

[54] **INTRAVENOUS TUBE SAFETY APPARATUS**

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**Related U.S. Application Data**

[60] Division of Ser. No. 884,498, May 15, 1992, which is a continuation-in-part of Ser. No. 826,273, Jan. 17, 1992, which is a continuation of Ser. No. 765,755, Sep. 26, 1991, abandoned.

[51] Int. Cl.<sup>5</sup> ..... **A61M 5/00**

[52] U.S. Cl. .... **604/250; 251/7; 604/256**

[58] Field of Search ..... **604/250, 256, 65, 67; 251/7; 128/DIG. 12, DIG. 13**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

- D. 200,729 3/1965 Coanda .
- D. 230,729 3/1974 Zeddies .
- D. 233,312 10/1974 Lock .
- 2,092,400 9/1937 Miller .
- 2,503,327 4/1950 Fields .
- 2,715,905 8/1955 Ogle .
- 2,775,240 12/1956 Morrissey, Jr. et al. .
- 2,889,848 6/1959 Redmer .
- 3,167,299 1/1965 Ling .
- 3,316,935 5/1967 Kaiser et al. .
- 3,357,674 7/1963 Coanda et al. .
- 3,374,509 3/1968 Logan et al. .
- 3,612,475 10/1971 Dinger .
- 3,994,294 11/1976 Knute ..... 604/250
- 4,137,940 2/1979 Faisandier .
- 4,155,362 5/1979 Jess .
- 4,248,401 2/1981 Mittleman .
- 4,307,869 12/1981 Mittleman .
- 4,367,736 1/1983 Gupton .
- 4,434,963 3/1984 Russell .
- 4,439,179 3/1984 Lueders et al. .

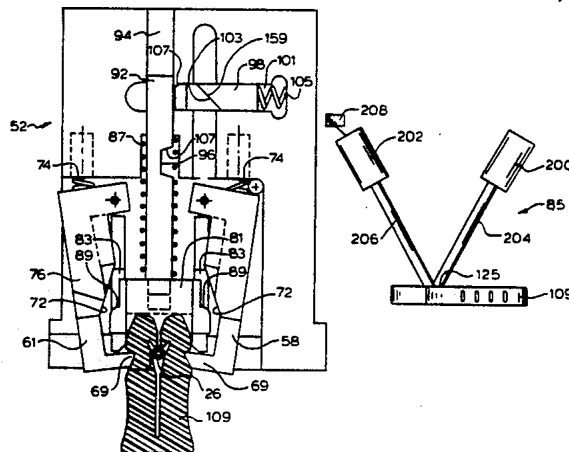
- 4,460,358 7/1984 Somerville et al. .
- 4,524,802 6/1985 Lawrence et al. .
- 4,533,347 8/1965 Deckert ..... 604/250
- 4,585,441 4/1986 Archibald .
- 4,586,691 5/1986 Kozlow .
- 4,689,043 8/1987 Bisha .
- 4,818,190 4/1989 Pelmulder et al. .
- 4,857,050 8/1989 Lentz et al. .
- 4,925,152 5/1990 Huber ..... 604/67
- 4,978,335 12/1990 Arthur, III .
- 4,993,456 2/1991 Sulis ..... 251/7
- 5,017,192 5/1991 Dodge et al. .
- 5,039,279 8/1991 Natwick et al. .
- 5,219,327 6/1993 Okada ..... 604/250
- 5,221,268 6/1993 Barton et al. .... 604/250

