

**United States Patent** [19]  
**Yoshida et al.**

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[54] **DATA COMMUNICATION APPARATUS**  
 [75] **Inventors:** Takehiro Yoshida; Susumu Matsuzaki, both of Tokyo, Japan  
 [73] **Assignee:** Canon Kabushiki Kaisha, Tokyo, Japan  
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 Nov. 28, 1987 [JP] Japan ..... 62-301017  
 Nov. 28, 1987 [JP] Japan ..... 62-301018  
 [51] **Int. Cl.<sup>5</sup>** ..... G06F 11/00  
 [52] **U.S. Cl.** ..... 371/32; 371/5.5; 371/29.1  
 [58] **Field of Search** ..... 371/32, 5.1, 5.3, 5.5, 371/29.1

[56] **References Cited**  
**U.S. PATENT DOCUMENTS**  
 3,534,264 10/1970 Blasbalg et al. .... 371/5.5  
 4,110,558 8/1978 Kageyama et al. .... 371/5.5  
 4,332,029 5/1982 Campbell et al. .... 371/5.5

4,390,947	6/1983	DeShon	.....	371/32
4,514,847	4/1985	Tateishi et al.	.....	371/40.2
4,589,111	5/1986	Adachi	.....	371/32
4,628,511	12/1986	Stitzlein et al.	.....	371/29.1
4,713,810	12/1987	Chum	.....	371/5.1
4,729,033	3/1988	Yoshida	.....	358/435
4,736,388	4/1988	Eguchi	.....	371/5.5
4,815,121	3/1989	Yoshida	.....	379/67
4,829,524	5/1989	Yoshida	.....	371/32

*Primary Examiner*—Charles E. Atkinson  
*Attorney, Agent, or Firm*—Fitzpatrick, Cella, Harper & Scinto

[57] **ABSTRACT**  
 A data communication apparatus having an error retransmission mode allows the operator to ascertain an amount of error data when an error is contained in data and when the error is not corrected despite retransmission of the error a predetermined number of times, or makes it possible to reproduce data with respect to correctly received data by discriminating correct data contained in error data, thereby preventing error data from becoming wasted as practically as possible. In addition, at the time of error retransmission, a transmission mode for retransmitting the error data is changed so as to minimize the number of incidents of error retransmission, thereby to enable efficient data transmission.

26 Claims, 50 Drawing Sheets

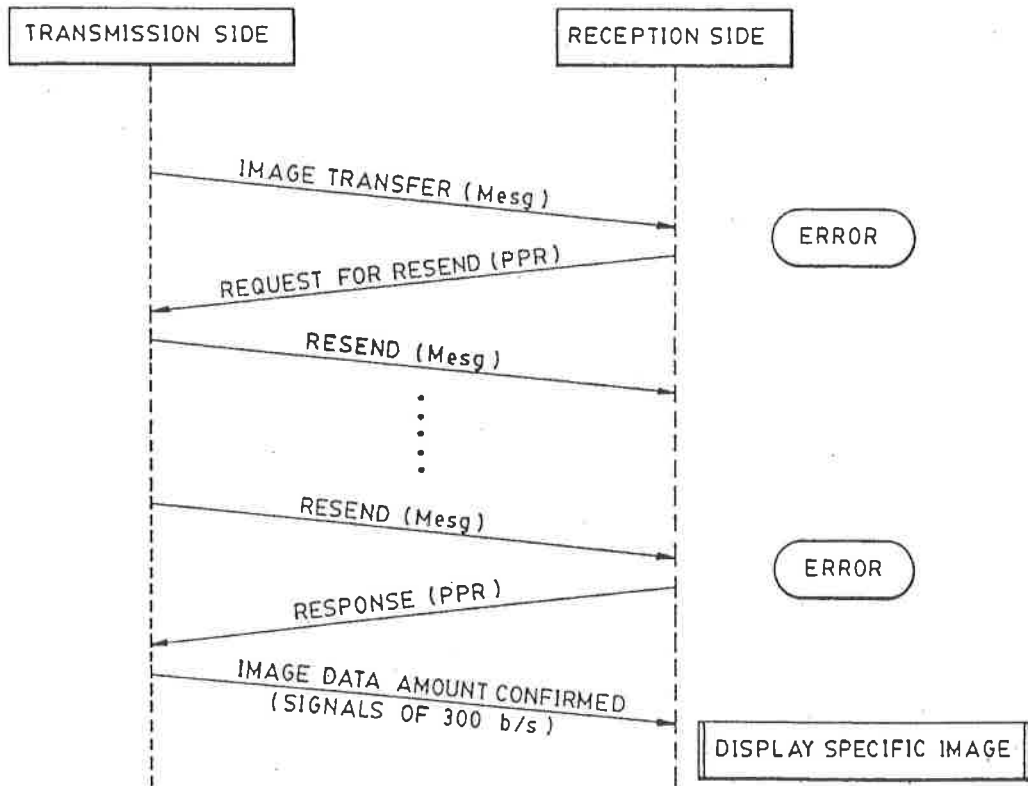


FIG. 1(1)

