

[54] **DYNAMIC ATM CONNECTION MANAGEMENT IN A HYBRID FIBER-COAX CABLE NETWORK**

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[57] **ABSTRACT**

[21] Appl. No.: **09/181,580**

Described herein is an ATM cable network having a plurality of ATM subscriber interface units or set-top boxes (STBs) in individual neighborhood homes. A coax distribution plant provides a plurality of communication channels between the STBs and the neighborhood node. A cable headend serves the neighborhood node and its associated STBs through a fiber-optic trunk providing a plurality of different communication channels or frequencies. The headend includes an ATM node switch having switch ports associated with each of the different communication channels. A resource manager at the headend assigns individual STBs to respective communications channels. STBs share both upstream and downstream communications channels and switch ports. In an extended autoregistration procedure, the ATM node switch is configured to assign exclusive ranges of VPI/VCI values to the individual STBs tuned to the single switch port. During ATM cell transfer, an ATM cell originating from or destined to a specific STB uses a VPI/VCI value within the range of routing indicators assigned to the STB. This allows the headend to determine the source of all upstream data cells and allows STBs to disregard any cells not intended for them.

[22] Filed: **Oct. 28, 1998**

**Related U.S. Application Data**

[62] Division of application No. 08/639,774, Apr. 29, 1996, which is a continuation of application No. 08/535,770, Sep. 27, 1995, Pat. No. 5,734,652.

[51] **Int. Cl.**<sup>7</sup> ..... **H04N 7/173; H04L 12/56**

[52] **U.S. Cl.** ..... **370/379; 370/486; 348/5.1; 455/3.1**

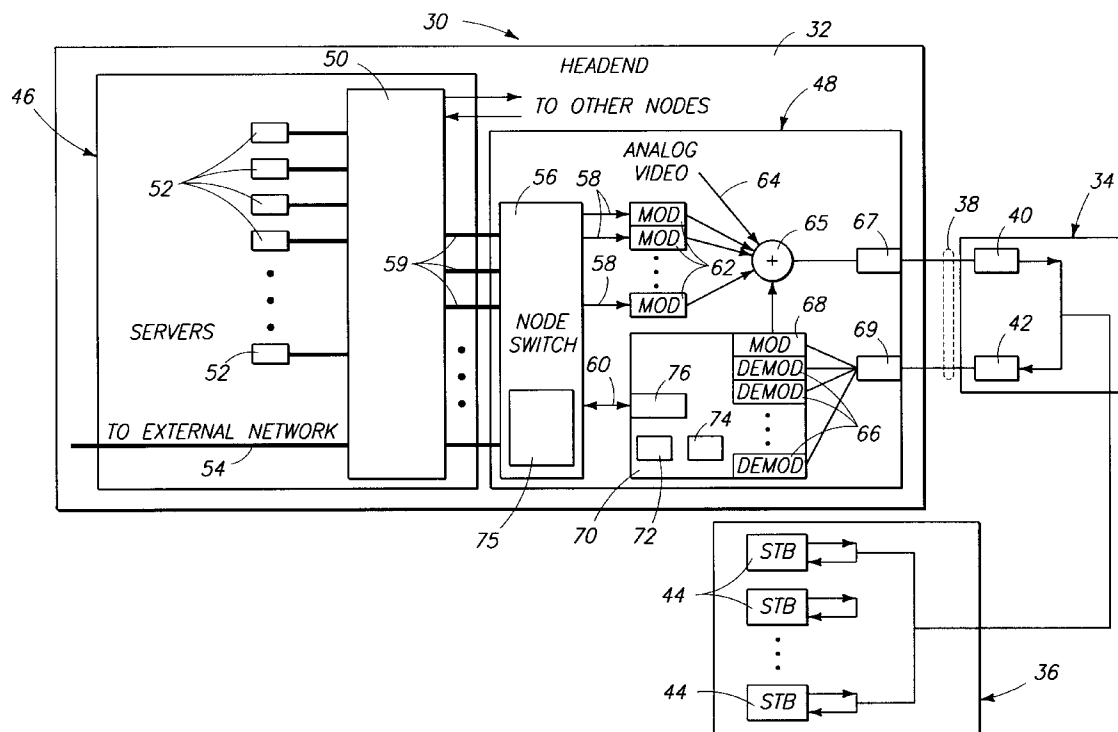
[58] **Field of Search** ..... 376/389, 390, 376/392, 395, 396, 397, 400, 409, 410, 485-487, 480; 348/6, 7, 10, 12, 13, 16, 17; 455/2-5.1

