United States Patent

Hargest

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[54] APPARATUS FOR INTRAVENOUS FEEDING AND THE LIKE

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[52] **U.S. Cl.**.....**222/100,** 128/214

[51] **Int. Cl.**.....**B65d 35/34**

[58] **Field of Search**.....222/99, 101, 103, 105, 100, 222/96; 128/DIG. 12, 13, 214

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[57] **ABSTRACT**

An apparatus for intravenous feeding comprising a drum that is mounted for rolling movement along a base. A constant tension spring has one end thereof fixed to the drum and one end thereof fixed to the base. A collapsible container is positioned such that the drum under the action of the spring tends to collapse the container uniformly and thereby dispense of the contents of the container out of the container.

11 Claims, 5 Drawing Figures

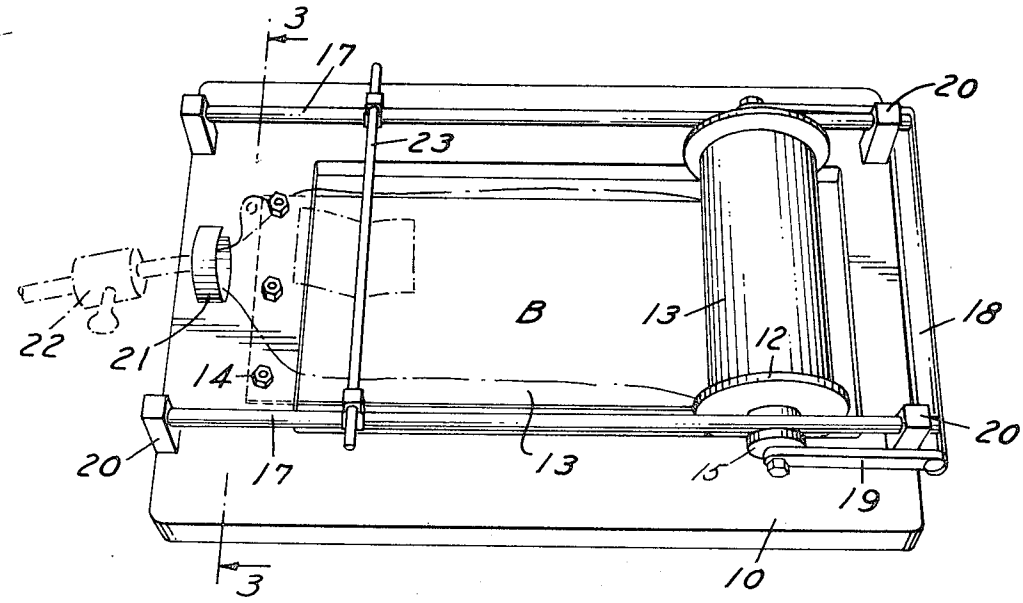


FIG. 1

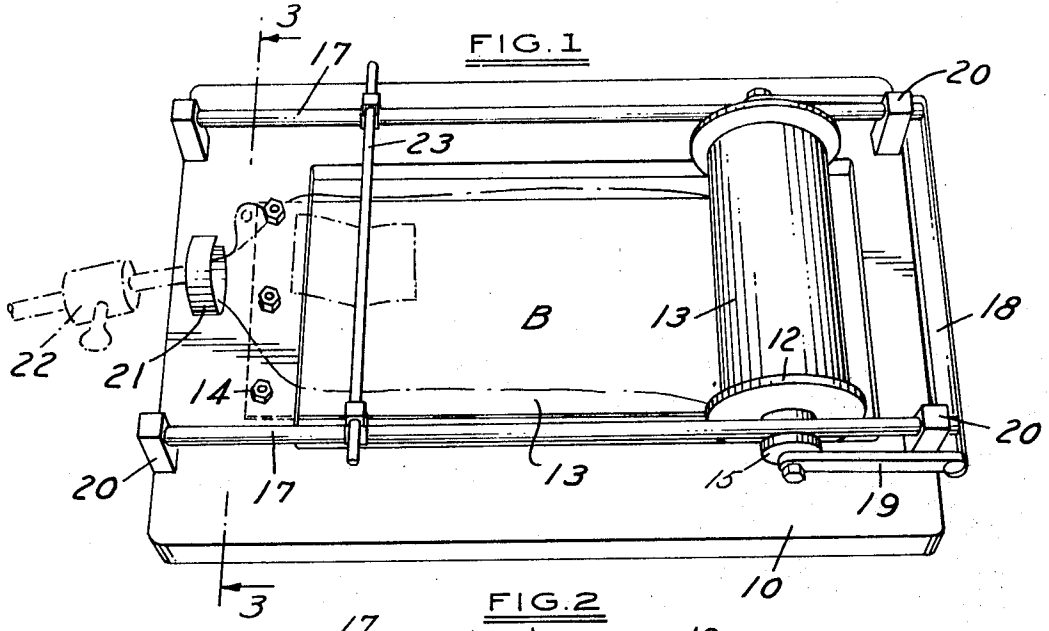


FIG. 2

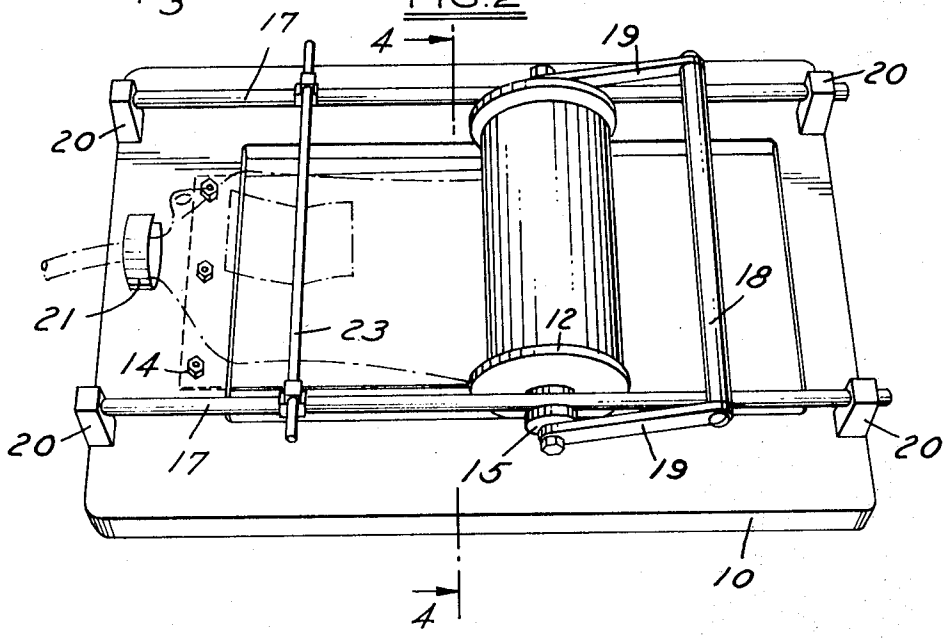
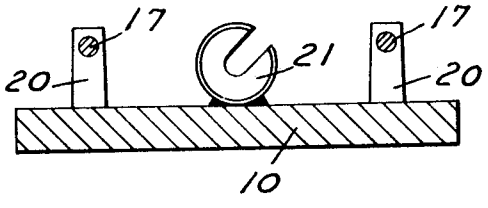


