



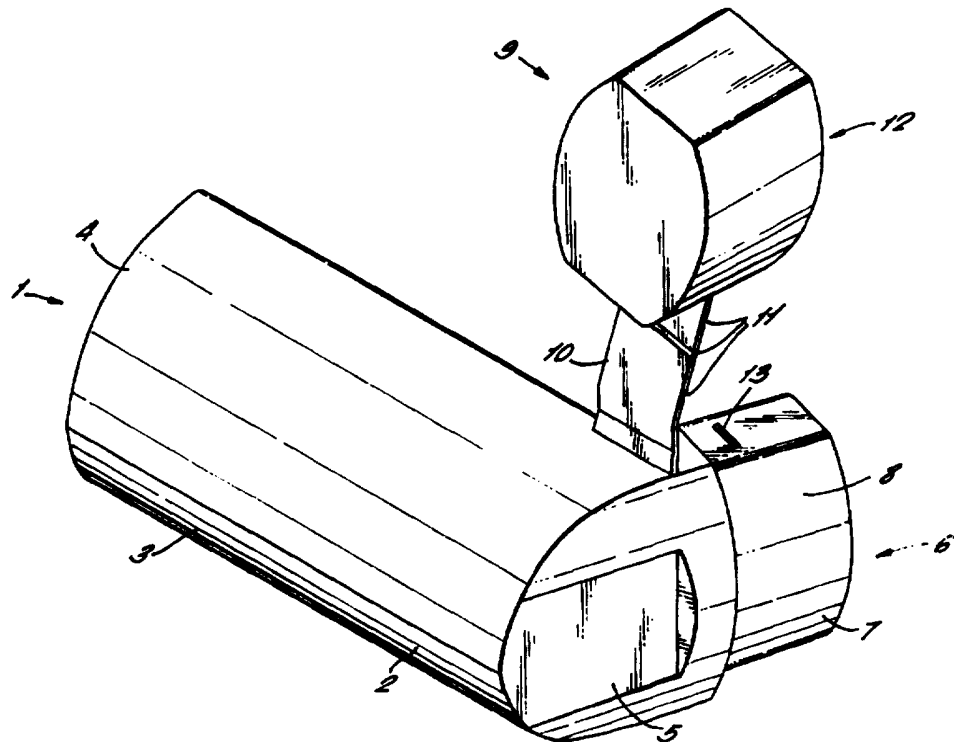
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<p>(21) International Application Number: PCT/GB95/01473 (22) International Filing Date: 23 June 1995 (23.06.95) (30) Priority Data: 9421482.2 25 October 1994 (25.10.94) GB (71) Applicant (for all designated States except US): BESPAC PLC [GB/GB]; Bergen Way, North Lynn Industrial Estate, King's Lynn, Norfolk PE30 2JJ (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): McNARY, Drew, Haydn [US/US]; Sunset Drive, Brewster, NY 10509 (US). (74) Agent: BOULT, WADE & TENNANT; 27 Furnival Street, London EC4A 1PQ (GB).</p>	<p>(81) Designated States: AU, CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i></p>	

(54) Title: AEROSOL DISPENSING APPARATUS

(57) Abstract

The invention relates to dispensing apparatus (1) for use with a pressurised dispensing container operable to dispense an aerosol, and more particularly to an arrangement which provides improved hygiene. The dispensing apparatus therefore comprises a housing (2) defining a tubular body (3) receiving in use the container and a tubular mouthpiece (6) projecting laterally from the body, the mouthpiece having a tubular lip portion (7) defining an outlet through which aerosol spray is dispensed. In use, a removable cap (9) engageable with the mouthpiece in an engaged position to overlay the lip portion and close the outlet, and a strap (10) connecting the cap to the body whereby the cap is held captive relative to the housing when disengaged from the mouthpiece, characterised in that the cap comprises a tubular portion having an internal surface (12) conformal with the external surface (8) of the lip portion whereby movement of the cap into and out of the engaged position is accompanied by co-axial relative movement of the cap and the lip portion and wherein the strap is of at least sufficient length to accommodate the axial movement of the cap relative to the body.



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Aerosol dispensing apparatus.

This invention relates to dispensing apparatus
5 for use with a pressurised dispensing container
operable to dispense an aerosol spray. Such
containers typically comprise a valve having an
actuating stem through which product is dispensed
under pressure when the stem is moved relative to the
10 container. Dispensing apparatus is typically
therefore provided to receive the stem in a socket
defining a spray nozzle such that the apparatus
constitutes an actuator, the container being
displaceable in reciprocating manner relative to the
15 apparatus in use to cause actuation resulting in an
aerosol spray being dispensed.

Such apparatus typically comprises a housing
having a tubular body receiving the container and a
tubular mouth piece projecting laterally from one end
20 of the body to define an outlet through which spray is
dispensed, the other end of the body being open such
that the container is accessible for applying finger
pressure to displace the container. A user presents
to his mouth a lip portion of the mouth piece during
25 oral inhalation and it is therefore desirable for the
lip portion to be kept free from contamination between
use by means of a removable cap which also serves to
close the mouth piece against the ingress of debris.

It has been proposed for such caps to be
30 retained captive relative to the housing by means of a
flexible strap secured at one end to the housing in
order to prevent loss of the cap and to prevent
accidental swallowing of the cap, the strap being of
sufficient length to allow the cap to be moved into
35 close proximity with the lip portion, and the cap
being received as a snap fit onto the lip portion so

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as to close the outlet.