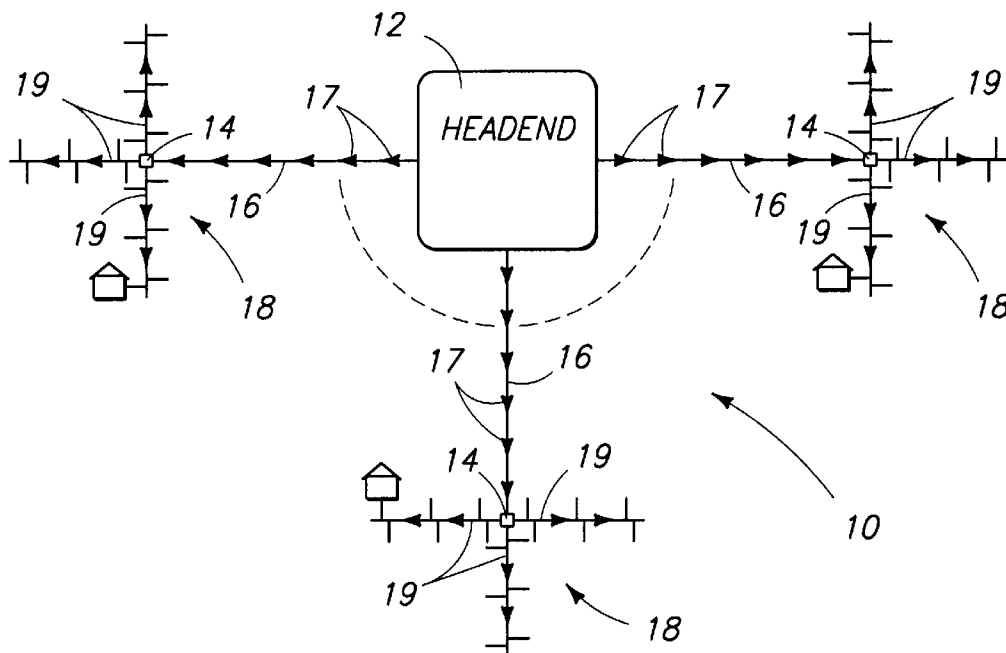
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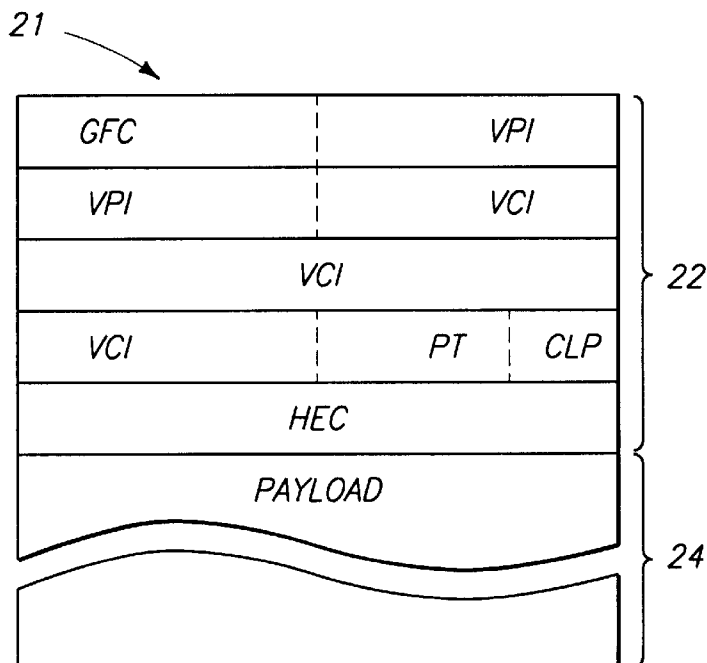
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**3 Claims, 4 Drawing Sheets**

