

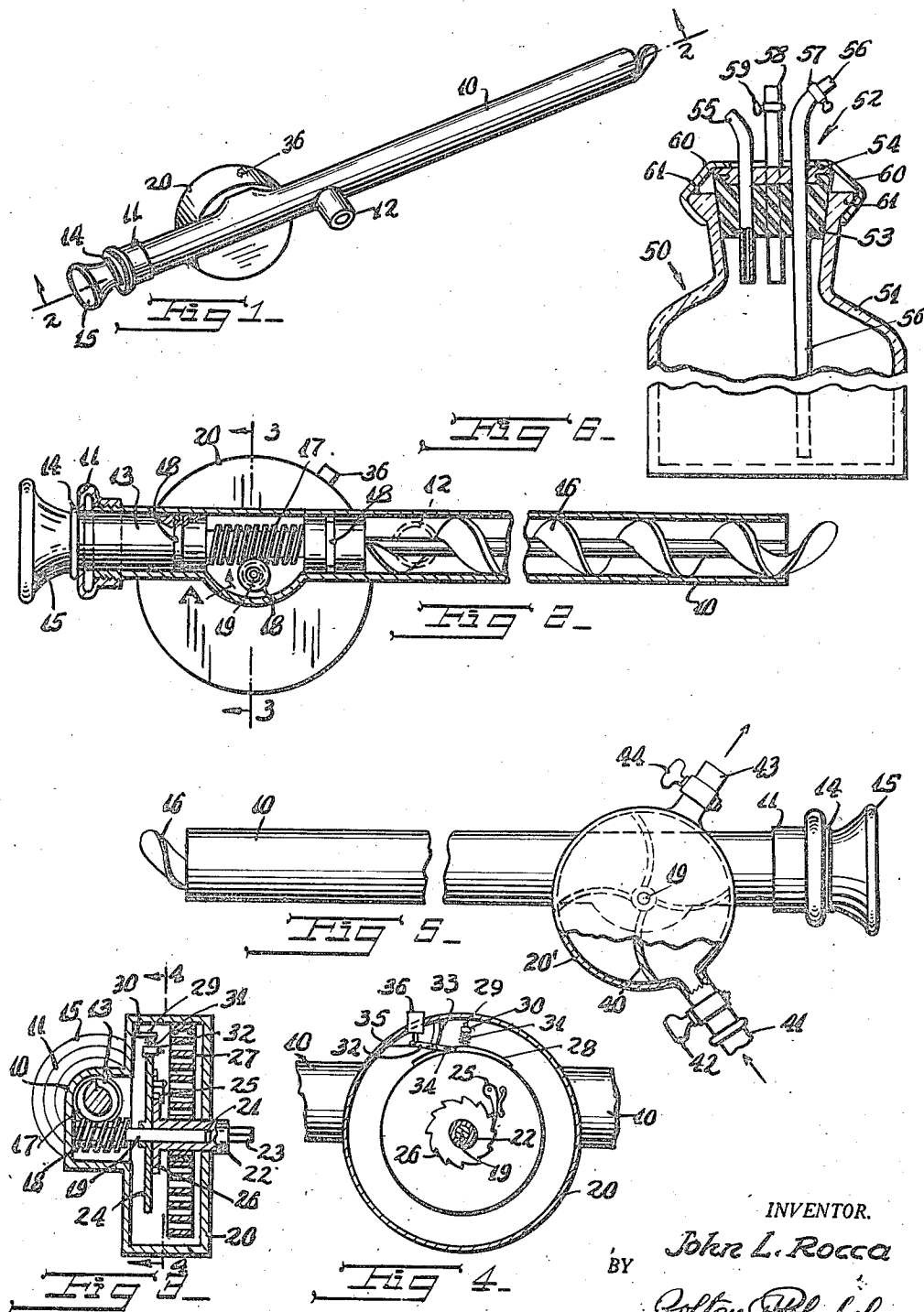
Feb. 8, 1944.

J. L. ROCCA

2,341,388

DRAIN TUBE FOR EMBALMERS

Filed Dec. 2, 1942



INVENTOR.

John L. Rocca

BY

Goldman & Schickel
ATTORNEY

UNITED STATES PATENT OFFICE

2,341,388

DRAIN TUBE FOR EMBALMERS

John L. Rocca, Brooklyn, N. Y.

Application December 2, 1942, Serial No. 467,575

7 Claims. (Cl. 27-24)

This invention relates to new and useful improvements in a drain tube for embalmers.

More specifically, the invention proposes the construction of a drain tube for embalmers characterized by a tube having a conveying screw slidably extended from one end thereof in a manner to be drawn into the tube permitting the end of the tube to be inserted into a vein with the screw retracted so as to prevent it from puncturing the vein.

