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(71) Applicant: **Weiland, Karlheinz**
71083 Herrenberg (DE)

(72) Inventor: **Weiland, Karlheinz**
71083 Herrenberg (DE)

(74) Representative: **Meyer zu Bexten, Elmar**
Schloßberg 10
71032 Böblingen (DE)

(54) WAISTBELT BUCKLE

(57) Problem

In sufferers of overweight or pelvic tilt, the waist is slanted forward, its front portion thus pointing slightly downward. When an individual affected by either of these conditions wears a belt, the top of the belt thus pushes forward with the tilt and the front of the belt and buckle

tend to face down, impairing its esthetic appeal to on-lookers.

Solution

Waistbelt buckle, preferably of metal or silicone, characterized in that, in cross section, the buckle forms a wedge (10).

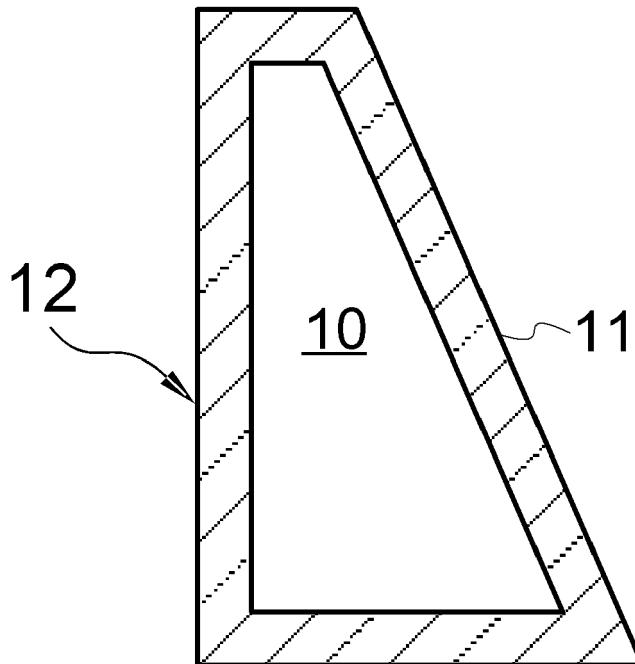


Fig. 1

Description**Technical Field**

[0001] The invention pertains to the products as per the first portion of the independent claims.

Background Art

[0002] A clasp or buckle is any device used for fastening two loose ends, with one end attached to it and the other held by a catch in a secure but adjustable manner.

[0003] PTL1 discloses a belt buckle having a wing-shaped front.

Summary of invention

[0004] The invention as claimed is hereinafter disclosed in such a way that the technical problem with which it deals can be appreciated and the solution can be understood.

Technical Problem

[0005] In sufferers of overweight or pelvic tilt, the waist is slanted forward, its front portion thus pointing slightly downward. When an individual affected by either of these conditions wears a belt, the top of the belt thus pushes forward with the tilt and the front of the belt and buckle tend to face down, impairing its esthetic appeal to onlookers.

[0006] While this outcome may in some cases be counteracted by tightening the belt, such practice adversely affects the wearer's health (cf. NPL1).

Solution to Problem

[0007] The problem is solved as per the second portion of Claim 1.

Advantageous effect of invention

[0008] A buckle as per the invention is adapted to rotund wearers, its wedge shape preventing the buckle's front from tilting forward. With his or her buckle standing upright and clearly visible, the wearer appears slimmer to the casual observer.

[0009] For mechanical support of the strap, different options bear specific advantages. In an embodiment as per Claim 3 - hereinafter referred to as "closed guidance" - the frame remains fully visible, lending the buckle an atypical yet harmonic appearance while eliminating the requirement for an additional loop. The alternative as per Claim 8 - hereinafter referred to as "open guidance" - accommodates belt straps of arbitrary thickness in a comparatively flat buckle.

Brief description of drawings**[0010]**

Figure 1 illustrates the wedge shape of the buckle. Figure 2 and Figure 3 show embodiments with open guidance.

Figure 4, Figure 5, and Figure 6 show embodiments with closed guidance.

Figure 7 illustrates the fixing of the belt with a tongue. Figure 8 illustrates the fixing of the belt with a prong.

