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# United States Patent [19]

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Charles et al.

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[54] **ROOM TEMPERATURE SENSOR AND THERMOSTAT CONTROL DEVICE**

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[21] Appl. No.: **09/119,924**

[22] Filed: **Jul. 21, 1998**

4,504,922	3/1985	Johnson et al. ....	374/170 X
4,505,600	3/1985	Suzuki et al. ....	374/170 X
4,562,554	12/1985	Stixrud et al. ....	364/900
4,588,308	5/1986	Saito .....	374/181
4,607,962	8/1986	Nagao et al. ....	374/103
4,728,199	3/1988	Murai et al. ....	374/163 X
4,730,941	3/1988	Levine et al. ....	236/94 X
4,838,707	6/1989	Ozawa et al. ....	374/171
4,882,564	11/1989	Monroe et al. ....	340/449
5,085,526	2/1992	Sawtell et al. ....	374/101
5,116,136	5/1992	Newman et al. ....	374/102
5,135,045	8/1992	Moon .....	236/51 X
5,249,863	10/1993	Brown .....	374/102
5,495,722	3/1996	Manson et al. ....	236/94 X
5,682,949	11/1997	Ratcliffe et al. ....	236/51 X

### Related U.S. Application Data

[62] Division of application No. 08/684,551, Jul. 19, 1996, Pat. No. 5,816,492.

[51] Int. Cl.<sup>6</sup> ..... **F24F 3/00**; G05D 23/00

[52] U.S. Cl. .... **236/46 R**; 236/51; 165/209

[58] Field of Search ..... 236/46 R, 51, 236/47; 165/209

### FOREIGN PATENT DOCUMENTS

1277207	6/1972	United Kingdom .
2122390	1/1984	United Kingdom .

*Primary Examiner*—William Wayner  
*Attorney, Agent, or Firm*—Greer, Burns & Crain, LLP

### [57] ABSTRACT

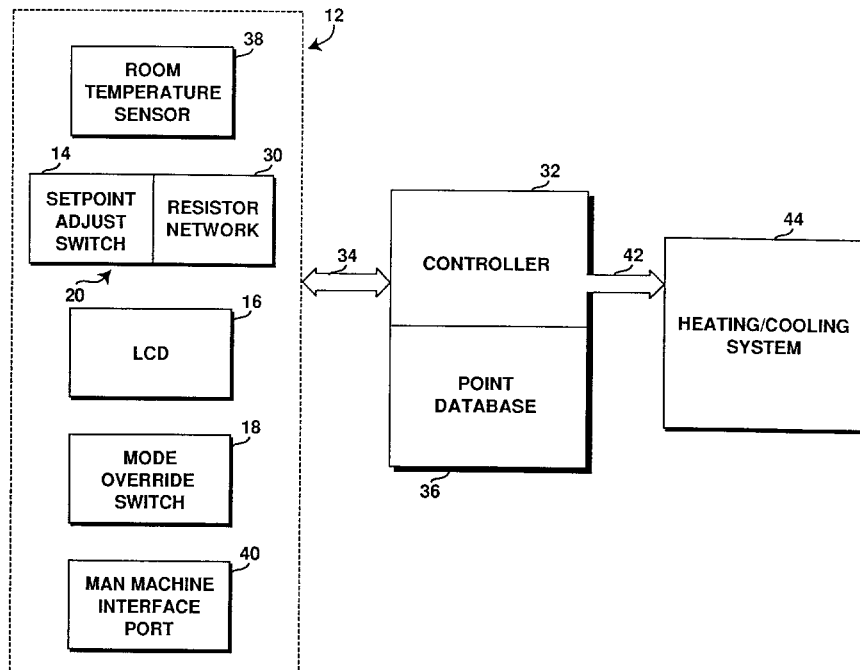
A thermostat control having improved user controls wherein an analog version contains a binary coded switch for selectively setting a setpoint temperature. The binary coded switch is configured to have discrete positions corresponding to a plurality of setpoint temperature settings. It contains, among other things, a resistor network configured to produce a setpoint signal indicative of the binary coded switch position and a setpoint adjust switch for setting the binary coded switch position. Also, digital version having a man-machine interface port, wherein point information from a controller can be viewed and modified with the thermostat control device controls when a hardware passkey is inserted into the man-machine interface port.

