

[54] INTRAVENOUS TUBE SAFETY APPARATUS

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Related U.S. Application Data

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[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 |

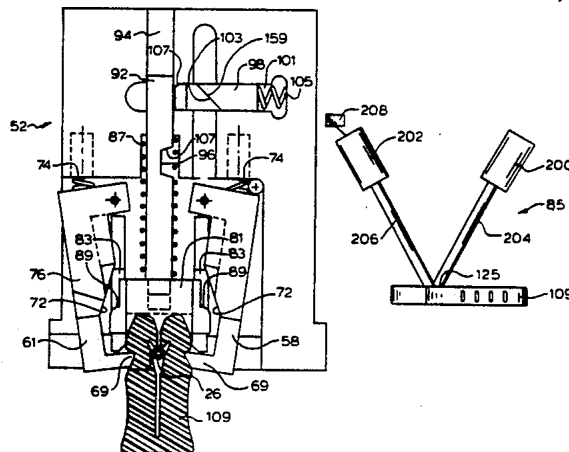
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[57] ABSTRACT

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



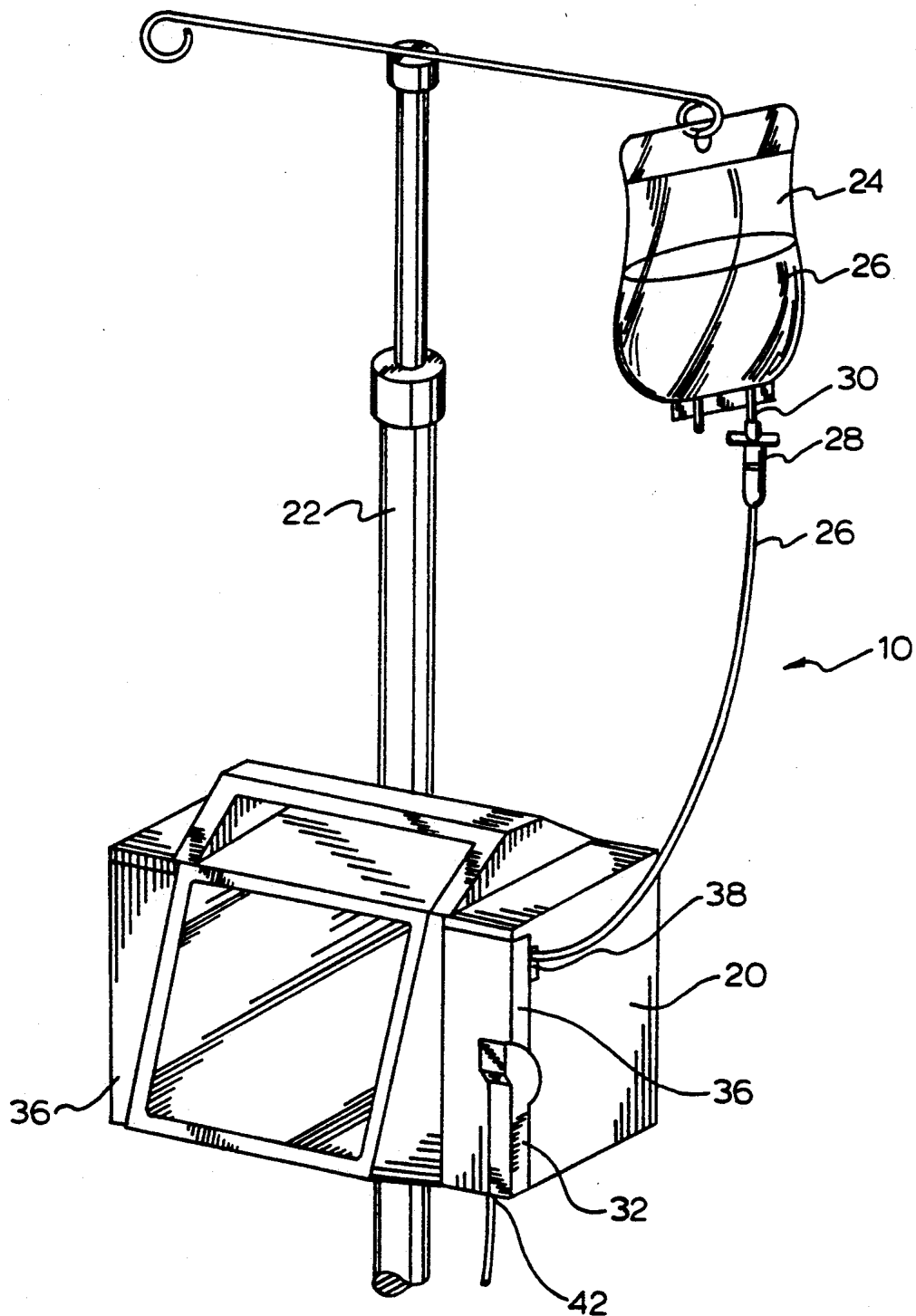


FIG. 1

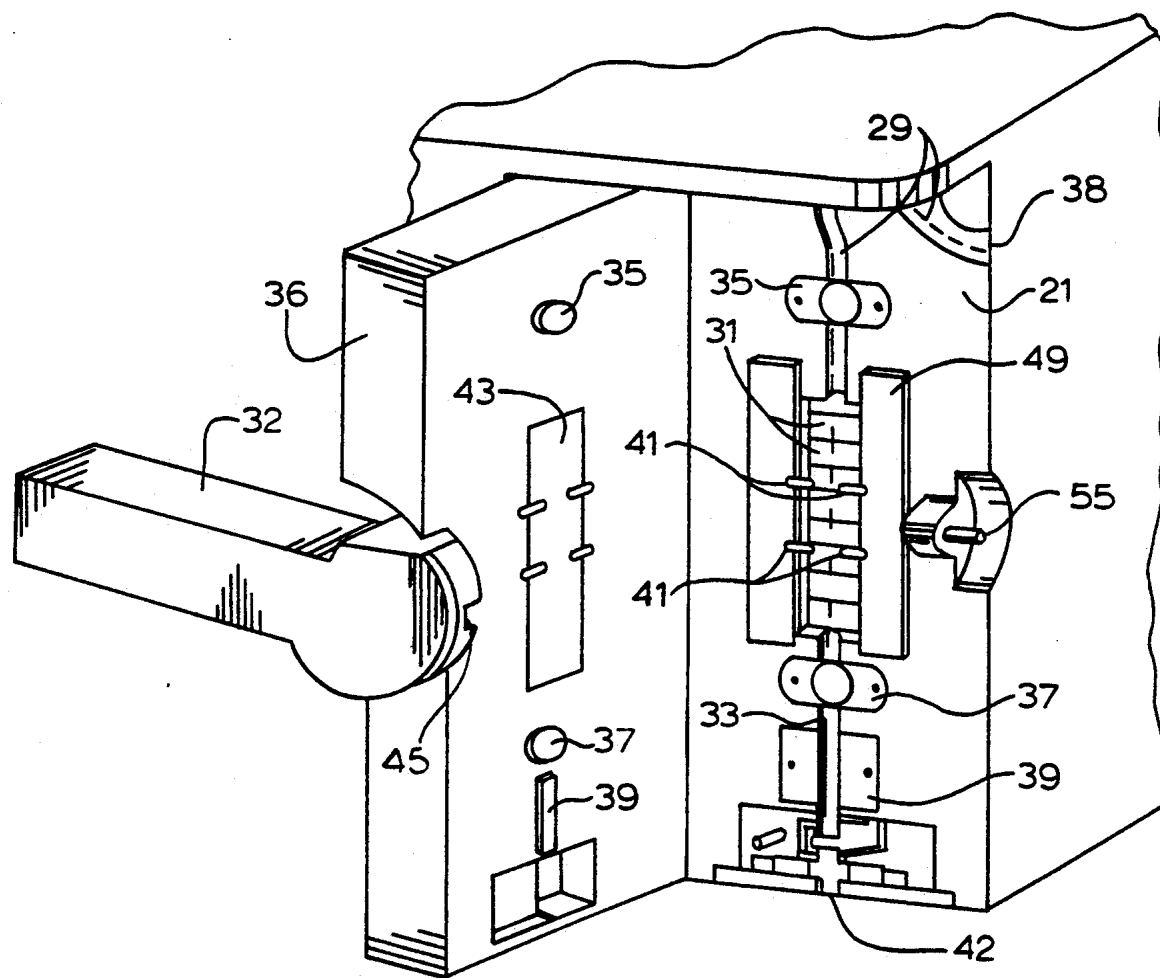


FIG. 2

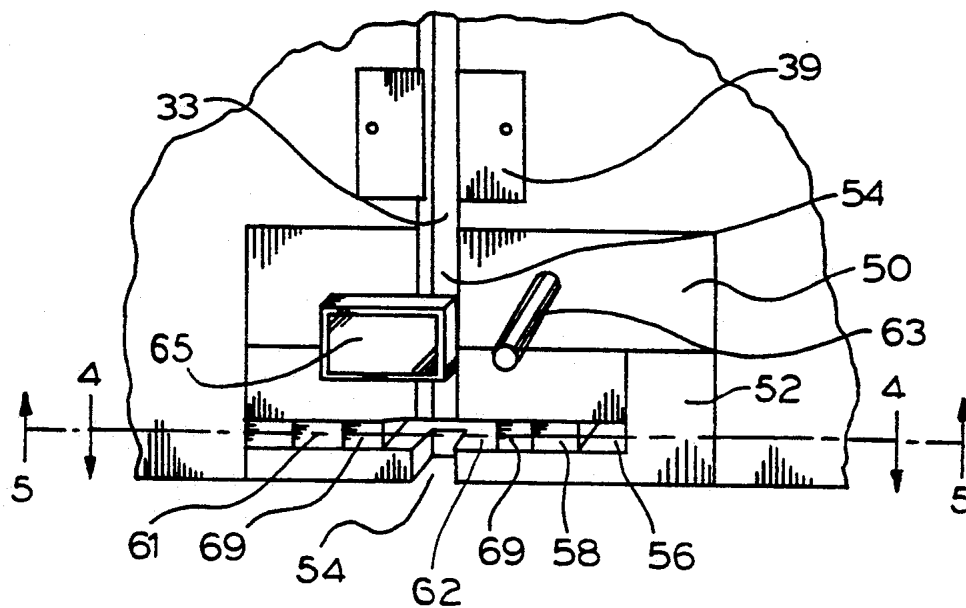


FIG. 3

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