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1 Sams & Co. in 1983, incorporated herein by reference.) An  
2 NTSC composite signal is defined as the analog signal that  
3 carries the chrominance (color), luminance (brightness),  
4 synchronization (timing) and audio signals that make up the  
5 video signals received and displayed by television and video  
6 cassette recorders. These four components are combined into  
7 one signal by modulating the components in different ways.  
8 (Amplitude modulation and phase modulation are examples.)  
9 The standard video line signal is such a composite signal  
10 and may be received at input line 15 from one of the above-  
11 mentioned sources.

12 TV RF tuner input port 16 also supplies a composite  
13 signal as described in regard to video input line 15. The  
14 difference is that this signal is received from an antenna  
15 or cable TV coaxial cable. To receive such a signal, tuner  
16 16 is capable of being set or tuned to receive the desired  
17 carrier frequency or television channel.

18 Selector switch 35 is provided to select either video  
19 input line 15 or TV RF tuner 16 as an input signal source to  
20 AVRU 11.

21 Auxiliary digital input port 17 is employed to receive  
22 any acceptable digital signal such as computer-generated  
23 video signal or as may be supplied by another VCR-ET. This  
24 signal, for example, may be an RGB video signal such as that  
25 delivered to computer monitors, or it may be a digitized  
26 audio signal. (As mentioned above, an RGB signal is a  
27 signal which communicates the strength of the red, green and  
28 blue color components for the pixels that make up each video  
29 frame.) Switch 36 selects whether the digital video/audio  
30 input signal is chosen from auxiliary digital input port  
31 17. Switch 36 supplies the selected signal to high speed  
32 data bus 34 which carries the signals in digital form.

33 Fiber optic port 18 incorporates a fiber optic  
34 transceiver. Port 18 has a capability for transforming  
35 fiber optic (light) signals to electrical signals or for  
36 transforming electrical signals to fiber optic signals.  
37 Port 18 thus provides a capability for two-way communication  
38 between high speed data bus 34 and a fiber optic signal

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1 line. The incorporation of fiber optic port 18 in the  
2 VCR-ET provides a capability for receiving audio/video  
3 signals from or delivering audio/video signals to the fiber  
4 optic line such as a fiber optic telephone line. The fiber  
5 optic line carries digital signals in the form of light  
6 waves over great distances with a high degree of accuracy  
7 and reliability and at a high speed (e.g., about 200  
8 megabytes/second). The VCR-ET can receive/transmit a video  
9 program at an accelerated rate via fiber optic port 18  
10 from/to a variety of sources. For example a video program  
11 may be communicated at an accelerated rate from the first  
12 VCR-ET to a second VCR-ET in less time than it would take to  
13 view the program. Thus, it is not necessary to access the  
14 optical fiber for long periods of time in order to transmit  
15 a long video program.

16 It is also envisioned that in the future, a video  
17 library may be established which downloads video programs at  
18 an accelerated rate via optical fibers to a subscriber's  
19 VCR-ET. After downloading, the program may be viewed,  
20 stored in memory, edited and/or a hard copy of the program  
21 may be made on magnetic tape, optical disk, etc.

22 Switch 37 is provided to select connection to the fiber  
23 optic input/output port 18. An OFF or open position is  
24 provided. The selected signal is delivered to or supplied  
25 from high speed data bus 34.

26 Analog output signals from AVRU 11 are delivered to the  
27 common terminal 38 of a selector switch 39. When set to  
28 position A, switch 39 delivers the output signal of AVRU 11  
29 directly to a video output line 41 as a standard STCS  
30 composite signal; when set to position B switch 39 delivers  
31 the output of VRU 11 to the input of RF modulator 19.  
32 Modulator 19 converts the video signal to an RF-modulated  
33 composite signal for delivery to such devices as televisions  
34 and conventional VCR's. These types of devices play back  
35 the video program on a particular frequency channel (such as  
36 channel 4) on the television. Delivery to the television or  
37 VCR is via RF output line 42.

38 Digital output signals from VCR-ET 10 may be dispatched

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1 from high speed data bus 34 via line 43 to input leads of  
2 RGB converter 21 and audio/video transmitter/receiver 22.

3 RGB converter 21 converts the STCS signal into an RGB  
4 signal as required by computer monitors and similar display  
5 devices. The converted signal is received by a display  
6 device connected to RGB converter output line 44.

7 VCR-ET 10 includes audio/video transmitter/receiver 22  
8 which is typically a built-in modem. Advantageously, the  
9 modem may be used to communicate an audio/video program over  
10 conventional phone lines in a manner similar to that  
11 described above with respect to optical fibers. The term  
12 modem is derived directly from its functionality as a  
13 modulator-demodulator which allows transfer of the  
14 audio/video signal in a digital format over the standard  
15 telephone line. Modems are commonly available for computers  
16 and are currently available in the form of a single  
17 integrated circuit. As an example, Sierra Semiconductor  
18 offers a 2400 baud single chip modem under its part number  
19 SC111006. Representative manufacturers of these single  
20 modem IC's can be found in the April 14, 1988 issue of  
21 Engineering Design News (EDN), pages 124-125. Some of these  
22 single IC modems have the added capability of generating the  
23 tones for dialing a phone number. The destination phone  
24 number may be entered by means of an optional  
25 keyboard/keypad 45 incorporated in the video recorder 10 of  
26 the invention. Output port 46 of transmitter/receiver 22  
27 connects directly to the telephone line.

28 Also associated with Modem 22 is an auxilliary keyboard  
29 45' (Fig. 1A) of buttons for commanding the modem to perform  
30 tasks such as starting a transmission over phone lines  
31 (45a), terminating a transmission (45b), automatic telephone  
32 answering to receive transmissions (45c), using an optional  
33 speaker (not shown) to monitor phone lines (45d), using an  
34 optional microphone (not shown) to speak over the phone  
35 lines (45e) and for controlling the baud rate (45f).

36 The application and utilization of the VCR-ET may  
37 include a number of forms or operating modes. In its first  
38 and simplest operating mode, AVRU 11 may be operated in the

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1 manner of a conventional VCR with signals from an antenna  
2 being received by tuner 16 and recorded directly on media 23  
3 in analog form. At the same time the received program may  
4 be viewed on the television screen with the television  
5 connected at video output terminal 42. An optional signal  
6 source for this type of operation is the video line or  
7 camera input line 15 selectable by switch 35.

8 In a second operating mode a program stored in media 23  
9 of AVRU 11 may be played back and viewed on the connected  
10 television set.

11 When it is desired to copy a program from one recording  
12 media to another, the recording media holding the desired  
13 program is installed in the AVRU. The recording media is  
14 then played back with optional viewing on a connected  
15 television set or other TV monitor or listening through  
16 speakers (as appropriate). As the recording media is played  
17 back, the analog signals from the recording media (video  
18 and/or audio) are dispatched to VCU 12 via connection 47.  
19 The analog signals are converted to digital signals by ADC  
20 24, compressed by compressor/decompressor 26 and the  
21 compressed digital signals are stored in memory 13. The  
22 foregoing operations are accomplished under the control of  
23 controller 27 and CPU 28. RAM 29 is used for interim data  
24 storage during this process. Once the complete video/audio  
25 program has been stored in memory 13, the recording media  
26 from which the stored program has just been read is replaced  
27 by blank recording media upon which the stored program is to  
28 be copied. CPU 28 in cooperation with controller 27 and RAM  
29 29 then executes the decompression and digital to analog  
30 conversion of the program stored in memory 13, decompression  
31 taking place in compressor/decompressor 26, and digital to  
32 analog conversion being accomplished by DAC 25. The  
33 resulting analog program is stored on the blank recording  
34 media which constitutes media 23 of AVRU 11.

35 In an alternate mode of operation, the decompression  
36 circuitry of VCU 12 can be bypassed. Thus, a user has the  
37 option of downloading the stored program from memory 13 onto  
38 recording media 23 in compressed digital format. The user

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1 can then reload the program from media 23 into memory 13 at  
2 a future time for viewing, editing or recording back onto  
3 recording media 23 in analog form. This capability allows  
4 the user to quickly clear memory 13 for other interim uses  
5 and also provides the user with a hard copy of the program  
6 in digital format. The hard copy in compressed digital  
7 format has a number of uses, e.g. it could be archived for  
8 later viewing, transmitted by an appropriate independent  
9 transmitter, etc.

10 During the foregoing procedures, DCU 14 may be utilized  
11 for editing operations. As the program is being read from  
12 the first or original recording media, it is simultaneously  
13 viewed on the TV screen, or listened to by means of an audio  
14 monitor, converted to digital signals, compressed and stored  
15 in memory 13. Once the digital audio/video program is  
16 stored in memory 13, editing is accomplished by the user  
17 through control of DCU 14, by means of a control panel (not  
18 shown) coupled to DCU 14. If desired, additional  
19 audio/video signals may be simultaneously entered into  
20 memory 13 and added to those received from VCU 12. The  
21 additional signals may be introduced from auxiliary digital  
22 input port 17 or from fiber optic input/output port 18 and  
23 may comprise video captions for super imposed position upon  
24 the stored video images, or they may be audio commentaries  
25 to be added to silent video presentations. In addition, as  
26 mentioned above, the order in which various segments appear  
27 in the video programs may be altered. Certain undesired  
28 segments, such as TV commercials, may be removed. This  
29 editing operation is accomplished under the control of  
30 DCU 14.

31 In still another operating mode, a program stored in  
32 media 23 of AVRU 11 or being received by AVRU 11 from input  
33 line 15 (as from a video camera) may be digitized and  
34 compressed by VCU 12 and routed via bus 34, to memory 13.  
35 The data from memory 13 is then routed to line 43,  
36 transmitter/ receiver 22 and to a telephone line. At the  
37 other end of the telephone line the signals received are  
38 processed by another VCR-ET.

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1           Once received in the second VCR-ET's memory 13, the  
2 digitized program can then either be viewed directly from  
3 memory or transferred to storage medium 23, either in its  
4 entirety or in random segments, based on user preference.

5           In the case of video camera input at input 15 the  
6 transmitted signals may comprise a live transmission.  
7 Alternatively the transmitted program may be derived from a  
8 program stored in media 23 of AVRU 11. In this case the  
9 stored analog program is again decoded, digitized,  
10 compressed and transmitted via bus 34 to memory 13. The  
11 data in memory 13 is then communicated via line 43 and  
12 transmitter/receiver 22 to telephone lines.

13           It follows, of course, that digitized video and audio  
14 signals from the remote VCR-ET at the other end of the  
15 telephone line may be received at line 46, entered into  
16 memory 13 via transmitter/receiver 22, converted to analog  
17 signals by VCU 12, and recorded on media 23 and then viewed,  
18 if desired, on a television set connected at output 42. A  
19 hard copy of the program may also be made for later viewing.

