within embedded signals received at the valve. Dec., 126-127.

***[1.2.6] controlling said valve, in response to said valve control signals, so that said valve performs at least one of the functions of ceasing to communicate and commencing to communicate said embedded signals to said at least one processor.***

As explained at 1.2.4-1.2.5, the logic of Mustafa collectively construed as a “valve,” including switch 41, is controlled by “a selection code stripped from a frame” to “select the desired continuous audio signal,” which is “then connected

into the audio input of a channel of modulator 45 which couples it to television set 35 for playing.” Mustafa, 6:49-7:3; Dec., 132.

The desired continuous audio signal is selected from the audio channels [“said embedded signals”] split from the composite signal [“said information transmission”] by the demodulator 38. Mustafa, 6:34-7:3. Therefore, Mustafa’s description of selecting the desired continuous audio signal and subsequently connecting the continuous audio signal “into the audio input of a channel of modulator 45 [“said at least one processor”]” teaches selecting an embedded signal for communication to a processor. *Id.*, 6:42-48; Dec., 133.

As Dr. Villasenor explains, APOSITA would have understood that selecting a particular audio signal and transmitting the selected signal for playing on a device would commence to communicate the selected signal to the device on which the signal is played. Dec., 134. Further, APOSITA would have understood that, if a signal different from the selected signal was previously being played at the device, transmitting the selected signal to the device for playing would cease to communicate the signal different from the selected signal and commence to communicate the selected signal. *Id.*; Dec., 134.

Thus, through its description of using “a selection code [“said valve control signal”] stripped from a [video or audio] frame” to control “switch 41 [“said valve”] to select the desired continuous audio signal [“said embedded signal”],”

Mustafa at least renders obvious controlling a valve, in response to said valve control signals, so that said valve performs at least one of the functions of ceasing to communicate and commencing to communicate said embedded signals to said at least one processor. Mustafa, 6:49-68; Dec., 132-135w.

**C. GROUNDS 2A and 2B—Claim 1 is Independently Obvious Over Campbell-1A and Campbell-1B**

***[1.0] A method of controlling the communication of signals at a receiver station, said receiver station comprising***

As described above at VI.A.3 Campbell-1A teaches a “cable television system” that includes an intelligent addressable converter designed to convert and descramble video. Campbell-1A, 3:28-4:9 (emphasis added); Campbell-1B, 2:53-3:7; Campbell-1C, 3:10-27. Each addressable converter “uses a graphics display generator” to generate display signals to present data on a “television receiver.” Campbell-1A, Abstract; Campbell-1B, Abstract; Campbell-1C, Abstract.

FIG. 1 of Campbell-1A, annotated and reproduced below, illustrates the addressable converter [“a receiver station”], labeled with the reference number 40, within the system taught by Campbell:

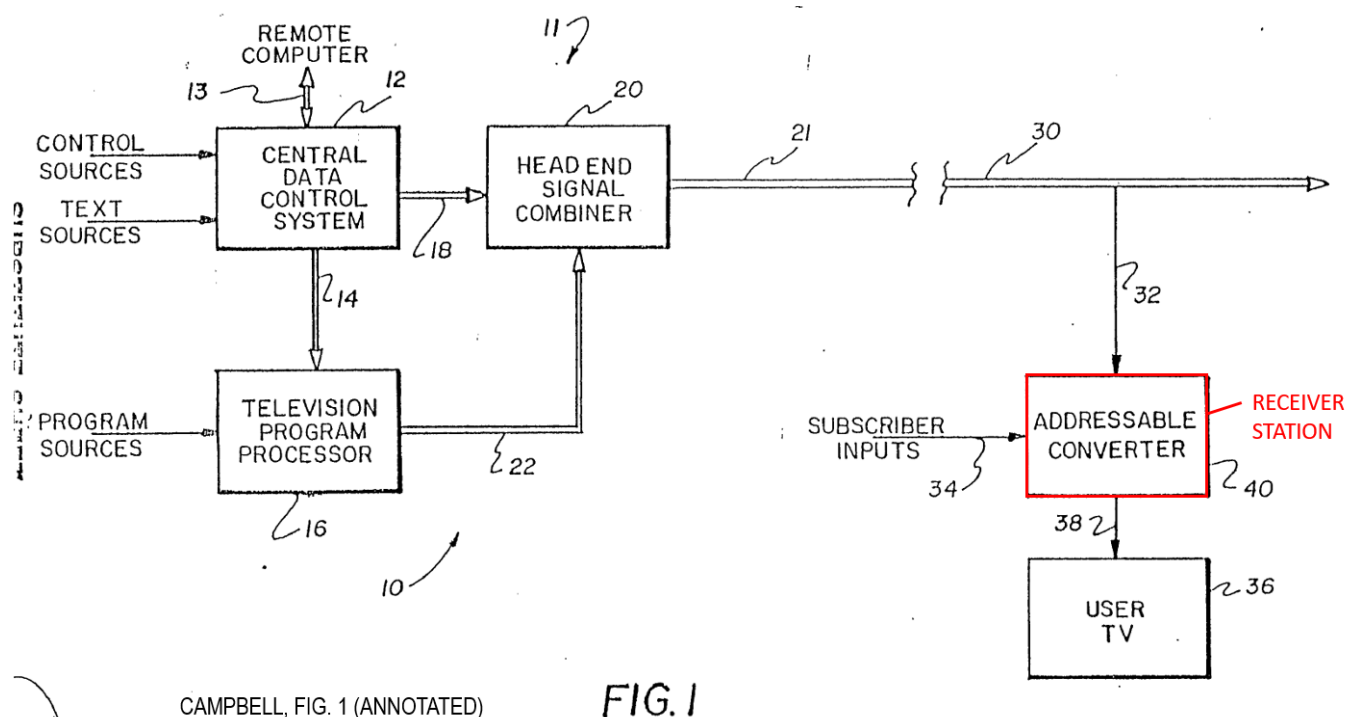


FIG. 1

See also Campbell-1B FIG. 1; Campbell-1C FIG. 1.

APOSITA would have understood that, because addressable converter 40 of Campbell-1A receives “transmitted signals ... on a one-way data bus,” it is a receiver station. Campbell-1A, 6:30-35; Campbell-1B, 4:49-55; Campbell-1C, 5:22-27; Dec., 68-70.

Campbell-1A further describes that addressable converter “receives control data which allows the system operator to control subscription television services” by “controlling access to a wide range of television program and data signals.” Campbell-1A, 3:28-4:9; Campbell-1B, 2:53-3:7; Campbell-1C, 3:10-27.

As Dr. Villasenor explains, APOSITA would have understood that controlling access to a signal would control communication of the signal. Dec., 72.

APOSITA would have understood that if access to a signal is denied, the signal would not be communicated to the device requesting access to the signal. *Id.*

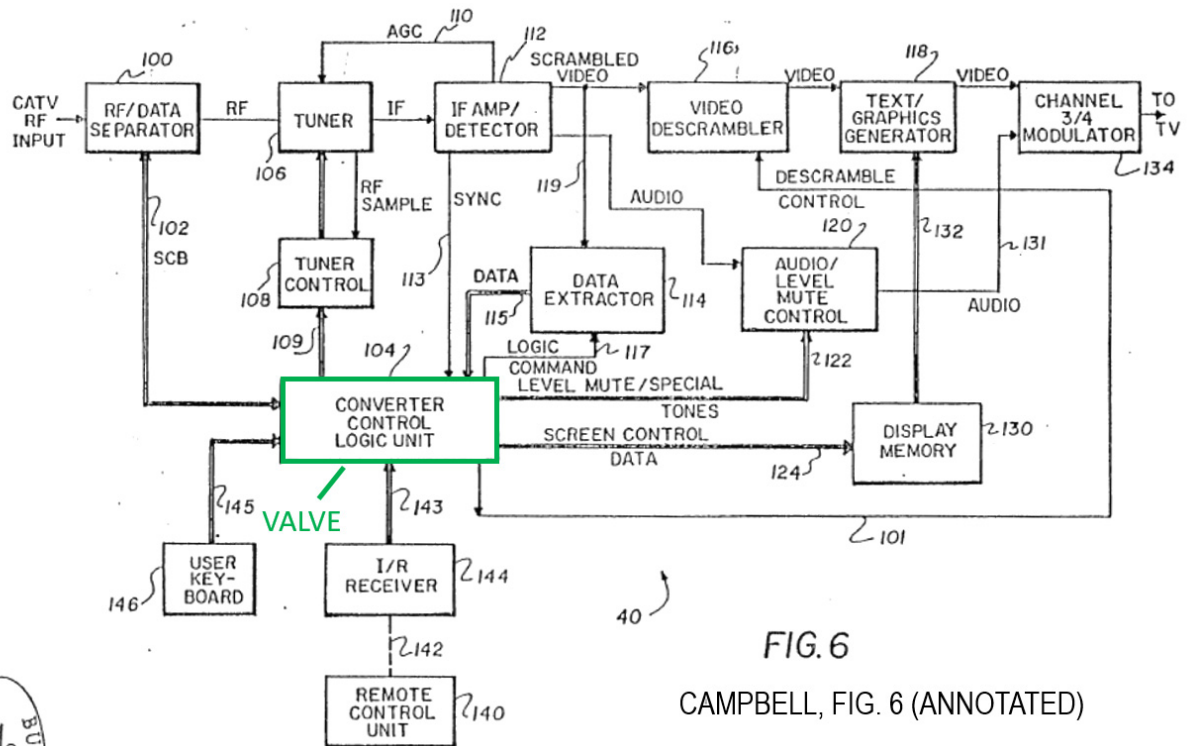
APOSITA would have understood, conversely, that if access to a signal is granted, the signal would be communicated to the device requesting access to the signal.

*Id.* Thus, through its description of controlling access to television program and data signals, Campbell-1A describes controlling the communication of signals. *Id.*

Through its description of controlling access to television program and data signals using an addressable converter [“a receiver station”], Campbell-1A renders obvious controlling the communication of signals at a receiver station. Campbell-1A, 3:28-4:9; Campbell-1B, 2:53-3:7; Campbell-1C, 3:10-27; Dec., 68-73.

***[1.1] (i) a valve for receiving and controlling the communication of signals and***

As described above at Section V.A, “valve” should be construed broadly enough to include a “device that regulates the flow of information.” *See* ’885, 36:1-22 (valve that receives and outputs information); Dec., 38. FIG. 6 of Campbell-1A, annotated and reproduced below, illustrates a detailed view of the addressable converter [“said receiver station”], which includes logic that controls television programming access of subscribers of the system taught by Campbell:



See also Campbell-1B FIG. 6; Campbell-1C FIG. 6.

Converter control logic 104 receives “subscriber control data” and “makes several comparisons between the subscriber addressing data which describes the converter authorization and the channel control word which describes the required authorization for the television program currently being transmitted.” Campbell-1A, 22:30-24:17; Campbell-1B, 15:16-16:24; Campbell-1C, 21:1-22:25.

Based on these comparisons, converter control logic 104 determines whether to generate “an appropriate message for display on the television set of the user” by directing “screen control data” to “a display memory 130” or instead to enable a video descrambler to “process the video signal of the selected television program” and an audio control unit to “transmit the audio signal to the television set.”

Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24;  
Campbell-1C, 12:1-12, 21:1-22:25.

Because converter control logic 104 regulates subscription television services, which are information, converter control logic 104 renders obvious a valve. Campbell-1A, 22:30-24:17; Campbell-1B, 15:16-16:24; Campbell-1C, 21:1-22:25; Dec., 82-85.

