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(54) Title: ORBITAL WELDING DEVICE WITH SIMPLIFIED HANDLING

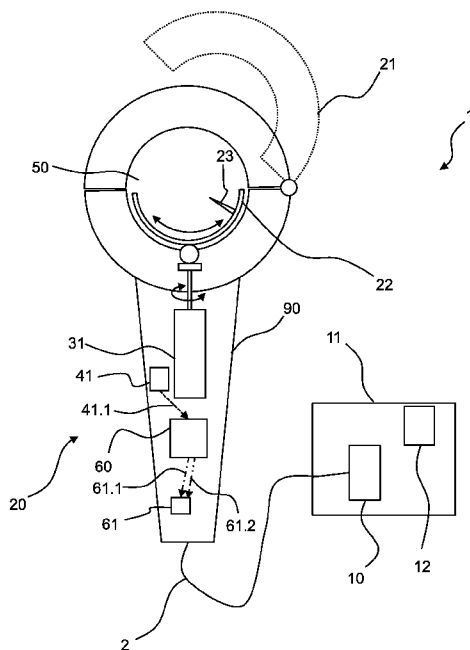


Fig. 1

(57) Abstract: An orbital welding device (1), having a welding current source (10) in a welding current source housing (11) and a base controller (12), and an orbital welding head (20) connected to the welding current source (10) by a cable (2), the orbital welding head (20) having a pipe mount (21) and a welding electrode holder (22) mounted rotatably with respect to the pipe mount (21) for holding a welding electrode (23). A motor (31) is designed to drive the welding electrode holder (22). The orbital welding head (20) has a chamber (50) for shielding gas, and an electrical circuit (60) that is connected: - to a position sensor (41) designed to generate a position value (41.1); and/or - to a memory device (61) designed to store one or more loading values (61.1) and/or one or more calibrating values (61.2) in the memory device (61).



WO 2020/096873 A3

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

23 July 2020 (23.07.2020)

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/059298

A. CLASSIFICATION OF SUBJECT MATTER
 INV. B23K9/028 B23K9/095 B23K9/16 B23K37/02
 ADD. B23K101/06

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)
 B23K

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)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/238496 A1 (KIMURA YUTAKA [JP]) 2 December 2004 (2004-12-02) paragraphs [0028], [0029], [0030], [0034], [0035], [0039]; figures 1,2 -----	1-7,16, 17
X	US 5 837 966 A (TIMMONS JR JOHN E [US]) 17 November 1998 (1998-11-17) column 1, lines 25-44 column 2, lines 52-56 column 3, lines 45-54 column 5, lines 11-14, 32-37; figure 1 column 6, lines 3-22 -----	1,4-7, 16,17
A	EP 2 027 962 A1 (INTERFORGE KLEE GMBH [DE]) 25 February 2009 (2009-02-25) the whole document -----	1-7,16, 17
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Further documents are listed in the continuation of Box C.

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
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "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

- "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
- "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
- "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

Date of the actual completion of the international search 20 February 2020	Date of mailing of the international search report 24/06/2020
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Kramer, Ellen
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2019/059298

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 101 224 878 B1 (DAEWOO SHIPBUILDING & MARINE [KR]) 22 January 2013 (2013-01-22) the whole document -----	1-7, 16, 17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/059298

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search 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.:
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:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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 fees, this Authority did not invite payment of additional fees.

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.:

2-7, 16(completely); 1, 17(partially)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 2-7, 16(completely); 1, 17(partially)

Facilitated start of the welding process by incorporation of the position sensor

2. claims: 8-15(completely); 1, 17(partially)

Reduction of calibrating runs by storage of calibration data

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2019/059298

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004238496	A1	02-12-2004	CA 2467952 A1 27-11-2004
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