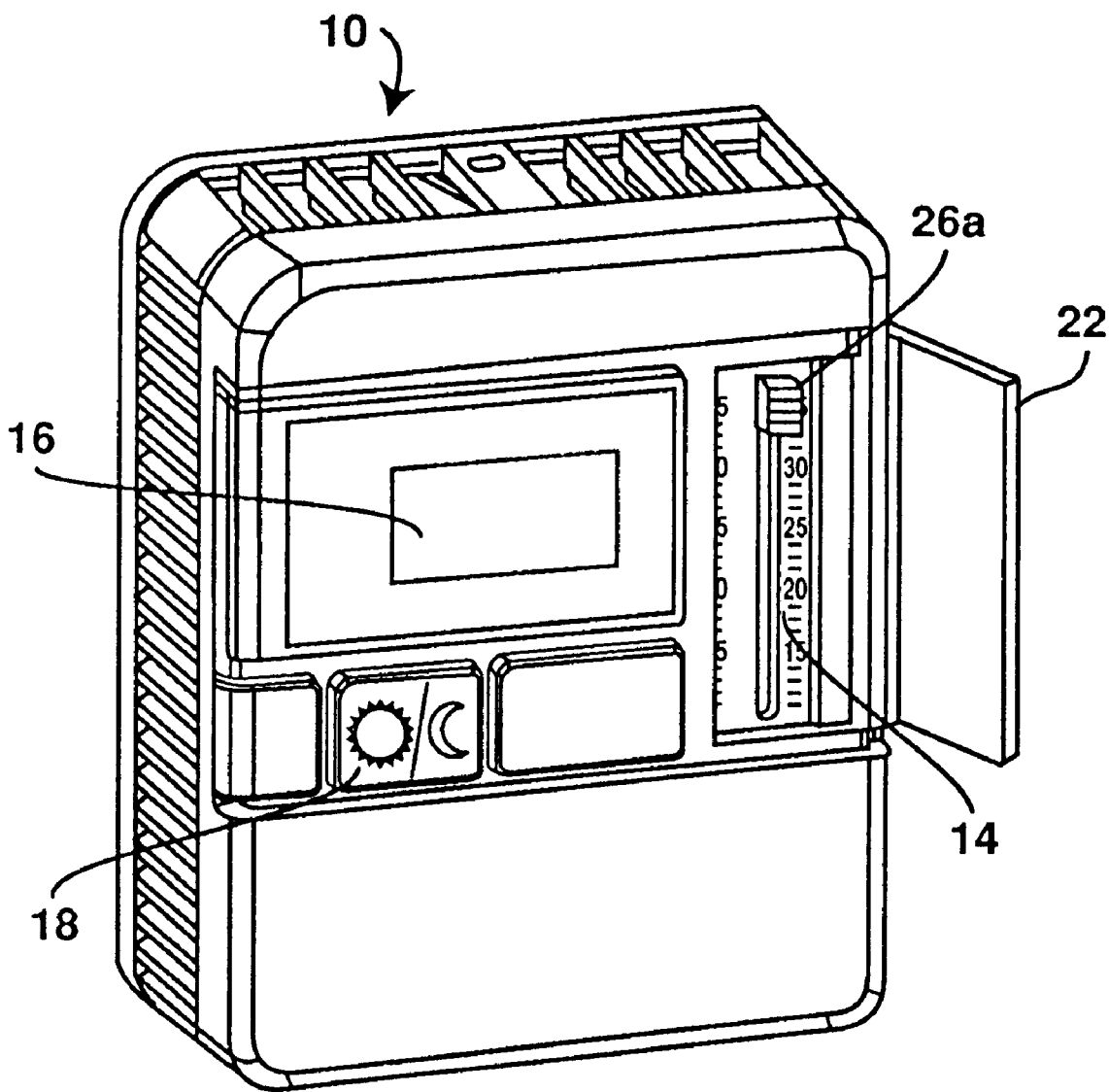
### References Cited

#### U.S. PATENT DOCUMENTS

3,043,517	7/1962	Hanna .....	236/46 R
3,351,280	11/1967	Harris .....	236/46 R
4,314,666	2/1982	Schotten .....	236/78 D
4,379,520	4/1983	Tomsu .....	236/94 X
4,395,139	7/1983	Namiki et al. ....	374/183 X
4,406,550	9/1983	Gray .....	374/110
4,455,096	6/1984	Brandstedt .....	374/170
4,466,749	8/1984	Cunningham et al. ....	374/134
4,471,354	9/1984	Smith .....	128/631 X
4,475,685	10/1984	Grimado et al. ....	236/46 R
4,480,312	10/1984	Wingate .....	374/170 X