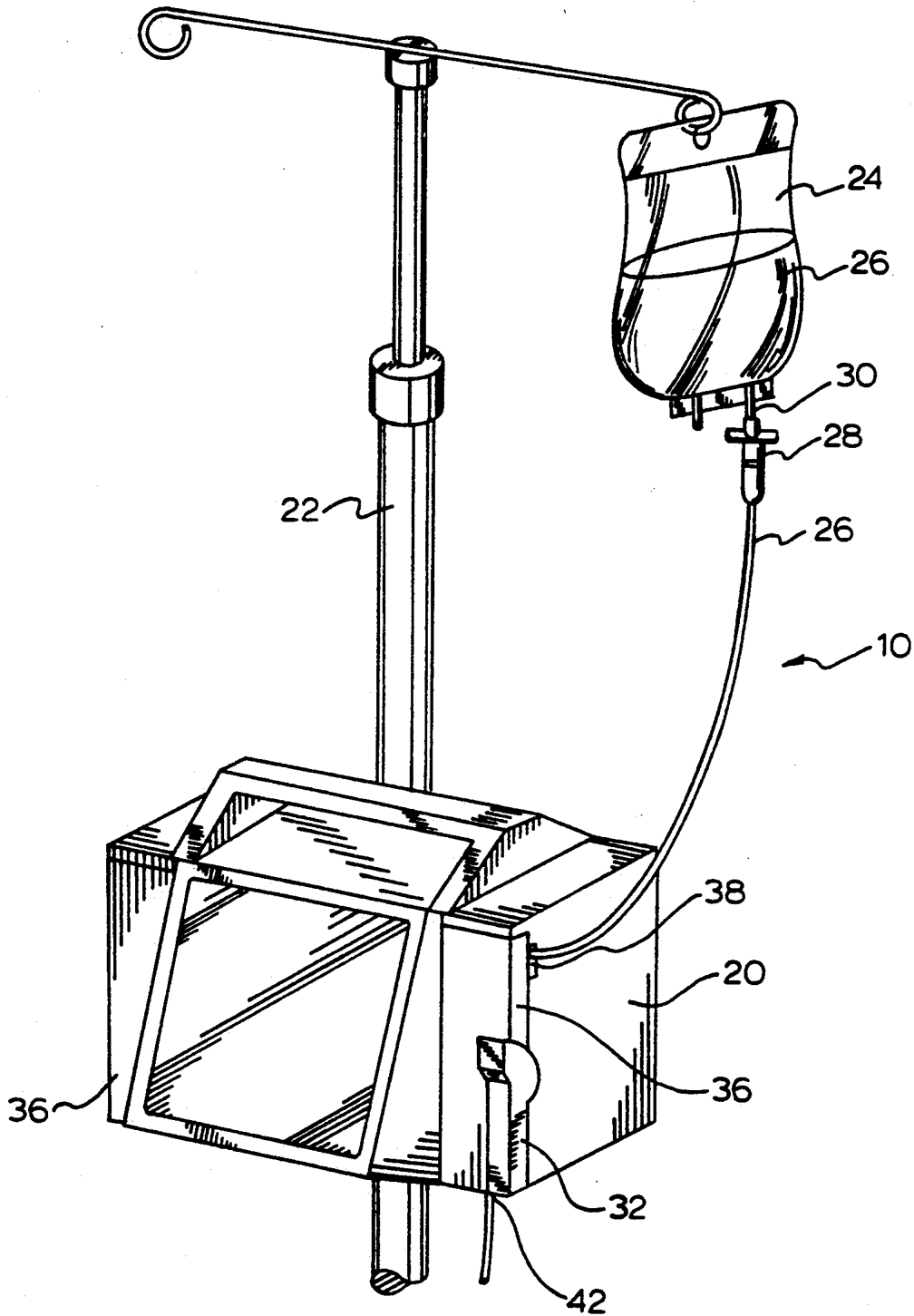
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[57] **ABSTRACT**

