

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

PERSONALIZED MEDIA COMMUNICATIONS, LLC,
Patent Owner.

**Declaration of Clifford Reader re: Patentability of U.S. Patent No. 7,747,217
in view of WO 81/02961 to Campbell et al.**

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I. Introduction

1. I, Clifford Reader, submit this declaration to state my opinions on the matters described below.

2. I have been retained by Google, LLC, as an independent expert in this proceeding before the United States Patent and Trademark Office.

3. I understand that this proceeding involves U.S. Patent No. 7,747,217 (“the ’217 patent”) (Ex. 1001), and that I have been asked to provide my opinions as to the patentability or unpatentability of certain claims of the ’217 patent.

4. This declaration sets forth my opinions, which I have formed in this proceeding based on my education, training, research, knowledge, and personal and professional experience; my understanding as an expert in the field; and my study of the evidence.

5. I am being compensated for my time at the rate of \$600 per hour. This compensation is not contingent upon the nature of my findings, the presentation of my findings in testimony, or the outcome of this proceeding.

II. Qualifications and Background

6. I believe I am well qualified to serve as a technical expert in this matter based upon my educational and work experience.

7. I understand my curriculum vitae (CV) is being filed in this proceeding as Exhibit 1005.

8. I received my Bachelors of Engineering degree with Honors in 1970 from the University of Liverpool, England. I received my Doctoral degree in 1974 from University of Sussex, England. My Ph.D. thesis was on “Orthogonal Transform Coding of Still and Moving Pictures.” The research for my thesis was performed in residence at the Image Processing Institute, at the University of Southern California, Los Angeles. I performed my graduate research in video compression. I was one of the first to perform a type of image coding (adaptive block transform coding) and apply this type of coding to video. This is described in my thesis and summarized in a SPIE paper. These techniques underlie the audiovisual coding standards known as “MPEG” (Motion Picture Experts Group), and virtually all other video compression schemes today.

9. For the first fifteen years of my career, I primarily focused on the design and development of real-time image and video display systems. These systems were used for applications including military reconnaissance imaging, medical imaging and earth resources imaging. These applications included both still images and video. They also included combining text and graphical data with the imagery. For example, battlefield management systems annotated front-line images and video for use by rearguard commanders by overlaying planes of graphics data onto the imagery data. Similarly, radiologists annotated digital medical imagery such as ultrasound video using graphics overlays to highlight clinical features. I published

two papers regarding the state of the art in realtime digital imagery display systems in 1979 and 1981.

10. At the end of the 1980s, advances in semiconductor technology made application of digital video techniques to consumer video applications feasible. In 1990, while employed by Cypress Semiconductor, I developed a semiconductor chip to implement a decoder for the emerging MPEG-1 standard. This included writing a software implementation of a complete MPEG-1 encoder and decoder. After, I worked on a similar project for the MPEG-2 standard at Samsung Semiconductor.

11. I was Head of Delegation to MPEG for the United States in 1991-1992 and Editor in Chief of the MPEG-1 standard. I reviewed and edited all three parts of the standard in detail, and I wrote much of the informative annex for the MPEG-1 standard.

12. In 1992 to 1993, I was hired by CableLabs to be the technical expert for establishing the MPEG Patent Pool (now MPEG-LA). In creating a listing of the essential intellectual property to practice the standard, I reviewed approximately ten thousand abstracts and one thousand patents.

13. I also chaired the implementation subcommittee that analyzed MPEG-1 Audio (aka MUSICAM), Dolby AC3, and other proposed algorithms for potential implementation. I am a co-founder of the MPEG-4 standard and I also chaired the subcommittee from inception for two and half years. I led a group that established

many of the fundamental principles of the MPEG-4 standard, including object-based coding, software-based implementation, and development of bitstream as a syntactic language.

14. At the end of the 1990s, I joined a start-up company that developed a chip for deinterlacing standard video for display on a progressive scan monitor or TV.

15. I currently work as a video consultant providing technical and business development consulting services in the areas of imaging and video, including for consumer video, real-time processing and display, image and video compression, as well as imaging/video systems architecture and imaging/video chip architecture. I have worked in this capacity since 2001.

III. Summary of Opinions

16. I have been asked to provide my opinion on whether certain claims of the '217 patent are unpatentable over certain prior art references. It is my opinion that claims 1-3, 7-9, 11, 12, 16-18, and 20-22 of the '217 patent are unpatentable because they would have been obvious to a person of ordinary skill in the art in view of the prior art.

IV. Background and Technology of the '217 Patent

A. Overview of the '217 Patent

17. The '217 patent is entitled Signal Processing Apparatus and Method. It was filed June 7, 1995, but not granted until June 29, 2010.

18. The '217 patent relates to a broadcast network and an associated system of programming communication across that network. ('217 patent at Abstract.) The patent describes transmitting, receiving, coordinating, and presenting multi-media presentations at a user's home television. (*See, e.g.*, '217 patent at 12:3-14:54.) Its system includes an intermediate transmitter station, for example, a cable head-end, that receives and re-transmits signals to a user at a receiver station. ('217 patent at Abstract, Figs. 1, 6A-6B, 167:59-168:18.)

19. In one embodiment, the '217 patent describes the "Wall Street Week" program, which provides a "combined medium" or multi-media presentation. (*E.g.*, '217 patent at 12:3-14:54; *see also* '217 patent at 48:8-74:5, 128:63-141:3.) In the "Wall Street Week" example, the patent states two different media are transmitted to the receiver station—one is a traditional television program and the other is digital data for generating text and graphics information. ('217 patent at 12:3-14:54.) The '217 patent explains these media transmissions may include identifying information that tells the receiver station about the content of the media, for example, identifying the origin of the media, the subject matter of the program, program unit, or "overlay number field." ('217 patent at 46:5-25, 25:65-26:18, 62:13-42.) The receiver station receives the transmissions; generates associated text and graphic information; and combines the text and graphics with additional video information from a television program via "graphic overlay techniques, well known in the art," to generate a multi-

media presentation at the user's television. ('217 patent at 10:43-11:24, 12:3-14:54, 21:47-52, 48:8-74:5, 128:63-141:3, 239:10-13.)

B. The Challenged Claims

20. I have been asked to assess four independent claims in the '217 patent, claims 1, 11, 16, and 20. These claims are similar, and I have reproduced each below.

1. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:

receiving said plurality of signals including at least two media which include a first medium received in a digital data channel from a source external to said receiver station;

storing information from said first medium in a storage medium at a computer at said receiver station;

determining content, through use of processor instructions resident on said computer at said receiver station, of each medium received after said first medium in said plurality of signals, wherein determining content of each medium comprises:

processing an identifier which identifies said content of each of said medium;

comparing said processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals;

coordinating, through use of processor instructions resident on said computer at said receiver station, a presentation using said information with a presentation of a medium comprising an identifier that matches said predetermined identifier based on said step of determining content; and

outputting and displaying said multimedia presentation to a user at said receiver station based on said step of coordinating such that said presentation using said information has a predetermined

relationship to said content of said medium comprising an identifier that matches said predetermined identifier

and said content of said medium comprising an identifier that matches said predetermined identifier explains a significance of said presentation using said information.

('217 patent at 286:45-287:12.)

11. A method of outputting a multimedia presentation at a receiver station adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation, said method comprising the steps of:

receiving a subset of said plurality of signals from a source external to said receiver station, each signal of said subset of said plurality of signals including an identifier, wherein said subset of said plurality of signals comprises a plurality of said plurality of signals;

receiving said second medium in a digital data channel from a source external to said receiver station, wherein said second medium is not included in said subset of said plurality of signals;

controlling a microcomputer at said receiver station, through execution of processor instructions, to:

process each identifier of each signal of said subset of said plurality of signals,

compare each processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals and identifies content of said first medium,

process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation,

identify content of said second medium,

generate information based on said second medium based on identifying said content of said second medium, and

coordinate presentation of said first medium and said information based on said second medium; and

outputting and displaying said multimedia presentation to a user at said receiver station based on said step of controlling such that content of said first medium has a predetermined relationship to said information based on said second medium and said content of said first medium explains a significance of said information based on said second medium.

('217 patent at 287:41-288:11.)

16. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of media, said method comprising the steps of:

receiving, at said receiver station, at least two of said plurality of media from different sources, a first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel from a remote transmitter station;

identifying, using a processor, content of a first medium of said at least two of said plurality of media

processing each signal of said plurality of signals, each signal of said plurality of signals including an identifier, and

comparing each processed identifier to a predetermined identifier, said predetermined identifier being determined prior to receiving said plurality of media and identifying content of said first medium;

processing only a signal of said plurality of signal that includes an identifier that matches said predetermined identifier to provide said first medium;

storing said first medium at said receiver station; and

identifying content of said second medium;

processing, based on said content of said second medium, said second medium to generate information based on said second medium;

outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and said generated information based on said second medium, said information included in said first medium having a predetermined relationship to said generated information based on said second medium and said information included in said first medium explaining a significance of said generated information based on said second medium.

('217 patent at 288:46-289:14.)

20. A method of outputting a multimedia presentation at a receiver station having an output device, said method comprising the steps of:

receiving a plurality of signals from a source external to said receiver station:

identifying, using a processor, content of a first medium to be output in said multimedia presentation by:

processing said plurality of signals, each of said plurality of signals including an identifier, and

comparing each said identifier with a predetermined identifier, said predetermined identifier determined prior to receiving said plurality of signals and identifying content of said first medium;

processing only a signal of said plurality of signal that includes an identifier that matches said predetermined identifier to provide said first medium;

processing a control signal at said receiver station that causes execution of processor instructions to process data received in a second medium from an external source to create a series of discrete video images, wherein said second medium is not included in said plurality of signals;

causing a video image of said series of discrete video images to be output and displayed subsequent to said step of identifying; and

combining said outputted video image into said multimedia presentation at said output device based on said step of causing to be output, said multimedia presentation comprising said first medium and said outputted video image of said series of discrete video images, said first medium having a predetermined relationship to said series of discrete video images and said first medium explaining a significance of said video image of said series of discrete video images.

('217 patent at 289:26-60.)

21. I have been asked to consider dependent claims 2, 3, 7, 8, 9, 12, 17, 18, 21, and 22. Claims 2 and 3 depend, directly or indirectly, from claim 1, and require the signals be “received from an external transmitter station.” ('217 patent at 287:13-16.) Claims 7 and 8 also depend from 1 and require that the “content of said medium comprising an identifier that matches said predetermined identifier” includes audio or video, respectively. ('217 patent at 287:26-31.) Claims 9 and 17 respectively depend from claims 1 and 16, and require storing certain medium at a receiver. ('217 patent at 287:32-34, 289:15-18.) Claims 12, 18, and 21 depend from claims 11, 16, and 20, respectively, and require a medium be “a television program including video and audio.” ('217 patent at 288:12-13, 289:19-20, 289:61-62.) Claim 22 depends from claim 20, and recites the “second medium is received in a digital data channel.” ('217 patent at 289:63-64.)

V. Legal Standard

22. In forming my opinions and considering the subject matter of the '217 patent and its claims in light of the prior art, I am relying on certain legal principles that counsel in this case has explained to me. My understanding of these concepts is summarized below.

23. I understand that the claims define the invention. I also understand that an unpatentability analysis is a two-step process. First, the claims of the patent are construed to determine their meaning and scope. Second, once the claims have been construed, the content of the prior art is compared to the construed claims.

24. For purposes of this declaration, I have been asked to opine only on the issues regarding the technology at issue, the level of ordinary skill in the art, claim construction, and obviousness.

25. I have also been informed of the following legal standards, which I have applied in forming my opinions.

A. Claim Construction

26. I have been informed that in an *inter partes* review, claim terms should be construed under the same standard applied in district court cases. I have applied that standard here, to the extent necessary, which I understand involves construing the terms based on how one of ordinary skill would have understood the terms as of

the claims' priority date in light of the claim's language, the patent specification, and the prosecution history.

B. Obviousness Under 35 U.S.C. § 103

27. I understand that the existence of each and every element of the claimed invention in the prior art does not necessarily prove obviousness and that most, if not all, inventions rely on building blocks of prior art. But I have been informed that a claim may be unpatentable as obvious under 35 U.S.C. § 103 if the differences between the subject matter patented and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. I have also been advised that several factual inquiries underlie a determination of obviousness. These inquiries include the (1) scope and content of the prior art; (2) level of ordinary skill in the art; (3) differences between the claimed invention and prior art; and (4) objective evidence of non-obviousness.

28. I understand there are a variety of rationales that support a conclusion of obviousness including:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;

- Use of known technique to improve similar devices (methods, or products) in the same way;
- Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art; and
- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

VI. Person of Ordinary Skill in the Art

29. I have been informed that unpatentability must be analyzed from the perspective of “one of ordinary skill in the art” in the same field as the patent-in-suit at the time of invention. I have also been informed that several factors are considered in assessing the level of ordinary skill in the art, including the (1) types of problems encountered in the prior art; (2) prior-art solutions to the problems; (3) rapidity with

which innovations are made; (4) sophistication of the technology; and (5) education level of active workers in the field.

30. I am familiar with the technology at issue here and the state of the art at the time the application leading to the '217 patent was filed. For purposes of this Declaration, I believe a person of ordinary skill in the art would have a Bachelor's degree in electrical engineering or computer engineering (or equivalent), and at least three years of work experience in the field of TV broadcasting systems, computer systems or TV electronics, and/or multimedia or real-time video systems. With more education, e.g., post-graduate degrees and/or study, less experience is needed to attain an ordinary level of skill in the art. Similarly, more experience can substitute for formal education.

31. I consider myself to have such "level of ordinary skill in the art" with respect to the subject matter of the '217 patent, as I earned a post-graduate degree in electrical engineering, with a thesis in video compression, and I have experience in the development and sale of digital consumer video products. I am thus able to opine on how the person of ordinary skill would have understood the disclosure and claims of the '217 patent, the disclosures of the prior art, the motivation(s) to combine prior art, and what combinations would or would not have been obvious to one of ordinary skill in the art.

VII. Unpatentability

32. The analysis below presents the technical subject matter described in the '217 patent, as well as background known in the art as of the earliest priority date of the '217 patent. The analysis presents my opinions regarding the unpatentability of certain '217 patent claims based on certain references that I considered. I considered, among other things, the following materials:

Exhibit	Description
Ex. 1001	U.S. Patent No. 7,747,217 to Harvey et al. (“the '217 patent”)
Ex. 1002	Prosecution History of U.S. Patent No. 7,747,217
Ex. 1003	Proof of Service of Process of Complaint
Ex. 1005	Curriculum Vitae of Clifford Reader
Ex. 1006	GB 1,370,535 to Millar et al. (“ <i>Millar</i> ”)
Ex. 1008	U.S. Patent No. 4,388,645 to Cox et al. (“ <i>Cox</i> ”)
Ex. 1009	Joint Claim Construction Chart Pursuant to P.R. 4-5(d), <i>Personalized Media Communications, LLC v. Google LLC et al.</i> , No. 2:19-cv-00090-JRG, Dkt. No. 157-1 (E.D. Tex. Feb. 13, 2020)
Ex. 1010	U.S. Patent No. 4,413,281 to Thonnart (“ <i>Thonnart</i> ”)
Ex. 1011	U.S. Patent No. 4,694,490 to Harvey et al. (“the '490 patent”)
Ex. 1012	Jan. 15, 2009, Decision on Appeal, Appeal No. 2007-2115, Application No. 08/487,526 (“the '217 Appeal Decision”)
Ex. 1013	Dec. 15, 2016, Decision on Appeal, Appeal No. 2016-2347, Application No. 08/447,611 (“the '560 Appeal Decision”)
Ex. 1014	PCT Patent Publication No. WO 81/02961 to Campbell et al. (“ <i>Campbell</i> ”)

Exhibit	Description
Ex. 1015	Notice of Allowance, Application No. 08/487,526
Ex. 1016	Mar. 7, 2005, Appeal Brief, Application No. 08/487,526
Ex. 1017	U.S. Patent No. 4,025,851 to Haselwood et al. (“ <i>Haselwood</i> ”)
Ex. 1018	Feb. 13, 1997, Non-Final Rejection, Application No. 08/487,526
Ex. 1019	Sept. 4, 2001, Final Rejection, Application No. 08/487,526, Excerpt
Ex. 1021	Gecsei, J., <i>The Architecture of Videotex Systems</i> (1983), Excerpts
Ex. 1022	U.S. Patent No. 4,051,532 to Hilbert et al. (“ <i>Hilbert</i> ”)

33. In my opinion, a person of ordinary skill would have understood claims 1-3, 7-9, 11, 12, 16-18, and 20-22 of the '217 patent are unpatentable as obvious over *Campbell*, *Millar*, and *Thonnart*. *Campbell* published Oct. 15, 1981, and is prior art under at least pre-AIA 35 U.S.C. § 102(a) (Ex. 1014). *Millar* published on Oct. 16, 1974, from a complete specification filed on May 9, 1973, and I understand it to be prior art under at least pre-AIA 35 U.S.C. § 102(a), (b), (e). *Thonnart* issued Nov. 1, 1983, from an application filed June 26, 1981, and I understand it to be prior art under at least pre-AIA 35 U.S.C. § 102(e) (Ex. 1010). My opinions regarding the unpatentability of claims 1-3, 7-9, 11, 12, 16-18, and 20-22 are described below.

A. Overview of Prior Art

1. Overview of *Campbell*

34. I reviewed *Campbell*, and it describes “an addressable cable television control system” that can send digital data such as text and graphics (e.g., teletext),

in what is called the “vertical interval” of a television broadcast. (*See Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) This television system is “relatively inexpensive and simple” and “provides a substantial amount of textual data per channel . . . to provide additional data to supplement a . . . television program” (*Campbell* at 3:28-36.)

35. As *Campbell* explains, a television broadcast includes a series of lines. (*Campbell* at 8:18-24; *see also* 8:25-10:26.) The first 21 lines comprise the vertical blanking interval. (*Campbell* at 8:18-10:26.) During this interval, no television picture information is transmitted. (*Campbell* at 8:18-10:26.) It is therefore available for the transmission of digital data, e.g., text and graphics, and control data. (*Campbell* at 8:18-10:26.) After the vertical interval, starting at line 22, begins the transmission of television picture information. (*Campbell* at 8:18-10:26.)¹ The figures below depict the vertical retrace, which creates the “vertical blanking interval.” (Ex. 1021 at 24.) I took these figures from *The Architecture of Videotex Systems*, and this concept was well known prior to the filing date of the ’217 patent. (Ex. 1021 at 24.)

¹ In the art, the terms “vertical interval”, “vertical blanking interval”, and “vertical retrace interval” are commonly used.

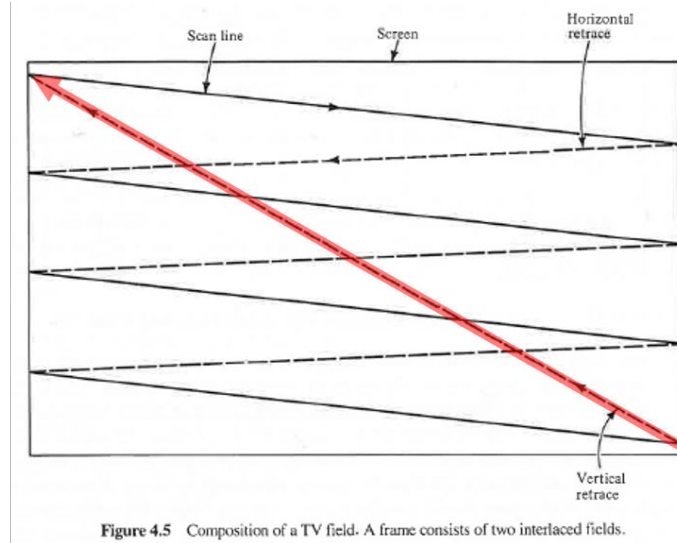


Figure 4.5 Composition of a TV field. A frame consists of two interlaced fields.

