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H. M. BIRCH ET AL
MEANS FOR ADMINISTERING MEDICATION ORALLY
INTO THE RESPIRATORY ORGANS
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Fig. 1.

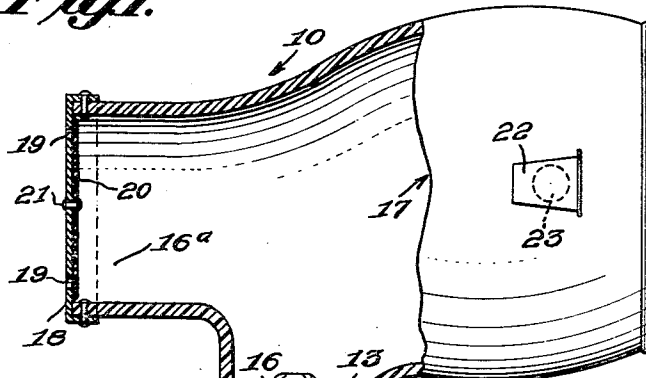


Fig. 2.

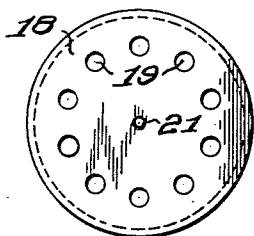
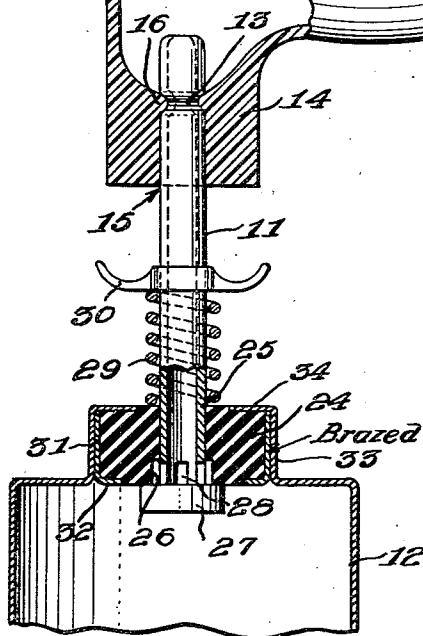
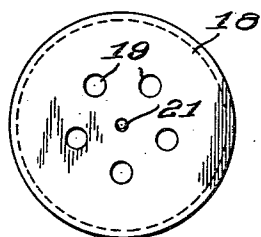


Fig. 3.



INVENTORS

Herbert M. Birch.
Daniel H. Gattone.

BY

Herbert M. Birch
ATTORNEY

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MEANS FOR ADMINISTERING MEDICATION ORALLY INTO THE RESPIRATORY ORGANS

Herbert M. Birch, Bethesda, Md., and Daniel H. Gattone, Drexel Hill, Pa.

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6 Claims. (Cl. 128—201)

The present invention relates generally to means for administering medication orally by way of the respiratory organs.

Many forms of diseases, ailments and conditions of the human body have been discovered by the medical profession to be more effectively treated by respiratory means, that is, by inhalation of medicaments into the lungs and interconnecting respiratory tracts. However, heretofore all apparatus for such administrations have been extremely bulky and of such formation as to inhibit portability in a small hand bag or the like, whereby availability is always assured for emergency use.

It is an object of this invention to provide a small pocket size apparatus for administering gaseous medicaments, such as oxygen, micronized powdered antibiotics, and other pressurized medicaments from a small disposable container.

Another object is to provide in combination an oral nasal mask having a demand type air intake valve to permit predetermined air intake during inhalations and exhalation valves to release carbon dioxide during exhalations, with a pocket size pressurized container having a discharge nozzle formed with coupling means for quick-detachable connection with the mask inlet connection.

A further object is to provide a pocket size medication administering apparatus formed with self-administering valve controlling means.

