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# United States Patent [19]

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Witsaman et al.

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## [54] DIGITAL SIMULCAST TRANSMISSION SYSTEM

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[51] Int. Cl.<sup>5</sup> ..... **H04M 11/00; H04B 1/00**

[52] U.S. Cl. .... **379/57; 455/51.2**

[58] Field of Search ..... **455/16, 51.2, 56.1, 455/72, 12.1, 13.2, 13.1; 379/56, 57, 1, 9, 27, 111, 279; 340/825.44; 375/107, 38, 100; 370/95.1, 95.3, 94.1, 94.2, 84**

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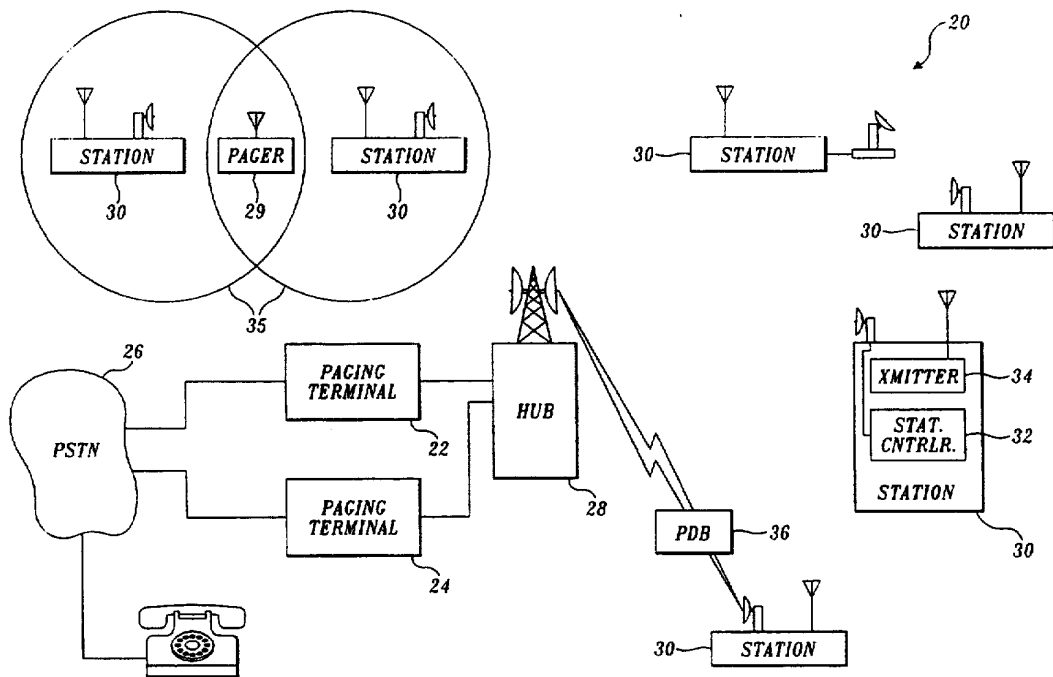
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## [57] ABSTRACT

A simulcast system for broadcasting the same signal for a number of spaced-apart broadcast sites is disclosed. The system (20) of this invention includes a hub (28) adapted to receive the signal to be simulcast and a number of stations (30) that actually broadcast the signal. The hub places the digital signal packets referred to as PDBs (36). As part of the signal packetization process, the hub evaluates the rate at which the signals should be broadcast and assigns a start time at which the signals should be broadcast; this information is attached to the PDBs. After a PDB is created it is forwarded to the stations over a link channel. Each station includes a station controller (32) and a station transmitter (34). The station controller, upon receiving a PDB, forwards the signal therein to the transmitter at the start time indicated and at the appropriate broadcast rate. All of the stations transmitting the signals contained within a single PDB do so based on the start time and broadcast rate information contained in that PDB. Consequently, each station broadcasts the same signals at the same time and at the same rate so as to ensure their simultaneous transmission.