The present invention provides an apparatus for use in a peristaltic pump 20 which prevents an inadvertent free flow condition prior to loading or after removal of an I.V. tube 26 in the peristaltic pump 20 and which also prevents the inadvertent occlusion of a loaded I.V. tube 26 in the peristaltic pump 20. A standard I.V. tube 26 has a slide clamp 109 provided thereon. The apparatus includes an I.V. tube groove 29 into which the I.V. tube 26 is positioned, a slide clamp receiving area 62 into which the slide clamp 109 is inserted, and a biased sliding member 81 which the inserted slide clamp 109 engages such that the I.V. tube 26 cannot be loaded into the apparatus without the slide clamp 109 occluding the I.V. tube 26. The present invention also contemplates a slide clamp 109, compatible with the apparatus having a surface pad 125 for facilitating automated identification of the slide clamp 109, in cooperation with a nonobstructive sensor 85 in the safety apparatus. The present invention further contemplates a slide clamp 109' having an I.V. tube receiving aperture 110' with an inner diameter profile which minimizes friction between I.V. tube contacting surfaces 126 of the aperture 110' as an I.V. tube 26 is slid transverse to its length within the aperture 110' and which has a surface pad 125 for facilitating automated identification of the slide clamp.

**15 Claims, 13 Drawing Sheets**





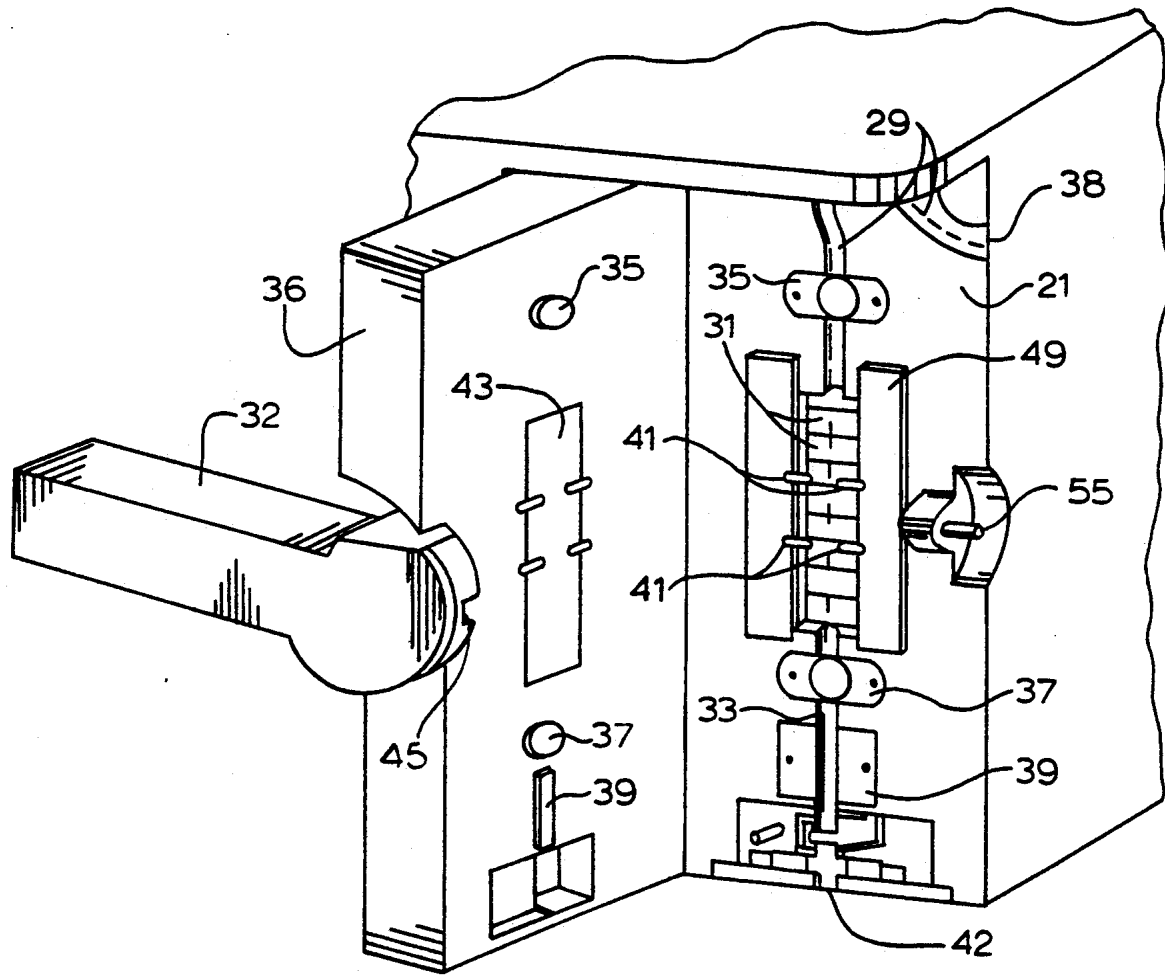


FIG. 2

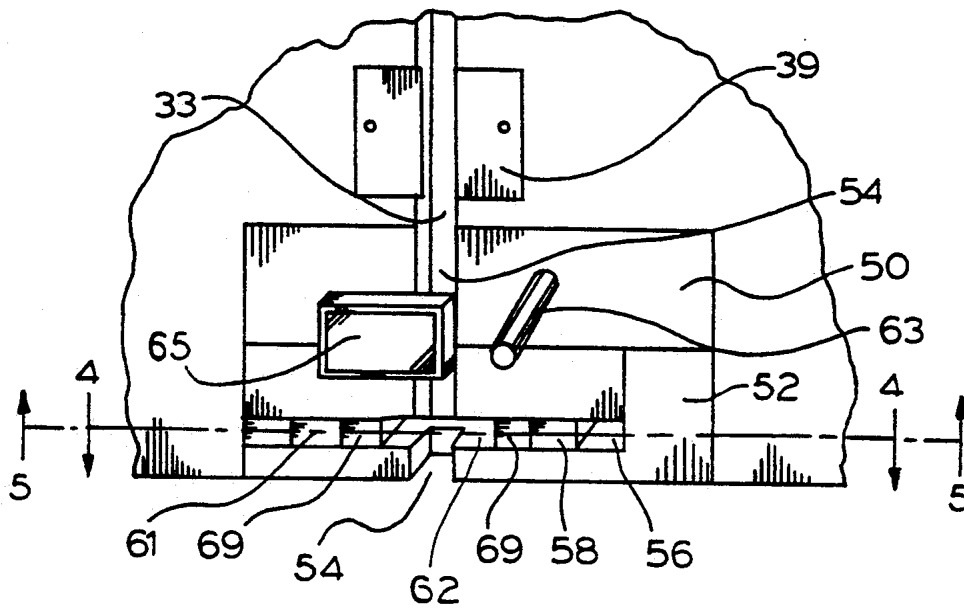


FIG. 3

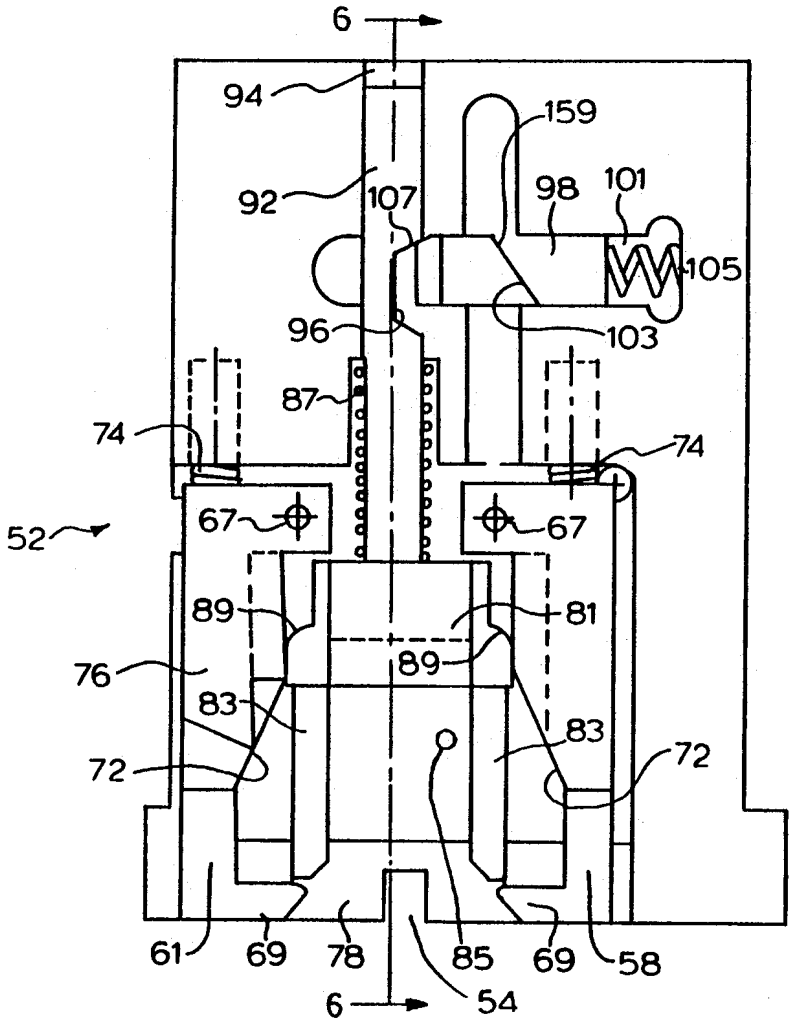


FIG. 4a

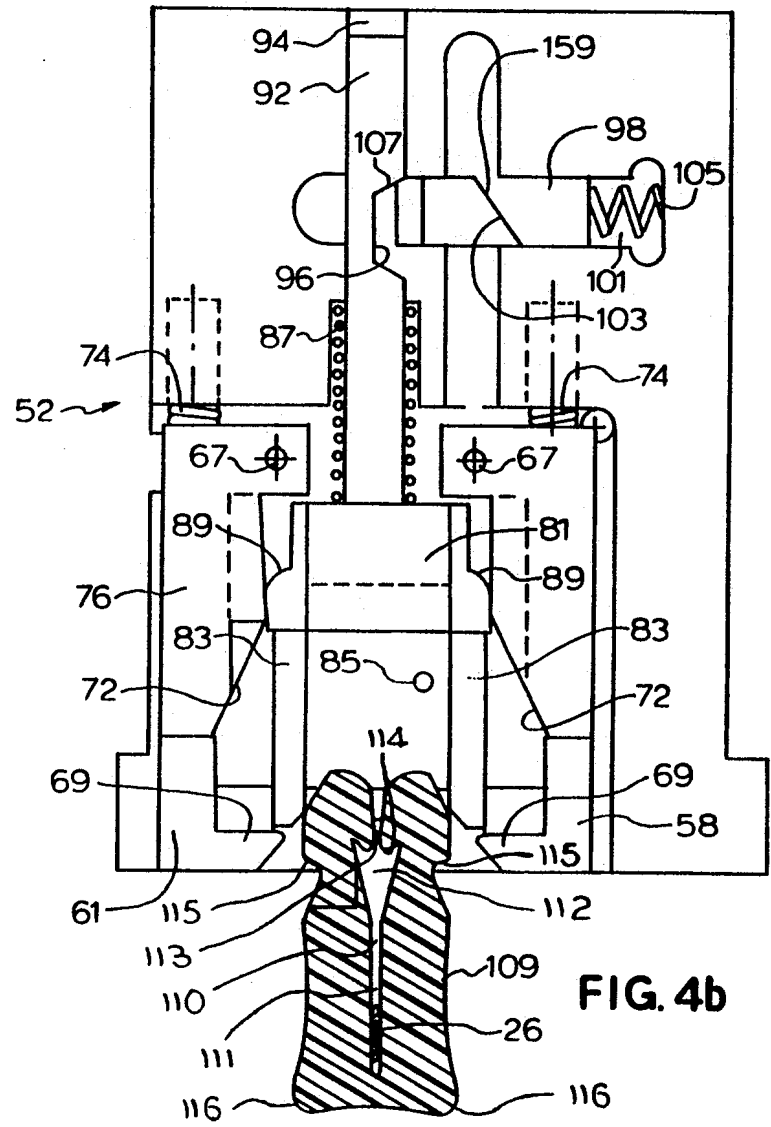


FIG. 4b

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