A further object of the invention is for administering medicinal oxygen to cardiac patients, asthmatics and for reviving greatly fatigued operators of motor vehicles, aircraft and the like. Also, all public conveyances, such as boats, trains, busses and aircraft will carry these handy dispenser units to revive passengers who may become in need thereof.

With these and other objects in view, the invention consists in the construction, arrangement and combination of parts hereinafter described and particularly pointed out in the claims, it being understood that we do not intend to limit ourselves to the details of construction.

In the drawings like parts throughout the several views are given like numerals and are thus identified in the following detailed description:

Figure 1 is a cross section view of one complete unit constructed according to the present invention;

Figure 2 is a front elevation view of one form of inhalation valve;

Figure 3 is a second form of inhalation valve.

Referring to the drawing, Figure 1 discloses an oral nasal mask 10 attached to an outlet tube 11 of a container 12 containing any suitable or desired pressurized medicaments, such as micronized antibiotics or such as oxygen, for example. The tube 11 is formed with a coupling portion such as the annular groove 13, which friction snap fits within the bore 15 of the mask inlet nipple 14. The bore 15 is integrally formed with an annular ring 16, which snaps into the groove 13 of tube 11 in a fluid tight seal with the outlet end of the tube extending slightly into the mask interior below and between

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the mask air intake portion 16a and the air and medication breather and outlet chamber 17.

The intake portion 16a is tubular in formation and is capped by a plate 18 formed with intake openings 19. These openings are normally closed by a demand type disk valve 20 formed of flexible material and secured centrally by means, such as a bolt 21, extending through the cap plate and valve disc. Inhalation by a user of the mask draws the disc inward and away from the openings 19 and admits air into the mask chamber 17. Simultaneously with each inhalation the mask user momentarily depresses or moves the tube 11 to release a predetermined quantity of medicament. If oxygen, for example, a movement of the tube for a time duration equal to an average inhalation period is calibrated to discharge preferably ten litres of oxygen into the mask and the mask user takes the mixture into his respiratory system. When the mask user exhales, the exhalation valves 22 on each side of the mask over mask exhaust ports 23 open and release carbon dioxide during exhalation.

The container 12 is made to withstand high internal pressures and is sealed at the top center by a novel valve arrangement comprising a rubber grommet 24 formed with a center aperture 25 with a slightly enlarged or counter bore 26, said counter bore is positioned within the container. The outlet tube 11 is formed with a valve head 27, which is seated against the under surface of the grommet 24 over the counter bore 26 inside the container 12. Above the head 27 the tube 11 is formed with openings 28. The valve head 27 is held seated either by the pressure within the container 12 or by the expansive action of the coil spring 29 compressed between the top of the grommet 24 and the under surface of the valve operator 30 fixed to the medial part of the tube 11.

The rubber grommet 24 is encircled with a metal ring 31 having a flange 32 and is preferably molded or vulcanized within this ring, while the exterior of the ring 31 is brazed into the interior bore of the container neck 33. This neck 33 is turned over the upper surface of the grommet 24 to form pressure sealing flange 34. This arrangement will withstand pressure ranges up to 150 pounds per square inch.

The tube 11 is preferably sealed by molding or vulcanization thereof in the bore of the grommet 24. Thus, there is a positive seal between the tube and the grommet. To actuate the valve, the tube may be tilted in the yieldable grommet material or it may be depressed in the yieldable grommet to displace the valve head 27 from its seated position on the peripheral surface of the grommet over the bore 26 and thereby expose the outlet openings 28 above the valve head.

The operation of the apparatus hereinbefore described is believed generally apparent, for example, to use the same a can of medicament, oxygen, for example, is coupled to the mask inlet nipple and the mask opened up and placed over the mouth and nose of the user. Then when inhaling the user simultaneously moves the tube 11 to displace the valve head 27 and permit flow of oxygen from the container 12 into valve openings 28, through the tube 11 into the mask where it mixes with air drawn in through the valve openings 19 into mask outlet chamber 17.