47 Claims, 21 Drawing Sheets



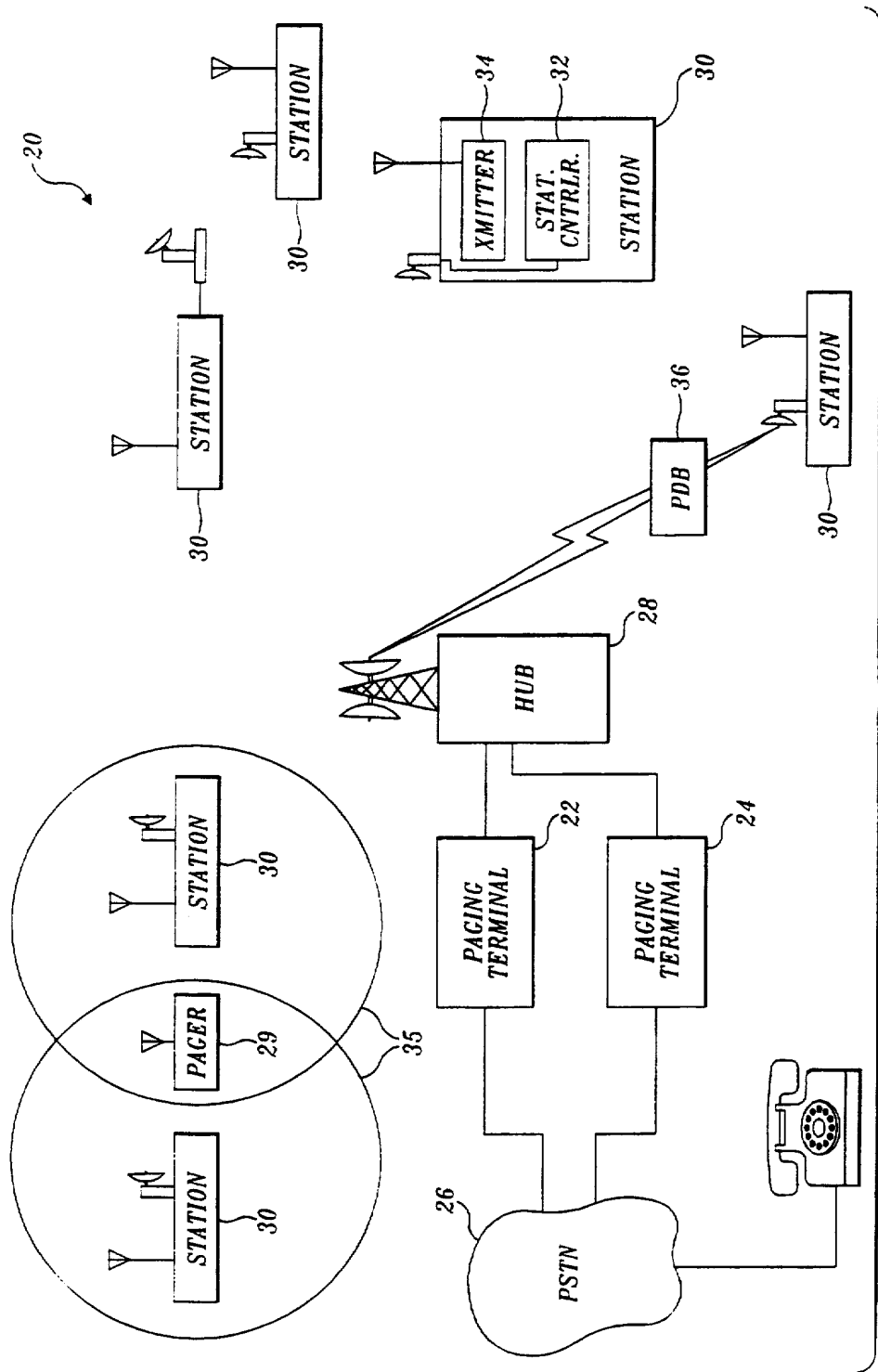


FIG. 1.

