

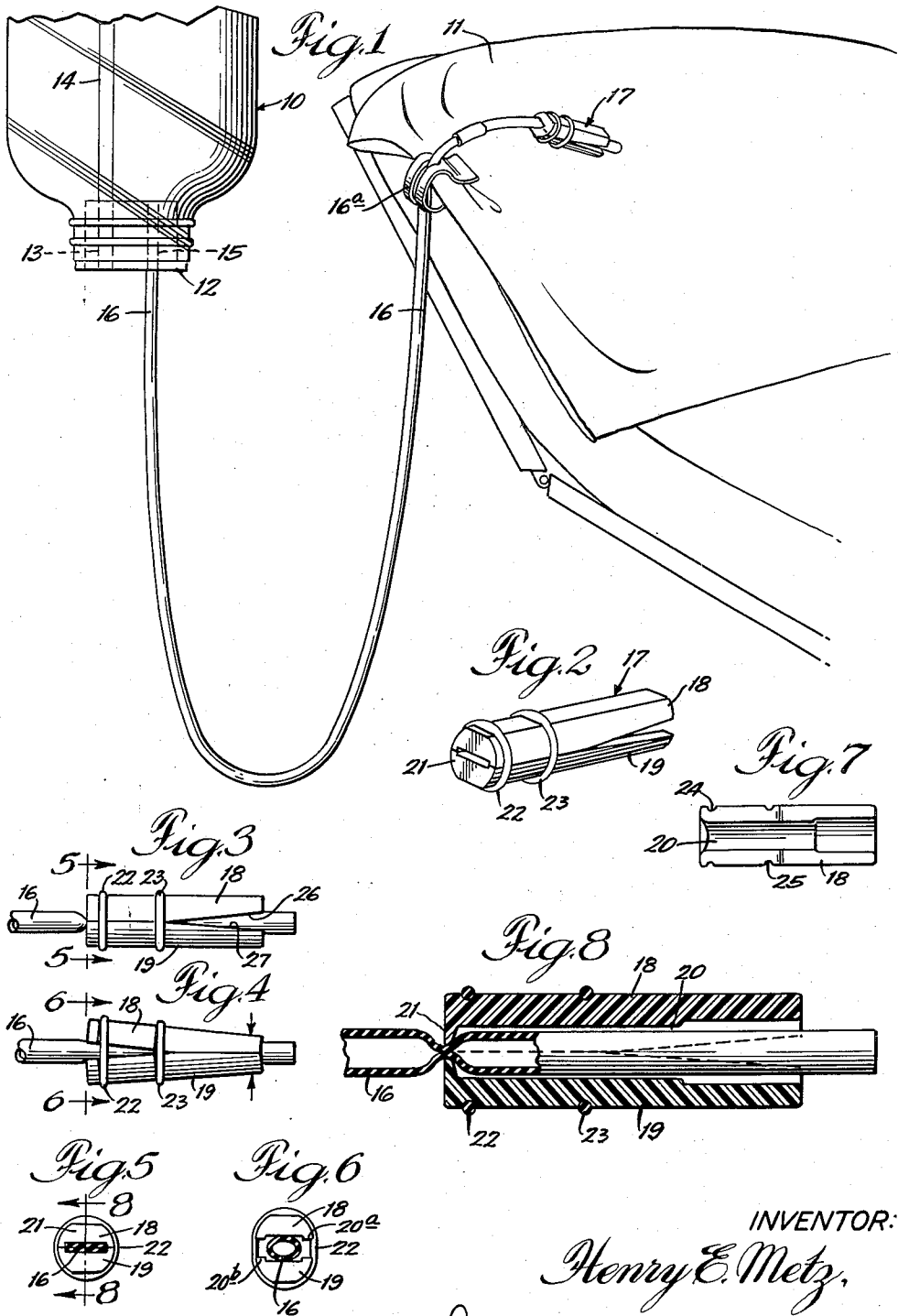
Jan. 24, 1961

H. E. METZ

2,969,064

DRINKING TUBE DEVICE

Filed March 26, 1957



INVENTOR:

Henry E. Metz,

BY *Dewar, Tilton, Fallon & Rungius,*
ATTORNEYS.

1

2,969,064

DRINKING TUBE DEVICE

Henry E. Metz, Glenview, Ill., assignor to Baxter Laboratories, Inc.

Filed Mar. 26, 1957, Ser. No. 648,625

5 Claims. (Cl. 128—222)

This invention relates to a drinking tube device, and more particularly to such a device which finds use by bedridden patients.