(Ex. 1021 at 24 (annotated).) As shown above, the television broadcast includes a vertical retrace (blanking) interval. (Ex. 1021 at 24.) During this “vertical blanking” interval, no content is transmitted. It remains available to carry digital data, such as text or graphics. The below figure from *The Architecture of Videotex Systems* shows another way to view this.

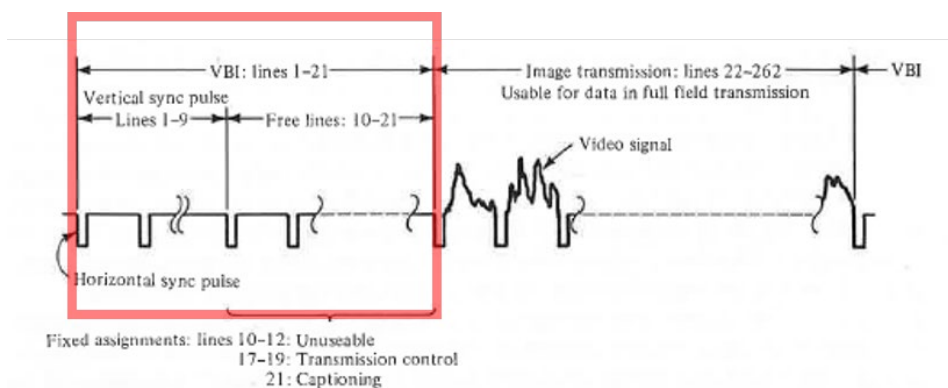
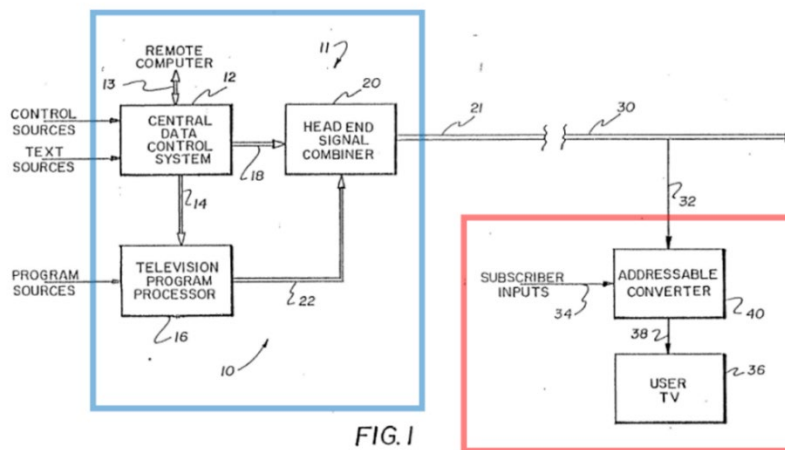


Figure 4.6 Simplified timing diagram of an NTSC field. VBI lines 13–16 and 20 are potentially available for data transmission (data lines).

(Ex. 1021 at 24 (annotated).) As indicated with a red box, a vertical blanking interval precedes the transmission of (for example) video content in the television broadcast, and remains “available for data transmission.”²

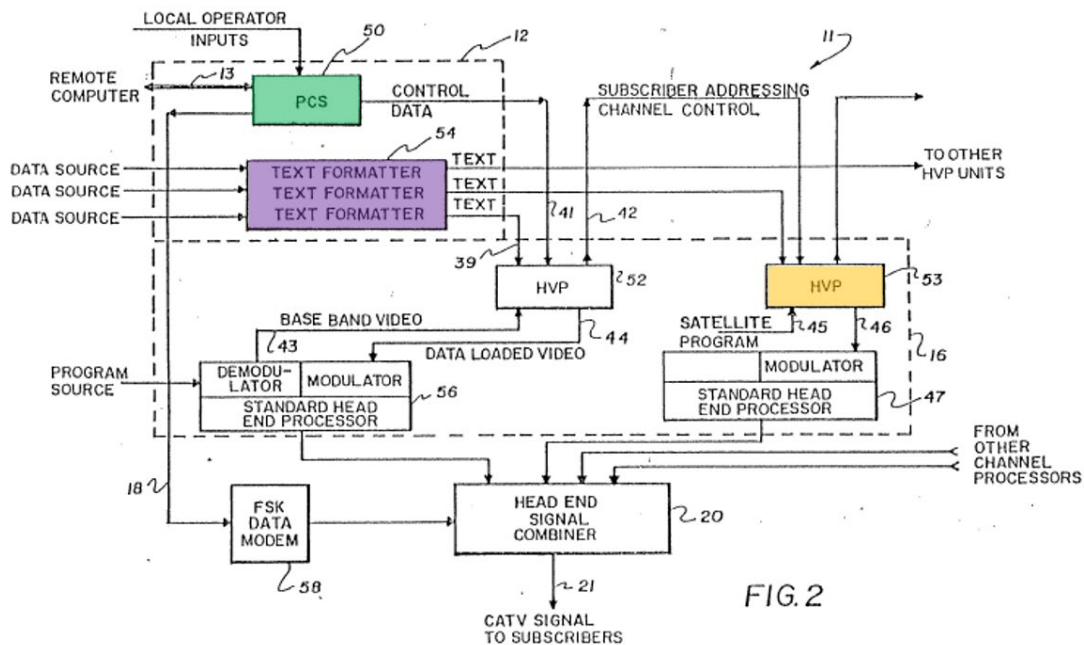
36. Figure 1 shows *Campbell*’s cable television control system. (*Campbell* at 6:10-35.) As shown, *Campbell*’s system includes a cable head end station 11 that receives data “from a wide variety of sources,” formats it as needed, incorporates it into a vertical blanking interval, and transmits it to a subscriber station that includes an addressable converter 40 and user television 36. (*Campbell* at 6:10-35.)



(*Campbell* at Fig. 1 (annotated) (blue is head end station, red is subscriber station).)

37. Figure 2 illustrates an exemplary cable head end station.

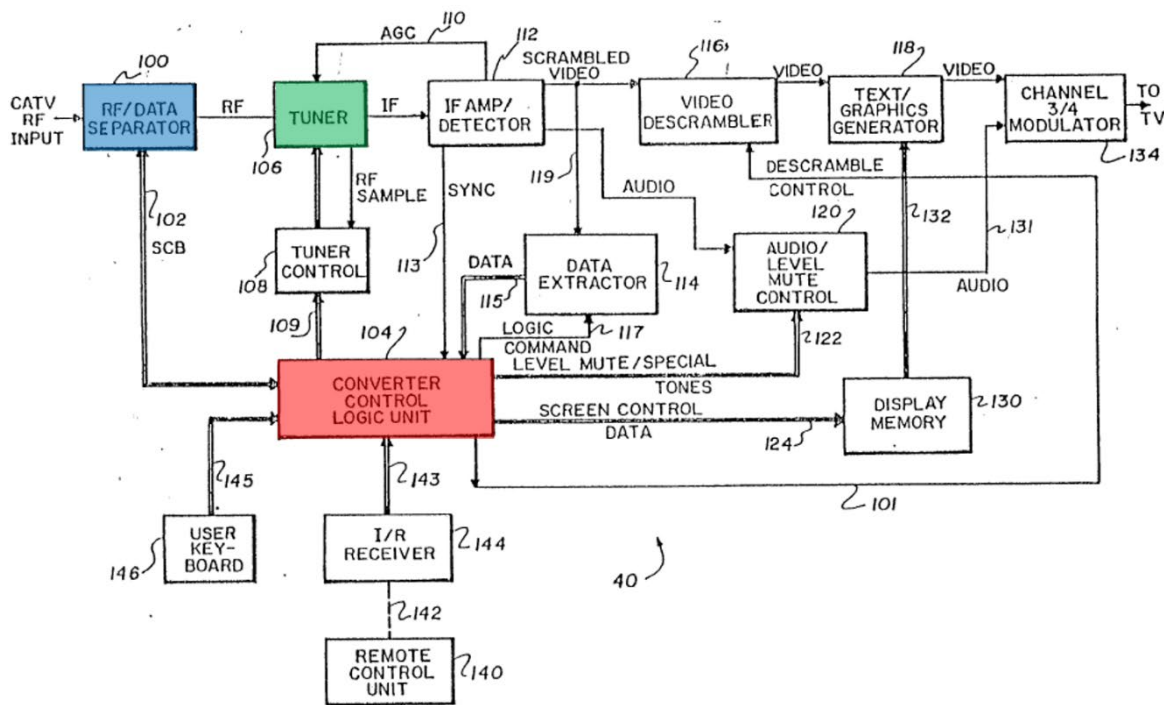
² Information about the vertical blanking interval was well known prior to the filing of the '217 patent. See, e.g., *Campbell* at Figs. 2A, 2B, 8:18-10:26.



(Campbell at Fig. 2 (annotated).) As I annotated in green above, the cable head end station includes a programming control system (PCS) that generates control data (the channel control signal or eligibility code signal) to control activity at a downstream receiver station. (Campbell at 7:8-15.) As I denoted in purple, the cable head end station also includes text formatter 54 that receives data, such as news and stock information, from many sources, and processes that data to provide text and graphics to receiver stations. (Campbell at 7:16-25.) The text formatter will send data to head end video processors (HVP), like HVP 53. (Campbell at 7:16-25.) HVP 53, which I denoted in orange, receives the text and graphics from text formatter 54, control data from PCS 50, as well as television information from a separate satellite source 45. (Campbell at 7:26-32, Fig. 2.) It incorporates text and graphics and control data into

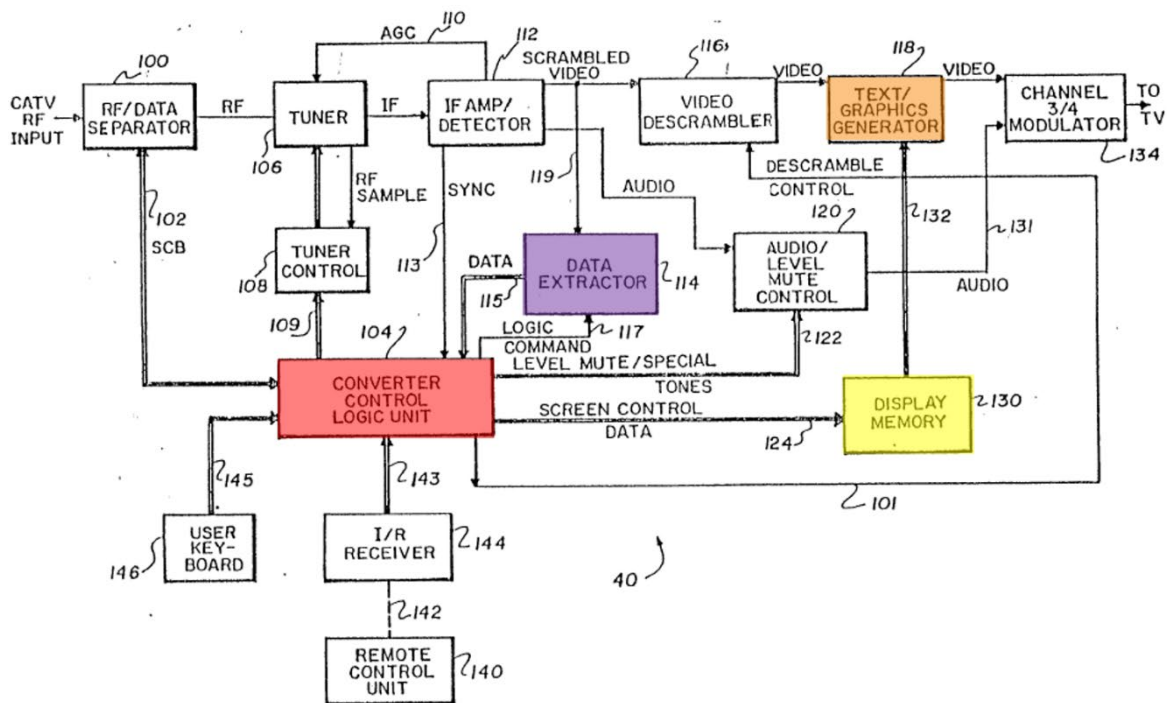
the vertical interval of a television signal. (*Campbell* at 7:33-8:9.) The television broadcast is sent to receiver stations. (*Campbell* at 8:10-17.)

38. Figure 6 shows an exemplary receiver station. The broadcast is received at the receiver at an RF/data separator 100 (blue below). (*Campbell* at 12:32-13:9.) The RF/data separator directs RF data-loaded television signals to conventional tuner 106 (green below), and the control data (e.g., eligibility code) is ultimately received at a converter control logic unit 104 (red), which is “carried out by a microprocessor.” (*Campbell* at 12:32-13:9, 14:29-35.)



(*Campbell* at Fig. 6 (annotated).)

39. *Campbell* explains that the conventional tuner 106 (green above) sends television signals to IF/amp detector 112, which separates video (and digital text and graphics) from audio. (*Campbell* at 13:10-26.) The audio goes to audio/level mute control 120, and video (including digital text and graphics information) is sent to a data extractor 114 (purple below). (*Campbell* at 13:10-36.) The data extractor 114 separates digital data (text and graphics) from video content and sends digital data to converter control logic unit 104 (red below). (*Campbell* at 13:16-26, 15:27-16:34.) The video content is also sent to video descrambler 116, where it is processed. (*Campbell* at 13:27-36.)



(*Campbell* at Fig. 6 (annotated).) *Campbell* explains that converter control logic unit 104 (red above) sends received text and graphics to display memory 130 (yellow above), which then sends any formatted display characters to text/graphics generator 118 (orange above). (*Campbell* at 14:1-6.) Text/graphics generator 118 “provides display characters and graphic symbols.” (*Campbell* at 14:1-28.) Characters and graphics are combined with additional video from the video descrambler, and that combined output is sent to the user’s television “for display.” (*Campbell* at 13:27-14:28.)

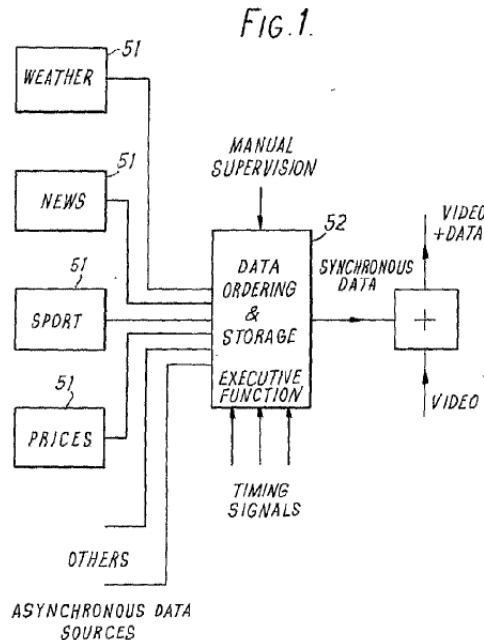
40. In addition to the above-described architecture for cable head end and receiver stations, *Campbell* also offers “procedures to restrict access to television programming, including restrictions on the basis of . . . eligibility.” (*E.g., Campbell* at 17:33-21:21.) A program may be assigned an eligibility code that defines the subject matter of that program. (*Campbell* at 18:24-35.) This “allows families . . . to control access to all movies having unsuitable subject matter.” (*Campbell* at 18:31-33.) As noted above, the PCS at the head end station provides such control data, which is transmitted in the vertical interval with digital text information from text formatter 54. (*Campbell* at 19:6-34, 7:8-32.) As *Campbell* explains, when a receiver receives the television signal and eligibility code, it compares the code to “eligibility threshold code 238” stored at converter control logic 104. (*Campbell* at 21:12-21.) If the eligibility threshold code 238 is “exceeded by the eligibility code of a given

television program,” then the receiver will prevent the display of the program subject matter. (*Campbell* at 21:12-21, 23:12-32.)

2. Overview of *Millar*

41. In my opinion, *Millar* describes a system that provides for creation and display of multimedia presentations at a television receiver station: specifically, a multimedia presentation with caption information on a television picture. (*Millar* at Title, 1:9-47.) *Millar* explains it is “well known” to do this—that is, to “superimpose captions such as sub-titles on a picture.” (*Millar* at 1:9-24.) *Millar* explains it was also known to transmit caption and similar information “simultaneously with a video signal” to a television so that the caption could be simultaneously displayed with the picture. (*Millar* at 1:9-24.) *Millar* explains “[v]arious proposals have been made” to achieve the simultaneous transmission of television and caption information. (*Millar* at 1:48-49.) *Millar* discloses using what is called “teletext” technologies. (*Millar* at 1:48-66, 2:27-48.) Specifically, it discloses sending a “digitally coded data signal” representing caption data in what is called a “vertical interval” of a television signal. (*See, e.g., Millar* at 1:48-2:17.) In addition to sending a “digitally coded data signal” representing caption information, *Millar* also explains control signals are transmitted during this vertical interval to control, e.g., how brightly and in what color captions appear. (*Millar* at 2:35-48, 2:75-92.)

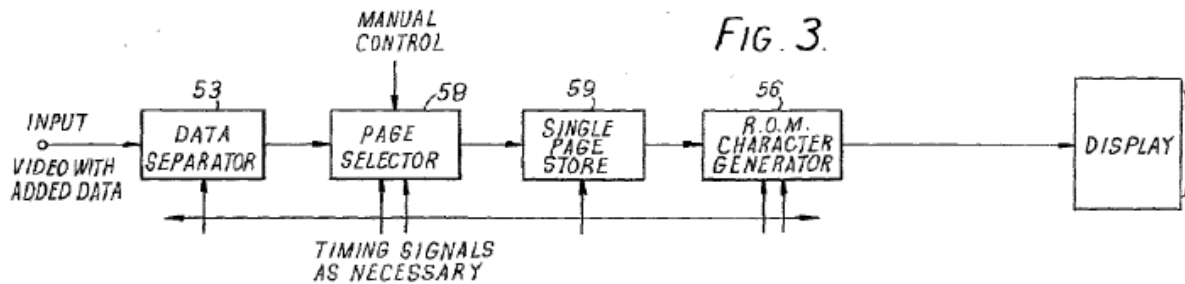
42. *Millar*'s teletext system includes transmitting and receiving terminals. (*Millar* at 1:67-86, 3:9-12.) The transmitting terminal includes "means operative" to provide signals to a receiver station. (*Millar* at 1:67-86, 2:106-128.) One example of the transmitting terminal is shown in Figure 1, which I have reproduced below.



(*Millar* at Fig. 1, 3:17-40.)

43. *Millar* explains that its receiver terminal is "adapted to receive the video signal and display a corresponding picture" from a transmitter. (*Millar* at 1:67-86.) *Millar* was associated with the British Broadcasting Corporation in the 1970s (*Millar* at 1:1-8), which at that time broadcast exclusively over-the-air, thus further supporting transmission over the air. Therefore, the receiving terminal may be a broadcast receiver and receive signals over the air, or it may be a closed circuit

receiver and receive signals by cable. These are two well-known and interchangeable means for transmitting and receiving signals between corresponding transmitter and receiver stations. Figure 3 provides an example of *Millar*'s receiving terminal, and I have reproduced it below.



