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(54) **CONNECTOR FOR A RESPIRATORY MASK
AND A RESPIRATORY MASK**

(75) **Inventors:** **Michael K. Gunaratnam**, Marsfield
(AU); **Joanne E. Drew**, Balgowlah
(AU); **Geoffrey Crumblin**, Baulkham
Hills (AU); **Phillip Jenkinson**, Epping
(AU); **Susan R. Lynch**, Rodd Point
(AU)

(73) **Assignee:** **ResMed Limited**, North Ryde (AU)

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128/207.18, 206.28, 205.27, 205.28, 204.18,
202.27, 912, 207.12, 206.12, 206.15, 206.18

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,015,598 A * 4/1977 Brown 128/203.23
4,463,755 A 8/1984 Suzuki
4,794,921 A * 1/1989 Lindkvist 128/203.29
5,018,519 A * 5/1991 Brown 128/203.29

5,560,354 A * 10/1996 Berthon-Jones
et al. 128/205.25
5,694,922 A * 12/1997 Palmer 128/202.27
5,871,011 A * 2/1999 Howell et al. 128/206.22
5,921,239 A * 7/1999 McCall et al. 128/205.25
5,937,851 A * 8/1999 Scrowski et al. 128/202.27
5,975,077 A * 11/1999 Hofstetter et al. 128/204.24
6,196,223 B1 * 3/2001 Belfer et al. 128/206.25

FOREIGN PATENT DOCUMENTS

CA 1039144 9/1978
DE 197 57 703 C1 10/1999
WO WO 98/34665 8/1998

* cited by examiner

Primary Examiner—Weilun Lo

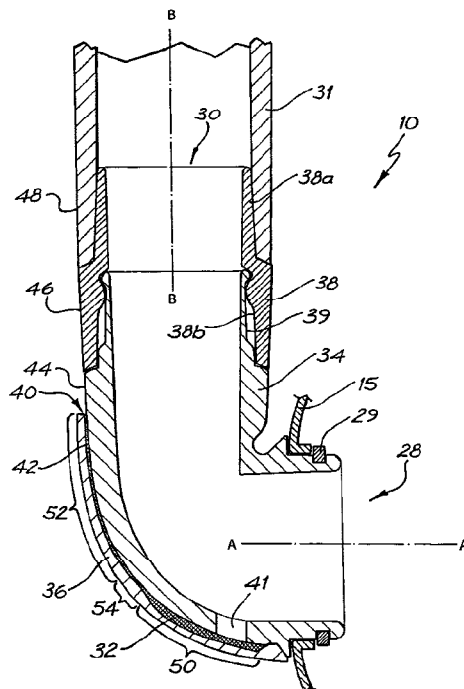
Assistant Examiner—Tenna Mitchell

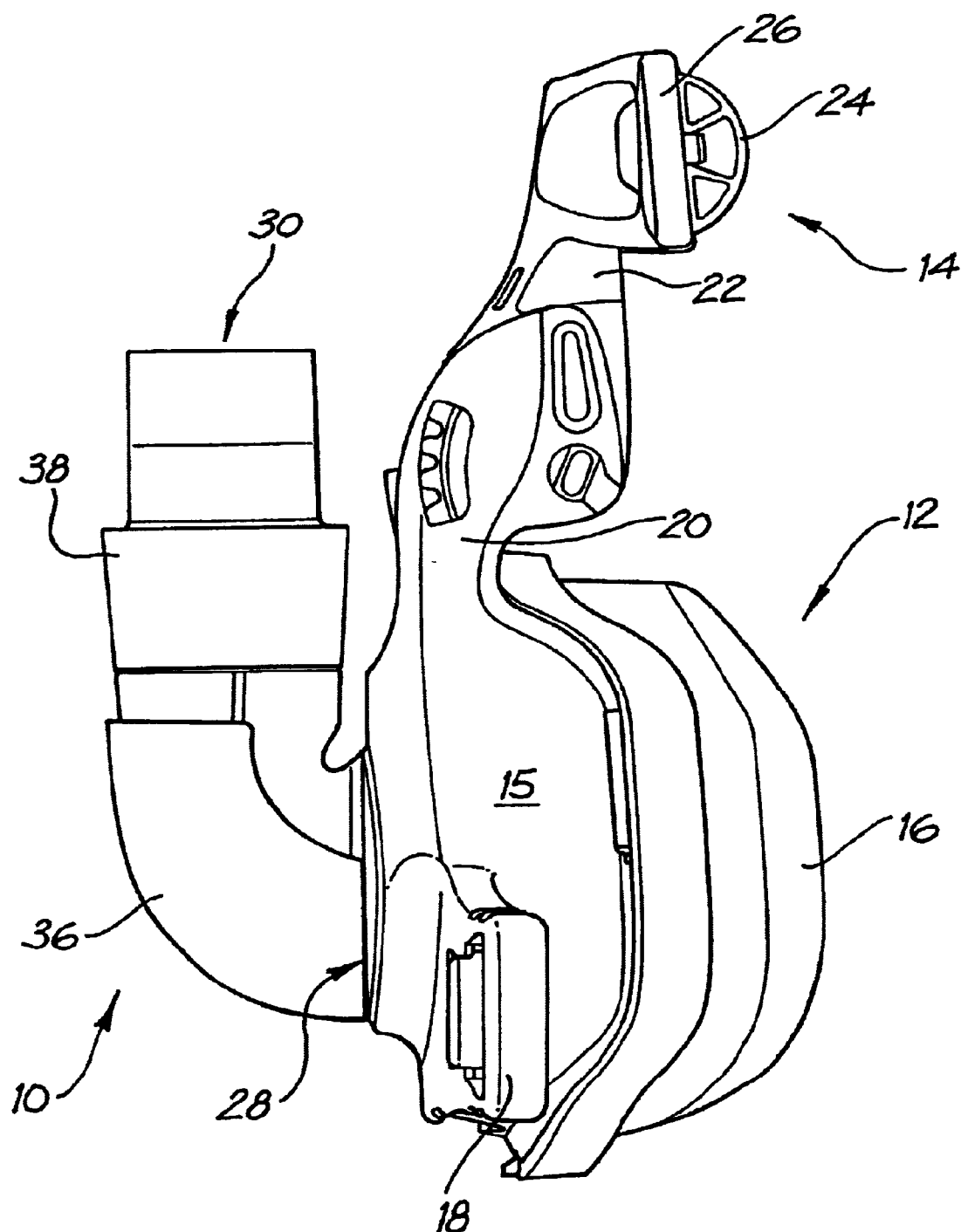
(74) *Attorney, Agent, or Firm*—Nixon & Vanderhye, P.C.