FIG. 3



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FIG. 5

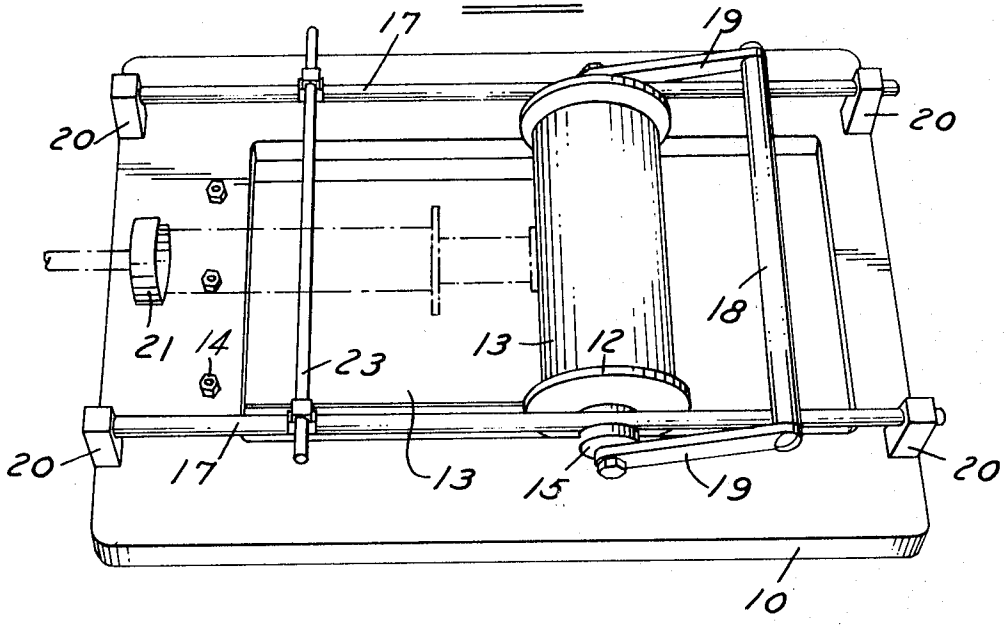
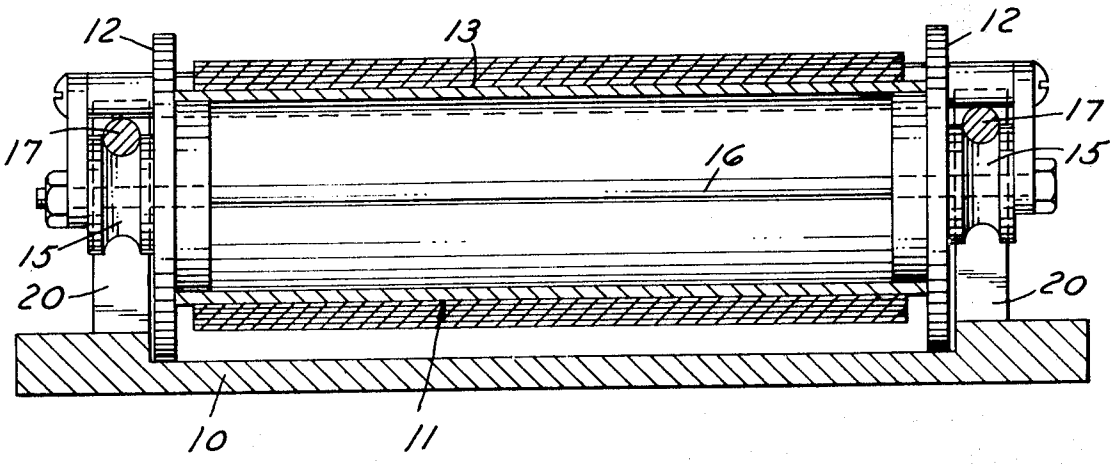


FIG. 4



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APPARATUS FOR INTRAVENOUS FEEDING AND THE LIKE

This invention relates to intravenous feeding of fluids and drugs into a patient.

BACKGROUND OF THE INVENTION

At the present time, fluids and drugs are fed intravenously into a patient by gravity flow from a suspended container such as a glass container or plastic bag which contains the fluid or drug suspended from a pole. The container is elevated above the patient at such a height that the fluid pressure exceeds the venous pressure resulting in infusion of the fluid or drug into the patient.

One of the problems with such a system is that there is some auxiliary device needed to suspend the container above the patient. This becomes particularly troublesome when it becomes necessary to move the patient from one area to another. The problem becomes even more serious in combat warfare conditions when auxiliary devices such as poles and the like are not readily available or if available protrude and cause difficulty in handling the patient.

Among the objects of the invention are to provide an apparatus for intravenous feeding that does not require the use of poles or other devices for suspending the apparatus above the patient.