**4 Claims, 10 Drawing Sheets**





**FIGURE 1**

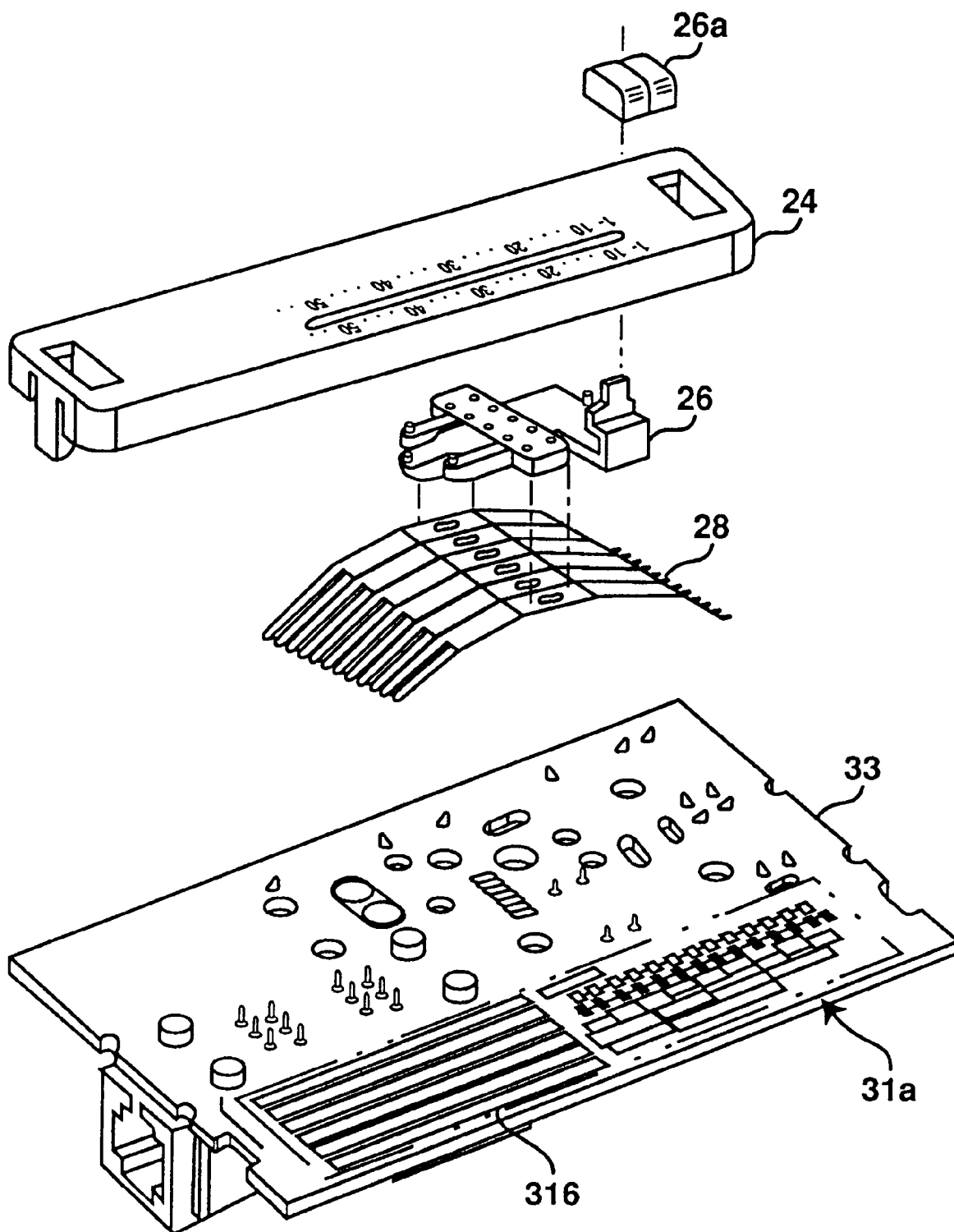


