NON-CONVENTION
Company.

FORM 7

COMMONWEALTH OF AUSTRALIA

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DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT OR PATENT OF ADDITION

(1) Here insert (in full) Name of Company

In support of the Application made by (1) RAOLERT PTY. LIMITED

of 307-309 The Kingsway, Caringbah, NSW, 2229

(2) Here insert Title of Invention.

for a patent for an invention entitled: (2)

DISPENSING NOZZLE

(3) Here insert full Name and Address of Company Official authorised to make declaration.

I, (3) John Francis Treloar

of 31 Immarna Avenue, Lilli Pilli, NSW, 2229

do solemnly and sincerely declare as follows:

1. I am authorized by (1) RAOLERT PTY. LIMITED the applicant for the patent to make this declaration on its behalf.

(4) Here insert (In full) Name and Address of Actual Inventor or Inventors.

2. (4) John Francis Treloar of 31 Immarna Avenue, Lilli Pilli, NSW 2229

is/~~are~~ the actual inventor(~~s~~) of the invention, and the facts upon which (1) Raolert Pty. Limited is entitled to make the application are as follows:—

(5) Full Name of Actual Inventor or Inventors.

The said (1) Raolert Pty. Limited is the assignee of the said (5) John Francis Treloar

DECLARED at SYDNEY

this FIFTEENTH day of MAY 1990

(6) Signature.

(6) J.F. Treloar

RAOLERT PTY. LIMITED
John Francis Treloar

To:

THE COMMISSIONER OF PATENTS.

(12) PATENT ABRIDGMENT (11) Document No. AU-B-79191/87
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 601223

(54) Title
DISPENSING NOZZLE

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(72) Inventor(s)
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(56) Prior Art Documents
EP 39977
US 4596278
GB 755364

(57) Claim

1. A dispensing nozzle having a connector adapted to couple the nozzle to a tank or the like and valve means operable by a lever to open and close the nozzle characterised by the provision of locking means operable to prevent uncoupling of the connector whenever the lever is in its position which opens the valve wherein said locking means comprises a pin actuated by the lever to engage one of a plurality of recesses formed in the connector.

AU-AI-79191/87

PCT

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(33) Priority Country: AU

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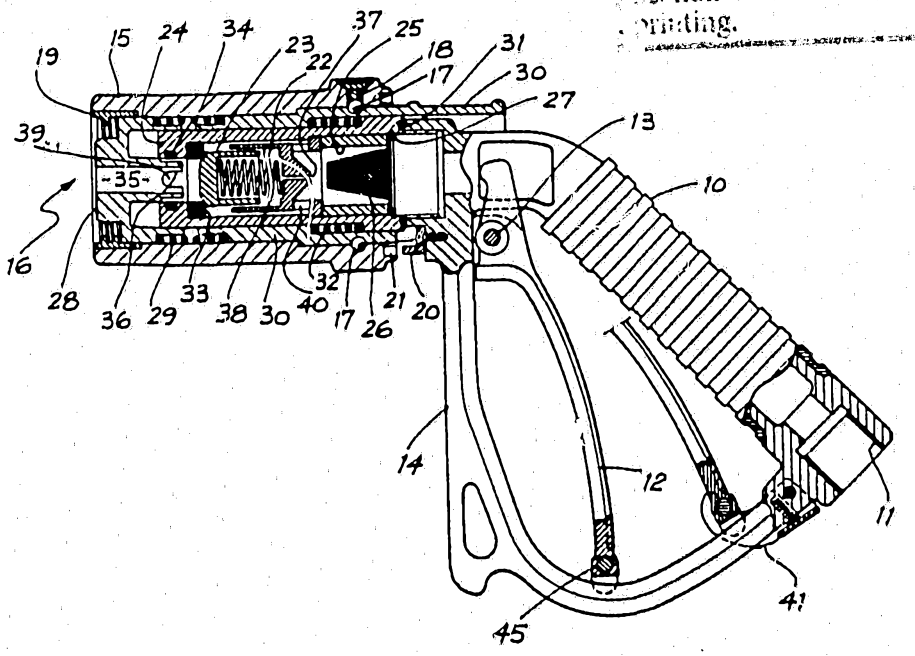
(54) Title: DISPENSING NOZZLE



(57) Abstract

A dispensing nozzle has a body (10) adapted to be connected to a supply of liquidified petroleum gas by connector piece (11) and to a vehicle gas tank by a threaded insert (19) in swivel nut (15). Gas is applied to the reservoir within the valve body (24) through the connector piece (11) and is delivered through a main valve having a valve seat (33) and a piston valve (23). Piston valve (23) and valve cylinder (22) form a dash pot which is pressurised by gas flowing through passageway (37). There is an annular gap between the piston valve (24) and the valve cylinder (22) through which gas will bleed as soon as the valve (23) is cracked from its seat (33) to reduce the pressure in the dash pot which enables easy opening of the main valve. The swivel nut (15) is locked in position by pin (20) which engages one of a plurality of recesses (21) at its rear face when the nozzle is open.

