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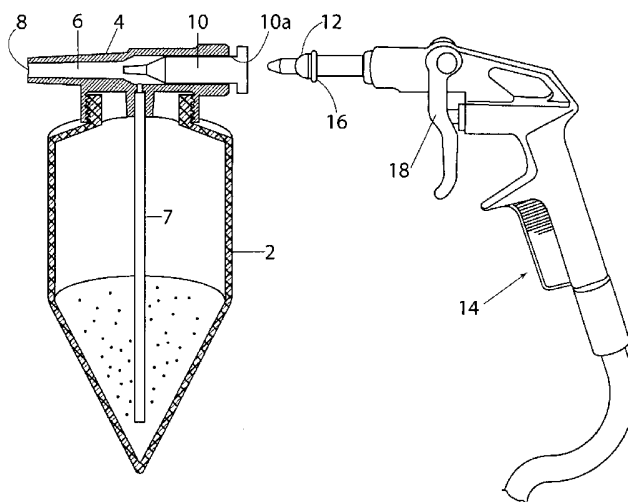
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[Continued on next page]

(54) Title: THE APPLICATION OF MICRODOTS AS IDENTIFIER LABELS



(57) Abstract: Microdots as identifier labels are applied to an article drawing a mixture of microdots and adhesive from a container (2) using pressurised air. A discharge part (4) is coupled to the container (2) and has a passage (6) with an inlet portion and a discharge outlet (8). A nozzle (10) separately formed from the discharge part (4) is fitted into the passage (6) in the discharge part (4); the nozzle (10) is fitted onto an outlet component (14) of a system for supplying air under pressure. Air fed under pressure via the nozzle (10) and into the passage (6) draws the mixture from the container body into the passage (6) for discharge through the discharge part (4) for application to the article. After use the nozzle (10) is removed from the outlet component (14) of the air supply system and the container (2), the discharge part (4), and the nozzle (10) are then discarded. Accordingly the outlet component (14) of the air supply system remains free from any contamination with the microdot/adhesive mixture and can thereby be used for a subsequent application without the need to clean it.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

THE APPLICATION OF MICRODOTS AS IDENTIFIER LABELS

The present invention relates to the application of microdots to an article to provide identification of that article, for example in the event of theft. More particularly, but not
5 exclusively, the invention relates to the application of identifying microdots to a vehicle such as an automobile, truck, motorcycle, boat, or jet ski.

The application of identifying microdots to a vehicle for identification purposes is known. A batch of microdots encoded with identifying data discrete to that particular vehicle and
10 each readable by the eye under magnification, is applied to the vehicle in a number of different places using a strong adhesive. In the event of theft, although an attempt may be made to remove identifying microdots, due to their very small size and large number, at least several thousand per vehicle, it is unlikely that all of the microdots will ever be able to be removed so it is likely that there will always be some microdots remaining on
15 different parts of the vehicle for subsequent identification.

A requirement exists for a simple and inexpensive system for applying the microdots. Further, it is a fundamental requirement of such a system that contamination of microdots between successive batches is completely avoided.

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According to the present invention there is provided a method of applying microdots as identifier labels to an article, said method comprising:

providing a container having a body containing a multiplicity of predetermined microdots therein and an adhesive into which the microdots are mixed, a discharge part
25 coupled to the body and having a passage with an inlet portion and a discharge outlet, and a nozzle separately formed from the discharge part and adapted to be fitted into the discharge part;

releasably fitting the nozzle onto an outlet component of a system for supplying air under pressure;

30 feeding air under pressure via the nozzle and into the passage so that air flowing through the passage draws the mixture from the container body into the passage for

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discharge through the discharge part for application to the article; and

removing the nozzle from the outlet component of the air supply system after use and disposing of the container, the discharge part, and the nozzle whereby the outlet component of the air supply system remains free from any contamination with the microdot/adhesive mixture and can thereby be used for a subsequent application without the need to clean it.