20           As mentioned earlier, when any of the foregoing  
21 operations entail the processing of unmodulated video  
22 signals, such signals must first be processed by RF  
23 modulator 19 before they can be accepted by devices such as  
24 a conventional VCR or television set; when the monitoring  
25 means is a computer monitor or a similar display device the  
26 signals are processed by RGB converter 21.

27           All of the foregoing operations are performed with  
28 enhanced quality and efficiency by virtue of the digital,  
29 rather than analog, storage and transmission modes and the  
30 compressed data storage mechanism, with additional  
31 advantages of improved cost and reliability afforded in the  
32 case of tape to tape (or other media to media) program  
33 transfers by virtue of the requirement for only a single  
34 tape deck or other storage device.

35           Fig. 3 illustrates an alternative embodiment invention  
36 in which AVRU 11 is not integral with VCU 12, memory 13 or  
37 editor 14. In this embodiment, AVRU 11 is a conventional,  
38 commercially available VCR which receives a modulated video

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1 input signal on an input cable 50. In this embodiment  
2 AVRU 11 includes a RF tuner 51 for demodulating the input  
3 signal so it can be stored in media 23. AVRU 11 also  
4 includes a RF modulator 52 for modulating the signal  
5 received from media 23 and providing the RF modulated output  
6 signal on an output cable 53, which can be coupled to a  
7 television set. (TV RF tuner 51 and RF modulator 52 are  
8 provided in typical commercially available VCR's.) A switch  
9 54 is provided to couple input cable 50 to output cable 53  
10 when media 23 is not serving as a video signal source. The  
11 VCR-ET of this embodiment includes a TV RF tuner 55 which  
12 receives and demodulates the signal on cable 53, and  
13 provides the resultant analog audio/video signal on a  
14 lead 56, which is digitized and compressed as described  
15 above. In this alternative embodiment, the digitized  
16 compressed signal may be processed as described above, e.g.  
17 stored in memory 13 (via high speed bus 34), edited,  
18 transmitted by the fiber optic port 18 to another VCR-ET,  
19 etc. When it is desired to view a program stored in  
20 memory 13, data from memory 13 is decompressed and converted  
21 to an analog signal by VCU 12, and the resulting signal is  
22 provided on an output lead 57 to a RF modulator 58, which  
23 modulates the video signal so that it can be received and  
24 stored by AVRU 11 or viewed on a television coupled to cable  
25 53. (As mentioned above, in the Fig. 3 embodiment, AVRU 11  
26 is a conventional VCR.)

27 One advantage of the embodiment of Fig. 3 is that many  
28 people already own VCR's. Rather than buying apparatus  
29 which duplicates much of the hardware already present in  
30 their VCR, the embodiment of Fig. 3 would provide to owners  
31 of conventional VCR's capabilities which are otherwise  
32 currently unavailable in an economical manner.

33 In one embodiment, analog auxillary audio and video  
34 input terminals 62, 64 are provided so that analog signals  
35 may be provided by alternate sources to VCU 12.

36 The embodiments described above include means for  
37 transmitting/receiving video programs over fiber optic  
38 cables. However, in an alternative embodiment, either in



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1 place of fiber optic port 18 or in addition to fiber optic  
2 port 18, means are provided for transmitting and/or  
3 receiving a video program via microwave. In conventional  
4 microwave technology, satellite systems and microwave  
5 transmitters transmit data using a low power/high frequency  
6 signal. In an embodiment of the invention designed to  
7 receive microwaves, the VCR-ET includes an amplifier for  
8 amplifying the microwave signal and a demodulator for  
9 obtaining the video program signal from the microwave  
10 signal. Receiving, amplifying and demodulating the  
11 microwave signal can be accomplished with conventional  
12 microwave transceiver equipment. The video program signal  
13 is typically in digital form, and may be stored, viewed or  
14 edited as in the above-described embodiments. Program data  
15 from memory 13 can also be transmitted by the microwave  
16 transceiver, thereby providing the capability for microwave  
17 transmission of stored video programs in compressed digital  
18 format. Thus, the invention can be used to receive and  
19 transmit programs via microwaves at an accelerated rate  
20 similar to and at least as fast as, the transmission and  
21 reception of programs over optical fibers. This feature  
22 allows transmission and reception of programs in a few  
23 minutes or seconds using currently available technology.  
24 Both point-to-point microwave transceivers and satellite  
25 transceivers may be used.

26 The embodiments described include means for receiving,  
27 storing and transmitting both audio and video signals.  
28 However, the invention encompasses apparatus which can store  
29 and transmit video signals only and apparatus which can  
30 store and transmit audio signals only. An embodiment  
31 designed to store and compress audio signals is illustrated  
32 in Fig. 4. Referring to Fig. 4, an audio signal source 70  
33 (a tape recorder, microphone, record player, etc.) is  
34 coupled to a digitizer and compressor circuit 72, which  
35 converts the analog signal to a digital signal and  
36 compresses the digital signal in a manner similar to VCU 12  
37 described above. The digital compressed signal can then be  
38 stored in a memory 74. Of importance, data from memory 74



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1 can be transmitted by a fiber optic transceiver 76, or by a  
2 microwave transceiver 78 at an accelerated rate. This is  
3 important not only in a home entertainment application, but  
4 in other applications as well. For example, a user can  
5 dictate an audio presentation and send it to a remote  
6 location (e.g. an office) at an accelerated rate without  
7 having to monopolize the transmission medium (e.g. the fiber  
8 optic cable) for an extended length of time.

9 The business uses of the embodiment illustrated in Fig.  
10 4 makes home offices feasible for many workers now confined  
11 to more traditional offices and also opens new possibilities  
12 to business people who are traveling.

13 In the embodiment of Fig. 4, data can also be loaded  
14 from memory 74, via a modem 79 over a conventional phone  
15 line 80. Data can also be received from phone line 80,  
16 fiber optic transceiver 76 or microwave transceiver 78,  
17 loaded into memory 74, and converted to an analog signal by  
18 circuit 72, to be listened to via an audio monitor 82, or to  
19 be stored on an audio tape cassette 84 or other storage  
20 media.

21 An editor 86 is optionally provided so that the data in  
22 memory 74 may be edited, e.g., by rearranging the order of  
23 portions of the audio program, increasing or decreasing the  
24 volume of portions (or different frequency components) of  
25 the audio program, or enhancing the audio program through  
26 filtering techniques (e.g. to remove static and noise).

27 An improved audio/video recorder with significantly  
28 expanded functional capabilities is thus provided in  
29 accordance with the stated objects of the invention and  
30 although but a single embodiment of the invention has been  
31 illustrated and described, it will be apparent to those  
32 skilled in the art that various changes and modifications  
33 may be made therein without departing from the spirit of the  
34 invention or from the scope of the appended claim. For  
35 example, the VCR-ET can be constructed so as to be  
36 portable. Thus, it could be carried to a location where it  
37 is desired to record a program, and used to edit the program  
38 after it is recorded with a video camera. Other

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1 modifications will be apparent to those skilled in the art  
2 in light of the present specification.  
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CLAIMS

Sub. 1  
Dep. 31

What is claimed is:

1. Apparatus comprising:
  - first means for receiving a video signal from a VCR and digitizing said received signal;
  - memory means coupled to said first means for storing said digitized video signal; and
  - second means coupled to said memory means for converting said stored digitized signal to an analog video signal and providing said analog video signal to said VCR.
2. Apparatus of Claim 1 further comprising an editor for editing said digitized video signal stored in said memory means.
3. Apparatus of Claim 1 further comprising an I/O port for receiving data and storing said data in said memory means so that said received data can be converted to an analog video signal by said second means, and so that said data in said memory means can be communicated to said I/O port, whereby said apparatus facilitates communication of signals between said VCR and an auxiliary device coupled to said I/O port.
4. Apparatus of Claim 3 wherein said I/O port is an optic fiber I/O port.
5. Apparatus of Claim 3 wherein said I/O port is a modem.
6. Apparatus of Claim 3 wherein said I/O port is a microwave transceiver.
7. Apparatus of Claim 3 wherein said I/O port transmits and receives data corresponding to said video

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1 signal at an accelerated rate.

2

3 8. Apparatus of Claim 1 wherein said first means  
4 compresses said digitized video signal prior to storage in  
5 said memory means.

6

7 9. Apparatus comprising: ✓  
8 means for receiving an analog audio signal;  
9 means for digitizing said analog audio signal,  
10 thereby generating digital data corresponding to said  
11 audio signal and for compressing said digitized data;  
12 means for storing said compressed digital data;  
13 and  
14 transceiver means for transmitting said compressed  
15 digital data.

16

17 10. Apparatus of Claim 9 wherein said transceiver  
18 means also receives and stores compressed digital data in  
19 said means for storing, said apparatus also including means  
20 for converting the data stored in said means for storing  
21 into an analog audio signal.

22

23 11. Apparatus of Claim 10 wherein the time required by  
24 said transceiver means to transmit or receive said  
25 compressed digital data is less than the time required to  
26 monitor the audio signal corresponding to said data.

27

28 12. Apparatus comprising: ✓  
29 first means for receiving and converting an analog  
30 video signal to a digital video signal;  
31 second means for storing said digital video  
32 signal, wherein said first means also receives said  
33 digital video signal back from said second means and  
34 reconverts said digital video signal back to an analog  
35 video signal for viewing;  
36 third means for storing data; and  
37 fourth means for transferring said digital video  
38 signal from said second means to said third means,

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1           thereby making said second means available for receiving  
2           and storing additional digital video signals.

3  
4           13. Apparatus of Claim 12 wherein said first means  
5           also compresses data, so that said digital video signal is a  
6           compressed video signal, and wherein said third means is a  
7           video tape cassette capable of receiving said digital video  
8           signal from said second means, and third means also being  
9           capable of receiving and storing said reconverted analog  
10          video signal from said first means.

11  
12          14. Apparatus of Claim 12 wherein said third means is  
13          remote from said first and second means and said fourth  
14          means comprises a microwave transceiver.

15  
16          15. Apparatus of Claim 12 wherein said third means is  
17          remote from said first and second means and said fourth  
18          means comprises an optical fiber.

19  
20          16. Apparatus of Claim 12 wherein said third and  
21          fourth means is remote from said first and second means and  
22          said fourth means comprises a telephone line.

23          17. Apparatus comprising:  
24                first means for receiving and converting an analog  
25                audio signal to a digital audio signal;  
26                second means for storing said digital audio  
27                signal, wherein said first means also receives said  
28                digital audio signal from said second means and  
29                reconverts said digital audio signal back to an analog  
30                audio signal for listening;  
31                third means for storing data; and  
32                fourth means for transferring said digital audio  
33                signal from said second means to said third means,  
34                thereby making said second means available for receiving  
35                and storing additional digital audio signals.

36  
37          18. Apparatus of Claim 17 wherein said first means  
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1 also compresses data, so that said digital audio signal is a  
2 compressed digital audio signal, and wherein said third  
3 means is a audio tape cassette capable of receiving said  
4 digital audio signal from said second means, and third means  
5 also being capable of receiving and storing said reconverted  
6 analog audio signal from said first means.