(*Millar* at Fig. 3.)

44. According to *Millar*, the receiver includes a data separator circuit 53 to extract the digitally coded data signal (i.e., caption information) from the television signals. (*Millar* at 3:92-96, 1:67-86.) Extracted digital data is sent to a page selector. (*Millar* at 4:24-62.) The page selector is programmed with “set-up codes”—that are compared to page codes of incoming digital data—and responds to “timing signals” to pick the digital data that will be stored. (*Millar* at 4:56-62.) Desired digital data is then “entered into storage.” (*Millar* at 4:24-62, 1:67-86.) After storing desired digital data, *Millar* notes that the receiving station sends the stored data to a decoding circuit (what it calls a ROM character generator) to convert the digital data into a “repetitive vision signal.” (*Millar* at 1:67-86, 3:105-112, 5:71-104 (noting ROM is “essentially a complex decoder” that can be programmed).) The transmitted caption information

is then simultaneously displayed with the picture on the user's television monitor (or screen). (*Millar* at 1:9-24, 1:67-86.)

3. Overview of *Thonnart*

45. *Thonnart* relates to a system and method for “simultaneous teletext and analog signal transmission” using known television networks. (*Thonnart*, Title.) *Thonnart* explains it was “known to use television networks to transmit, either for supplementing or replacing the images and sounds composing the usual programs, texts and sequences coded in a digital form (designed hereinafter as teletexts)” and to “permit their reproduction by the user, on an ordinary receiving station by means of a decoding and memory apparatus equipped with a ‘page selector.’” (*Thonnart* at 1:10-17.)

46. To do this, *Thonnart* describes “identifying messages” associated with analog and digital signals (i.e., teletext) to ensure the teletext (text and/or diagrams) is transmitted “approximately synchronous with the corresponding information [e.g., the television information] in the analog form.” (*Thonnart* at 1:46-56, 2:24-46.) This “identifying message[]” “is received by a conventional receiving set equipped with a decoder, memory and detector,” the detector “sensitive to the identifying material.” (*Thonnart* at Abstract, 1:54-56, 3:39-49, 4:14-24.)

VIII. Ground 1

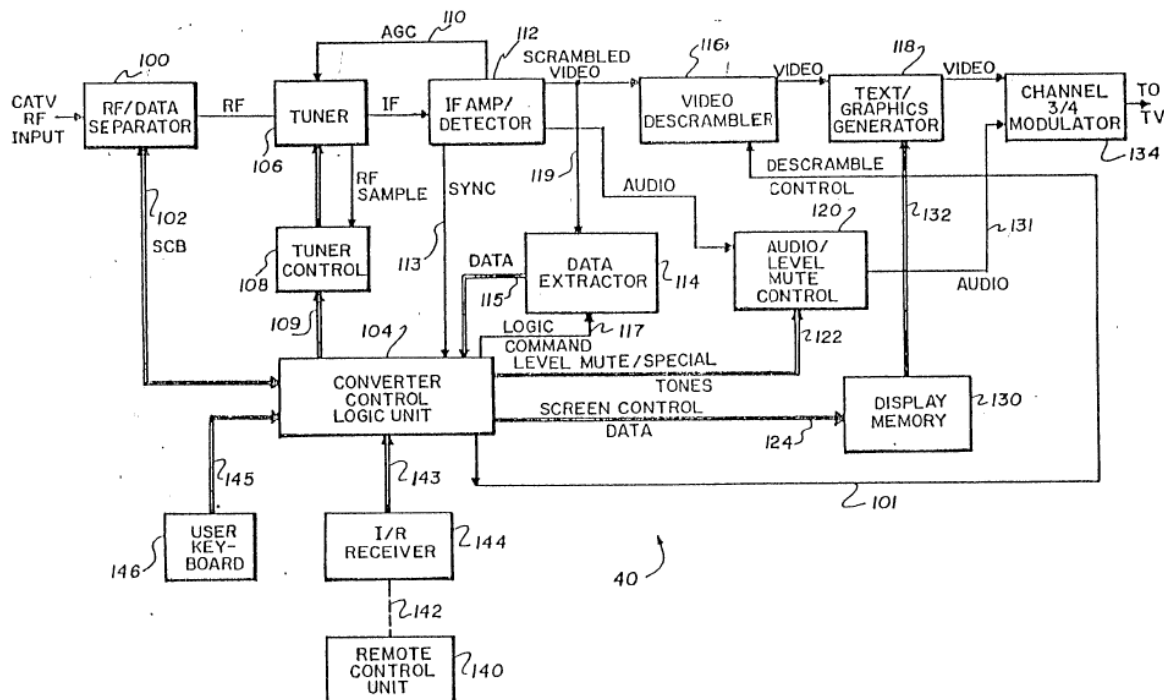
A. Ground 1: *Campbell* and *Millar* Render Obvious Claims 1-3, 7-9, 11, 12, 16-18, and 20-22

1. Independent Claim 1

- a. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:**

47. I understand that this is called a preamble. To the extent the Board finds this preamble limiting, it is my opinion that *Campbell* and *Millar* render obvious this element.

48. *Campbell* describes a system including a transmitting head end station and receiving station. (*Campbell* at 6:10-35, Fig. 1.) *Campbell*'s receiving station is shown below in Figure 6.



(*Campbell* at Fig. 6.) *Campbell* explains this station receives television broadcasts from the cable head end. (*Campbell* at Fig. 2, 6:10-35, 7:8-8:17, 12:32-13:9.) The

broadcasts consist of television signals with picture and sound television information and digital data signals carrying text and graphics. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, Figs. 2A-2B, 12:32-13:9, 28:3-34:7.) *Campbell* accordingly discloses a “receiver station adapted to receive a plurality of signals.”

49. *Campbell* explains that its receiver takes the received signals, processes them, as needed, and then provides the content—audio and video content, as well as graphic and text information—to the user’s television for display. (*See Campbell* at 12:32-14:35, 15:27-16:34.) *Campbell* states content is presented at a user television, but it does not expressly state it is presented in a multimedia presentation or that its content may include captions. But as I explain below, *Campbell* has the fundamental capability to do so, and it would have been obvious to a person of ordinary skill in the art to do this in view of *Millar*.

50. *Millar* discloses a method of outputting a multimedia presentation at a receiver in the form of captions or subtitles superimposed on a television picture. (*See, e.g., Millar* at 1:9-24, 1:48-86, 2:27-48, 2:75-92, 2:106-128.) I understand that while the ’217 was in prosecution, the Board (in an appeal from a series of rejections from the Examiner) explained that picture and sound television information carried by a television signal and caption data carried by a digital data signal are *two distinct*

media. (Ex. 1012 at 24.)³ Consistent with this understanding by the Board, it is my opinion that placing captions (medium one) on a television picture (medium two) is outputting a multimedia presentation. And in fact, this is like the “Wall Street Week” multimedia presentation in the ’217 patent, where graphics are added to a television picture for ultimate display/presentation at a receiver. (’217 patent at 10:43-11:24, 12:3-14:54, 21:47-52, 48:8-74:5, 128:63-141:3, 239:10-13.)

51. According to *Millar*, it was well known to “superimpose captions such as sub-titles on a picture” and to create this multimedia presentation. (*Millar* at 1:9-24.) In *Millar*, a digital data signal carrying caption information is sent in the vertical interval of a television signal, much like in *Campbell*. (*Millar* at 1:48-86, 2:27-128.) A receiver station receives these signals, extracts digital data, and then converts it to a signal representing the alphanumeric information (caption) to create a “display . . . , e.g. simple superimpositions.” (*Millar* at 1:67-86, 2:27-92.)

52. In view of this disclosure, in my opinion, it would have been obvious to modify *Campbell*’s system (to the extent it does not already do so) to superimpose

³ I understand that Google has proposed a construction for “medium”/“media” that means “a channel of communication, such as radio, television, newspaper, book, or Internet.” (Ex. 1009 at 27-36; ’217 patent at Abstract; Ex. 1012 at 23; Ex. 1015 at 2; Ex. 1011 at 1:6-22; Ex. 1016 at 32.) I have applied that understanding here.

text and graphics, and in particular, subtitles, on a television picture and to provide a “multimedia presentation.” *Millar* explains captions provide a benefit to users and “enable deaf viewers (of which there are many) to have added to their pictures subtitles.” (*Millar* at 1:17-35.) A person of ordinary skill in the art would have been motivated to adapt *Campbell*’s system and introduce captions into the vertical interval of the television signal, and have captions displayed on the television to provide a deaf viewer (and interested populations) with the additional benefit of being able to read what is stated during the program. (See, e.g., *Hilbert* at 1:9-13 (“It is desirable to include additional information beyond the picture and sound . . . , [such as,] subtitles for deaf persons, special notices and the like.”).)

53. Further, it is my opinion that a person of ordinary skill in the art would have made this modification with a reasonable expectation of success. *Campbell* states its stations can transmit teletext, like in *Millar* (*Campbell* at 28:3-34:7), and that its text/graphics generator is *already capable* of at superimposing text like a “channel number” on the screen with the associated picture (*Campbell* at 14:7-11). In my opinion, it would have simply been the substitution of one known technique for another, and it would require no undue burden for a person of ordinary skill in the art to adjust *Campbell*’s system to also generate and superimpose subtitles on a television picture. (E.g., *Campbell* at 3:28-36 (indicating “provides a substantial

amount of textual data per channel for use . . . to provide additional data to supplement a channel television program”).)

54. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this claim element.

- b. receiving said plurality of signals including at least two media which include a first medium received in a digital data channel from a source external to said receiver station;**

55. In my opinion, *Campbell* and *Millar* render obvious this element.

56. *Campbell* discloses “receiving [a] plurality of signals” by disclosing a receiver that receives the broadcast consisting of television signals carrying picture and sound television information and digital signals carrying text and graphics data. (See paragraphs 47-54.) *Campbell* also discloses that this “plurality of signals” includes at least two media. (See paragraphs 47-54.) As noted, the plurality of signals includes the television signals with picture and sound television information and the digital signals carrying text and graphics (captions in view of *Millar*) information. (See paragraphs 47-54.) As the Board explained during prosecution, these are *two different media*. (Ex. 1012 at 24.) I understand PMC agreed to this understanding as well. (Ex. 1012 at 26-27 (“[Applicants] do not contest that a television signal having an analog signal portion with a television media [picture and sound television data] and having a digital signal encoded with teletext [captions]” satisfies “plurality of

signals including at least two media”).) For this reason, it is my opinion *Campbell* discloses a “plurality of signals including at least two media.”⁴

57. Last, *Campbell* explains that one of the media (“a first medium”) in the “plurality of signals” is received via a digital data channel from a source external to the receiver. I understand a digital data channel is a broadcast or a cablecast carrying digital information.⁵ *Campbell*’s disclosure of text and graphics (captions in view of *Millar*) information transmitted, from an external transmitter station to a receiver station, in a “binary digital data packet,” meets this element in my opinion. (*E.g.*, *Campbell* at 10:19-26, 11:10-21, 16:1-5, 28:3-34:7; ’217 patent at 11:25-63, 43:52-

⁴ I understand that in a related litigation, PMC has argued that “media” and/or “medium” should be construed as “forms of electronically transmitted programming, such as audio, video, graphics, and/or text, television programming (including its video and audio components) is a single form of media.” (Ex. 1009 at 27-36.) I understand that Google does not agree with that construction. But regardless of which construction is adopted, it is my opinion that the mapping of picture and sound television information and caption information as *two different media* meets PMC’s proposed construction as well.

⁵ I understand that this is the construction that Google proposed, and I applied it here for my analysis. (Ex. 1009 at 57-63.)

44:58, 217:5-10; Ex. 1011 at 20:16-68; Ex. 1009 at 57-63.)⁶ *Millar* confirms that this transmission scheme is well known, similarly disclosing using a digital data signal to carry caption information sent in the vertical interval of a television signal. (*Millar* at 1:48-86 (“digitally coded data signal”), 2:27-128.)

58. For these reasons, *Campbell* and *Millar* render obvious this element.

c. storing information from said first medium in a storage medium at a computer at said receiver station;

59. In my opinion, *Campbell* and *Millar* render obvious this element.

60. *Campbell* discloses a computer. *Campbell* discloses a television system, i.e., a receiver, and a television from inception was a computer. Employing sophisticated signal processing, it can identify and demodulate luma and chroma

⁶ I understand in a related litigation, PMC has argued a “digital data channel” is “a channel that carries exclusively or predominantly digital information.” (*See* Ex. 1009 at 57-63.) I understand Google does not agree with that construction. But regardless which construction is adopted, it is my opinion that the above mapping meets PMC’s construction because “teletext” is a “channel of communication” that carries digital information, whether it does so “exclusively or predominantly.” (Ex. 1009 at 27-36 (construe media as channel of communication); Ex. 1012 at 24 (teletext is its own media, i.e., channel of communication).)

(picture) information and it can process it to transform it into red-green-blue primary color information. It also identifies and demodulates the sound information. And it acts upon instructions provided by the NTSC standard for generating raster scan signals to drive the picture tube, extracting horizontal and vertical sync signals from the received television signal. *Campbell* further discloses a computer in Figure 6, which illustrates an addressable converter unit 40, which includes converter control logic unit 104. Figure 7 illustrates the converter control unit 104, from which it can be seen control logic unit 104 is under the control of (i.e., carried out by) microprocessor unit 140. (*Campbell* at Fig. 7 (annotated), 14:29-15:6)

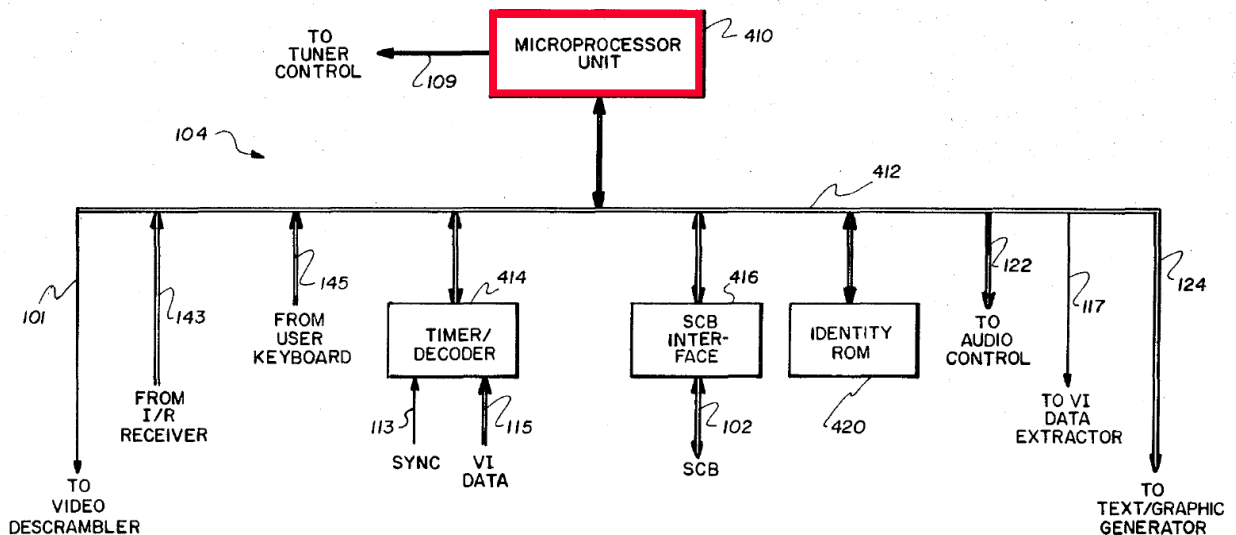
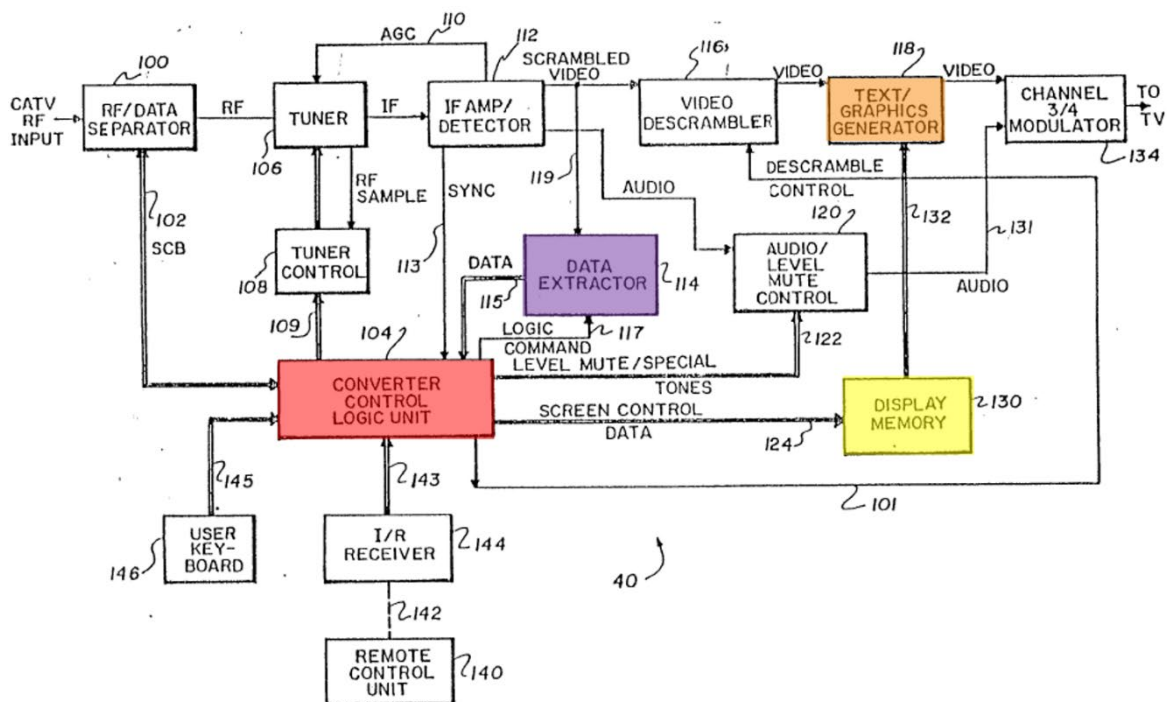


FIG. 7

(*Campbell* at Fig. 7 (annotated).)

61. The microprocessor 140 in Figure 7 is shown with timer/decoder 414 which is connected via line 115 to VI data (i.e., vertical interval data). Also shown is line 124, which is connected to the text/graphic generator 118. The microprocessor

receives the text/graphics data separated from the vertical interval on line 115. The microprocessor outputs the text/graphics data on line 124. Figure 6 illustrates the addressable converter 40 at the receiver that includes a data extractor, control logic unit, display memory, and text/graphics generator. (*Campbell* at 12:32-13:26, 14:1-35, 15:27-16:34.)