According to another aspect of the invention, there is provided a container assembly for use in the method defined above, the container assembly comprising a body containing a multiplicity of predetermined microdots and an adhesive into which the microdots are mixed, a discharge part coupled to the body and having a passage with an inlet portion and an discharge outlet, a draw tube leading from the mixture to the passage, and a nozzle separately formed from the discharge part and fitted into the passage in the discharge part such that air fed under pressure via the nozzle into the passage draws the mixture into the passage via the tube for discharge through the discharge part for application to the article.

Preferably the discharge part and the nozzle are each fabricated as separate one-piece plastics mouldings.

Preferably the outlet component is an air gun having a discharge nozzle over which the inlet end of the first mentioned nozzle is releasably fitted.

An embodiment of the invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows the main components of an application system in accordance with the preferred embodiment of the invention and including a container for a microdot/adhesive mixture, a discharge part, and an air gun onto which the discharge part when fitted to the container is applied; and

Figure 2 shows an alternative form of discharge part.

As shown in Figure 1, the system comprises a disposable container 2 having a large

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number of microdots, for example 10,000 for application to an automobile, and a viscous adhesive into which the microdots are mixed prior to application. The microdots which are each approximately 1mm in diameter carry indicia discrete to the particular article to which the microdots are to be applied and in the case of a vehicle that indicia is preferably the VIN which is a discrete, internationally recognised, identification code used by all major vehicle manufacturers. The indicia is able to be read by the eye through a magnifying lens. The adhesive itself preferably includes ultraviolet detectable particles or molecules to facilitate identification of the applied microdots under ultraviolet light. The container 2 has an opening at the upper end of the body, as shown a screw threaded opening, which is initially supplied with a closure cap, the cap being removed prior to use and replaced by a discharge part 4 which is screwed onto the container body in place of the cap. It is however to be understood that instead of using a cap and discharge part which screws onto the container body, a secure press-on or snap-on fitting with an appropriate sealing structure could alternatively be used.

The discharge part 4 is in the form of a one-piece plastics moulding with a discharge passage 6 into which leads a tube 7 extending from the mixture within the body of the container 2 whereby the mixture is drawn into the passage 6 through the tube 7 for discharge via an outlet end 8 of nozzle-like form when air under pressure is fed through the passage 6. The air is fed into the discharge passage via a nozzle 10 which is a second plastics component of one-piece form which is fitted into the inlet end of the discharge passage 6. The nozzle 10 extends outwardly to terminate in an inlet fitting 10a which is mounted over the nozzle 12 of an air gun 14. In the form shown in Figure 1, the nozzle 12 of the air gun 14 includes an O-ring 16 which seals within the inlet fitting 10a so that the nozzle 10 is sealingly and securely attached to the nozzle 12, but is removable therefrom. In the particular form shown in Figure 1, the nozzle 10 itself is a friction fit within the discharge passage 6 of the discharge part 4.

In use, to apply the microdots to a vehicle or other article, the lid is removed from the microdot container 2 and if the adhesive is not pre-supplied within the container it is added at that stage. The discharge part 4 with draw tube 7 is then applied to the upper end of the

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container body. The separate nozzle 10 may be pre-fitted into the discharge passage 6 in which case all that is then necessary is to mount the discharge part 4 with nozzle 10 over the outlet nozzle 12 of the air gun 14. Alternatively, the nozzle 10 can be first fitted onto the outlet nozzle 12 and then fitted into the discharge passage 6. By operating the trigger
5 18 of the gun which opens and closes an air control valve, air is fed via the nozzle 10 into the discharge passage 6 to thereby cause the mixture to be drawn from within the container via the draw tube 7 for discharge through the outlet end 8 of the discharge passage 6 and hence for application to the vehicle.