SUMMARY OF THE INVENTION

An apparatus for intravenous feeding comprising a drum that is mounted for rolling movement along a base. A constant tension spring has one end thereof fixed to the drum and one end thereof fixed to the base. A collapsible container is positioned such that the drum under the action of the constant tension spring tends to collapse the container uniformly and thereby dispense of the contents of the container out of the container.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an apparatus embodying the invention.

FIG. 2 is a view similar to FIG. 1 showing the parts in a different operative position.

FIG. 3 is a sectional view taken along the line 3—3 in FIG. 1.

FIG. 4 is a sectional view taken along the line 4—4 in FIG. 2.

FIG. 5 is a view similar to FIG. 1 showing the apparatus in use for dispensing the contents of a hypodermic syringe.

DESCRIPTION

Referring to FIGS. 1–4, the apparatus embodying the invention comprises a base **10** along which a drum **11** is adapted to be rolled. Drum **11** has peripheral axially spaced low-friction contact surfaces formed by plastic rings **12**. One end of a coiled constant tension spring **13** is fixed to the drum and the other end thereof is fixed to the base as at **14**. Guide rollers **15** on the drum axle **16** are adapted to engage guide rails **17** which are spaced from base **10** by posts **20** to guide the action of the drum **11** under the influence of the spring **13**.

A handle **18** is pivoted to the axle **16** of the drum **11** by arms **19** for facilitating retraction of the drum **11** against action of the spring **13**.

A device containing fluid which is to be fed to the patient comprising a collapsible container such as a plastic bag B is positioned on the base with one end thereof engaging a stop **21** and the other end thereof against the drum **11**. Initially, handle **18** is engaged with end posts **20**. When the handle **18** is released, the rotation of the drum **11** causes the plastic bag B to be squeezed between the convolutions of the spring **13** forcing the fluid out of the collapsible bag B. In accordance with conventional practice, a metering clamp **22** is provided along the tube extending out of the plastic bag to meter the contents to the patient.

As in all intravenous feeding, the air is first expelled from the tube by permitting some flow before the needle at the end of the tube is placed in the patient.

It can thus be seen that the device provides for a constant flow to the patient regardless of the position of the base. No auxiliary poles, brackets or the like are needed since the device can be placed in close proximity to the patient.

A bar **23** is adjustably positioned on the guide rails **17** and serves as a stop for the forward movement of the drum **11**, thereby providing means for limiting the quantity of fluid fed to the patient.

By the utilization of a constant tension spring, a constant pressure is applied to the fluid container, thereby insuring a constant flow of the material being fed to the patient.

In the form of the invention shown in FIG. 5, substantially the same device is utilized for dispensing the contents of a syringe S, the body of the syringe engaging the stop **21** while the plunger of the syringe is engaged by the drum.

I claim:

1. An apparatus for intravenous feeding comprising
a base,
means on the base for defining a track,
a drum,
means on the base for guiding the drum along the track for relative rolling movement with respect to the base,
a constant tension spring wound about the periphery of said drum and having one end thereof fixed to the drum and the other end thereof fixed to said base adjacent one end thereof,
whereby a collapsible fluid container positioned on the spring when said spring is in an unwound condition can be progressively compressed by the constant tension spring as the spring moves the drum on said base

2. The combination set forth in claim **1** including a handle attached to said drum for moving said drum against the action of said spring.

3. The combination set forth in claim **1** including low-friction contact surfaces on said drum engaging said base.

4. The combination set forth in claim **1** wherein said means for guiding said drum comprises a member on said base adjacent each end of said drum and extending longitudinally on said base and parallel to the direction of movement of said drum.

5. The combination set forth in claim **1** including stop means for limiting the movement of said drum toward said one end of said base.

6. The combination set forth in claim **5** including a handle connected to said drum.

7. The combination set forth in claim **6** including means on the other end of said base for engaging said handle and holding said drum in a retracted position.

8. The combination set forth in claim **5** wherein said stop means is adjustable longitudinally on said base.

9. The combination set forth in claim **4** including stop means on said guiding means for limiting the movement of said drum toward said one end of said base.

10. The combination set forth in claim **4** wherein said guiding means comprises guide rails spaced from said base and grooved portions on said drum engaging said rails.

11. The combination set forth in claim **1** including a stop on said base engageable by the end of a fluid container.

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