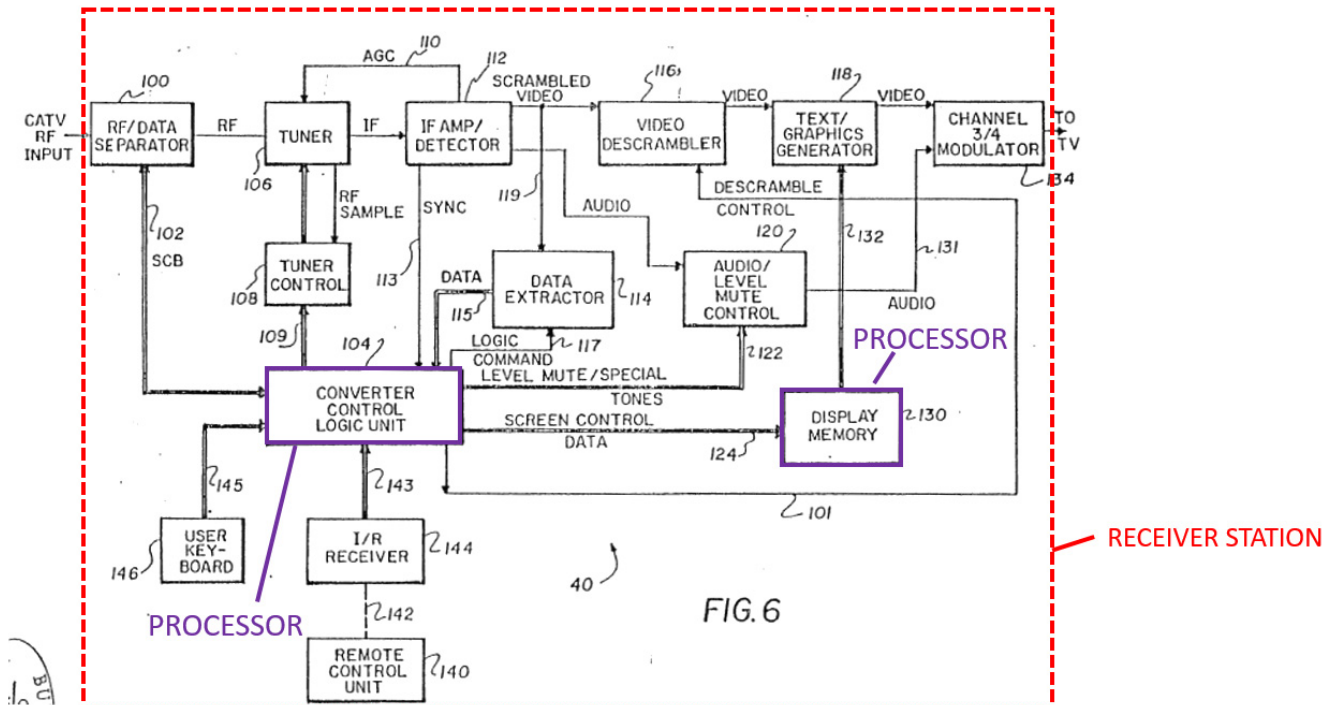
Indeed, converter control logic 104 operates in a highly similar manner to the “EOFS valve” described in the ’885 Patent, which is embodied as a programmable device having a “particular dedicated capacity” for detecting “end of file signals.” ’885, 35:34-38:9. The EOFS valve compares received “inputted binary information” to “signal word[s]” stored within the valve to determine whether to “inform[] said external transferring apparatus ... that said valve is ready to receive next signal word information.” *Id.* Correspondingly, converter control logic 104 compares received “control data” to “control word[s]” to determine whether to inform display memory 130 to format display characters for output at a television set of a user. Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24; Campbell-1C, 12:1-12, 21:1-22:25.

Thus, through its description of converter control logic 104, which regulates the transmission and reception of subscription television services, Campbell-1A renders obvious a valve for receiving and controlling the communication of

signals. Dec., 82-87.

**[1.2] (ii) at least one processor that processes said signals, said method comprising the steps of:**

As explained at Section V.B, a “processor” should be construed broadly enough to include “a device or module that operates on analog or digital signals.” See ’885, 135:52-56 (decoders 30 and 40 that process information), 76:11-13 (buffers/comparators 8 that process information). FIG. 6 of Campbell-1A, annotated and reproduced below, illustrates a detailed view of addressable converter 40 [“said receiver station”], which includes converter logic unit 104 and display memory 130.



CAMPBELL, FIG. 6 (ANNOTATED)

See also Campbell-1B FIG. 6; Campbell-1C FIG. 6.



Campbell-1A teaches that addressable converter 40 receives television signals from head end signal combiner 20 of a central broadcasting station, and provides video and audio output for display on a connected television set.

Campbell-1A, 12:32-13:9; Campbell-1B, 8:46-62; Campbell-1C, 11:1-14. The television signals [“said signals”] are processed “under direction of converter control logic [104].” Campbell-1A, 12:32-13:9; Campbell-1B, 8:46-62; Campbell-1C, 11:1-14. Converter control logic 104 controls the descrambling of scrambled video signals within the television signals. Campbell-1A, 12:32-13:9; Campbell-1B, 8:46-62; Campbell-1C, 11:1-14. Campbell-1A describes that addressable converter 40 can “select[] a given channel and determine[] access to a given program.” Campbell-1A, 22:16-19 (emphasis added); Campbell-1B 14:67-15:2; Campbell-1C, 20:18-21.

For example, in response to “the user entering a new channel number” on a keyboard, converter control logic 104 “implements several preparatory steps in the converter,” e.g., switching display modes, adjusting audio signals, and controlling the tuner 106 to “retune to the requested channel,” and controlling the data extractor 114 to “separate[] out the data transmitted on the vertical interval of the selected television signal.” Campbell-1A, 22:19-29; Campbell-1B, 15:3-15; Campbell-1C, 20:21-31. Converter control logic 104 also directs “screen control data,” e.g., “display characters and graphical symbols,” to display memory 130,

which sends “formatted display characters” to text/graphic generator 118.

Campbell-1A, 14:1-13; Campbell-1B, 9:27-33; Campbell-1C, 12:1-12.

Text/graphics generator 118 then generates the data for output. Campbell-1A, 14:1-13; Campbell-1B, 9:27-33; Campbell-1C, 12:1-12.

Because converter control logic 104 processes television signals and controls the descrambling of the television signals, converter control logic 104 is a processor. Campbell-1A, 12:32-13:9; Campbell-1B, 8:55-62; Campbell-1C, 11:1-14; Dec., 92-95. Because display memory 130 receives and processes screen control data to provide “formatted display characters” to text/graphic generator 118, display memory 130 is also a processor. Campbell-1A, 14:1-13; Campbell-1B, 9:27-33; Campbell-1C, 12:1-12; Dec., 92-95.

Thus, Campbell-1A renders obvious at least one processor that processes said signals. Campbell-1A, 12:32-13:9, 14:1-13, 22:19-29; Campbell-1B, 8:55-62, 9:27-33, 15:3-15; Campbell-1C, 12:1-12, 11:1-14, 20:21-31; Dec., 92-96.

***[1.2.1] receiving one of a broadcast transmission and a cablecast transmission that includes an information transmission that includes embedded signals;***

Campbell-1A teaches that addressable converter 40, including converter control unit 104 [“at least one processor”] and display memory 130 [“at least one processor”], is capable of receiving television signals from head end station 11.

Campbell-1A, FIG. 1, 6:10-14; Campbell-1B, FIG. 1, 4:24-49; Campbell-1C, FIG.

1, 5:1-6.

Campbell-1A further teaches that head end station 11 includes central data system 12 that formats and transmits data “on video frequency channels.”

Campbell-1A, FIG. 1, 6:10-14; Campbell-1B, FIG. 1, 4:24-49; Campbell-1C, FIG. 1, 5:1-6. “The formatted data is then transmitted by communications link 14 to a television program processor where it is incorporated into the vertical blanking intervals of video signals generated by a variety of television program sources.”

Campbell-1A, FIG. 1, 6:10-14; Campbell-1B, FIG. 1, 4:24-49; Campbell-1C, FIG. 1, 5:1-6. A “combined cable television and data signal” is transmitted to various remote receivers, including the addressable converter 20. Campbell-1A, FIG. 1, 6:10-14; Campbell-1B, FIG. 1, 4:24-49; Campbell-1C, FIG. 1, 5:1-6. Because the combined cable television and data signal contains cable television information, the combined cable television and data signal is a cablecast transmission.

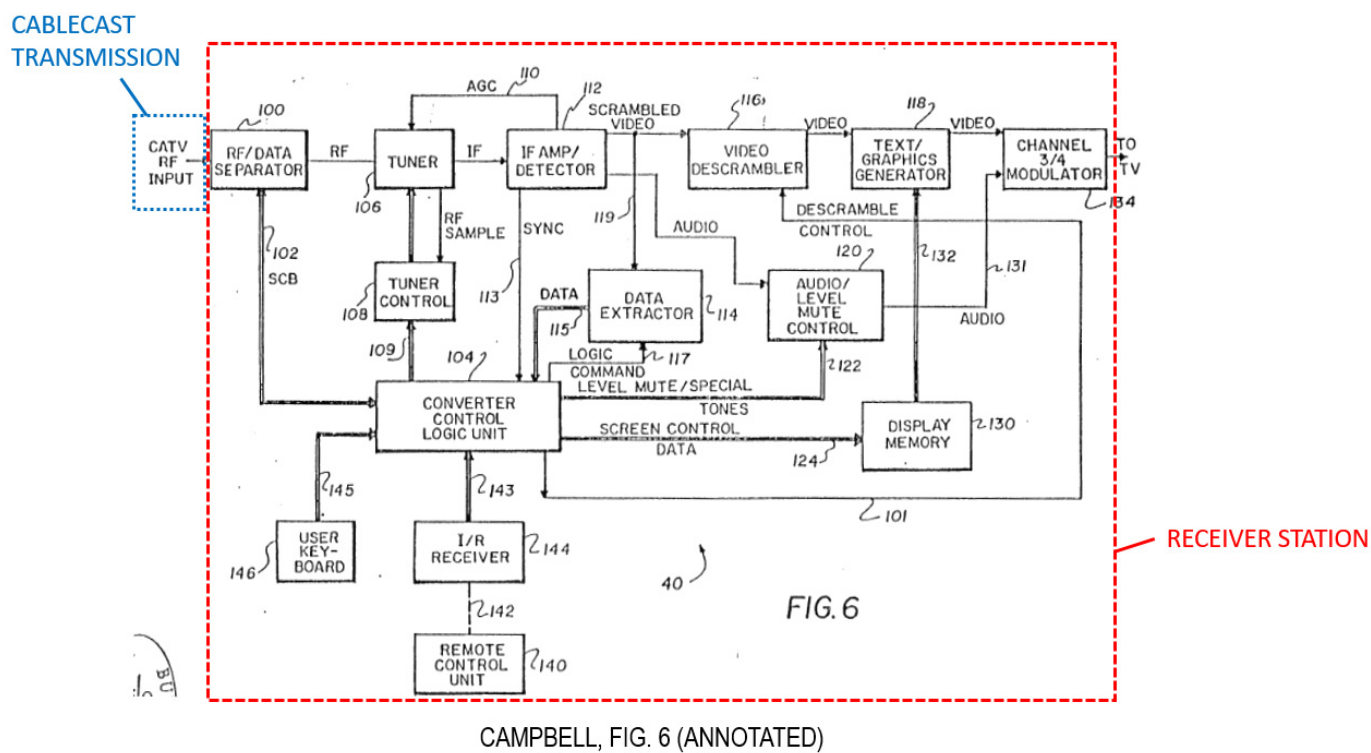
Campbell-1A, FIG. 1, 6:10-14; Campbell-1B, FIG. 1, 4:24-49; Campbell-1C, FIG. 1, 5:1-6; Dec., 103.

FIG. 6 of Campbell-1A, annotated and reproduced below, illustrates that addressable converter 40, “under direction of converter control logic, processes the RF data-loaded television signals from combined video output line 21 of head end signal combiner 20 and provides video and audio output for a television set.”

Campbell-1A, 12:32-13:9 (emphasis added); Campbell-1B, 8:46-62; Campbell-1C,

11:1-14. “The RF output signals” are used to “provide a scrambled base-band video signal and a separate audio signal [“an information transmission”].”

Campbell-1A, 13:10-15, FIG. 6; Campbell-1B, 8:63-92, FIG. 6; Campbell-1C, 11:15-20, FIG. 6.



Campbell-1A also describes that the “data transmitted on the vertical interval of the television signals,” e.g., scrambled video signals, includes embedded “text data,” and “control data” such as “subscriber addressing data” and “channel control data” [“embedded data”]. Campbell-1A, 19:6-14; Campbell-1B, 12:58-68; Campbell-1C, 26:20-28.

Thus, by its description of the data-loaded television signals, Campbell-1A

renders obvious receiving a cablecast transmission that includes an information transmission that includes embedded signals. Campbell-1A, 12:32-13:9; Campbell-1B, 8:46-62; Campbell-1C, 11:1-14; Dec., 102-106.

***[1.2.2] demodulating said one of a broadcast transmission and a cablecast transmission to detect said information transmission therein;***

Campbell-1A teaches that television signals [“said cablecast transmission”] received at addressable converter 40 are “input to an RF/data separator 100.” *See* Campbell-1A, 12:32-13:9, FIG. 6; Campbell-1B, 8:46-62, FIG. 6; Campbell-1C, 11:1-14, FIG. 6; *see* 1.2.1. “The RF data-loaded television signals are input to a conventional tuner 106,” which “us[es] a sliding band pass filter and a band switched front end” to generate RF output signals that are “detected by an IF/amp detector 112 to provide a scrambled base-band video signal and a separate audio signal [“said information transmission”].” Campbell-1A, 12:32-13:15 (emphasis added); Campbell-1B, 8:46-92; Campbell-1C, 11:1-20. APOSITA would have understood that by separating a received television signal into a base-band video signal and a separate audio signal, RF/data separator 100 and IF/amp detector 112 of addressable converter 40 demodulate the received RF data-loaded television signals to detect scrambled video signals [“said information transmission”]. Campbell-1A, 12:32-13:15; Campbell-1B, 8:46-92; Campbell-1C, 11:1-20; Dec., 110.