Another object of the invention proposes to provide the device with a novel means for driving the conveying screw with the drive means being so arranged that when it is driving the screw it will tend to maintain it in a position extended from the end of the tube.

Still further it is proposed to provide a novel spring operated motor for driving the conveying screw in a manner to convey fluids through the tube and discharge them from a side outlet formed on the tube.

Still another object proposes the construction of a modification of this invention wherein a turbine utilizing air pressure is provided for driving the conveying screw.

A further object of the invention proposes the provision of a fluid container for use in conjunction with the air driven modification of this invention.

It is a further object of this invention to construct a drain tube for embalmers which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of an embalmer's drain tube constructed in accordance with this invention.

Fig. 2 is an enlarged longitudinal sectional view taken on the line 2-2 of Fig. 1.

Fig. 3 is a vertical sectional view taken on the line 3-3 of Fig. 2.

Fig. 4 is a vertical sectional view taken on the line 4-4 of Fig. 3.

Fig. 5 is a side elevational view of an embalmer's drain tube constructed in accordance with a modification of this invention and having a portion thereof broken away to reveal interior construction.

Fig. 6 is a side elevational view of a fluid container for use by embalmers.

The drain tube for embalmers, according to this invention, includes a tube 10 having one end open and its other end closed by means of a cap 11. Between its ends and at one side the tube 10 is formed with a discharge spout 12.

A rotative and slightly slidable shaft 13 is disposed in the rear end of the tube 10 and has its end projected through an opening formed in the cap 11. The free end of the shaft 13 is formed with a bead 14 which is adapted to strike the cap 11 and limit inward movement of the shaft 13. The bead 14 in turn continues into a knob 15 which is adapted to be gripped for manually pulling the shaft 13 slightly outwards for a purpose which will be hereinafter described.

A conveying screw 16 is disposed in the front end of the tube 10 and is connected with the front end of the shaft 13. When the bead 14 engages the cap 11 the front end of the screw 16 projects slightly from the front end of the tube as shown in Figs. 1 and 2. However, when the shaft 13 is moved rearwards relative to the tube 10 the projected end of the screw 16 will be retracted permitting the free end of the tube to be inserted into a vein without the end of the screw 16 puncturing the vein.

The shaft 13 between the cap 11 and the discharge spout 12 is formed with a reduced section formed with worm threads 17. On either side of the reduced section the shaft 13 is formed with a groove in which a washer 18 is mounted. These washers 18 are designed to engage the inside face of the tube 10 and seal the space in the tube 10 formed by the reduced section of the shaft 13.

A worm pinion 19 is rotatively mounted in the tube 10 and meshes with the threads 17 formed on the shaft 13. The worm pinion 19 is fixed on a shaft 19 which is rotatively extended across the tube 10 at right angles to the shaft 13.

Means is provided for driving the shaft 19 to in turn drive the pinion 19 and the shaft 13 and the screw conveyor 16 for lifting fluids through the tube 10 and discharge them from the spout 12. This means is characterized by a hollow container 20 mounted on the side of the tube 10 and into which the free end of the shaft 19 extends. Within the container 20 the free end of the shaft 19 rotatively extends into an opening 21 formed in a stud shaft 22 which is rotatively supported on the opposite wall of

the hollow container 20. The free end of the stud shaft 22 is formed with a squared portion 23 adapted to be engaged by a turning tool for turning the stud shaft 22.

A brake drum 24 is fixedly mounted upon an intermediate portion of the shaft 19 adjacent the free end of the stud shaft 22. A spring pressed pawl 25 is mounted on one side of the brake drum 24 and is adapted to mesh with a complementary ratchet wheel 26 formed on the adjacent end of the stud shaft 22. A helical spring 27 has one end attached to the stud shaft 22 and its other end attached to the peripheral wall of the hollow container 20. The pawl 25 and ratchet 26 are arranged to permit the stud shaft 22 to be turned in one direction independently of the shaft 19 for winding the spring. However, when the spring 27 unwinds the pawl 25 and ratchet 26 lock the shafts 19 and 22 together causing the shaft 19 to be rotated to rotate the conveyor screw 16.

A brake means is engaged with the brake drum 24 for holding the shaft 19 against being rotated under the power of the spring 27 except at such times as when the brake means is released. The brake means is characterized by a brake shoe 28 which engages one side of the drum 24. This shoe 28 is mounted upon the bottom end of a rod 29 which slidably engages a bracket 30 mounted upon one wall of the hollow container 20. An expansion spring 31 is coaxially mounted upon the rod 29 and operated between the adjacent faces of the shoe 28 and the bracket 30 to constantly urge the brake shoe 28 into contact with the periphery of the brake drum 24 and hold the shaft 19 against rotating.

