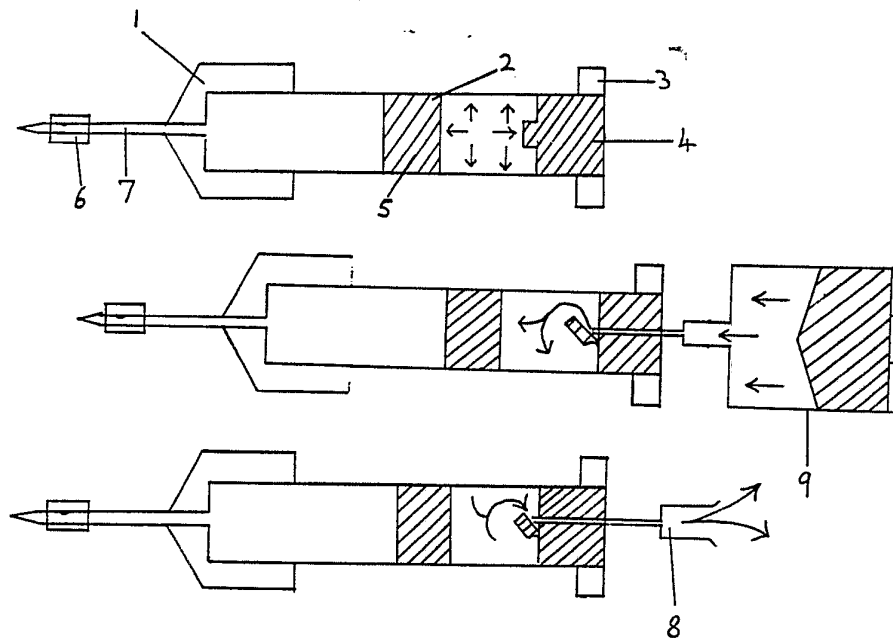




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(54) Title: RE-USABLE AIR PRESSURIZED TRANQUILLIZER DART**(57) Abstract**

A tranquilliser dart has a head (1) of certain outside dimension, releasably fixed to a barrel (2) of substantially smaller outside dimension. This barrel contains a rubber piston (5). The aforementioned head possesses an integral hypodermic needle (7), this needle has a hole in the side, near the said point. The hole in the needle is sealed by a rubber sleeve (6). Permanently fixed to the barrel (2) at the opposite end to the head (1) is a flight ring (3) and a one piece ventable valve (4). The said valve allows compressed air to be pumped into the rear of the dart by means of a venting needle (8) and ordinary hypodermic syringe (9). The said valve (4) maintains the air pressure during use of the dart. The said valve also allows the air pressure to be drawn out of the rear of the loaded dart by means of the venting needle, thus making the dart safe.

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⁺ Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

RE-USABLE AIR PRESSURIZED TRANQUILLIZER DART

This invention relates to a re-usable air pressurised tranquilliser dart.

Air pressurised tranquilliser darts are well known missiles which comprise of a hollow tube at one end of which is fastened a head with integral hypodermic needle. At the opposite end of the tube is fastened a tail with an integral non-ventable valve

Inside the tube is positioned a rubber piston. In front of this piston drugs are deposited when loading the dart. Behind this piston, the space is pressurised with compressed air. The hypodermic needle has a hole in the side and the drugs are contained under pressure by sealing this hole with a rubber collar. On striking the target, the collar is pushed away from the side hole in the needle, thus releasing the dose of drugs.

A special kind of tranquilliser dart consists of a head of standard outside diameter, into which is fastened a barrel of substantially smaller outside diameter. This dart is activated on striking the target by a detonator exploding. The gases thus produced, force out the dose of drugs.

These tranquilliser darts are sealed units and can only be used for one injection. They are therefore very expensive and extravagant to use

According to the present invention there is provided a re-usable tranquilliser dart comprising of a removable standard outside diameter head, a barrel of substantially smaller outside diameter, a hypodermic needle with a side hole and a one piece ventable valve permanently fixed to the rear or tail end of the dart

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawing in which:-

Figure 1 shows in section, the tranquilliser dart in loaded condition.

Figure 2 illustrates the pressurising of the dart through the one piece valve.

Figure 3 shows the de-pressurising of the dart in the event of the dart remaining unused.

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Referring to the drawing the dart comprises of a head 1 with integral needle and a barrel 2 in the form of a hollow tube releasably secured to the head by, for example a screw thread or similar means (not shown). At the rear end of the barrel is permanently fixed a flight ring 3 and a one piece ventable valve.4

In order to load the dart a venting needle 8 is inserted into the valve 4 and the piston 5 is set to the required dose. The drugs are then introduced into the barrel 2 in front of the piston 5. The head 1 is then fixed on to the barrel 2 and a rubber collar 6 is positioned over the side hole in the needle 7. An ordinary hypodermic syringe 9 is then attached to the venting needle 8 and a quantity of air is pumped into the rear of the barrel 2. The venting needle 8 still attached to syringe 9 are the together drawn out of the ventable valve 4 and the valve 4 is sealed by the pressurised air within the barrel 2.

In order to provide a means of unloading and making safe an unused dart, the venting needle 8 may be inserted into the ventable valve 4 thus releasing the air pressure within the barrel 2 and leaving the dart safe to unload by removing the head 1.