A disadvantage of such an arrangement is that the surface area of the lip portion likely to be coming into contact with the user's mouth is only
5 partially overlaid by the cap when secured to the mouth piece thereby leaving the lip portion susceptible to contamination by handling and storage prior to use.

According to the present invention there is
10 disclosed dispensing apparatus for use with a pressurised dispensing container operable to dispense an aerosol spray, the apparatus comprising a housing defining a tubular body receiving in use the container and a tubular mouth piece projecting laterally from
15 the body, the mouth piece having a tubular lip portion defining an outlet through which the aerosol spray is inhalable in use, a removable cap engageable with the mouth piece in an engaged position to overlay the lip portion and close the outlet, and a strap connecting
20 the cap to the body whereby the cap is held captive relative to the housing when disengaged from the mouth piece, wherein the cap comprises a tubular portion having an internal surface conformal with the external surface of the lip portion whereby movement of the cap
25 into and out of the engaged position is accompanied by co-axial relative movement of the cap and the lip portion and wherein the strap is of at least sufficient length to accommodate the axial movement of the cap relative to the body.

30 An advantage of such an arrangement is that the cap in the engaged portion overlays entirely the surface area of the lip portion likely to be touched by the user's mouth in use thereby providing improved hygiene.

35 Preferably the strap comprises a web of plastics material having formed therein a plurality of

transverse grooves defining fold lines about which the web is foldable in bellows formation to accommodate extension and retraction of the strap during the axial movement of the cap.

5 An advantage of such an arrangement is that the cap is securely retained relative to the body by the web which is substantially inextensible beyond its unfolded length, the web being foldable into a plicated form in which movement of the cap into the
10 engaged position is accommodated.

 Preferably the strap is secured to the body so as to extend tangentially relative to a tubular side wall of the body.

 An advantage of this arrangement is that the
15 strap and cap do not obstruct the end wall of the housing which can then be engaged by the user's thumb or finger when presenting the housing for oral inhalation.

 Preferred embodiments of the present invention
20 will now be described by way of example only and with reference to the accompanying drawings of which:-

 Figure 1 is a perspective view of an apparatus having an integrally formed strap with the cap disengaged from the mouth piece;

25 Figure 2 is a perspective view of the apparatus of Figure 1 showing the cap in co-axial alignment with the mouth piece immediately prior to movement of the cap into the engaged position on the mouth piece;

 Figure 3 is a perspective view of the apparatus
30 of preceding Figures showing the cap in the engaged position;

 Figure 4 is a perspective view of a housing of an alternative apparatus;

35 Figure 5 is a perspective view of a cap and strap co-operable with the housing of Figure 4;

 Figure 6 is a perspective view of the

alternative apparatus comprising the housing and cap of Figures 4 and 5, shown in a position in which the cap is disengaged from the mouth piece;

Figure 7 is a perspective view of the apparatus of Figure 6 showing the cap at an intermediate position in which the cap is axially displaced from the engaged position; and

Figure 8 is a perspective view of the apparatus of Figures 6 and 7 showing the cap in the engaged position.

Figure 1 shows an apparatus 1 comprising a housing 2 consisting of a tubular body 3 having a tubular side wall and an open end 4.

The body 3 is closed at its opposite end by an end wall 5 and a tubular mouth piece 6 projects laterally of the body at a location immediately adjacent the end wall.

The mouth piece 6 has a tubular lip portion 7 having an external surface 8 which in use is presented to the lips of a user wishing to inhale orally via the mouth piece an aerosol spray generated from a pressurised dispensing container (not shown) normally received within the body 3.

The apparatus 1 further comprises a cap 9 which is connected to the body 3 by a strap 10 formed of a thin web of plastics material, the housing 2, cap 9 and strap 10 being unitarily formed of plastics material. The strap 10 is formed with a series of transverse grooves 11 defining fold lines about which the web is foldable in bellows formation as illustrated in Figure 3.

The cap 9 is a sliding fit onto the lip portion 7 such that an internal surface 12 of the cap totally overlays the external surface 8 of the lip portion when the cap is moved into an engaged position as shown in Figure 3 in which it is engaged with the

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mouth piece 6.

The lip portion 7 and the cap 9 are provided with cooperating snap fit connectors which include a detent 13 as shown in Figure 1 and projecting from the lip portion in co-operating relationship with a groove (not shown) formed in the internal surface 12 of the cap 9.

As shown in Figure 1, the cap is movable when disengaged from the mouth piece 8 into a lateral position in which it lies at a location which is offset from the axial extent of the body 3 and from the axial extent of the mouth piece 8 by a distance determined by the extended length of the strap 10.

In this lateral position, the user is able to grip the housing without interference from the presence of the cap and strap, the user typically resting a thumb against the end wall 5 and an index finger around the barrel shaped body 3.

In order to move the cap from this lateral position of Figure 1 into the engaged position of Figure 3 it is necessary to move the cap away from the body 3 into co-axial alignment with the mouth piece at a position in which the cap extends beyond the axial extent of the lip portion 7. The maximum extended length of the strap 10 must correspond at least to this configuration. Movement of the cap into the engaged position then proceeds by pushing the cap towards the body 3 in sliding relationship relative to the lip portion 7 until the detent 13 effects a snap fit connection and the cap rests in the fully engaged position shown in Figure 3 in which the entire external surface 8 of the lip portion 7 is overlaid.

In the engaged position of Figure 3 it is seen that the strap 10 is plicated into a shortened length in bellows like manner.

An alternative apparatus 14 is shown in Figures

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6, 7 and 8 and will now be described using corresponding reference numerals to those of preceding figures where appropriate for corresponding elements.

