

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P012945WO	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/IB2018/050177	International filing date (day/month/year) 11.01.2018	Priority date (day/month/year) 12.01.2017	
International Patent Classification (IPC) or national classification and IPC INV. G01R11/04			
Applicant Landis+Gyr AG			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>10</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned conclusion under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 01.11.2018		Date of completion of this report 29.03.2019	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465		Authorized officer Kleiber, Michael Telephone No. +49 89 2399-2774	



Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

4-6, 8-22 as originally filed
1, 1a, 2, 2a, 3, 3a, 7 as amended (together with any statement) under Art. 19 PCT

Claims, Numbers

15 as originally filed
1-14 as amended (together with any statement) under Art. 19 PCT

Drawings, Sheets

1-4 as originally filed

☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2018/050177

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 29.11.2018 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-13</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-13</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-13</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following documents:
 - D1 DE 20 2004 017069 U1 (EMH ELEK ZITAETSZAEHLER GMBH & [DE]) 17 February 2005 (2005-02-17)
 - D2 DE 10 2010 033962 A1 (IAD GMBH [DE]) 9 February 2012 (2012-02-09)
 - D3 WO 2016/202692 A1 (LANDIS + GYR AG [CH]) 22 December 2016 (2016-12-22)
 - D4 EP 2 762 899 A1 (EMH METERING GMBH & CO KG [DE]) 6 August 2014 (2014-08-06)
- 2 D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses

Enclosure assembly, in particular for an enclosure of a metering apparatus, comprising a first enclosure portion and a second enclosure portion which are configured to be assembled by being moved towards each other along an assembly direction, and in a fully assembled state of the enclosure assembly enclose at least a part of an inner space for accommodating a metering device; and

[abstract and figures, Unterteil(10) and Haube(50)]

a fixation arrangement for affixing the first enclosure portion to the second enclosure portion in the fully assembled state, wherein the fixation arrangement in a fixation position prevents the first enclosure portion and the second enclosure portion from being separated from each other;

[paragraph 28 und figures 4-6]

wherein the fixation arrangement comprises at least one latching element arranged at the first enclosure portion and at least one counter latching element arranged at the second enclosure portion;

[figures 4-6, items 60,62 and 32]

wherein in the fixation position, the at least one latching element is in engagement with the at least one counter latching element, and [figures 4-6, items 60,62 and 32]

a blocking element prevents a disengagement of the at least one latching element and the at least one counter latching element, [Figures 1 and 5, item 36 or item 70]

2.1 D1 does not disclose

a) wherein a latching nose is arranged at a free end of the at least one latching element and protrudes from the at least one latching element in a latching direction running perpendicularly to the assembly direction; and

b) in a deflected position of the at least one latching element, the latching nose abuts the at least one counter latching element in the latching direction

2.2 While feature a) can be found in D3 [figure 3b, element 224] feature b) is not disclosed in any of the cited documents. The bent parts of D3 [figure 3b, element 224] do not abut the side walls. Claim 1 is therefore new (Article 33(2) PCT).

3 The difference has the technical effect that upon latching or unlatching, the latching element with its latching nose is being deflected in two different directions, i.e., the latching direction and the deflection direction. The latching process in conjunction with the counter latching element takes place in the latching direction, whereas the blocking process in conjunction with the

blocking element takes place in the deflection direction. The two different directions allow for separating a blocking or unblocking movement from the latching or unlatching movement.

- 3.1 This technical effect has the advantage over the prior art, and in particular over the housing shown in D1, that the latching connection of the enclosure portions may be unblocked and unlatched with appropriate tools and knowledge without destroying the respective parts, while at the same time their disengagement is normally prevented (see page 9, line 24 to page 10, line 2 of the description as originally filed).
- 3.2 Hence, the objective technical problem is to provide an enclosure assembly for a metering apparatus, which on the one hand can be easily assembled in a way that it is hard to disengage respective first and second enclosure portions from the outside after their assembly, but on the other hand may be still opened after the assembly by specially trained and authorised personnel by means of an appropriate tool.
- 3.3 D1 itself remains silent about any possibility to deflect the locking protrusions shown therein in any other direction than the latching direction. On the contrary, D1 rather teaches away from the claimed solution in that it demands to arrange the ramp-shaped surfaces such that they oppose the locking protrusions on the side wall of the lower housing part causing the projection and the locking part to be jammed between a ramp-shaped surface and the side wall. At the same time, parallel ribs formed at the side walls laterally guide the locking protrusions.
- 3.4 D2 does not disclose any blocking elements preventing disengagement of the latching element as specified in independent claim 1 in the first place.
- 3.5 D3 shows closure elements which do not act as latching elements, let alone that any blocking elements would prevent disengagement of the closure elements and respective retaining arrangements.
- 3.6 D4 does not thematise any possibility to block latching elements in order to prevent their disengagement.