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CLAIMS

1 A re-usable tranquilliser dart comprising of a head of certain outside dimension, a barrel of substantially smaller outside dimension, wherein a one piece ventable valve is permanently fixed at the rear of the barrel to allow compressed air to be pumped into, and vented out of the barrel. A flight ring is fixed to the rear of the barrel in order to stabilise flight

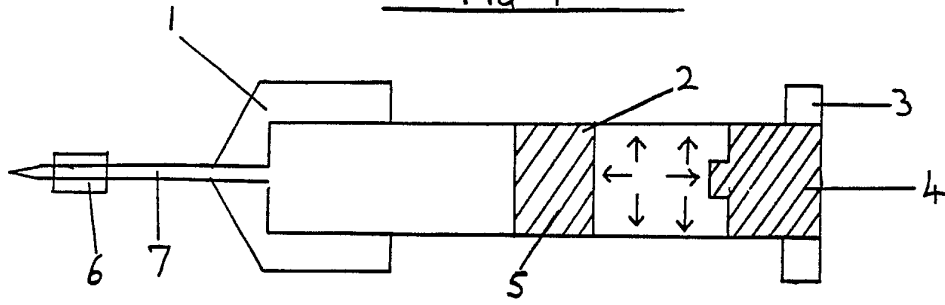
2 A re-usable tranquilliser dart as in claim 1 wherein the dose of drugs is ejected through the needle by means of air pressure contained within the barrel of the dart

3 A re-useable tranquilliser dart as claimed in Claim 1 or Claim 2 wherein a permanently fixed ventable one piece valve provides means of inserting air pressure into the rear of the barrel and maintaining that aforesaid pressure.

3 A re-usable tranquilliser dart as claimed in Claim 1, Claim 2 and Claim 3, Wherein a permanently fixed ventable one piece valve provides means of releasing air pressure contained within the barrel.

4 A re-usable tranquilliser dart substantially as described herein with reference to Figures 1, 2 and 3 Of the accompanying drawing.

Fig 1



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Fig 2

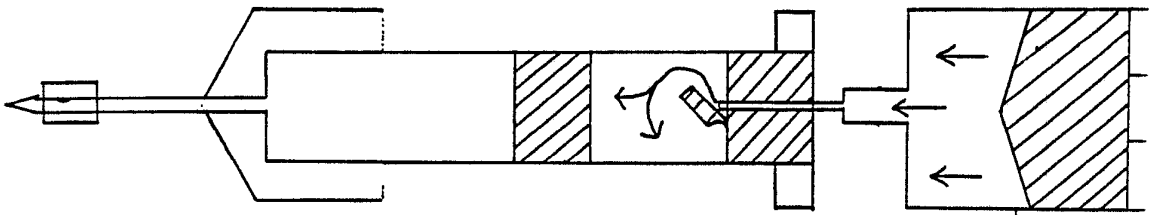
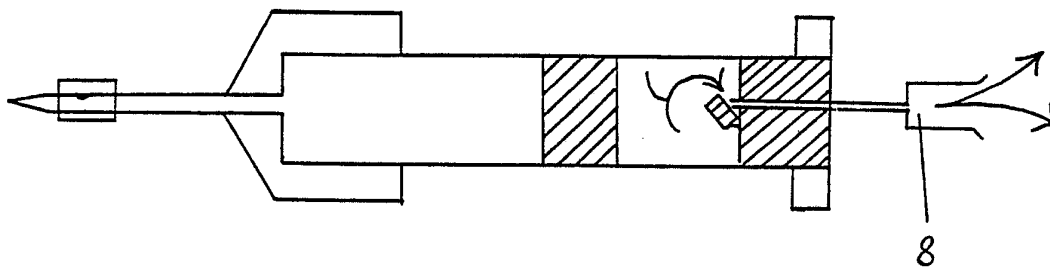


Fig 3

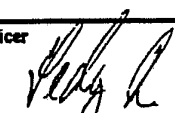


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INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 91/01798

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶				
According to International Patent Classification (IPC) or to both National Classification and IPC				
Int.Cl. 5 A61M5/20				
II. FIELDS SEARCHED				
Minimum Documentation Searched ⁷				
Classification System	Classification Symbols			
Int.Cl. 5	A61M ; B65D			
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸				
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹				
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³		
Y	US,A,4 243 036 (OTT) 6 January 1981 see column 2, line 35 - line 52; figure 2 ---	1-4		
Y	GB,A,794 677 (KAYE ET AL.) 7 May 1958 see page 2, line 21 - line 22 see page 2, line 27 - line 29 ---	1-4		
A	US,A,4 182 327 (HALEY) 8 January 1980 see column 3, line 44 - line 47; figure 3A ---	1		
A	DE,A,3 934 237 (SCHIWEK) 15 February 1990 see claim 1; figure ---	1		
<p>¹⁰ Special categories of cited documents :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 50%; vertical-align: top;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>
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IV. CERTIFICATION				
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report			
31 JANUARY 1992	13. 02. 92			
International Searching Authority	Signature of Authorized Officer			
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**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9101798
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4243036	06-01-81	None	

GB-A-794677		None	

US-A-4182327	08-01-80	None	

DE-A-3934237	15-02-90	None	

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