The alternative apparatus 14 similarly includes
5 a body 3, lip portion 7, cap 9 and strap 10 but the strap is secured to the body by means of co-operating stud fastener formations 15.

The stud fastener formations 15 comprise a stud
16 formed integrally with the strap as shown in Figure
10 5 and received as a push fit into a socket 17 as shown in Figure 4. As shown in Figure 4, the socket 17 is formed in a bevelled surface 18 of the body 3 such that the strap is constrained to extend in a direction tangential to a circumference of the body, the strap
15 thereby being able to extend in an arcuate configuration around a partial circumference of the body when moved into the engaged position as shown in Figure 8.

The strap 10 is further provided with stand off
20 projections 19 and 20 which project from respective side edges of the strap and at right angles to the plane of the strap so as to provide a stand off separation between the strap and the body 3 at a location from which the strap extends tangentially
25 from the tubular side wall of the body. As shown in Figure 8, this stand off facilitates the plication of the strap in the vicinity of the grooves 11 when the length of the strap is shortened as in the engaged position shown in Figure 8.

30 The alternative apparatus 14 may be modified to form stud fastener formations in which a stud projects integrally from the body 3 and is received in a socket formed in an end portion of the strap.

35

CLAIMS:

1. Dispensing apparatus (1) for use with a
pressurised dispensing container operable to dispense
5 an aerosol spray, the apparatus comprising a housing
(2) defining a tubular body (3) receiving in use the
container and a tubular mouth piece (6) projecting
laterally from the body, the mouth piece having a
tubular lip portion (7) defining an outlet through
10 which the aerosol spray is inhalable in use, a
removeable cap (9) engageable with the mouth piece in
an engaged position to overlay the lip portion and
close the outlet, and a strap (10) connecting the cap
to the body whereby the cap is held captive relative
15 to the housing when disengaged from the mouth piece,
characterised in that the cap comprises a tubular
portion having an internal surface (12) conformal with
the external surface (8) of the lip portion whereby
movement of the cap into and out of the engaged
20 position is accompanied by co-axial relative movement
of the cap and the lip portion and wherein the strap
is of at least sufficient length to accommodate the
axial movement of the cap relative to the body.
- 25 2. Dispensing apparatus (1) as claimed in claim 1
wherein the strap (10) comprises a web of plastics
material having formed therein a plurality of
transverse grooves (11) defining fold lines about
which the web is foldable in bellows formation to
30 accommodate extension and retraction of the strap
during the axial movement of the cap (9).
3. Dispensing apparatus (1) as claimed in any
preceding claim wherein the strap (10) is secured to
35 the body (3) so as to extend tangentially relative to

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a tubular side wall of the body.

4. Dispensing apparatus (1) as claimed in claim 3
wherein the strap (10) comprises one or more stand off
5 projections (19, 20) operable to provide a stand off
separation between the strap and the body (3) at a
location at which the strap extends tangentially
relative to the body.

10 5. Dispensing apparatus (1) as claimed in any
preceding claim wherein the strap (10) is connected to
the body (3) by means of stud fastener formations
comprising a stud formed on one of the strap and the
body and a socket receiving the stud, the socket being
15 located on the other of the strap and the body.

6. Dispensing apparatus (1) as claimed in any of
claims 1 to 4 wherein the cap (9), the strap (10) and
the body (3) are formed unitarily from a plastics
20 material.

7. Dispensing apparatus (1) as claimed in any
preceding claim wherein the strap (10) is connected to
the body (3) such that, when the cap (9) is disengaged
25 from the mouth piece (6), the cap and strap are
disposable in a lateral position relative to the body,
in which position the strap extends substantially
orthogonally relative to the tubular axes of both the
body and the mouth piece.