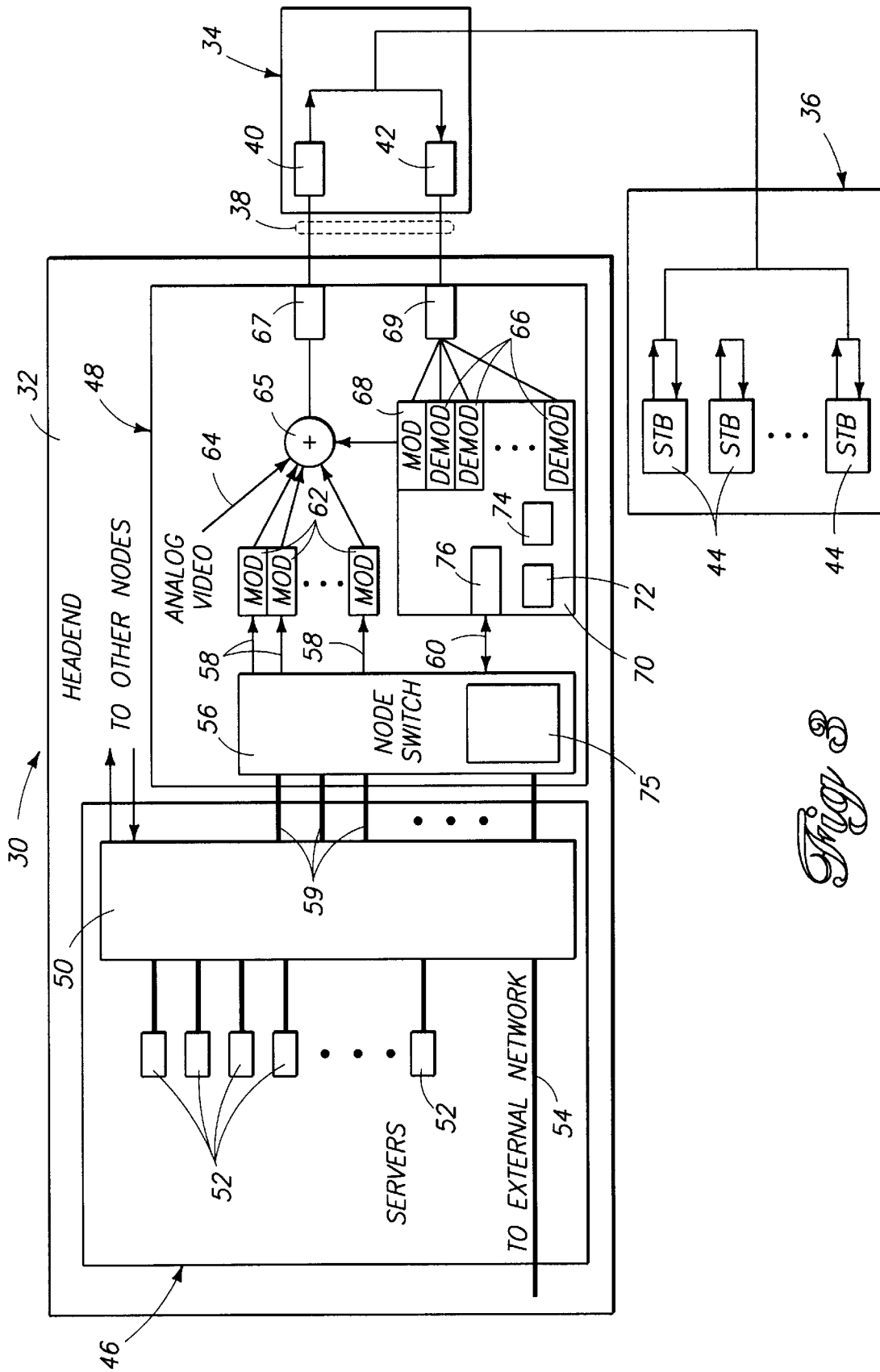




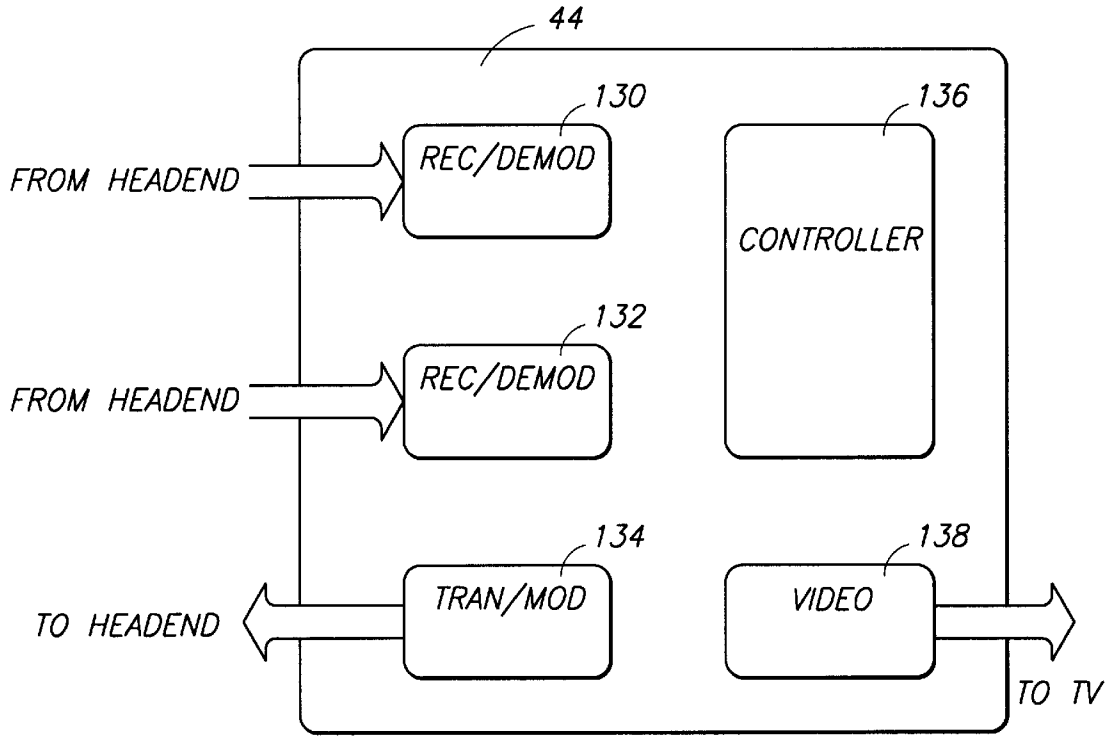
*Fig 1  