Description of embodiments

[0011] Figure 1 depicts a wedge (10) whose base (11), when in use, would face the wearer's lower abdomen. Correspondingly, the vertical strap guide (12), which would face away from the wearer's body, slopes away from the base (11) such as to maximize inclination while minimizing depth between the base (11) and front face. The latter's corners may be equipped with pins engaging with mating bores of the wedge (10) to allow for easy swapping of the front face (14) at the wearer's convenience. Preferably, the wedge (10) and resulting buckle 25 may be of arbitrary depth but should be dimensioned such as to accommodate off-the-shelf waistbelts between 3 and 4 cm in width.

[0012] Figure 2 shows an embodiment with open guidance provided by a bilateral elevation (23) opposite the wedge base (11). As may be gathered from Figure 3, the buckle may be of the center-bar or center-post variety, its center bar (17a) showing a recess (16) for supporting the buckle's tongue. In the case of an interchangeable buckle, such tongue, forming an integral part of the product, should be attached to the wedge base (11) and kept from slipping sideways.

[0013] In the variants as per Figure 4 and Figure 5, a vertical (12) or wedged strap guide (12b) and front face (14) instead delimit a guiding slot (13). As best seen in Figure 5, the wedged strap guide (12b) augments the wedge (10) and guides the belt strap close to the wearer's abdomen. As depicted in Figure 6, such "closed guidance" may be achieved by a simple frame (18), with a parallel guiding slot (13) being formed betwixt the guide (12) and front face (14). An alternative embodiment may take the form of a shield (19) exhibiting a prong (20) protruding opposite the front face (14).

[0014] The skilled person will appreciate that while the drawings place emphasis upon the edges of the wedge (10), the latter may be wholly or partially filled, such as with silicone, or fabric-covered, for example, at its base (11). Similarly, while displayed as straight, some edges may bend without departing from the scope of the invention. For instance, the wedge base (11) may be chamfered or otherwise adapted to the shape of the lower abdomen.

[0015] All variants share the physical commonality that the leather strap passes at a controlled distance from the

wearer's body. While the frame (18) and shield (19) of Figure 6 provide a dedicated strap guide, the bilateral bars of the center-bar (17a, 17b) embodiments as per Figure 3 essentially serve the same purpose. As outlined above with reference to Figure 2, fixation in these embodiments may be achieved by means of a tongue (24 - Figure 7) or prong (20 - Figure 8).

[0016] A buckle especially suitable for air travel may be manufactured from hard plastic or any material that will pass airport security screening. An exchangeable buckle consisting of such material can be assembled using non-metallic screws and proves most comfortable both during inspection and while sitting for extended periods of time.

Industrial applicability

[0017] The invention is applicable, *inter alia*, throughout the apparel industry.

Reference signs list

[0018]

10	Wedge
11	Wedge base
12	Vertical strap guide
12b	Wedged strap guide
13	Guiding slot
14	Front face
15	Depth
16	Recess
17	Center bar frame
17a	Center bar with recess
17b	Center bar with prong
18	Frame
19	Shield
20	Prong
22	Tongue fixing
23	Elevation
24	Tongue
25	Belt strap

Citation list

[0019] The following documents are cited hereinbefore.

Patent literature

[0020] PTL1: AT 50065 B (JAMES PERCIVAL ROBERTSON) 25.09.1911

Non-patent literature

[0021] NPL1: LEE, Y. Y., et al. Disruption of the gasto-esophageal junction by central obesity and waist belt: role of raised intra-abdominal pressure. Diseases of the

Esophagus. 2015, vol.28, no.4, p.318-325.

Claims

- 5 1. Waistbelt buckle, preferably of metal, silicone, or duoplastics,
characterized in that,
in cross section, the buckle forms a wedge (10).
- 10 2. Buckle as per Claim 1
characterized in that
the wedge (10) exhibits a base (11) for bearing against a wearer's lower abdomen.
- 15 3. Buckle as per Claim 2
characterized in
a guide (12, 12b) for guiding a strap at an inclination relative to the base (11).
- 20 4. Buckle as per Claim 3
characterized in
a guiding slot (13) formed betwixt the guide (12, 12b) and a front face (14) of the buckle.
- 25 5. Buckle as per Claim 4
characterized in that
the front face (14) shows a recess (16) for supporting a tongue.
- 30 6. Buckle as per Claim 4
characterized in
a shield (19) exhibiting a prong (20) protruding opposite the front face (14).
- 35 7. Buckle as per Claim 6
characterized in that
the guide (12b) slopes away from the shield (19).
- 40 8. Buckle as per Claim 2
characterized in that
the frame (12) exhibits two short sides and two long sides elevated, such as by 0.5 cm, relative to the short sides.
- 45 9. Buckle as per Claim 8
characterized in
a center bar (17a) wherein the recess (16) is formed.
- 50 10. Buckle as per Claim 8
characterized in
a center bar (17b) with a prong (20).
- 55 11. Waistbelt
characterized in
a buckle as per any of the preceding claims and a preferably leather strap unilaterally attached to the buckle.

