Title – Powder delivery device

This invention relates to improvements in a device for the dispensing of powder. In particular, the invention relates to an improvement in devices of the general type disclosed in International Patent Application WO2010/070333 (which is hereby incorporated by reference). Such devices are of particular utility in surgical procedures or other medical applications, for the topical delivery of powder to an internal or external surface of the body.

In devices of the type disclosed in WO2010/070333, a flow of gas entrains powder that is to be dispensed and carries that powder out of the device via a barrel. The barrel serves to direct the powder to the desired application site.

In the devices illustrated in WO2010/070333, the barrels are rather short and are of simple construction.

It has now surprisingly been found that the performance of devices of the type disclosed in WO2010/070333 may be substantially improved by modifications to the design of the barrel. In particular, elongation of the barrel and/or the incorporation of certain structural features in the internal bore of the barrel may lead to an improvements.

Thus, according to an aspect of the invention there is provided a device for the dispensing of powder, the device being of the type in which a generated gas flow entrains the powder to be dispensed and carries the powder from the device via a barrel, the barrel having a bore including a main portion with a continuous internal surface, characterised in that

(a) the length of the main portion is at least fifteen times its maximum internal diameter; and~~/or~~

(b) ~~the internal bore of the main portion is tapered; and/or~~the barrel has an outwardly flared outlet portion; and

(c) ~~the barrel has an outwardly flared outlet portion.~~optionally, the internal bore of the main portion is tapered.

18. A device as claimed in Claim 1, wherein the outlet portion has a length of between 5mm and 25mm, or between 5mm and 10mm.

19. A device as claimed in Claim 18, wherein the internal diameter of the outlet portion increase from its upstream to its downstream end by a factor of two or more.

~~20. A device as claimed in any preceding claim, which is a device described in WO2010/070333, in particular in relation to Figures 3 to 12 thereof.~~

20~~1~~. A device as claimed in any preceding claim, wherein the barrel is provided with a mounting that enables its orientation relative to the main body of the device of which it forms part to be varied.

21~~2~~. A device as claimed in Claim 20~~1~~, wherein the mounting is a ball-and-socket connector.

22~~3~~. A device as claimed in any one of Claims 1 to 19~~20~~, wherein the barrel is connected to the main body of the device in a fixed orientation.

23~~4~~. A device as claimed in Claim 22~~3~~, wherein the barrel is connected to the main body of the device by a bayonet fitting.

~~25. A method of delivering a haemostatic composition to an internal tissue exposed during surgical procedures or after traumatic injury, which method comprises providing a device as claimed in any preceding claim, which device is charged with a quantity of a haemostatic composition in dry powder form, and dispensing said composition from said device onto said tissue.~~