The drinking tube devices of the past, particularly those for bedridden or hospital patients, have ranged from simple straws to elaborate clamp-controlled mechanisms. The use of a simple straw is objectionable in so far as many bedridden patients are concerned, since it requires physical movement on the part of the patient to position himself properly to aspirate liquid. If the patient is paralyzed to any extent, he may require the services of a nurse or other attendant merely to have a drink of water. To a certain extent, this problem has been solved by elevating the liquid source above the patient's mouth so that the need for aspirating the liquid is dispensed with. This, however, necessitates some type of regulating mechanism to prevent the liquid from being discharged when the patient is not drinking. In many instances, the regulation is achieved in the form of some type of clamp positioned on a length of resilient tubing leading from the elevated liquid source to the patient's mouth. Ordinarily, the clamp mechanisms of the past required manual manipulation in order to release the clamp. Thus, physical exertion is required on the part of the patient.

It is an object of my invention to provide a new type of drinking tube device which is especially suitable for bedridden patients. Another object is to provide a new type of drinking device useful in connection with an elevated source of liquid to be drunk by a hospitalized patient. Still another object is to provide a drinking device that substantially eliminates physical exertion on the part of the patient. Yet another object is to provide a drinking device that is provided with a novel type of clamp. Another object is to provide a drinking device having a clamp that is operable only by the "biting" pressure of the patient. Other objects and advantages of my invention can be seen as this specification proceeds.

In one embodiment of my invention, I provide a source of liquid elevated with respect to the position of a patient lying on a bed. The liquid source is communicated to the patient through a resilient tube. At the end of the tube carried by the patient's mouth, I provide a clamp which is normally closed to prevent liquid flow in the tube but which is readily opened by the jaw pressure exercisable by the patient.

My invention will be further explained in conjunction with the accompanying drawings, in which—

Figure 1 is an elevational view of the drinking tube of my invention shown in an operative environment; Figure 2 is an enlarged perspective view of the clamp device portion of my invention; and Figure 3 is a side view; Figure 4 is a view similar to Figure 3 but showing the clamp in open condition; Figures 5 and 6 are end views showing the conditions of Figures 3 and 4; Figure 7 is a view of one part of the clamp, and Figure 8 is a cross-sectional view taken along the lines 8—8 of Figure 5.

2

Referring now to the drawing, the numeral 10 designates a liquid source, which is seen to be elevated above the pillow 11 on which a patient desiring to receive liquid from the source would place his head. The source 10 may conveniently take the form of a bottle mounted in a mouth-downward position by suitable hanger means (not shown). The mouth of source 10 is closed by a stopper 12 having a pair of passages extending therethrough. One passage 13 permits entry of air through air tube 14 mounted in passage 13 to replace liquid that issues through the other passage 15. Mounted in passage 15 is one end of resilient tube 16. The other end of resilient tube 16 is mounted on pillow 11 by spring clamp means 16a.

A patient is thereby enabled to carry in his mouth the tube 16 and clamping means 17 of my invention, which will be described in more detail by reference to Figures 2-8. In Figure 2, the numeral 17 generally denotes a clamp. In the embodiment shown, clamp 17 includes two semi-tubular elements 18 and 19. Elements 18 and 19 are shown to be semi-cylindrical, but it is to be appreciated that they may take various structural forms, as desired. Elements 18 and 19 are each provided with a trough-like passage 20 extending partway therethrough from one end thereof best seen in Figure 7. The elements 18 and 19 are disposed in a complementary relationship so that the edges of the trough-defining walls 20a and 20b (designated in Figure 6) abut each other to form a substantially hollow tubular element having one end thereof substantially closed, as indicated at 21. Elements 18 and 19 are maintained in complementary relationship by resilient urging means 22 and 23. In one embodiment of my invention, I provide the urging means in the form of resilient bands. Conveniently, the bands making up urging means 22 and 23 can be constructed of rubber and mounted in annular recesses 24 and 25 provided in elements 18 and 19.

The abutting faces or top edges of the trough-defining walls are shown to be partially cut away or beveled as at 26 and 27. When a clamping pressure is exerted on the end of the tubular structure having the beveled portions, the opposite ends will be forced apart, thereby releasing the pressure that previously was exerted on tube 16. This permits liquid to flow through tubing 16 into the mouth of the patient. Release of a biting pressure on the end of the tubular structure permits urging means 22 and 23 to return together the abutting wall surfaces at the end 21 of the tubular structure.