7  
8 19. Apparatus of Claim 17 wherein said third means is  
9 remote from said first and second means and said fourth  
10 means comprises a microwave transceiver.

11  
12 20. Apparatus of Claim 17 wherein said third means is  
13 remote from said first and second means and said fourth  
14 means comprises an optical fiber.

15  
16 21. Apparatus of Claim 17 wherein said third and  
17 fourth means is remote from said first and second means and  
18 said fourth means comprises a telephone line.

19  
20 22. Apparatus comprising:  
21 receiving means for receiving and storing an audio  
22 signal in a first memory means during a first time  
23 period;  
24 communication means for communicating said stored  
25 audio signal during a second time period substantially  
26 less than said first time period.

27  
28 23. Apparatus of Claim 22 wherein said receiving means  
29 converts said received audio signal from an analog to  
30 digital format prior to storage, and said communication  
31 means transmits said stored audio signal to a location  
32 remote from said apparatus.

33  
34 24. Apparatus comprising:  
35 receiving means for receiving and storing an audio  
36 signal in a first memory means during a first time  
37 period;  
38 means for providing said stored audio signal to a

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1 speaker so that said signal can be listened to during a  
2 second time period substantially greater than said  
3 first time period.

4  
5 25. Apparatus of Claim 24 wherein said receiving means  
6 receives said audio signal in digital format and converts  
7 said received audio signal from said digital format to an  
8 analog format, said receiving means receiving said audio  
9 signal from a location remote from said apparatus.

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AUDIO/VIDEO RECORDER/TRANSCIEVER

Richard A. Lang

ABSTRACT OF THE DISCLOSURE

An improved video recorder/transceiver with expanded functionality ("VCR-ET") including a capability for storing video and video programs in digital format, editing such programs, transferring such programs onto a hard copy magnetic media, and transmitting such programs to a remote location using a second VCR-ET. The increased functionality is realized through the use of analog to digital conversion, signal compression and intermediate storage in an integrated circuit, random access memory. The recorder/transmitter has capabilities to transmit and receive program information in either a compressed or decompressed format over fiber optic lines, conventional phone lines or microwaves.

I hereby certify that this correspondence is being deposited with the United States Postal Service as express mail in an envelope addressed to Commissioner of Patents and Trademarks, Washington, D.C. 20591, on MAY 5 19 89. Express Mail Receipt No. 8316 919 737  
5/5/89 Karen Ferraro  
Date of Signature

CPM/M914-DEC

Docket No.: M-914 US

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled "AUDIO/VIDEO RECORDER/TRANSCIVER" the specification of which

(check one)  is attached hereto.  
 was filed

on \_\_\_\_\_ as Application Serial No. \_\_\_\_\_

and was amended

on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

n/a \_\_\_\_\_  
(Number) (Country) (Day/Month/Year Filed)

I hereby claim the benefit under title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations,

CPM/M914-DEC

§1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>07/289,776</u>	<u>12/27/88</u>	<u>Pending</u>
(Serial No.)	(Filing Date)	(Status-patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Alan H. MacPherson (24,423); Thomas S. MacDonald (17,774); Richard Franklin (19,128); Kenneth E. Leeds (30,566); Walter J. Madden, Jr. (16,661); Nathan N. Kaliman (19,405); Paul J. Winters (25,246); Brian D. Ogonowsky (31,988); Edel M. Young (32,451); David W. Heid (25,875); Gideon Gimlan (31,955); Guy W. Shoup (26,805); Stephen L. Malaska (32,655); Forrest E. Gunnison (32,899); and Norman K. Kliivans (33,003).

Address all telephone calls to Kenneth E. Leeds  
at telephone no. (408) 283-1222

Address all correspondence to Kenneth E. Leeds  
SKJERVEN, MORRILL, MacPHERSON,  
FRANKLIN & FRIEL  
25 METRO DRIVE, SUITE 700  
SAN JOSE, CALIFORNIA 95110

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor 40/011 RICHARD A. LANG Date \_\_\_\_\_  
Inventor's signature \_\_\_\_\_  
Residence Cave Creek, Arizona AZ Citizenship United  
States \_\_\_\_\_  
Post Office Address HC 04, Box 10560, Cave Creek, Arizona 85331

I hereby certify that this correspondence is being deposited with the United States Postal Service as express mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on MAY 5  
19 89 Express Mail Receipt No. B506 949 428  
5/5/89 Ruben Ferrera  
Date of Signature

07/347629

M-914  
SHEET 1 OF 4

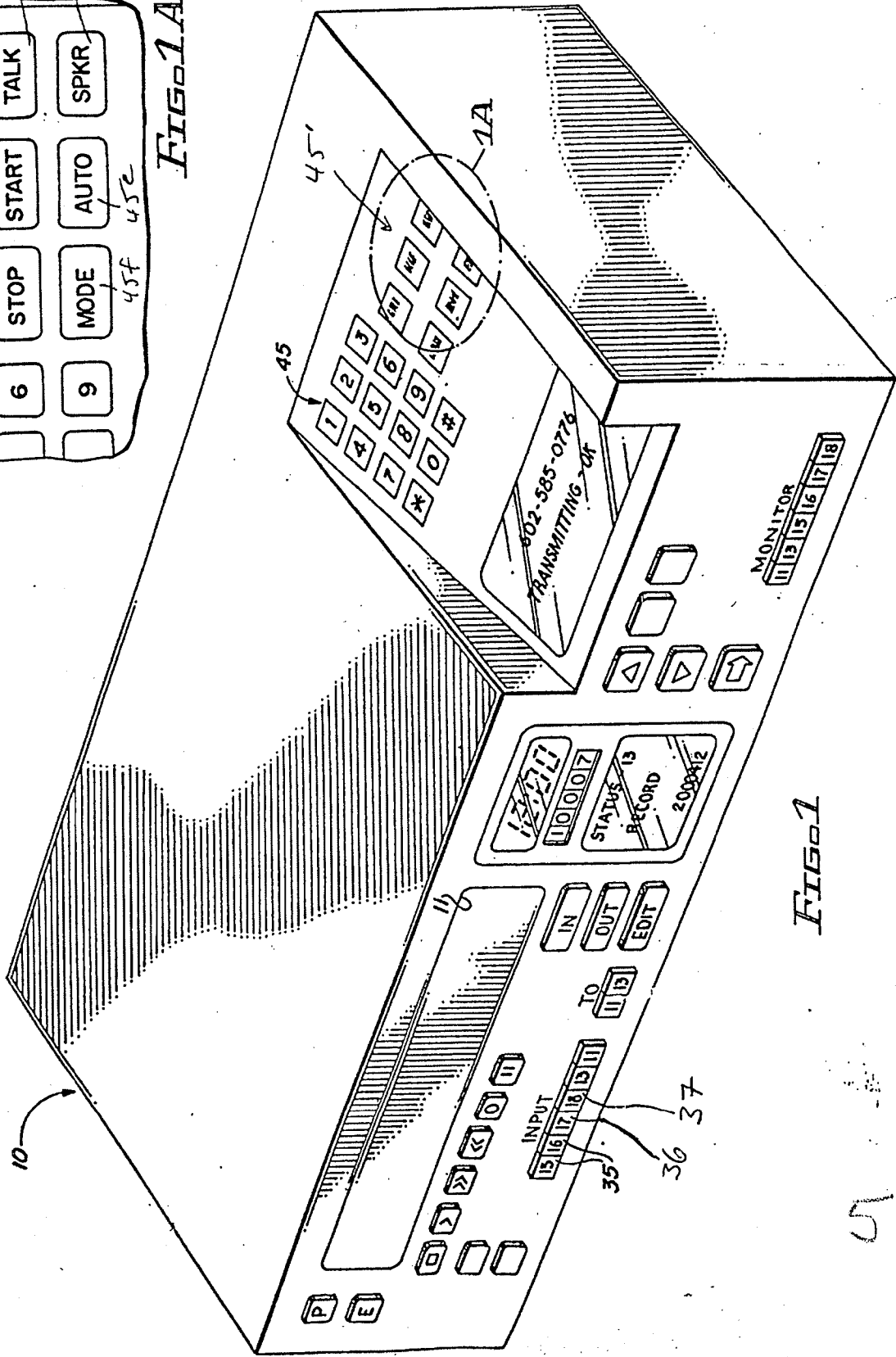
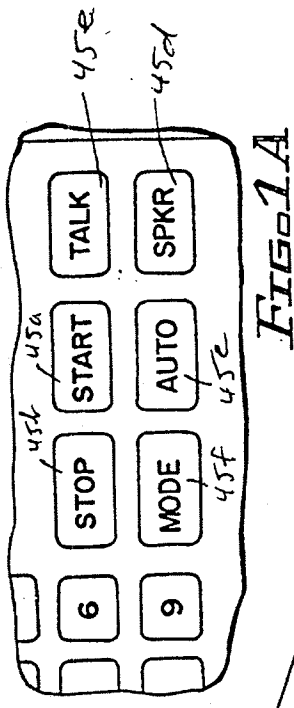