Thus, Campbell-1A renders obvious demodulating a cablecast transmission to detect an information transmission therein. Campbell-1A, 12:32-13:15; Campbell-1B, 8:46-92; Campbell-1C, 11:1-20; Dec., 110-111.

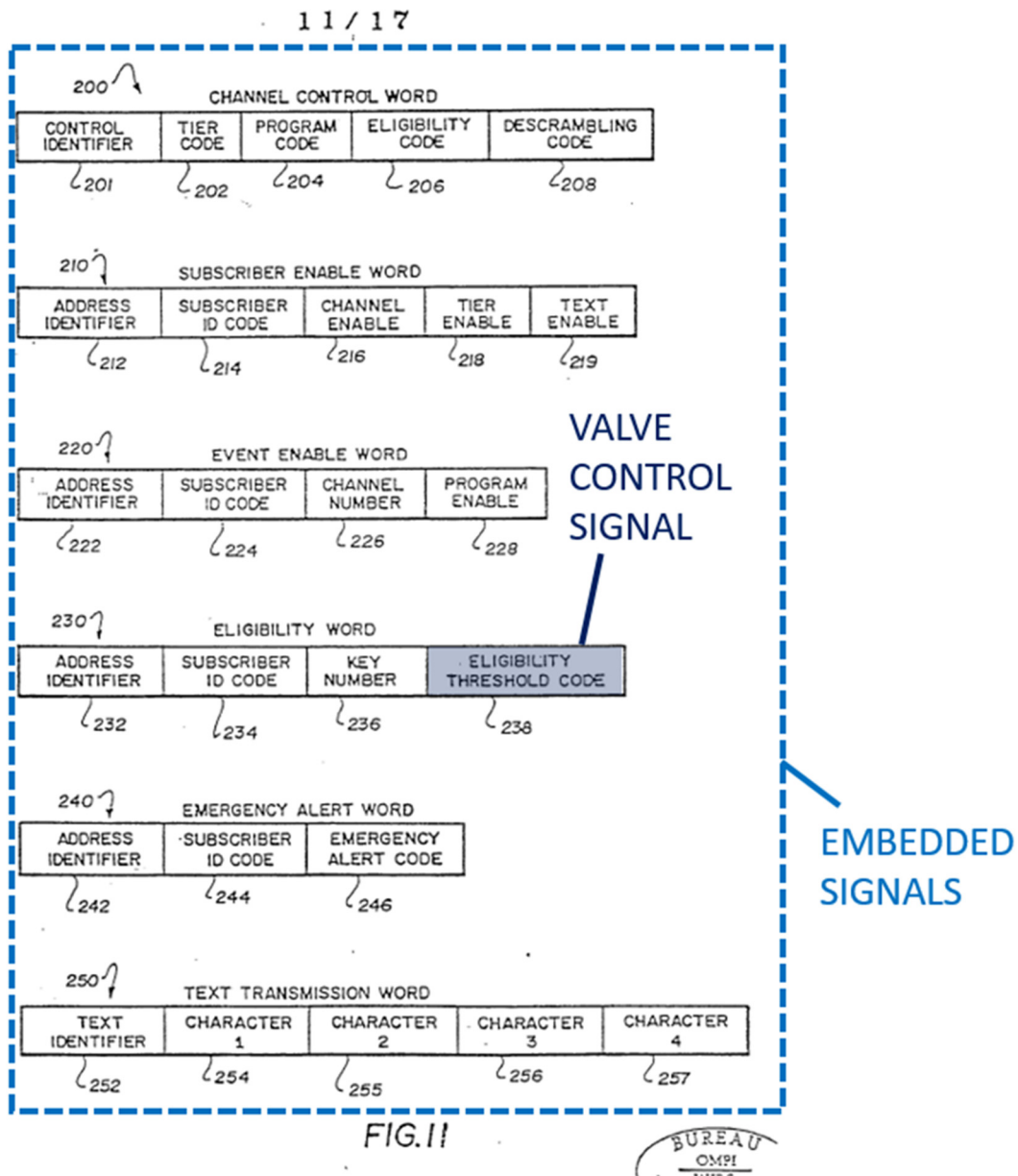
***[1.2.3] detecting said embedded signals in said information transmission;***

As explained at 1.2.2, Campbell-1A describes demodulating RF data-loaded television signals to detect scrambled video signals [“said information transmission”]. Campbell-1A, 12:32-13:15; Campbell-1B, 8:46-92; Campbell-1C, 11:1-20.

Campbell-1A describes that “data transmitted on the vertical interval of the television signals,” e.g., scrambled video signals, includes embedded “text data,” and “control data” such as “subscriber addressing data” and “channel control data” [“embedded data”]. Campbell-1A, 19:6-14; Campbell-1B, 12:58-68; Campbell-1C, 26:20-28.

Data extractor 114 then extracts “a serial data stream . . . from the vertical interval of the scrambled video signal.” Campbell-1A, 13:16-27; Campbell-1B, 9:3-14; Campbell-1C, 11:21-27. The data stream within the vertical stream of the scrambled video signal includes subscriber addresser data and channel control data [“said embedded data”]. Campbell-1A, 13:16-27; Campbell-1B, 9:3-14; Campbell-1C, 11:21-27. These data embedded within the scrambled video signals are illustrated in FIG. 11, in “the form of data words.” Campbell-1A, 19:6-14,

FIG. 11; Campbell-1B, 12:58-68, FIG. 11; Campbell-1C, 26:20-28, FIG. 11.



CAMPBELL, FIG. 11 (ANNOTATED)

Campbell-1A describes that the “subscriber enable word 210” includes various codes, e.g., “subscriber identification code 214” and “channel enable code

216” that are “used by converter control logic 104 to determine whether the converter apparatus should be enabled for processing television signals to the television set.” Campbell-1A, 19:35-20:27; Campbell-1B, 13:25-60; Campbell-1C, 17:21-18:17. The “eligibility word 230” includes “an eligibility threshold code 238” that is determined by an “authorized party” and “identifies certain eligibility codes 206 transmitted as part of channel control word 200 for certain television programs which require limited access.” Campbell-1A, 21:5-21; Campbell-1B, 14:9-28; Campbell-1C, 19:1-17. The eligibility threshold is used by converter control logic 104 to determine whether to generate “an appropriate message for display on the television set of the user” by directing “screen control data” to “a display memory 130.” Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24; Campbell-1C, 12:1-12, 21:1-22:25.

The scrambled video signals [“said information transmission”] include embedded text data and control data [“embedded data”]. Campbell-1A, 19:35-20:27; Campbell-1B, 13:25-60; Campbell-1C, 17:21-18:17. Because data extractor 114 extracts the subscriber addresser data and channel control data [“said embedded data”] from the scrambled video signal [“said information transmission”], data extractor 114 detects embedded data within an information transmission.

Thus, through its description of extracting the control data from the



scrambled video signals, Campbell-1A renders obvious detecting embedded signals in an information transmission. Campbell-1A, 13:16-27, 19:35-20:27; Campbell-1B, 9:3-14, 13:25-60; Campbell-1C, 11:21-27, 17:21-18:17; Dec., 114-119.

***[1.2.4] communicating said embedded signals to said valve;***

As explained at 1.1, Campbell's converter control logic unit 104 uses "the subscriber addressing data" to determine whether to generate "an appropriate message for display on the television set of the user" by directing "screen control data" to "a display memory 130" or instead to enable a video descrambler to "process the video signal of the selected television program" and an audio control unit to "transmit the audio signal to the television set." Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24; Campbell-1C, 12:1-12, 21:1-22:25; Dec., 123.

As explained at 1.2.3, Campbell's data extractor 114 extracts embedded "control data" such as "subscriber addressing data" and "channel control data" ["embedded data"], from a serial data stream. Campbell-1A, 19:6-14; Campbell-1B, 12:58-68; Campbell-1C, 26:20-28. These control data are transmitted from data extractor 114 to converter control logic 104, as shown in the annotated version of FIG. 6 of Campbell-1A below. Campbell-1A, 19:6-14, FIG. 6; Campbell-1B, 12:58-68, FIG. 6; Campbell-1C, 26:20-28, FIG. 6.

*[1.2.5] detecting, at said valve, valve control signals that are embedded in said embedded signals; and*

As explained at 1.2.3-1.2.4, Campbell-1A describes data extractor 114, which extracts embedded “control data” such as “subscriber addressing data” and “channel control data” [“embedded data”], from a serial data stream. Campbell-

1A, 19:6-14; Campbell-1B, 12:58-68; Campbell-1C, 26:20-28. These control data are transmitted from data extractor 114 to converter control logic 104. Campbell-1A, 19:6-14; Campbell-1B, 12:58-68; Campbell-1C, 26:20-28.

Converter control logic 104 uses an eligibility threshold code 238 embedded within the control data to determine whether the “eligibility code threshold is exceeded.” Campbell-1A, 21:5-21, 22:30-24:17; Campbell-1B, 14:9-28, 15:16-16:24; Campbell-1C, 19:1-17, 21:1-22:25. Based on this determination, converter control logic 104 controls components of addressable converter 40 to either generate “an appropriate message for display on the television set of the user” by directing “screen control data” to “a display memory 130” or instead to “process the video signal of the selected television program” and “transmit the audio signal to the television set” by enabling a video descrambler and an audio control unit. Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24; Campbell-1C, 12:1-12, 21:1-22:25.

A POSITA would have understood that, because converter control logic 104 receives the embedded control data and uses the control data to determine whether to direct “screen control data” to “a display memory 130,” or to provide control signals to enable a video descrambler and an audio control unit, the control data are valve control signals. Campbell-1A, 14:1-13, 22:30-24:17; Campbell-1B, 9:27-33, 15:16-16:24; Campbell-1C, 12:1-12, 21:1-22:25; Dec., 128-130.

Thus, through its description of receiving and operating in response to “control data,” Campbell-1A renders obvious detecting, at said valve, valve control signals that are embedded in said embedded signals. Campbell-1A, 19:6-14, 22:30-24:17; Campbell-1B, 12:58-68, 15:16-16:24; Campbell-1C, 26:20-28, 21:1-22:25; Dec., 128-131.

***[1.2.6] controlling said valve, in response to said valve control signals, so that said valve performs at least one of the functions of ceasing to communicate and commencing to communicate said embedded signals to said at least one processor.***

As explained at 1.1-1.2.5, converter control logic unit 104 receives “subscriber control data” and “makes several comparisons between the subscriber addressing data which describes the converter authorization and the channel control word which describes the required authorization for the television program currently being transmitted.” Campbell-1A, 22:30-24:17; Campbell-1B, 15:16-16:24; Campbell-1C, 21:1-22:25.

As shown in FIG. 6 of Campbell-1A, annotated and reproduced below, converter control logic unit 104 controls access to television programming in response to the received subscriber control data by “direct[ing] screen control data” to “display memory 130” for formatting. Campbell-1A, 14:1-13 (emphasis added); Campbell-1B, 9:27-33; Campbell-1C, 12:1-12. Because the screen control data is part of the “control data” [“embedded signals”], Campbell-1A renders obvious

commencing to communicate embedded signals to a processor through its description of directing screen control data to display memory 130. Campbell-1A, 14:1-13, FIG. 6; Campbell-1B, 9:27-33, FIG. 6; Campbell-1C, 12:1-12, FIG. 6; Dec., 136-137.

