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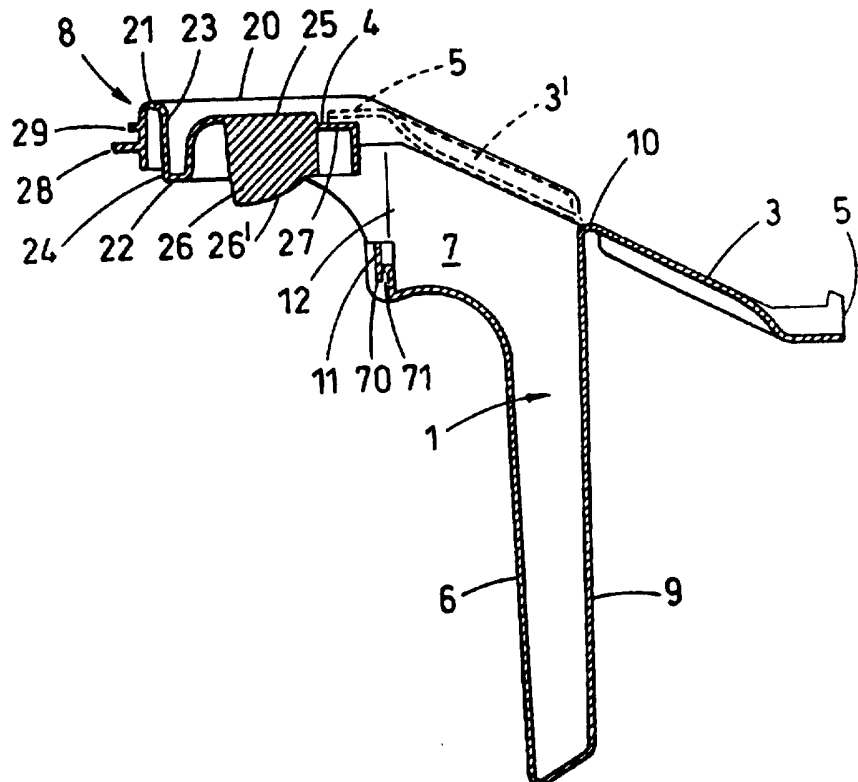
*With international search report.*

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: CLIP ON HANDLE

**(57) Abstract**

A clip on handle (1) for attachment to an overcap (2) of an aerosol container. The handle has a plurality of securing flanges (29), preferably around an interlocking part of the handle body, which are arranged to engage in apertures (60, 65) provided in the side walls (31) of the central recess (30) of the overcap in which the actuator arm (3) hereof is pivotally mounted. A further flange (28) is provided which engages with the outer end surface of the overcap and assists in holding the handle securely relative to the overcap. The securing flanges ensure firm interlocking between overcap and clip on handle in all directions. The clip on handle disclosed substantially reduces manufacturing costs thereof and is easy to use.



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## CLIP ON HANDLE

Technical Field

5 This invention relates to a clip on handle which particularly, but not exclusively, relates to a handle which is to be used with aerosol containers.

Background Art

10 It is generally known in the manufacture of aerosol containers to produce such a container having a valve stem through which fluid inside the container is released upon downward depression of the valve stem or by tilting the valve stem. The movement of the valve stem in either instance is generally achieved by an overcap which fits on to the container whilst an operating arm of the overcap interconnects with the valve stem so that upon movement of the arm of the overcap fluid is emitted from the container. Although some valve stems are interconnected directly with the arm on the overcap it is more often the case that the remote end of the valve stem from the can has an enlarged diameter cylindrical actuator button fitted to the end thereof.

15 A passage within the button enables the fluid from the container to pass initially longitudinally of the container valve stem and then radially outwardly relative to the longitudinal axis of the button, to be emitted in a direction substantially perpendicularly to the direction in which the longitudinal axis of the valve stem extends. The operating arm of the overcap, generally a pivotally mounted lever, engaged about the external surface of the actuator button so that when the operating arm operates on the overcap it depresses the valve stem through the button to emit fluid, or alternatively the arm is such that a tilt action is effected upon the button and hence the valve stem to release fluid from the container.

