Description

This invention relates to an inhalation device for administering medicaments from pressurised containers.

Medicaments which are to be administered by inhalation, e.g. in the treatment of such diseases as asthma and hayfever, have for some time been provided in pressurised containers from which they are dispensed by actuation of a suitable valve mechanism in the outlet of the device. Usually such devices have incorporated a metering device so as to dispense a metered dose of medicament.

Inhalation devices of this kind have, however, required that the patient synchronise actuation of the valve with his breathing in through the device and this is often difficult for a user to achieve.

It has been proposed to cause expulsion of the metered dose of aerosol by, and thus automatically synchronise it with, inhalation through the device by the patient. Such devices have operated by means of one or more springs, as e.g. in US—A—3,456,644 which is or are initially restrained by a detent but which is or are released by the movement of a vane or diaphragm on inhalation by the patient. The spring (or springs) then acts on the medicament container in such a way as to depress the outlet valve stem relative to the container and thus release the medicament. However, the force required to depress the valve stem of a conventional pressurised dispensing container (or aerosol can as it will hereinafter be denoted) is considerable and the actuating spring (or springs) must be of even greater strength. Thus, operation of the valve is both sudden and violent, causing in some instances damage or discomfort to the mouth or nose of the patient. Also momentary cessation of inhalation due to surprise can be caused at the very moment when the medicament is released and must be inhaled.

The present invention provides an inhalation device which reduces these disadvantages and which is of compact construction and simple operation.

Accordingly, the present invention provides an inhalation device for use with a pressurised container having an outlet valve mechanism and from which material may be discharged by depression of a portion of the valve mechanism thereof, which device comprises a chamber for receiving said container; actuating means adapted to bear on the valve mechanism of the container; and first and second biassing means both adapted to bias the container towards the actuating means, characterised in that the said first and second biassing means are each of insufficient force alone to depress the portion of the valve mechanism of the container but together are of sufficient force to do so, said second biassing means being restrained in a position in which it does not bear on the container and being released on inhalation through the device to a position in which it does bear on the container.

The chamber adapted to receive the container is conveniently formed as a generally cylindrical chamber and is preferably formed in at least two separable parts, e.g. with a screw thread, bayonet or similar mounting, to enable the container to be changed as and when necessary.

As will be apparent, the device has suitable air inlet(s) and a mouthpiece or nosepiece respectively to entrain the material dispensed from the container and to enable it to be inhaled by a patient. Preferably, the air flow through the device is through the chamber around the container which is preferably a loose fit in the chamber.

The actuating means for the container valve mechanism is preferably mounted fixedly in the device so that it remains stationary and bears on the valve mechanism of the container at all normal times. The container moves relative thereto to dispense material from the container. The outlet from the container is desirably provided with a spray head adapted to produce a suitable spray pattern and direction and the actuating means conveniently bears on the spray head or incorporates a spray forming nozzle in flow communication with the outlet to the container. It is particularly preferred that the valve mechanism be biassed into the closed position and that it be of the metered dose form.

The first and second biassing means are both preferably helical compression springs, although other means, e.g. leaf springs or an over centre biassed leaf spring, may be employed if desired. It is preferred that the springs bear against the base of the container to urge it upward (i.e. longitudinally) within the chamber and against the valve actuating means. Preferably the two springs are mounted substantially coaxially with one another and with the longitudinal axis of the chamber.

The first biassing means preferably bears at all normal times on the container, and preferably provides from 30 to 80%, especially 50 to 75%, of the force required to depress the valve mechanism of the container. Typically, with a conventional medicament-containing container, the load required to depress the valve mechanism thereof on its own and ignoring effects from other components of the container is from 2.0 to 2.5 kg, and the percentages quoted above may reasonably be calculated based on these load figures. The second biassing means preferably also provides from 30 to 80%, especially 50 to 75%, of the force required to depress the valve mechanism of the container. The sum of the forces exerted by the first and second biassing means is preferably from 120 to 140% of the force required to depress the valve mechanism of the container.