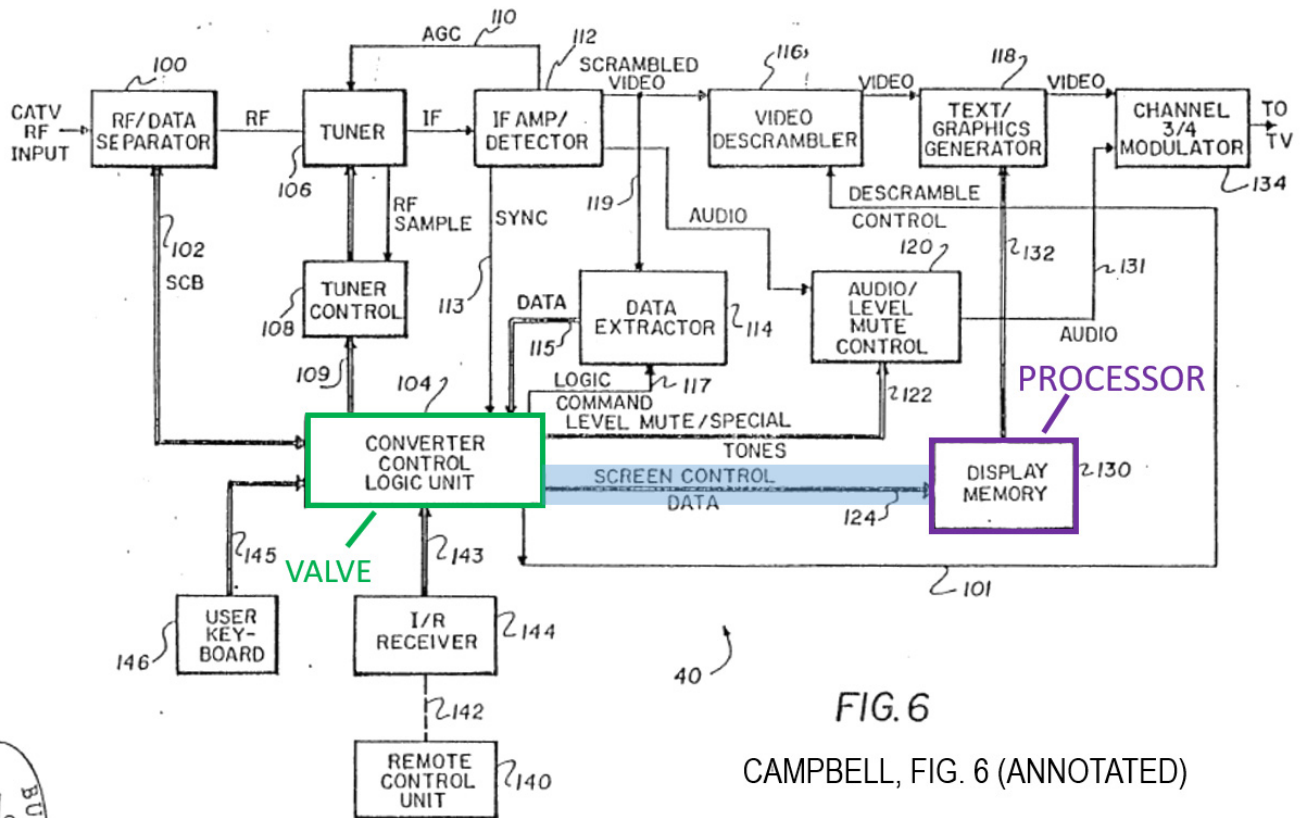


FIG. 6  
CAMPBELL, FIG. 6 (ANNOTATED)

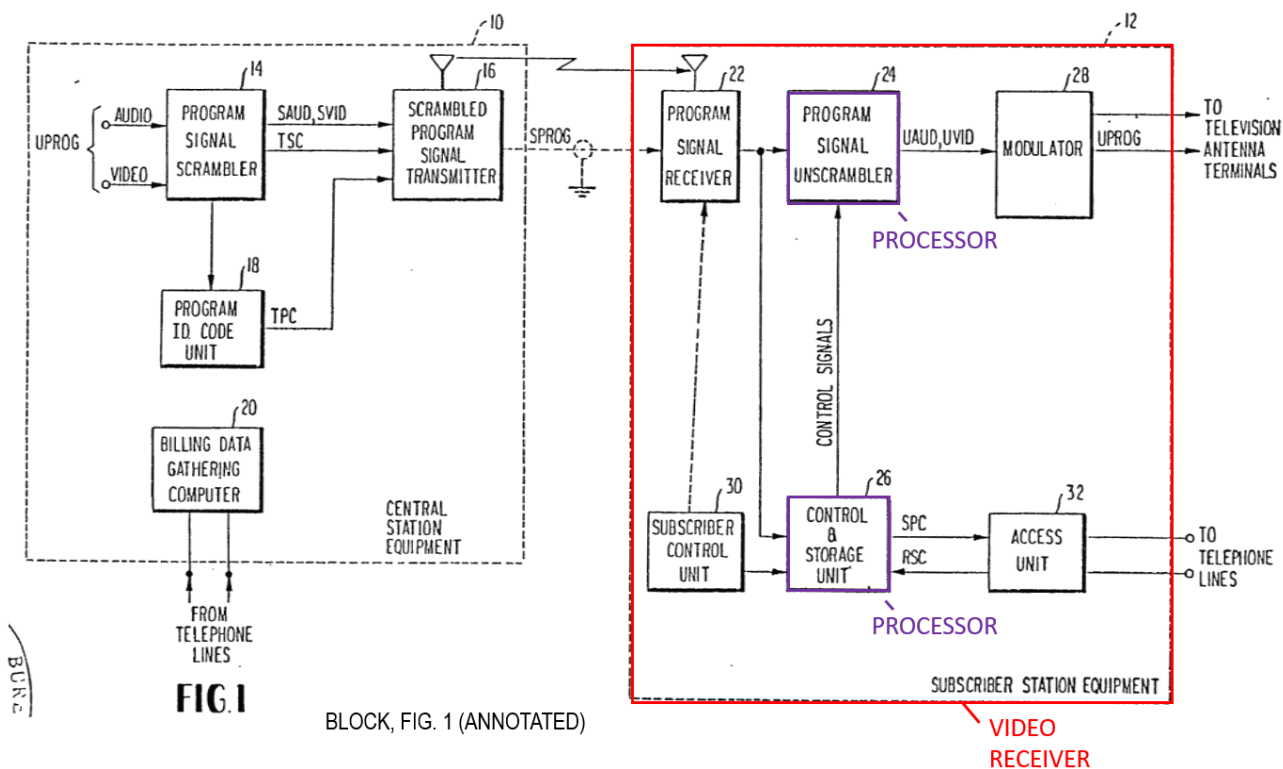
Thus, through its description of controlling converter control logic unit 104 in response to receiving subscriber control data including an eligibility threshold code, Campbell-1A renders obvious controlling said valve, in response to said valve control signals, so that said valve performs at least one of the functions of ceasing to communicate and commencing to communicate said embedded signals

to said at least one processor. Campbell-1A, 21:5-21, 22:30-24:17; Campbell-1B, 14:9-28, 15:16-16:24; Campbell-1C, 19:1-17, 21:1-22:25; Dec., 136-138.

**D. GROUND 3—Claims 102, 105, and 106 are Obvious Over Block in view of Seth-Smith**

***[102.0] A method of processing signals in a video receiver, said video receiver having a plurality of programmable processors, said method comprising the steps of:***

Block describes a subscriber station that receives “program signals” that include “scrambled audio and video signals as well as various synchronizing signals and codes.” *See* Block, 3:27-37; Section VI.A.2. APOSITA would have understood that, because Block’s subscriber station receives program signals including “scrambled audio and video signals,” the subscriber station is a video receiver. *See* Block, 3:27-37 (emphasis added); Dec., 139. FIG. 1 of Block illustrates subscriber station equipment, labeled with reference number 12, within the subscriber station taught by Block.



Program signals are transmitted to the subscriber station equipment 12 from “the central station equipment 10,” and “the received signal is supplied both to a program signal unscrambler 24 and to a control and storage unit 26.” *Id.*, 3:62-4:9.

As explained at Section V.B, a “processor” should be construed broadly enough to include “a device or module that operates on analog or digital signals.” *See* ’885, 135:52-56 (decoders 30 and 40 that process information), 76:11-13 (buffers/comparators 8 that process information). Through its description of program signal unscrambler 24, control and storage unit 26, modulator 28, and demodulator 58, Block discloses four such devices. *Id.*; Dec., 141.

As Dr. Villasenor explains, APOSITA would have understood that a

programmable processor is a processor capable of being programmed. Dec., 142.

“The program signal unscrambler 24 operates in response to control signals from the control and storage unit 26 to unscramble the incoming program signal and provide unscrambled audio and video signals UAUD and UVID to a conventional modulator 28.” *See* Block, 3:62-4:9 (emphasis added). APOSITA would have understood that, because program signal unscrambler 24 unscrambles the incoming program signal and provides unscrambled audio and video signals in response to control signals from control and storage unit 26, program signal unscrambler 24 is a programmable processor. *Id.*; Dec., 142.

Block describes that control and storage unit 26 “detects code signals in the incoming scrambled program signal for unscrambling and billing purposes” and generates control signals. Block, 3:62-4:9. Control and storage unit 26 receives “an accept signal ACC” from control unit 30 that “indicat[es] that the subscriber has assumed the obligation to pay for a particular program to which the equipment is tuned.” *Id.*, 6:44-61. APOSITA would have understood that, because control and storage unit 26 receives an accept signal that controls control and storage unit 26 to accept “a particular carrier frequency” and generate control signals for transmission to program signal unscrambler 24, control and storage unit 26 is a programmable processor. *Id.*

Block also describes modulator 28 as a device that “modulates a carrier



signal of an appropriate carrier frequency with the unscrambled audio and video signals and supplies the unscrambled program signal in the form of a modulated carrier wave to the television set in a conventional manner.” *See id.*, 3:62-4:9 (emphasis added). APOSITA would have understood that, through its description of modulator 28 modulating a carrier signal of an appropriate carrier frequency, Block teaches a programmable processor that modulates carrier signals based on properties of the received unscrambled audio and video signals. *Id.*; Dec., 144.

Block describes demodulator 58 as a “conventional demodulator” that recovers the scrambled audio and video signals. *See* Block, 6:44-61 (emphasis added). APOSITA would have understood that, through its description of demodulator 58 recovering scrambled audio and video signals, Block teaches a programmable processor that detects properties of an incoming scrambled program signal and recovers the scrambled audio and video signals. *See id.*; Dec., 145.

Thus, through its description of a subscriber station [“a video receiver”] including program signal unscrambler 24 [“a programmable processor”], control and storage unit 26 [“a programmable processor”], modulator 28 [“a programmable processor”], and demodulator 58 [“a programmable processor”], Block renders obvious a video receiver having a plurality of programmable processors. Dec., 139-146.

***[102.1] receiving a video signal;***

As explained at 102.0, Block describes the subscriber station that receives “program signals” that include “scrambled audio and video signals as well as various synchronizing signals and codes.” *See* Block, 3:27-37 (emphasis added). The program signal “is supplied to the subscriber[ station]s either by conventional broadcast or cable techniques.” *Id.*

Thus, Block renders obvious receiving a video signal. Dec., 147-148.

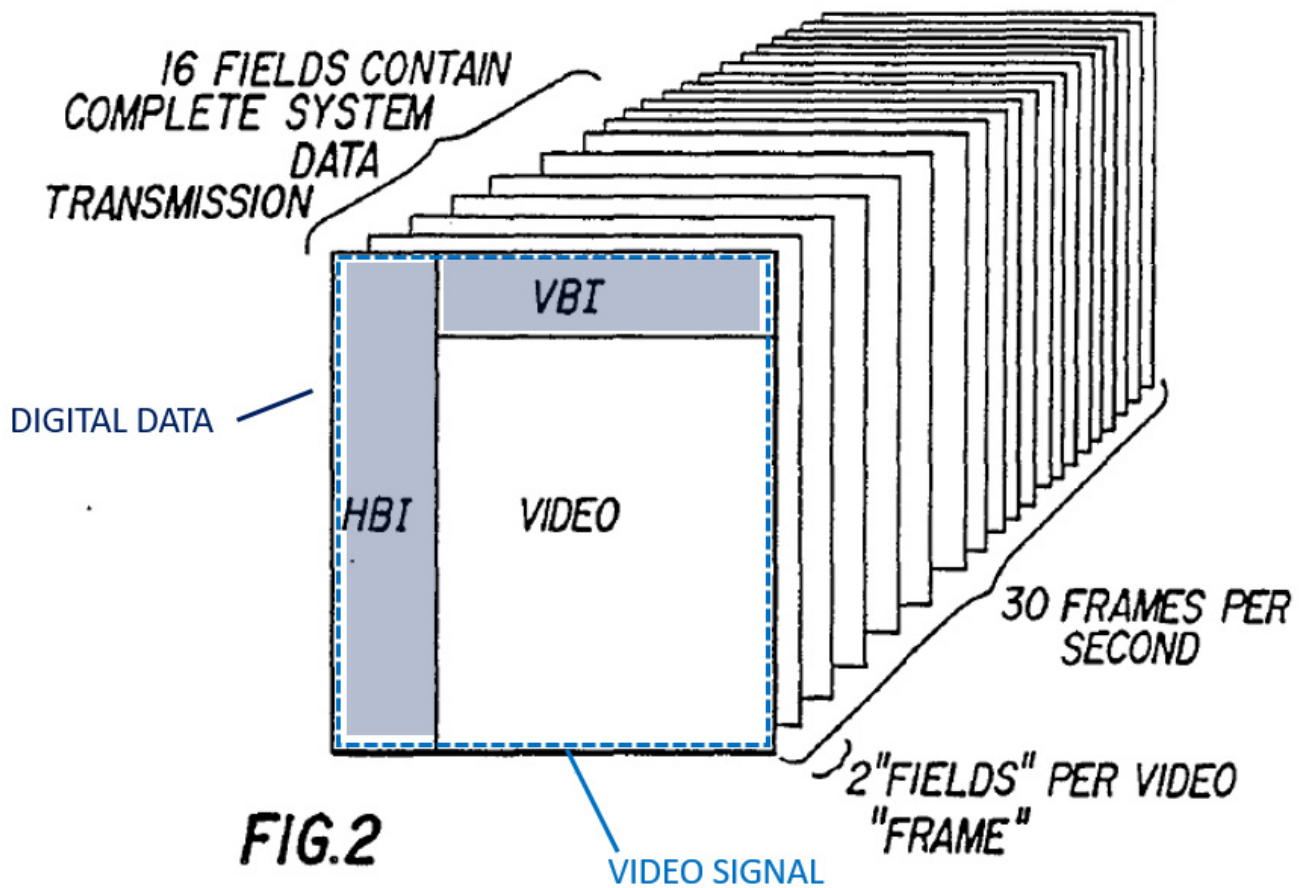
***[102.2] detecting a stream of digital data in said video signal;***

As explained at 102.1, Block describes receiving scrambled program signals [“said video signal[s]”] that include “scrambled audio and video signals” from the central station equipment 10. *See* Block, 3:27-37; Dec., 149.

