

EXHIBIT 20



(12) **United States Patent**
Iwabuchi et al.

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 (45) **Date of Patent:** ***Aug. 1, 2017**

(54) **TELEVISION RECEIVER WITH A TV PHONE FUNCTION**

(58) **Field of Classification Search**
 CPC H04N 21/254; H04N 21/42203; H04N 21/4223; H04N 21/431; H04N 21/4788;
 (Continued)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
 This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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(Continued)

Related U.S. Application Data

(63) Continuation of application No. 14/811,048, filed on Jul. 28, 2015, now Pat. No. 9,432,618, which is a (Continued)

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(30) **Foreign Application Priority Data**

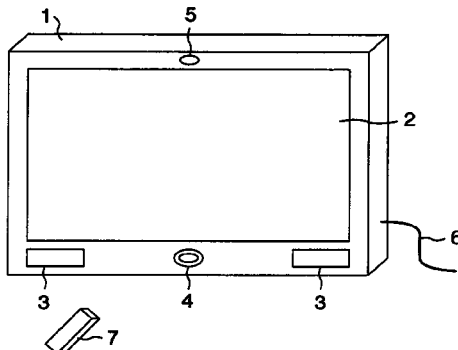
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(57) **ABSTRACT**

A videophone system includes a processor which selectively sets a television (TV) broadcast program viewing function mode and videophone function mode in response to manual operation of a remote control, a decoder which performs, in the TV program view mode, a TV program-use decode function for decoding a broadcast program signal received from a TV tuner to thereby display it on a display screen while producing audio sounds by loudspeakers and which performs, in the videophone function mode a videophone-use decode function for decoding a videophone signal received from a distant party to thereby display on the screen an image of the distant party using the screen and speakers, and an encoder which performs a videophone-use encode function for encoding a video signal from a camera and a (Continued)

(51) **Int. Cl.**
H04N 7/14 (2006.01)
H04N 7/173 (2011.01)
 (Continued)

(52) **U.S. Cl.**
 CPC **H04N 7/17318** (2013.01); **H04L 65/1063** (2013.01); **H04N 7/141** (2013.01);
 (Continued)



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voice signal from a microphone to generate a videophone signal, which is sent to the distant party via a network.

4 Claims, 10 Drawing Sheets

Related U.S. Application Data

continuation of application No. 13/723,312, filed on Dec. 21, 2012, now Pat. No. 9,124,758, which is a continuation of application No. 12/457,257, filed on Jun. 4, 2009, now Pat. No. 8,363,087.

(51) **Int. Cl.**

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H04N 21/422 (2011.01)
H04N 21/4223 (2011.01)
H04N 21/431 (2011.01)
H04N 21/4788 (2011.01)
H04L 29/06 (2006.01)

(52) **U.S. Cl.**

CPC *H04N 7/142* (2013.01); *H04N 7/147* (2013.01); *H04N 7/148* (2013.01); *H04N 21/254* (2013.01); *H04N 21/4223* (2013.01); *H04N 21/42203* (2013.01); *H04N 21/431* (2013.01); *H04N 21/4788* (2013.01)

(58) **Field of Classification Search**

CPC H04N 7/141; H04N 7/142; H04N 7/147; H04N 7/148; H04N 7/17318; H04N 2007/145; H04N 5/272; H04N 7/14; H04N 7/144; H04N 7/15; H04N 7/152; H04N 7/155; H04N 7/157; G01S 5/0072; H04M 1/72572; H04M 2201/40; H04M 2250/52; H04M 3/4936; H04M 3/5191; H04W 4/18; H04W 4/185
 USPC 348/14.01, 14.02, 14.03, 14.04, 14.05, 348/14.06, 14.07, 14.08, 14.09, 14.1, 348/14.11, 14.12, 14.13, 14.14, 15.15, 348/14.16; 379/265.03; 455/414.1, 566; 704/270

See application file for complete search history.