Promptly following the inhalation period the user releases manual pressure on the tube 11 and the valves 20 and 27 close during exhalation, while the valves 22 open for discharge of carbon dioxide therefrom. The container 12 may contain enough oxygen for approximately ten minutes of use after which the first container may be discarded and another promptly coupled to the mask.

Thus, there is provided a simple, economical pocket

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size apparatus for use of medicaments heretofore requiring bulky and complex apparatus for effective use.

In Figure 3, is illustrated another form of exhalation valve plate, wherein the valve openings 19 are positioned nearer the center of the same. The positions and number of openings may be varied as required for various types of medicaments.

Although only two embodiments of the invention have been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes may be made in the design and arrangement without departing from the spirit and scope of the invention, as will now likely occur to others skilled in the art. For a definition of the limits of the invention, reference should be had to the appended claims.

What is claimed is:

1. Means for supplying medicament from a pressurized container into the respiratory system of the human body, said means comprising a mask having an air inhalation valve means, an exhalation valve means, a medicament inlet having the bore formed with an annular coupling ring, and manually opened and pressure closed valve means in said container having a tubular extension with an exterior groove adapted to receive the said coupling ring of said mask inlet.

2. Means for supplying medicament from a pressurized container into the respiratory system of the human body, said means comprising a mask having an air inhalation valve means, an exhalation valve means, a medicament inlet, and manually opened and pressure closed valve means in said container coupled to said mask inlet, said valve means comprising a head formed from an elongated tube with openings adjacent said head, said tube being mounted in the bore of a resiliently yieldable member sealed in the top of said container.

3. A pocket size apparatus for administering pressurized medicaments comprising a facial mask having a medicament intake nipple, air inlet valve means responsive to inhalation, and exhalation valve means responsive to exhalation, said intake nipple comprising a resiliently yieldable formation with a bore, said bore including a snap on coupling element, and pressurized container formed with pressure closed valve means, said valve means including an elongated tube formed with a coupling element adapted to detachably interfit with said coupling element in the mask intake nipple.

4. The pocket size apparatus described in claim 3 wherein said valve means comprise a head on the end of said tube with outlet openings formed in the wall of

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the tube adjacent the said head, the lower portion of said tube above the said head and said tube outlet openings being sealed within the bore of a rubber grommet, said grommet having a reduced bore portion with an enlarged portion inside the container spaced around the said tube outlet openings, and manual means for moving said valve head to expose said tube outlet openings to the interior of the container.

5. In a pressurized container with a top portion, a valve means in the top portion comprising a yieldably resilient valve seat including a rubber grommet with a bore, said bore having a relatively larger counter bore within the container, a tube sealed in said bore, said tube having a head portion relatively larger than said counter bore and being seated on the peripheral rim surface over said counter bore, and valve openings formed in said tube adjacent the valve head inside the counter bore, said valve seat being displaceable from the valve head by manual pressure on said tube, said grommet being sealed within a retainer ring, and said exterior of said ring being brazed in the top portion of the said container.

6. In combination, means so shaped and so proportioned as to conform to an oral cavity of the body of a user for administering the gaseous content of a pressurized container by inhalation therapy and a pocket size dispensable container for holding said gaseous content; said means having a detachable coupling connection, and said container having a coupling connection adapted to cooperatively connect with said detachable coupling of said administering means, said container having an opening in a wall thereof, a valve seat mounted in the opening, a valve engageable with said seat by the pressure in the container, a valve stem movable axially and connected to said valve, and manually engageable valve operator means fixed to a medial part of said axially movable valve stem, whereby the gaseous content of the container by axial movement of said stem releases and administers the gaseous content of said container by inhalation therapy when maintaining the said gaseous administering means adjacent the face of a user, while said stem is moved axially and said valve is held open by said manual valve operator means.

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