As explained by Dr. Villasenor, APOSITA would have found it obvious to interpret features of Block’s system based on the teachings of Seth-Smith. Dec., 150. As described above, Seth-Smith teaches a television system for distributing protected program material that includes “a transmitter including a data insertion circuit for inserting a control bit in a transmitted signal comprising other control data and the protected program material.” *See* Seth-Smith, Abstract. APOSITA would have understood that the scrambled audio and video television signals of Block could be interpreted in view of the teachings of Seth-Smith regarding protected program material, embodied in Seth-Smith as television frames. *Id.*, 7:5-45; Dec., 149-150. Accordingly, APOSITA would have understood that the

program signals of Block are digital based on the teachings of Seth-Smith. Dec.,  
150.

FIG. 2 of Seth-Smith, reproduced below, illustrates “the overall transmission  
format of the system,” and shows a detailed illustration of television frames that  
“each compris[e] a still image” and include “two ‘fields,’ as also shown.” See  
Seth-Smith, 7:8-22.



SETH-SMITH, FIG. 2 (ANNOTATED)

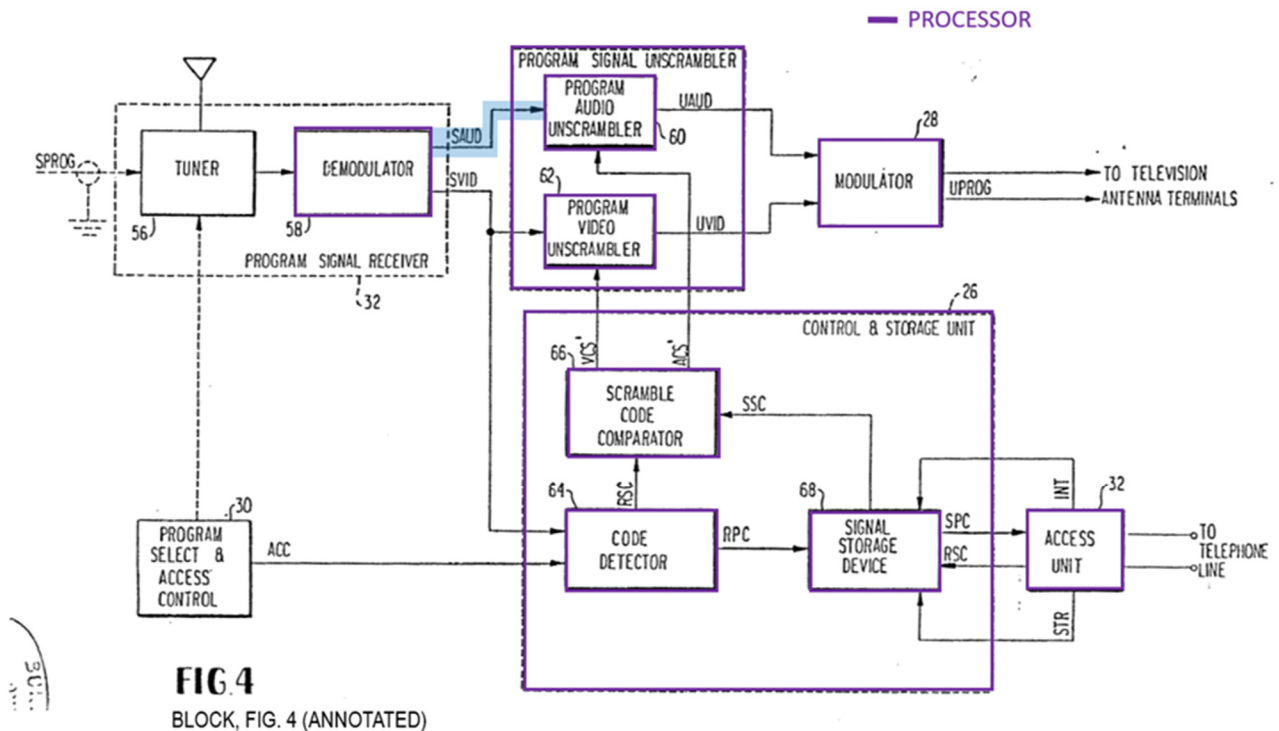
The “vertical blanking interval (VBI) of each field contains certain ‘system data’ necessary for operation of a subscription television system according to the invention,” and the “horizontal blanking interval (HBI)” includes “six channels of high quality digitally encoded audio information.” *Id.* The VBI is “377 bits wide. These bits are two level FSK encoded as compared to the four level FSK scheme used in the HBI.” Seth-Smith, 8:40-51 (emphasis added). Through its description of FSK encoding of data in the VBI and HBI, Seth-Smith renders obvious various forms of digital data. *Id.*; Dec., 152. APOSITA would have found it obvious to use the detailed description of Seth-Smith’s overall transmission format to understand that the scrambled audio and video signals of Block can contain digital data. *Id.*; Dec., 152.

Program signal unscrambler 24 unscrambles the scrambled incoming program signal and provides “unscrambled audio and video signals UAUD and UVID to a conventional modulator.” *See* Block, 3:62-4:9. Through its description of unscrambling the incoming program signal to provide unscrambled audio and video signals, Block discloses detecting the scrambled audio and video signals [“stream of digital data”] of the scrambled program signal [“said video signal”]. *Id.* Thus, Block, in view of Seth-Smith, renders obvious detecting a stream of digital data in a video signal. *Id.*; *see* Seth-Smith, 7:8-8:51; Dec., 149-153.

***[102.3] passing a first portion of said stream of digital data among said plurality***

*of programmable processors in a first passing fashion;*

As explained at 102.2, APOSITA would have understood, through Seth-Smith's description of its overall transmission format, that the program signal of Block is digital data. *See* Seth-Smith, 7:8-8:51; Dec., 154. FIG. 4 of Block, reproduced below, illustrates a detailed diagram of the subscriber station equipment 12.



As explained at 102.0, program signal unscrambler 24 and control and storage unit 26 are programmable processors. *See id.*, 3:62-4:9; 6:44-61. Program audio unscrambler 60 and program video unscrambler 62 of the program signal unscrambler 24 unscramble the scrambled audio and video signals, respectively, of the incoming scrambled program signal. *See* Block, 6:62-7:25. Accordingly, the

program audio unscrambler 60 and the program video unscrambler 62 are processors. *Id.*; Dec., 155.

Control and storage unit 26 includes code detector 64. *See* Block, 6:44-8:18; FIG. 4. Code detector 64 is “enabled by the accept signal ACC” and “detects the received scramble code” and the “received program code in the video signal.” *See* Block, 6:44-8:18. Because code detector 64 is controlled by receiving accept signal ACC and detecting the received scramble code, code detector 64 is a programmable processor. *Id.*; Dec., 156.

“The scrambled audio signal is supplied to a program audio unscrambler 60 [“[a] programmable processor”]” of the program signal unscrambler 24 from demodulator 58. *See* Block, 6:44-7:25; FIG. 4. The scrambled audio signal is a portion of the scrambled audio and video signals [“said stream of digital data”]. *Id.*, 3:27-37; Dec., 160. Thus, through its description of the scrambled audio signal, Block discloses a first portion of said stream of digital data. *See* Block, 3:27-37; Dec., 160.

As shown in FIG. 4 of Block, the scrambled audio signal is passed in a first passing fashion to the program audio unscrambler 60 of the program signal unscrambler 24. *See* Block, 3:27-37; FIG. 4. Accordingly, Block renders obvious passing a first portion of a stream of digital data among a plurality of programmable processors in a first passing fashion. *Id.*; Dec., 161.

Therefore, through its description of supplying the scrambled audio signal [“a first portion of said stream of digital data”] from demodulator 58 [“[a] programmable processor”] to program audio unscrambler 60 [“[a] programmable processor”], Block teaches a first passing fashion among a plurality of programmable processors. *See* Block, 3:27-37; FIG. 4; Dec., 154-162.

***[102.4] passing a control portion of said stream of digital data to a programmable control processor;***

As explained at 102.2, APOSITA would have understood, by applying Seth-Smith’s description of its overall transmission format to the system of Block, that the program signal of Block is digital data, and that the scrambled audio and video signals are a stream of digital data. *See* Block 3:62-4:9; *see* Seth-Smith, 7:8-8:51; Dec., 163.

As explained at 102.0, control and storage unit 26 is a programmable processor. *See* Block 6:44-61. “The control and storage unit 26 detects code signals in the incoming scrambled program signal [“said video signal containing said stream of digital data”].” *Id.* (emphasis added). The scrambled audio and video signals [“said stream of digital data”] include “transmitted program code TPC” and “stored program code SPC,” which are stored in control and storage unit 26 and are used “for unscrambling and billing purposes.” *Id.*, 4:20-36.

Control and storage unit 26 uses the TPC and the SPC to “generate a strobe

or write signal STR in order to transmit new scramble codes RSC” to the signal storage device 68 of the control and storage unit 26. *Id.*, 7:26-8:18. The control and storage unit 26 compares the RSC to a “stored scramble code SSC” and “generates the video and audio unscramble control signals VCS' and ACS' respectively.” *Id.*, 5:51-7:26. Because the code signals detected in the scrambled audio and video signals [“said stream of digital data”] instruct control and storage unit 26 to generate control signals, the code signals are a control portion of the scrambled audio and video signals [“said stream of digital data”]. *Id.*; Dec., 164-165. Additionally, because control and storage unit 26 generates control signals that control unscrambling of the scrambled audio and video signals [“said stream of digital data”], control and storage unit 26 is a programmable control processor. *See* Block, 5:51-7:26; Dec., 164-165.

Thus, through its description of passing the TPC and the SPC [“a control portion”] to the control and storage unit 26 [“a programmable control processor”], Block renders obvious passing a control portion of a stream of digital data to a programmable control processor. *See* Block, 4:20-36; 5:51-8:18; Dec., 163-166.

