

Nov. 18, 1958

J. G. DUNCAN ET AL

2,860,634

OXYGEN DISPENSING DEVICE AND NOSE PIECE COMBINATION

Filed May 18, 1955

2 Sheets-Sheet 1

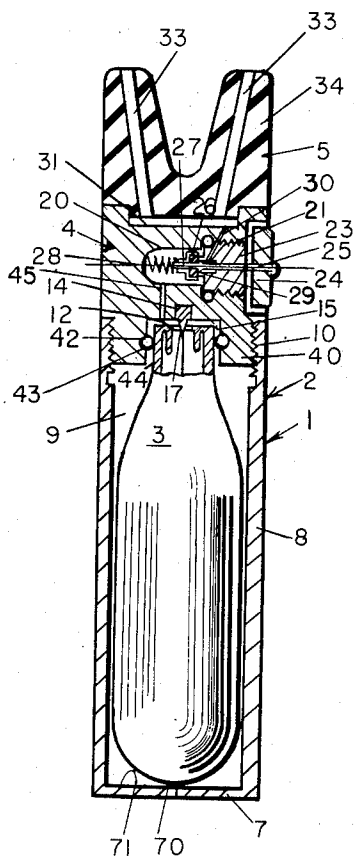


FIG. 2

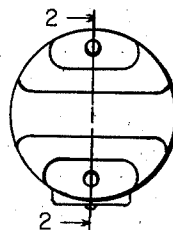


FIG. 1

INVENTORS.

James G. Duncan
BY Leo E. Hambley

Charles A. Louchak
attorney

Nov. 18, 1958

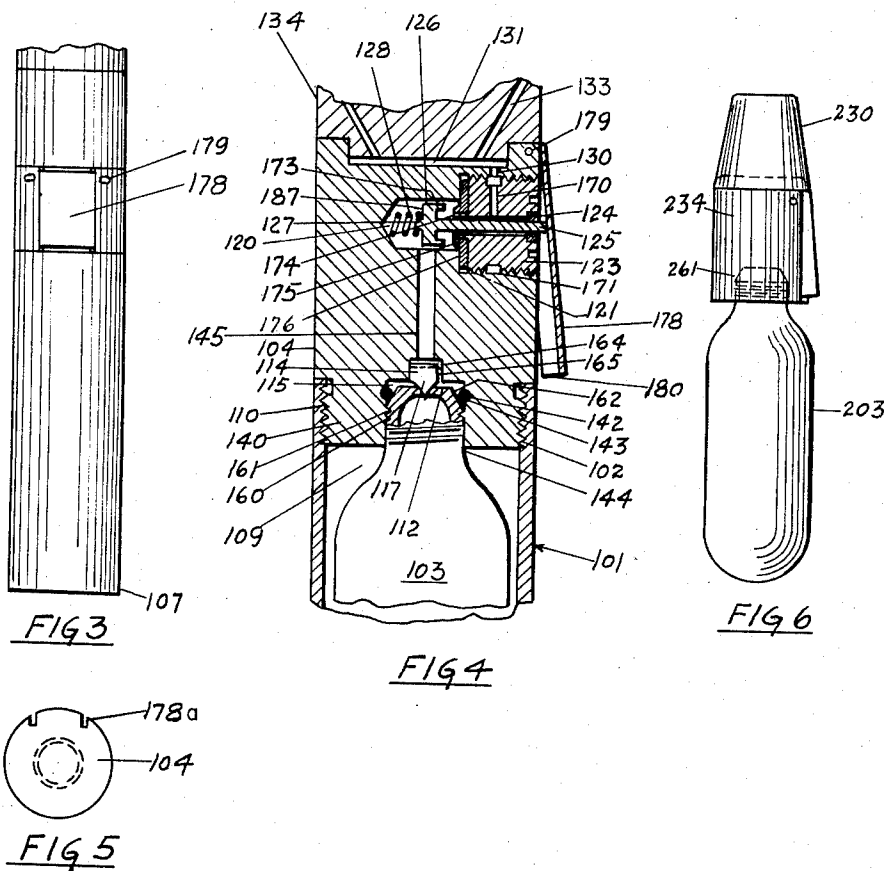
J. G. DUNCAN ET AL

2,860,634

OXYGEN DISPENSING DEVICE AND NOSE PIECE COMBINATION

Filed May 18, 1955

2 Sheets-Sheet 2



INVENTORS.
James G. Duncan
BY Leo E. Trumbly
Charles L. Lovelock

1

2,860,634

OXYGEN DISPENSING DEVICE AND NOSE PIECE COMBINATION

James G. Duncan and Leo E. Trambley, Erie, Pa., as-
signors to Research Laboratories, Inc., Erie, Pa., a
corporation of Pennsylvania