20 With a wide range of people using such aerosol container products it is necessary to facilitate ease of holding the aerosol container and operate the operating arm on the overcap. Accordingly, it has been known to apply handles which connect on to the container or are integrally formed with the overcap which is itself connected to the container. Operating mechanisms are then provided on the handle usually by way of a push-down pivotal lever or by a trigger mechanism.

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The disadvantage of such arrangements is that they are either crudely made, aesthetically unacceptable, or, in the case of the integral overcap and handle where aesthetically they are more acceptable, the integral overcap and handle become very expensive to manufacture.

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### Brief Description of the Invention

It is an object of the present invention to provide a clip on handle in which the above mentioned disadvantages are substantially reduced.

According to one aspect of the present invention there is provided a clip on handle for an aerosol container, comprising a body and means on the body to attach the handle securely on an overcap for the aerosol container.

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In one preferred embodiment of the invention release means are provided on the handle to move the operating arm of the overcap to release fluid from the aerosol container.

Conveniently, the securing means comprises interlocking means to secure the handle on the overcap. The interlocking means may comprise a plurality of securing flanges projecting from the clip body and being locatable in apertures provided on the overcap to interlock the handle with the overcap.

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Preferably, the securing flanges extend outwardly from an interlocking portion of the clip of the handle, and comprises a continuous flange around the interlocking portion to engage an outer end surface of the overcap. The securing flanges may include a tongue extending outwardly from the interlocking portion on a side thereof remote from that on which a grip portion of the handle is mounted. Conveniently, the securing flanges include side flanges, one on either side respectively of the interlocking portion to engage with corresponding recesses in the overcap.

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Preferably, the securing means on the body to secure the handle on an overcap, includes a tongue spaced from an extending parallel to the front wall of the handle to receive in the said space a wall portion of an overcap when the handle is mounted on the overcap. Conveniently, the clip on handle includes a first operable lever arm which is pivotally mounted on the body and engages the pivotal actuator arm of the overcap. Preferably, a second operable lever arm is pivotally mounted on the handle to engage the first operable lever arm to control the movement thereof. The first operable lever arm on the clip on handle

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preferably has a pressure member extending outwardly therefrom to contact the actuator arm of the overcap.

The clip on handle preferably includes a securing flange on the second operable lever arm to prevent undue pivotal movement thereof in the operable position of the second operable lever arm.

According to another aspect of the present invention there is provided a clip on handle and overcap, the clip on handle comprising a body and securing means on the body to attach the handle securely on an overcap for the aerosol container, and the overcap comprising means to receive the said securing means on the body of the clip on handle to secure the handle to the overcap.

Preferably, the means on the overcap comprises recesses to receive therein securing means of the clip on handle.

According to a further aspect of the present invention there is provided an overcap comprising means to interengage with securing means on the body of a clip on handle to secure the handle to the overcap.

Preferably, the means on the overcap comprises recesses in a side wall of a central recess of the overcap in which an actuator arm is pivotally mounted to operate an aerosol container to release fluid therefrom. Conveniently, the second pivotally movable lever arm has a recess therein for locating a thumb or finger for moving the second pivotal lever arm in use.

#### Description of the Drawings

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

Fig. 1 is a side elevational view of a clip on handle according to the present invention;

Fig. 2 is a side elevational cross-sectional view of the clip in handle of Fig. 1;

Fig. 3 is a top view of the clip on handle of Fig. 1 with an operative lever arm in an outwardly extended position;

Fig. 4 is a front view of the clip on handle of Fig. 1;

Fig. 5 is a front elevational view of an overcap to which the clip on handle of Figs. 1 to 4 is to be attached;

Fig. 6 is a bottom view of the overcap of Fig. 5, and

Fig. 7 is an inverted cross-sectional elevational view along the line A-A of Fig. 6.