The second biassing means is latched in a non-operative position out of contact with the

container until the latch is released by the patient inhaling. The latching can be achieved by any convenient means. The latch may be released manually if desired, e.g. by means of a push-button/lever system. However, it is preferred for the latch to be released by means of a pressure sensitive device which moves in response to a lowering of the air pressure within the device as the patient begins to inhale therethrough. Such pressure sensitive devices include vanes and diaphragms. However, it is preferred to use a piston and cylinder, the piston moving within the cylinder when the patient inhales through the device, said movement being employed, e.g. by means of levers and pivots, to release the latch. Preferably, the air inlets into the inhalation device enter through the cylinder and only allow air to pass into the chamber and through the device when the piston has moved far enough in the cylinder to release the latch. Such an arrangement ensures that air cannot enter the device until the piston has moved and the medicament has thus been expelled from the container. This ensures that the patient is actually dosed with medicament each time he uses the device, and moreover enables him to continue to inhale air through the device after the medicament has been administered where a metering valve is used on the container to dispense a metered dose of medicament.

The movement of the pressure sensitive device may be translated into release of the latch in any conventional way, for example by a rod or lever arrangement connected therebetween. Desirably, the pressure sensitive device is biassed, e.g. by means of a spring, into a rest position wherein the latch restrains the second biassing means, and is arranged to move against the bias when the patient inhales. A push-button is desirably provided in such a construction whereby, after inhalation through the device the container can be moved manually against the bias of the first and second biassing means so as to latch the second biassing means against its bias. The device is then primed and ready to administer another dose of medicament.

When the second biassing means is released, it acts in concert with the first biassing means and the combined force thereof, being greater than that necessary to depress the portion of the valve mechanics, causes the container to move within the housing relative to the valve mechanism portion (which is held stationary by the actuating means) thereby releasing the dose of the material, e.g. a medicament, from the container. Since only the second biassing means is released on inhalation through the device, the operation thereof is more gentle than the prior art devices. The inhalation device of the invention is of especial use with metered valve aerosol cans so that a known dose of medicament can be dispensed from the can even though the outlet valve mechanism is held in the depressed position by the two biassing means.

A preferred form of the device of the invention will now be described by way of illustration with respect to the accompanying drawing which is a cross-section through the device.

The inhalation device comprises an upper housing member 1, a lower housing member 2 and a base housing member 3. These housing members are provided with screwthreads 4 and 5 so that they can be connected together to form a hollow generally cylindrical housing enclosing a cylindrical chamber 6 which loosely receives a container 7 of medicament. Housing member 1 has an outlet mouthpiece 9 through which a patient can inhale medicament dispensed from container 7.

The container 7 has a valve mechanism and outlet 8 through which, when the valve mechanism is depressed relative to the container 7, a metered dose of the medicament is discharged.

Bearing on the outlet 8 to the valve mechanism of the container 7 is an axial actuating member 10 which is fixedly attached within upper housing member 1. A spray head 11 is formed within the actuating member 10 and in fluid flow communication with outlet 8 which directs the medicament from container 7 as a spray through mouthpiece 9.

Slidably mounted within lower housing member 2 is a sleeve member 12 having a transverse wall which bears on the base of the container 7 under the force of a helical compression spring 13 which acts between it and base member 3. Spring 13 exerts on the base of the container when the device is assembled as shown in the drawing, a force which is approximately 60% of that required to depress the valve mechanism of the container 7. Spring 13 thus urges the sleeve member 12 and the container 7 towards the fixed actuating member 10 without actuating the valve mechanism.

A cylindrical member 14 is mounted co-axially within base member 3 and within spring 13. Within the member 14 is slidably mounted a piston member 15. Preferably, the crown of the piston is formed as a conical surface with its apex directed axially upward. The apex 16 of the crown is attached to a rod 17 which terminates at pivot point 18. To this point 18 are pivotally attached radial pivot arms 19 and 20 which respectively terminate at pivot points 21 and 22, where they are connected pivotally to longitudinally directed latch arms 23 and 24 respectively. Latch arms 23 and 24 are themselves pivoted on fixed pivots 25 and 26 provided on the inner wall of cylinder member 14.

A cylindrical thrust member 29 is mounted co-axially within the lower housing member 7 and is adapted to bear against the underside of the transverse wall in sleeve member 12 under the influence of a coil spring 30. The lower end of spring 30 is restrained by a stepped member 31 fixedly mounted within cylindrical member

14. Latch arms 23 and 24 latch over radial projections 27 and 28 or an annular flange provided on member 29 to hold member 29 restrained from bearing against the transverse wall of sleeve member 12. Spring 30 exerts a force which is 60% of that required to actuate the valve mechanism of container 7. Thus, in combination, springs 13 and 30 exert sufficient force to actuate the valve mechanism but the latch mechanism effectively prevents spring 30 acting on the container 7. Between the member 31 and the pivot point 18 is provided a further helical spring 32 which biasses the piston member 15 towards the base housing member 3 and hence splays the arms 19 and 20 radially to cause the latch arms 23 and 24 to assume their operative position and engage projections 27 and 28.