DISPENSING NOZZLE

FIELD OF INVENTION

This invention relates to nozzle assemblies and more particularly to nozzle assemblies suitable for dispensing liquified petroleum gas.

BACKGROUND ART

Although the prior art contains a wide variety of liquified petroleum gas dispensing nozzles, none incorporates a simple yet satisfactory locking arrangement that will prevent accidental uncoupling of the nozzle from a tank whilst the dispensing valve of the nozzle is open.

Accordingly, it is an object of the present invention to provide such a simple, yet workable locking arrangement.

DISCLOSURE OF THE INVENTION

According to one aspect of the invention there is provided a dispensing nozzle having a connector adapted to couple the nozzle to a tank or the like and valve means operable by a lever to open and close the nozzle characterised by the provision of locking means operable to prevent uncoupling of the connector whenever the lever is in its position which opens the valve wherein said locking means comprises a pin actuated by the lever to engage one of a plurality of recesses formed in the connector.

Fig. 1 is a front perspective view of a dispensing nozzle according to one embodiment of the invention,

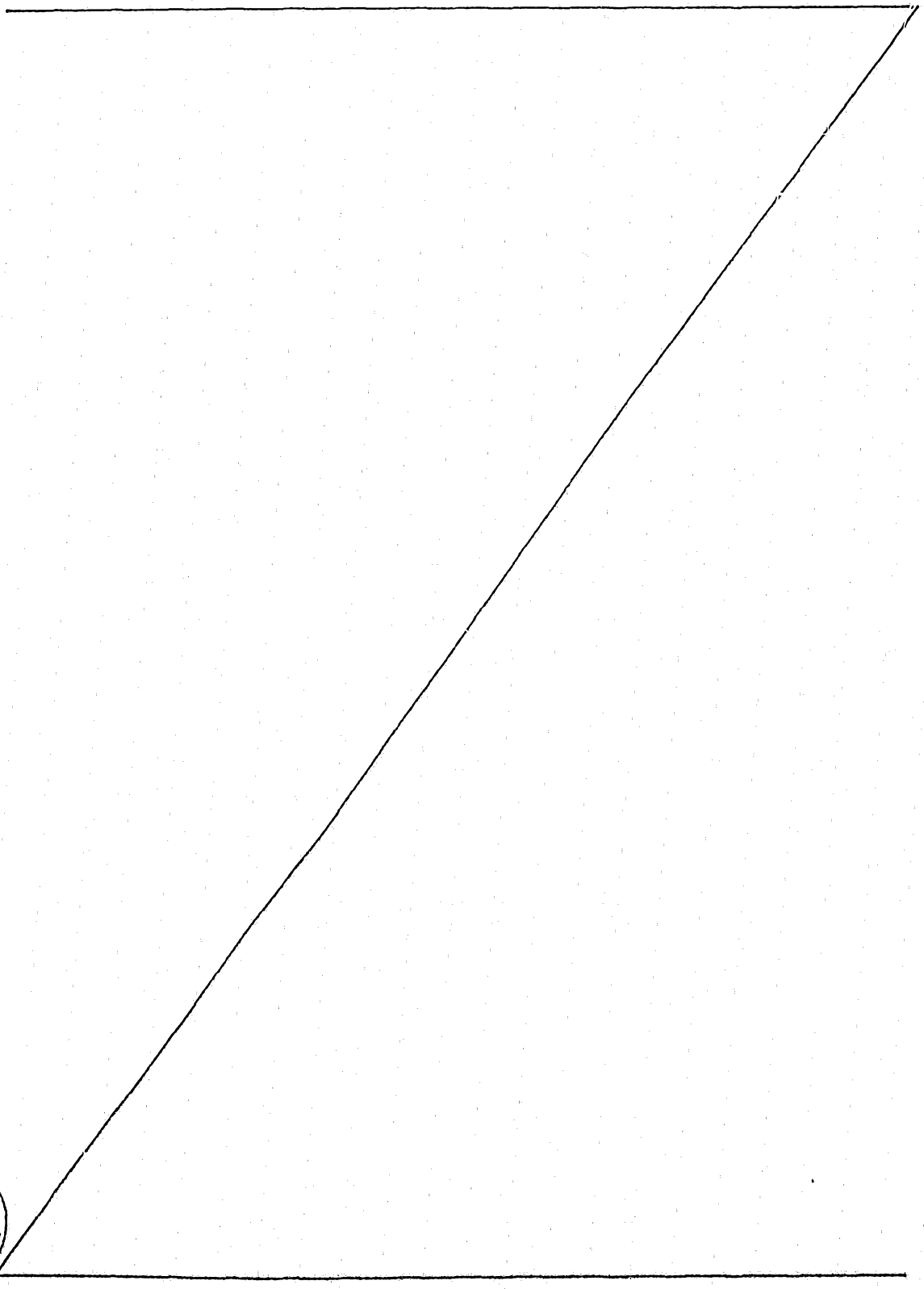


Fig. 2 is a rear perspective view of the dispensing nozzle shown in Fig. 1,

Fig. 3 is a cross-sectional view of the dispensing nozzle shown in Figs. 1 and 2 with the main valve closed,