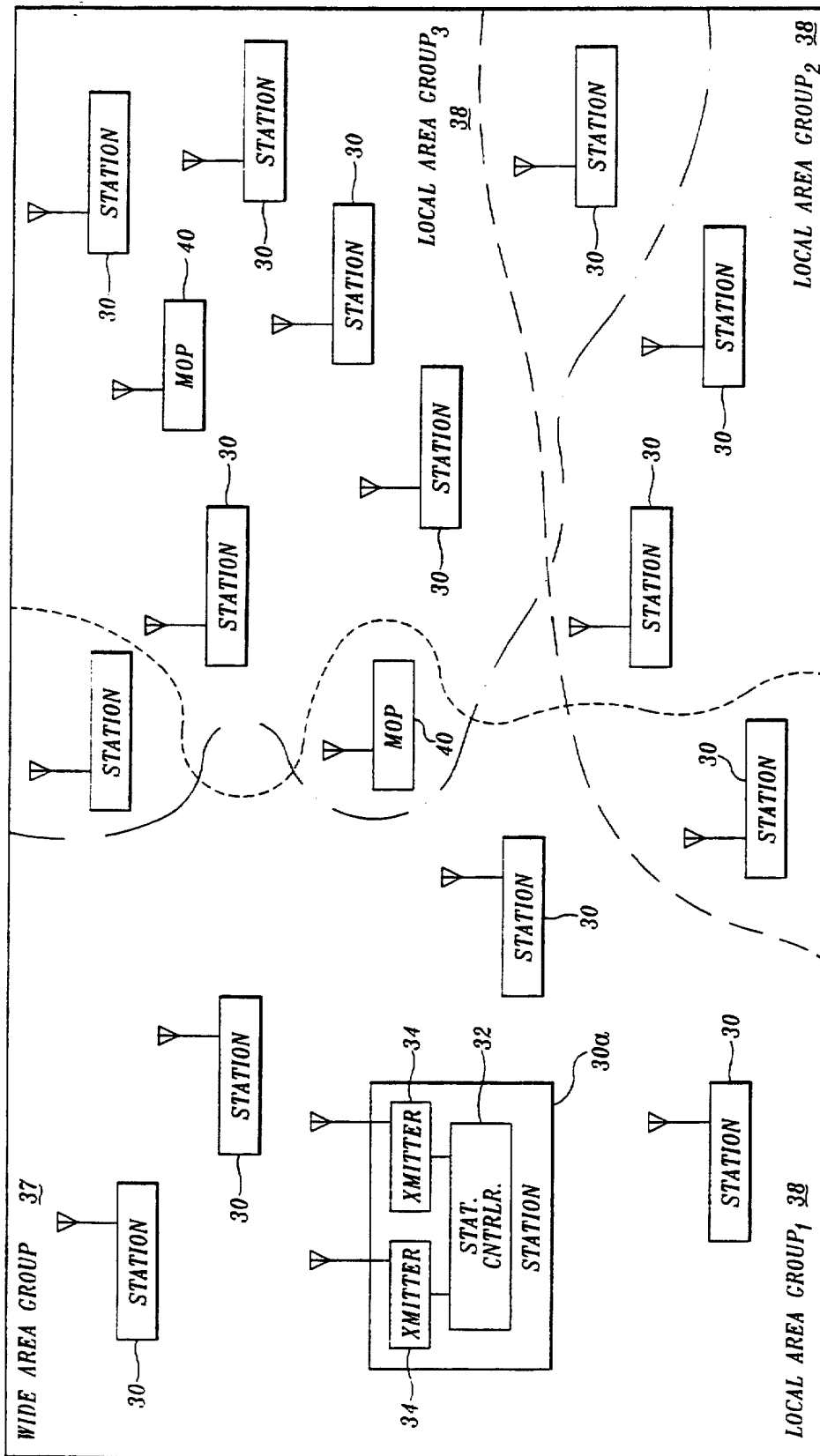


FIG.2.