10 When the microdot/adhesive mixture has been discharged from the container 2, the nozzle 10 together with the discharge part 4 and container 2 is removed from the outlet nozzle 12 of the gun 14 and disposed. It will be readily understood that since the nozzle 12 of the gun is isolated by means of the nozzle 10 from contacting the microdot/adhesive mixture during discharge, the gun nozzle 12 will remain free from contamination and will therefore
15 not require any cleaning for successive uses.

Figure 2 shows a modified version in which the nozzle 10 is snap-fitted into the discharge passage 6 and has at its outer end an inlet fitting 10a for releasable snap-fitting over a complementary formation on the nozzle part of the air gun.

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The embodiments have been described by way of example and modifications are possible within the scope of the invention.

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CLAIMS:

1. A method of applying microdots as identifier labels to an article, said method comprising:
 - 5 providing a container (2) having a body containing a multiplicity of predetermined microdots therein and an adhesive into which the microdots are mixed, a discharge part (4) coupled to the body and having a passage (6) with an inlet portion and a discharge outlet (8), and a nozzle (10) separately formed from the discharge part (4) and adapted to be fitted into the passage (6) in the discharge part (4);
 - 10 releasably fitting the nozzle (10) onto an outlet component (14) of a system for supplying air under pressure;
feeding air under pressure via the nozzle (10) and into the passage (6) so that air flowing through the passage (6) draws the mixture from the container body into the passage (6) for discharge through the discharge part (4) for application to the article; and
 - 15 removing the nozzle (10) from the outlet component (14) of the air supply system after use and disposing of the container (2), the discharge part (4), and the nozzle (10) whereby the outlet component (14) of the air supply system remains free from any contamination with the microdot/adhesive mixture and can thereby be used for a subsequent application without the need to clean it.
- 20 2. A method according to claim 1, wherein the discharge part (4) and the nozzle (10) are each fabricated as separate one-piece plastics mouldings.
3. A method according to claim 1 or claim 2, wherein the nozzle (10) is a friction fit
25 in the passage (6).
4. A method according to claim 1 or claim 2, wherein the nozzle (10) is a snap-fit in the passage (6).

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5. A method according to any one of claims 1 to 4, wherein the outlet component (14) is an air gun having a discharge nozzle (12) over which the inlet end of the first mentioned nozzle (10) is releasably fitted.