A lever 32 is pivotally supported intermediate of its ends upon a support 33 mounted within the container 20. One end of the lever 32 is connected by means of a slot and pin 34 with an intermediate portion of the brake shoe 28. The other end of the lever 32 is connected by means of a slot and pin 35 with a button 36 which is depressibly extended through a wall of the container 20.

The operation of this form of the invention is as follows:

When an embalmer wishes to use the drain tube he first winds the spring 27 by gripping the square end portion 23 of the stud shaft 22 with a turning tool and turns the stud shaft 22 to wind the spring 27. The pawl 25 will merely idle over the ratchets 26 and the shaft 19 will be held against rotating, during the winding operation, by the brake mechanism. After the spring 27 is wound the projected end of the conveyor screw 16 is retracted by pulling upon the knob 15 and the free end of the tube 10 is inserted into the vein. The knob 15 is then released and the button 36 is pressed inwards lifting the brake shoe 28 out of engagement with the brake drum 24 against the holding action of the spring 31. This will free the shaft 19 to be rotated by the stored energy of the spring 27 and rotate the worm pinion 13 in the direction of the arrow A. The rotation will first urge the shaft 13 and conveyor 16 into a position in which the bead 14 will strike the cap 11 and extend the conveyor 16 from the end of the tube 10. The conveyor 16 will then be rotated to move liquid through the tube 10 and discharge it through the discharge spout 12. To stop the conveyor 16 it is merely necessary to release the button 36 permitting the spring 31 to re-engage the brake shoe 28 with

the brake drum 24 and hold the shaft 19 from rotating.

In Fig. 5 a modification of the invention is shown in which the shaft 19 extends into a hollow container 20'. A rotor 40 is mounted on the shaft 19 within the container 20'. One side of the container is formed with an air inlet tube 41 controlled by a valve 42. This tube 41 is adapted to be connected with a device for supplying air under pressure to strike the rotor 40 and drive the shaft 19 to in turn drive the conveyor 16 by air pressure.

The opposite side of the container 20' is formed with a discharge tube 43 controlled by a valve 44 for permitting the air to escape from the container 20' after having acted upon the rotor 40.

In other respects this form of the invention is similar to the previous form and like reference numerals identify like parts in each of the several views.

In Fig. 6 a fluid container 50 is illustrated for use in connection with the latter form of the invention. The container 50 is characterized by a glass bottle 51 having its neck opening closed by means of a cork 52. The cork 52 has a rubber bottom portion 53 engaging the neck opening and a metal top portion 54. An air inlet tube 55 is extended through the cork 52 for supplying air under pressure to the inside of the bottle 51. A fluid discharge tube 56 is also extended through the cork. This tube 56 has its bottom end in close proximity to the bottom of the bottle 51 and is provided with a valve 57. When the valve 57 is open the air under pressure which enters the bottle 51 will force the liquid contained within the bottle out of the bottle through the tube 56. The cork also has an air discharge tube 58 extended through it and provided with a valve which may be opened permitting the air which gathers in the top portion of the bottle 51 above the liquid to pass out of the bottle through this tube.

The feature of this fluid container 50 resides in the fact that the cork 52 is fixedly maintained in position within the neck opening preventing pressures within the bottle from blowing the cork out of the neck opening. A metal band 60 has one edge portion engaging the top face of the cork 52 and its other edge portion bent to engage beneath a bead 61 formed upon the top edge of the neck of the bottle 51. The metal band 52 is formed of flexible stock and is adapted to be removed freeing the cork 52 to be removed so that the supply of fluid within the container may be replenished.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by

which it may be moved rearwards for retracting the front end of said conveying screw.

2. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said tube having one end closed by means of a cap formed with an opening through which the extended end of said shaft extends.

3. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said tube having one end closed by means of a cap formed with an opening through which the extended end of said shaft extends, and a bead formed on said shaft and engageable against said cap for limiting the extended position of said conveyor.

4. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said means comprising a spring controlled motor.

5. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said means comprising a spring controlled motor, and a manually controllable brake mechanism for holding said motor from turning said pinion except when said brake mechanism is released.

6. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said means comprising a rotor connected with said pinion and adapted to be driven by compressed air.

7. A drain tube for embalmers, comprising a tube, a rotative and slightly slidable shaft in the rear end of said tube, a conveying screw mounted in the front end of said tube and connected with said shaft, said shaft having a reduced section formed with worm threads, a worm pinion rotatively mounted in said tube and meshing with said threads, means for driving said worm pinion, and a knob on the outer end of said shaft by which it may be moved rearwards for retracting the front end of said conveying screw, said means being designed to rotate said pinion to rotate said shaft and urge said shaft into a position in which the free end of said conveyor will be extended from the open end of said tube.

JOHN L. ROCCA.