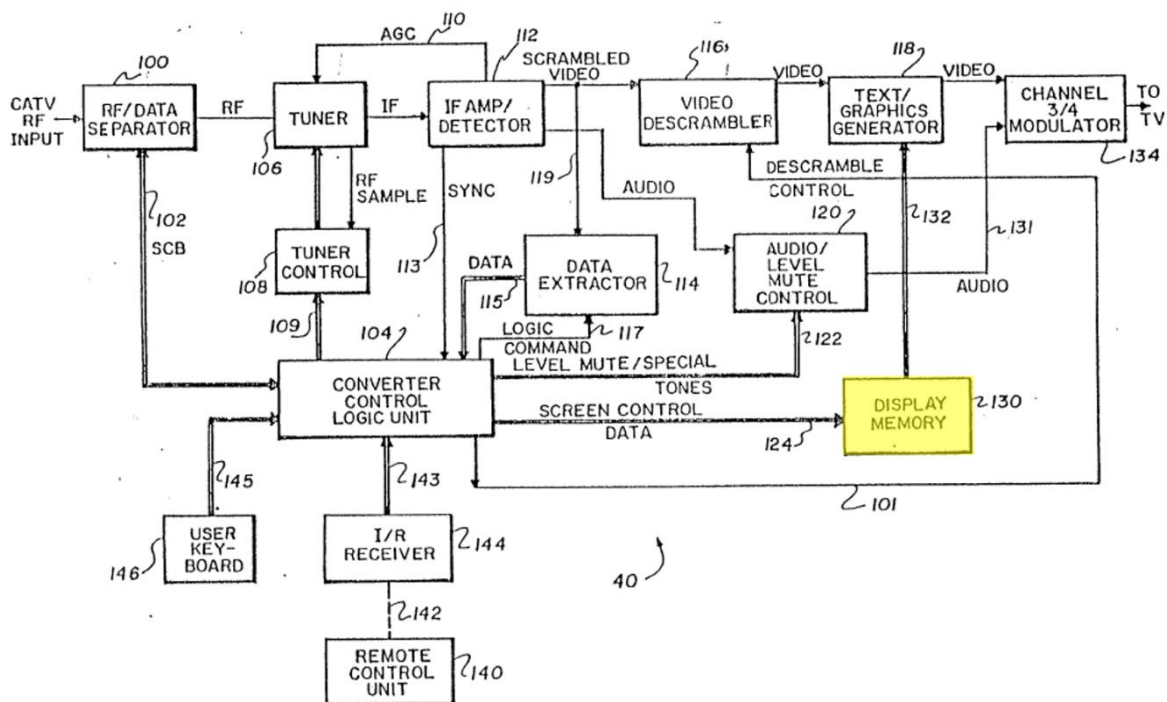


(*Campbell* at Fig. 6 (annotated).) The converter control logic unit is annotated in red, the data extractor is annotated in purple, the display memory is annotated in yellow, and the text/graphics generator is annotated in orange. Line 124, which extends from the microprocessor within the converter control logic unit 104 (red), transmits the text/graphics data to display memory 130, where it is stored. (*Campbell* at 12:32-

13:26, 14:1-35, 15:27-16:34.) Thus, the converter control logic unit is a computer, and because the claims do not limit the computer to a single device, a person of ordinary skill in the art would have understood the data extractor, control logic unit, display memory, and text/graphics generator also collectively comprise a “computer”—they are programmable electronic devices that store, retrieve, and process data. (*Campbell* at 12:32-13:26, 14:1-35 (control logic unit “carried out by a microprocessor”), 15:27-16:34.) Indeed, computers historically comprised discrete electronic components: it was the independent consequence of Moore’s Law that allowed such functionality to be integrated into chip sets, and then into a single-chip “microprocessor.” For this reason, it is my opinion that *Campbell* discloses this element. If, however, the claims are limited to a single device, it would have been obvious to a person of ordinary skill in the art to place the functionality in one or all of a data extractor, control logic unit, display memory, and text/graphics generator into a single device, e.g., a microcomputer. This would have been applying a known technique to a known device to achieve a predictable result. For this additional reason, it is my opinion *Campbell* renders obvious this element.

62. *Campbell* further explains its computer includes a storage medium that stores information from a “first medium.” As discussed, text and graphics (captions in view of *Millar*) information carried by the digital data signal is the “first medium.” (See paragraphs 55-58.) *Campbell* explains its receiver receives this “first medium,”

separates it at the data extractor 114 from the picture and sound television data, and transfers it to the microprocessor within the converter control logic unit, which sends it to the display memory 130. (See, e.g., *Campbell* at 14:3-6, 14:36-15:2, 12:32-13:26, 14:1-35, 15:27-16:34, 28:3-34:7.) The display memory is shown below in Figure 6.



(*Campbell* at Fig. 6 (annotated).) The transmitted text and graphics data is stored in display memory 130, prior to being used by the text//graphics generator 88 to create the video display. (*Campbell* 14:1-14.) ⁷

63. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this element.

- d. **determining content,⁸ through use of processor instructions resident on said computer at said receiver station, of each medium received after said first medium in said plurality of signals, wherein determining content of each medium comprises: processing an identifier which identifies said content of each of said medium; comparing said processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals;**

64. In my opinion, *Campbell* and *Millar* render obvious this element.

⁷ *Millar* similarly provides a receiver will store text and graphics information (i.e., captions) after it is separated from the picture and sound television information, and before it is converted to text and graphics (captions) for display. (*Millar* at 3:92-96, 1:67-86, 4:24-62.)

⁸ I understand that Google proposed a construction of “content” as “substance or gist, in contrast to form or structure.” (Ex. 1009 at 142-50; Ex. 1012 at 24, 26; Ex. 1015 at 3; Ex. 1016 at 32-33.) I have applied that understanding here.

65. *Campbell* discloses a “medium received after said first medium in said plurality of signals.” In my opinion, *Campbell* discloses a receiver that receives “a plurality of signals” with two media: picture and sound television information, and text and graphics (captions in view of *Millar*) information. (See paragraphs 55-58.) The text and graphics (caption in view of *Millar*) information carried in digital coded signals is a “first medium” in a plurality of signals including at least two media. (See paragraphs 55-58.) The *other medium* is thus picture and sound information carried by television signals. (See paragraphs 55-58.) As digital signals carrying text and graphics (captions in view of *Millar*) in the vertical interval of a television signal (“first medium”) are received *before* lines carrying picture and sound information, a person of ordinary skill in the art would have understood that *Campbell’s picture and sound medium* is received *after* the first medium. (Ex. 1021 at 24; e.g., *Campbell* at Figs. 2A-2B, 8:18-10:26; *Millar* at 2:122-128, 3:30-40 (explaining digital data signal “precede[s] the picture information”).) In my opinion, *Campbell* thus discloses a “medium received after said first medium in said plurality of signals” in its picture and sound television medium.

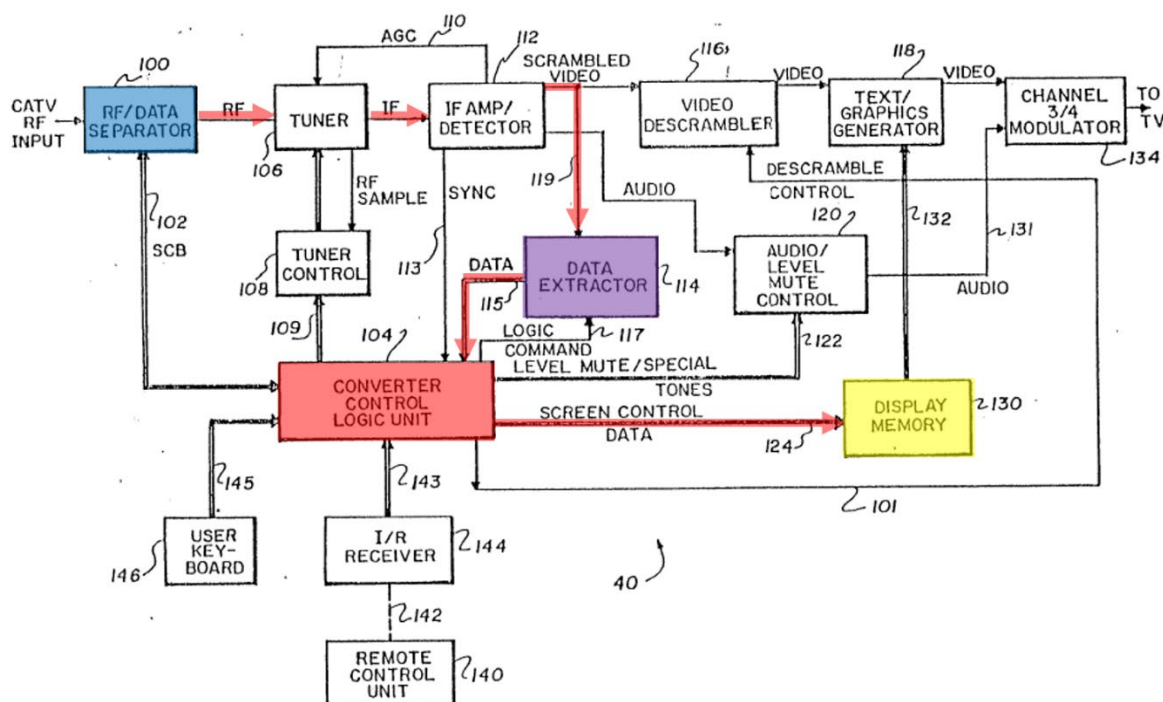
66. In my opinion, *Campbell* further discloses “determining content” of this medium, as claimed. To determine content, *Campbell* discloses “an identifier which identifies said content of each of said medium.” *Campbell* describes eligibility codes transmitted in the vertical interval of the television broadcast that define the subject

matter for the program. (*Campbell* at 17:33-21:21.) This allows families “to control access to all movies having unsuitable subject matter.” (*Campbell* at 18:24-35.) The person of ordinary skill in the art would have understood that the eligibility code data is similar to that in the ’217 patent for identifying the “content” of the medium, i.e., information about the origin of a program, *the subject matter of the program*, program unit, or overlay number field. (’217 patent at 46:5-25, 25:65-26:18, 62:13-42.) The person of ordinary skill in the art would have understood that this eligibility code data identifies *more than the type* of medium—that is, it identifies more than just that the medium is a picture and sound television medium, generally.⁹

⁹ I understand that, consistent with the ’217 specification (’217 patent at 46:5-25, 25:65-26:18, 62:13-42), the Board held during the prosecution of the ’217 patent that both the “determining content” and “identifying content” limitations require the “ascertaining or recognizing the content” of the media, as opposed to identifying the type of media. (Ex. 1012 at 26.) I understand the Board reasoned that “determining content” could be assessing an identifier that indicates the program to be watched or its subject matter. (Ex. 1012 at 26.) I also understand that during prosecution of one related patent, the Board also held that identifying content could also be considering “information that specify the location of the content, thereby identifying that specific

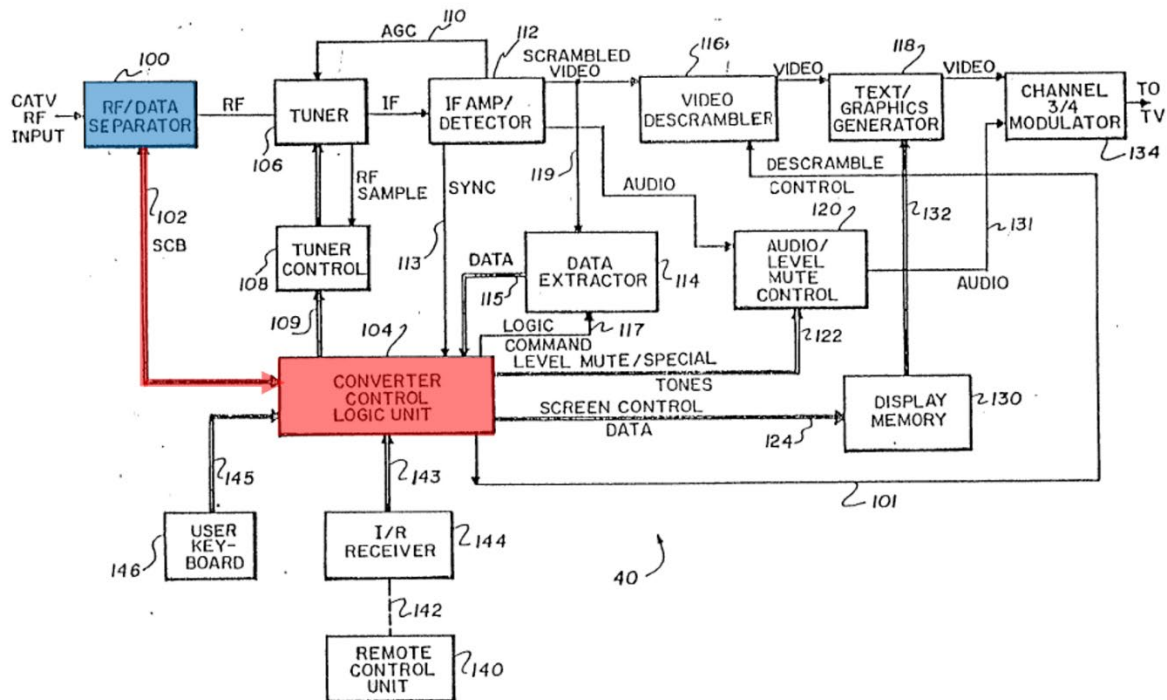
67. *Campbell* also discloses “processing an identifier” (an eligibility code) at a receiver station and also “comparing said processed identifier to a predetermined identifier [*Campbell’s* eligibility threshold code], wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals” at the converter control logic 104. (See, e.g., *Campbell* at 17:33-21:21.) *Campbell* explains that channel control data may be inserted into the vertical interval of a given television broadcast program at the PCS in the cable head end. (*Campbell* at 17:33-21:21.) When that broadcast program is received by the subscriber station, data extractor 114 at the subscriber extracts control data (that eligibility code) and sends it to control logic unit 104, which is “carried out by a microprocessor 410.” (*Campbell* at 4:4-7, 7:33-8:4, 12:32-13:9, 14:1-35, 15:20-23, 18:24-35.) This is illustrated below.

content by its location,” for example, a page code associated with a page of teletext. (Ex. 1013 at 28-30.) I have applied that understanding here.

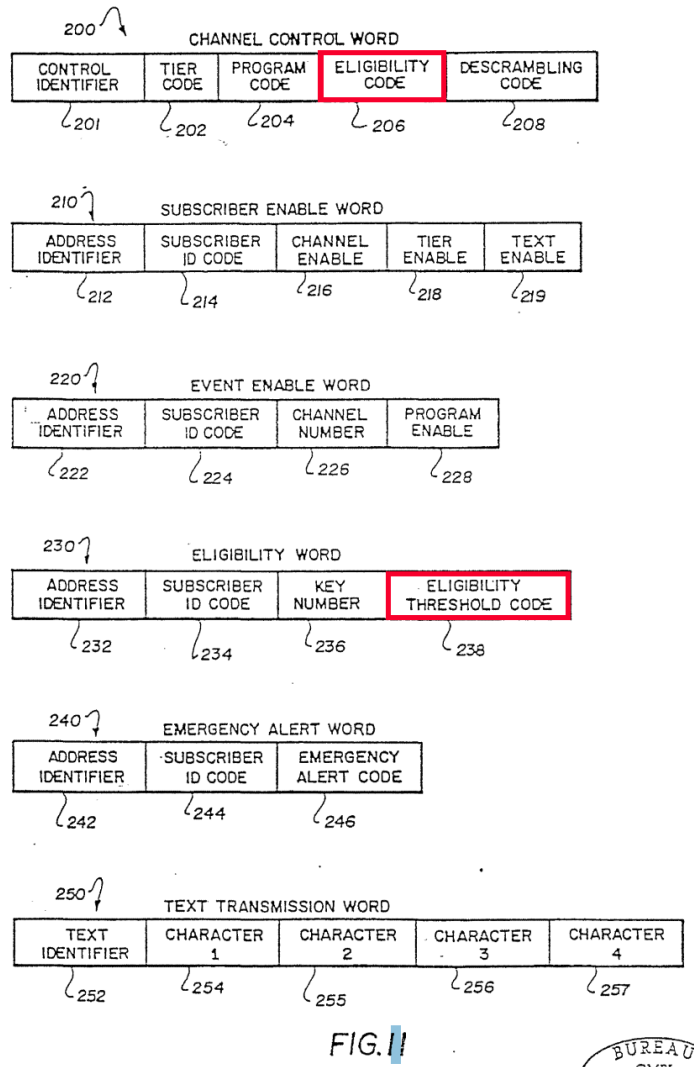


(Campbell at Fig. 6 (annotated).) Campbell explains once a converter control logic receives the eligibility code, it compares it to “eligibility threshold code 238” stored therein to ascertain the subject matter (content) of the television program. (Campbell at 21:12-21.) If that eligibility threshold code is “exceeded by the eligibility code of a given television program,” the receiver will prevent displaying that subject matter (or program). The control data including subscriber-specific control data such as the subscriber address and the subscriber-specific eligibility threshold word are previously downloaded into the subscriber station, also via transmission in the vertical interval. (See Campbell at 12:32-13:9, 17:33-18:35 21:12-21, 23:12-32.)

These control data are separated by RF/data separator 100, and sent to converter control logic 104 via SCB 102 as shown in Figure 6 (annotated) below.



(Campbell at Fig. 6 (annotated).) The control words are illustrated in Figure 11, and described at Campbell 19:6-22:2. More specifically the channel control word 200 may be transmitted in a given broadcast program, and eligibility code 206 provides the eligibility for that program. (E.g., Campbell 19:6-22:2.) The control word 230 may be used to download the eligibility threshold for a given subscriber, and contains the subscriber address and the corresponding eligibility threshold code 238. (E.g., Campbell 19:6-22:2; see paragraphs 34-40.) Campbell 21:5-21 describes the downloading and storage of this code in converter control logic. 140.



(*Campbell* at Fig. 11 (annotated).)

68. Last, *Campbell* explains the processing and comparing steps (claimed content determination) occur “through use of processor instructions [commands and signals] resident on said computer at said receiver.” I considered this element under both parties proposed constructions. (Ex. 1009 at 21-27.) *Campbell* describes using the RF/data separator and converter control logic “carried out by a microprocessor.”

(*Campbell* at 12:32-13:9, 14:1-35, 15:20-23.) These components are similar to those in the '217 patent's receiving station, shown below.

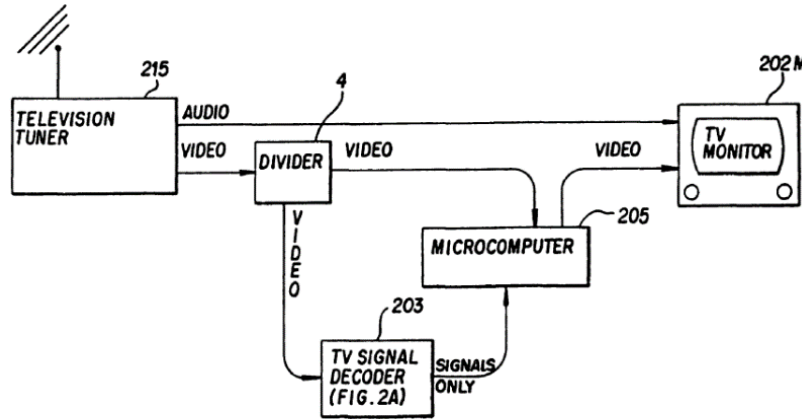


FIG. 1

('217 patent at Fig. 1.) As the RF/data separator and the converter control logic unit microprocessor are programmable electronic devices that store, retrieve, and process data in response to commands and signals, they meet this claim element. (*Campbell* at 12:32-13:9, 14:1-35, 15:20-23.)

69. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this claim element.¹⁰

¹⁰ As noted above in paragraphs 59-69, the claims do not limit the computer to one device, but rather cover the claimed functionality carried out across a number of devices. Still, it would have been obvious to place this functionality in one computer (or microcomputer).