In use, the mouthpiece 9 of the inhalation device is placed in the mouth of the patient who inhales therethrough. The air pressure within chamber 6 is reduced, and this causes piston member 15 to move axially upward within cylinder member 14 against the bias of spring 32. Air enters the space between the piston member and the base member 3 through air inlets 33 and 34 provided in said base member. The movement of the piston member 15 and associated rod 17 causes pivot point 18 to rise and, via pivot arms 19 and 20, pivot points 21 and 22 to move radially inward towards one another. This in turn causes latch arms 23 and 24 to pivot about points 25 and 26 and to release thrust member 29. Thrust member 29 then bears on sleeve member 12 which is free to slide within lower housing member 2 and bear on the base of container 7. The combined forces of springs 13 and 30 bear on the container 7 which accordingly moves axially relative to its outlet 8 which actuates its valve mechanism to discharge a metered dose of medicament through spray head 11.

As piston member 15 moves within cylinder member 14, it reaches a point where air inlets 35 and 36 provided through the wall of member 14 are uncovered. Air from inlets 33 and 34 may pass therethrough into chamber 6, past the container 7, and into mouthpiece 9 to entrain the dose of medicament discharged from the container. The entrained dose is inhaled by the patient.

When inhalation ceases, a piston member 15 returns under the influence of spring 32 to the postion shown in the drawing. It is then necessary to depress thrust member 29 until the latch arms 23 and 24 engage the projections 27 and 28. This can be done in a number of ways, but a convenient method is to provide the end wall of housing member 1 with a spring loaded button 37 carrying dependant arms 39 and 40. When button 37 is depressed, arms 39 and 40 bear against the top of container 7 and force it, the sleeve member 12 and the thrust member 29 towards the base housing member 3 against the actions of springs 13 and 30. The projections 27 and 28 on thrust member 29 latch under latch arms 23 and 24 and the push button 37 is released to return under the influence of spring 38 to the position shown. The device is now cocked and ready for use again. Alternatively, the device can remain in the uncocked position until the next dosage of medicament is required.

Claims

1. An inhalation device for use with a pressurised container (7) having an outlet valve mechanism (8) and from which material may be discharged by depression of a portion of the valve mechanism thereof, which device comprises a chamber (6) for receiving said pressurised container; actuating means (10) adapted to bear on the valve mechanism of the container; and first and second biassing means (13 and 30) both adapted to bias the container towards the actuating means, characterised in that the said first and second biassing means (13 and 30) are each of insufficient force along to depress the portion of the valve mechanism (8) of the container (7) but together are of sufficient force to do so, said second biassing means (30) being restrained in a position in which it does not bear on the container (7) and being released on inhalation through the device to a position in which it does bear on the container (7).

2. A device as claimed in claim 1 characterised in that the biassing means comprise coil springs (13 and 30).

3. A device as claimed in either of claims 1 or 2 characterised in that the chamber (6) contains a pressurised container (7) and in that air may flow through the chamber (6) and around the container (7).

4. A device as claimed in any one of the preceding claims characterised in that the chamber (6) is provided by a generally cylindrical housing (1, 2 and 3) in which the container (7) is to be mounted with its longitudinal axis substantially co-axial with the longitudinal axis of the housing and that the biassing means (13 and 30) are mounted substantially co-axially within the housing (1, 2 and 3) and in tandem with container (7) and are to bias the container (7) longitudinally in the chamber (6) towards the actuating means (10).

5. A device as claimed in any one of the preceding claims characterised in that each biassing means (13 and 30) is individually capable of exerting from 30 to 80% of the force required to actuate the valve mechanism (8) of the container (7) and together are capable of exerting from 120 to 140% of the force required to actuate the valve mechanism (8).

6. A device as claimed in any one of the preceding claims characterised in that the second biassing means (30) is released from its inoperative position by a latching mechanism (23 and 24) which is actuated by a pressure

14. Latch arms 23 and 24 latch over radial projections 27 and 28 or an annular flange provided on member 29 to hold member 29 restrained from bearing against the transverse wall of sleeve member 12. Spring 30 exerts a force which is 60% of that required to actuate the valve mechanism of container 7. Thus, in combination, springs 13 and 30 exert sufficient force to actuate the valve mechanism but the latch mechanism effectively prevents spring 30 acting on the container 7. Between the member 31 and the pivot point 18 is provided a further helical spring 32 which biasses the piston member 15 towards the base housing member 3 and hence splays the arms 19 and 20 radially to cause the latch arms 23 and 24 to assume their operative position and engage projections 27 and 28.