Since I employ a rocking or lever action about the center of the tubular structure of my invention to force the clamping surfaces apart, it is apparent that it is not necessary to cut away or bevel both tubular elements 18 and 19. The beveling of one element will still permit the desired lever action.

I claim:

1. In a drinking tube structure for bedridden patients and the like, an elongated resilient tube adapted to be communicated at one end to a source of liquid, the other end of said tube being adapted to be received in a patient's mouth, a clamp on said tube compressing the walls thereof together to prevent liquid flow therethrough, said clamp comprising cooperating elements rockably secured together and having clamping means effective to apply a compressing force on said tube at a spaced distance from the mouth end of said tube, said elements extending along said tube from the point of compression toward the tube mouth end and being equipped with longitudinally-extending recesses effective to maintain said tube between said point of compression and said tube mouth end substantially uncompressed, said elements at the ends thereof adjacent said tube mouth end being mutually spaced and positioned sufficiently close to said

3

tube mouth end to permit said clamp to be received between the teeth of a patient and rockably opened by biting action alone whereby said tube is permitted to assume a substantially uniform cross section throughout its length and provide substantial flow of liquid therethrough.

2. In a drinking tube structure for bedridden patients and the like, a conduit adapted to be connected at one end to a source of liquid, the other end of said conduit connected to one end of and terminating in a resilient tube, a clamp on said tube normally compressing the walls thereof to prevent liquid flow therethrough, said clamp comprising a pair of elongated trough-like elements rockably secured together to provide a longitudinal passage for said tube, said tube extending beyond said elements to provide a discharge outlet positioned inwardly of the teeth of a patient, each element being equipped with a trough-terminating barrier at the end thereof remote from the other end of said tube, the rocking of said elements by a patient's biting action thereon forcing the barriers apart to provide a tube substantially uncompressed along its length, whereby said clamp is adapted to be received between the teeth of a patient and openable by biting action without the need of a patient using his hands.

3. The structure of claim 2 in which said elements adjacent said other tube end are provided with opposed flat surfaces, whereby rotation of the assembled elements between the teeth of a patient using the same is substantially prevented.

4. In a drinking tube structure for bedridden patients and the like, an elongated resilient tube adapted to be communicated at one end to a source of liquid, the other end of said tube being adapted to be received in a patient's mouth, a clamp on said tube compressing the walls thereof together to prevent liquid flow therethrough, said clamp comprising cooperating elements rockably secured together and effective to apply compressing force on said tube at a spaced distance from the other end of said tube, said elements each having a hollow, generally semi-cylindrical shape and arranged to form a cylinder, said elements being substantially closed at the end thereof opposite said other tube end to compress said tube, at least one of said elements having the edges thereof mating to form said cylinder cut away at the cylinder end adjacent said other tube end, and resilient band means about said cylinder adjacent the cylinder end thereof remote from said other tube end, said elements at

4

the corresponding ends thereof adjacent said other tube end being positioned sufficiently close to but spaced from said other tube end to permit said clamp to be received between the teeth of a patient and rockably opened by biting action alone, whereby said tube is adapted to assume a substantially uniform cross section throughout its length.

5. In a drinking tube structure for bedridden patients, and the like, a resilient drinking tube, clamp means on said tube adjacent one end of said tube, said clamp means being insertable in the mouth of a human desiring to receive liquid through said tube from a liquid source communicating with the other end of said tube, said clamp means comprising a pair of elements each having a trough-like passage extending partway therethrough from one end of said pair of elements with said one end of said pair of elements being adapted to be received in the mouth of a human, said elements being disposed in complementary relation with a portion of the top edges of their trough-defining walls in abutting relation to form a tubular structure having a passage extending partway therethrough from one end of the tubular structure, means on said elements urging their other ends together, and portions of the top edges of the trough-defining walls being cut away adjacent the mouth insertable end of at least one of said members, said clamp means being normally closed to restrict liquid flow through said tube and openable to permit liquid flow by biting action of said human on said clamp means.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 5,113	Bunce	Oct. 29, 1872
231,747	Arnold	Aug. 31, 1880
820,987	Perotti	May 22, 1906
863,398	Ivanoff	Aug. 13, 1907
1,144,980	Hilton	June 29, 1915
1,401,958	Broadwater	Jan. 3, 1922
2,040,545	Byers	May 12, 1936
2,575,056	Jones	Nov. 13, 1951
2,611,515	Smith	Sept. 23, 1952
2,756,740	Deane	July 31, 1956

FOREIGN PATENTS

2,864	Great Britain	of 1887
858,911	France	May 20, 1940