Fig. 4 is an enlarged, partially cutaway view similar to Fig. 3 but with the main valve open,

Fig. 5 is an enlarged, cutaway view of the lever locking arrangement prior to engagement, and,

Fig. 6 is a view similar to Fig. 5 with the lever locked in the open position.

DESCRIPTION OF PREFERRED EMBODIMENT

The nozzle assembly shown in the drawings includes a hollow body 10 having a connector piece 11 adapted to be connected to a supply line. The nozzle is operated by lever 12 that pivots about lever pin 13 and which is protected by guard 14.

A swivel nut 15 mounted over the outlet end 16 of the nozzle extends rearwardly towards the lever guard 14. The swivel nut 15 rotates on balls 17 that are accessible through ball plug 18. The swivel nut 15 has a threaded insert 19 by means of which the nozzle is connected to a L.P.G. tank of, say, a vehicle (not shown). Whenever the nozzle is open, rotation of the swivel nut 15 with respect of the body 10 is prevented by pin 20 engaging one of recesses 21 formed around the rear face of the swivel nut 15 whenever the nozzle is open.

The coupler portion of the nozzle includes a pressure release means comprising a dashpot system that consists of a cylinder 22 and a piston valve 23. As can be seen in Figs. 3 and 4 there is a small (say 1mm) annular clearance between the cylinder 22 and the piston valve 23 to allow leakage to occur as described below. The cylinder 22 is located within a valve body 24, the hollow interior of which constitutes the gas reservoir, and is held in position by filter body 25 which supports a filter 26 and which is secured by means of circlip 27. A nose piece 28 is biased towards the position shown in Fig. 3 by a nose piece spring 29 positioned between the recessed end face of nose piece 14 and the recessed front face of a slide sleeve 30 that is mounted around the front end of the body 10 and the valve body 24.

An "O" ring 31 seals the valve body 24 with respect to the body 10 and slide sleeve spring 32 connected between a rearwardly facing shoulder of the slide sleeve 30 and a forwardly facing shoulder of the valve body 24 acts as a return spring which comes into operation when the nozzle is being disconnected.

A piston valve seat 33 located at the downstream end of the valve body 24 is engaged by the front end of the piston valve 23 when the nozzle is closed. An "O" ring 34 at the end of valve body 24 seals the valve body 24 with respect to the centrally located, rearwardly extending projection of the nose piece 28 when the nozzle is open. The nose piece 28 has a gas passageway 35 and an actuating abutment 36.

In operation, the swivel nut 15 is connected to an adaptor on the L.P.G. tank of a vheicle and in so doing, the nose piece 28 is forced to the right of Fig. 3 against the operation of nose piece spring 29 to close the gap between the upstream end of the nose piece 28 and the downstream end of the slide sleeve 30. At the same time, the gap between the abutment 36 of the nose piece 28 and the front face of the piston valve 23 is narrowed by the same amount.

The trigger lever 12 is then operated by moving its lower end to the right in Fig. 3 whereby its upper end pivots about pin 13 and drives the valve body 24 towards the nose piece 28. The abutment 36 of the nose piece 28 then lifts the front face of the piston valve 23 from its seat 33.

The pressure within the dashpot formed by the cylinder 22 and piston valve 23 is normally set by flow of L.P.G. from the body 10 through a bleed hole 37 on the axis of the cylinder 22. When the piston valve 23 is lifted from its seat 33, the pressure in the dashpot chamber is reduced by leakage through the annular gap described above to enable easy opening of the main valve 23, 33 by further movement of the lever 12.

The main valve 23, 33 is fully opened by further movement of valve body 24 towards the nose piece 28 (caused by further movement of lever 12) which moves the valve seat 33 away from the front end face of piston valve 23 against the action of spring 32. When the nozzle is open, the pin 20 engages one of the recesses 21 to prevent rotation of the

swivel nut 15.