Application May 18, 1955, Serial No. 509,234

9 Claims. (Cl. 128—206)

This invention relates to oxygen breathing apparatus and more particularly to portable oxygen dispensers in combination with nose pieces.

Oxygen containers and breathing apparatus of this general character are well known in the art; however, the known breathing apparatus are complicated and not adapted to be readily transported in the pocket of the user and they are not adapted to be readily stored for convenient access and for use. It is known that persons suffering from head colds, hangovers, heart disease, and other similar discomforts may be treated and find temporary relief by the inhalation of relatively pure oxygen. Supplies of oxygen are not usually available when required by persons suffering from these discomforts and diseases and the known devices for dispensing oxygen are unwieldy and expensive. Therefore, it is not convenient for the said persons to have access to sources of oxygen.

It is, accordingly, an object of this invention to provide a dispenser for oxygen which is simple in construction, economical to manufacture, and simple and efficient to transport and to use.

Another object of this invention is to provide an improved dispenser for oxygen in combination with a nose piece.

A further object of the invention is to provide an improved valve for use in a dispenser for oxygen.

A further object of this invention is to provide a valve in combination with an oxygen dispenser and nose piece wherein the elements of the said device coact to provide a simple and economical dispensing apparatus.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Fig. 1 is a top view of a dispensing device according to the invention;

Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a side view of another embodiment of the dispenser;

Fig. 4 is a vertical cross sectional view of another embodiment of the dispenser;

Fig. 5 is an end view of the dispenser shown in Fig. 4; and

Fig. 6 is a side view of another embodiment of the dispenser.

Now with more specific reference to the drawings, the oxygen dispenser 1 is made up of a container 2 which contains an oxygen bottle 3 and a valve head 4 which has a nose piece 5 attached thereto. The container 2 is preferably made in the form of a hollow cylinder having a closed bottom 7 and cylindrical sides with a hollow portion 9 therein. The upper end thereof is threaded at

2

10 to receive the threaded head 4. The portion 9 receives the bottle 3 which has a sealed top 12 which maintains the oxygen inside the bottle 3 at considerable pressure. While the bottle 3 is put into the container 2, the seal on the top thereof will be intact and the bottle 3 will be completely sealed. When the bottle 3 is put into the container 2 as shown and the threaded head 4 tightened, a prick 14 will penetrate the seal 12 and form an opening therein whereby the oxygen can escape into a bore 15 around the end of the bottle 3. The prick 14 is pressed into the head 4 and has a downwardly extending point 17 which is adapted to penetrate the seal 12 of the bottle 3 in the manner aforesaid.

The head 4 has a lateral bore 20 and a threaded counter-bore 21 which receives a plug 23. The plug 23 is bored at 24 to slidably receive a handle rod 25 which extends outwardly therefrom and has a rubber valve washer 26 attached thereto. The rubber washer member 26 is held in a cup shaped flanged member 27 which is attached to the rod 25. A spring 28 urges the handle 25 outward and urges the washer 26 into sealing engagement with a seat 29 which extends outwardly from the portion of the plug 23 around the bore 24 and seals the oxygen in the lateral bore 20. A space 31 between the nose piece 5 and the head 4 communicates with nostril tubes 33 which extend up through bifurcated nostril engaging members 34.

The lower end 40 of the head 4 has the bore 15 therein and a groove 42 inside the bore 15. The groove 42 receives an O-shaped packing washer 43 which is adapted to engage the neck 44 of the oxygen bottle 3 to form a seal therewith to prevent oxygen from passing from the broken seal down into the area 9 around the bottle 3.