(57) **ABSTRACT**

A connector includes a mask end for connecting with the interior of a respiratory mask, a supply conduit end, and a gas washout vent passage having an inlet adjacent to, or forming part of, the mask end in fluid communication with the interior of the respiratory mask and an outlet in fluid communication with atmosphere. The vent outlet of the vent passage is disposed on the side of the connector remote from the mask end. A respiratory mask includes a mask shell, a mask inlet for connecting with the outlet of a breathable gas supply conduit, and a gas washout vent passage. A vent outlet is disposed on the side of the mask remote from the mask interior and is adapted to direct the washout gas in a direction substantially parallel to the longitudinal axis of the mask inlet and away from the mask inlet.

14 Claims, 9 Drawing Sheets



**FIG. 1**

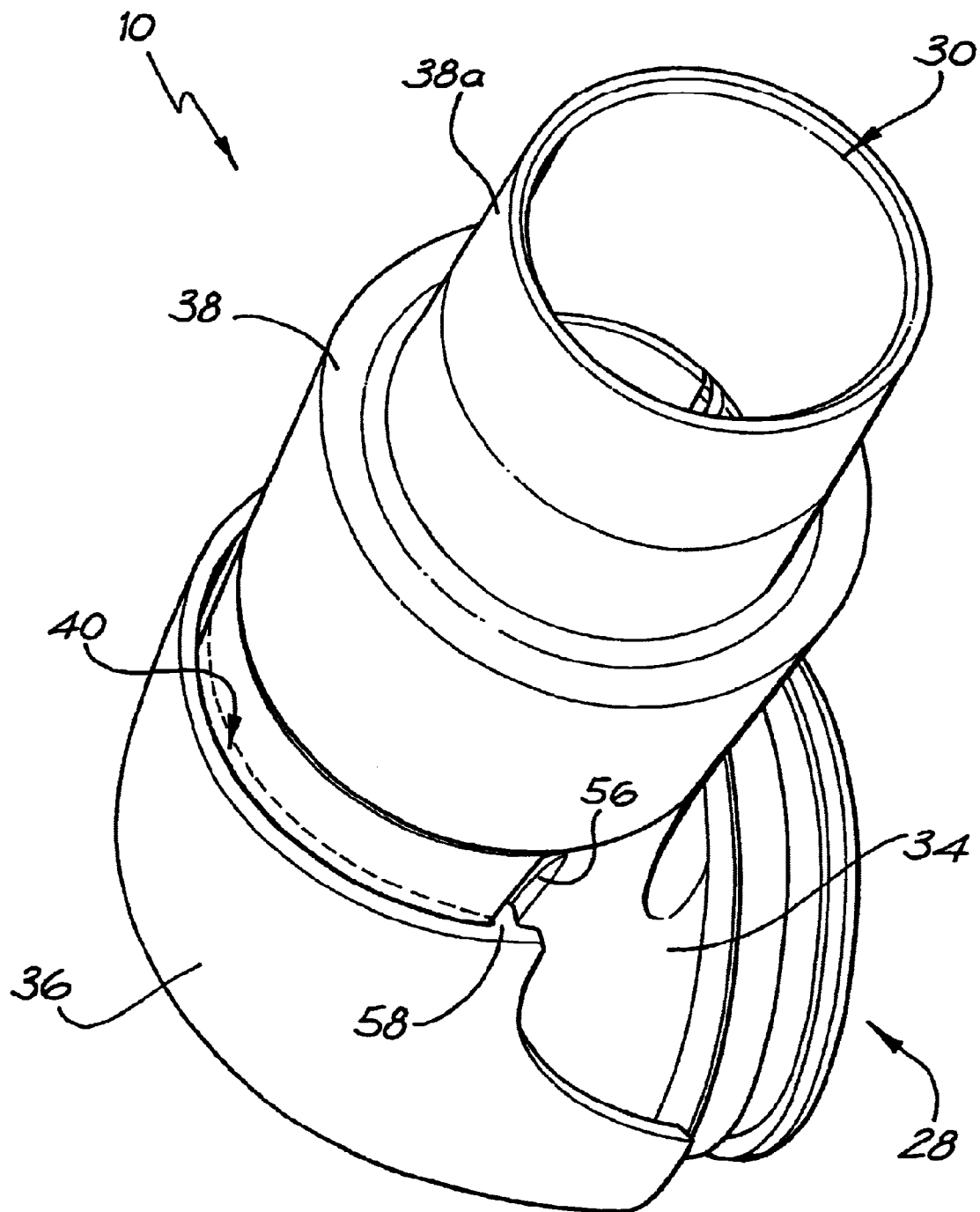
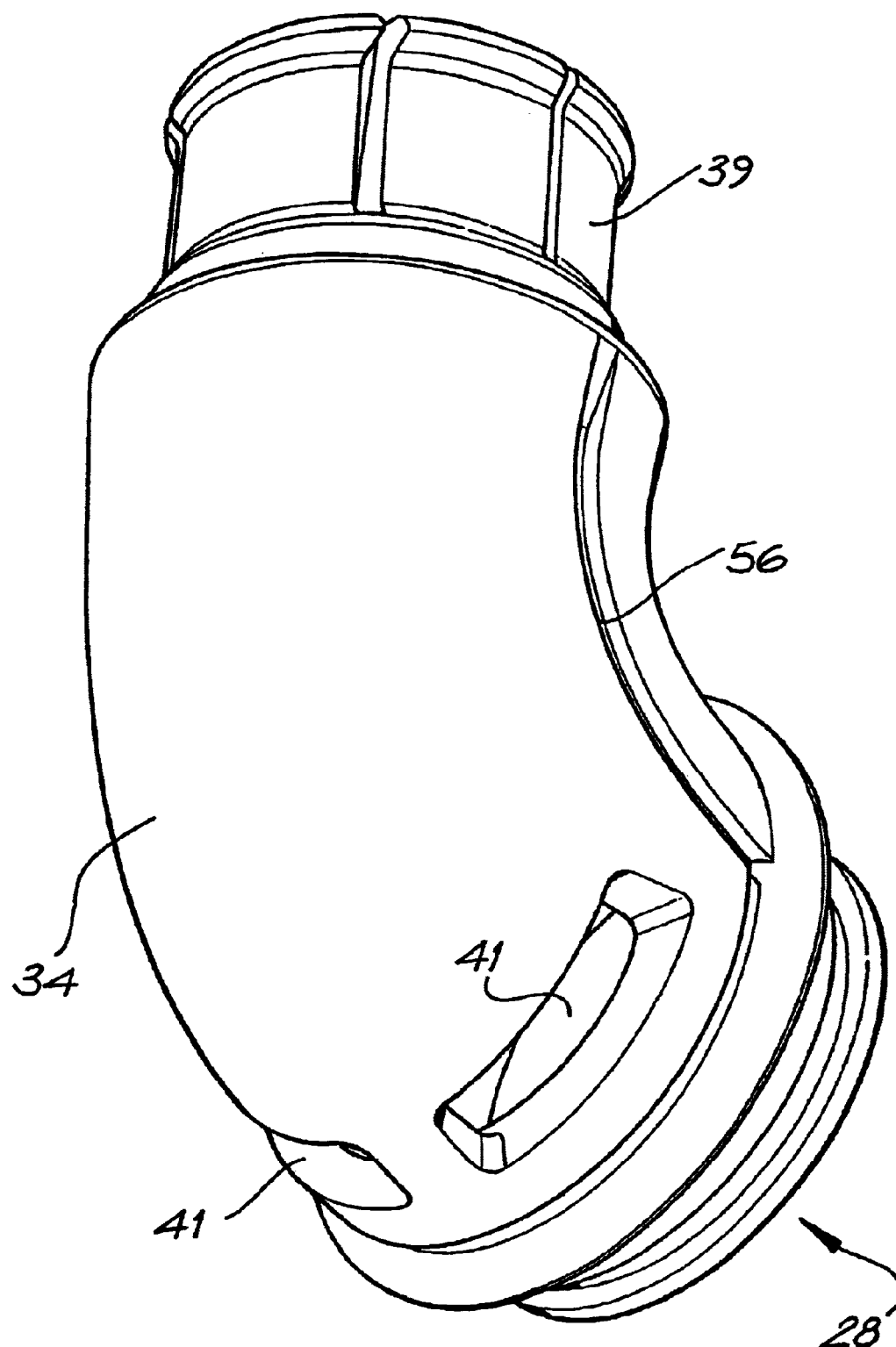


FIG. 3

*FIG. 4*

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