FIG 1

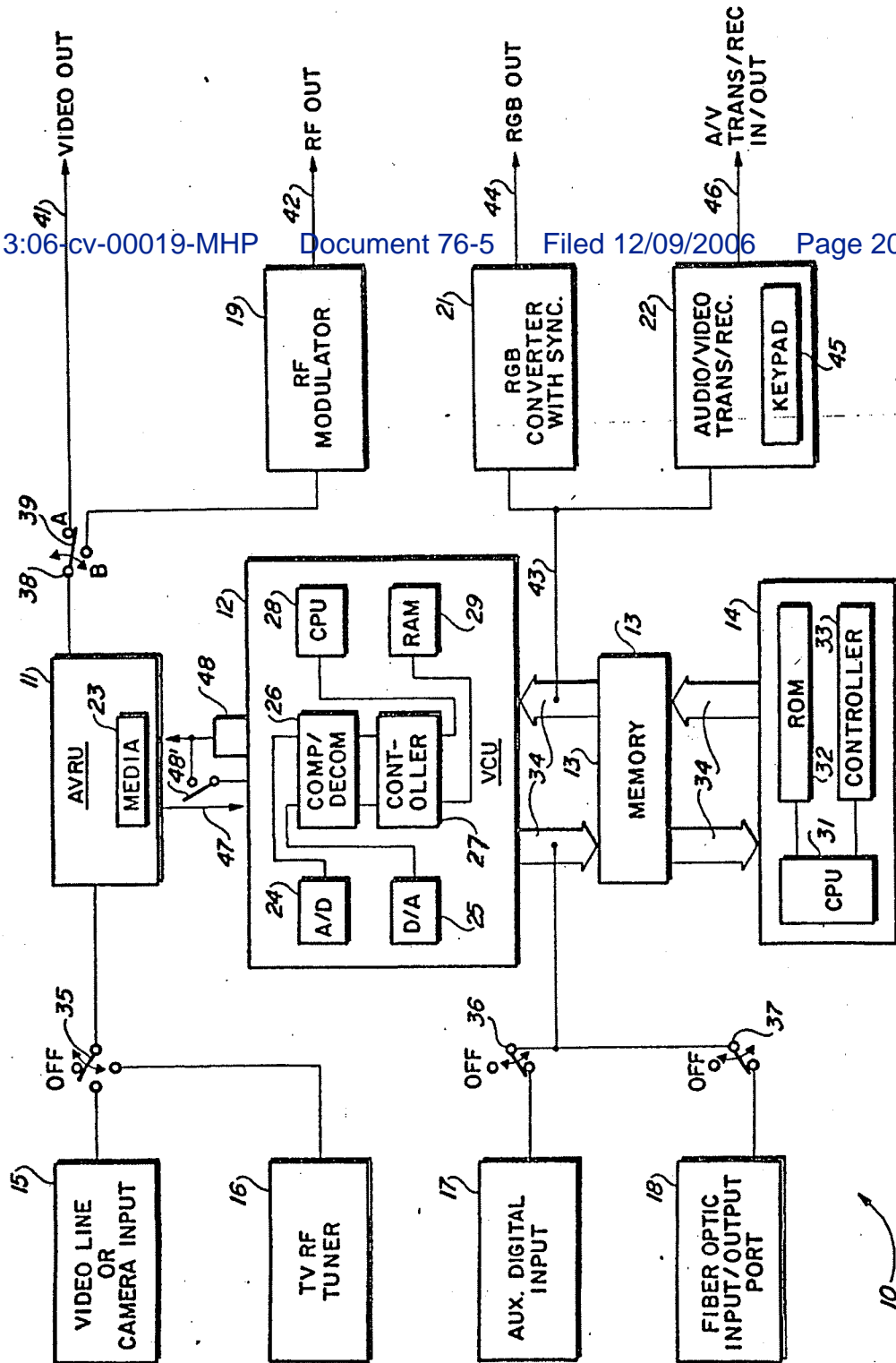


FIG. 2

11/347009

M-414  
SHEET 3 OF 4

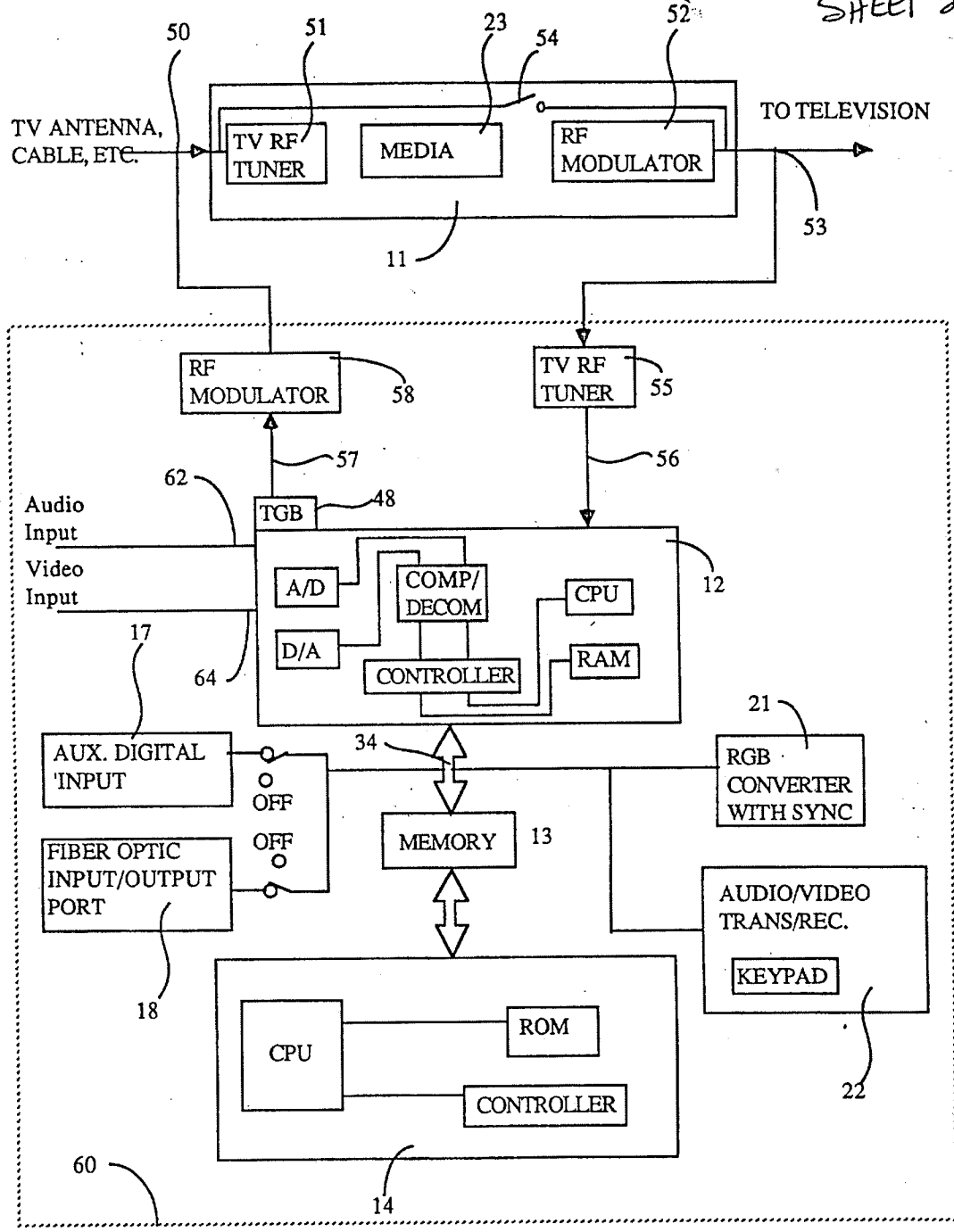


Fig. 3

07/347629

M-914  
SHEET 4 OF 4

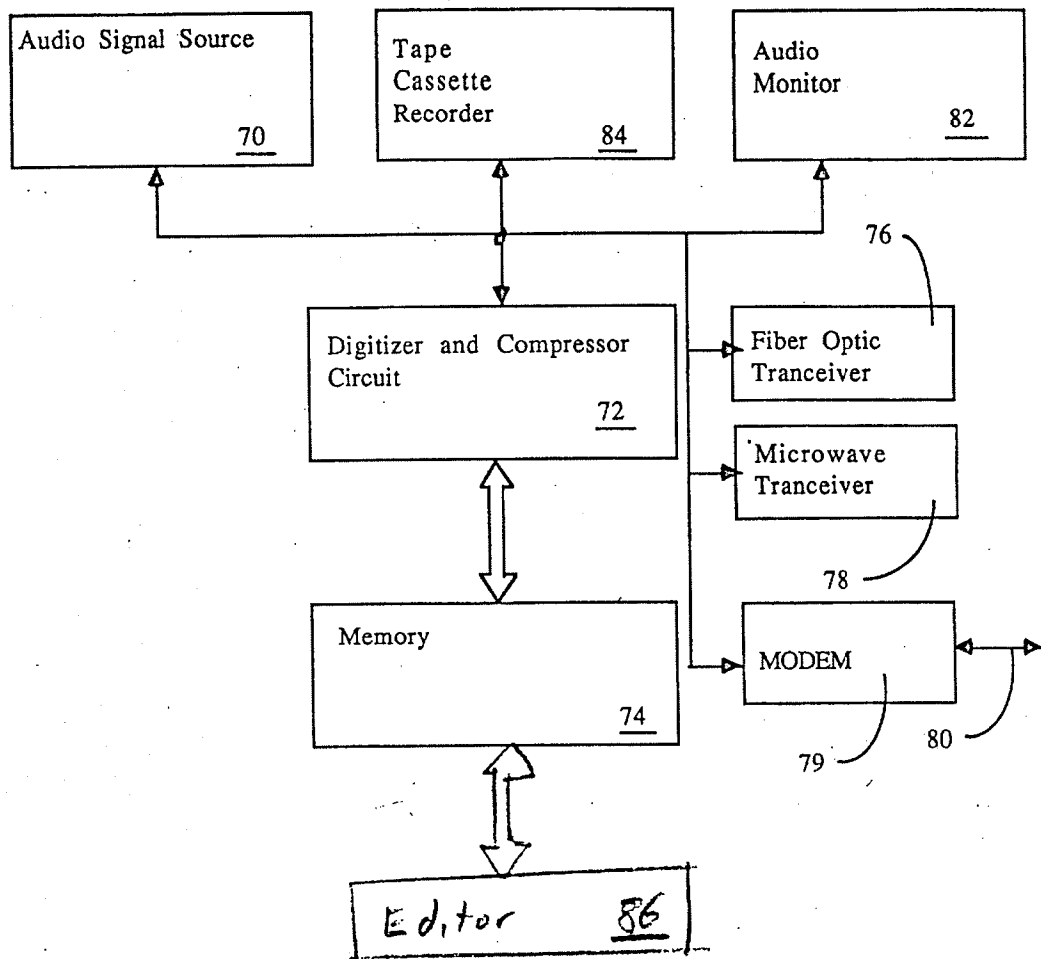


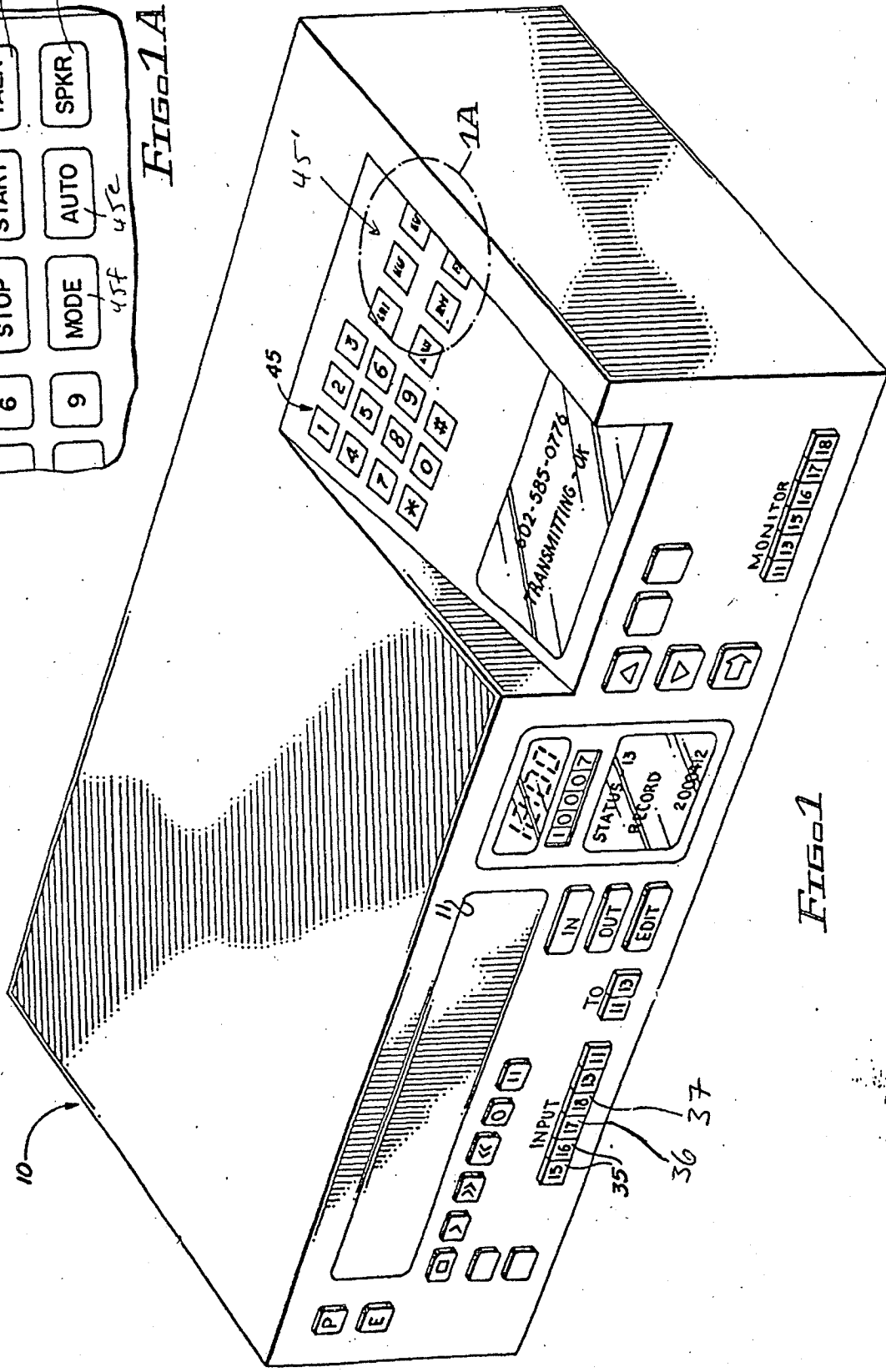
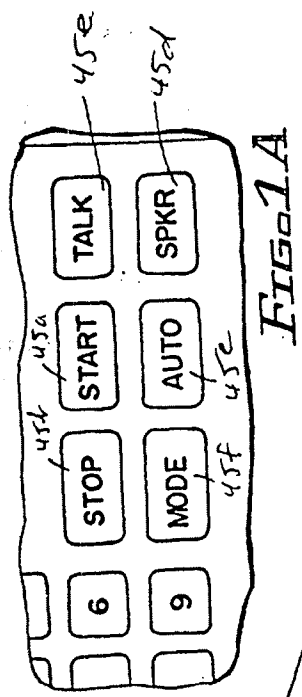
Figure 4