#### Mode(s) for Carrying Out The Invention

Referring in more detail to the drawings, specifically to Figs. 1 through 4 there is disclosed a clip on handle 1 which is attachable to an overcap 2 (partially shown in broken lines in Fig. 1). The clip on handle 1 has an elongate operating lever arm 3 which once the handle is clipped on to the overcap 2 is pivoted to the position 3' and in this position free end 5 of the arm 3 is movable downwardly in Figs. 1 to 4 to move another pivotally mounted lever arm 4 of the handle which in turn moves the actuator arm of the overcap 2. The downward movement of the actuator arm is effective to operate upon a standard actuator button (not shown) mounted on a valve control stem of a container (also not shown) as will hereinafter be described.

The body of the handle shown in Fig. 1 to 4 has an elongate grip 6 connected by an intermediate portion 7 to a locking portion 8 on which is provided a number of tongues or flanges to assist the interlocking of the clip on handle to an overcap 2.

The handle 1 is generally of a rectangular hollow tapered cross section integrally formed with intermediate body portions and having a recess in the upper surface of the intermediate portion 7 is a recess extending downwardly into the handle and in which recess the arm 3 is arranged to sit in its operable position. The arm 3 is connected to the top of a rear surface of the handle grip 6 by an integral hinge 10. The intermediate portion 7 has a front wall 11 having an upper recess 12 in which the movable arm 3 is movable up and down to operate pivotal lever arm 4. Conveniently, the extreme outer or free end 5 of the arm 3 includes outwardly directed angled lugs thereon for engagement with corresponding inwardly directed lugs provided on locking portion 8 to prevent the arm 3 from inadvertently pivoting to the open position shown in Fig. 1 when handled by a person using the aerosol container.

The locking portion 8 of the clip on handle 1 includes a generally elongate U-shaped body portion 20 which itself has a generally inverted U-shaped cross-section as may be seen at 21 in Fig. 2. The pivotal lever arm 4 extends between the arms of the U-shaped body 20 and is hingedly joined on an

inner side of the inverted U-shaped cross-section at the lowermost free end 22 of the inner arm 23 thereof by an integral tongue 24. The tongue 24 is connected to a pressure pad portion 25 beneath which there is an outwardly directed flat plate like extension 26 having a curved end surface 26 for engagement with the top surface of the actuator arm of the overcap 2. The end of the pressure pad portion 25 remote from the pivotal connection with the U-shaped body 20 is a stepped down flat arm portion 27 on the top surface of which remote end 5 of the arm 3 rests and extends downwardly on either side thereof when the arm 3 is in its operative position as indicated at 3' in Fig. 2.

A tongue 28 projects outwardly from the outside surface of the U-shaped body 20 of the locking portion in the direction of the longitudinal axis of the handle 1 through arm 3, intermediate portion 7 and locking portion 8. A shorter outwardly extending flange 29 extends all the way around outermost surface of the U-shaped body 20 of the locking portion 8 of the clip on hanger as shown in Fig. 3. The tongue 28 is provided to locate the clip on hanger on the overcap and to prevent further inward movement of the clip relative to the overcap by engagement on the upper surface of the overcap as shown in Fig. 2.

A lug 28' projects outwardly from the outer surface of the body 20 of U-shaped cross-section on either outermost side of the arms of the U-shaped body 20. The lug 28' extends substantially perpendicularly from the outer surface of body 20 and tapers inwardly towards the bottom edge of outer wall of the U-shaped body. As will be described further below, such construction facilitates mounting of the clip on hanger onto the overcap and assists in preventing removal of the handle once clipped in place on the overcap.