In use, the mouthpiece 9 of the inhalation device is placed in the mouth of the patient who inhales therethrough. The air pressure within chamber 6 is reduced, and this causes piston member 15 to move axially upward within cylinder member 14 against the bias of spring 32. Air enters the space between the piston member and the base member 3 through air inlets 33 and 34 provided in said base member. The movement of the piston member 15 and associated rod 17 causes pivot point 18 to rise and, via pivot arms 19 and 20, pivot points 21 and 22 to move radially inward towards one another. This in turn causes latch arms 23 and 24 to pivot about points 25 and 26 and to release thrust member 29. Thrust member 29 then bears on sleeve member 12 which is free to slide within lower housing member 2 and bear on the base of container 7. The combined forces of springs 13 and 30 bear on the container 7 which accordingly moves axially relative to its outlet 8 which actuates its valve mechanism to discharge a metered dose of medicament through spray head 11.

As piston member 15 moves within cylinder member 14, it reaches a point where air inlets 35 and 36 provided through the wall of member 14 are uncovered. Air from inlets 33 and 34 may pass therethrough into chamber 6, past the container 7, and into mouthpiece 9 to entrain the dose of medicament discharged from the container. The entrained dose is inhaled by the patient.

When inhalation ceases, a piston member 15 returns under the influence of spring 32 to the postion shown in the drawing. It is then necessary to depress thrust member 29 until the latch arms 23 and 24 engage the projections 27 and 28. This can be done in a number of ways, but a convenient method is to provide the end wall of housing member 1 with a spring loaded button 37 carrying dependant arms 39 and 40. When button 37 is depressed, arms 39 and 40 bear against the top of container 7 and force it, the sleeve member 12 and the thrust member 29 towards the base housing member 3 against the actions of springs 13 and 30. The projections 27 and 28 on thrust member 29 latch under latch arms 23 and 24 and the push button 37 is released to return under the influence of spring 38 to the position shown. The device is now cocked and ready for use again. Alternatively, the device can remain in the uncocked position until the next dosage of medicament is required.

Claims

1. An inhalation device for use with a pressurised container (7) having an outlet valve mechanism (8) and from which material may be discharged by depression of a portion of the valve mechanism thereof, which device comprises a chamber (6) for receiving said pressurised container; actuating means (10) adapted to bear on the valve mechanism of the container; and first and second biassing means (13 and 30) both adapted to bias the container towards the actuating means, characterised in that the said first and second biassing means (13 and 30) are each of insufficient force along to depress the portion of the valve mechanism (8) of the container (7) but together are of sufficient force to do so, said second biassing means (30) being restrained in a position in which it does not bear on the container (7) and being released on inhalation through the device to a position in which it does bear on the container (7).

2. A device as claimed in claim 1 characterised in that the biassing means comprise coil springs (13 and 30).

3. A device as claimed in either of claims 1 or 2 characterised in that the chamber (6) contains a pressurised container (7) and in that air may flow through the chamber (6) and around the container (7).

4. A device as claimed in any one of the preceding claims characterised in that the chamber (6) is provided by a generally cylindrical housing (1, 2 and 3) in which the container (7) is to be mounted with its longitudinal axis substantially co-axial with the longitudinal axis of the housing and that the biassing means (13 and 30) are mounted substantially co-axially within the housing (1, 2 and 3) and in tandem with container (7) and are to bias the container (7) longitudinally in the chamber (6) towards the actuating means (10).

5. A device as claimed in any one of the preceding claims characterised in that each biassing means (13 and 30) is individually capable of exerting from 30 to 80% of the force required to actuate the valve mechanism (8) of the container (7) and together are capable of exerting from 120 to 140% of the force required to actuate the valve mechanism (8).

6. A device as claimed in any one of the preceding claims characterised in that the second biassing means (30) is released from its inoperative position by a latching mechanism (23 and 24) which is actuated by a pressure

* C L M S *

sensitive mechanism (14 and 15) which is adapted to move in response to a reduction in pressure within the device on inhalation whereby the second biassing means (30) can move to urge the container (7) mounted in the chamber (6) towards the actuation means (10).