FIG. 1(2)

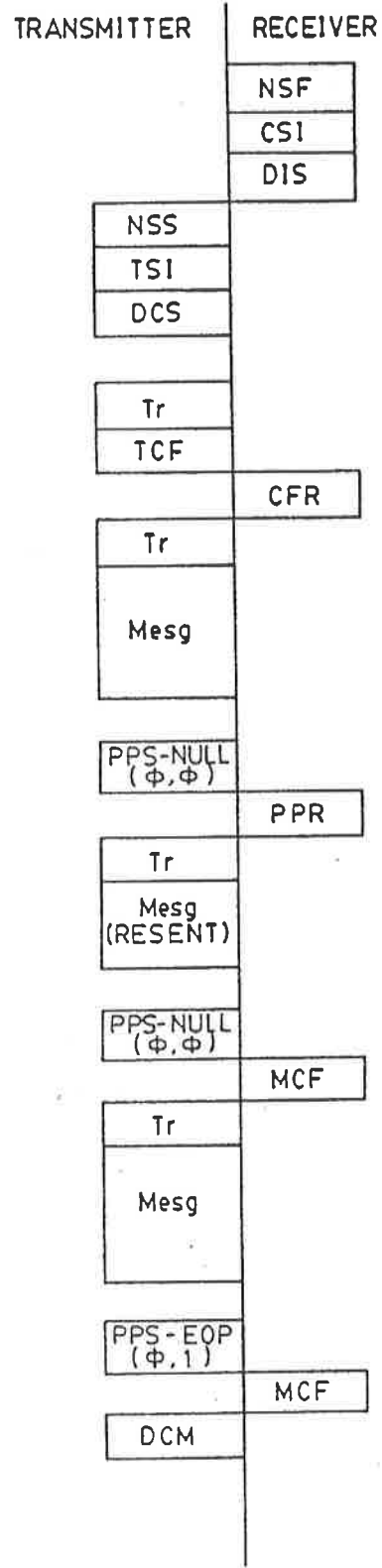
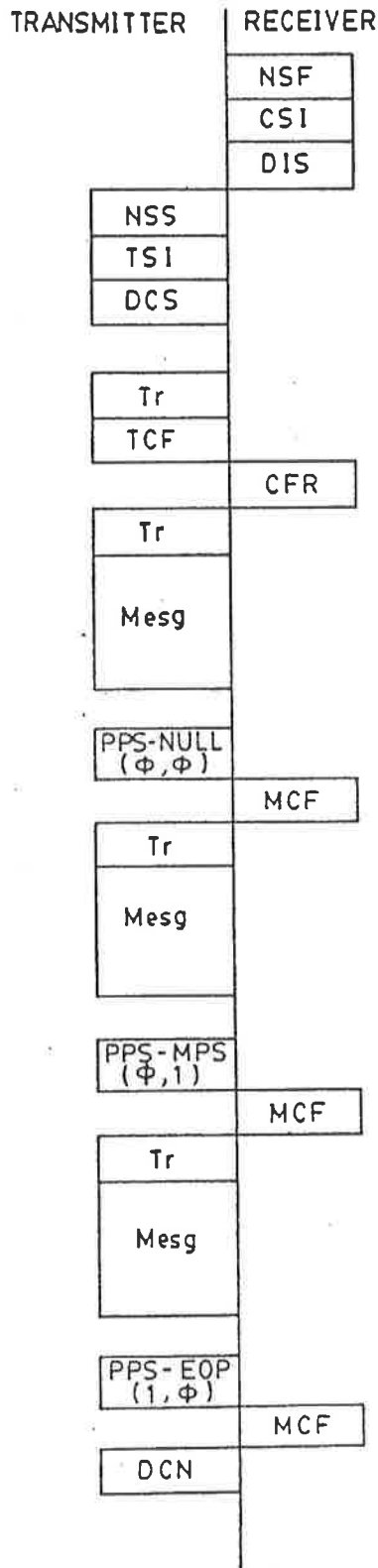