As Original Filed

11/23/99

M-914  
SHEET 1 OF 4



Case 3:06-cv-00019-MHP Document 76-5 Filed 12/09/2006 Page 24 of 50

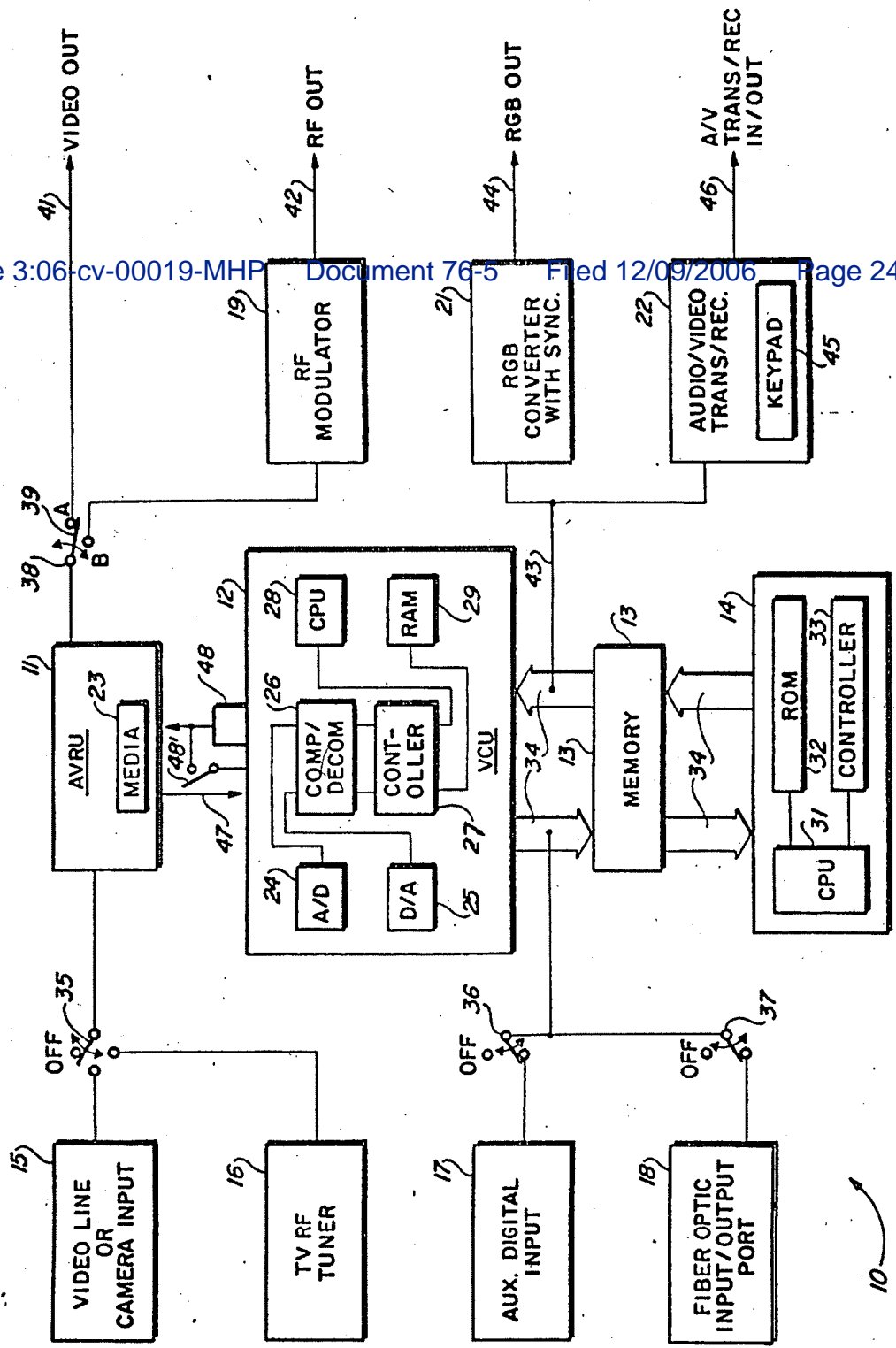


FIG. 2

Print of Drawing  
As Original Filed 3/4/99

M-414  
SHEET 3 OF 4

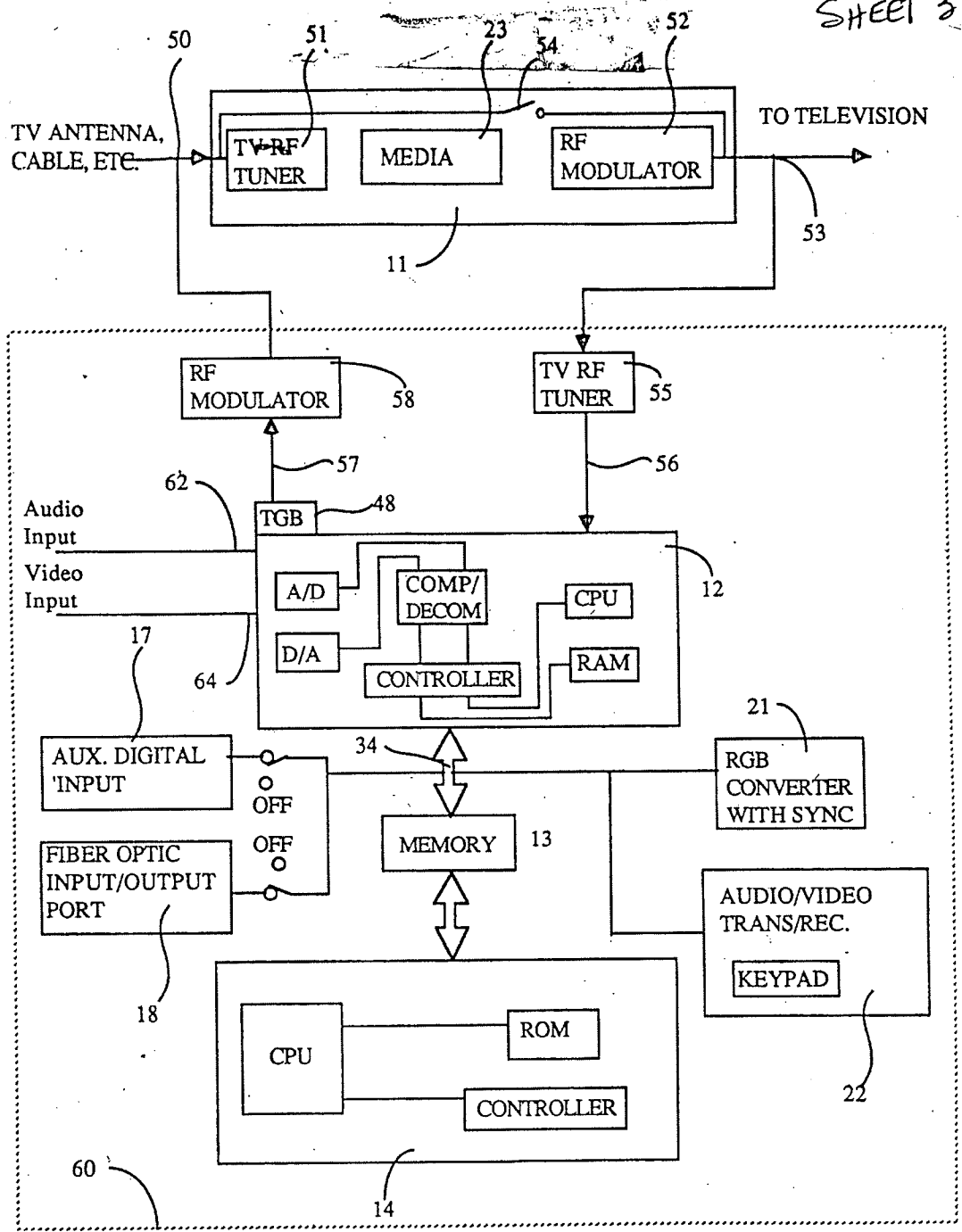


Fig. 3

Print Of Drawing  
As Original Filed

347629

M-914 -  
SHEET 4 OF 4

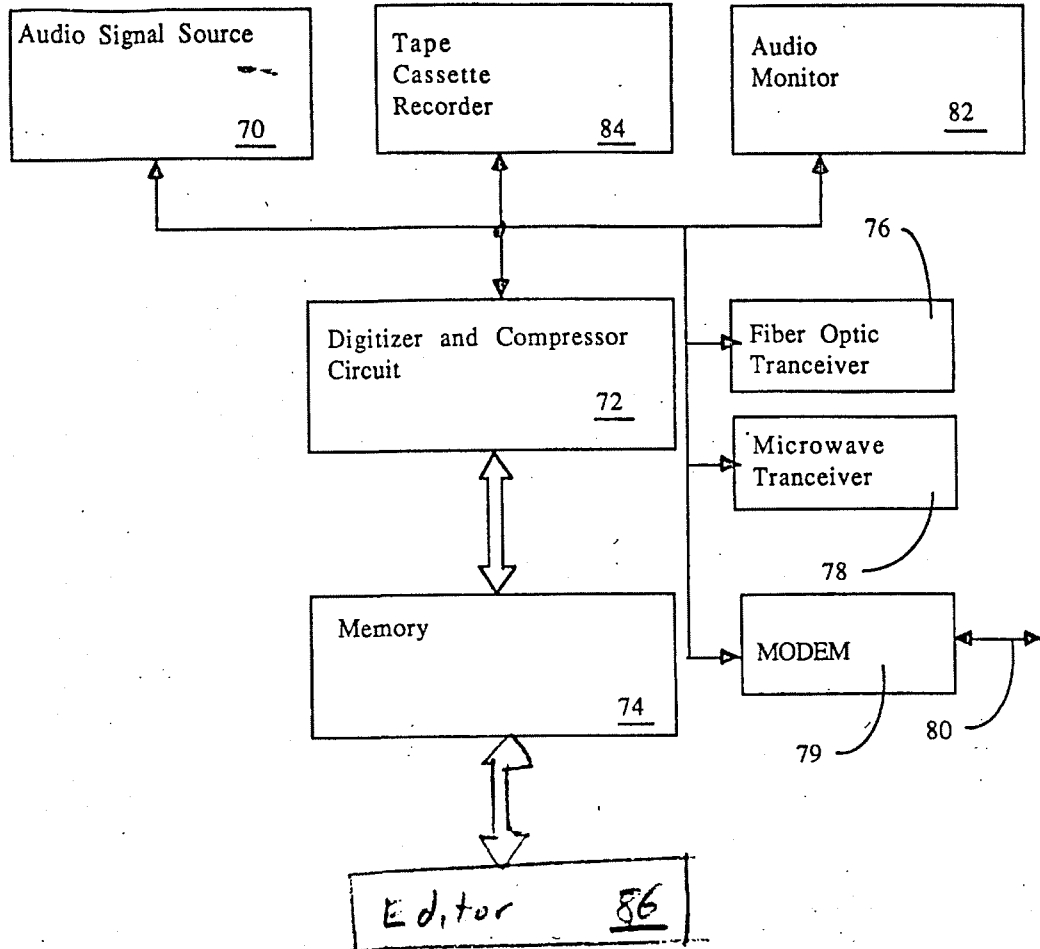


Figure 4

07/347629



LAW OFFICES OF  
 SKYLER, MORRILL, MACPHERSON, FRANKLIN & FRIEL  
 25 METRO DRIVE, SUITE 700  
 SAN JOSE, CALIFORNIA 95110  
 (408) 283-1222  
 TWX: 9103382094  
 TELECOPIER: (408) 283-1233

601 MONTGOMERY, SUITE 1900  
 SAN FRANCISCO, CALIFORNIA 94111  
 (415) 966-8363  
 TELECOPIER: (415) 982-7372

May 5, 1989

Our Case Docket No. M-914 US

Commissioner of Patents and Trademarks  
 Washington, D. C. 20231

San Jose

Transmitted herewith for filing is a patent application, as follows:

Inventor : Richard A. Lang  
 Title: "AUDIO/VIDEO RECORDER/TRANSCIEIVER"

Enclosed also are:

4 Sheets of drawings: \_\_\_\_\_ (Formal) XX (Informal)

CLAIMS AS FILED

For	Number Filed		Number Extra	Rate	Basic Fee \$370.00
Total Claims Independent	25	- 20 =	5	x \$12 =	\$ 60.00
Claims	6	- 3 =	3	x \$36 =	\$108.00
Application contains one or more multiple dependent claims (\$ 55 total fee)					= 0
Total Filing Fee:					\$ 538.00

Please make the following charges to Deposit Account 19-2386:

XX Fee for filing the patent application in the amount of \$ 538.00  
XX Fee for recording the Assignment in the amount of \$ 0  
XX The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account 19-2386.

A Return Receipt Postcard and duplicate copy of this sheet are enclosed.

I hereby certify that this correspondence is being deposited with the United States Postal Service as express mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C., 20231, on MAY 5 1989. Express Mail Receipt No. 3206 499 434  
5/5/89  
 Date of Signature Karen Ferrera

Respectfully submitted,  
*Kenneth E. Leeds*  
 Kenneth E. Leeds  
 Reg. No. 30,566  
 Attorney for Applicant

CPM/EM-914

PATENT APPLICATION SERIAL NO. 07/347629

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE  
FEE RECORD SHEET

G 11097	05/09/89	347629			
B 20165	02/05/89	347629	19-2386	110	201
L 20142	07/05/89	347629			
			19-2386	020	101
			19-2386	020	201
					538.00CH
					538.00CR
					269.00CH

PTO-1556  
(5/87)



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

#2

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
07/347,629	05/05/89	LANG	R M914US

KENNETH E. LEEDS  
SKJERVEN, MORRILL, MACPHERSON,  
FRANKLIN & FRIEL  
25 METRO DRIVE, STE 700  
SAN JOSE, CA 95110

All fees must be paid pursuant  
to the new fee schedule  
published at 54 F.R. 6895  
effective April 17, 1989.

000  
05/22/89

DATE MAILED:

**NOTICE TO FILE MISSING PARTS OF APPLICATION—  
FILING DATE GRANTED**

A filing date has been granted to this application. However, the following parts are missing.

If all missing parts are filed within the period set below, the total amount owed by applicant as a  large entity,  small entity (verified statement filed), is \$ 120.00

1.  The statutory basic filing fee is:  missing;  insufficient. Applicant as a  large entity,  small entity, must submit \$ \_\_\_\_\_ to complete the basic filing fee and **MUST ALSO SUBMIT THE SURCHARGE AS INDICATED BELOW.**
2.  Additional claim fees of \$ \_\_\_\_\_ as a  large entity,  small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due. **NO SURCHARGE IS REQUIRED FOR THIS ITEM.**
3.  The oath or declaration:
  - is missing.
  - does not cover items omitted at the time of execution.

An oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Serial Number and Filing Date is required. **A SURCHARGE MUST ALSO BE SUBMITTED AS INDICATED BELOW.**
4.  The oath or declaration does not identify the application to which it applies. An oath or declaration in compliance with 37 CFR 1.63 identifying the application by the above Serial Number and Filing Date is required. **A SURCHARGE MUST ALSO BE SUBMITTED AS INDICATED BELOW.**