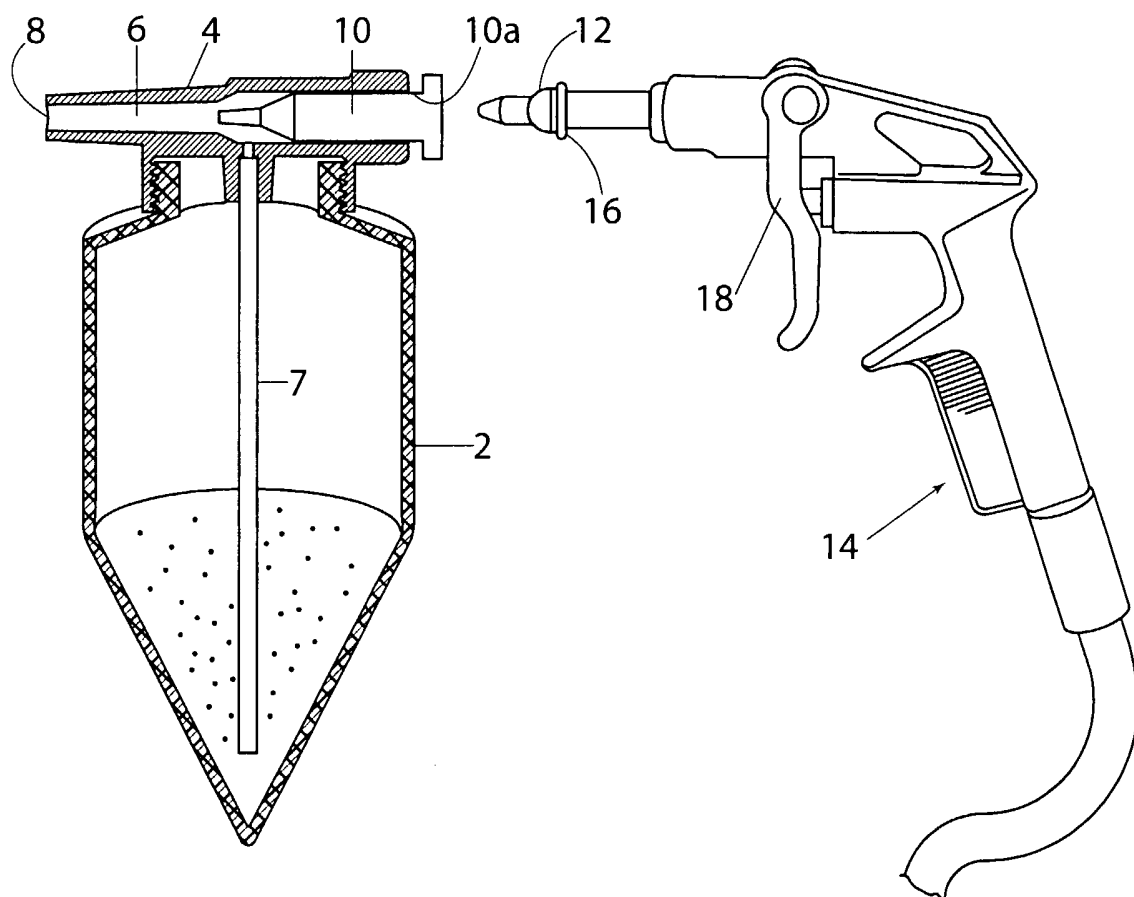
5 6. A container assembly for use in the method claimed in any one of claims 1 to 5, the container assembly comprising a body (2) containing a multiplicity of predetermined microdots and an adhesive into which the microdots are mixed, a discharge part (4) coupled to the body (2) and having a passage (6) with an inlet portion and an discharge outlet (8), a draw tube (7) leading from the mixture to the passage (6), and a nozzle (10) separately formed from the discharge part (4) and fitted into the passage (6) in the discharge part (4) such that air fed under pressure via the nozzle (10) into the passage (6) draws the mixture into the passage (6) via the tube (7) for discharge through the discharge part (4) for application to the article.

15 7. A container assembly according to claim 6, wherein the nozzle (10) is a friction fit in the passage (6).

8. A container assembly according to claim 6, wherein the nozzle (10) is a snap-fit in the passage (6).

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9. A container assembly according to any one of claims 6 to 8, wherein the discharge part (4) and the nozzle (10) are each fabricated as separate one-piece plastics mouldings.