- 3.7 In view of the above, the cited prior art documents, neither if taken alone, nor in combination, can deliver any hint to the subject matter of new independent claim 1 which is therefore not obvious to a person skilled in the art as demanded in Art. 33 (3) PCT.
- 4 Claims 2-13 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

By online-filing

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Zurich, 7 February 2019

Your Ref: [N/A]
Our Ref: P012945WO

**ENCLOSURE ASSEMBLY AND METERING APPARATUS COMPRISING SAME –
International Patent Application No. PCT/IB2018/050177**

In response to the Written Opinion of the IPEA mailed on 7 December 2018:

I. Amended Documents

1 Submitted herewith are

- **new claims 1 to 13**, at least provisionally replacing claims 1 to 14, currently on file, and
- **new description pages 1''a, 3''a, 5' and 6'**, at least provisionally replacing description pages 1'a, 3'a, 5 and 6, currently on file.

II. Amendments

2 New claims 1 to 13 are based on claims 1 to 14, currently on file, which have been amended as follows in order to overcome the objections raised under items 1 to 3 in the Written Opinion:

3 **New independent claim 1** is based on independent claim 1, as currently on file, which has been provided with the features of current claim 4 that

“a latching nose (21) is arranged at a free end (20) of the at least one latching element (15) and protrudes from the at least one

latching element (15) in a latching direction (B) running perpendicularly to the assembly direction (A)."

- 4 In line 15 of new independent claim 1, a typographical error has been remedied in that it is now being referred to (tracked change) "the second enclosure portion (11)".
- 5 New claims 2 and 3 correspond to claims 2 and 3 as currently on file.
- 6 Claim 4, as currently on file, has been deleted due to the incorporation of its features into new independent claim 1.
- 7 New claims 4 to 13 correspond to claims 5 to 14, as currently on file, which due to the deletion of current claim 4 have been renumbered, and their backward references have been adapted according to the renumbering.
- 8 Additionally, in new claim 4, a clerical error has been remedied in that the "latching direction" has been provided with the reference sign "B" instead of "A". A new claim 5, reference numeral "15" has been added.
- 9 On new description pages 1''a, 3''a, 5' and 6', the above-described amendments to the claims have been considered.

III. Admissibility

- 10 By the above-described amendments to the claims, the interdependencies between the claimed features correspond to those in the claims as originally filed. In particular, independent claim 1 now contains both, the features of claims 4 and 7, as originally filed, which depended on original claim 1 and 4, respectively.
- 11 Hence, the amendments to the international application do not go beyond the disclosure in the application as filed and thus fully comply with Art. 19 (2) and Art. 34 (2) PCT. Therefore, the amendments are **admissible**.

IV. Clarity

- 12 By incorporating current claim 4 into the preamble of independent claim 1, the feature of "the latching nose" mentioned in the characterising portion of the claim is now clearly defined.
- 13 The claims define the matter for which protection is sought. They are **clear** and concise and fully supported by the description. Consequently, the claims now comply with Art. 6 PCT.

V. Novelty and Inventive Step

- 14 As already laid down in the last submission dated 1 November 2018 and confirmed under item 4 of the Written Opinion, the cited prior art documents D1 to D4 do not disclose the features of claim 4, as originally filed, which have been incorporated into new independent claim 1, and specify that

“in a deflected position of the at least one latching element (15), the latching nose (21) abuts the at least one counter latching element (16) in the latching direction (B), and the blocking element (25) abuts the at least one latching element (15) in a deflection direction (C) running perpendicularly to the latching direction (B).”

- 15 Consequently, the subject-matter of new depended claim 1 is **novel** in the sense of Art. 33 (2) PCT, and **not obvious** to a person skilled in the art as demanded in Art. 33 (3) PCT.