Referring now to Figs. 5 to 7 there is disclosed in more detail the overcap 2 to which the above described handle 1 is to be connected. The overcap is of a general cylindrical formation having a recess 30 including inwardly sloping sides 31 and bottom wall 32, terminating in an aperture 33. Through the aperture 33 is seen a centrally located sleeve 34 which in use sits over the actuator button attached to the end of a valve stem of the aerosol container. The sleeve 34 has a series of ribs 35 projecting radially from the external surface thereof along the full length of the sleeve in the direction of the longitudinal axis of the sleeve. In Fig. 5 each rib 35 extends at portion 36 beyond the end of the

downwardly directed open edge of sleeve 34, and as shown the inner surface of the rib 35 of this extended portion 36 is tapered outwardly to the free end of the extension 36 thereby to form a larger opening at the outermost tip thereof than the opening within the sleeve 34 and thereby providing a greater tolerance in width of opening to ensure the sleeve and actuator button interlock when the overcap is first mounted on the aerosol container when there may be slight misalignment of the actuator button and sleeve.

The sleeve 34 has on its inner surface an elongate rib 37 extending in the longitudinal direction of the sleeve 34 for engaging in a corresponding (not shown) groove extending in the longitudinal direction of the actuator button so that the outlet of the actuator button is always directed towards aperture 33 in the peripheral surface of the sleeve 34. Above aperture 33 is a flat wall 39 in which there is provided a further aperture 40 extending across the full width of the flat wall 39 but being relatively shallow in depth relative to the length of the wall 39 for receiving tongue 28.

Referring now to Fig. 6 there is shown a bottom view in the direction of the arrow 41 in Fig. 5 and illustrates the cylindrical outer surface of the cap 2 with the underneath of the bottom wall 32 of the recess 30 on the left hand side of Fig. 6. Ribs 50 extend in the longitudinal direction of the overcap but as more clearly seem from the section A-A in Fig. 7 the ribs stop short of the bottom open end 52 of the overcap to present a flat surface 51 in the space between the end of the ribs 50 and the outermost or bottom open end 52 of the overcap 2. Elongate tapered lugs 53 are provided which extend in the peripheral direction of the inner surface 54 of the overcap. The surfaces 51 and the lugs 53 cooperate to ensure the overcap 2 is securely mountable on an aerosol container with limited displacement of the overcap onto the container.

The sleeve 34 is mounted directly upon the undersurface of actuator arm 55 which is pivotally mounted by a hinge 56 to the inner peripheral wall of the overcap. The arm 55 is of a generally elongate construction having a curved innermost end 57. Securing lugs 58 initially interconnect the arm 55 with inner wall 59 of recess 60 extending upwardly, Fig. 7, to a top surface 61 of the overcap 2. The lugs 58 are used to ensure an aerosol container has not been tampered with prior to sale to the customer but which upon first use by the



customer simply breaks away to allow the arm 55 to pivot freely relative to the integral hinge 56. The uppermost surface of the arm 55 has a curved textured surface for usually receiving an operator's finger or thumb but in this instance receives the outwardly extending cam 26 of the movable arm 4 of the clip on handle.

5 As may be seen from Fig. 7 the wall 59 of the recess 60 initially extends downwardly by a relatively short amount to a bottom edge 62 extending parallel with the top surface 61 and then extends downwardly at 63 perpendicularly to the upper surface 61 to a lower surface 64. Recesses 65 are provided in the wall 59 one on each side respectively of the recess 60 to provide a locking surface 66 extending in a direction parallel with the upper surface 61 of the overcap 2.

10 The hinge 56 of actuator arm 55 is shaped to provide a recess 67 between the arm 55 and edge 68 of the outer peripheral wall of the overcap. The clip on handle 1 has a tongue 70 extending from the front wall 11 thereof which extends parallel to but spaced from the wall 11 by an amount sufficient to receive in space 71 the peripheral wall of the overcap in the region of the edge 68 adjacent the hinge 56 of the actuator arm 55.

15 The clip on handle is mounted on the overcap 2 by locating the tongue 28 of the handle in the aperture 40 through the inner wall 59 of the recess 60; the lugs 28' in contact with surface 66 of recess 65, and the tongue 70 in the recess 67 between hinge 56 and the peripheral wall of the overcap.

20 More specifically as the tongue 28 enters the aperture 40 of the overcap the flange 29 is located on the top surface 61 all around the edge of the recess 60.