**FIGURE 1**

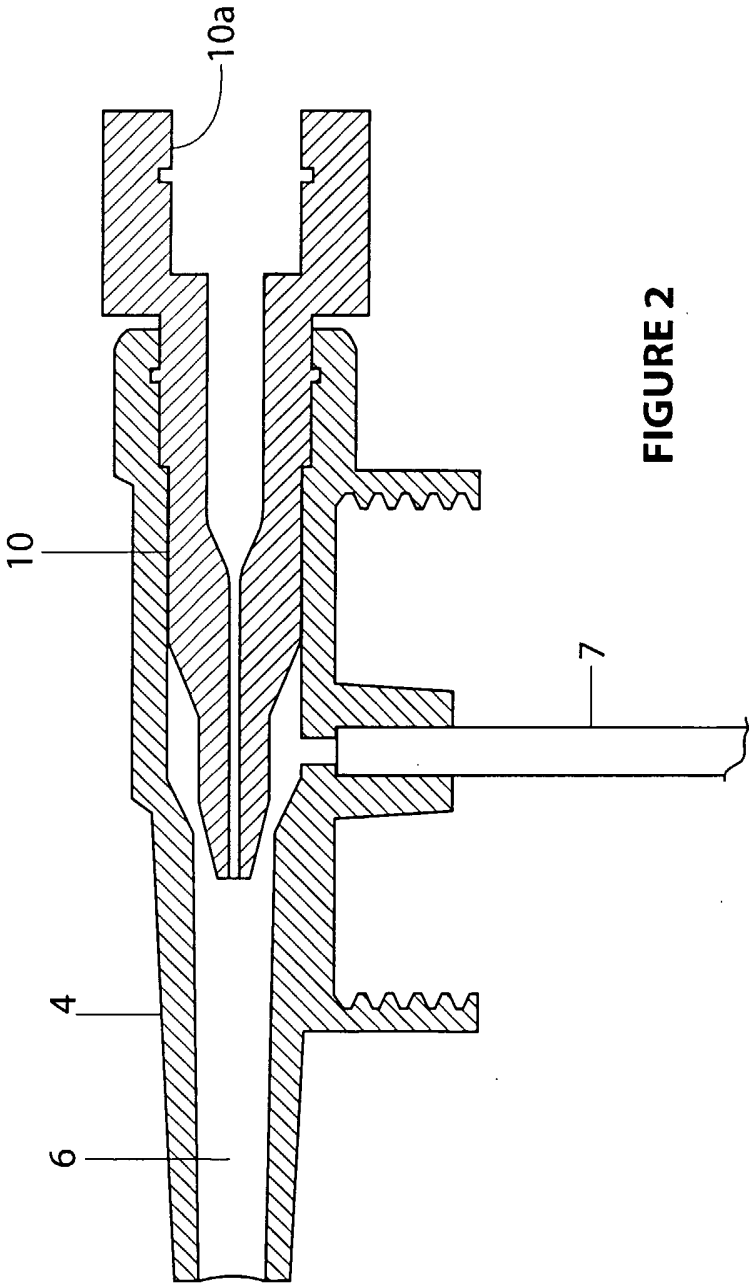


FIGURE 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2005/000363

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: B05B 7/24, 7/30, B65C 9/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
DWPI IPC B65C, B65D, B60R, B05-, G09F and keywords: SPRAY, DISPENSE, CONTAINER, RECEPTACLE, CONNECT, NOZZLE, INSERT, DRAW, SUCK, TUBE, PIPE, AIR, PRESSURE, DOTS, LABEL, GLUE, ADHESIVE, VISCOUS and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5180109 A (SCHWARTZBAUER et al.) 19 January 1993 See whole document – Insert (66) See whole document	1-9 1
X Y	US 4804144 A (DENMAN) 14 February 1989 See whole document – Nozzle insert (78) See whole document	1-9 1
X Y	US 4781329 A (TENNEY et al.) 1 November 1988 See whole document – eg Figure 11 with nozzle (95) See whole document	1-9 1

☒ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 28 April 2005	Date of mailing of the international search report 05 MAY 2005
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized officer  ADRIANO GIACOBETTI Telephone No : (02) 6283 2579

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2005/000363

C (Continuation).

DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4971251 A (DOBRICK et al.) 20 November 1990	1-9
Y	See whole document – eg Figure 2 with nozzle (56, 57)	1
Y	See whole document	
Y	WO 2002/040355 A2 (MCLAWS et al.) 23 May 2002	1
	See whole document – Mixture of microdots and adhesive.	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2005/000363

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5180109	AU	17007/92	CA	2068189	EP	0517388
US	4804144	NONE					
US	4781329	NONE					
US	4971251	AU	44696/89	BR	8905983	CA	2002375
		CA	2023270	EP	0371634	EP	0418032
		HK	1007978	JP	2203950	US	4936511
WO	2002/040355	AU	17833/02	AU	87321/01	AU	2001100633
		AU	2003270959	CA	2449824	CN	1481282
		EP	1216758	ZA	200303810		
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.							
END OF ANNEX							