FIG. 1 (3) (PART 1)

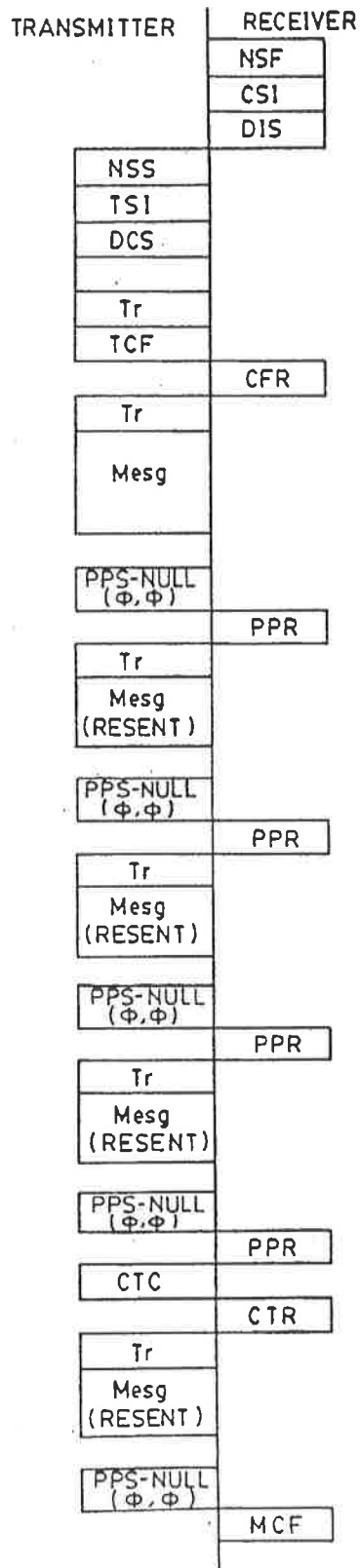
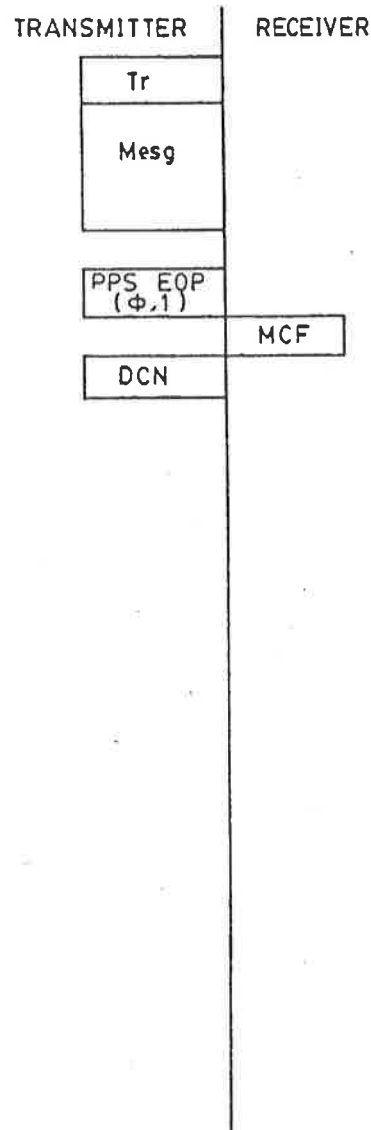


FIG. 1 (3) (PART 2)