**Amended claims in accordance with Rule 137(2)
EPC.**

1. Waistbelt buckle, preferably of metal, silicone, or du-
roplastics, wherein, 5

in cross section, the buckle forms a wedge (10)
exhibiting a base (11) for bearing against a wear-
er's lower abdomen,
characterized in 10
a guide (12, 12b) for guiding a strap at an incli-
nation relative to the base (11) in a direction per-
pendicular to the strap.

2. Buckle as per Claim 1 15

characterized in
a guiding slot (13) formed betwixt the guide (12, 12b)
and a front face (14) of the buckle.

3. Buckle as per Claim 2 20

characterized in that
the front face (14) shows a recess (16) for supporting
a tongue.

4. Buckle as per Claim 2 25

characterized in
a shield (19) exhibiting a prong (20) protruding op-
posite the front face (14).

5. Buckle as per Claim 4 30

characterized in that
the guide (12b) slopes away from the shield (19).

6. Waistbelt 35
characterized in

a buckle as per any of the preceding claims and
a preferably leatheren strap unilaterally attached
to the buckle. 40

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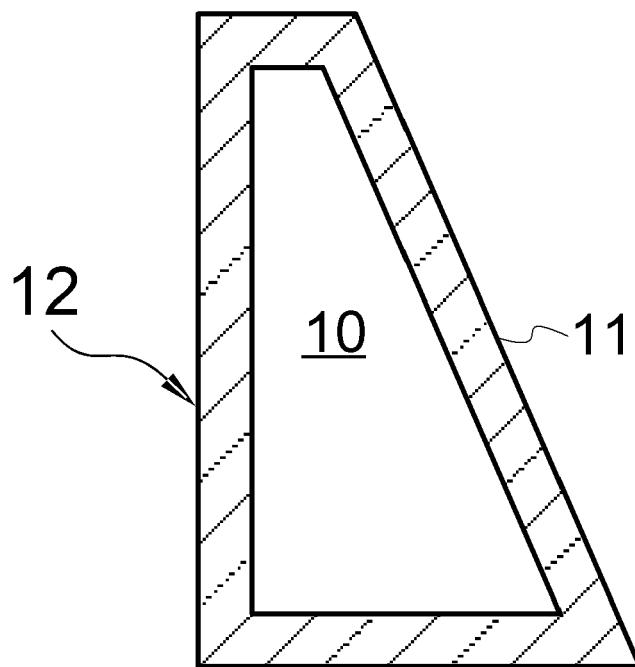