When the valve 23, 33 is cracked, the gas escapes from the dashpot 33, 23 faster than gas enters the passageway 37 and thus the pressure in the dashpot is reduced. The piston valve 23 is forced into the cylinder 22 against the action of spring 38 to open fully the valve 23, 33 (see Fig. 4). Gas then flows, at full pressure, in the path shown by the arrows in Fig. 4 from connector 11, through the reservoir formed by the valve body 24, through the ports 40 at the upstream end of cylinder 22, around the dashpot 22, 23 and through the ports 39 in the abutment 36 of the nose piece 28 to be delivered through passageway 35.

The lever 12 may be held in the open position by a latch 41 which is shown in Figs. 3, 5 and 6. The latch 41 is mounted on pin 42 in the guard 14 and biased by latch spring 43 as can be seen in Figs. 5 and 6. The hooked end 44 of the latch 41 engages latch pin 45 in the end of the lever 12.

When the trigger lever 12 is released, the piston valve 23 closes against the valve seat 33 and the nose piece 28 is disengaged from the "O" ring 34. The locked up volume of L.P.G. is then discharged to atmosphere.

Various modifications may be made in details of design and construction without departing from the scope and ambit of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A dispensing nozzle having a connector adapted to couple the nozzle to a tank or the like and valve means operable by a lever to open and close the nozzle characterised by the provision of locking means operable to prevent uncoupling of the connector whenever the lever is in its position which opens the valve wherein said locking means comprises a pin actuated by the lever to engage one of a plurality of recesses formed in the connector.

2. A dispensing nozzle incorporating locking means as hereinbefore particularly described with reference to what is shown in the accompanying drawings.

DATED this 8th day of June, 1990.

RAOLERT PTY. LIMITED
Patent Attorneys for the Applicant:
PETER MAXWELL & ASSOCIATES.

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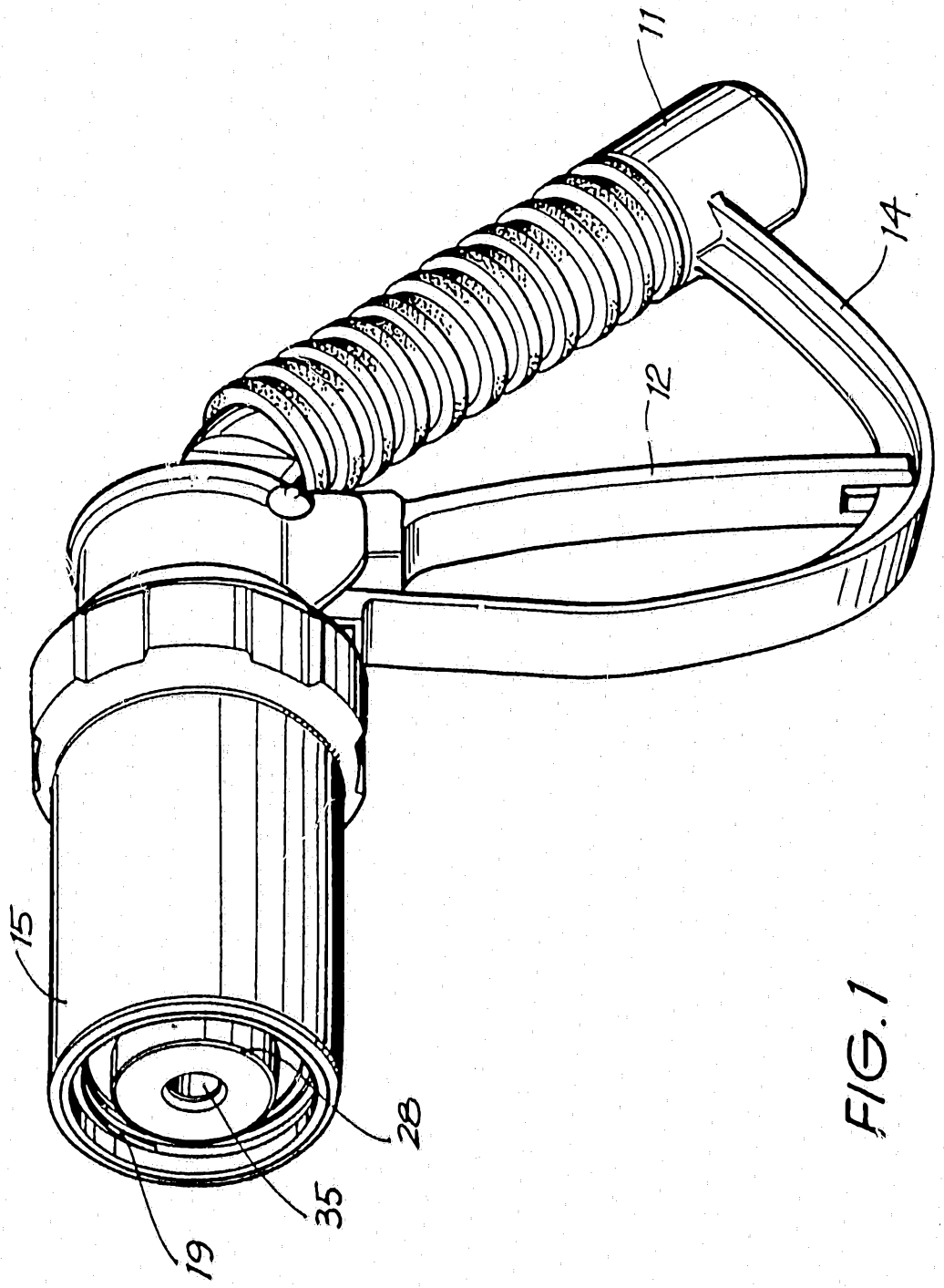