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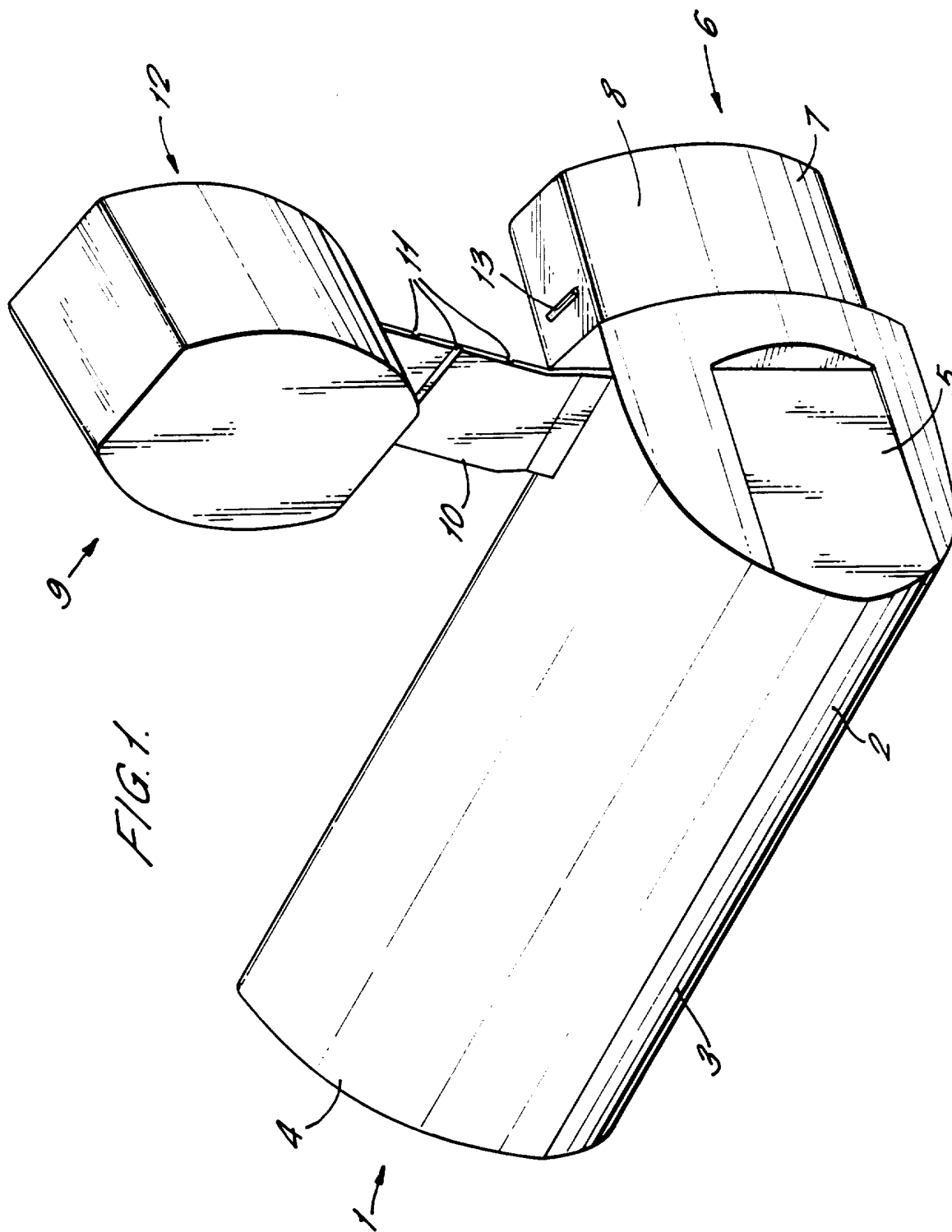


FIG. 2.

