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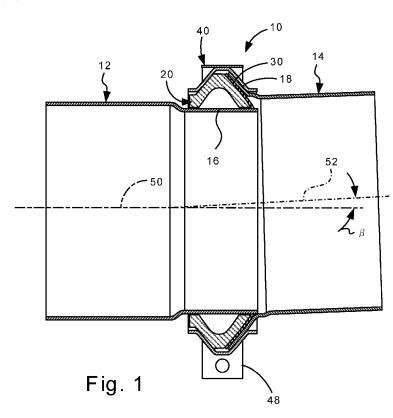
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[Continued on next page]

(54) Title: SPHERICAL FLANGE JOINT



(57) Abstract: According to one embodiment, a flange joint (10) for joining a first pipe (12) to a second pipe (14) includes an adapter (20) coupled to the first pipe. The adapter includes a convex surface (24). The flange joint also includes a gasket (30) with a first concave surface (34) and a second convex surface (36). The first concave surface of the gasket is matingly engageable with the convex surface of the adapter. The second convex surface is matingly engageable with the second pipe. The gasket is supported on the first pipe. The flange joint further includes a clamp (40) that includes a concave surface (80) that is matingly engageable with the second pipe to secure the gasket to the adapter.



LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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#### A. CLASSIFICATION OF SUBJECT MATTER

F16L 21/08(2006.01)i, F16L 21/06(2006.01)i, F16L 21/02(2006.01)i, F16L 23/16(2006.01)i, F16L 23/036(2006.01)i, F16L 17/02(2006.01)i

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)

F16L 21/08; F16L 51/00; F16L 19/04; F16L 19/02; F16L 17/02; F16L 27/10; F16L 21/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: 'Spherical', 'Flange' and 'Joint'

#### C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 09-133276 A (CALSONIC CORP.) 20 May 1997 See fig. 1.	1-20
A	JP 2006-009914 A (CALSONIC KANSEI CORP.) 12 January 2006 See fig. 2. and fig. 3.	1-20
A	KR 10-0904419 B1 (KIM, SU GEN) 26 June 2009 See fig. 4a.	1-20
A	KR 10-0776367 B1 (SAM JUNG DCP CO., LTD.) 15 November 2007 See fig. 2.	1-20

		Further documents are	listed in the	he continuation	of Box C.
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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
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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

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 09-133276 A	20.05.1997	None	
JP 2006-009914 A	12.01.2006	None	
KR 10-0904419 B1	26.06.2009	None	
KR 10-0776367 B1	15.11.2007	None	