25 At this point the clip handle is located in the recess 60 at an angle and when downward pressure is applied to the clip hanger lugs 28' with their outwardly sloping surfaces allow the clip handle to be pushed into the recess 60 until the flat ledges of the lugs 28' engage beneath the surfaces 66 of the recess 65 respectively.

30 Simultaneously, downwardly extending tongue 70 on the handle is located inside edge 68 in the space 71. Therefore, the handle is fixed in

position by the tongue 28, the side lugs 28' and the inwardly extending lugs 70 to securely hold the handle relative to the overcap 2 in all directions.

5 The arm 3 can be in the position shown in Fig. 1 prior to the handle being clipped to the overcap or alternatively the arm 3 is set to the position 3' prior to attachment to the overcap. In either event the arm is pivoted about the hinge 10 until the free end 5 of the arm 3 engages the upper surface of the pivotal arm 4 and extends downwardly on either side thereof. The free end of the arm 5 is provided with lugs similar to the side lugs 28' on the locking portion of the handle so that movement in a downward direction and returning to the position shown in 3' is allowable, but the lugs at the end of the arm 5 engage with corresponding lugs on the wall 59 of the recess 60 to prevent inadvertent removal or outward pivotal movement of the arm 3 relative to the handle 1.

10 The separate clip on handle and the overcap are both made of plastics material and this material has sufficient resilience so that if one wishes to remove the clip on handle from the overcap this may be done by slightly twisting the handle in a lateral direction and lifting simultaneously. However, it is possible that once clipped on to the overcap the clip on handle will not be removable.

15 Once the handle is clipped to the overcap the extension or cam 26 presses on the arm 55 which in turn through the sleeve 34, presses down upon the actuator button on the valve stem of the aerosol container to operate or release fluid from the container through the aperture 38 of the sleeve aperture 33 of the overcap and between the walls 31, 32.

20 Although the above one particular embodiment of the invention is disclosed other embodiments may be provided without departing from the scope of the invention. In particular, whilst the cam 26 has been described as a single plate having a curved outer surface to facilitate movement between the top of the arm 55 of the overcap and the cam surface 26. The extension 26 may be of a different form such as a cross formed by two plates at right angles and extending on opposite sides thereof one relative to the other, respectively.

25 Moreover, whilst the handle is shown to have a rear surface 9 which lies generally parallel to the longitudinal axis of an aerosol container when

connected with the overcap, an inner surface of the grip portion 6 is slightly angled outwardly and inwardly towards the surface 9.

In another alternative embodiment the continuously extending flange 29 may comprise a series of separate flanges.

5           Although the above described embodiment has been disclosed as having a fluid emission from the aerosol container which is directed in a direction substantially perpendicular to the longitudinal axis of the valve stem of the aerosol container, it may be possible to adapt the clip on handle of the present invention so that the fluid emission from the aerosol container and overcap is in a  
10           direction substantially parallel to the longitudinal axis of the aerosol container, that is, the fluid within the aerosol container will emit substantially perpendicularly to the top surface 61 of the overcap 2. The movable arm 4 of the clip 1 handle will of course be restructured to ensure there is a sufficient aperture the arm 4 to allow emission of fluid therethrough.

15           Furthermore, an overcap 2 has been described in which the sleeve 34 acts to push the actuator button and hence the valve stem of the aerosol container in a direction longitudinally of the valve stem. However, the sleeve 34 and actuator arm 55 may be adapted in a standard fashion to operate the valve stem in a tilting manner in which the free end of the valve stem is displaced  
20           laterally of the direction of the longitudinal axis of the aerosol container to release fluid from the container.

#### Industrial Applicability

25           The present invention provides a way of attaching a handle to an aerosol spray can. The handle may reduce hand fatigue when spraying large surfaces.