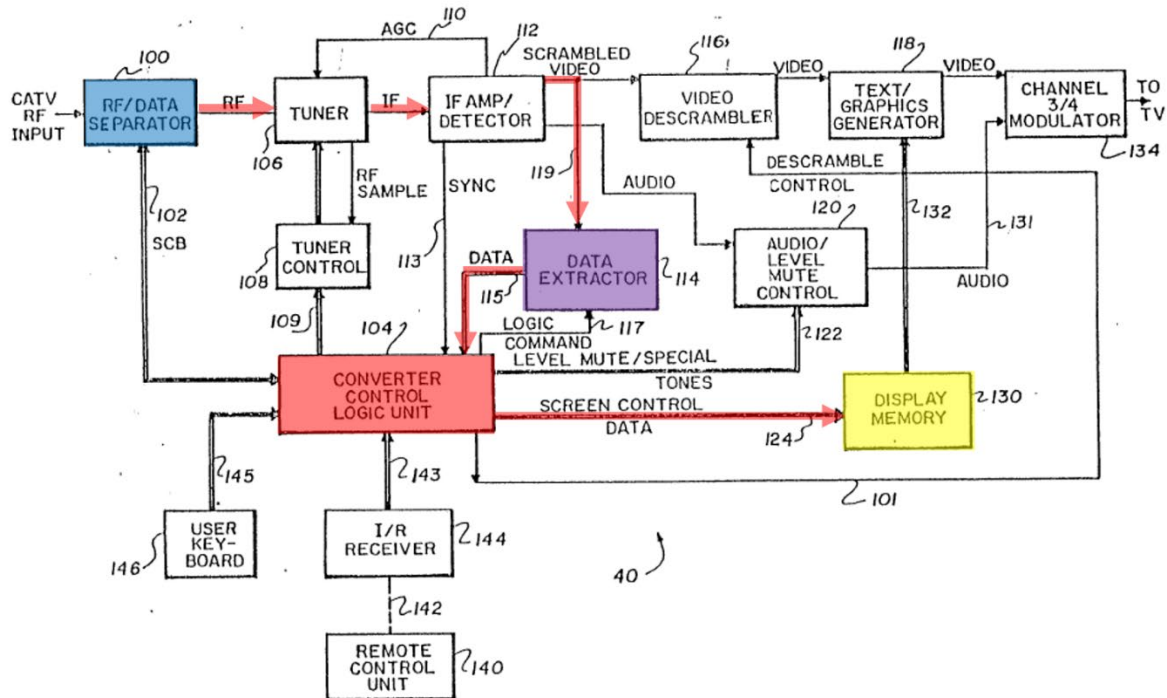
- e. **coordinating, through use of processor instructions resident on said computer at said receiver station, a presentation using said information with a presentation of a medium comprising an identifier that matches said predetermined identifier based on said step of determining content; and**

70. In my opinion, *Campbell* and *Millar* render obvious this element.

71. In my opinion, it would have been obvious in view of the combination of *Campbell* and *Millar* to generate and to display a multimedia presentation at the subscriber station with captions (medium one) superimposed on a television picture (medium two). (See paragraphs 47-54; see also, e.g., Ex. 1012 at 51 (“‘coordinate’ presentations by virtue of the ‘information’ (caption[s]) being superimposed on the ‘second medium’ (television picture)”)).)

72. *Campbell* explains a digital signal carrying text and graphics (captions in view of *Millar*) information is transmitted from the cable head end in the vertical interval of the television signals. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B; paragraphs 47-58.) The station receives these signals at an RF/data separator, which extracts any control data, and sends picture and sound data, and text and graphics (captions in view of *Millar*) information, via components to the data extractor 114. (*Campbell* at 12:32-13:26, 15:27-16:34.) The data extractor separates the digital text and graphics (captions in view of *Millar*) information from the picture and sound television information, and sends that digital information to a converter control logic, which relays the text and graphics data (captions in view of

Millar) (the claimed “said information”) to the display memory. (Campbell at 13:16-26, 14:1-6, 15:27-16:34; paragraphs 59-63.) This pathway is shown below.

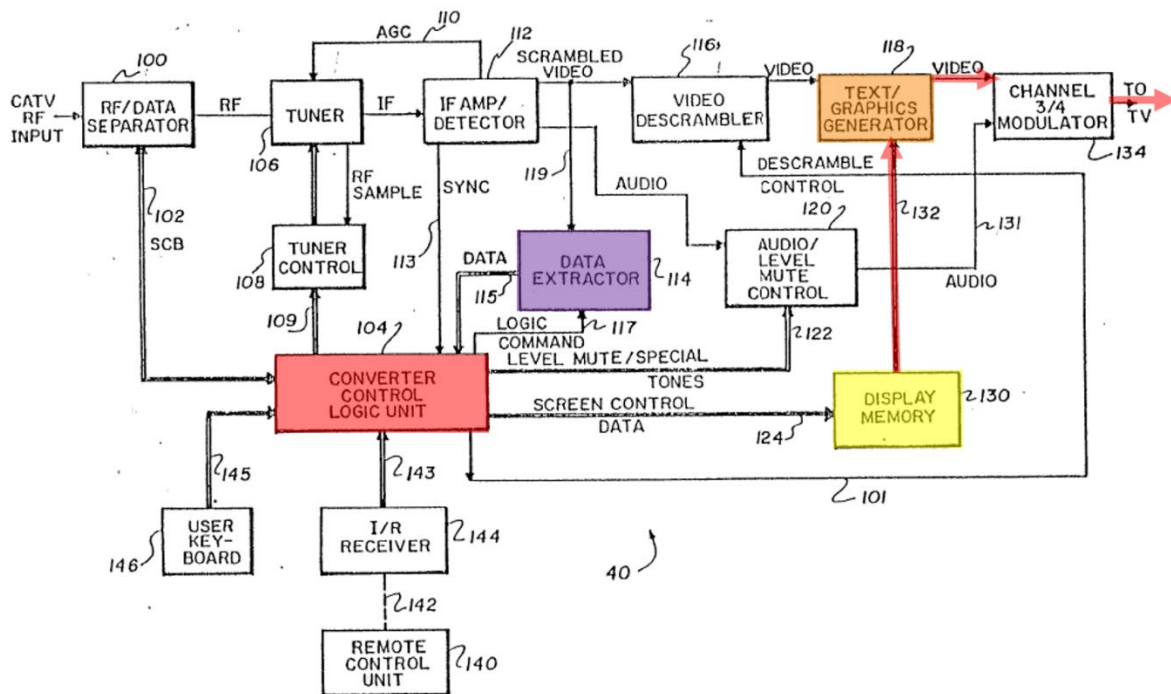


(Campbell at Fig. 6 (annotated).) As these steps occur in programmable electronic devices that store, retrieve, and process data (see paragraphs 59-63), they are done “through the use of processor instructions resident on said computer at said receiver station,” as claimed.¹¹ Moreover, as explained above, Campbell discloses a

¹¹ If the claims require this functionality to be achieved by a single computer, like a microcomputer, it would have been obvious to a person having ordinary skill in the art as discussed above in paragraphs 59-69.

converter control unit 104, from which it can be seen unit 104 is under the control of microprocessor unit 140. (*Campbell* at Fig. 7, 14:29-15:6)

73. The combination of *Campbell* and *Millar* discloses its receiver station coordinates a presentation of stored caption data with a picture and sound television medium, i.e., the claimed “medium comprising an identifier that matches . . . based on said step of determining content,” by creating captions and superimposing them on the picture in the right location. (See paragraphs 64-69; Ex. 1012 at 51.) *Campbell* states a display memory transmits the text and graphics (captions in view of *Millar*) information to the text/graphics generator, which provides display the characters and graphic symbols (to be superimposed on the picture in view of *Millar*) “for display” at the user’s television. (*Campbell* at 13:27-14:28; see also, e.g., *Millar* at 1:48-86, 2’:27-48, 2:106-128, 3:105-112, 5:71-104.) This is illustrated below in Figure 6.



(*Campbell* at Fig. 6 (annotated).) As this also occurs on the programmable electronic devices that store, retrieve, and process data, it also occurs “through use of processor instructions resident on said computer . . . ,” as claimed.

74. *Campbell* and *Millar* render obvious coordinating “based on the said step of determining content” of the television medium. (Paragraphs 64-69.) *Campbell* describes eligibility codes that define a subject matter for a program, and indicate if it contains suitable content for children or content for mature audiences. (*Campbell* at 17:33-21:21.) In this way, a family controls access to all movies having unsuitable subject matter. (*Campbell* at 18:24-35.) If content is unsuitable for an audience at a receiver, *Campbell* explains that the program will not be presented.

(*Campbell* at 21:12-21, 23:12-32.) In view of this, it is my opinion that *Campbell* (as modified in view of *Millar*) will provide a picture and sound portion of a multimedia presentation *only after it has determined the content* and deemed it appropriate for the audience.

75. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this element.

- f. outputting and displaying said multimedia presentation to a user at said receiver station based on said step of coordinating such that said presentation using said information has a predetermined relationship to said content of said medium comprising an identifier that matches said predetermined identifier and said content of said medium comprising an identifier that matches said predetermined identifier explains a significance of said presentation using said information.**

76. In my opinion, *Campbell* and *Millar* render obvious this claim element.

77. As discussed, the combination of *Campbell* and *Millar* renders obvious display of a multimedia presentation at a receiver station with captions superimposed on a television picture. (See paragraphs 47-54, 70-75.) *Campbell* discloses that the receiver station receives a “plurality of signals,” extracts digital data having text and graphics (captions in view of *Millar*), stores it, and converts it to captions (in view of *Millar*) for display. Optionally, the channel number may be superimposed on a picture. (See *Campbell* at 13:27-14:28, 26:5-7, Claim 34; *Millar* at 1:67-86, 2:27-48, 2:75-92.) In this way, *Campbell*’s and *Millar*’s teachings render obvious “outputting

and displaying said multimedia presentation” (*Campbell* at 13:27-14:28; *Millar* at 1:48-86, 2:27-48, 2:106-128, 3:105-112, 5:71-104.)

78. In my opinion, *Campbell* and *Millar* further render obvious “that said presentation using said information [text and graphics (captions in view of *Millar*)] has a predetermined relationship to said content of said medium comprising an identifier [picture and sound television].” As *Millar* explains, *caption information* is related to a television picture output at a user’s display. (*Millar* at 1:9-47.) This is consistent with the Board’s reasoning during prosecution that a caption “inherently has a ‘predetermined relationship’ to the ‘content of said second medium’ (television picture) because the captions are transmitted with the television picture [that] they are associated with.” (Ex. 1012 at 51.) But even if it were not inherent, in my opinion, it would have been obvious to a person of ordinary skill that captions must have a predetermined relationship to associated picture and sound television information because captions are text explicitly corresponding to audio of the program, and must be displayed synchronously and in a set location on the picture of the program.

79. Last, *Campbell* and *Millar* disclose or render obvious “content of said medium comprising an identifier . . . explains a significance of said presentation using said information [captions].” I understand that both PMC and Google dispute the meaning of this term. I understand that PMC argues it means an “explanation of significance is based on a relationship of the media,” and I understand Google argued

it means “[e]xplains meaning or importance to the specific user.” (Ex. 1009 at 120-35.) However, I do not believe this dispute is relevant here because the combination of *Campbell* and *Millar* satisfies both. First, it would have been obvious that picture and sound information (medium comprising an identifier) explains the significance of captions (information) by providing the underlying source material (picture and sound) and relevant context for text or graphics added to a multimedia presentation. As to the latter, *Campbell* provides for the selection of (or preventing the display of) mature content based on eligibility code comparisons (*see* paragraphs 64-69), and it would have been obvious to a person of ordinary skill that a mature program is for *specifically authorized* (i.e., age-appropriate) users and the mature content displayed in the picture would explain the meaning or importance *to a specific mature user* of the captions displayed on the screen.

80. For these reasons, *Campbell* and *Millar* render obvious this element. Because the combination of *Campbell* and *Millar* render claim 1 obvious, I believe claim 1 should be cancelled.

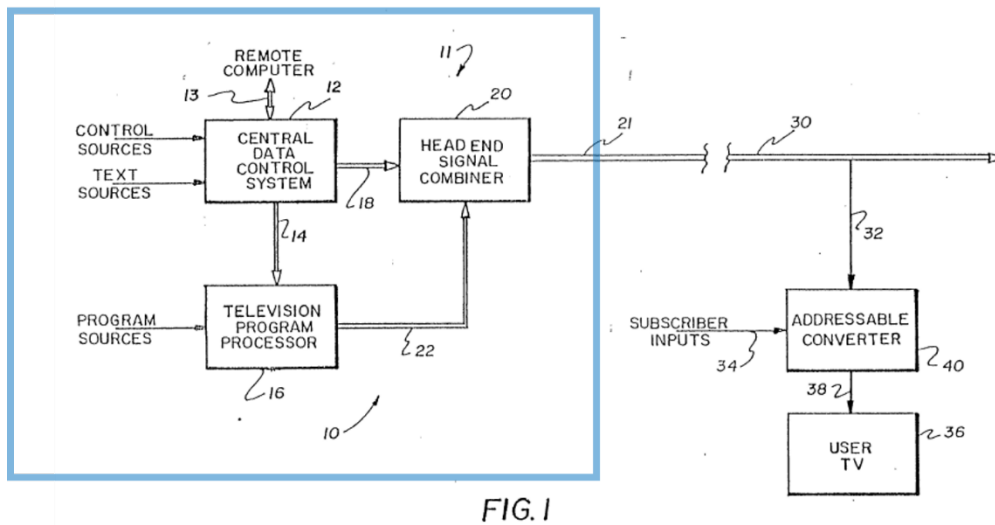
2. Dependent Claim 2

- a. The method of claim 1, wherein each of said plurality of signals is received from an external transmitter station.**

81. It is my opinion that *Campbell* and *Millar* render obvious this element. As I understand that the “intermediate transmitter station” recited in claim 3 is a type

of “external transmitter station” recited here in claim 2 (based on the dependency of claim 3 from claim 2), the unpatentability proofs I provide below in paragraphs 86-90 show that this feature is rendered obvious by *Campbell* and *Millar*.

82. Specifically, *Campbell* describes a head end station that receives data from external sources and retransmits it to a receiver station. (*Campbell* at 6:10-35.) This is shown below in Figure 1.



(*Campbell* at Fig. 1 (annotated).) *Campbell*’s head end is therefore an *intermediate* between different content sources and a receiver. (*Campbell* at 6:10-35.)

83. *Campbell* also explains its head end receives data (news, stocks, etc.) from different sources. (*Campbell* at 7:16-25.) It explains that its head end receives television information from satellite sources at the head end processors. (*Campbell* at 7:26-32, Fig. 6.) *Campbell* thus states its head end station receives data/television

information *over the air*, much like the head end in *Cox* and '217 specification. ('217 patent at Fig. 6; *Cox* at 1:13-60, 3:4-9, 3:21-27, Fig. 1.)

84. *Campbell* also explains the “head end unit then transmits the combined cable television and data signal to remote subscribers.” (*See Campbell* at 6:10-29.) Although *Campbell* explains “[n]ormally, the signals are then transmitted through a cable network” (*Campbell* at 6:10-29), it was known that signals *could alternatively be transmitted* over the air to receiver stations. (*See, e.g., Millar* at 1:1-86, 2:18-21, 2:106-128, 3:9-10.) For example, *Millar* explains the receiver station can easily be either “a broadcast receiver[or] a closed circuit receiver,” and allow for the transmission of television and data signals to remote receivers. (*Millar* at 2:18-21.) “Over the air” is a known alternative for transmitting data to and from an intermediate station, and it would have been mere use of a known method to achieve a predictable result to send information from *Campbell*’s head end station to *Campbell*’s receiving station over the air.

85. For these reasons, *Campbell* and *Millar* render obvious this element.

3. Dependent Claim 3

- a. The method of claim 2, wherein said external transmitter station is an intermediate transmitter station.**

86. It is my opinion that *Campbell* and *Millar* render obvious this element.

87. Specifically, *Campbell* describes a head end station that receives data from external sources and retransmits it to a receiver station. (*Campbell* at 6:10-35.) This is shown below in Figure 1.

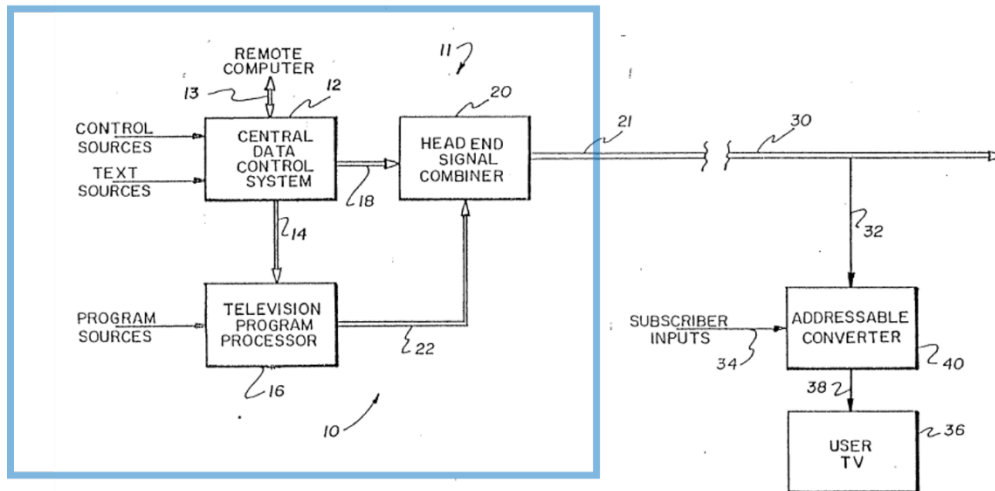


FIG. 1

(*Campbell* at Fig. 1 (annotated).) *Campbell*'s head end is therefore an *intermediate* between different content sources and a receiver. (*Campbell* at 6:10-35.)

88. *Campbell* also explains its head end receives data (news, stocks, etc.) from different sources. (*Campbell* at 7:16-25.) It explains its head end receives television information from satellite sources at the head end processors. (*Campbell* at 7:26-32, Fig. 6.) *Campbell* thus states its head end station receives data/television information *over the air*, much like the head end in *Cox* and '217 specification. ('217 patent at Fig. 6; *Cox* at 1:13-60, 3:4-9, 3:21-27, Fig. 1.)

89. *Campbell* also explains the “head end unit then transmits the combined cable television and data signal to remote subscribers.” (*See Campbell* at 6:10-29.) Although *Campbell* explains, “[n]ormally, the signals are then transmitted through a cable network” (*Campbell* at 6:10-29), it was known signals *could alternatively be transmitted* over the air to receiver stations. (*Millar* at 1:1-86, 2:18-21, 2:106-128, 3:9-10.) For example, *Millar* explains that the receiver station can easily be either “a broadcast receiver[or] a closed circuit receiver,” and allow for the transmission of television and data signals to remote receivers. (*Millar* at 2:18-21.) “Over the air” is simply a known alternative for transmitting data to and from an intermediate station, and it would have simply been mere use of a known method to achieve a predictable result to send information from *Campbell*’s head end station to *Campbell*’s receiving station over the air.

90. For these reasons, *Campbell* and *Millar* render obvious this element.

4. Dependent Claim 7

a. The method of claim 1, wherein said content of said medium comprising an identifier that matches said predetermined identifier includes audio.