FIGURE 2

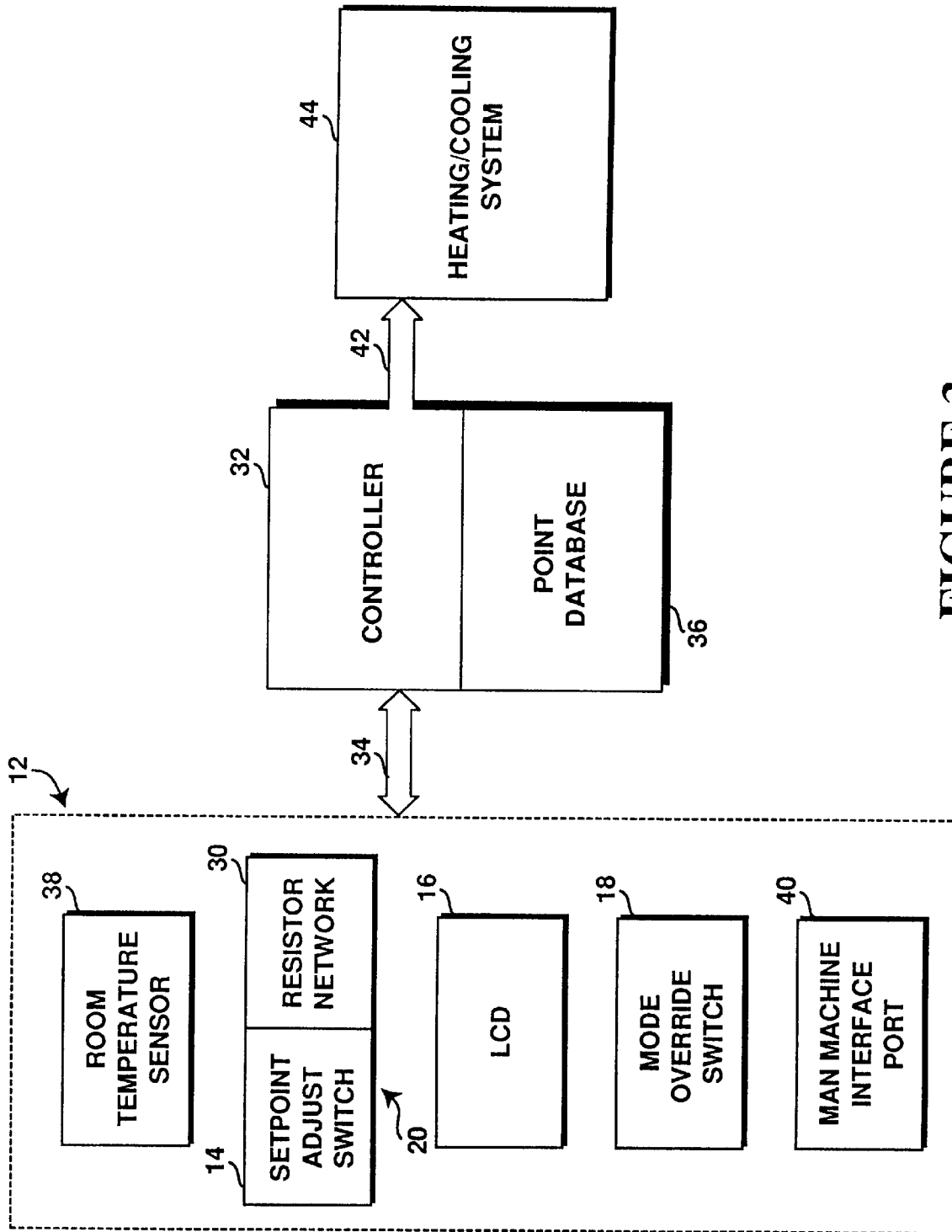
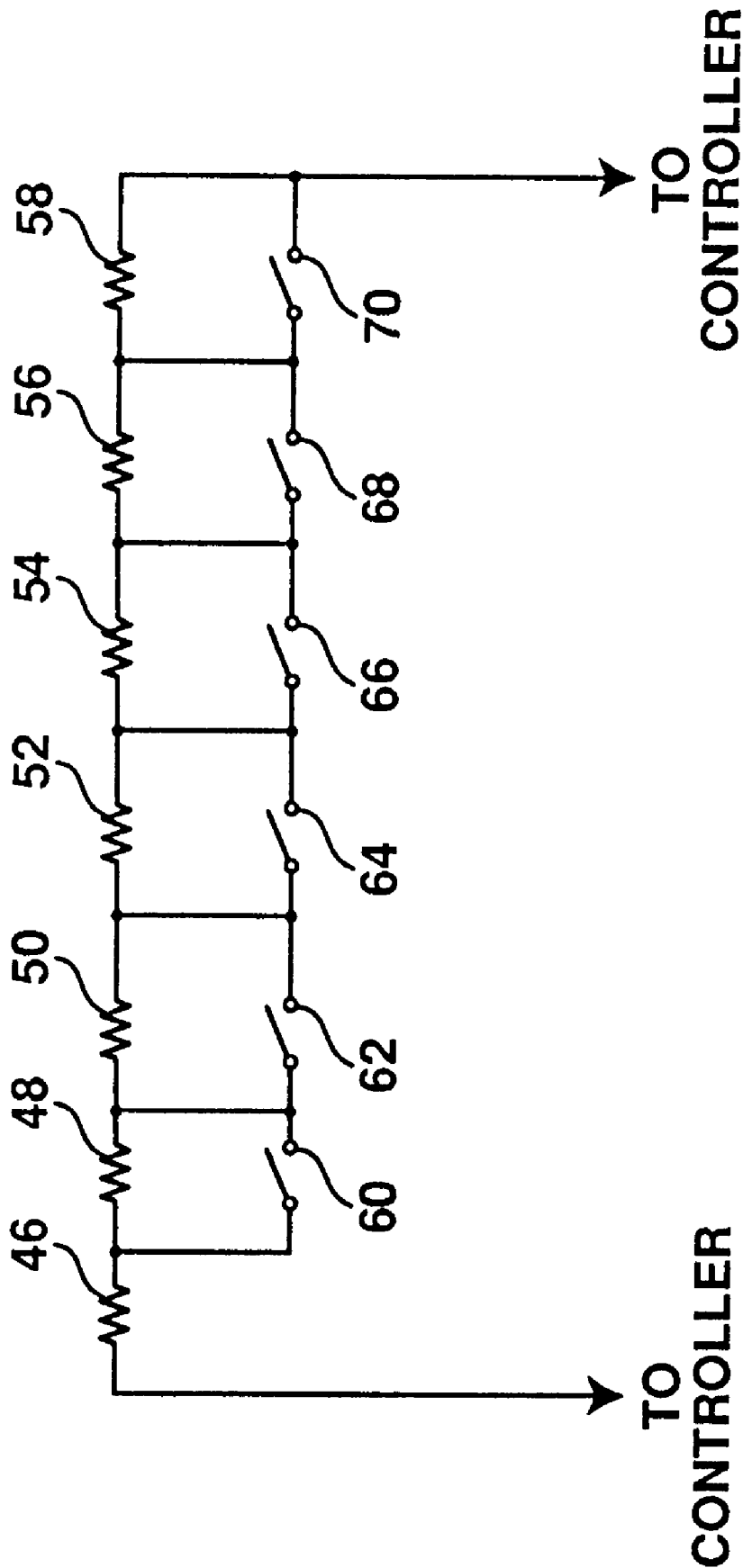


FIGURE 3



**FIGURE 4**

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