VI. Final Remarks

- 16 The application documents are now in line with the requirements laid down in the PCT, in particular with Art. 33 (1) PCT.
- 17 It is therefore respectfully requested to issue a positive International Preliminary Report on Patentability (IPRP).
- 18 Should the International Preliminary Examination Authority not feel to be in a position of issuing a positive International Preliminary Report on Patentability, it is respectfully requested to issue a further Written Opinion under Rules 66.2 and 66.4 (a) PCT.
- 19 If the International Preliminary Examination Authority requires minor formal amendments to bring the application documents in line with the requirements laid down in the PCT, it is most respectfully suggested to seek an informal telephone interview with applicant's representative.

Alexander Grosse-Kracht

- New claims 1 to 13 (marked-up and clean copy)
- New description pages 1''a, 3''a, 5' and 6' (marked-up and clean copy)

1''a

The present disclosure relates to an enclosure assembly, in particular for an enclosure of a metering apparatus, comprising

- 5 — a first enclosure portion and a second enclosure portion which are configured to be assembled by being moved towards each other along an assembly direction, and in a fully assembled state of the enclosure assembly enclose at least a part of an inner space for accommodating a metering device; and
- 1 — a fixation arrangement for affixing the first enclosure portion to the second enclosure portion in the fully assembled state, wherein the fixation arrangement in a fixation position prevents the first enclosure portion and the second enclosure portion from being separated from each
- 15 — wherein the fixation arrangement comprises at least one latching element arranged at the first enclosure portion and at least one counter latching element arranged at the second enclosure portion;
- wherein a latching nose is arranged at a free end of the at least one latching element and protrudes from the at least one latching element in a latching direction running perpendicularly to the assembly direction; and
- wherein in the fixation position, the at least one latching element is in engagement with the at least one counter latching element, and
- 2 — a blocking element prevents a disengagement of the at least one latching element and the at least one counter latching element.

Furthermore, the present disclosure relates to a metering apparatus comprising a metering device accommodated within an enclosure assembly.

3''a

that the metering apparatus comprises an enclosure assembly according to the present invention.

According to the present invention, the above-mentioned objectives are particularly achieved in that in a deflected position of the at least one latching element,
5 the latching nose abuts the at least one counter latching element in the latching direction, and the blocking element abuts the at least one latching element in a deflection direction running perpendicularly to the latching direction.

In other words, when the at least one latching element is deflected by the at least
1 one counter latching element while transferring the first enclosure portion and the second enclosure portion from a pre-assembled state to the fully assembled state, the at least one latching element is additionally deflected by the blocking element. Therefore, the at least one latching element is deflectable, i.e. elastically deformable, both along the latching direction and the deflection direction.

15 Upon joining the first enclosure portion with the second enclosure portion along the assembly direction, the free end may be deflected so that the latching nose can pass the counter latching element and afterwards snap in behind the counter latching element in order to affix the first enclosure portion to the second enclosure portion. A deflection of the latching nose is facilitated in that the free end is
2 formed at the latching arm, a root or base section of which is arranged at the first enclosure portion or the second enclosure portion, respectively.

This solution has the advantage over the prior art that when the first enclosure portion and the second enclosure portion are joined by being moved towards

5'

In a first further embodiment, the at least one latching element comprises a latching arm extending away from the first enclosure portion along the assembly direction. Upon joining the first enclosure portion and the second enclosure portion in the assembly direction, the latching arm may reach into the respective other portion in order to be accommodated therein. By reaching into the respective other portion, the latching arm may help to guide the first enclosure portion and/or the second enclosure portion when being moved towards each other along the assembly direction in order to properly and securely reach the fully assembled state.

In some embodiments, in the fixation position, the at least one latching element is positioned between the at least one counter latching element and the blocking element. Thereby, the at least one latching element and/or the at least one counter latching element may be immobilised or at least a movement thereof inhibited in such a way that they are blocked in the fixation position. Furthermore, positioning the at least one latching element between the at least one counter latching element and the blocking element helps in providing an enclosure assembly according to the present invention with a compact design.

6'

In some embodiments, the counter latching element is formed as a detent jutting out in a direction opposite to the latching direction. Forming the counter latching element as a detent helps to provide holding sufficient surfaces for taking up forces acting between the at least one latching element and the at least one counter latching element, which forces may cause a separation of the first enclosure portion and the second enclosure portion along the assembly direction. Forming the counter latching element as a detent also helps in enabling an automatic engagement of the at least one latching element with the at least one counter latching element when reaching the fully assembled state, for example in that the at least one latching element snaps in behind the at least one counter latching element in the assembly direction.