When the device is to be put into use, a sealed bottle 35 of oxygen will have the neck 44 of the bottle inserted into the bore 15 in sealing engagement with the washer 43. The head 4 is then screwed into the threaded end 10 of the container 2. During this process, the seal on the bottle 3 will be intact and oxygen will be contained therein under a considerably high pressure. As the operator continues to rotate the container 2 relative to the head 4, the head 4 will continue to threadably travel inward, bringing the bottom 70 of the bottle 3 into engagement with the bottom 71 of the container 2 and bringing the prick 14 into engagement with the seal 12 to break the seal 12. This will, at the same time, bring the O-shaped packing washer 43 down slidable over the neck 44 of the bottle 3 and form a seal therearound. When the seal formed by the top 12 is broken, the oxygen 50 will pass up through a passage 45 into the lateral bore 20 around the spring 28 and urge the rubber washer member 26 into tight engagement with the seat 29. Therefore, the oxygen will be prevented from escaping. When the operator is ready to use the device, he will insert the nostril engaging members 34 up into his nostrils and press the handle 25 inwardly. This will remove the washer 26 from the seat 29 and allow oxygen to flow up through the passage 30 into the space 31 and to move up into the nostril tubes 33 to be inhaled by the user.

Figs. 3, 4, and 5 show another embodiment of the invention which has another type of valve and operating means. The corresponding parts of the invention shown in Fig. 4 have similar numbers to the corresponding parts in Fig. 2 plus 100. The case 101 has a threaded upper end 102 which is adapted to engage threads 110 on the outer periphery of head 104. The neck 144 of bottle 103 is threaded at 160 to engage threaded bore 161 of the head 104. An inner peripheral groove 143 is provided in the bore 161 for receiving an O-shaped washer 142 which lies against the tapered edge 162 of the bottle 103 to form a seal therebetween when the bottle 103 is screwed up into the threaded bore 161.

3

A reduced size bore 164 receives the upper end of a prick 114. The prick 114 has a point 117 and the point 117 is adapted to pierce the seal 112 at the upper end of the bottle 103 when the neck 144 of the bottle 103 is screwed into the bore 161. A flattened side 165 is formed on one edge of the prick 114 to provide an opening past the prick 114 from the space 115 in the bore 164 above the bottle 103, from thence through the bore 145 into the lateral bore 120, thence, when the rod 125 is depressed, through the clearance space 124 therearound, up through the lateral bore 170 in the plug 123, thence around the peripheral groove 171 to the bore 130 in the head 104, and thence to the space 131 below the nose piece 134 from whence oxygen passes up through nostril bores 133 similar to the bores 33 shown in Fig. 2.

The actuating rod 125 has a cup shaped member 187 having an outwardly directed flange 173 extending concentric to the rod 125. The plug 123 has an outwardly extending end 174. The flange 173 engages outwardly extruded ends 175 of a washer 176. In its unstressed condition, the washer 176 is perfectly flat and disk shaped; however, when the plug 123 is tightened into the threaded portion 121, the washer 176 is compressed and the ends 175 are extruded outwardly toward the flange 173 and there adapted to engage the ends of the flange 173. A compression spring 128 urges the flange 173 toward the extruded portions 175 when the pressure is applied to the rod 125 by a handle 178. The handle 178 is pivoted to the head 104 at 179 and swings thereabout and the ends thereof are formed as the inturned flanges of a piece of sheet metal which engage grooves 178a in the head piece 104. When the handle 178 is depressed, flanges 180 move further into the grooves 178a.

To fill the container with a new bottle, the operator will unscrew the head 104 from the case 101 and will unscrew the empty bottle 103 from the head 104 and insert a new bottle 103 which he will tighten up until the tapered edge 162 forms a seal with the O-shaped washer 142. The point 117 of the prick 114 will pierce the seal 112 on the end thereof. This will allow oxygen which may be contained in the bottle 103 to flow upwardly through the bore 145 and engage the flange 173 of the cup shaped member 187 which will force it into sealing engagement with the extruded end 175 of the washer 176. As pressure increases in the lateral bore 120, the flange 173 will be pushed tighter into the extruded end 175. Therefore, no oxygen can leak out of the valve. When the operator wishes to sniff some oxygen, he will insert the nostril portion 134 into his nostrils and depress the handle 178. This will move the flange 173 off of the outwardly extruded portion 175 and allow oxygen to flow through the clearance space 124 and up the bore 170 through the peripheral groove 171 through the bore 130 into the space 131 and thence up into the nostril piece 134.