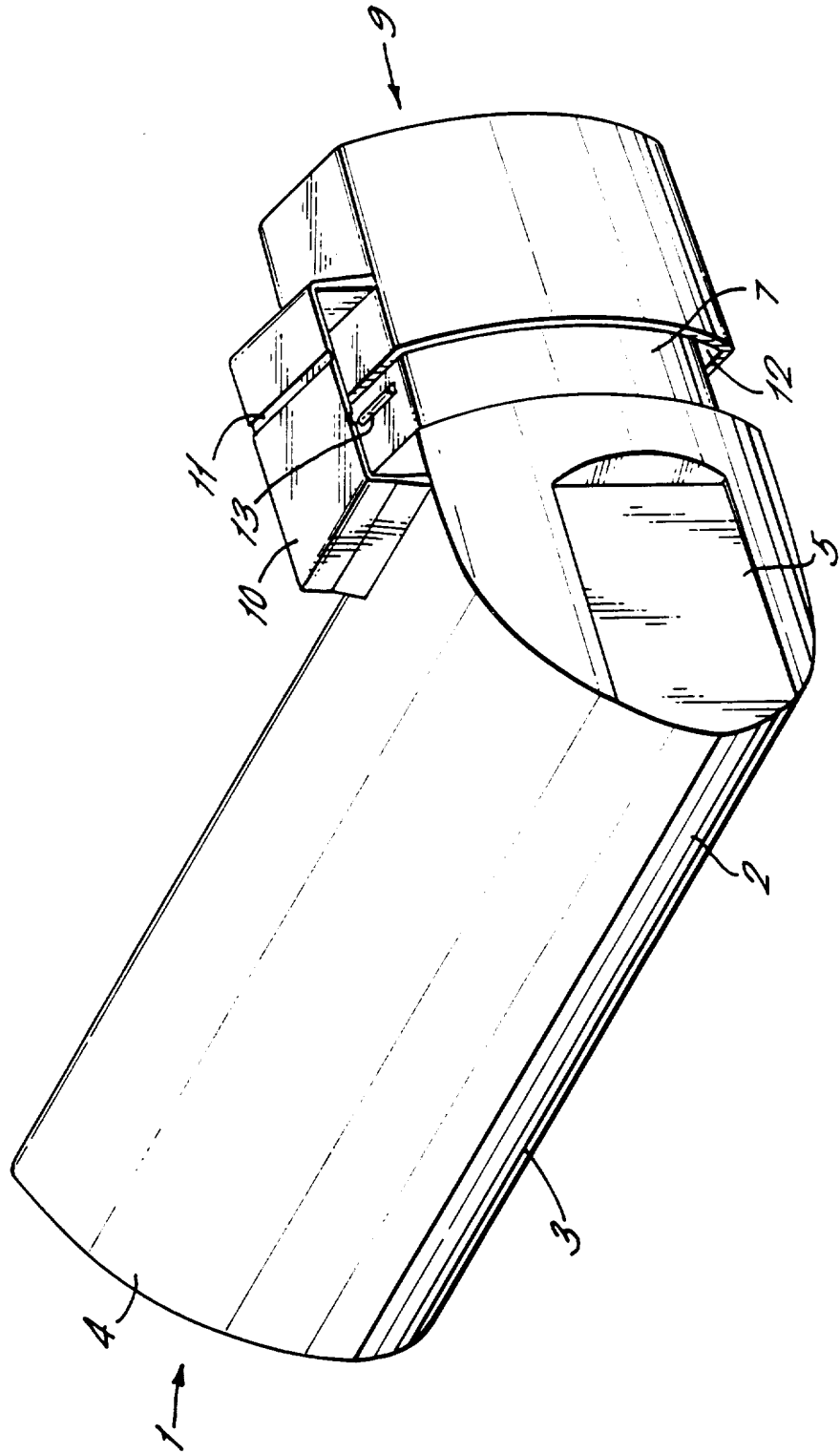
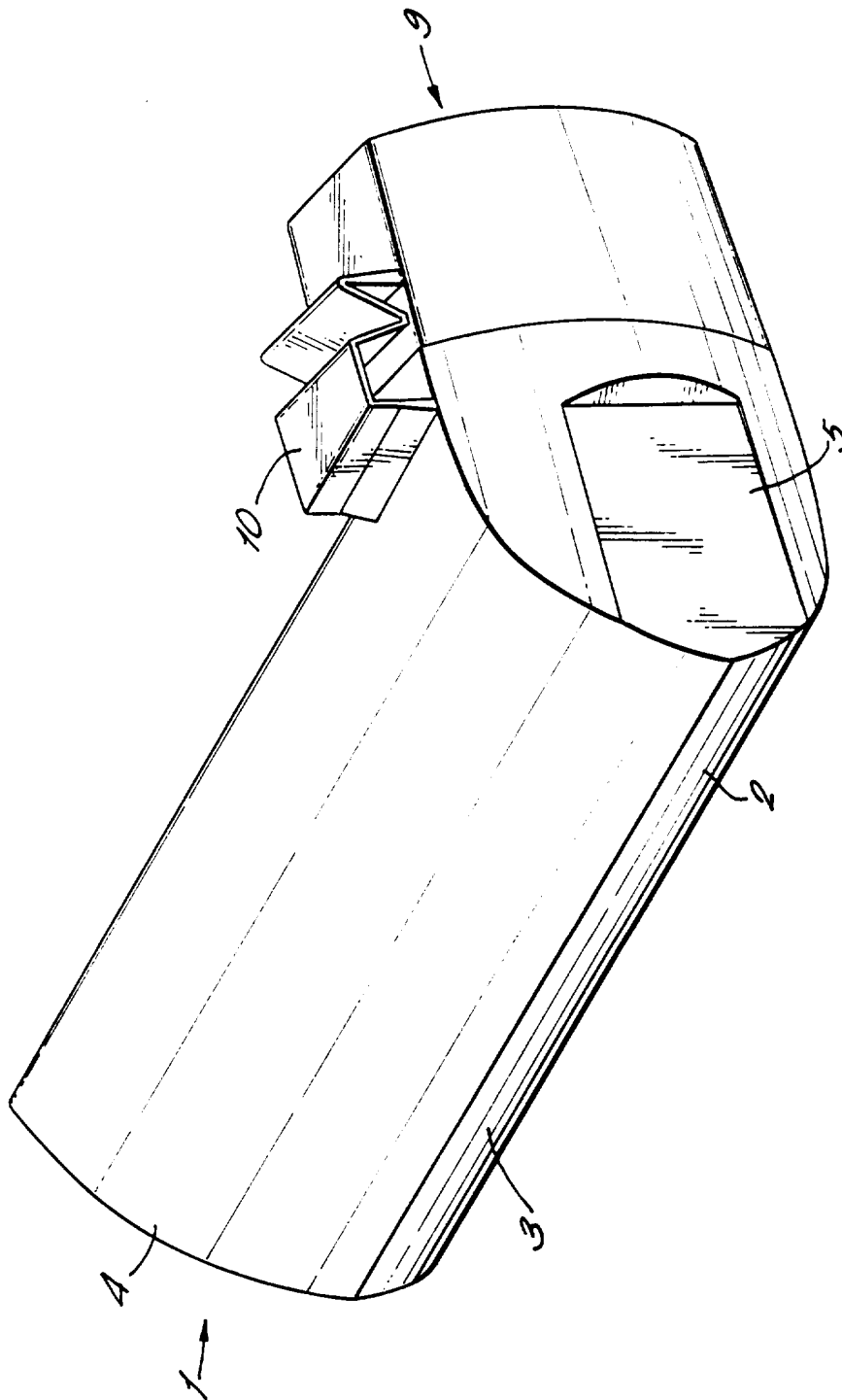


FIG. 3.