7. A device as claimed in Claim 6 characterised in that the pressure sensitive mechanism comprises a piston (15) moveably mounted in a cylinder (14), the relative movement of the piston and cylinder being adapted to release the latching means (23 and 24) restraining the second biassing means (30).

8. A device as claimed in either Claim 6 or Claim 7 characterised in that there are provided air inlets (33 and 34) whereby air may flow through the device via chamber (6) to an outlet (9) and in that the passage of air through the device is constructed by the pressure sensitive mechanism (14 and 15) until the mechanism has moved to release the second biassing means (30).

9. A device as claimed in any one of the preceding claims characterised in that the container (7) is provided with a metered dose valve mechanism (8).

Patentansprüche

1. Inhalationsvorrichtung zur Verwendung mit einem Druckbehälter (7), der einen Auslaßventilmechanismus (8) hat und von dem durch Niederdrücken eines Teiles von seines Ventilmechanismus Material abgeben werden kann, welche Vorrichtung eine Kammer (6) zum Aufnehmen des Druckbehälters; eine Betätigungseinrichtung (10), die zum Drücken auf den Ventilmechanismus des Behälters eingerichtet ist; und eine erste und eine zweite Spanneinrichtung (13 und 30) aufweist, die beide zum Spannen des Behälters gegen die Betätigungseinrichtung eingerichtet sind, dadurch gekennzeichnet, daß die erste und zweite Spanneinrichtung (13 und 30) jeweils allein von ungenügender Kraft sind, um den Teil des Ventilmechanismus (8) des Behälters (7) niederzudrücken, zusammen jedoch von ausreichender Kraft sind, um dies zu tun, wobei die zweite Spanneinrichtung (30) in einer Position festgehalten ist, in der sie nicht gegen der Behälter (7) drückt, und beim Inhalieren durch die Vorrichtung in eine Position freigegeben wird, in der sie gegen den Behälter (7) drückt.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Spanneinrichtung Schraubenfedern (13 und 30) aufweisen.

3. Vorrichtung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Kammer (6) einen Druckbehälter (7) enthält und daß Luft durch die Kammer (6) und um den Behälter (7) herum strömen kann.

4. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Kammer (6) durch ein im allgemeinen zylindrisches Gehäuse (1, 2 und 3) vorgesehen ist, in dem der Behälter (7) mit seiner Längsachse im wesentliche koaxial zur Längsachse des Gehäuses anzubringen ist, und daß die Spanneinrichtungen (13 und 30) im wesentlichen koaxial innerhalb des Gehäuses (1, 2 und 3) und mit dem Behälter (7) in hintereinanderliegender Anordnung angebracht und vorgesehen sind, den Behälter (7) in Längsrichtung in der Kammer (6) gegen die Betätigungseinrichtungen (10) zu drücken.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß jede Spanneinrichtung (13 und 30) für sich zur Ausübung von 30 bis 80% jener Kraft geeignet ist, die zur Betätigung des Ventilmechanismus (8) des Behälters (7) erforderlich ist, und sie zusammen zur Ausübung von 120 bis 140% der zur Betätigung des Ventilmechanismus (8) erforderlichen Kraft geeignet sind.

6. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die zweite Spannereinrichtung (30) aus ihrer Ruhestellung durch einen Klinkenmechanismus (23 und 24) freigegeben wird, der durch einen druckempfindlichen Mechanismus (14 und 15) betätigt wird, welcher zum Bewegen in Ansprechen auf eine Druckreduzierung innerhalb der Vorrichtung beim Inhalieren eingerichtet ist, wodurch sich die zweite Spanneinrichtung (30) bewegen kann, um den in der Kammer (6) angebrachten Behälter (7) gegen die Betätigungseinrichtung (10) zu drücken.

7. Vorrichtung nach Anspruch 6, dadurch gekennzeichnet, daß der druckempfindliche Mechanismus einen in einem Zylinder (14) beweglich angebrachten Kolben (15) aufweist, wobei die Relativbewegung von Kolben und Zylinder geeignet ist, die die zweite Spanneinrichtung (30) festhaltende Klinkeneinrichtung (23 und 24) freizugeben.