In the embodiment of the invention shown in Fig. 6, a bottle 203 is similar to the bottle 103 and has upper threaded ends 261 which engage a valve head 234 having a nose piece 230 thereon which the operator can insert into his nostril. A valve similar to the valve in the embodiment of the invention shown in Fig. 4 will be provided in the head 234 so that the operator can discharge oxygen from the bottle 203 through the head 234 into his nostril through the nose piece 230, thereby providing a treatment for relieving headaches, colds, hangovers, etc.

It has been discovered that a small bottle such as that shown can be used to contain enough oxygen to give very decided relief to sufferers from head colds, hangovers, and the like and the oxygen in the bottle will be sufficient for several treatments thereof.

The dispenser disclosed herein could be used to dispense other liquids, gases, and drugs than oxygen if so desired.

4

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In combination, a container for oxygen and a nose piece therefor, said nose piece being attached to said container by means of a valve body, said valve body having a first bore therein, said container having an end inserted in said bore, a lateral bore in said body communicating with said first bore, a plug in said lateral bore, a valve actuating rod extending into said lateral bore in said body, a washer disposed in said lateral bore and compressed between said plug and the bottom surface of said lateral bore whereby said washer is extruded inwardly to form an enlarged seat, a seating member attached to said actuating rod and extending outwardly therefrom, and a spring engaging said body, said spring adapted to urge said seating member into engagement with said extruded portion whereby the flow of oxygen through said plug between said actuating rod and the walls of said lateral bore from said container is stopped, said actuating rod having means thereon adapted to be manually engaged to urge said seating member out of engagement with said extruded portion, allowing oxygen to flow from said container through said valve body and through said nose piece.

2. The combination recited in claim 1 wherein said means to actuate said valve actuating rod comprises a lever pivotally connected to said body and adapted to be manually engaged to urge said seating member to an open position.

3. The combination recited in claim 1 wherein the end of said container is threaded and adapted to threadably engage said body.

4. The combination recited in claim 3 wherein the end of said container adjacent said threads has a tapered surface thereon and an O-shaped washer is disposed in said first bore of said body and adapted to sealingly engage the walls of said first bore.

5. The combination recited in claim 1 wherein said nose piece has a single nostril engaging portion.

6. In combination, a container for gas and a nose piece having passages therethrough communicating with the inside of said container, said container comprising a bottle having a threaded neck, a valve body comprising a cylindrical head attached to said container and having an axially threaded bore in one end with a groove having an O-shaped washer extending around the inner periphery of said axial bore, a lateral bore in said head having a threaded counterbore, a threaded plug in said counterbore having an actuating rod extending through an axial bore in said plug, said counterbore terminating adjacent said lateral bore in a shoulder, a flat washer of resilient material adapted to be compressed between said plug and said shoulder whereby said washer has an annular portion thereof deflected inwardly to form an enlarged portion, a cup shaped member on said actuating rod concentric therewith with a flanged end directed toward said annular portion and having the edges thereof extending toward said enlarged portion, and passages for gas connecting said lateral bore, said axial bore, and bores in a nose piece connected to said head.

7. The combination recited in claim 6 wherein two parallel slots are formed in said head extending axially thereof and a lever comprising a flat plate having its edges bent to form two flanges is provided, said lever being pivotally connected to said head, said flanges being adapted to be forced to lie in said parallel slots when said lever is depressed, an intermediate portion of said lever being adapted to engage said actuating rod.

5

8. The combination recited in claim 7 wherein said nose piece is pressed into a second bore in said head with a space between the bottom of said bore and said nose piece, said gas passages comprising a lateral bore in said plug communicating with a peripheral groove in said plug and said axial bore in said plug, and a passage in said head connecting the area of said counterbore in said head overlying said plug groove with the space in said second bore below said nose piece, said bores in said nose piece communicating with said space below said nose piece. 10

9. The combination recited in claim 6 wherein said

6

nose piece comprises a bifurcated member forming two nostril engaging members having passages therethrough communicating with said bore through said head.

References Cited in the file of this patent

UNITED STATES PATENTS

1,449,047	Johnson	Mar. 30, 1923
2,651,303	Johnson et al.	Sept. 8, 1953

FOREIGN PATENTS

107,990	Great Britain	July 26, 1917
---------	---------------	---------------