***[102.5] controlling, with said programmable control processor, the passing of a second portion of said stream of digital video data among said plurality of programmable processors in a second passing fashion in response to said passed control portion;***

As explained at 102.2, APOSITA would have understood, by applying Seth-

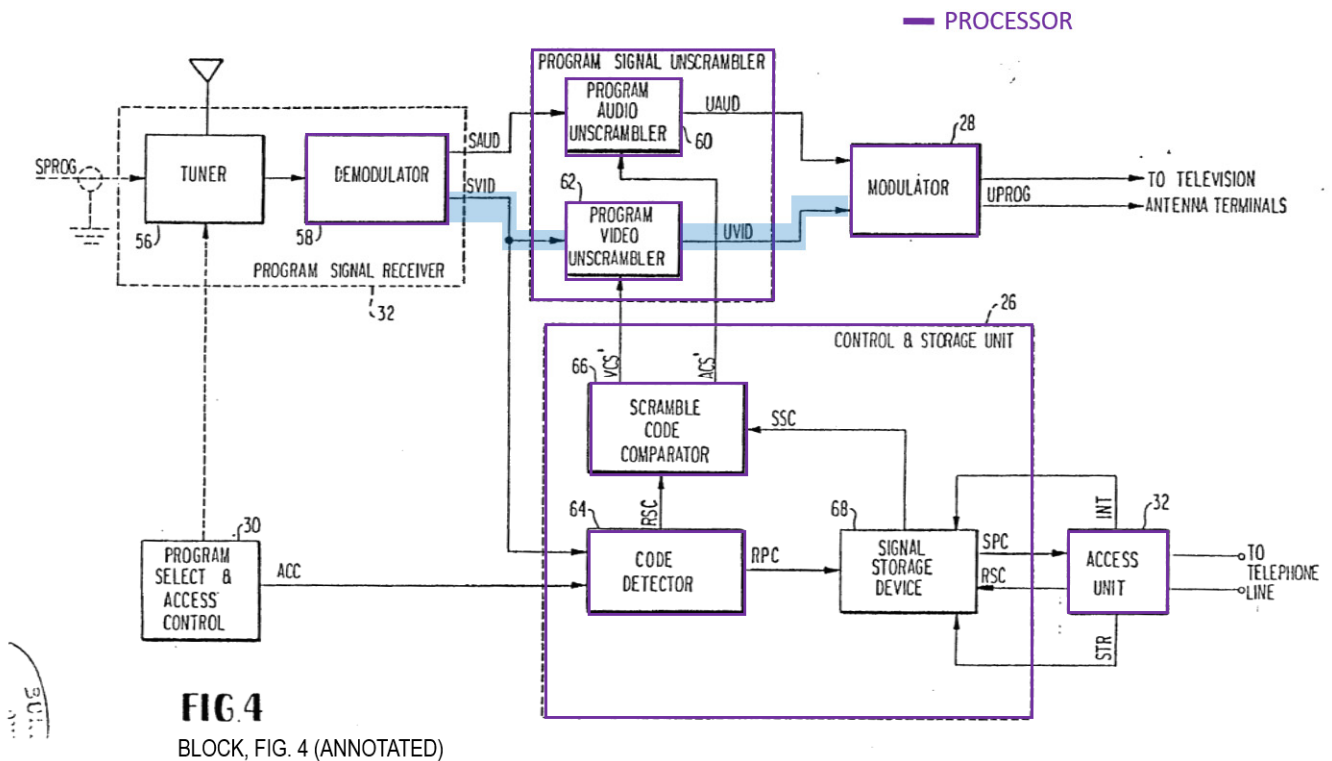


Smith's description of its overall transmission format to the system of Block, that the program signal of Block is digital data, and that the scrambled audio and video signals are a stream of digital data. *See* Block 3:62-4:9; *see* Seth-Smith, 7:8-8:51; Dec., 167.

As explained at 102.4, control and storage unit 26 is a programmable control processor. *See* Block, 3:62-4:9; 6:44-8:18; Dec., 168. Control and storage unit 26 "generates the video and audio unscramble control signals VCS' and ACS' respectively" in response to receiving a "stored scramble code signal SSC from the signal storage device 68" of the control and storage unit 26. *See* Block, 5:51-7:26.

Additionally, Block teaches providing "the scrambled video signal" to both "a program video unscrambler 62 "[a] programmable processor]" and to a code detector 64 in the control and storage unit 26." *Id.*, 5:51-7:26. As shown in FIG. 4 of Block, the scrambled video signal is passed from demodulator 58 "[a] programmable processor]" to the program video unscrambler 62 "[a] programmable processor]" of the program signal unscrambler 24. *Id.*, FIG. 4. Program video unscrambler 62 "[a] programmable processor]" is then controlled by control signal VCS' from control and storage unit 26 ["said programmable control processor"] to "invert the subsequent frame of video signals" when RSC is "identified as an invert signal," or to pass the video signal in "an uninverted form" when RSC is "identified as a non-invert signal." *Id.*, 6:62-7:25 (emphasis added).

Program video unscrambler 62 [“[a] programmable processor”] of program signal unscrambler 24 then provides “unscrambled ... video signals ... UVID to a conventional modulator 28 [“[a] programmable processor”].” *Id.*, 3:62-4:9 (emphasis added).



The scrambled video signal, and subsequently the unscrambled video signal is a portion of the scrambled audio and video signals [“said stream of digital data”]. *Id.*, 3:27-37; Dec., 170. Thus, through its description of the unscramble video signal, Block discloses a second portion of said stream of digital data. *See* Block, 3:27-37; Dec., 170.

Thus, through its description of the passing of the unscrambled video signal

["a second portion of said stream of digital video data"] from the program video unscrambler 62 ["[a] programmable processor"] to the modulator 28 ["[a] programmable processor"] in response to the VCS', Block teaches passing a second portion of said stream of digital video data in a second passing fashion in response to a control signal from control and storage unit 26 ["said programmable control processor"]. See Block, 3:62-4:9; 6:62-7:25; FIG. 4; Dec., 171.

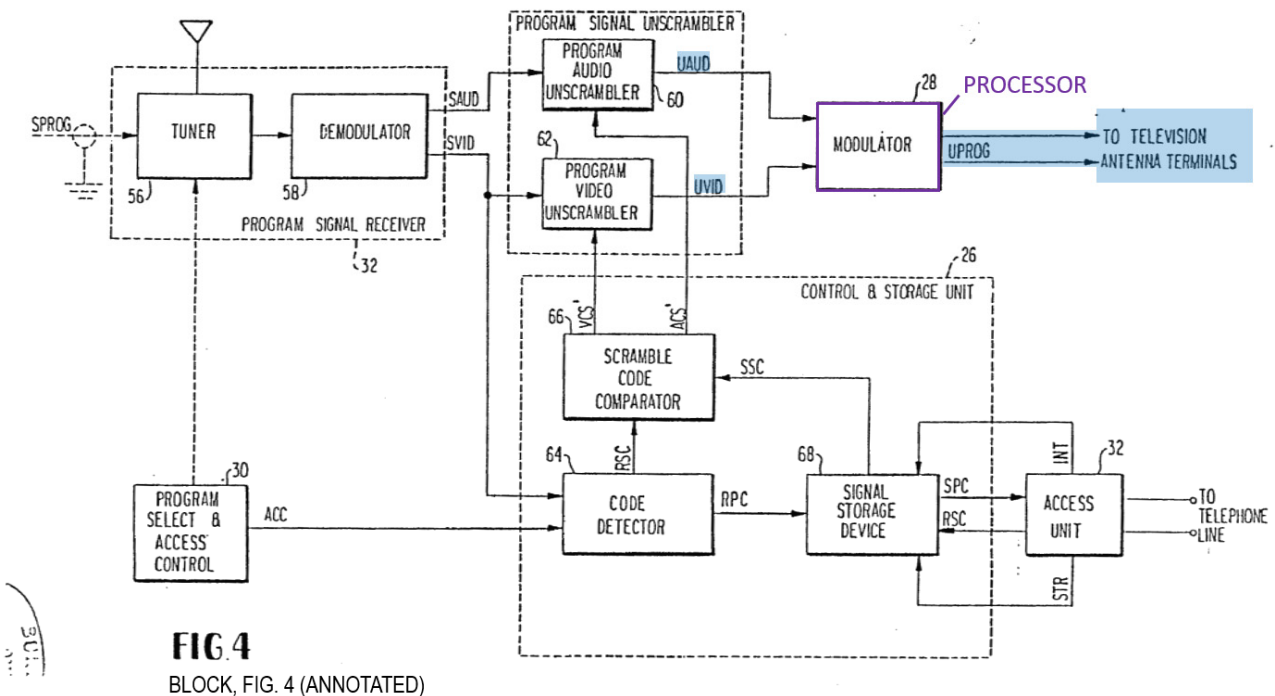
Thus, Block renders obvious controlling, with a programmable control processor, the passing of a second portion of a stream of digital video data in a second passing fashion in response to a passed control portion. See Block, 3:62-4:9; 6:62-7:25; FIG. 4; Dec., 167-172.

***[102.6] processing said passed second portion of said stream of digital data and outputting processed information from said plurality of programmable processors to a video display apparatus; and***

"[T]he scrambled program signal SPROG" of Block is sent to a program signal unscrambler 24 ["[a] programmable processor"] and to a control and storage unit 26 ["[a] programmable processor"]. See Block 3:62-4:9. The program signal unscrambler 24 ["[a] programmable processor"] "provide[s] unscrambled audio and video signals UAUD and UVID to a conventional modulator 28" in response to control signals from control and storage unit 26 ["[a] programmable processor"]. *Id.* Modulator 28 "modulates a carrier signal of an appropriate carrier frequency with the unscrambled audio and video signals ["said passed second portion of said

stream of digital data”] and supplies the unscrambled program signal in the form of a modulated carrier wave to the television set in a conventional manner.” *Id.*

(emphasis added).



**FIG 4**

BLOCK, FIG. 4 (ANNOTATED)

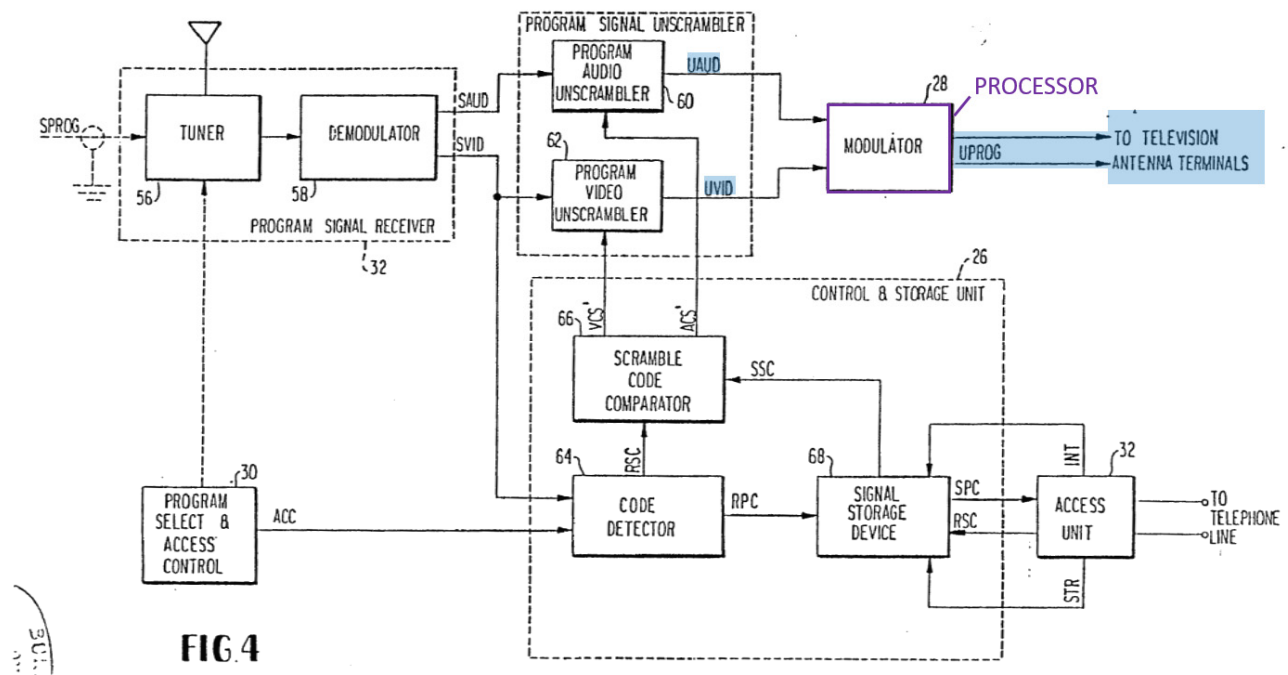
Thus, through its description of modulating the unscrambled video signal UVID [“said passed second portion of said stream of digital data”], Block teaches processing said passed second portion of said stream of digital data. *Id.*; Dec., 173-174.

APOSITA would understand that a television set is a video display apparatus. Thus, through its description of modulating unscrambled audio and video signals [“said passed second portion of said stream of digital data”] and providing the modulated carrier wave [“processed information”] to a television set

["a video display apparatus"], Block renders obvious processing a second portion of a stream of digital data and outputting processed information from a programmable processor to a video display apparatus. *See* Block, 3:62-4:9; Dec., 173-175.

***[102.7] displaying video at said video display apparatus based on said outputted processed information from said plurality of programmable processors.***

As explained at 102.6, Block describes providing a modulated carrier wave ["outputted processed information"] of unscrambled audio and video signals to a television set ["said video display apparatus"]. *See* Block, 3:62-4:9; Dec., 176. The modulated carrier wave of the unscrambled program signal UPROG is provided to "the television set in a conventional manner." *See* Block, 3:62-4:9; Dec., 176.



**FIG. 4**  
BLOCK, FIG. 4 (ANNOTATED)

Block also describes that the television system of Block “enables the display” of programs. *See* Block, claim 10. Additionally, APOSITA would have understood that providing audio and video signals to a television set would cause the television set to display the provided audio and video. Dec., 177.

Thus, Block renders obvious displaying video at a video display apparatus based on processed information from programmable processors. *See* Block, 3:62-4:9; claim 10; Dec., 176-178.