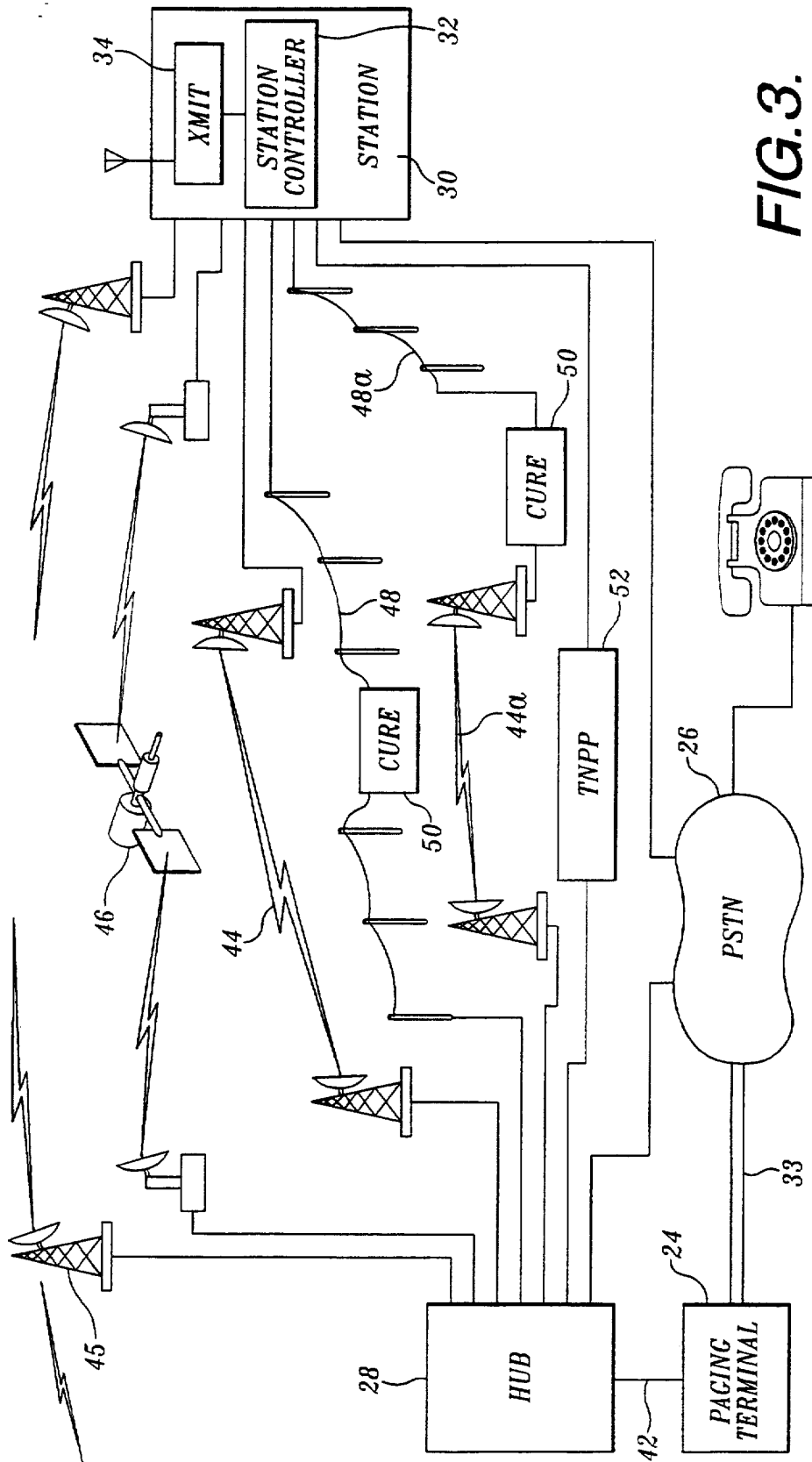


FIG. 3.