FIG. 1

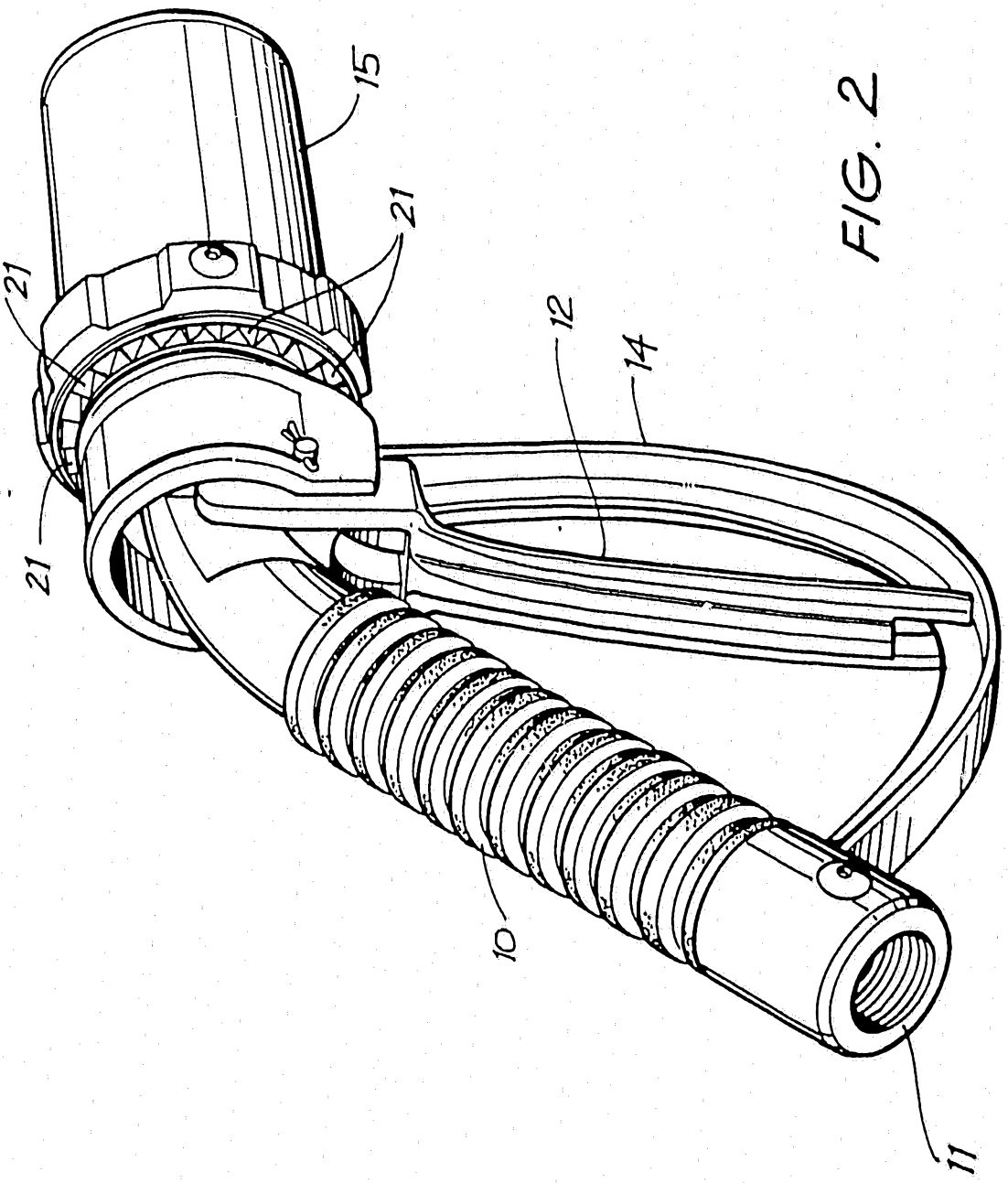

FIG. 2

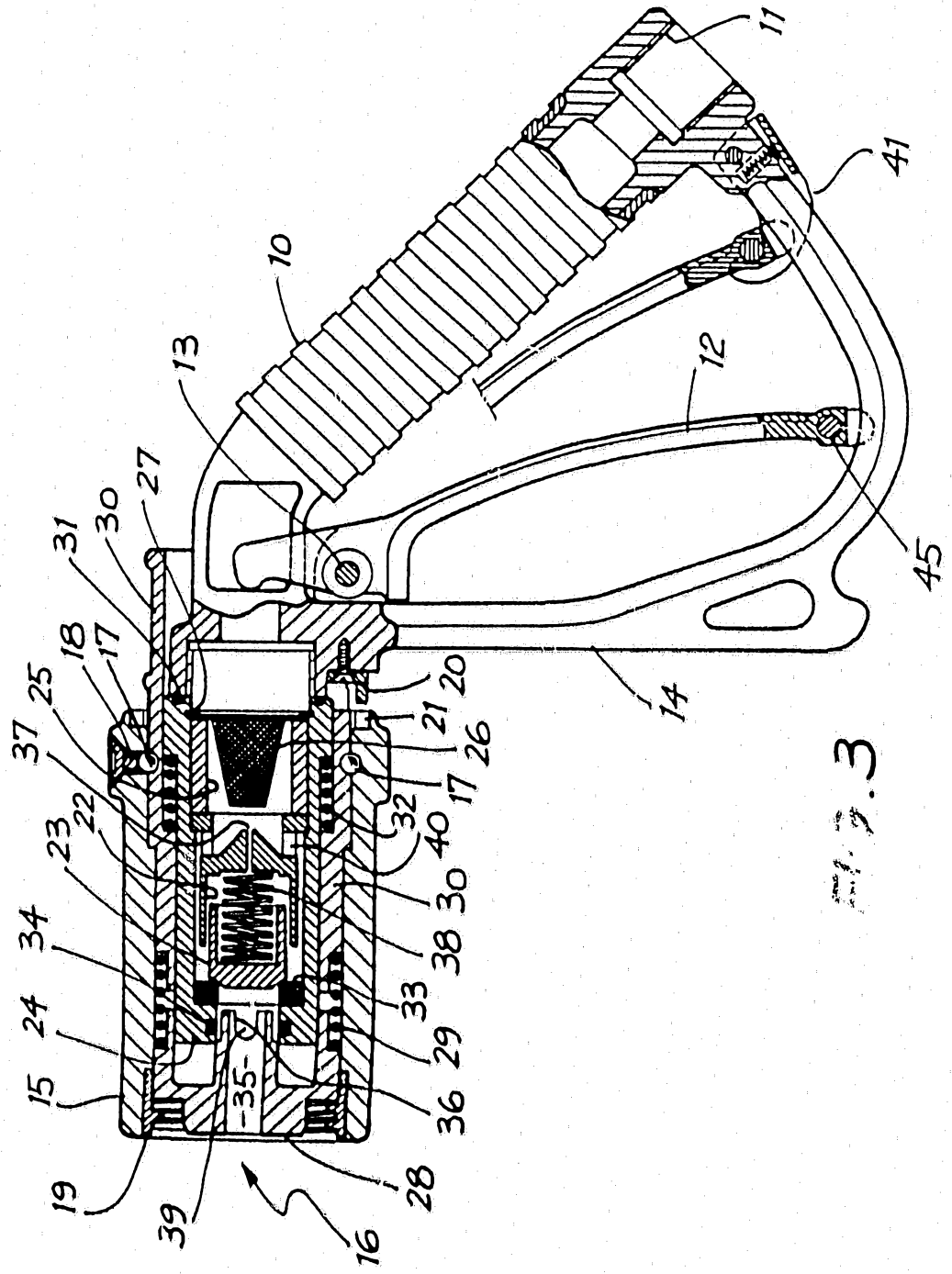
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Fig. 3