91. In my opinion, *Campbell* and *Millar* render obvious this element.

92. *Campbell* and *Millar* disclose a receiver that receives television signals carrying picture and sound television information, and digital signals with text and graphics (captions in view of *Millar*) information. (*Millar* at 1:9-86, 2:27-48, 2:106-

128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The claimed “medium comprising an identifier that matches said predetermined identifier . . .” is the picture and sound television medium. (See paragraphs 64-69.) *Campbell* explains the picture and sound television medium is a conventional television program that is transmitted according to a television schedule, in a conventional television system, made up of video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B.) Thus, *Campbell* discloses that the “content of said medium comprising an identifier that matches said predetermined identifier includes audio.”

93. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this element.

5. Dependent Claim 8

a. The method of claim 1, wherein said content of said medium comprising an identifier that matches said predetermined identifier includes video.

94. In my opinion, *Campbell* and *Millar* render obvious this element.

95. *Campbell* and *Millar* disclose a receiver that receives television signals carrying picture and sound television information, and digital signals with text and graphics (captions in view of *Millar*) information. (*Millar* at 1:9-86, 2:27-48, 2:106-128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The claimed “medium comprising an identifier that matches said predetermined identifier . . .” is the picture

and sound television medium. (See paragraphs 64-69.) *Campbell* explains the picture and sound television medium is a conventional television program that is transmitted according to a television schedule, in a conventional television system, made up of video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B.) Thus, *Campbell* discloses that the “content of said medium comprising an identifier that matches said predetermined identifier includes video.”

96. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this element.

6. Dependent Claim 9

- a. **The method of claim 1, further comprising the step of storing said medium comprising an identifier that matches said predetermined identifier at said receiver station.**

97. In my opinion, *Campbell* and *Millar* render obvious this element. As I noted above, the medium comprising an identifier that matches said predetermined identifier is picture and sound television medium. (See paragraphs 64-69.) *Campbell* explains that this medium is sent to a video descrambler to be processed. (*Campbell* at 13:27-36.) A person of ordinary skill in the art would understand this video descrambler includes buffers for temporarily storing portions of the video while it is processed. In fact, it is quite common for receiving stations to store video content

for not only processing, but to also enable later use. (*Campbell* at 13:27-36; *Millar* at 2:93-105.)

98. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this element.

7. Independent Claim 11

- a. A method of outputting a multimedia presentation at a receiver station adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation, said method comprising the steps of:**

99. In my opinion, this limitation is substantially identical to that recited in element 1a for claim 1. (*See* paragraphs 47-54.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 11
[1a] A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:	A method of outputting a multimedia presentation at a receiver station adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation, said method comprising the steps of:

As shown above, the only difference is that this element recites the receiver station is “adapted to process a plurality of signals, said plurality of signals including first and second media of said multimedia presentation,” instead of “adapted to receive a

plurality of signals.” But, in my opinion, *Campbell* and *Millar* nonetheless disclose this feature.

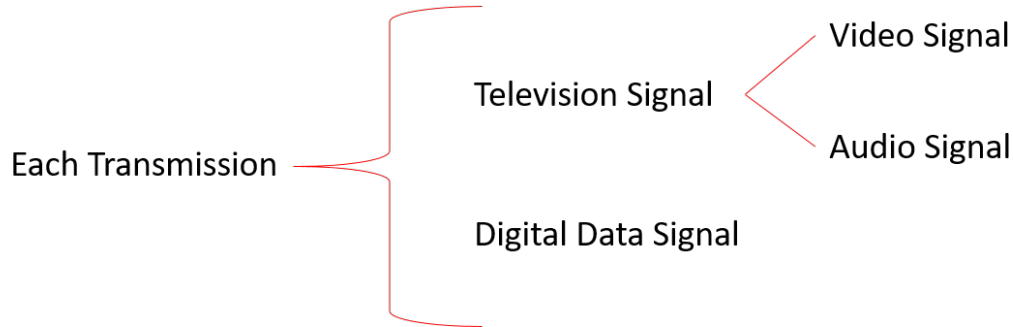
100. *Campbell* discloses a receiver station that receives television signals carrying picture and sound television information and digital signals carrying text and graphic (captions in view of *Millar*) information. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:8-10:26, Figs. 2A-2B, 12:32-13:9, 28:3-34:7.) This is the claimed “plurality of signals.” And, this plurality of signals includes first and second media, as picture and sound information carried by the television signal is one medium, and text and graphics (captions in view of *Millar*) data carried by the digital data signal is another. (Ex. 1012 at 24.) *Campbell* explains the receiver station *processes* these signals—“converter, under [the] direction of converter control logic [104], processes the RF data-loaded television signals.” (*Campbell* at 12:32-13:1.) In particular, the receiver receives these signals at an RF/data separator, which separates out control data and transfers the picture and sound television information and digital data to the data extractor. (*Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) That data extractor then separates text and graphic data (captions in view of *Millar*) from the picture and sound television information. (*E.g.*, *Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) It sends television information on to a video descrambler to be processed. (*Campbell* at 13:27-36.) And, it sends the text and graphics (captions in view of *Millar*) data on to a converter control logic unit, which relays it to the display memory and then to a

text/graphics generator for the creation and display of text and graphics (captions in view of *Millar*) on a television picture. (*Campbell* at 13:16-14:28, 15:27-16:34.) In my opinion, *Campbell* and *Millar* accordingly render obvious a receiver “adapted to process a plurality of signals, . . . including first and second media” As the rest of the preamble is identical to element 1a, the unpatentability proofs discussed above show *Campbell* and *Millar* render obvious this element, to the extent the Board finds the preamble limiting.

- b. receiving a subset of said plurality of signals from a source external to said receiver station, each signal of said subset of said plurality of signals including an identifier, wherein said subset of said plurality of signals comprises a plurality of said plurality of signals;**

101. In my opinion, *Campbell* and *Millar* render obvious this element.

102. As explained above, *Campbell* discloses a receiver station that receives a plurality of signals from the head end station. (*See above* paragraphs 47-54 and 99-100; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The plurality of signals includes (1) digital signals with text and graphics (captions in view of *Millar*) data, and (2) television signals with picture and sound television information. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) This is shown in the below graphic.



As the television signals carrying picture and sound information are but a number or portion of the total number of signals received at a receiver station (combined digital and television signals) from the transmitter, they constitute a “subset of said plurality of signals,” in my opinion, as claimed.

103. Moreover, as I illustrated in the graphic above, each television signal comprises an audio and a video signal portion. Thus in my opinion, for every (1) *one* digital signal transmitted, a corresponding (2) *two* signals comprising the television signal are transmitted. (*See also Millar* at 2:106-3:3 (explaining a digital signal can be modulated in a television signal with “picture signal” and “sound carrier frequency”); *Campbell* at 13:10-36 (separating audio, video, and text and graphic data).) As such, television signals (the “subset of said plurality of signals”) are also the “plurality of said plurality of signals.” *Campbell* and *Millar* thus, in my opinion, render obvious “receiving a subset of said plurality of signals from a source . . . , wherein said subset of said plurality of signals comprises a plurality of said plurality of signals.”

104. As noted in paragraphs 64-69, *Campbell* further discloses “each signal of said subset of said plurality of signals [(picture and sound television information)] including an identifier” because it describes identifying information associated with a television signal, and in turn, with each of its constituent parts—i.e., the constituent video and audio signals. (See paragraphs 64-69; *Campbell* at 17:33-21:21.)

105. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this limitation.

c. receiving said second medium in a digital data channel from a source external to said receiver station, wherein said second medium is not included in said subset of said plurality of signals;

106. In my opinion, *Campbell* and *Millar* render obvious this element.

107. *Campbell* discloses a receiver station that receives a plurality of signals from the head end station. (See paragraphs 47-54 and 99-100; e.g., *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) A subset of those signals are television signals carrying picture and sound information, i.e., a “first medium.” (Paragraphs 101-105.) Other of the plurality of signals received at the receiver, not in the subset of signals, are therefore the digital signals carrying text and graphic (captions in view of *Millar*) information, the claimed “second medium.” *Campbell* and *Millar* therefore disclose “receiving said second medium . . . , wherein said second medium is not included in said subset of said plurality of signals.” (Paragraphs 101-105.)

108. *Campbell* also discloses this second medium (text and graphics, i.e., the caption information in view of *Millar*) is received in a “digital data channel from a source external to said receiver station.” As discussed above with regard to element 1b of claim 1, *Campbell* explains this information (a second medium) is transmitted in a digital data channel because it is digital information that is carried by a broadcast transmission to a receiver station. (See paragraphs 55-58.)

109. For these reasons, *Campbell* and *Millar* render obvious this element.

- d. controlling a microcomputer at said receiver station through execution of processor instructions, to: process each identifier of each signal of said subset of said plurality of signals, compare each processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals and identifies content of said first medium,**

110. In my opinion, this limitation is substantially identical to that recited in element 1d for claim 1. (See paragraphs 64-69.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 11
[1d] determining content, through use of processor instructions resident on said computer at said receiver station, of each medium received after said first medium in said plurality of signals, wherein determining content of each medium comprises: processing an identifier which identifies said content of each of said medium; comparing	controlling a microcomputer at said receiver station through execution of processor instructions, to: process each identifier of each signal of said subset of said plurality of signals, compare each processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said

said processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals	plurality of signals and identifies content of said first medium
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As these limitations are substantially identical, the same proofs of unpatentability discussed above in paragraphs 64-69 establish *Campbell* and *Millar* render obvious this limitation, in my opinion.

111. In my opinion, *Campbell* discloses “each signal of said subset of said plurality of signals including an identifier.” (Paragraphs 101-105.) That subset of said plurality of signals is the picture and sound television information. (Paragraphs 101-105.) As discussed in paragraphs 64-69, *Campbell* discloses (1) “process[ing] each identifier of each signal of said subset of said plurality of signals” (the picture and sound television information), and (2) “compar[ing] each processed identifier to a predetermined identifier . . .” to determine/identify the content of a “first medium,” the picture and sound television information. (Paragraphs 64-69; *Campbell* at 17:33-21:21, 23:12-32.) As noted in paragraphs 64-69, *Campbell* discloses and/or renders obvious processing and comparing at a computer (or microcomputer) responsive to processor instructions also. (See paragraphs 59-69.)

112. For these reasons, *Campbell* and *Millar* render obvious this element.

- e. **process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation,**

113. In my opinion, *Campbell* and *Millar* render obvious this element.

114. The combination of *Campbell* and *Millar* render obvious creating and outputting a multimedia presentation of two media: (1) picture and sound television information, and (2) text and graphics (namely, captions in view of *Millar*) data. (See paragraphs 99-100.) To provide this multimedia presentation, *Campbell* discloses processing signals for each of the media comprising the presentation. (*Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34; paragraphs 99-100.) That is, *Campbell* describes processing signal(s) for a television program. And it also describes processing digital signal(s) carrying the associated text and graphics (captions in view of *Millar*) data.

115. The signal for the *specific television program* to be watched (to provide audio and video information for show) is a “signal of said subset of said plurality of signals that includes an identifier.” (Paragraphs 101-105.) As only a signal for the television program *being presented* is processed to provide the picture and sound television information for a multimedia presentation, *Campbell* discloses “process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium” *Campbell* discloses a tuner that selecting one of the television signals, see e.g., *Campbell* Claim 1. And, as I noted, *Campbell* discloses or renders obvious this processing occurs at

a computer (microcomputer) responsive to processor instructions. (*See* paragraphs 59-69.)

116. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this limitation.

f. identify content of said second medium,

117. In my opinion, *Campbell* and *Millar* render obvious this element.

118. As discussed, the “second medium” is the text and graphic (captions in view of *Millar*) information carried by digital signals. (Paragraphs 106-109.) The person of ordinary skill in the art would understand *Campbell* does not expressly disclose identifying the content of this second medium, but *Campbell* does disclose displaying the “transmitted channel frequency” and identifying the content of this second medium would nevertheless have been obvious in view of *Millar*.

119. *Millar* explains its intermediate transmitter station receives caption and television data from several different sources. (*Millar* at 3:17-29, Fig. 1.) *Millar* then combines that caption and television data, and retransmits it to a receiver station for the creation and display of a multimedia presentation. (*Millar* at 3:17-4:76.) *Millar* explains, carried with the caption data are “character codes” that identify the “page and row” of caption data “transmitted in any given field.” (*Millar* at 3:75-79.) In this way, *Millar* discloses an “identifier” that indicates the content of digital caption data because it “identif[ies] that specific [caption] content by its location”; that is, specific

captions for a program are located in a very specific location within the larger digital transmission of caption data. (Ex. 1013 at 28-30.) In my opinion, this is comparable to identifying information described in the '217 patent because it identifies an origin of the data, and is similar to the "overlay number field" used to identify the content of the digital graphics in the "Wall Street Week" embodiment. (*See, e.g.*, '217 patent at 46:5-25, 25:65-26:18, 62:13-42.)

120. At the receiver station, *Millar* explains it receives a plurality of signals including the digital signals carrying caption data. (*Millar* at 1:67-86.) On receipt, the receiver station extracts the digitally coded data at the data separator circuit from synchronously transmitted picture and sound television information for the program. (*Millar* at 3:92-96.) The extracted data is transferred to the page selector. (*Millar* at 3:92-96.) The page selector is preprogrammed with "set-up codes" that correspond to and specifically select the digital data to be sent to storage before use and inclusion in the multimedia presentation. (*Millar* at 4:24-62.) In particular, the page selector compares preprogrammed "set-up codes" to the "character codes" of the transferred caption data, i.e., the identifier. (*Millar* at 4:56-62.) If the codes match, then the page selector "enter[s] into storage" the identified and associated caption data. (*Millar* at 4:56-62.)

121. In this way, it is my opinion that *Millar* discloses the "identify content of said second medium" limitation. By processing and comparing character codes of

the caption data to pre-programmed “set-up codes,” *Millar* chooses *specific caption content* and places it in storage for the ultimate creation and display in a multi-media presentation.

122. In my opinion, a person of ordinary skill in the art would have been motivated to implement a similar regime in *Campbell* to improve efficiency and effectiveness. *Campbell* discloses identifying a subject matter of the television program to provide a means of filtering mature content for unsuitable audiences. (Paragraphs 64-69.) A person of ordinary skill in the art would have wanted to make sure *Campbell*’s receiver station *could also identify* associated text and graphics (caption) data to prevent it from displaying on the user’s television *if that user lacks authorization* to receive a program and the associated data. *Millar*’s system provides one mechanism for accomplishing this in a simple and efficient fashion.

123. Further, in my opinion, a person of ordinary skill in the art would have made this modification with a reasonable expectation of success. *Campbell* notes that its stations transmit and process teletext, like *Millar*. (*Campbell* at 28:3-34:7.) And, it already provides transmission of identifying control data in the vertical interval of a television signal. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) In my opinion, it would have simply been the substitution (or the supplementation) of a known technique with another, and it would require no undue burden to adjust *Campbell*’s system to identify the content

of the text and graphics (captions in view of *Millar*) data. To the extent *Campbell*'s system is adjusted to also identify the content of the text and graphics data, this step would similarly occur on *Campbell*'s computer (or microcomputer) responsive to processor instructions. (See paragraphs 59-69.)

124. For these reasons, *Campbell* and *Millar* render obvious this element.

- g. generate information based on said second medium based on identifying said content of said second medium, and**

125. In my opinion, *Campbell* and *Millar* render obvious this element.

126. The combination of *Campbell* and *Millar* render obvious creating and outputting a multimedia presentation of two media: (1) picture and sound television information, and (2) digital text and graphics (captions in view of *Millar*) data. (See, e.g., paragraphs 99-100.) To provide a multimedia presentation, *Campbell* discloses processing signals for each of the media in a multimedia presentation. (*Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34; paragraphs 99-100.) That is, *Campbell* describes processing signal(s) for the television program. And, it describes processing digital signal(s) carrying associated text and graphics (captions in view of *Millar*) data.

127. With regard to the latter, *Campbell* discloses a receiver receiving these signals and separating them from picture and sound television information at the data extractor. (*Campbell* at 12:32-13:26, 14:1-6, 15:27-16:34.) The data extractor sends all text and graphics (captions in view of *Millar*) data to the converter control logic

unit, which then relays it to the display memory and the text/graphics generator for the creation of characters and graphics to be displayed on the television picture. (*See Campbell* at 13:16-14:28, 15:27-16:34.) *Campbell* and *Millar* thus render obvious, in my opinion, “generate information [e.g., subtitles, transmitted channel number] based on said second medium [the caption information in the digital signal] based on identifying said content of said second medium [stored caption data is generated and provided to display].” And, in my opinion, *Campbell* discloses or renders obvious this happening at a computer (microcomputer) responsive to processor instructions. (*See* paragraphs 59-69.)

128. For these reasons, *Campbell* and *Millar* render obvious this element.

h. coordinate presentation of said first medium and said information based on said second medium; and

129. In my opinion, this limitation is substantially identical to that recited in element 1e for claim 1. (*See* paragraphs 70-75.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 11
[1e] coordinating, through use of processor instructions resident on said computer at said receiver station, a presentation using said information with a presentation of a medium comprising an identifier that matches said predetermined identifier based on said step of determining content; and	coordinate presentation of said first medium and said information based on said second medium; and

As these limitations are substantially identical, the same proofs of unpatentability discussed above in paragraphs 70-75 establish *Campbell* and *Millar* render obvious this limitation, in my opinion.

130. The “said first medium” is picture and sound television medium, which is the “medium comprising an identifier . . .” in claim 1. The “said information based on said second medium” is the caption (in view of *Millar*) data, which is the “said information” in claim 1. The teachings of *Campbell* and *Millar* disclose coordinating a multimedia presentation of the media as text and graphics (captions in view of the combination with *Millar*) (medium two) are superimposed on the television picture (medium one). (See paragraphs 99-100; Ex. 1012 at 51.) And *Campbell* explains this all occurs on a computer (microcomputer) responsive to processor instructions. (See paragraphs 59-69.)

131. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this limitation.

- i. **outputting and displaying said multimedia presentation to a user at said receiver station based on said step of controlling such that content of said first medium has a predetermined relationship to said information based on said second medium and said content of said first medium explains a significance of said information based on said second medium.**

132. In my opinion, this limitation is substantially identical to that recited in element 1f for claim 1. (See paragraphs 76-80.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 11
[1f] outputting and displaying said multimedia presentation to a user at said receiver station based on said step of coordinating such that said presentation using said information has a predetermined relationship to said content of said medium comprising an identifier that matches said predetermined identifier and said content of said medium comprising an identifier that matches said predetermined identifier explains a significance of said presentation using said information	outputting and displaying said multimedia presentation to a user at said receiver station based on said step of controlling such that content of said first medium has a predetermined relationship to said information based on said second medium and said content of said first medium explains a significance of said information based on said second medium

As these limitations are substantially identical, the same proofs of unpatentability discussed above in paragraphs 76-80 establish *Campbell* and *Millar* render obvious this limitation, in my opinion.

133. And, because *Campbell* and *Millar* disclose every feature of claim 11, claim 11 is obvious and should be cancelled.

8. Dependent Claim 12

- a. The method of claim 11, wherein said first medium comprises a television program including video and audio.**

134. In my opinion, *Campbell* and *Millar* render obvious this element.

135. *Campbell* discloses a receiver that receives television signals carrying picture and sound television information and digital signals with text and graphics (captions in view of *Millar*) data. (*Millar* at 1:9-86, 2:27-48, 2:106-128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) The claim requires a “second medium” received in a digital data channel, and as discussed in paragraphs 106-109, this would be the transmitted text and graphics (captions in view of *Millar*) information. The other medium, the picture and sound television medium, is therefore the recited “first medium.” *Campbell* explains this first medium is a conventional television program, transmitted according to a television schedule, in its conventional television system, and comprises video signals carrying picture data and audio signals carrying audio data. (*Campbell* at 1:7-2:11, 2:34-3:36, 6:10-35, 7:16-10:26, 12:32-13:9, 28:3-34:7, 34:19-26, Figs. 2A-2B.)

