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kind of national protection available*): AE, AG, AL, AM,
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BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

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(54) **Title:** REPLACABLE DIES

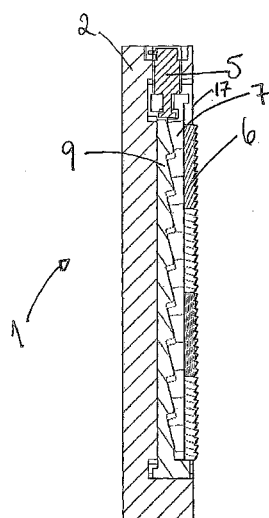


Fig. 3

(57) **Abstract:** A die (6) device (1), and a method for replacing the die (6), wherein the die (6) is movable between a retracted position in which the die (6) is released, and an advanced position in which the die (6) is fixed, and wherein the device (1) comprises: a body (2) with a longitudinal groove (3), the groove (3) having inner walls (4b) for contact with corresponding walls (10) on an inner body (9); an intermediate body (7) arranged for cooperation with the inner body (9) on a first longitudinal side (12) thereof, and for cooperation with a first side (11) of the die (6) on an oppositely located longitudinal side (13) thereof, which intermediate body (7), on its first longitudinal side (12), is provided with a first set of inclined faces (8a-h) operable for cooperation with a corresponding second set of inclined faces (14a-h) on the inner body (8), and wherein a relative movement between the intermediate body (7) and the inner body (9) causes the die (6) to be moved between the retracted position and the advanced position.



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2014/000679

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B31/20 E21B19/06
ADD.

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)
E21B

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)

EP0-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.
X	US 2 068 217 A (ABEGG WALTER A) 19 January 1937 (1937-01-19) figures 1, 3, 4 -----	1-4
A	US 2011/048739 A1 (BLAIR STEVEN G [US] ET AL) 3 March 2011 (2011-03-03) figure 1C -----	1-4
A	US 3 748 702 A (BROWN C) 31 July 1973 (1973-07-31) figures 6-8 -----	1-4



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

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"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

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
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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.:

"see additional sheet(s)"

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2014/000679

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2068217	A	19-01-1937	NONE

US 2011048739	A1	03-03-2011	EP 2470748 A2 04-07-2012
			US 2011048739 A1 03-03-2011
			US 2012125632 A1 24-05-2012
			WO 2011031528 A2 17-03-2011

US 3748702	A	31-07-1973	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-4

A die (6) device (1), wherein the die (6) is movable between a retracted position in which the die (6) is released, and an advanced position in which the die (6) is fixed, and wherein the device (1) comprises: a body (2) with a longitudinal groove (3), the groove (3) having inner walls (4b) for contact with corresponding walls (10) on an inner body (9); an intermediate body (7) arranged for cooperation with the inner body (9) on a first longitudinal side (12) thereof, and for cooperation with a first side (11) of the die (6) on an oppositely located second longitudinal side (13) thereof, which intermediate body (7), on its first longitudinal side (12), is provided with a first set of inclined faces (8a-h) operable for cooperation with a corresponding second set of inclined faces (14a-h) on the inner body (8), and wherein a relative movement between the intermediate body (7) and the inner body (9) causes the die (6) to be moved between the retracted position and the advanced position.

2. claims: 5, 6

A device (1) according to one of claims 3 or 4, wherein (potential special technical feature of claim 5) the device (1) further comprises a second screw (15) and a locking washer (23), where the second screw (15) is arranged to lock the locking washer (23) in a specific position, and the locking washer (23) is arranged to lock the transfer element (5) when the die (6) is in the advanced position.