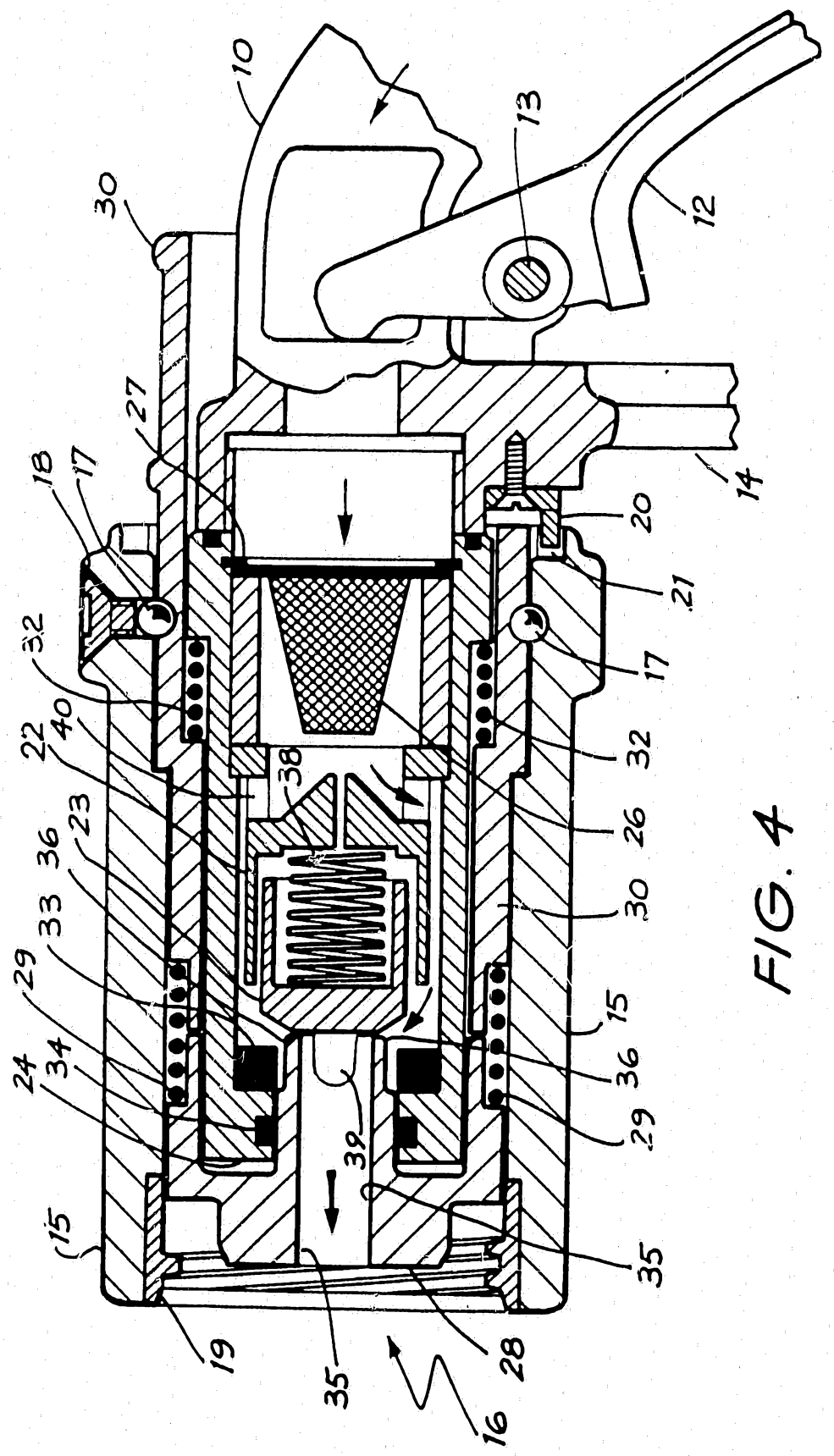
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FIG. 4