***[105.0] A method of processing signals at a receiver station, said receiver station having a plurality of programmable processors for processing a stream of digital data messages, said method comprising the steps of:***

As explained at 102.0, Block describes a subscriber station that receives “program signals” that include “scrambled audio and video signals as well as various synchronizing signals and codes,” and includes a plurality of programmable processors. *See* Block, 3:27-37; Section VI.A.2; Dec., 179-186.

APOSITA would have understood that, because Block’s subscriber station receives program signals including “scrambled audio and video signals,” the subscriber station is a receiver station. *See* Block, 3:27-37; Dec., 179-190.

As explained by Dr. Villasenor, APOSITA would have found it obvious to interpret features of Block’s system based on the teachings of Seth-Smith. Dec., 187. Accordingly, APOSITA would have found it obvious to use the detailed description of Seth-Smith’s overall transmission format to understand that the

scrambled audio and video signals of Block can contain digital data. Dec., 187-188.

Program signal unscrambler 24 unscrambles the scrambled incoming program signal and provides “unscrambled audio and video signals UAUD and UVID to a conventional modulator.” Block, 3:62-4:9. Through its description of unscrambling the incoming program signal to provide unscrambled audio and video signals, Block renders obvious processing and detecting the scrambled audio and video signals [“stream of digital data messages”] of the scrambled program signal. *Id.*; Dec., 189. Thus, Block, in view of Seth-Smith, renders obvious processing a stream of digital data messages. Block, 3:62:4:9; Seth-Smith, 7:8-8:51; Dec., 189.

Accordingly, Block, in view of Seth-Smith, renders obvious a receiver station having a plurality of programmable processors for processing a stream of digital data messages. Dec., 179-190.

***[105.1] receiving a broadcast or cablecast transmission;***

As explained at 102.0, Block describes the subscriber station that receives “program signals [“a cablecast transmission”]” that include “scrambled audio and video signals as well as various synchronizing signals and codes.” *Id.*, 3:27-37. The program signal “is supplied to the subscriber[ station]s either by conventional broadcast or cable techniques.” *Id.* (emphasis added). Through its description of

receiving a program signal via cable techniques at the subscriber station, Block renders obvious receiving a cablecast transmission. *Id.*; Dec., 191.

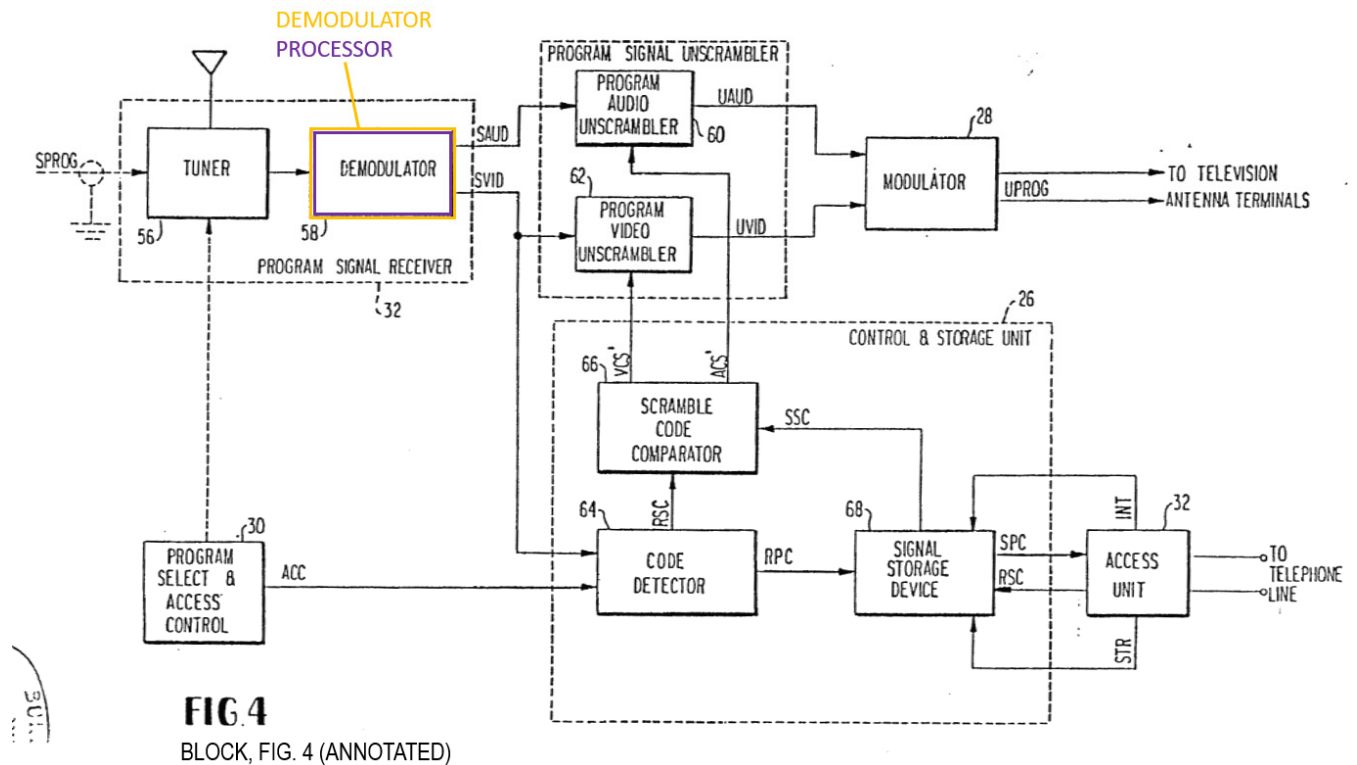
***[105.2] demodulating said broadcast or cablecast transmission to detect an information transmission thereon, said information transmission including said stream of digital data messages;***

Block describes receiving the transmitted program signal at a “program signal receiver 22” that “selects a particular carrier frequency through the use of a conventional tuner and demodulates the incoming program signal [“said cablecast transmission”] to recover the audio, video and code signals.” *See* Block, 5:8-32 (emphasis added). Because the audio, video, and code signals recovered from the incoming program signal [“said cablecast transmission”] are information, the audio, video, and code signals are an information transmission. *Id.*; Dec., 192. Thus, through its description of demodulating the incoming program signal to recover the audio, video, and code signals, Block teaches demodulating a cablecast transmission to detect an information transmission. *See* Block, 5:8-32; Dec., 192.

As explained at 105.0, the scrambled audio and video signals [“an information transmission”] are a stream of digital data messages. *See* Block, 3:62-4:9; *see* Seth-Smith, 7:8-8:51; Dec., 193.

As shown in FIG. 4, Block describes demodulator 58 of program signal receiver 22, which is “a conventional demodulator” “for recovery of the scrambled audio and scrambled video signals.” Block, 6:44-61.



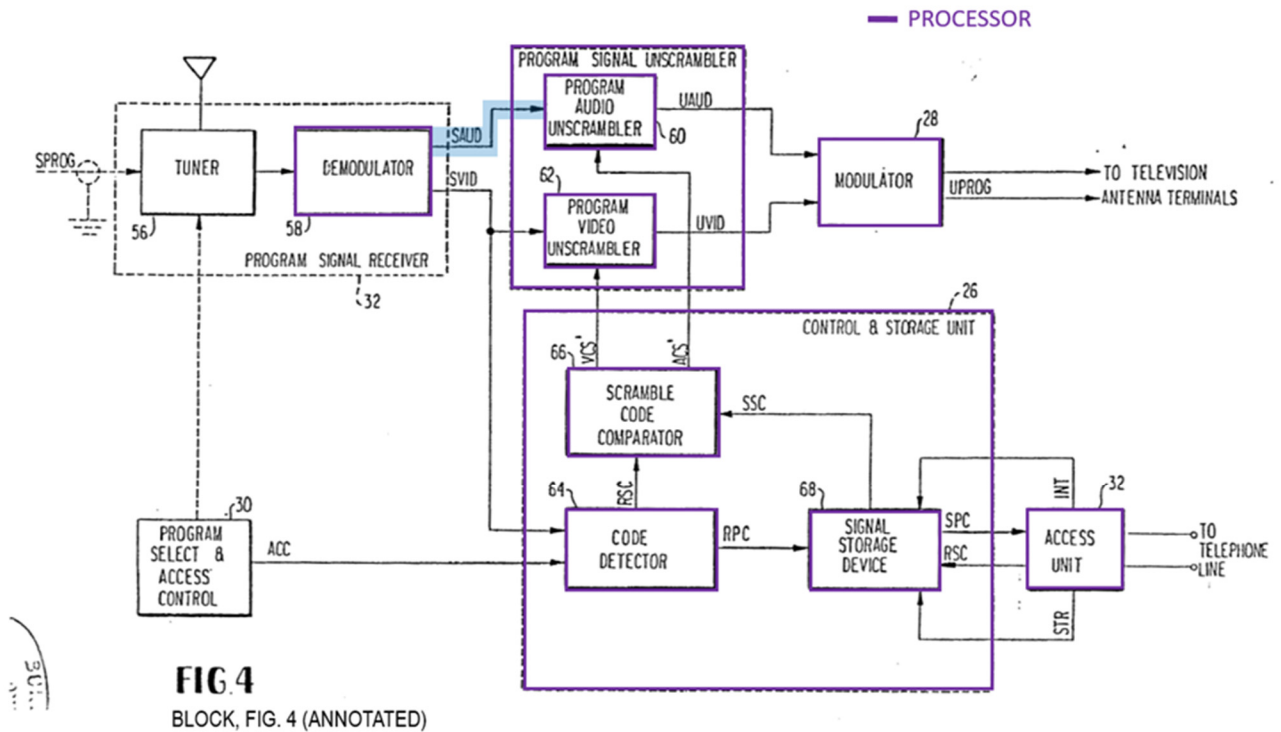


Thus, through its description of demodulator 58 that demodulates the incoming program signal [“said cablecast transmission”] to recover the audio, video and code signals [“said information transmission”] that are digital data [“said stream of digital messages”], Block renders obvious demodulating a cablecast transmission to detect an information transmission that includes a stream of digital data messages. *Id.*, 5:8-32; 6:44-61; Dec., 192-195.

**[105.3] detecting a first digital data message of said stream of digital data messages on said information transmission;**

As explained at 105.0-105.2, APOSITA would have understood, through Seth-Smith’s description of its overall transmission format, that the program signal of Block includes scrambled audio and video signals [“said information

transmission”]. *See* Seth-Smith, 7:8-8:51; Dec., 196. FIG. 4 of Block, reproduced below, illustrates a detailed diagram of the subscriber station equipment 12.



Demodulator 58 recovers “the scrambled audio and scrambled video signals,” and provides the “scrambled audio signal ... to a program audio unscrambler 60” of the program signal unscrambler 24. *See* Block, 6:44-7:25; FIG. 4. The scrambled audio signal is a message of the stream of scrambled audio and video signals [“said stream of digital data messages”]. *Id.*, 3:27-37; Dec., 197. Thus, through its description of the demodulator recovering the scrambled audio signal, Block discloses detecting a first digital data message of said stream of digital data. *See* Block, 3:27-37; FIG. 4; Dec., 196-197.

**[105.4] passing said first digital data message among said plurality of**

***programmable processors; and***

As explained at 105.3, demodulator 58 recovers “the scrambled audio and scrambled video signals,” and provides the “scrambled audio signal [“said first digital data message”] ... to a program audio unscrambler 60” of the program signal unscrambler 24. *See* Block, 6:44-7:25; FIG. 4; Dec., 198.

As explained at 102.3, Block describes supplying the scrambled audio signal [“said first digital data message”] from demodulator 58 [“[a] programmable processor”] to program audio unscrambler 60 [“[a] programmable processor”]. Therefore, Block teaches passing said first digital data message among said plurality of programmable processors. *See* Block, 3:27-37; FIG. 4; Dec., 198-201.

***[105.5] causing, using a programmable control processor, at least one of said plurality of programmable processors to receive only some of said first digital data message, thereby to cause said plurality of programmable processors to process said first digital data message selectively, where the only some of the data message processed by said plurality of programmable processors contains a control signal;***

As explained at 105.0, control and storage unit 26 is a programmable processor. *See* Block 6:44-61; Dec., 202. As explained at 102.4, control and storage unit 26 detects code signals in the incoming program signal, including the TPC and SPC, and uses the code signals to generate control signals that control unscrambling of the scrambled audio and video signals. *Id.*, 4:20-36; Dec., 202-204.

As Dr. Villasenor explains, APOSITA would have understood that code

signals that cause control and storage unit 26 to generate control signals are control signals. Dec., 205.

Control and storage unit 26 “detects the transmitted program code TPC [“control signal”] in the incoming program signal and stores the program code of a particular program being viewed.” *Id.*, 4:20-36 (emphasis added). APOSITA would have understood that storing the program code of a particular program in control and storage unit 26 would cause control and storage unit 26 to receive only the program code of the particular program to be stored, and therefore only some of a digital data message containing multiple program codes. Dec., 204-205.