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FIG. 1

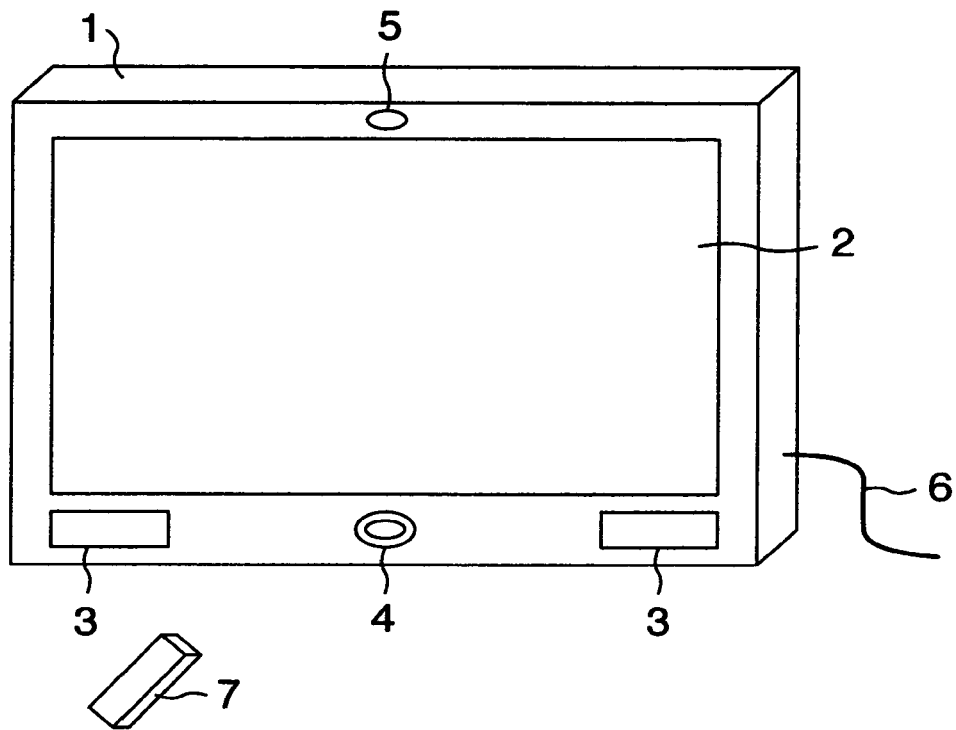
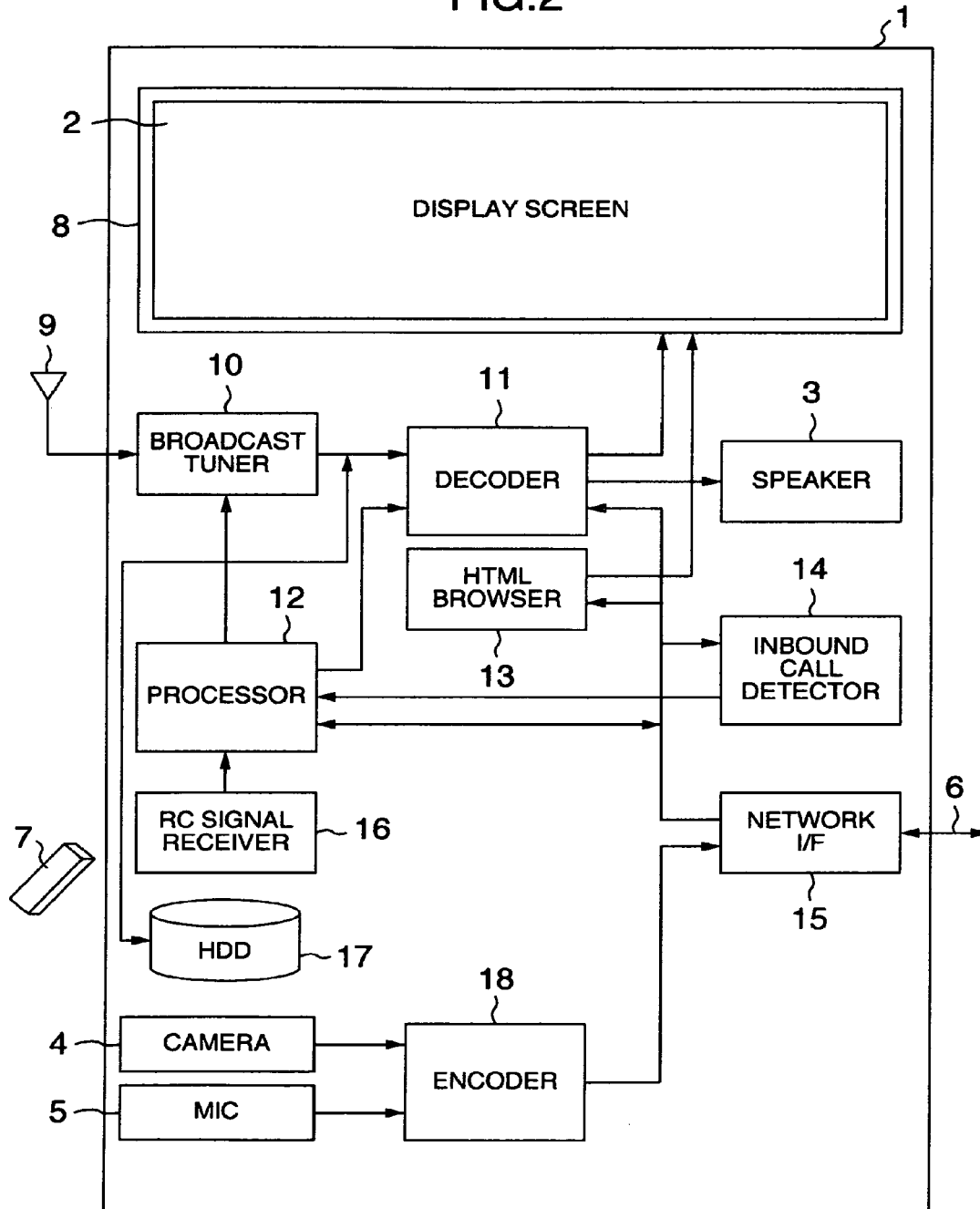


FIG. 2



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