Fig. 1

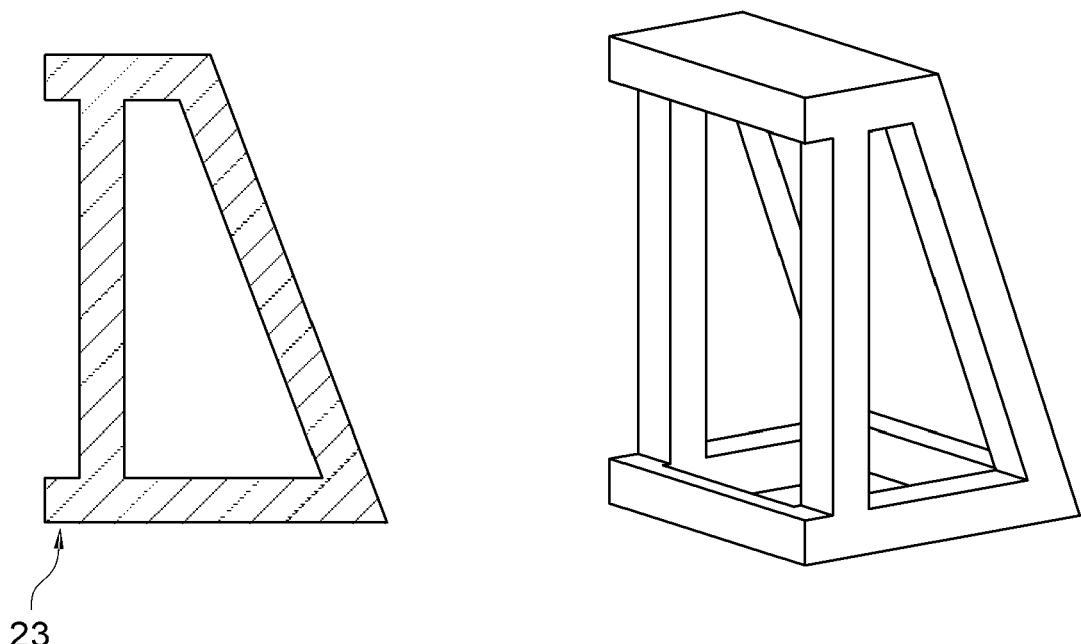
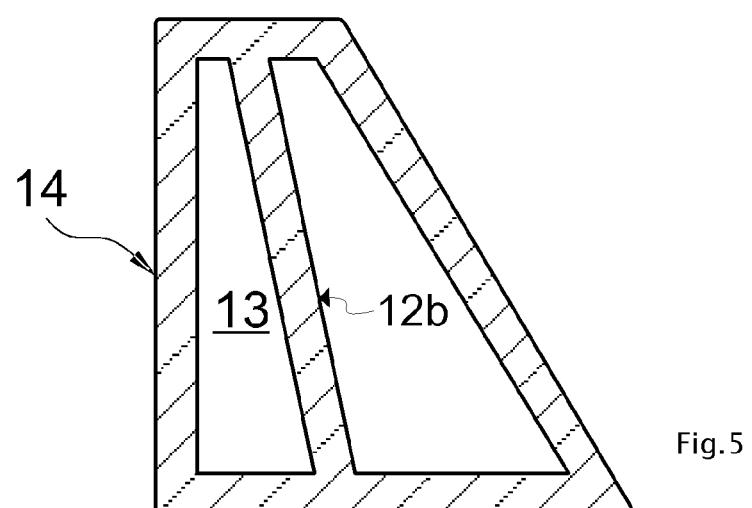
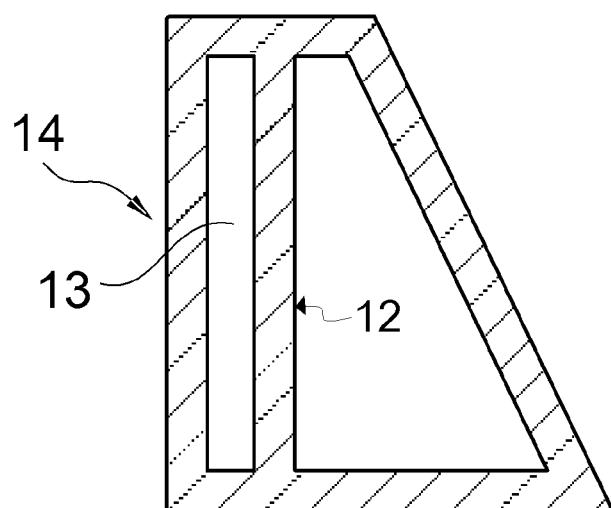
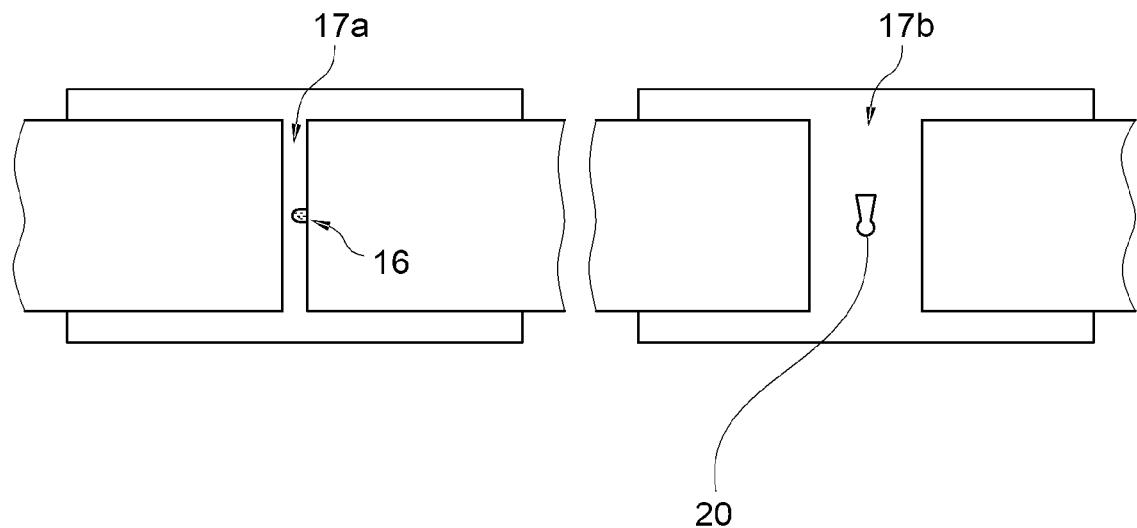