136. For these reasons, it is my opinion *Campbell* and *Millar* render obvious this claim element.

9. Independent Claim 16

- a. A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of media, said method comprising the steps of:**

137. In my opinion, this limitation is substantially identical to that recited in element 1a for claim 1. (See paragraphs 47-54.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 16
[1a] A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:	A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of media, said method comprising the steps of:

As shown above, the only difference is that this element requires “adapted to receive a plurality of *media*” instead of “a plurality of *signals*.” But, in my opinion, this is immaterial. *Campbell* discloses a receiver that receives television signals carrying picture and sound television information and digital signals carrying text and graphic (captions in view of *Millar*) data. (*Millar* at 1:9-86, 2:27-128; *Campbell* at 6:10-35, 8:10-17, 12:32-13:36, 14:29-35.) Picture and sound information is one medium, and text and graphics (captions in view of *Millar*) information is yet another. (Ex. 1012 at 24.) *Campbell* thus discloses that its receiver station receives a *plurality of media*. As the rest of this preamble is identical to element 1a, the proof of unpatentability I discussed above demonstrates *Campbell* and *Millar* render obvious this limitation, to the extent the Board finds the preamble limiting.

- b. **receiving, at said receiver station, at least two of said plurality of media from different sources,¹² a first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel from a remote transmitter station;**

138. In my opinion, *Campbell* and *Millar* render obvious this element.

139. *Campbell* describes receiving two (a “plurality of”) media at a receiver station. (See paragraph 137.) The first medium is the picture and sound television information carried by television signals. (Paragraph 137.) This is the “first medium . . . received in a plurality of signals.” The second is thus text and graphics (captions in view of *Millar*) information carried by digital signals. (See paragraph 137.) As discussed above in paragraphs 55-58, this “second medium” is “received in a digital data channel” because it is digital information carried in a broadcast transmission from a head end station to the receiver. *Campbell* thus discloses a “first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel,” in my opinion.

140. *Campbell* also discloses that its two media are “from different sources.” *Campbell* explains its head end receives data from external sources and retransmits that data to subscriber stations, as seen below. (*Campbell* at 6:10-35.)

¹² The claims do not require the at least two of said plurality of media to come from different transmitters, only that they be from “different sources” generally.

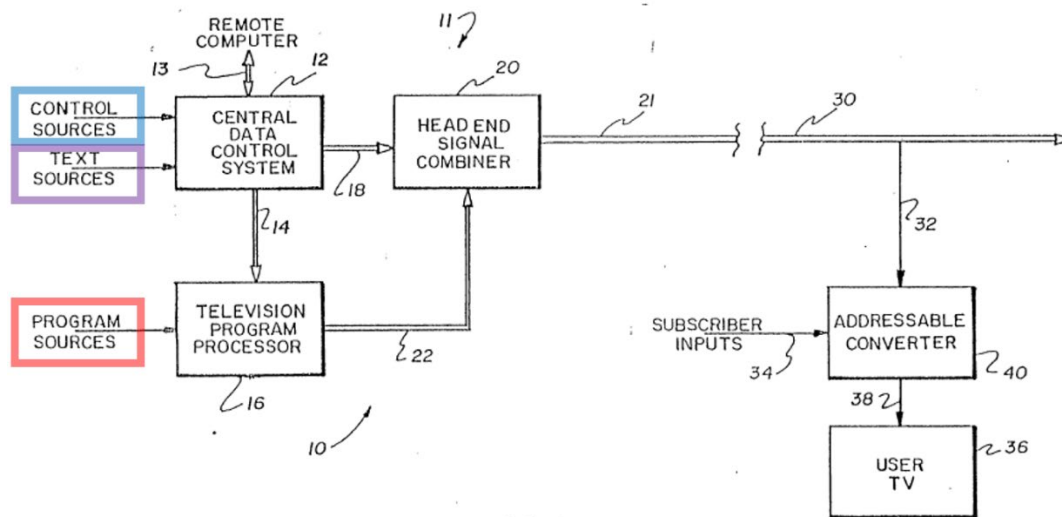


FIG. 1

(*Campbell* at Fig. 1 (annotated).) *Campbell* explains that its head end receives data (news, stocks, etc.) “from a wide variety of sources.” (*Campbell* at 7:16-25.) And, it explains that its head end receives television information from yet another satellite source. (E.g., *Campbell* at 7:26-32, Fig. 6.) Because *Campbell*’s picture and sound television information (medium one) and text and graphic (caption in view of *Millar*) information (medium two) derive from different sources, it is my opinion *Campbell* discloses “at least two of said plurality of media from different sources.”

141. For these reasons, *Campbell* and *Millar* render obvious this element.

- c. **identifying, using a processor,¹³ content of a first medium of said at least two of said plurality of media[,] processing each signal of said plurality of signals, each signal of said plurality of signals including an identifier, and comparing each processed identifier to a predetermined identifier, said predetermined identifier being determined prior to receiving said plurality of media and identifying content of said first medium;**

142. In my opinion, this limitation is substantially identical to those recited in elements 11d and 11e for claim 11. (*See above* paragraphs 110-116.) I provide these limitations side-by-side in the below table.

Claim 11	Claim 16
[11d] controlling a microcomputer at said receiver station through execution of processor instructions, to: process each identifier of each signal of said subset of said plurality of signals,	identifying, using a processor, content of a first medium of said at least two of said plurality of media[,] processing each signal of said plurality of signals, each signal of said plurality of signals

¹³ I understand that Google has argued a “processor” is a device that processes data. (Ex. 1009 at 13.) For the reasons I provided above in paragraphs 59-69, it is my opinion that *Campbell* discloses or renders obvious a processor. I understand that PMC disagrees and argues that a “processor” is a “device that performs operations according to instructions.” (Ex. 1009 at 13.) In my opinion, *Campbell* also discloses or renders obvious a processor under this construction. *Campbell* render obvious a computer (or microcomputer) pre-programmed (operate according to instruction) to store, retrieve, and/or process data. (*See above* paragraphs 59-69.)

compare each processed identifier to a predetermined identifier, wherein said predetermined identifier is determined at a time prior to receiving said plurality of signals and identifies content of said first medium [11e] process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation	including an identifier, and comparing each processed identifier to a predetermined identifier, said predetermined identifier being determined prior to receiving said plurality of media and identifying content of said first medium
--	--

As these limitations are substantially identical, the same proofs of unpatentability discussed in paragraphs 110-116 establish *Campbell* and *Millar* render obvious this limitation, in my opinion.

143. First, the “plurality of signals” includes a “first medium,” i.e., picture and sound television medium. (See paragraphs 138-141.) As discussed for element 11e, *Campbell* discloses processing that plurality of signals at the receiver station to provide a first medium: picture and sound television information. (E.g., paragraphs 113-116.) And, as noted above for element 11d, *Campbell* discloses the “plurality of signals” carrying picture and sound television medium including an identifier, and identifying the content of the picture and sound television medium by comparing an identifier to a predetermined identifier. (See paragraphs 64-69 and 110-112.)

144. For these reasons, *Campbell* and *Millar* render obvious this element.

- d. processing only a signal of said plurality of signal[s] that includes an identifier that matches said predetermined identifier to provide said first medium;**

145. The “plurality of signal[s] that includes an identifier that matches said predetermined identifier” is the television signals carrying the claimed first medium, i.e., the picture and sound television medium. (Paragraphs 138-141.) This limitation is therefore substantially identical to that recited in element 11e above for claim 11. (Paragraphs 113-116.) I provide these limitations side-by-side in the below table.

Claim 11	Claim 16
[11e] process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation	processing only a signal of said plurality of signal[s] that includes an identifier that matches said predetermined identifier to provide said first medium

The proofs of unpatentability discussed in paragraphs 113-116 thus show *Campbell* and *Millar* render obvious this element.

- e. storing said first medium at said receiver station; and**

146. In my opinion, *Campbell* and *Millar* render obvious this element. As discussed, the claimed “first medium” is the picture and sound television medium. (See paragraphs 138-141.) As such, this element is identical to claim 9. (Paragraphs 97-98.) The unpatentability proofs discussed above thus show *Campbell* and *Millar*

render obvious this limitation. (*See* paragraphs 97-98; *Campbell* at 13:27-36; *Millar* at 2:93-105.).

f. identifying content of said second medium;

147. As discussed, the claimed “second medium” is the caption information. (*See* above paragraphs 138-141.) This limitation is therefore substantially identical to that recited in element 11f of claim 11, which also recites “identify content of said second medium.” (Paragraphs 117-124.) I provide the limitations side-by-side in the below table.

Claim 11	Claim 16
[11f] identify content of said second medium	identifying content of said second medium

As these limitations are substantially identical, the same proofs of unpatentability discussed in paragraphs 117-124 establish *Campbell* and *Millar* render obvious this limitation, in my opinion.

g. processing, based on said content of said second medium, said second medium to generate information based on said second medium;

148. In my opinion, this limitation is substantially identical to that recited in element 11g for claim 11. (*See* paragraphs 125-128.) I provide these limitations side-by-side in the below table.

Claim 11	Claim 16

[11g] generate information based on said second medium based on identifying said content of said second medium	processing, based on said content of said second medium, said second medium to generate information based on said second medium
--	---

As shown above, the only difference is that this claim element specifies “processing” instead of “generate information.” But in my opinion, and as discussed in paragraphs 125-128, *Campbell* and *Millar* disclose or render obvious processing digital signals carrying text and graphics (captions in view of *Millar*) information to create subtitles for the presentation. (*Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34.) As the rest of the limitation is the same, the unpatentability proofs identified in paragraphs 125-128, demonstrate that *Campbell* and *Millar* render obvious this element. (Ex. 1012 at 51; *see, e.g., Millar* at 1:67-86, 2:27-48, 2:75-92, 3:92-4:76; *Campbell* at 12:32-13:36, 14:1-6, 15:27-16:34.)

- h. outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and generated information based on said second medium, said information included in said first medium having a predetermined relationship to said generated information based on said second medium and said information included in said first medium explaining a significance of said generated information based on said second medium.¹⁴**

¹⁴ As discussed, the “first medium” is the picture and sound television medium and the “second medium” is the caption medium.

149. In my opinion, this limitation is substantially identical to that recited in element 1f for claim 1. (See paragraphs 76-80.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 16
[1f] outputting and displaying said multimedia presentation to a user at said receiver station based on said step of coordinating such that said presentation using said information has a predetermined relationship to said content of said medium comprising an identifier that matches said predetermined identifier and said content of said medium comprising an identifier that matches said predetermined identifier explains a significance of said presentation using said information	outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and generated information based on said second medium, said information included in said first medium having a predetermined relationship to said generated information based on said second medium and said information included in said first medium explaining a significance of said generated information based on said second medium

As shown above, the only difference is that this element specifies a “coordinated presentation of information included in said first medium and generated information based on said second medium.” But as I discussed, *Campbell* and *Millar* render obvious the creation and display of a multimedia presentation of captions (medium one) on the television picture (medium two). (Paragraphs 47-54.) This presentation

combines two media, related by content,¹⁵ and it therefore constitutes a “coordinated presentation.” (Paragraphs 76-80.) As the rest of the limitation is the same, the same proofs of unpatentability discussed above in paragraphs 76-80 show that *Campbell* and *Millar* render obvious this element. (Paragraphs 76-80; Ex. 1012 at 51.)

150. It is my opinion that because *Campbell* and *Millar* disclose each feature of claim 16, claim 16 is obvious and should be cancelled.

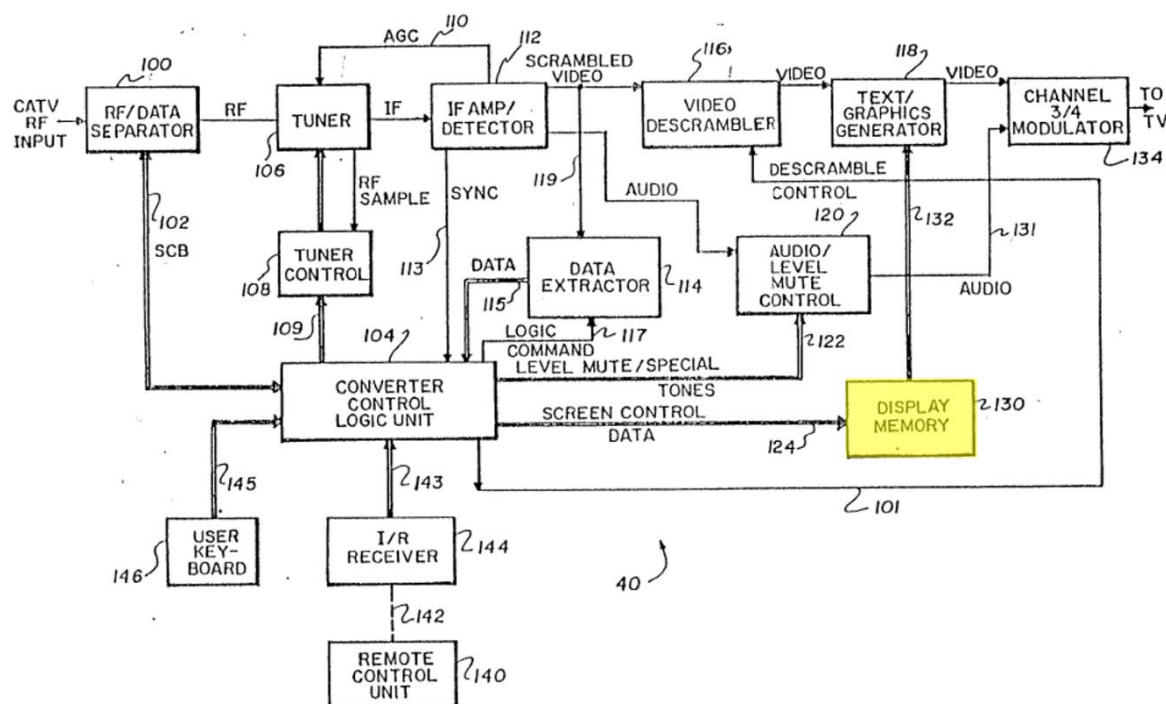
10. Dependent Claim 17

- a. **The method of claim 16, said method further comprising the step of storing said information based on said second of said at least two of said plurality of media at said receiver station.**

151. In my opinion, *Campbell* and *Millar* render obvious this element.

152. As discussed, “information based on said second of said at least two of said plurality of media at said receiver station” is the text and graphics (caption) data that is transmitted in the vertical interval of a television signal. (Paragraphs 138-141.) *Campbell* explains that this information is stored in a display memory, annotated in Figure 6. (*Campbell* at 12:32-13:26, 14:1-35, 15:27-16:34, 28:3-34:7.)

¹⁵ I understand that Google does not believe this term needs to be construed, but to the extent I understand that PMC argues a “coordinated presentation” is an “organized presentation that combines several media related by content,” (Ex. 1009 at 49), *Campbell* and *Millar* render obvious a “coordinated presentation.”



(*Campbell* at Fig. 6 (annotated).)

153. For these reasons, *Campbell* and *Millar* render obvious this element.

11. Dependent Claim 18

- a. The method of claim 16, wherein said first medium comprises a television program including audio and video.**

154. Like dependent claim 12, dependent claim 18 requires a “first medium comprises a television program including audio and video.” (’217 patent at 288:12-13, 289:19-20.) I provide these limitations side-by-side in the below table.

Claim 12	Claim 18
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The method of claim 11, wherein said first medium comprises a television program including video and audio	The method of claim 16, wherein said first medium comprises a television program including audio and video
--	--

As the claim element is identical for both claims, the same proofs of unpatentability discussed above in paragraphs 134-136 demonstrate that *Campbell* and *Millar* render obvious this additional feature.

12. Independent Claim 20

- a. **A method of outputting a multimedia presentation at a receiver station having an output device, said method comprising the steps of:**

155. In my opinion, this limitation is substantially identical to that recited in element 1a for claim 1. (Paragraphs 47-54.) I provide these limitations side-by-side in the below table.

Claim 1	Claim 20
[1a] A method of outputting a multimedia presentation at a receiver station adapted to receive a plurality of signals, said method comprising the steps of:	A method of outputting a multimedia presentation at a receiver station having an output device, said method comprising the steps of

As shown above, the only difference is this element states “having an output device” instead of “adapted to receive a plurality of signals.” In my opinion, *Campbell* and *Millar* render obvious this feature. As shown in both Figures 1 and 6 of *Campbell*, the receiver station has a television for outputting the multimedia presentation.

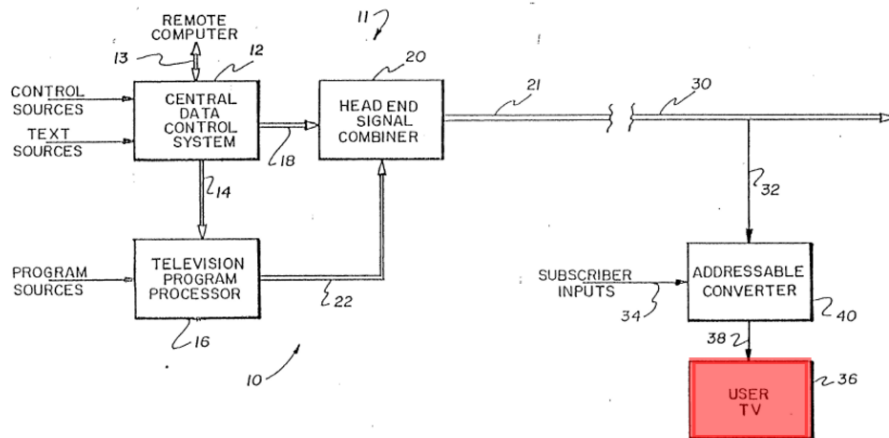
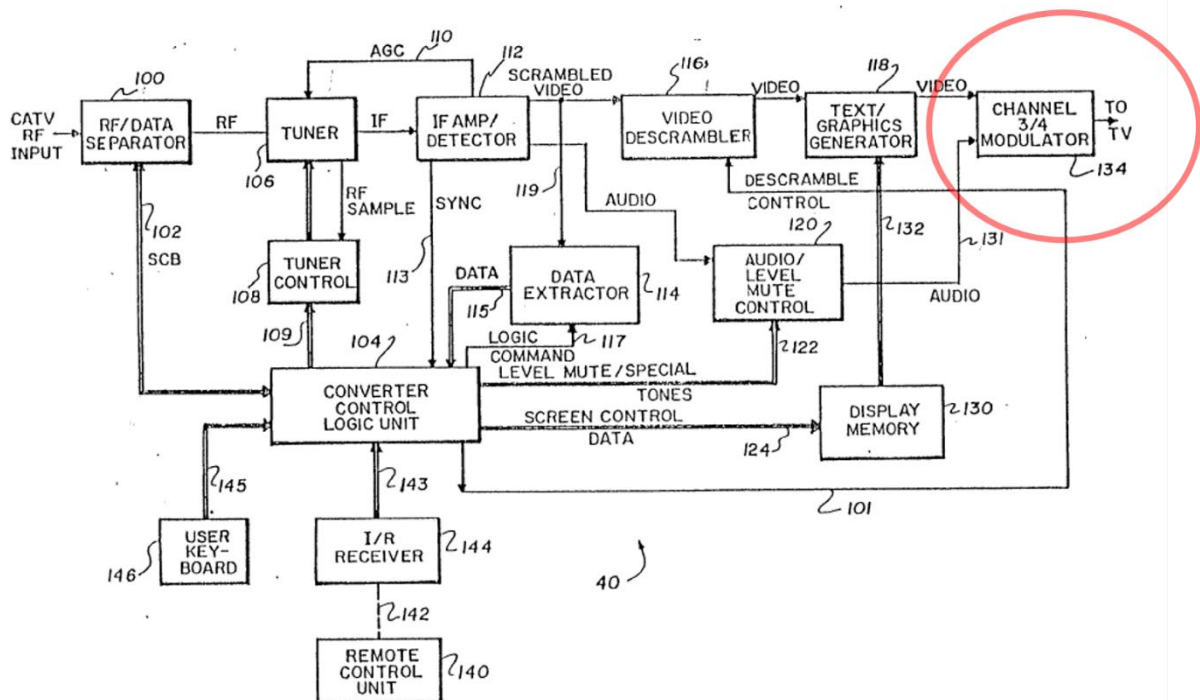


FIG. 1



(*Campbell* at Figs. 1, 6 (annotated).) The television is the claimed “output device.”