Through its description of detecting code signals in the incoming scrambled program signal and storing the program code of a particular program being viewed, Block renders obvious causing a processor to receive only some of a first digital data message, thereby causing the processor to process the first digital data message selectively, where the only some of the data message processed contains a control signal. *Id.*; Dec., 206.

Additionally, APOSITA would have found it obvious to use the decoding hardware of Seth-Smith to “perform this function” of the system of Block to display information “on a subscriber’s television screen.” *See* Seth-Smith, 15:39-46; Dec., 207. A B-MAC signal is input to the decoding hardware of Seth-Smith, and data “contained in the vertical blanking interval” [“said stream of digital data”]

are passed to a “Microprocessor and Teletext Support” or MATS that assists a microprocessor. Seth-Smith, 16:6-20; 18:19-39. The MATS examines “addressed packets and supplies” the addressed packets to the microprocessor “for generation of control signals [“a control signal”] and decryption keys.” *Id.*, 18:19-39.

“Meanwhile, the remaining portions of the vertical blanking interval data” are processed by the MATS. *Id.* (emphasis added). The teletext data is stored in RAM and is subsequently supplied to a character generator after decryption using the encryption keys provided by the microprocessor. *See id.*

Through its description of processing the addressed packets and supplying the addressed packets [“only some of a first digital data message”] to the microprocessor to generate control signals and decryption keys and leaving the “remaining portions” to be processed by the MATS, Seth-Smith renders obvious causing a processor to receive only some of a first digital data message, thereby causing the processor to process the first digital data message selectively, where the only some of the data message processed contains a control signal. *Id.*; Dec., 207-209.

Accordingly, Block, in view of Seth-Smith, renders obvious causing a programmable control processor to receive only some of a first digital data message, thereby causing the processor to process the first digital data message selectively, where the only some of the data message processed contains a control

signal. Dec., 202-210.

***[105.6] outputting image information from said plurality of programmable processors to an image display device based on said causing.***

As explained at 102.7, Block describes modulating the unscrambled video signal UVID and providing the modulated carrier wave to a television set. *Id.*; Dec., 211-212.

APOSITA would understand that a television set is an image display apparatus. Thus, through its description of using modulator 28 [“[a] programmable processor”] to modulate unscrambled audio and video signals and provide the modulated carrier wave [“image information”] to a television set [“an image display apparatus”], Block renders obvious outputting image information from a programmable processor to an image display apparatus. *See* Block, 3:62-4:9; Dec., 213.

As explained at 105.5, control and storage unit 26 “stores the program code of a particular program being viewed.” *Id.*, 4:20-36 (emphasis added); Dec., 214. The stored program code causes program signal unscrambler 24 to provide unscrambled audio and video signals UAUD and UVID to modulator 28. Block, 4:20-36. Because the unscrambled audio and video signals are provided to modulator 28 in response to receiving the stored program code of a particular program being viewed [“only some of said first digital message”], Block’s system

teaches outputting image information from said plurality of programmable processors to an image display device based on causing said plurality of programmable processors to process said first digital data message selectively.

Dec., 211-214.

***[106.0] A method of processing signals in a receiver of a broadcast or cablecast transmission, said receiver including a controllable device and having a plurality of programmable processors, said method comprising the steps of:***

As explained at 102.0 and 105.0, Block describes a subscriber station that receives “program signals” that include “scrambled audio and video signals as well as various synchronizing signals and codes,” and includes a plurality of programmable processors. Block, 3:27-37; Section VI.A.2; Dec., 215-222.

APOSITA would have understood that, because Block’s subscriber station receives program signals including “scrambled audio and video signals,” the subscriber station is a receiver station. See Block, 3:27-37; Dec., 215-223.

As explained at 102.0 and 105.0, Block renders obvious a video receiver having a plurality of programmable processors through its description of a subscriber station [“a video receiver”] including program signal unscrambler 24, control and storage unit 26, modulator 28, and demodulator 58. Dec., 215-223.

Additionally, as explained by Dr. Villasenor, APOSITA would have understood that the programmable processors and components in the receiver are each a controllable device. Dec., 215-223. Accordingly, Block renders obvious a

receiver including a controllable device. *Id.*

***[106.1] receiving a broadcast or cablecast signal;***

As explained at 106.0, Block describes the subscriber station that receives “program signals” that include “scrambled audio and video signals as well as various synchronizing signals and codes.” *See* Block, 3:27-37. The program signal “is supplied to the subscriber[ station]s either by conventional broadcast or cable techniques.” *Id.* (emphasis added).

Thus, Block renders obvious receiving a broadcast or cablecast signal. Dec., 224-225.

***[106.2] detecting a stream of digital data on said received signal;***

As explained at 102.2, APOSITA would have found it obvious to use the detailed description of Seth-Smith’s overall transmission format to understand that the scrambled audio and video signals of Block can contain digital data. Dec., 226.

Through its description of unscrambling the incoming program signal to provide unscrambled audio and video signals, Block discloses detecting the scrambled audio and video signals [“stream of digital data”] of the scrambled program signal [“said received signal”]. Block, 3:62-4:9. Thus, Block, in view of Seth-Smith, renders obvious detecting a stream of digital data in a received signal. *Id.*; Seth-Smith, 7:8-8:51; Dec., 226-229.

***[106.3] passing a first portion of said stream of digital data among said plurality of programmable processors in a first passing fashion;***



As explained at 102.3, Block renders obvious passing a first portion of a stream of digital data in a first passing fashion among a plurality of programmable processors through its description of supplying the scrambled audio signal [“a first portion of said stream of digital data”] from demodulator 58 [“[a] programmable processor”] to program audio unscrambler 60 [“[a] programmable processor”]. Block, 3:27-37; FIG. 4; Dec., 230-238.

***[106.4] processing said passed first portion of said stream of digital data into a first control signal;***

As explained at 106.2, APOSITA would have understood, by applying Seth-Smith’s description of its overall transmission format to the system of Block, that the program signal of Block is digital data, and that the scrambled audio and video signals are a stream of digital data. *See* Block 3:62-4:9; *see* Seth-Smith, 7:8-8:51; Dec., 239.

As explained at 102.4, control and storage unit 26 detects code signals in the incoming program signal, including the TPC and SPC, and uses the code signals to generate control signals that control unscrambling of the scrambled audio and video signals, and is a programmable control processor. *See* Block, 5:51-7:26; Dec., 240. Control and storage unit 26 uses the TPC and the SPC to “generate a strobe or write signal STR in order to transmit new scramble codes RSC” to the signal storage device 68 of the control and storage unit 26. *Id.*, 7:26-8:18. Control

and storage unit 26 compares the RSC to a “stored scramble code SSC” and “generates the video and audio unscramble control signals VCS' [“first control signal”] and ACS' respectively.” *Id.*, 5:51-7:26 (emphasis added).

Additionally, APOSITA would have found it obvious to use the decoding hardware of Seth-Smith to “perform this function” of the system of Block to display information “on a subscriber’s television screen.” See Seth-Smith, 15:39-46; Dec., 243. A B-MAC signal is input to the decoding hardware of Seth-Smith, and data [“a first portion”] “contained in the vertical blanking interval” [“said stream of digital data”] is passed to a “Microprocessor and Teletext Support” or MATS that assists a microprocessor. *See id.*, 16:6-20; 18:19-39. The MATS examines “addressed packets and supplies” the addressed packets to the microprocessor “for generation of control signals [“a first control signal”] and decryption keys.” *Id.*, 18:19-39.

Through its description of processing the addressed packets to generate control signals and decryption keys, which can be used as control signals to decrypt data, Seth-Smith describes processing a first portion of a stream of digital data into a first control signal. *Id.*; Dec., 239-244.

Thus, Block and Seth-Smith render obvious processing a first portion of a stream of digital data into a first control signal. Dec., 239-245.

***[106.5] passing a control portion of said stream of digital data to a***

***programmable control processor;***

As explained at 106.4, Block's control and storage unit 26 "generates the video and audio unscramble control signals VCS' and ACS' respectively." *See* Block, 5:51-7:26; Dec., 246. The unscramble control signals are "supplied to the respective program video unscrambler 62 and the program audio unscrambler 60 in order to reconstitute the scrambled video and audio signals." Block, 6:62-7:25.

As explained at 106.0, the program video unscrambler 62 and the program audio unscrambler 60 are processors. Thus, through its description of passing unscramble control signals ["a control portion"] from control and storage unit 26 ["[a] programmable processor"] to program video unscrambler 62 ["[a] programmable processor"] or program audio unscrambler 20 ["[a] programmable processor"], Block renders obvious passing a control portion of a stream of digital data to a programmable control processor. Dec., 246-247.

***[106.6] controlling the passing of said first control signal from said plurality of programmable processors to said controllable device in response to said passed control portion; and***

As explained at 106.5, Block describes that unscramble control signals VCS' ["first control signal"] and ACS' are transmitted to the program video unscrambler 62 and the program audio unscrambler 60 respectively. The program signal unscrambler 24 ["controllable device"] "operates in response to control signals from the control and storage unit 26 to unscramble the incoming program signal."

*See* Block, 6:62-7:25.

As explained at 106.0, APOSITA would have understood that components of the subscriber station are controllable devices. Dec., 248-249. Thus, through its discussion of passing the generated control signals VCS' ["first control signal"] and ACS' to the program signal unscrambler 24 ["controllable device"] in response to the control and storage unit 26 receiving the SCC ["said passed control portion"], Block renders obvious controlling the passing of a first control signal from a processor to a controllable device in response to the passed control portion. *See* Block, 6:62-7:25; Dec., 248-249.

***[106.7] controlling said controllable device in response to said first control signal, including:***

As explained at 106.6, the program signal unscrambler 24 ["controllable device"] "operates in response to control signals ["said first control signal"] from the control and storage unit 26 to unscramble the incoming program signal." *See* Block, 6:62-7:25. Thus, through its description of controlling program signal unscrambler 24 based on unscramble control signals from control and storage unit 26, Block renders obvious controlling the controllable device in response to a first control signal. *Id.*; Dec., 250.

***[106.8] controlling the passing of a second portion of said stream of digital data among said plurality of programmable processors in a second passing fashion in response to said passed control portion; and***

As explained at 102.5, Block describes the passing of the unscrambled video

signal [“a second portion of said stream of digital data”] from the program video unscrambler 62 [“[a] programmable processor”] to the modulator 28 [“[a] programmable processor”] in response to the VCS'. *See* Block, 3:62-4:9; 6:62-7:25; FIG. 4; Dec., 251.

Because program video unscrambler 62 is controlled by control signal VCS' from control and storage unit 26, Block renders obvious controlling the passing of a second portion of said stream of digital data among said plurality of programmable processors. Dec., 253.

As explained at 102.5, Block renders obvious passing the second portion of said stream of digital data in a second passing fashion in response to said passed control portion. *See* Block, 3:62-4:9; 6:62-7:25; FIG. 4; Dec., 251-254.

Thus, Block renders obvious controlling the passing of a second portion of a stream of digital data in a second passing fashion in response to a passed control portion. *See* Block, 3:62-4:9; Dec., 251-255.

***[106.9] processing said passed second portion of said stream of digital data to output image information from said plurality of programmable processors to an information output device.***

As explained at 102.6, Block describes modulating the unscrambled video signal UVID [“said passed second portion of said stream of digital data”], and thus teaches processing said passed second portion of said stream of digital data. *See* Block 3:62-4:9; Dec., 256.

Because the unscrambled video signal UVID contains video information, which includes image information, Block describes processing a signal and outputting image information through its description of modulating the unscrambled video signal UVID and providing the modulated carrier wave to a television set. Block, 3:62-4:9; Dec., 256-258.

APOSITA would understand that a television set is an information output device. Dec., 259. Thus, through its description of modulating unscrambled audio and video signals [“said passed second portion of said stream of digital data”] and providing the modulated carrier wave [“processed information”] to a television set [“an information output device”], Block renders obvious processing a second portion of a stream of digital data to output image information from a programmable processor to an information output device. *See* Block, 3:62-4:9; Dec., 256-259.

## **VII. CONCLUSION**

Petitioner requests institution of IPR of the Challenged Claims.

Respectfully submitted,

Dated: November 18, 2016

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**CERTIFICATION UNDER 37 CFR § 42.24**

Under the provisions of 37 CFR § 42.24, the undersigned hereby certifies that the word count for the foregoing Petition for Covered Business Method Review totals 13,924, which is less than the 14,000 allowed under 37 CFR § 42.24(a)(i).

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**CERTIFICATE OF SERVICE**

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.405(b), the undersigned certifies that on November 18, 2016, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided via Federal Express, to the Patent Owner by serving the correspondence address of record as follows:

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