## WHAT I CLAIM IS:

1. A clip on handle for an aerosol container, comprising a body and securing means on the body to attach the handle securely on an overcap for the aerosol container.
- 5 2. A handle as claimed in claim 1, including release means provided on the handle to move the operating arm of the overcap to release fluid from the aerosol container.
3. A handle as claimed in claims 1 or 2, wherein said securing means comprises interlocking means to securing the handle on the overcap.
- 10 4. A handle as claimed in claim 3, wherein the interlocking means comprises a plurality of securing flanges projecting from the clip body and being locatable in apertures provided on the overcap to interlock the handle with the overcap.
- 15 5. A handle as claimed in claim 4, wherein the securing flanges extend outwardly from an interlocking portion of the clip on handle, and comprises a continuous flange around the interlocking portion to engage an outer end surface of the overcap.
- 20 6. A handle as claimed in claim 4 or 5, wherein the securing flanges include a tongue extending outwardly from the interlocking portion on a side thereof remote from that on which a grip portion of the handle is mounted.
7. A handle as claimed in any one of claims 4 to 6, wherein the securing flanges include side flanges, one on either side respectively of the interlocking portion, to engage with corresponding recesses in the overcap.
- 25 8. A handle as claimed in any one of the preceding claims, wherein the securing means on the body to secure the handle on an overcap includes a tongue spaced from and extending parallel to a front wall of the handle to receive in the said space a wall portion of an overcap when the handle is mounted on the overcap.
- 30 9. A handle as claimed in any one of the preceding claims, where in the clip on handle includes a first operable lever arm which is pivotally mounted on the body and engages the pivotal actuator arm of the overcap.

10. A handle as claimed in Claim 9, including a second operable lever arm pivotally mounted on the handle to engage the first operable lever arm to control the movement thereof.

5 11. A handle as claimed in claim 9 or claim 10, wherein the first operable lever arm on the clip on handle has a pressure member extending outwardly therefrom to contact the actuator arm of the overcap.

12. A handle as claimed in Claim 10 or 11, including a securing flange on the second operable lever arm to prevent undue pivotal movement thereof in the operable position of the second operable lever arm.

10 13. A clip on handle and overcap, the clip on handle comprising a body and securing means on the body to attach the handle securely on an overcap for the aerosol container, and the overcap comprising means to receive the said securing means on the body of the clip on handle to secure the handle to the overcap.

15 14. A clip on handle and overcap as claimed in claim 13, wherein the means on the overcap comprises recesses to receive therein the securing means of the clip on handle.

15. An overcap comprising means to interengage with securing means on the body of a clip on handle to secure the handle to the overcap.

20 16. An overcap as claimed in claim 15, wherein the means on the overcap comprises recesses in a side wall of a central recess of the overcap in which an actuator arm is pivotally mounted to operate an aerosol container to release fluid therefrom.

17. A clip on handle substantially as hereinbefore described with reference to, and as illustrated in, Figs. 1 to 4 of the accompanying drawings.

25 18. A clip on handle and overcap substantially as hereinbefore described with reference to, and as illustrated in the accompanying drawings.

19. An overcap substantially as hereinbefore described with reference to, and as illustrated in, Figs. 5 to 7 of the accompanying drawings.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US95/12847

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : B65D 83/00  
US CL : 222/402.15, 473  
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)

U.S. : 222/402.13, 402.15, 472, 473

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)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 3,506,159 (Muller) 14 April 1970, see the entire document	1-5, & 13-16
X	US, A, 2,960,260 (Kutik) 15 November 1960, see the entire document	1-5 & 13-16
A	US, A, 4,432,474 (Hutchinson et al.) 21 February 1984	
A	US, A, 4,449,647 (Reed et al.) 22 May 1984	
A	US, A, 3,112,849 (Wallace) 03 December 1963	

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

* Special categories of cited documents:	*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
*A* document defining the general state of the art which is not considered to be of particular relevance	*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
*E* earlier document published on or after the international filing date	*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
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*O* document referring to an oral disclosure, use, exhibition or other means	
*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  
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US95/12847

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 17-19  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 17-19 are omnibus, and thus unsearchable.
3. ☒ Claims Nos.: 6-12  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.