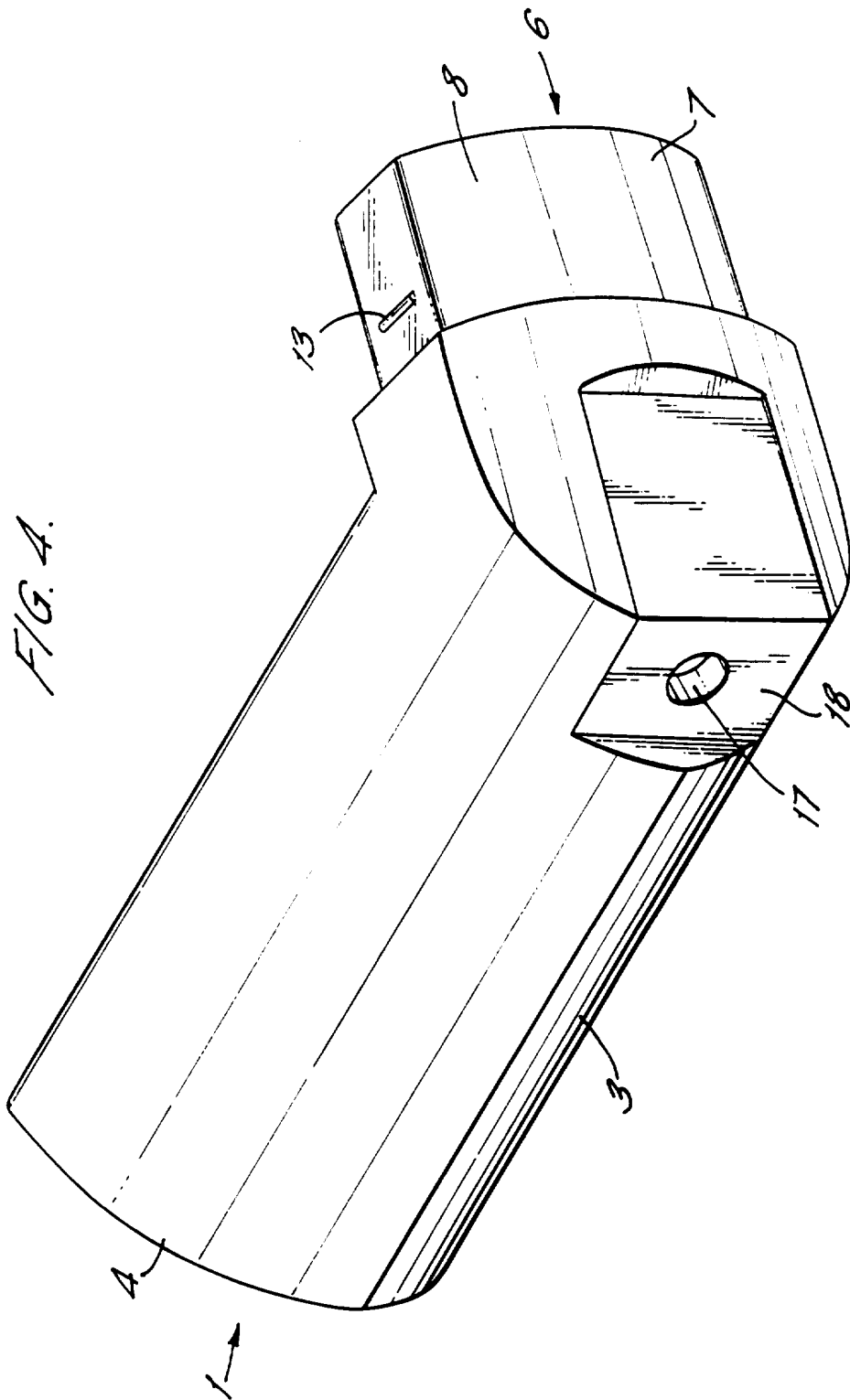
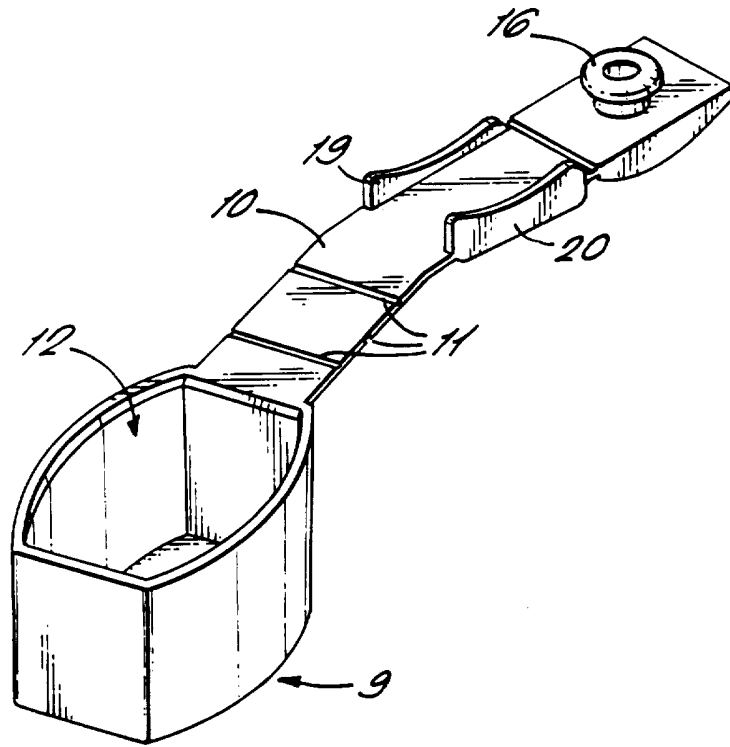


FIG. 5.