5.  The signature to the oath or declaration is:  missing;  a reproduction;  by a person other than the inventor or a person qualified under 37 CFR 1.42, 1.43, or 1.47. A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Serial Number and Filing Date is required. **A SURCHARGE MUST ALSO BE SUBMITTED AS INDICATED BELOW.**
6.  The signature of the following joint inventor(s) is missing from the oath or declaration: \_\_\_\_\_ Applicant(s) should provide, if possible an oath or declaration signed by the omitted inventor(s), identifying this application by the above Serial Number and Filing Date. **A SURCHARGE MUST ALSO BE SUBMITTED AS INDICATED BELOW.**
7.  The application was filed in a language other than English. Applicant must file a verified English translation of the application and a fee of \$26.00 under 37 CFR 1.17(k), unless this fee has already been paid **NO SURCHARGE UNDER 37 CFR 1.16(e) IS REQUIRED FOR THIS ITEM.**
8.  A \$20.00 processing fee is required for returned checks. (37 CFR 1.21(m)).
9.  Your filing receipt was mailed in error because check was returned.
10.  Other:

A Serial Number and Filing Date have been assigned to this application. However, to avoid abandonment under 37 CFR 1.53(d), the missing parts and fees identified above in items 1 and 3-6 must be timely provided **ALONG WITH THE PAYMENT OF A SURCHARGE OF \$110.00 for large entities or \$55.00 for small entities who have filed a verified statement claiming such status.** The surcharge is set forth in 37 CFR 1.16(e). Applicant is given **ONE MONTH FROM THE DATE OF THIS LETTER, OR TWO MONTHS FROM THE FILING DATE** of this application, **WHICHEVER IS LATER**, within which to file all missing parts and pay any fees. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

Direct the response to, and any questions about, this notice to the undersigned, Attention: Application Branch.

**A copy of this notice MUST be returned with response.**

*M. Ballmaier*  
For: Manager, Application Branch  
(703) 557-3254

**For Office Use Only**

- |                              |   |
|------------------------------|---|
| <input type="checkbox"/> 102 | <input type="checkbox"/> 202            |
| <input type="checkbox"/> 103 | <input type="checkbox"/> 203            |
| <input type="checkbox"/> 104 | <input type="checkbox"/> 204            |
| <input type="checkbox"/> 105 | <input checked="" type="checkbox"/> 205 |

OFFICE COPY

FORM PTO-1533 (REV. 7-87)

APBU-00000184





CPO/M-914-DEC

*Paper # A/N3*

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Title: "AUDIO/VIDEO RECORDER/TRANSCEIVER"  
Serial No.: 07/347,629 Filed: 05/05/89  
Attorney Docket No.: M-914 US

San Jose, California  
June 13, 1989

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D. C. 20231

Dear Sir:

RESPONSE TO NOTICE TO FILE MISSING PARTS  
OF APPLICATION

On May 26, 1989, Applicant received a "Notice to File Missing Parts of Application - Filing Date Granted" from the U.S. Patent and Trademark Office (copy enclosed), instructing Applicant to file an oath or a declaration in the U.S. Patent and Trademark Office.

Attached hereto is a Declaration For Patent Application signed by Applicant. Also attached is an Independent Inventor's Declaration signed by Applicant.

The Commissioner is respectfully requested to deduct the sum of \$60.00 from deposit account 19-2386, and any other sums required for this Application.

If the Application Branch has any questions regarding this matter, please contact the undersigned attorney at (408) 283-1222.

N 10464 06/21/89 347629 19-2386 010 205 60.00CH

Respectfully submitted,

*Kenneth E. Leeds*

Kenneth E. Leeds  
Attorney for Applicants  
Registration Number 30,566

I hereby certify that this correspondence is being deposited with the United States Postal Service in first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C., 20231, on June 13, 1989.