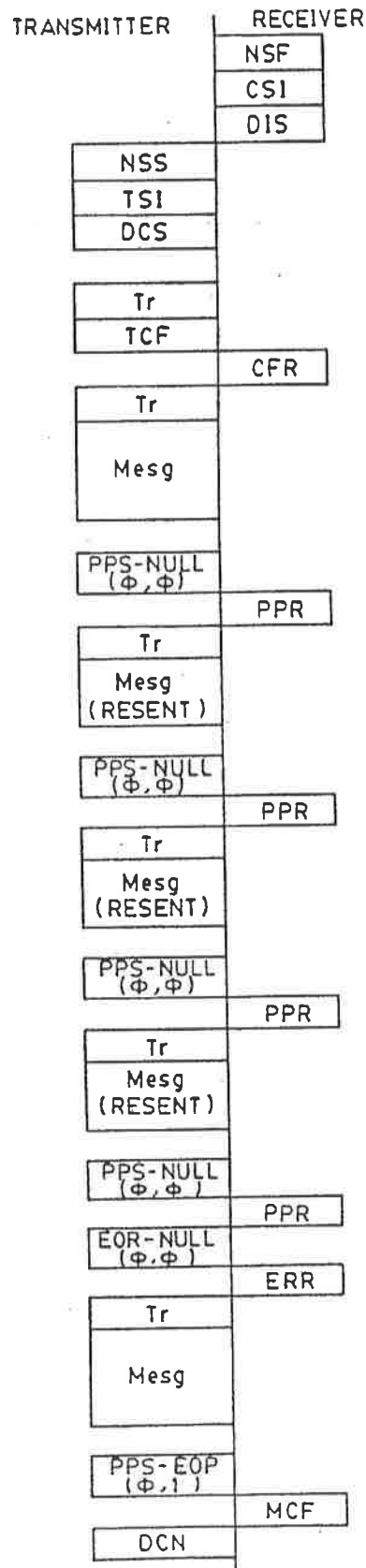
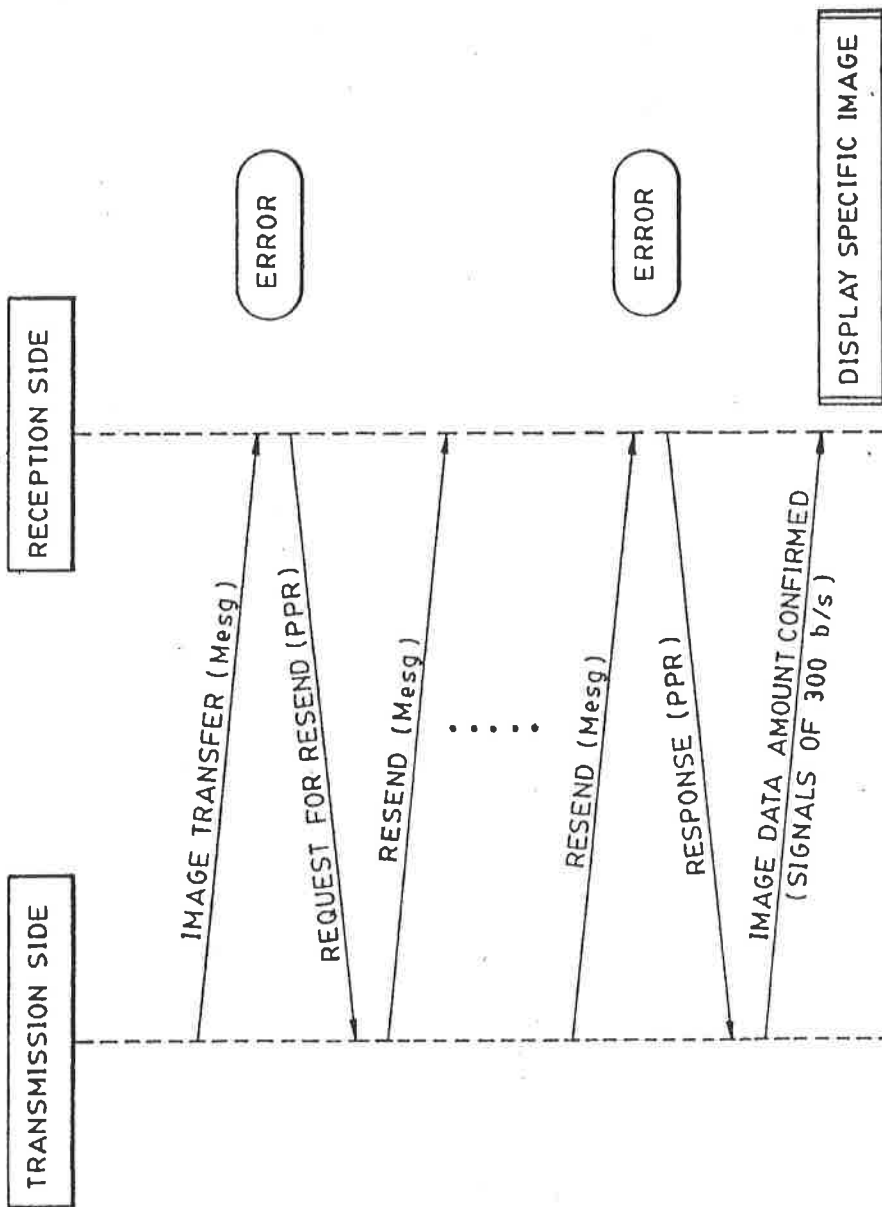


FIG. 1 (4)

FIG. 2



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