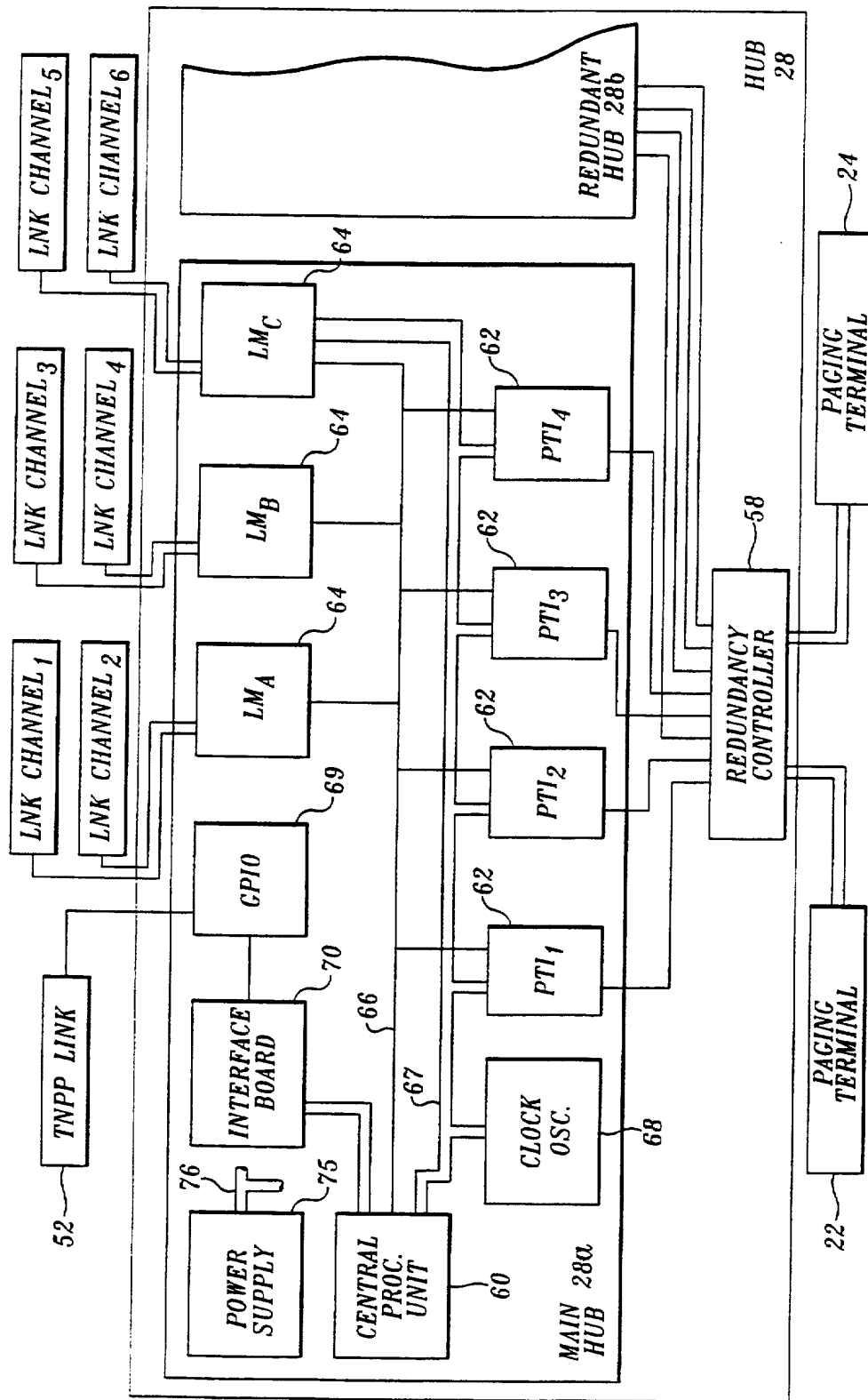


FIG. 4.

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