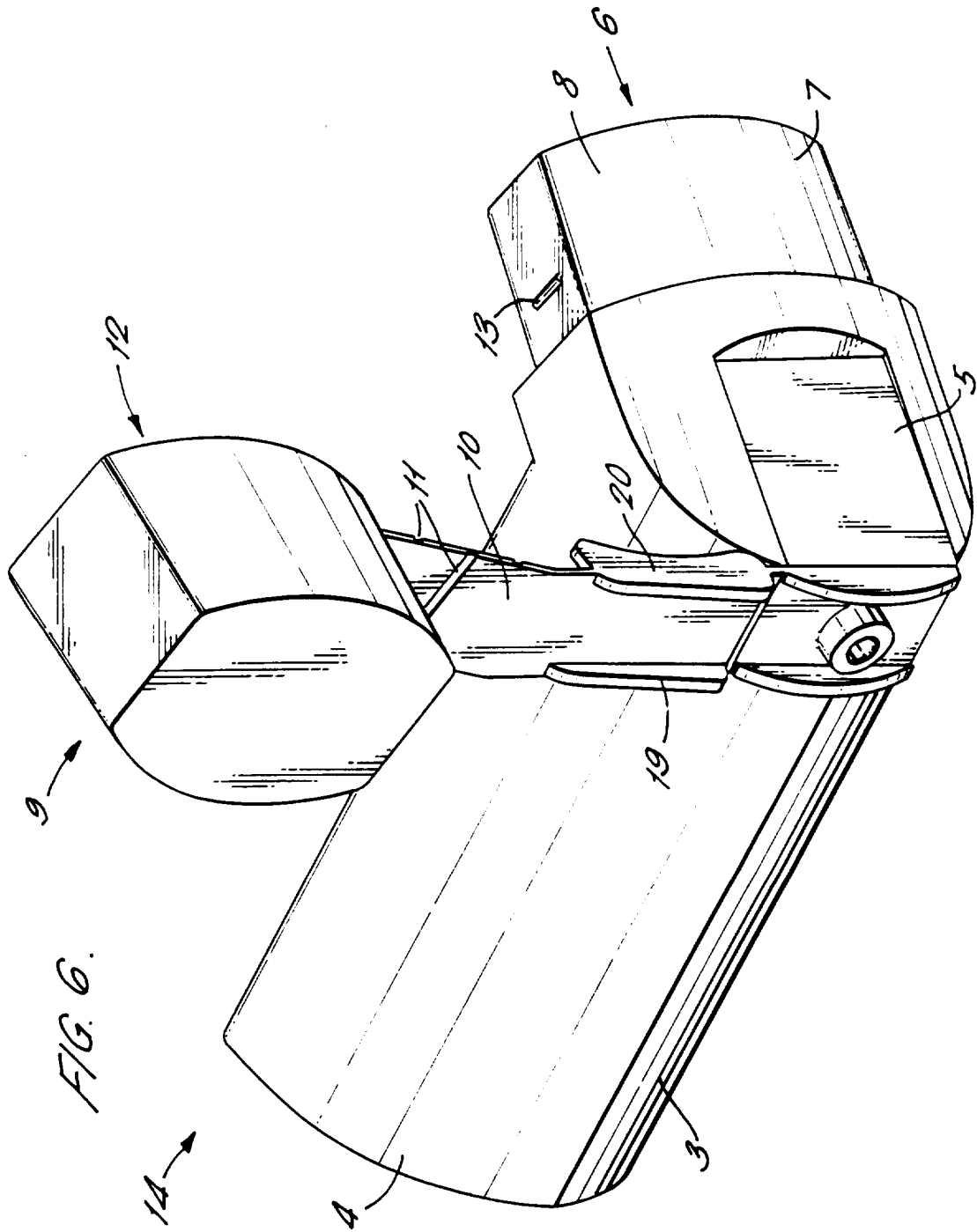
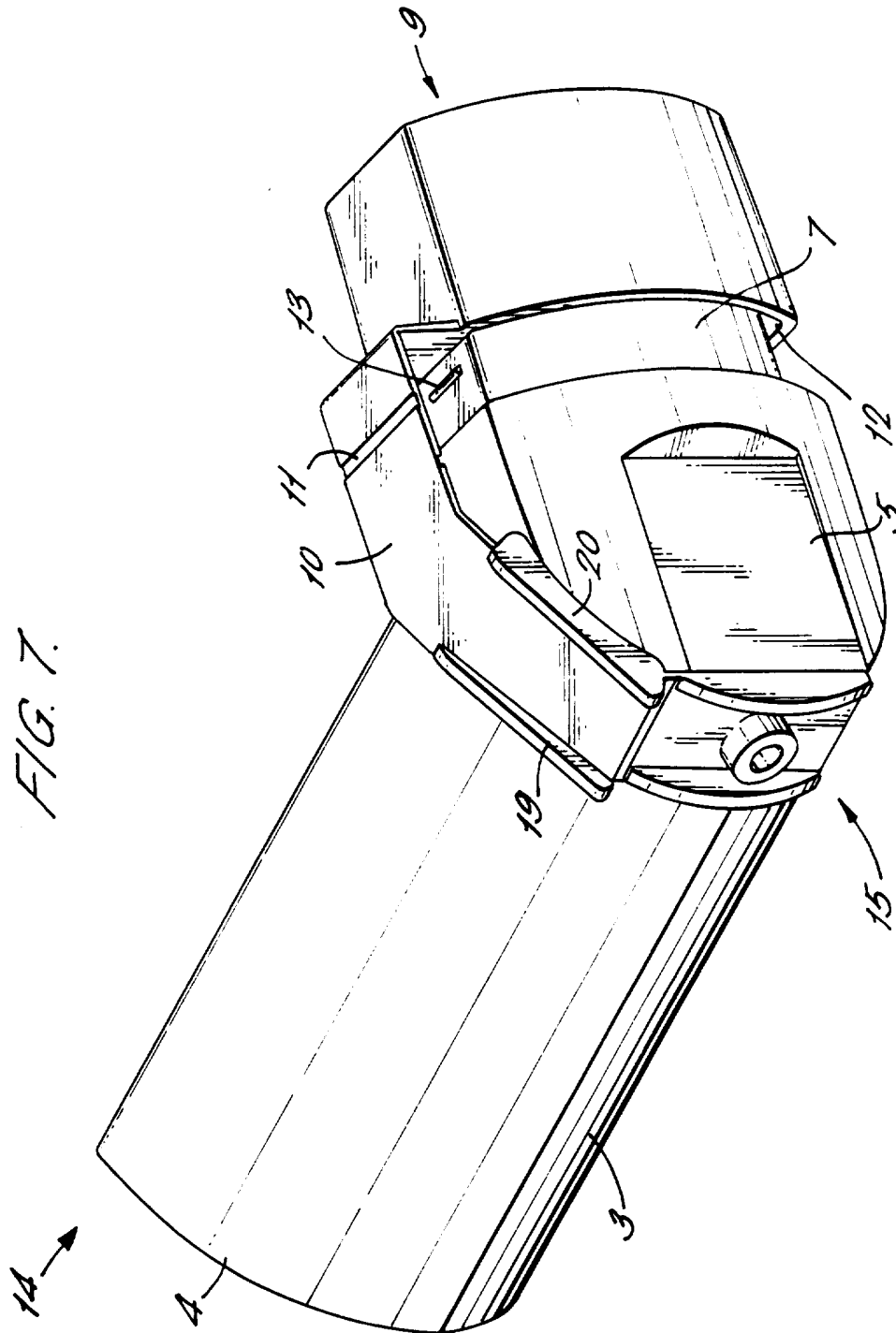
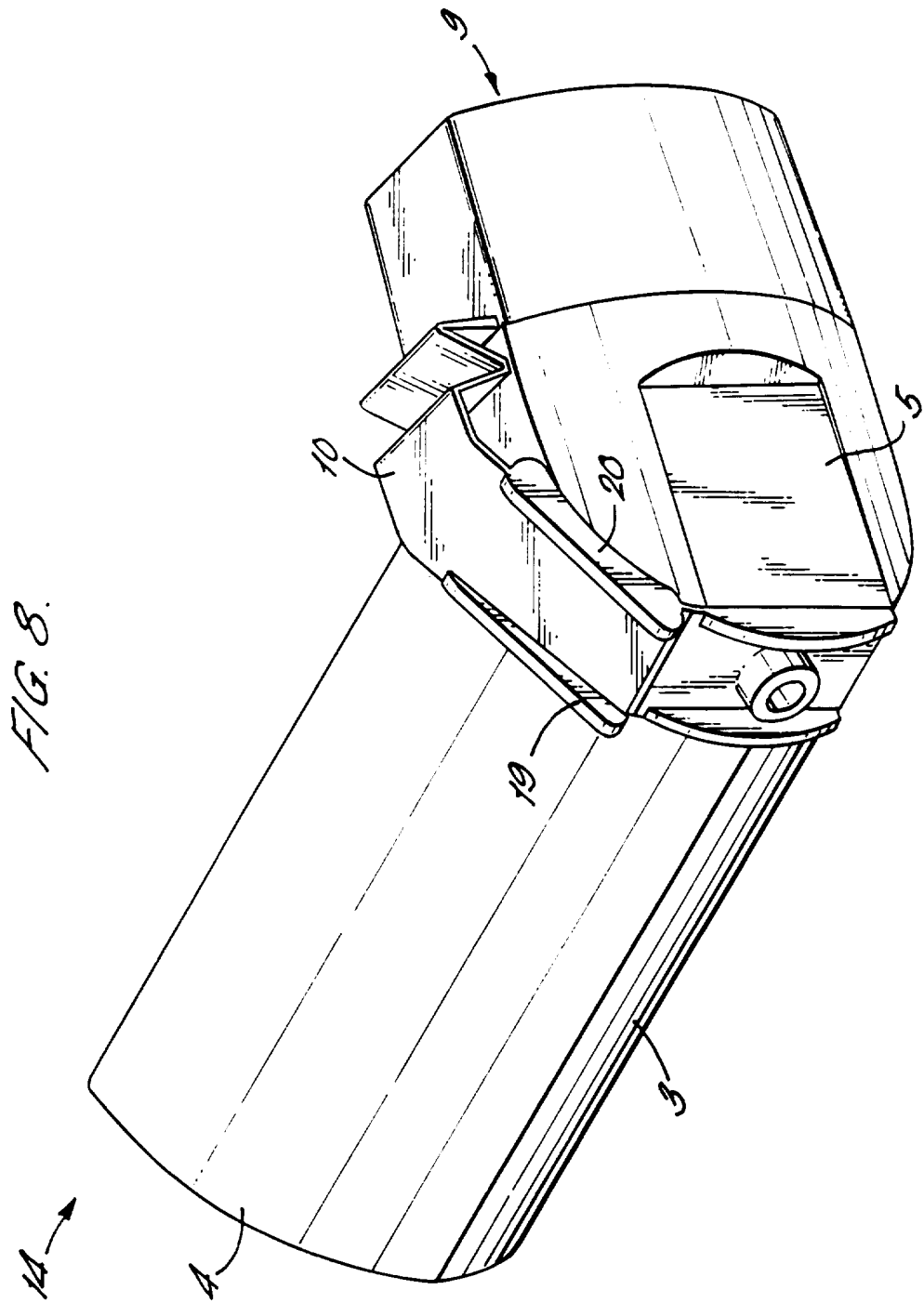


FIG. 6.





INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 95/01473

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65D83/14 B65D55/16

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)
IPC 6 B65D A61M

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 practical, 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.
A	EP,A,0 052 990 (PEHR) 2 June 1982 see page 6, line 23 - line 26; figures 1-5 ---	1,2,7
A	FR,A,1 210 264 (LÖHRER) 8 March 1960 see page 2, left column, line 30 - line 36 see page 3, right column, line 1 - line 20; figures ---	1,2,7
A	US,A,4 291 688 (KISTLER) 29 September 1981 -----	

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 95/01473

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