In some embodiments, the blocking element is located behind the at least one latching element the fixation position on an opposite side of the at least one latching element as the at least one counter latching element. When passing the at least one counter latching element, the at least one latching element may be deflected in a direction opposite to the latching direction such that when releasing the deflection, the at least one latching element may snap into a latched position, where it is in engagement with the at least one counter latching element. In the alternative, the at least one counter latching element may be deflected in the latching direction such that it may snap into a latched position. In either way, locating the blocking element behind the at least one latching element on the other side thereof as where the at least one counter latching element is located, helps in supporting the at least one latching element in a direction opposite to the

Amended Claims

1. Enclosure assembly (9), in particular for an enclosure (2) of a metering apparatus (1), comprising

5 a first enclosure portion (10) and a second enclosure portion (11) which are configured to be assembled by being moved towards each other along an assembly direction (A), and in a fully assembled state (F) of the enclosure assembly (9) enclose at least a part of an inner space (3) for accommodating a metering device (4); and

1 a fixation arrangement (13) for affixing the first enclosure portion (10) to the second enclosure portion (11) in the fully assembled state (F), wherein the fixation arrangement (13) in a fixation position (S) prevents the first enclosure portion (10) and the second enclosure portion (11) from being separated from each other;

15 wherein the fixation arrangement comprises at least one latching element (15) arranged at the first enclosure portion (10) and at least one counter latching element (16) arranged at the second enclosure portion (11);

wherein a latching nose (21) is arranged at a free end (20) of the at least one latching element (15) and protrudes from the at least one latching element (15) in a latching direction (B) running perpendicularly to the assembly direction (A); and

2 wherein in the fixation position (S), the at least one latching element (15) is in engagement with the at least one counter latching element (16), and

a blocking element (25) prevents a disengagement of the at least one latching element (15) and the at least one counter latching element (16),

characterised in that

25 in a deflected position of the at least one latching element (15), the latching nose (21) abuts the at least one counter latching element (16) in the latching direction

(B), and the blocking element (25) abuts the at least one latching element (15) in a deflection direction (C) running perpendicularly to the latching direction (B).

2. Enclosure assembly (9) according to claim 1, **characterised in that** the latching element (15) comprises a latching arm (19) extending away from the first enclosure
5 portion (10) along the assembly direction (A).

3. Enclosure assembly (9) according to claim 1 or 2, **characterised in that** in the fixation position (S), the at least one latching element (15) is positioned between the at least one counter latching element (16) and the blocking element (25).

1 4. Enclosure assembly (9) according to at least one of claims 1 to 3, **characterised in that** the at least one counter latching element (16) is formed as a detent jutting out in a direction opposite to the latching direction (B).

5. Enclosure assembly (9) according to at least one of claims 1 to 4, **characterised in that** the blocking element (25) is located behind the at least one latching element
15 (15) in the fixation position (S) on an opposite side of the at least one latching element (15) as the at least one counter latching element (16).

6. Enclosure assembly (9) according to at least one of claims 1 to 5, **characterised in that** the at least one counter latching element (16) and the blocking element (25) are arranged essentially at a same height measured in parallel to the assembly
2 direction (A).

7. Enclosure assembly (9) according to at least one of claims 1 to 6, **characterised in that** the blocking element (25) is formed as a notch with a lead-in chamfer (28) at least partially facing in a direction opposite to the assembly direction (A).

8. Enclosure assembly (9) according to at least one of claims 1 to 7, **characterised in that** a base section of the at least one latching element (15) is arranged at a ceiling section (18) of the first enclosure portion (10).
9. Enclosure assembly (9) according to at least one of claims 1 to 8, **characterised in that** the at least one counter latching element (16) is arranged at a wall section (23) of the second enclosure portion (11).
10. Enclosure assembly (9) according to at least one of claims 1 to 9, **characterised in that** the blocking element (25) is arranged at an opposite wall section (26) and/or a side wall section (27) of the second enclosure portion (11).
11. Enclosure assembly (9) according to claims 9 or 10, **characterised in that** that at least two of the wall section (23), the opposite wall section (26), and the side wall section (27) together form a channel (29) accommodating the at least one latching element (15) and the at least one counter latching element (16) in the fixation position (S).
12. Enclosure assembly (9) according to at least one of claims 1 to 11, **characterised in that** each of the first enclosure portion (10) and the second enclosure portion (11) essentially forms a half of the enclosure (2).
13. Metering apparatus (1) comprising a metering device (4) accommodated within an enclosure assembly (9) according to at least one of claims 1 to 12 above.