Fig. 2



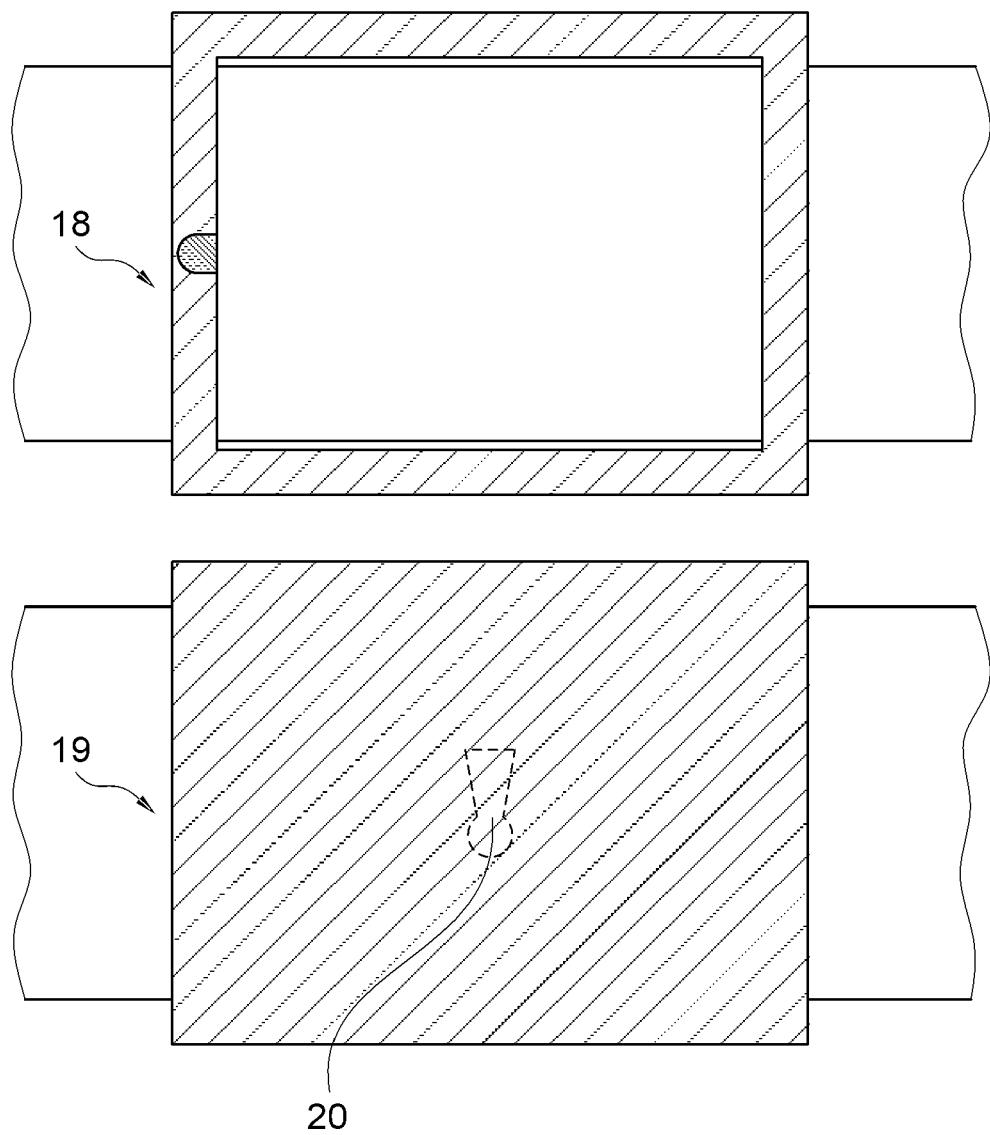


Fig. 6

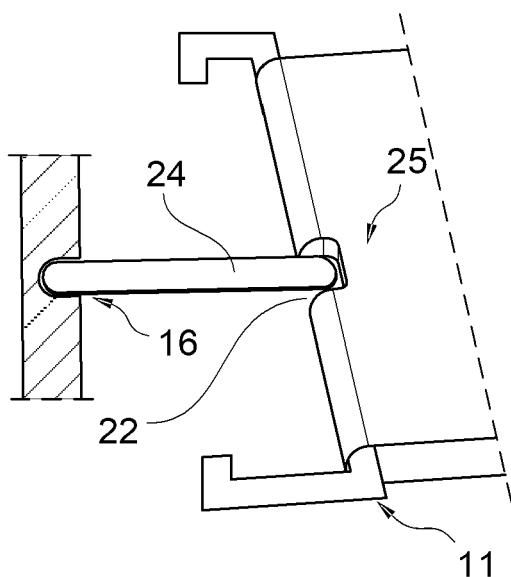


Fig. 7

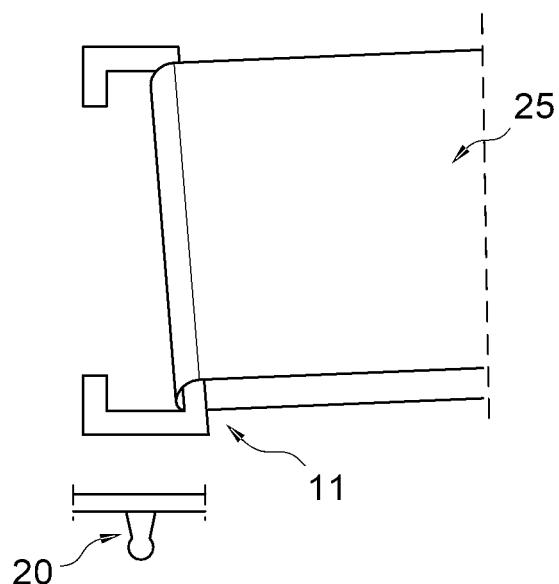


Fig. 8



EUROPEAN SEARCH REPORT

Application Number

EP 20 19 7081

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 376 240 A (THOMAS C. FIELD) 10 January 1888 (1888-01-10) * figures 1,2 *	1-5,8,9, 11	INV. A44B11/22 A44B11/24 A44B11/00
X	US 114 184 A (GEORGE OLDHAM JR) 25 April 1871 (1871-04-25) * figures *	1-4,6-8, 10,11	
A	US 2017/196314 A1 (GLICK MICHAEL [US]) 13 July 2017 (2017-07-13) * paragraphs [0003], [0004]; figure 1 *	1	
A	US D 843 683 S1 (GLICK MICHAEL [US]) 26 March 2019 (2019-03-26) * figure 1 *	1	
TECHNICAL FIELDS SEARCHED (IPC)			
A44B			
The present search report has been drawn up for all claims			
1	Place of search	Date of completion of the search	Examiner
50	The Hague	10 March 2021	Gallego, Adoración
CATEGORY OF CITED DOCUMENTS			
55	X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 19 7081

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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10-03-2021

10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
15	US 376240 A	10-01-1888	NONE	
	US 114184 A	25-04-1871	NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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[0020]

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- **LEE, Y. Y. et al.** Disruption of the gastroesophageal junction by central obesity and waist belt: role of raised intra-abdominal pressure. *Diseases of the Esophagus*, 2015, vol. 28 (4), 318-325 [0021]