8. Vorrichtung nach Anspruch 6 oder 7, dadurch gekennzeichnet, daß Lufteinlässe (33 und 34) vorgesehen sind, wodurch Luft durch die Vorrichtung über die Kammer (6) zu einem Auslaß (9) strömen kann, und daß der Durchgang von Luft durch die Vorrichtung durch den druckempfindlichen Mechanismus (14 und 15) gehindert ist, bis sich der Mechanismus bewegt hat um die zweite Spanneinrichtung (30) freizugeben.

9. Vorrichtung nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß der Behälter (7) mit einem Ventilmechanismus (8) mit Dosismessung versehen ist.

Revendications

1. Dispositif inhalateur à utiliser avec un récipient sous pression (7) comportant un mécanisme de valve de sortie (8) et à partir duquel une matière peut être débitée par enfoncement d'une partie de son mécanisme de valve, ce dispositif comprenant une chambre (6) destinée à

* C L M S *

recevoir le récipient sous pression, un dispositif d'actionnement (10) propre à appuyer sur le mécanisme de valve du récipient et un premier ainsi qu'un second moyen de sollicitation élastique (13 et 30) tous deux propres à solliciter le récipient vers le dispositif d'actionnement, caractérisé en ce que le premier et le second moyen de sollicitation élastique (13 et 30) sont chacun de force insuffisante pour abaisser seuls la partie du mécanisme de valve (8) du récipient (7), mais sont ensemble d'une force suffisante pour effectuer cette opération, le second moyen de sollicitation élastique (30) étant retenu dans une position dans laquelle il n'appuie pas sur le récipient (7) et étant relâché lors d'une inhalation à travers le dispositif vers une position dans laquelle il appuie sur le récipient (7).

2. Dispositif suivant la revendication 1, caractérisé en ce que les moyens de sollicitation élastique comprennent des ressorts hélicoïdaux (13 et 30).

3. Dispositif suivant l'une ou l'autre des revendications 1 ou 2, caractérisé en ce que la chambre (6) contient un récipient sous pression (7) et de l'air peut s'écouler à travers la chambre (6) et autour du récipient (7).

4. Dispositif suivant l'une quelconque des revendications précédentes, caractérisé en ce que la chambre (6) est formée par un boîtier dans l'ensemble cylindrique (1, 2 et 3) dans lequel le récipient (7) doit être monté avec son axe longitudinal en substance coaxial à l'axe longitudinal du boîtier et les moyens de sollicitation élastique (13 et 30) sont montés en substance coaxialement dans le boîtier (1, 2 et 3) et en tandem avec le récipient (7) et doivent solliciter le récipient (7) longitudinalement dans la chambre (6) vers le dispositif d'actionnement (10).

5. Dispositif suivant l'une quelconque des revendications précédentes, caractérisé en ce que chaque dispositif de sollicitation élastique (13 et 30) est individuellement à même d'exercer 30 à 80% de la force nécessaire pour actionner le mécanisme de valve (8) du récipient (7) et les moyens de sollicitation élastique sont ensemble à même d'exercer 120 à 140% de la force requise pour actionner le mécanisme de valve (8).

6. Dispositif suivant l'une quelconque des revendications précédentes, caractérisé en ce que le second moyen de sollicitation élastique (30) est libéré à partir de sa position inactive par un mécanisme de verrouillage (23 et 24) qui est actionné par un mécanisme sensible à la pression (14 et 15) à même de se déplacer en réaction à une diminution de la pression dans le dispositif lors de l'inhalation, le second moyen de sollicitation élastique (30) pouvant ainsi se déplacer pour solliciter le récipient (7) monté dans la chambre (6) vers le dispositif d'actionnement (6).

7. Dispositif suivant la revendication 6, caractérisé en ce que le mécanisme sensible à la pression comprend un piston (15) monté de façon mobile dans un cylindre (14), le déplacement relatif du piston et du cylindre étant à même de libérer les moyens de verrouillages (23 et 24) retenant le second moyen de sollicitation élastique (30).

8. Dispositif suivant la revendication 6 ou 7, caractérisé en ce que des entrées d'air (33 et 34) sont prévues, de sorte que de l'air peut s'écouler à travers le dispositif par la chambre (6) vers une sortie (9) et le passage de l'air à travers le dispositif est obstrué par le mécanisme sensible à la pression (14 et 15) jusqu'à ce que le mécanisme se soit déplacé pour libérer le second moyen de sollicitation élastique (30).

9. Dispositif suivant l'une quelconque des revendications précédentes, caractérisé en ce que le récipient (7) est pourvu d'un mécanisme de valve à dose mesurée (8).

* C L M S *