June 13, 1989 *Kenneth Leeds*  
Date of Signature Attorney for Applicant

LAW OFFICES OF  
SKJERVEN, MORRILL,  
MACPHERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110  
(408) 283-1222

RECEIVED

JUN 23 1989

APPLICANTS



CPO/M-914-DEC

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Title: "AUDIO/VIDEO RECORDER/TRANSCEIVER"  
Serial No.: 07/347,629 Filed: 05/05/89  
Attorney Docket No.: M-914 US

San Jose, California  
June 13, 1989

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D. C. 20231

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OF APPLICATION

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Attached hereto is a Declaration For Patent Application signed by Applicant. Also attached is an Independent Inventor's Declaration signed by Applicant.

The Commissioner is respectfully requested to deduct the sum of \$60.00 from deposit account 19-2386, and any other sums required for this Application.

If the Application Branch has any questions regarding this matter, please contact the undersigned attorney at (408) 283-1222.

Respectfully submitted,

*Kenneth E. Leeds*

Kenneth E. Leeds  
Attorney for Applicants  
Registration Number 30,566

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on June 13, 1989

19 89

June 13, 1989 *Kenneth Leeds*  
Date of Signature Attorney for Applicant

LAW OFFICES OF  
SKJERVEN, MORRILL,  
ACPERSON, FRANKLIN  
& FRIEL  
28 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110

*Paper #3*

CPM/M914-DEC



Docket No.: M-914 US

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled "AUDIO/VIDEO RECORDER/TRANSCIEVER" the specification of which

(check one)  is attached hereto.  
 [XX] was filed

on May 5, 1989 as Application Serial No. 07/347,629

and was amended

on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

<u>n/a</u>	<u></u>	<u></u>
(Number)	(Country)	(Day/Month/Year Filed)

I hereby claim the benefit under title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations,

CPM/M914-DEC

§1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

<u>07/289,776</u>	<u>12/27/88</u>	<u>Pending</u>
(Serial No.)	(Filing Date)	(Status-patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

<sup>301</sup>  
 Alan H. MacPherson (24,423); Thomas S. MacDonald (17,774); Richard Franklin (19,128); Kenneth E. Leeds (30,566); Walter J. Madden, Jr., (16,661); Nathan N. Kallman (19,405); Paul J. Winters (25,246); Brian D. Ogonowski (31,988); Edel M. Young (32,451); David W. Held (25,875); Gideon Gliman (31,955); Guy W. Shoup (26,805); Stephen L. Malaska (32,655); Forrest E. Gunnison (32,899); and Norman K. Klivans (33,003).

Address all telephone calls to Kenneth E. Leeds  
 at telephone no. (408) 283-1222  
 Address all correspondence <sup>601</sup> Kenneth E. Leeds  
<sup>602</sup> SKJERVEN, MORRILL, MacPHERSON,  
FRANKLIN & FRIEL  
<sup>701</sup> 25 METRO DRIVE, SUITE 700  
<sup>702</sup> SAN JOSE, CALIFORNIA 95110

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor <sup>401</sup> RICHARD A. LANG  
 Inventor's signature [Signature] Date 6/5/89  
 Residence Cave Creek, Arizona Citizenship United States  
 Post Office Address 29209 N. 56th St., Cave Creek, Arizona 85331

CPO/M914-PTO4

PATENT

*Paper #3*



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Serial No: 07/347,629 Date Filed: May 5, 1989  
Title: "AUDIO/VIDEO RECORDER/TRANSCIEVER"  
Docket No.: M-914 US

San Jose, California  
May \_\_, 1989

TO THE COMMISSIONER OF PATENTS AND TRADEMARKS  
WASHINGTON, D.C. 20231

INDEPENDENT INVENTOR'S DECLARATION

Dear Sir:

The undersigned Applicant for the above application hereby states in accordance with 37 CFR Sections 1.9 and 1.27 that he is an independent inventor who has not assigned, granted, conveyed or licensed, and who is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention described in the above application to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern who would not qualify as a Small Business Concern or a non-profit organization under 37 CFR Section 1.9 (c).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

6/5/89  
Date

Applicant

Richard A. Lang  
Address: 29209 N. 56th St.  
Cave Creek, Arizona 85331

LAW OFFICES OF  
SKJERVEN, MORRILL,  
MACPHERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95119  
(408) 283-1222



CPO/M-914-REF

230

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PATENT

7C #4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Title: "Audio/Video Recorder/Transceiver"  
Serial No.: 07/347,629  
Attorney Docket No.: M-914 US

Filed: 05/05/89

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AUG 09 1989

GROUP 230

San Jose, California  
June 13, 1989

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D. C. 20231

Attention: Refund Section  
Accounting Division,  
Office of Finance

RECEIVED

AUG 09 1989

REQUEST FOR REFUND  
RE SMALL ENTITY STATUS

GROUP 230

Dear Sir:

Enclosed is a copy of an Independent Inventor's Declaration indicating that Applicant qualifies as an independent inventor under 36 C.F.R. Sections 1.9 and 1.27. The original Independent Inventor's Declaration is concurrently being submitted to the Examiner in the above-identified application. In accordance with the Applicant's transmittal letter which accompanied the above-mentioned patent application (copy enclosed), Applicant requested that a \$370.00 basic fee, plus \$168.00 for extra total claims be charged to Deposit Account No. 19-2386. Accordingly, Applicant respectfully requests that the amount of \$269.00 (one half of the basic fee and one half of the extra claim fee) be refunded to Deposit Account No. 19-2386, as provided by the Manual of Patent Examining Procedures Section 509.03 and by the Official Gazette Notices published October 26, 1982 at 1023 O.G. 77 and February 15, 1983 at 1027 O.G. 115 as attached hereto.

RECEIVED

JUN 29 1989

APPLICATION DIVISION

LAW OFFICES OF  
SKJERVEN, MORRILL,  
MACPHERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110  
(408) 283-1222

CPO/M-914-REF

PATENT

If there are any questions regarding this refund,  
Applicant respectfully requests the Patent Office personnel to  
telephone Applicant's attorney at (408)283-1222.

Respectfully submitted,

*Kenneth E Leeds*

Kenneth E. Leeds  
Attorney for Applicant  
Registration No. 30,566

I hereby certify that this correspondence is being deposited with the United States  
Postal Service as first class mail in an envelope addressed to Commissioner of  
Patents and Trademarks, Washington, D.C. 20220, on June 13, 1989  
19 89.

June 13, 1989 *Kenneth E Leeds*  
Date of Signature Attorney for Applicant

LAW OFFICES OF  
SKJERVEN, MORRILL,  
JACPERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110  
(408) 283-1222



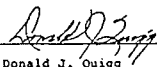
1 Official Gazette Notice published October 26, 1982:

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Official Gazette Notice

Filing Of Verified Statements Claiming Small Entity Status

In view of the fact that the rules implementing the definition of small business concern were not published in the Federal Register until September 30, 1982, any verified statement claiming small entity status will be accepted as timely filed if (1) the first fee in a patent application has been paid on or after October 1, 1982, but before February 27, 1983, in the amount established for a non-small entity and (2) such verified statement is filed within 3 months of the date of payment of the first fee in a patent application paid on or after October 1, 1982, but before February 27, 1983. If such a verified statement is timely filed within three months of the date of payment of the first fee paid on or after October 1, 1982, but before February 27, 1983, the statement will be treated as though it were present on the date the fee was paid. The correct amount of the fee will be determined and any excess will be refunded upon request. Section 1.28(a) of 37 CFR is waived until February 27, 1983 to the extent it is inconsistent with this practice.

10-15-82  
Date   
Donald J. Quigg  
Acting Commissioner of Patents & Trademarks  
1023 OG 77

Official Gazette Notice published February 15, 1983:

Requirement for Filing of Verified Statements Claiming Small Entity Status

The purpose of this notice is to supplement the notice published Oct. 26, 1982 at 1023 O.G. 77, entitled "Filing of Verified Statements Claiming Small Entity Status" and to extend the practice contained therein beyond Feb. 27, 1983, pending consideration by the Patent and Trademark Office of the feasibility of implementing via the rulemaking process, a practice similar to that set forth in the notice.

The notice published Oct. 26, 1982 provides in part, that any verified statement claiming small entity status will be accepted as timely filed if (1) the first fee in a patent application has been paid on or after Oct. 1, 1982, but before Feb. 27, 1983, in the amount established for a non-small entity and (2) such verified statement is filed within three months of the date of payment of the first fee. The practice is hereby extended to a first fee paid after Feb. 27, 1983. Until further notice, if a verified statement is filed within three months of the date of payment of the first fee paid after Feb. 27, 1983, the statement will be treated as though it were present on the date the fee was paid. The correct amount of the fee will be determined and any excess will be refunded upon request.

Request for refunds, along with the verified statements, should be addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and directed to the attention of the Refund Section, Accounting Division, Office of Finance. Such requests should refer to this notice.

The practice presently in effect is hereby extended until further notice. The extension will provide applicants additional time pursuant to this notice and provide the Office the time to consider the feasibility of a possible rule change.

DONALD J. QUIGG,  
Acting Commissioner of  
Patents and Trademarks  
Jan. 20, 1983.

LAW OFFICES OF  
SKJERVEN, MORRILL,  
KACPERSON, FRANKLIN  
& FRIEL  
2600 MUNICIPAL  
SUITE 100  
MOUNTAIN VIEW, CALIFORNIA 94039



CPM-914-REF

RECEIVED

AUG 09 1989

PATENT

GROUP 230

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Title: "Audio/Video Recorder/Transceiver"  
Serial No.: 07/347,629 Filed: 05/05/89  
Attorney Docket No.: M-914 US

San Jose, California  
June 13, 1989

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D. C. 20231

Attention: Refund Section  
Accounting Division,  
Office of Finance

REQUEST FOR REFUND  
RE SMALL ENTITY STATUS

Dear Sir:

Enclosed is a copy of an Independent Inventor's Declaration indicating that Applicant qualifies as an independent inventor under 36 C.F.R. Sections 1.9 and 1.27. The original Independent Inventor's Declaration is concurrently being submitted to the Examiner in the above-identified application. In accordance with the Applicant's transmittal letter which accompanied the above-mentioned patent application (copy enclosed), Applicant requested that a \$370.00 basic fee, plus \$168.00 for extra total claims be charged to Deposit Account No. 19-2386. Accordingly, Applicant respectfully requests that the amount of \$269.00 (one half of the basic fee and one half of the extra claim fee) be refunded to Deposit Account No. 19-2386, as provided by the Manual of Patent Examining Procedures Section 509.03 and by the Official Gazette Notices published October 26, 1982 at 1023 O.G. 77 and February 15, 1983 at 1027 O.G. 115 as attached hereto.

LAW OFFICES OF  
SKJERVEN, MORRILL,  
ACIPHERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110  
(408) 283-1222

CPO/M-914-REF

PATENT

If there are any questions regarding this refund,  
Applicant respectfully requests the Patent Office personnel to  
telephone Applicant's attorney at (408)283-1222.