And, as the rest of the preamble is identical to element 1a, the unpatentability proofs

discussed above show *Campbell* and *Millar* render obvious this element to the extent that the Board finds the preamble limiting.

b. receiving a plurality of signals from a source external to said receiver station[;]

156. In my opinion, this limitation is substantially identical to that recited in element 16b for claim 16. (See paragraphs 138-141.) I provide these limitations side-by-side in the below table.

Claim 16	Claim 20
[16b] receiving, at said receiver station, at least two of said plurality of media from different sources, a first medium of said plurality of media being received in a plurality of signals and a second medium of said plurality of media being received in a digital data channel from a remote transmitter station	receiving a plurality of signals from a source external to said receiver station

157. As discussed, *Campbell* discloses receiving two media at a receiver: a first medium received in a “plurality of signals,” and a second received in a digital data channel, both from an external head end transmitter station. (E.g., paragraphs 138-141; *Campbell* at 6:10-35, 12:32-13:26, 14:1-35, 15:27-16:34.) *Campbell* and *Millar*, thus, render obvious this element in my opinion, and the same unpatentability proofs discussed above apply. (See above paragraphs 138-141.)

- c. **identifying, using a processor, content of a first medium to be output in said multimedia presentation by: processing said plurality of signals, each of said plurality of signals including an identifier, and comparing each said identifier with a predetermined identifier, said predetermined identifier determined prior to receiving said plurality of signals and identifying content of said first medium;**

158. In my opinion, this limitation is substantially identical to that recited in element 16c for claim 16. (See paragraphs 142-144.) I provide these limitations side-by-side in the below table.

Claim 16	Claim 20
[16c] identifying, using a processor, content of a first medium of said at least two of said plurality of media[,] processing each signal of said plurality of signals, each signal of said plurality of signals including an identifier, and comparing each processed identifier to a predetermined identifier, said predetermined identifier being determined prior to receiving said plurality of media and identifying content of said first medium	identifying, using a processor, content of a first medium to be output in said multimedia presentation by: processing said plurality of signals, each of said plurality of signals including an identifier, and comparing each said identifier with a predetermined identifier, said predetermined identifier determined prior to receiving said plurality of signals and identifying content of said first medium

As shown above, the only difference is that this element requires: “a first medium to be output in said multimedia presentation.” But, as I discussed above, the two media received and processed in the combined *Campbell* and *Millar* system are to be output in a multimedia presentation at a user’s display. (*Millar* at 1:9-24, 1:48-86, 2:27-48, 2:75-92, 2:106-128.) As such, *Campbell* and *Millar* render obvious this feature. As

the rest of the limitation is the same, the proofs of unpatentability discussed above in paragraphs 142-144 demonstrate *Campbell* and *Millar* render obvious this claim element. (*See also* above paragraphs 64-69 and 110-112.)

d. processing only a signal of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium;

159. The “plurality of signal[s] that includes an identifier that matches said predetermined identifier” is the television signals carrying the claimed first medium, i.e., a picture and sound television medium. (*See* paragraph 158.) The limitation is therefore substantially identical to that in element 11e for claim 11. (*See* paragraphs 113-116.) I provide these limitations side-by-side in the below table.

Claim 11	Claim 20
[11e] process only a signal of said subset of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium of said multimedia presentation	processing only a signal of said plurality of signals that includes an identifier that matches said predetermined identifier to provide said first medium

As these limitations are substantially identical, the same proofs of unpatentability discussed in paragraphs 113-116 establish that *Campbell* and *Millar* render obvious this limitation, in my opinion.

- e. **processing a control signal at said receiver station that causes execution of processor instructions to process data received in a second medium from an external source to create a series of discrete video images, wherein said second medium is not included in said plurality of signals;**

160. In my opinion, *Campbell* and *Millar* render obvious this element.

161. As noted, *Campbell* discloses receiving two media at a receiver station: a first medium in a “plurality of signals,” and a second medium in a digital data channel, both from a head end station. (See paragraphs 138-141.) A second medium is text and graphics (captions in view of *Millar*) information, and since it is received in the digital data channel, it is “not included in said plurality of signals.”

162. *Campbell* and *Millar* render obvious creating a “series of discrete video images,” i.e., graphics or text, from a second medium. As the ’217 patent provides, this requirement of discrete video images is information that represents a visually perceivable presentation like graphics, images (still or moving), or text. (See ’217 patent at 12:3-14:54, 48:8-74:5, 128:63-141:3, Fig. 1C.) The “Wall Street Week” embodiment provides supporting disclosure for this understanding, for the created “discrete video image[]” was a graph. (’217 patent at 12:3-14:54, 48:8-74:5, 128:63-141:3, Fig. 1C.) And I understand the Board relied upon as much during prosecution to understand the scope of the claims. (Ex. 1012 at 89.) In view of this understanding, it is my opinion that *Campbell* and *Millar* render obvious this feature: they describe processing a digital signal carrying text and graphic (caption data in view of *Millar*)

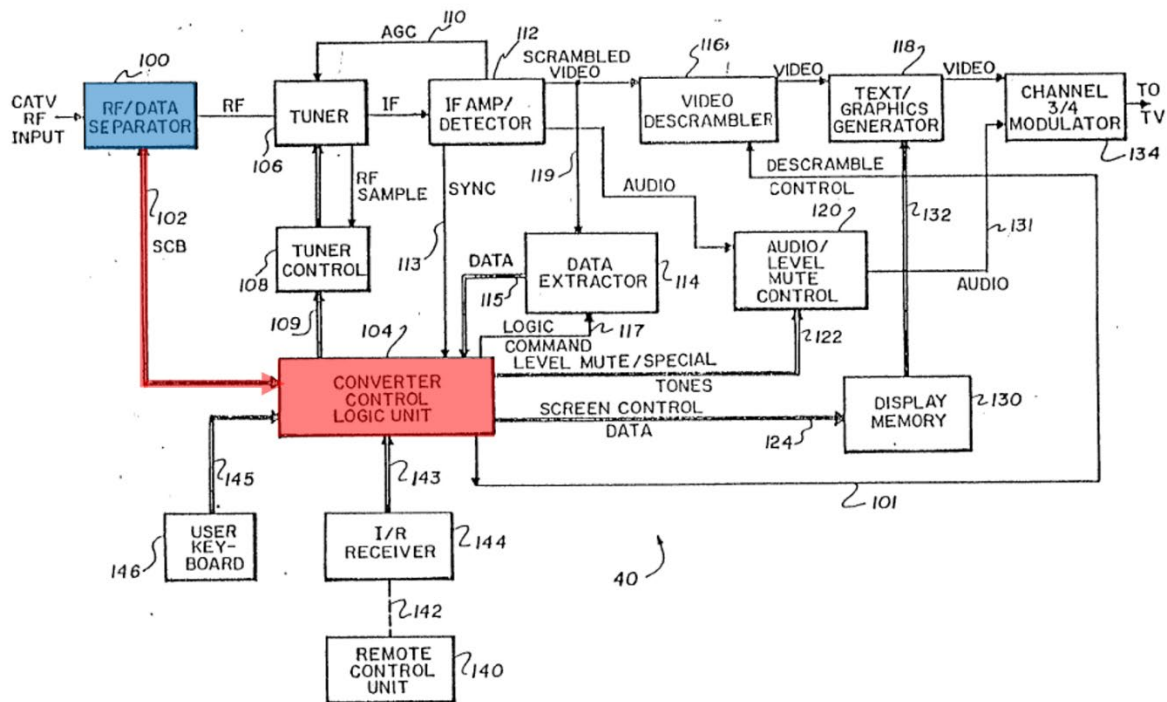
information to generate subtitles for a multimedia presentation. (See paragraphs 125-128 and 148.) *Campbell* describes receiving a digital data signal, extracting it from a television signal, storing it, and transferring it to a text/graphic generator to provide characters and graphics symbols (captions superimposed on the television picture in view of *Millar*) “for display” at a user’s television. (*Campbell* at 12:32-14:28, 15:27-16:34; *Millar* at 1:48-86, 2:27-48, 2:106-128, 3:105-112, 5:71-104.) It is, therefore, my opinion *Campbell* and *Millar* render obvious “process data received in a second medium from an external source to create a series of discrete video images.”¹⁶

163. I understand PMC argues a video image “may include a single graphic of a visual presentation that is capable of showing movement.” (Ex. 1009 at 115.) In my opinion, the above mapping still applied under PMC’s construction since “*may include*” suggests that things *other than* a single graphic from a visual presentation capable of showing movement can satisfy this element. Nonetheless, *Campbell* and *Millar* render this element obvious, in my opinion, because their disclosed captions

¹⁶ *Cox* and *Thonnart* explain *Millar*’s teletext system uses digital data signals to transmit *graphics information* as well. (*Cox* at 1:13-49 (“Teletext is a generic term for a new and rapidly growing television based communication technique which uses the vertical blanking interval of a broadcast television signal for *transmission of text and graphics information*.”) (emphasis added); see also *Thonnart* at 4:14-58.)

(subtitles) and graphics (still images) are “capable of showing movement” because they vary over time. As *Cox* explains, a person of ordinary skill in the art would have understood that caption and graphic information is repeated or recycled through, over time. (*Cox* at Fig. 7, 8:11-40.) It is therefore a “moving” or “changing” content, and any text or graphic superimposed on a television picture at any point in time necessarily meets PMC’s construction. To the extent PMC states “video image” is limited to a *moving image*, that disregards the only disclosure in the ’217 patent for this limitation, i.e., the “Wall Street Week” embodiment and its depiction of a graph—an *entirely still* image and/or graphic. (’217 patent at 12:3-14:54, 48:8-74:5, 128:63-141:3, Fig. 1C; Ex. 1012 at 89.)

164. *Campbell* further discloses “processing a control signal at said receiver station that causes execution of processor instructions.” In addition to processing television signals carrying picture and sound television information, and processing digital signals carrying text and graphics (captions in view of *Millar*) information, *Campbell* explains that its receiver also processes channel control codes (tier codes and eligibility code) that determine which programs the receiver displays. (*Campbell* at 17:33-21:21, 23:12-32.) The control information is received at RF/data separator and sent to converter control logic unit “carried out by a microprocessor.” (*Campbell* at 12:32-13:9, 14:1-35, 15:20-23.) This is illustrated below.



(Campbell at Fig. 6 (annotated).)¹⁷

165. For these reasons, *Campbell* and *Millar* render obvious this element.

f. **causing a video image of said series of discrete video images to be output and displayed subsequent to said step of identifying; and**

166. In my opinion, this limitation is substantially identical to that recited in element 16h for claim 16. (See paragraphs 149-150; see also paragraphs 76-80 and 132-133.) I provide these limitations side-by-side in the below table.

¹⁷ *Millar* similarly discloses processing control signals at the receiver station that control, e.g., the brightness or color of the generated caption information at the user's display. (See, e.g., *Millar* at 2:35-48, 2:75-92.)

Claim 16	Claim 20
[16h] outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and generated information based on said second medium, said information included in said first medium having a predetermined relationship to said generated information based on said second medium and said information included in said first medium explaining a significance of said generated information based on said second medium	causing a video image of said series of discrete video images to be output and displayed subsequent to said step of identifying

As shown above, the only difference¹⁸ is that this claim requires an output of one of the media in the presentation to be “subsequent to said step of identifying” (*Above* paragraph 158.) In my view, a person of ordinary skill in the art would have understood the output and display step is necessarily subsequent to said step of identifying because by the time the presentation has been created and displayed, the receiver has identified the relevant media, selected what it needs to produce the presentation, directed it to the appropriate computer and processing equipment, and

¹⁸ The claims also differ in that claim 20 specifies one of the media is a “video image,” but for the reasons described above, *Campbell* and *Millar* render obvious this aspect.

then created the presentation. The output of the caption for the multimedia presentation is *only after* the program and associated caption data have been identified. As the rest of this limitation is the same, the unpatentability proofs discussed above in paragraphs 76-80, 132-133, and 149-150, show *Campbell* and *Millar* render obvious this claim element.

- g. combining said outputted video image into said multimedia presentation at said output device based on said step of causing to be output, said multimedia presentation comprising said first medium and said outputted video image of said series of discrete video images, said first medium having a predetermined relationship to said series of discrete video images and said first medium explaining a significance of said video image of said series of discrete video images.**

167. In my opinion, this limitation is substantially identical to that recited in element 16h for claim 16. (Paragraph 149-150.) I provide these limitations side-by-side in the below table.

Claim 16	Claim 20
[16h] outputting and displaying said multimedia presentation, said multimedia presentation comprising a coordinated presentation of information included in said first medium and generated information based on said second medium, said information included in said first medium having a predetermined relationship to said generated information based on said second medium and said information included in said first medium	combining said outputted video image into said multimedia presentation at said output device based on said step of causing to be output, said multimedia presentation comprising said first medium and said outputted video image of said series of discrete video images, said first medium having a predetermined relationship to said series of discrete video images and said first medium explaining a significance

explaining a significance of said generated information based on said second medium	of said video image of said series of discrete video images
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As these limitations are substantially identical, the unpatentability proofs discussed above in paragraph 149-150 therefore show *Campbell* and *Millar* render obvious this element. (Ex. 1012 at 51; *see* paragraphs 76-80, 129-131, and 149-150.)

168. Because *Campbell* and *Millar* disclose every feature of claim 20, claim 20 is obvious and should be cancelled.

13. Dependent Claim 21

- a. **The method of claim 20, wherein said first medium comprises a television program including video and audio.**

169. Like dependent claim 12, dependent claim 21 requires a “first medium comprises a television program including audio and video.” (’217 patent at 288:12-13, 289:62-63.) I provide these limitations side-by-side in the below table.

Claim 12	Claim 18
The method of claim 11, wherein said first medium comprises a television program including video and audio	The method of claim 20, wherein said first medium comprises a television program including video and audio

As the claim element is identical for both claims, the same proofs of unpatentability discussed above in paragraphs 134-136 demonstrate that *Campbell* and *Millar* render obvious this additional feature.

14. Dependent Claim 22

- a. The method of claim 20, wherein said second medium is received in a digital data channel.**

170. *Campbell* and *Millar* render obvious this element. The second medium is text and graphics (caption data) transmitted via digital data signals in the vertical interval of a television signal. (See above paragraphs 160-165.) As noted above for claim 1, text and graphics (captions in view of *Millar*) data is transmitted in a digital data channel because it is digital information carried by a broadcast transmission to a receiver station. (E.g., paragraphs 55-58.) For these reasons, *Campbell* and *Millar* render obvious this element.

IX. Ground 2

- A. *Campbell, Millar, and Thonnart* Render Obvious Claims 11, 12, and 16-18**

171. Claims 11, 12, and 16-18 all require “identifying content of said second medium,” i.e., identifying the content of caption information transmitted in digital data signals. (See paragraphs 117-124, and 147.) As discussed, *Campbell* and *Millar* render obvious this element. To the extent the Board finds that the page information (including the “character code” in *Millar*) fails to identify the content of the second medium, this element would have nevertheless been obvious to a person of ordinary skill in the art in view of *Thonnart*.

172. *Thonnart* describes using television networks “either for supplementing or replacing the images and sounds composing the usual [television] programs, texts

and sequences coded in a digital form (designed hereinafter as teletexts),” and to “permit their reproduction by the user, on an ordinary receiving station by means of a decoding and memory apparatus equipped with a ‘page’ selector.” (*Thonnart* at 1:10-17.) As part of that method, *Thonnart* describes using identifying information for the program and teletext information to ensure the digital teletext information is transmitted “in a manner at least approximately synchronous with the corresponding information in the analog form,” i.e., to ensure the corresponding information lines up. (*Thonnart* at 1:46-56, 2:24-46.) *Thonnart* explains this “information is received by a conventional receiving set equipped with a decod[er] . . . and [a] detector,” the detector “sensitive to the identifying material.” (*Thonnart* at Abstract, 1:54-56, 3:39-49, 4:14-24.) In this way, it is my opinion that *Thonnart* discloses “identifying the content of said second medium” (captions).

173. In my opinion, a person of ordinary skill in the art would have been motivated to add a similar regime to *Campbell* to improve its efficiency and effectiveness. *Campbell* discloses identifying a subject matter of the television program to provide a means of filtering mature content for unsuitable audiences. (Paragraphs 64-69.) A person of ordinary skill in the art would have wanted to make sure that *Campbell*’s receiver station *could also identify* associated text and graphics (captions in view of *Millar*) data to prevent it from displaying on the user’s television *if that user lacks the authorization* to receive the program and its associated data.

Thonnart's system provides one mechanism for accomplishing this in a simple and efficient fashion.

174. Further, in my opinion, a person of ordinary skill in the art would have a reasonable expectation of success in implementing such a design. *Campbell* explains its stations transmit and process teletext like *Thonnart*. (*Campbell* at 28:3-34:7.) And it provides transmission of identifying control data in the vertical interval of a television signal. (*Campbell* at 1:7-2:11, 2:34-3:36, 8:18-10:26, 28:3-34:7, 34:19-26, Figs. 2A-2B.) It would have been the substitution (or supplementation) of one known technique for another, and it would require no undue burden to adjust *Campbell*'s system to also identify a content of the text and graphics (captions in view of *Millar*) data. To the extent *Campbell*'s system is adjusted to identify the content of the text and graphics, this would occur on *Campbell*'s computer (microcomputer) responsive to processor instructions. (Paragraphs 59-69.) *Campbell*, *Millar*, and *Thonnart* therefore render this limitation obvious, in my opinion.

175. Because the rest of the limitations in each of claims 11, 12, and 16-18 are disclosed or rendered obvious *Campbell* and *Millar*, as discussed above, it is my opinion *Campbell*, *Millar*, and *Thonnart* render these claims obvious, and they should be cancelled.

X. Conclusion

176. For the reasons above, it is my opinion claims 1-3, 7-9, 11, 12, 16-18, and 20-22 of the '217 patent would have been obvious in view of the prior art.

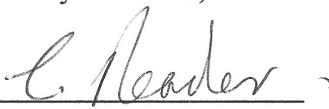
177. In signing this Declaration, I understand it will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I understand I may be subject to cross-examination in this case, and that any cross-examination will take place in the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

Declaration of Clifford Reader
U.S. Patent No. 7,747,217

I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that those statements were made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Respectfully submitted,

Date: March 18, 2020

By: 
Clifford Reader