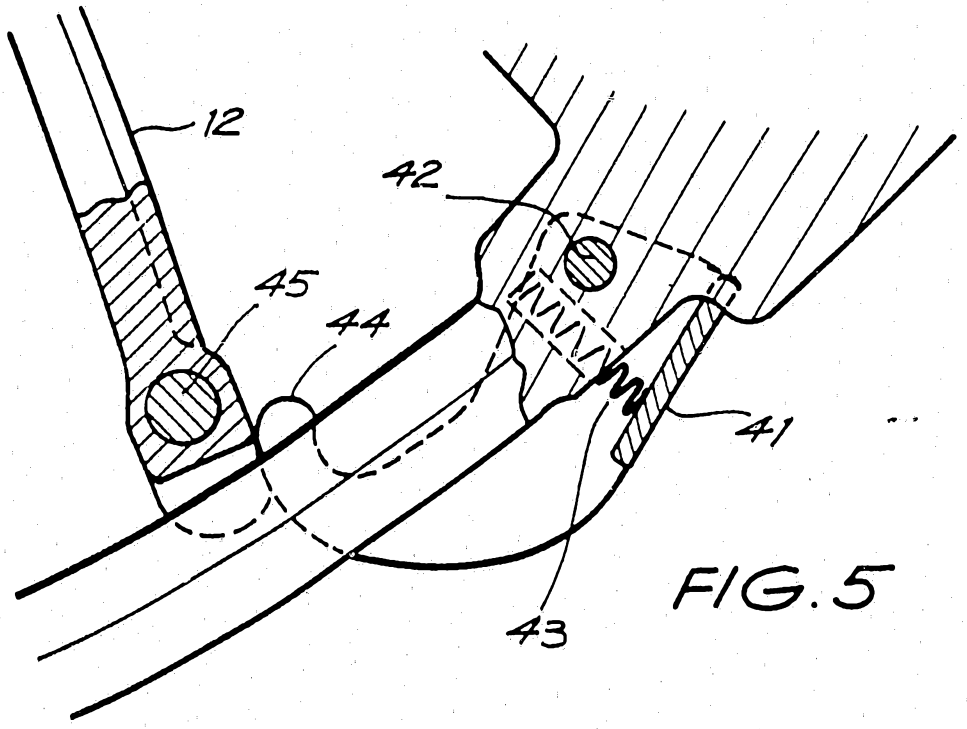

FIG. 5

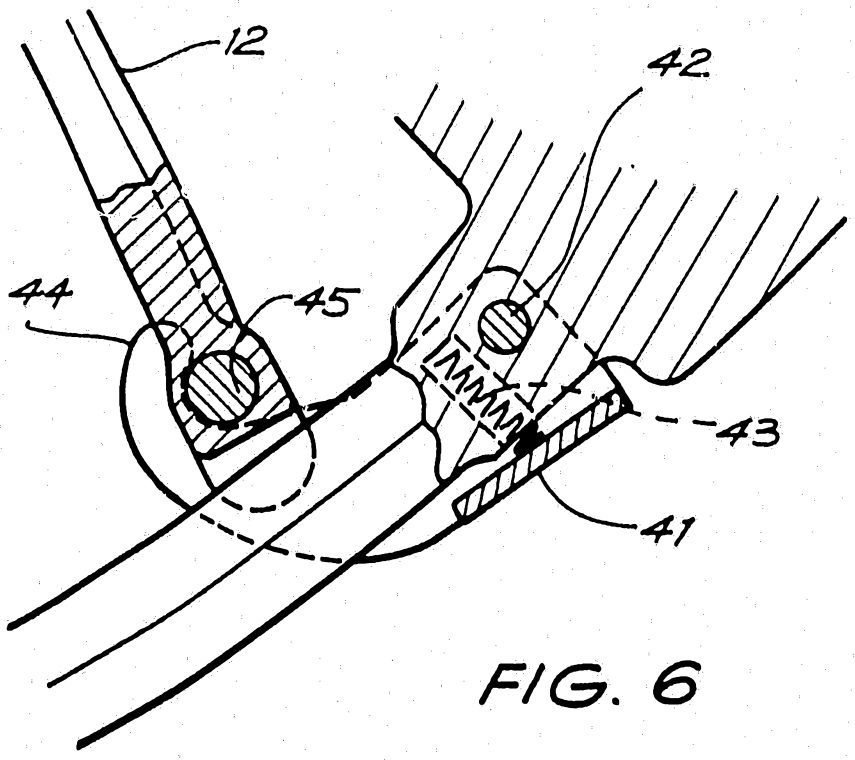

FIG. 6

INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 87/00300

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)

According to International Patent Classification (IPC) or to both National Classification and IPC

Int. Cl.[4] B67D 5/37

II. FIELDS SEARCHED

Minimum Documentation Searched

Classification System	Classification Symbols
IPC	B67D 5/37, 5/375, 5/377

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched

AU : IPC as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X	EP,A, 39977 (NEDERLANDSE CENTRALE ORGANISATIE VOOR TOEGEPAST-NATUUR WETENSCHAPPELIJK ONDERZOEK) 18 November 1981 (18.11.81) See, for instance, lines 11 to 13 of page 4	(1)
A	DE,A, 3313258 (C.K. WALTHER GmbH & CO. KG) 18 October 1984 (18.10.84)	(1,2)
A	DE,A, 2006164 (EMCO WHEARON INC.) 3 September 1970 (03.09.70)	(1,2)
A	US,A, 3805857 (E.M. JOHNSON et al) 23 April 1974 (23.04.74) (and FR 2207082)	(1,2)
X	US,A, 4596278 (A.C. FINK) 24 June 1986 (24.06.86)	(3-6)
X	AU,B, 28532/49 (145561) (BECK & CO. LTD) 8 September 1949 (08.09.49) (and GB 663762)	(3,4)
X	AU,B, 18387/53 (161238) 20 May 1954 (20.05.54)	(3,4)
X	GB,A, 735364 (AVERY-HARDOLL LTD) 17 August 1955 (17.08.55)	(3,4)

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"A" document defining the general state of the art which is not considered to be of particular relevance
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"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
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"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.
"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
27 November 1987 (27.11.87)	(03.12.87) 3 DECEMBER 1987
International Searching Authority: Australian Patent Office	Signature of Authorized Officer: B Murray

Form PCT/ISA/210 (second sheet) (January 1985)