Prior Art*



*Fig 2*

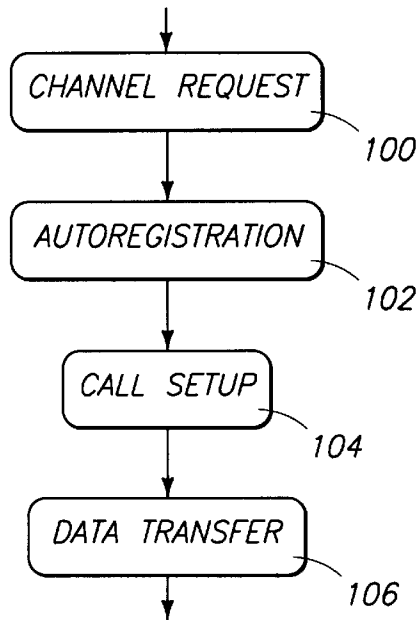


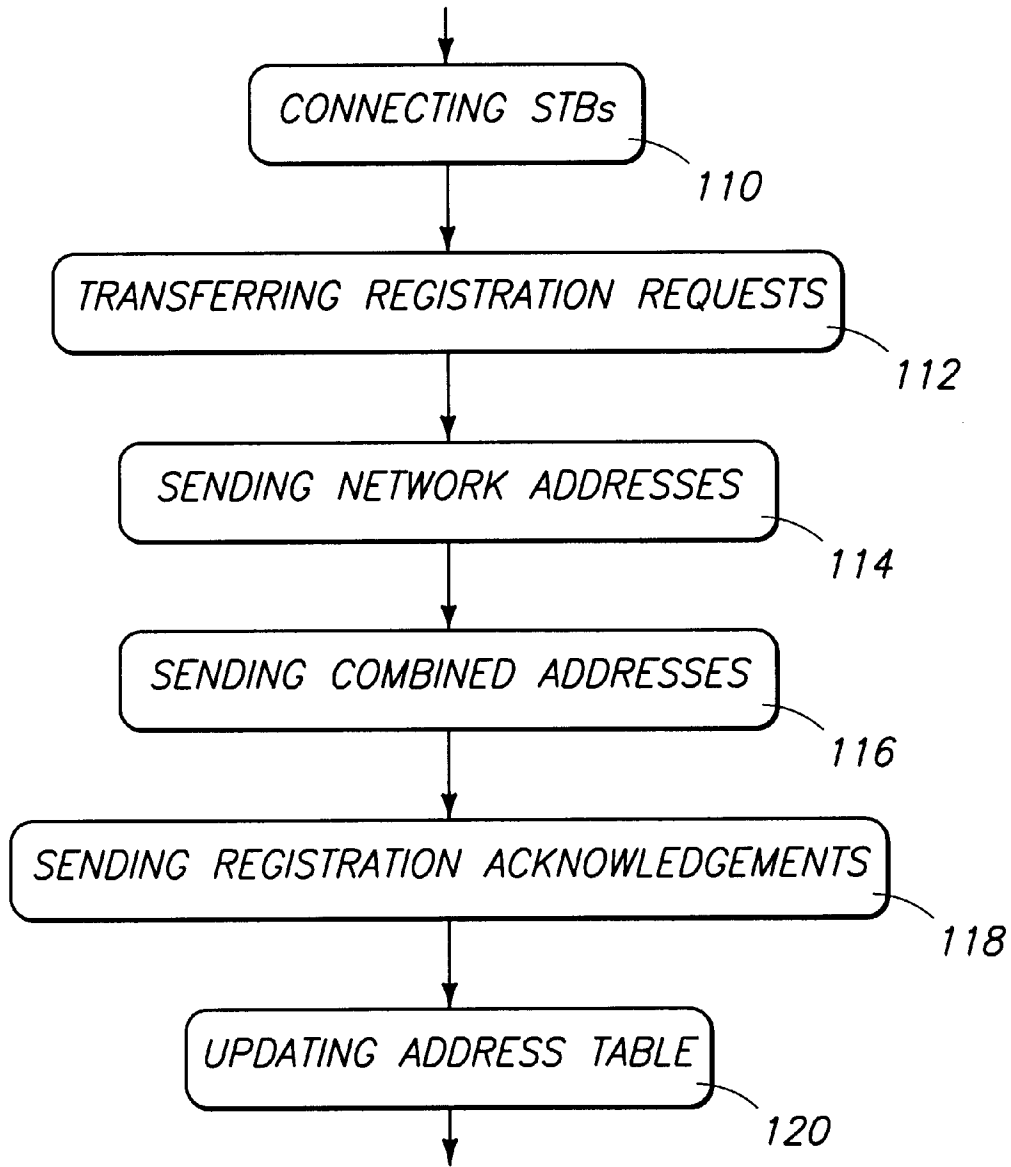
*Fig. 3*



*Fig 4*

*Fig 5*





*Fig 6*

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