Respectfully submitted,

*Kenneth E Leeds*

Kenneth E. Leeds  
Attorney for Applicant  
Registration No. 30,566

I hereby certify that this communication is being deposited with the United States  
Postal Service as first class mail in an envelope addressed to Commissioner of  
Patents and Trademarks, Washington, D.C., 20231, on June 13, 1989  
19 89.

June 13, 1989 *Kenneth E Leeds*  
Date of Signature Attorney for Applicant

LAW OFFICES OF  
SKJRVEN, MORRILL,  
JACPERSON, FRANKLIN  
& FRIEL  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110  
(408) 283-1222

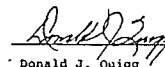
1 Official Gazette Notice published October 26, 1982:

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Official Gazette Notice

Filing Of Verified Statements Claiming Small Entity Status

In view of the fact that the rules implementing the definition of small business concern were not published in the Federal Register until September 30, 1982, any verified statement claiming small entity status will be accepted as timely filed if (1) the first fee in a patent application has been paid on or after October 1, 1982, but before February 27, 1983, in the amount established for a non-small entity and (2) such verified statement is filed within 3 months of the date of payment of the first fee in a patent application paid on or after October 1, 1982, but before February 27, 1983. If such a verified statement is timely filed within three months of the date of payment of the first fee paid on or after October 1, 1982, but before February 27, 1983, the statement will be treated as though it were present on the date the fee was paid. The correct amount of the fee will be determined and any excess will be refunded upon request. Section 1.28(a) of 37 CFR is waived until February 27, 1983 to the extent it is inconsistent with this practice.

10-15-82  
Date   
Donald J. Quigg  
Acting Commissioner of Patents & Trademarks  
1023 OG 77

Official Gazette Notice published February 15, 1983:

Requirement for Filing of Verified Statements Claiming Small Entity Status

The purpose of this notice is to supplement the notice published Oct. 26, 1982 at 1023 O.G. 77, entitled "Filing of Verified Statements Claiming Small Entity Status" and to extend the practice contained therein beyond Feb. 27, 1983, pending consideration by the Patent and Trademark Office of the feasibility of implementing via the rulemaking process, a practice similar to that set forth in the notice.

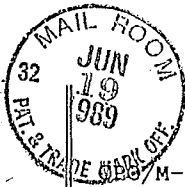
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Jan. 20, 1983. DONALD J. QUIGG,  
Acting Commissioner of  
Patents and Trademarks

LAW OFFICES OF  
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ACHPERSON, FRANKLIN  
& FRIEL  
3600 PRUNICIDE  
SUITE 100  
MOUNTAIN VIEW, CA 95051  
(408) 245-1405



M-914-REF

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lang  
Title: "Audio/Video Recorder/Transceiver"  
Serial No.: 07/347,629 Filed: 05/05/89  
Attorney Docket No.: M-914 US

San Jose, California  
June 13, 1989

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SKJERVEN, MORRILL,  
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19 89.

June 13, 1989 *Kenneth E Leeds*  
Date of Signature Attorney for Applicant

LAW OFFICES OF  
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1 Official Gazette Notice published October 26, 1982:

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Official Gazette Notice

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Filing Of Verified Statements Claiming Small Entity Status

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10-15-82

*Donald J. Quigg*

Date

Donald J. Quigg

Acting Commissioner of Patents & Trademarks

1023 OG 77

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19 Official Gazette Notice published February 15, 1983:

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Requirement for Filing of Verified Statements Claiming Small Entity Status

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32

DONALD J. QUIGG,  
Acting Commissioner of  
Patents and Trademarks.

Jan. 20, 1983.

LAW OFFICES OF  
SKJERVEN, NORRILL,  
MACPHERSON, FRANKLIN  
& FRIEL  
3000 PRUNICHOE  
SUITE 100  
SANTA CLARA, CA 95051



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
07/347,629	05/05/89	LANG	R M914US

KENNETH E. LEEDS  
SKJERVEN, MORRILL, MACPHERSON,  
FRANKLIN & FRIEL  
25 METRO DRIVE, STE 700  
SAN JOSE, CA 95110

EXAMINER	
SHAYZE, W	
ART UNIT	PAPER NUMBER
235	5

DATE MAILED:

12/06/89

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

- This application has been examined     Responsive to communication filed on 6-19-89     This action is made final.

A shortened statutory period for response to this action is set to expire Three month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- Notice of References Cited by Examiner, PTO-892.
- Notice re Patent Drawing, PTO-948.
- Notice of Art Cited by Applicant, PTO-1449
- Notice of Informal Patent Application, Form PTO-152
- Information on How to Effect Drawing Changes, PTO-1474
- \_\_\_\_\_

**Part II SUMMARY OF ACTION**

- Claims 1-25 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
- Claims \_\_\_\_\_ have been cancelled.
- Claims \_\_\_\_\_ are allowed.
- Claims 1-25 are rejected.
- Claims \_\_\_\_\_ are objected to.
- Claims \_\_\_\_\_ are subject to restriction or election requirement.
- This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
- Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
- The corrected or substitute drawings have been received on \_\_\_\_\_ . These drawings are  acceptable;  not acceptable (see explanation).
- The  proposed drawing correction and/or the  proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_ has (have) been  approved by the examiner.  disapproved by the examiner (see explanation).
- The proposed drawing correction, filed \_\_\_\_\_, has been  approved.  disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections **MUST** be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
- Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has  been received  not been received  been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_
- Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.
- Other



Serial No. 347629

-2-

Art Unit 235

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The independent inventor's declaration was received on June 19, 1989.

The Examiner requires a copy of the references (The Electronic System Design, Infoworld and Electronic Engineering Times ) on page 6 lines 15-25 and page 7 lines 20-25 of the specification.

Claims 12-21 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 12 and 17 are confusing. Each claim includes a third means that does not have a connection to the rest of the circuit. The second means expressly recites a storing function, but the Examiner is unsure if other functions can be attributed to the second means. For example, the first means receives a signal back from the second means. Is a transmitting function implied to the second means? The second means is available to receive additional data. Is the additional data different from the other data. The Examiner questions the use of available. Does this imply a condition of the second means when the second means is not available? Claim 11 is confusing.

Serial No. 289776

-3-

Art Unit 235

The Examiner is uncertain where the monitor function occurs. As a result, the time relationship is not clear.

In light of the substantial questions and lack of clarity under 35 U.S.C. 112, no references can be applied against claims 12-21 at this time since substantial guesswork on the part of the examiner would be required to determine the scope and content of the claims( see In re Steele, 134 U.S.P.Q.292).

The Applicant's attention is directed to the Workman reference. Workman discloses the first means (inherent), the second means( fig 16 129), the third means(fig 1 14) and the fourth means(data link) of claim 12.

The reasons for the rejection are listed above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Nichols et al.

Nichols et al. in fig 4 discloses the first means ( 96, 118 and 122 ), the memory means ( 98, 120, and 124 ) and the second means ( fig 1 22 and 142, 144, and 146 ) of claim 1.

Nichols et al. in fig 1 discloses the editor ( 24 ) of claim

2.

Serial No. 289776

-4-

Art Unit 235

Nichols et al. inherently includes the I/O port of claim 3 because an connection exists to an auxiliary device (fig 1 12).

Nichols et al. discloses the compression ( col 9 lines 1-22) of claim 8.

Claims 9-11 and 22-25 are rejected under 35 U.S.C. § 102(b) as being anticipated by Parker et al.

Parker et al. in fig 1 discloses the receiving means ( 16 ), the digitizing means ( 20 ), the storing means ( 22 ) and the transceiver means ( 30 ) of claim 9.

Parker et al. in fig 2 discloses the transceiver storing compressed digital data ( 32 ) and the converting means ( fig 1 42) of claim 10.

Parker et al. inherently includes the time being less than monitor time of claim 11 because the apparatus is time base compression.

Parker et al. discloses the receiving means ( fig 1 16) and the memory means ( 22 ) and the communication means ( col 6 lines 25-31) of claim 22.

Parker et al. in fig 1 discloses the A/D convertor ( fig 1 20 ) and the remote location (col 3 lines 18-19 a cassette is issued to a consumer) of claim 23.

Parker et al. inherently includes the providing means of claim 24 because the audio ultimate purpose is to be listened through speakers.

Serial No. 289776

-5-

Art Unit 235

Parker et al. in fig 2 discloses the D/A converter (34) and the remote location( library col 3 lines 5-8 ) of claim 25.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 4-7 are rejected under 35 U.S.C. § 103 as being unpatentable over Nichols et al. in view of Fabris et al.

Nichols et al. does not disclose the optic fiber I/O port of claim 4. Fabris et al. discloses the optic fiber I/O port ( col 7 lines 30-35 ) of claim 4. It would have been obvious to one of ordinary skill in the art to modify Nichols et al. with the optic fiber I/O port as taught by Fabris et al. because Fabris shows data transmission in a data compression context and use of optic fibers as a transmission means is established by Fabris et al.

Nichols et al. does not disclose the modem of claim 5.

Serial No. 289776

-6-

Art Unit 235

Fabris et al. discloses the modem( fig 7 701 702 703 704) of claim 5. It would have been obvious to one of ordinary skill in the art to modify Nichols et al. with the modem as taught by Fabris et al. because Fabris shows data transmission in a data compression context using the modem as an interface device is customary in this environment.

Nichols et al. does not disclose the microwave transceiver of claim 6. Fabris et al. discloses the microwave transceiver( col 7 lines 30-35 ) of claim 6. It would have been obvious to one of ordinary skill in the art to modify Nichols et al. with the microwave transceiver as taught by Fabris et al. because Fabris shows data transmission in a data compression context having microwave transmission capability to establish remote reception.

Nichols et al. does not disclose the transfer at an accelerated rate of claim 7. Fabris et al. discloses the transfer at an accelerated rate( fig 5 523) of claim 7. It would have been obvious to one of ordinary skill in the art to modify Nichols et al. with the transfer at an accelerated rate as taught by Fabris et al. because Fabris shows data transmission in a data compression context for the inherent data processing savings.

Claims 1 and 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11 and 12 of copending

Serial No. 289776

-7-

Art Unit 235

application serial no. 07/289776. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons. Claim 1(629) includes a first means, a memory means and a second means. these are the equivalent of the first means, the digital memory and the second / third means of claim 11(776). Claim 8(629) which includes compression is the equivalent of claim 12(776).

This is a *provisional* obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The obviousness-type double patenting rejection is a judicially established doctrine based upon public policy and is primarily intended to prevent prolongation of the patent term by prohibiting claims in a second patent not patentably distinct from claims in a first patent. *In re Vogel*, 164 USPQ 619 (CCPA 1970). A timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(b) would overcome an actual or provisional rejection on this ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. § 1.78(d).

Claims 1 and 8 of this application conflict with claims 11-12 of application serial number 07-289776. 37 C.F.R. § 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications.