



(51) International Patent Classification:

A01K 23/00 (2006.01) E01H 1/12 (2006.01)
A01K 1/01 (2006.01)

(21) International Application Number:

PCT/IT2020/050301

(22) International Filing Date:

04 December 2020 (04.12.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

102019000024015 13 December 2019 (13.12.2019) IT
102020000005584 16 March 2020 (16.03.2020) IT

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(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO,
NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW,
SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

(54) Title: DISPOSABLE KIT FOR COLLECTING VARIOUS SUBSTANCES

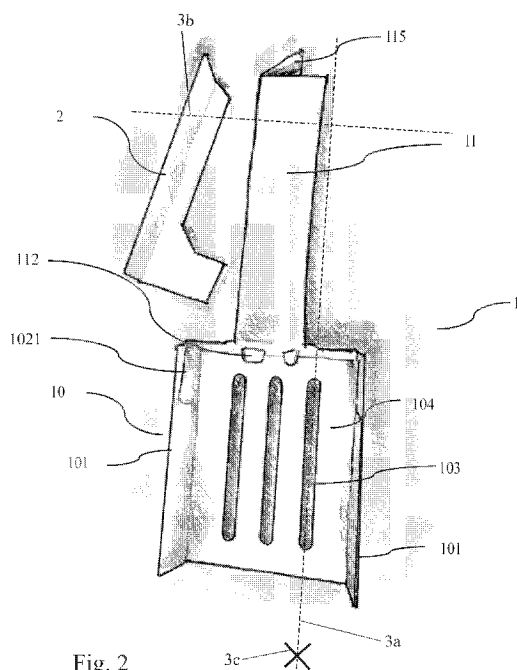


Fig. 2

(57) Abstract: Disposable kit (1) for collecting various substances, comprising: a bag (4) comprising an opening and upper strips (4b) contouring said opening; a die-cut planar element (3) comprising: a one piece portion configured to be folded along corresponding creases in order to form a shovel (1) comprising a blade (10) and an handle (11), reciprocally connected along a rear edge (102), the blade (10) comprising: a flat section (104), the rear edge (102) comprising at least a seat (1020); the handle (11) comprising: a plurality of creases (114), parallel and suitable for making longitudinal sides (116) suitable for making said handle (11) having a prismatic shape, at least a wedge element (112), suitable for being wedged into the seat (1020), the handle (11) moreover comprises a closure flap (115) configured to block inside the cavity of the handle (11), the upper strips (4b) of the bag (4) after that at least the shovel (1) and the various substances are inserted into the bag (4).

Published:

- *with international search report (Art. 21(3))*
- *with amended claims (Art. 19(1))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

DISPOSABLE KIT FOR COLLECTING VARIOUS SUBSTANCES

DESCRIPTION

5 **Background of the invention**

The present invention relates to a disposable kit for collecting various substances, better specified in claim 1. It is specifically suitable for collecting house pet's waste, such as dogs, cats and other house pets, or, if necessary, for collecting other compatible substances to be collected with said kit such as crumbs, dust etc.

10 It is known that whoever possesses a house pet such as a dog or a cat is forced to manually removing pet's wastes. In the event of walking a dog, the removal happens via an upside down bag, in which an user puts hand, picks up the solid waste, and thus the faeces with said hand, reverses the bag keeping the excrement in hand, closes the bag and throws it away in a trash bin. The contact with the waste exists
15 even if it is across a very thin and, if biodegradable, semi-porous and not 100% waterproof film.

A cat owner instead has, in general, litters provided with granular material that absorbs both liquid and solid wastes creating conglomerations that are separated by an user picking it, with hands or using a plastic shovel or the like, from the granular
20 material present in the litter, picking up however clean granular material too. Nevertheless it must be considered that the granular material of the litter is expensive and therefore it causes a considerable waste of material throwing away clean granular material that instead could be held in the litter and be still in use.

On the market exist pliers or shovels to collect such waste, both dog's ones and
25 cat's ones, together with the dirty granular portion, thus avoiding to throw away the clean granular material.

In order to overcome said drawbacks, in the specific field drilled shovels to collect waste are known, that are not hygienic though. Such tools must be washed and cleaned by the operator after every use, such situation being inconvenient and
30 unpleasant.

A further problem in the collection of waste while walking a dog, consist of the smell of the dirty shovel and scoop being deposited in the trash bins until the dustman

empties out the bin, even worse if the shovel has a cost and is carried back home to be washed and reused.

Publication US 2005/258655 A1 discloses a disposable kit for the collection of pet manure, said kit comprising a first part obtained from a punched and creased element (cardboard, paper,) and comprising a first portion configured to be folded along corresponding creases to form a scoop comprising a handle and a shovel joined together by a crease, said shovel being equipped with a flat portion, a rear edge, and lateral edges, said handle comprising a flap (second tab) which is inserted into a corresponding slot on the rear edge of the shovel to lock said handle to the shovel when in use.

The preamble of claim 1 of the present invention is based on this prior art disclosure.

Publication US 2008/134981 A1 discloses a disposable cat litter scoop with collection system.

Said shovel overcomes only partially said inconveniences. In fact, said shovels do not overcome issues related to bad odours and practicality of collection.

Summary of the invention

It is an object of the present invention to overcome and find remedy to at least part of the drawbacks and operational limits of the abovementioned prior art.

More particularly, it is an object of the present invention to provide for a disposable kit for collecting house or domestic pet's waste or other substances, being safe during transport of said waste until it is released into an urban trash bin, being practical and rapid in the use both for the collection from ground and for the closure in the bag, transport and release into an urban trash bin.

A further object of the present invention is to provide for a kit which allows the user to highly limit his contact with animal excrements and getting dirty, during both collection and transport.

In addition, an object is to provide for a kit that allows to annihilate bad odours of pet's faeces once said faeces are collected and inserted into a bag to be transported to the urban trash bin.

A further object of the present invention is to provide for a complete kit immediately disposable, without using further bags or packaging. In fact, here is the

novelty and inventiveness: the same envelope that packs the article when it is placed on the market becomes a bag for collecting excrements.

Lastly, an object of the present invention is to obtain a kit that allows dog's faeces collection and transport for example to an urban trash bin without any distant chance that an user enters in direct contact with said pet's faeces, not even through the material forming said bag.

Therefore, an object of the present invention is to describe a kit that allows pet's faeces collection, but also, if necessary, other substances suitable for said kit, in a totally hygienic environment.

It is the subject of the present invention a disposable kit for collecting various substances, comprising: a bag comprising an opening on both ends and upper strips contouring said opening; a planar die-cut element comprising: a one piece portion configured to be folded along corresponding creases to form a shovel comprising a blade and a handle, mutually connected via a rear edge, said blade comprising: a flat portion, said rear edge, in turn comprising at least a seat; the handle comprising: a plurality of creases, parallel and suitable for making longitudinal strips suitable for allowing the formation of said handle having a prismatic shape, at least a wedged element, suitable for being locked into said seat, the handle further comprises a closure flap configured to block inside said cavity of the handle said upper edges of the bag after that said dirty shovel and scoop and the excrements are put into the bag.

It should be noted that said kit that will be described with reference to a particular use for convenience, can also be suitable for the collection of other kind of materials without leaving the scope of protection of the present invention.

Brief description of the drawings

The structural and functional features of the kit according to the present invention will be better understood from the following detailed description, in which reference will be made to the attached drawings that depict some preferred and non-limiting embodiments, wherein:

Fig.1 is a front view of a portion of the kit according to the present invention as it appears as a foldable die-cut material in a preferred embodiment;

Fig.2 is a view of the shovel and scoop assembled and ready to use;

Fig.3 is a view from below of the shovel and of the scoop of the kit according to the present invention;

Fig.4 is a view of the shovel and scoop of the kit completely assembled according to the invention, during use;

Fig.5 is a view, during use, of the shovel while it is inserted together with the waste inside the bag part of the kit according to the present invention, wherein it has already been placed the upper strip of the bag past the opening line and wherein can be inserted the little collection aid scoop, said bag to be then closed and disposed into urban trash bins;

Fig.6 is a view of the closure step of said bag part of the kit according to the present invention;

Fig.7 is a view of the closed bag containing the upper strip of the bag itself ripped along the opening puncturing, the waste, the shovel, the scoop of the kit according to the present invention ready for transport and disposal;

Fig.8 shows the package, completed with the easy punctured opening, containing the die-cut portion. The part beyond the punctuation, once ripped off, has completed its function and can be inserted in the very same bag wherein later the excrement, the dirty shovel and the small scoop will be inserted.

Detailed description of preferred embodiments

With reference to Figures 1-8, a preferred embodiment is shown with some modified details of the kit for collecting house pet's excrement, according to the present invention.

According to the present invention, the kit preferably comprises a die-cut cardboard from which a collection shovel 1 and a scoop 2 are obtained, as well as a bag 4.

The shovel 1 and the scoop 2 are preferably made from a single die-cut element 3 (Fig.1), preferably essentially planar and having a sheet shape and preferably roughly rectangular and defining, in the main development plane, a longitudinal direction 3a and a transverse direction 3b.

Lastly, it is defined a vertical direction 3c, orthogonal to the previous ones.

As parts of said die-cut element and creased element 3, the shovel 1 and the scoop 2 are joined by a punctured line 20, that is a pre-drilled or pre-punctured line, that allows the easy detachment of the two portions, that is the shovel 1 and the scoop 2.

The punctured line 20 is preferably placed at an end of the die-cut and creased element 3, in particular at a corner and more preferably in correspondence of a side parallel to the transverse direction.

5 The scoop 2 preferably comprises a handle portion 21, suitable for holding the scoop 2, and a dragging portion 22, suitable for dragging house pet's waste or the like.

The scoop 2 may have different shapes, has a crease around its centre in order to fold it during operations, and it is well known that a planar strip has a much smaller stiffness than the same strip folded or slightly folded in a V shape. The longitudinal folding along the scoop aims at increasing the stiffness as a bar with a corner is stiffer
10 than a planar one.

Instead, the remaining portion of the die-cut element 3 defines preferably the shovel 1 and it is suitably made in one piece.

The shovel comprises a handle 11 and a blade 10. The blade 10 and the handle 11 are preferably separated, along the die-cut and creased element 3, by a rear edge
15 102, preferably extending in a transverse direction and more preferably occupying the whole width, in the same direction, of the element 3. The term "creased" means any line of folding, even only virtual, that is non distinguished by physical creases but simply by graphical specific indications displayed there or showed on the instruction manual, preferably suitable for allowing the easy folding of the element 3.

20 The shovel 1 comprises a flat section 104, preferably placed in contact with an external side parallel to the transverse direction 3b and preferably not in contact with external sides parallel to the longitudinal direction 3a.

On the sides of the flat section 104, and preferably in contact with the external sides parallel to the longitudinal direction 3a there are two lateral edges 101. They are
25 divided by the flat section 104 by creases preferably parallel to the longitudinal direction 3a. Moreover, preferably, the flat section 104 and the lateral edges 101 have the same length in the longitudinal direction 3a.

The flat section 104 preferably comprises a plurality of openings 103, preferably formed by linear slots more preferably extending in the longitudinal direction 3a. Said
30 openings 103 allow not to collect the clean granular material, so not deteriorated by pet's excrements such as cats, avoiding therefore the wastefulness of granular material, and also the pebble from the ground. Said openings 103 could have different shapes and dimensions.

Preferably, the rear edge 102 is connected only to the flat section 104 via a creased line, while it is not connected to lateral edges 101 because cut lines are present at their ends. In correspondence to the hypothetical border between the rear edge 102 and the lateral edges 101 there are in fact two lateral wings 1021, preferably rounded or trapezoidal (as shown in Fig.1). They are suitable, during use, for wedging in proper seats 1010 arranged on lateral edges 101. They could also be slots as in the drawings as well as other wedges and blocking systems, and could also be previously glued.

The handle 11 too adjoins, preferably, the rear edge 102, as specified hereinafter.

The handle 11 preferably, along the die-cut element 3, has the width similar to the width of the blade 10.

The handle 11 preferably comprises, along the die-cut element 3, a plurality of creases 114, parallel to the longitudinal direction 3a and suitable to obtain strips that become longitudinal sides 116. The creases 114 and the longitudinal strips 116 are suitable for allowing the realization of handle shaped like a right prism, preferably having a triangular base that, after the assembly, form exactly the handle 11 of the shovel 1.

The creases 114 are preferably three in order to define four longitudinal sides 116 wherein two far end sides are suitable for overlapping during assembly and respectively comprise a flap 111 and suitable seat 110, preferably having a slot shape.

Said flap 111 is suitable for wedging in a seat 110 making a prism having as many sides as the number of longitudinal strips except one, since the two end sides are overlapped.

The handle 11 also comprises a closure flap 115, preferably having a shape reciprocal to the section of the handle 11 after the assembly. It is therefore preferably polygonal, more preferably triangular, and preferably has a side coincident with an end of a longitudinal strip 116 and it consists of a creased line. The closure flap 115 is thus suitable for closing transversally the handle 11 after putting in the bag both the used shovel and the excrement, as explained hereafter. Moreover, the closure flap 115 is preferably positioned along the die-cut element 3, at an angle preferably opposite to the angle in which the scoop 2 is present, therefore preferably on a strip on one of the longitudinal edges 116, both on the ends or not.

On the opposite side, the handle 11 adjoins the rear edge 102.

In particular, when the die-cut element 3 is not assembled, only a longitudinal strip 116 is connected, preferably via a crease 113 parallel to the transverse direction 3b.

The handle 11 further comprises, in correspondence to the border of the rear edge 102, at least a wedge element 112, preferably a couple of flaps, preferably dovetail shaped, and protruding in the longitudinal direction 3a from the border line between the handle 11 and the rear edge 102.

Preferably the wedge elements 112 are transversally lined up to the longitudinal strips 116, preferably to all the longitudinal strips 116 being neither the longitudinal strip 116 connected to the crease 113 nor an end strip overlapping the opposite longitudinal strip 116.

Moreover, the rear edge 102 comprises at least a seat 1020, preferably constituted by a slot, more preferably a seat 120 for each wedge element 112. The seats 120 are a constraint or block for wedge elements 112 whenever the handle 11 is assembled. Seats 1020 are also conveniently arranged with position and symmetry of the sides of the prism that the handle 11 will constitute after being assembled.

Lastly, the bag 4 (Fig.8) is preferably made of polymeric material such as polyethylene or HDPE (high density) film or the like, already known and, preferably, is suitable for containing the die-cut element 3 and is preferably slightly bigger than the very same element 3. The bag is preferably initially sealed and comprises a punctured line 4a on an end. The bag is preferably made of, as already known, a series of holes such as perforated blocks. Such perforation helps the hand-made tear, allowing the easy opening of the bag 4. Therefore, the bag 4 comprises an opening and upper strips 4b contouring the opening (Fig.8).

The operation of the kit according to the invention is hereafter described in a functional manner.

Moreover, it defines a new method of collection of various substances, preferably achieved with the already described kit.

Initially, the die-cut element 3 is placed, planar, inside the bag 4, preferably sealed.

The user opens the bag 4 first, via the punctured line 4a and pulls out the die-cut element 3.

Below, it is defined as the plane of main development, parallel to the longitudinal 3a and transversal 3b directions, the plane of the flat section 104.

The user finds before him the element 3, planar in shape, as in Fig.1.

Firstly, the user simply splits the scoop 2 along the punctured line 20.

The lateral edges 101 and the rear edge 102 are then folded in order to form the blade 10. In particular, the lateral edges 101 lay, after folding, on a plane parallel to the vertical 3c and longitudinal 3a directions, and the rear edge 102 lays in a plane parallel to the vertical 3c and transverse 3b directions (Fig.2).

Moreover, the handle 11 is being made too, folding one on the other the longitudinal strips 116, or sides, along the creases 114, said far end longitudinal strips 116 being reciprocally overlapped and the flap 111 is inserted in the relevant seat 110. In this manner the right prism is obtained, preferably having a triangular base.

Moreover, the two lateral wings 1021 are inserted into the seats 1010, in order to firmly join mutually them.

The handle 11 is then folded at a right angle with respect to the rear edge 102 along the crease 113 and the wedge elements 112 are locked into slits with the wedge seat 1020.

The handle 11 is therefore completed and the closure flap 115 still protrudes from the handle without being utilized yet (Fig.3).

The shovel 1 is therefore utilized, in an already known way, together with the scoop 2, for collecting said various elements, in particular excrements (Fig.4). In such operation, the blade 10, has a solid bottom when utilized for collecting dog's excrement, but it can also be provided with a plurality of slots or openings 103 that allow not to collect the clean granular material, so not deteriorated by pet's excrements such as cats, avoiding therefore the wastefulness of granular material, and also the pebble from the ground.

The shovel 1, containing excrements or various substances, is therefore inserted, preferably together with the scoop 2, into the bag 4 (Fig.5). The cut strip is also being disposed, inserted into the bag 4 together with the shovel, scoop and excrements.

The bag 4 is then closed and its open end, under the tear line, is inserted into the preferably polygonal cavity, of the handle 11 (Fig.6). In order to accomplish such action, the user inserts, together with the envelope, the closure flaps 115 inside the cavity of the handle 11. The bag or rather the upper strips of the bag are therefore herein locked by the same closure flap 115, which has preferably a triangular shape or may have other shapes.

The whole kit, contained in watertight and odourless fashion inside the bag 4, is now ready to be disposed as urban waste (Fig.7).

The invention herein described achieve essential advantages.

5 In fact, it is a disposable kit for collecting house or domestic pet's waste or other substances, being safe during transport of said waste until it is released into an urban trash bin, being practical and rapid in the use both for the collection from ground and for the closure in the bag, transport and release into an urban trash bin.

Moreover, said kit allows the user to highly limit his contact with animal excrements and getting dirty, during both collection and transport.

10 Another advantage is given by the fact that the kit allows to annihilate and isolate bad odours of pet's faeces once said faeces are collected and inserted into a bag to be transported to the urban trash bin.

A further advantage of the described kit is that it provides for a immediately disposable kit, without using further bags or packaging, in fact the kit already
15 comprises the envelope for containment, which is the very same packaging of said kit.

Lastly, the described kit allows for collection and transport of dog faeces, for example to an urban trash bin, without any distant chance that an user enters in direct contact with said pet's faeces, not even through the material forming said bag, that is waterproof.

20 It has to be noted that such kit has been initially designed for collecting animal's excrements, however, being so simple and versatile in use and assembly, said kit is wholly suitable for collecting other materials and substances too, whose dimension or shape or weight are compatible with said kit, therefore the collection of other materials via said kit, or part of said kit that is the mountable shovel, has to be considered an
25 object within the scope of the present invention.

The shovel can also be utilized to clean the table, such as from crusts or for other domestic tasks.

Lastly, the joints for assembling are less when the shovel is provided already assembled, that is folded, but with the blade already made, when the gluing portion is
30 provided instead of two joints.

CLAIMS

1. Disposable kit (1) for collecting various substances, comprising:

- a bag (4) comprising an opening and upper strips (4b) contouring said opening;
- a die-cut planar element (3) comprising:
 - a one piece portion configured to be folded along corresponding creases in order to form a shovel (1) comprising a blade (10) and an handle (11), reciprocally connected along a rear edge (102),
 - said blade (10) comprising:
 - a flat section (104),
 - said rear edge (102) comprising at least a seat (1020),
 - said handle (11) comprising:
 - a plurality of creases (114), parallel and suitable for making longitudinal sides (116) suitable to obtain said handle (11) having a prismatic shape,
 - at least a wedge element (112), suitable for being wedged into said at least one seat (1020),
- said kit being characterized in that said handle (11) comprises a closure flap (115) configured to block inside the cavity of said handle (11) said upper strips (4b) of said bag (4) after that at least said shovel (1) and said various substances are inserted into said bag (4).

2. Kit according to the preceding claim, wherein said closure flap (115) has a shape reciprocal to the cross section of said handle (11).

3. Kit according to any of the preceding claims, wherein said blade (10) comprises a plurality of splits or openings (103) that allow not to collect the clean granular material so not deteriorated by the excrements but only the pet's excrements when in use.

4. Kit according to any of the preceding claims, wherein from said die-cut element (3) a scoop (2) can be obtained, detachable from said shovel, that facilitate the collection of excrements on the shovel (1) when in use.
- 5 5. Kit according to any of the preceding claims, wherein said wedge elements (112) are transversally aligned to said longitudinal sides (116).
6. Kit according to any of the preceding claims, wherein said seats (1020) are arranged with position and symmetry of the sides of the prism that said
10 handle (11) will constitute after being assembled.
7. Kit according to any of the preceding claims, wherein said creases (114) are three.
- 15 8. Kit according to any of the preceding claims, wherein said far end longitudinal sides (116) are suitable for being overlapped after the assembly.
- 20 9. Kit according to any of the preceding claims, wherein said far end longitudinal sides (116) respectively comprise a flap (111) and a proper seat (110), preferably having a slot shape, said flap (111) being suitable for wedging into said seat (110).

AMENDED CLAIMS

received by the International Bureau on 04 May 2021 (04.05.2021)

1. Disposable kit (1) for collecting various substances, comprising:

- 5 – a bag (4) comprising an opening and upper strips (4b) contouring said opening;
- a die-cut planar element (3) comprising:
- a one piece portion configured to be folded along corresponding creases in order to form a shovel (1) comprising a blade (10)
- 10 and an handle (11), reciprocally connected along a rear edge (102),
- said blade (10) comprising:
- a flat section (104),
- said rear edge (102) comprising at least a seat (1020),
- 15 – said handle (11) comprising:
- a plurality of creases (114), parallel and suitable for making longitudinal sides (116) suitable to obtain said handle (11) having a prismatic shape,
- at least a wedge element (112), suitable for being wedged into
- 20 said at least one seat (1020),
- said kit being characterized in that said handle (11) comprises a closure flap (115), having:
- a shape reciprocal to the section of said handle (11) after the assembly,
- 25 – a side coincident with an end of one of the longitudinal sides,
- comprising a creased line, and
- being configured to block inside the cavity of said handle (11) said upper strips (4b) of said bag (4) after that at least said shovel (1) and said various substances are inserted into said
- 30 bag (4).

2. Kit according to the preceding claim, wherein said closure flap (115) has a shape reciprocal to the cross section of said handle (11).

- 5 **3.** Kit according to any of the preceding claims, wherein said blade (10) comprises a plurality of splits or openings (103) that allow not to collect the clean granular material so not deteriorated by the excrements but only the pet's excrements when in use.
- 10 **4.** Kit according to any of the preceding claims, wherein from said die-cut element (3) a scoop (2) can be obtained, detachable from said shovel, that facilitate the collection of excrements on the shovel (1) when in use.
- 15 **5.** Kit according to any of the preceding claims, wherein said wedge elements (112) are transversally aligned to said longitudinal sides (116).
- 6.** Kit according to any of the preceding claims, wherein said seats (1020) are arranged with position and symmetry of the sides of the prism that said handle (11) will constitute after being assembled.
- 20 **7.** Kit according to any of the preceding claims, wherein said creases (114) are three.
- 8.** Kit according to any of the preceding claims, wherein said far end longitudinal sides (116) are suitable for being overlapped after the assembly.
- 25 **9.** Kit according to any of the preceding claims, wherein said far end longitudinal sides (116) respectively comprise a flap (111) and a corresponding seat (110), preferably having a slot shape, said flap (111) being suitable for wedging into said seat (110).
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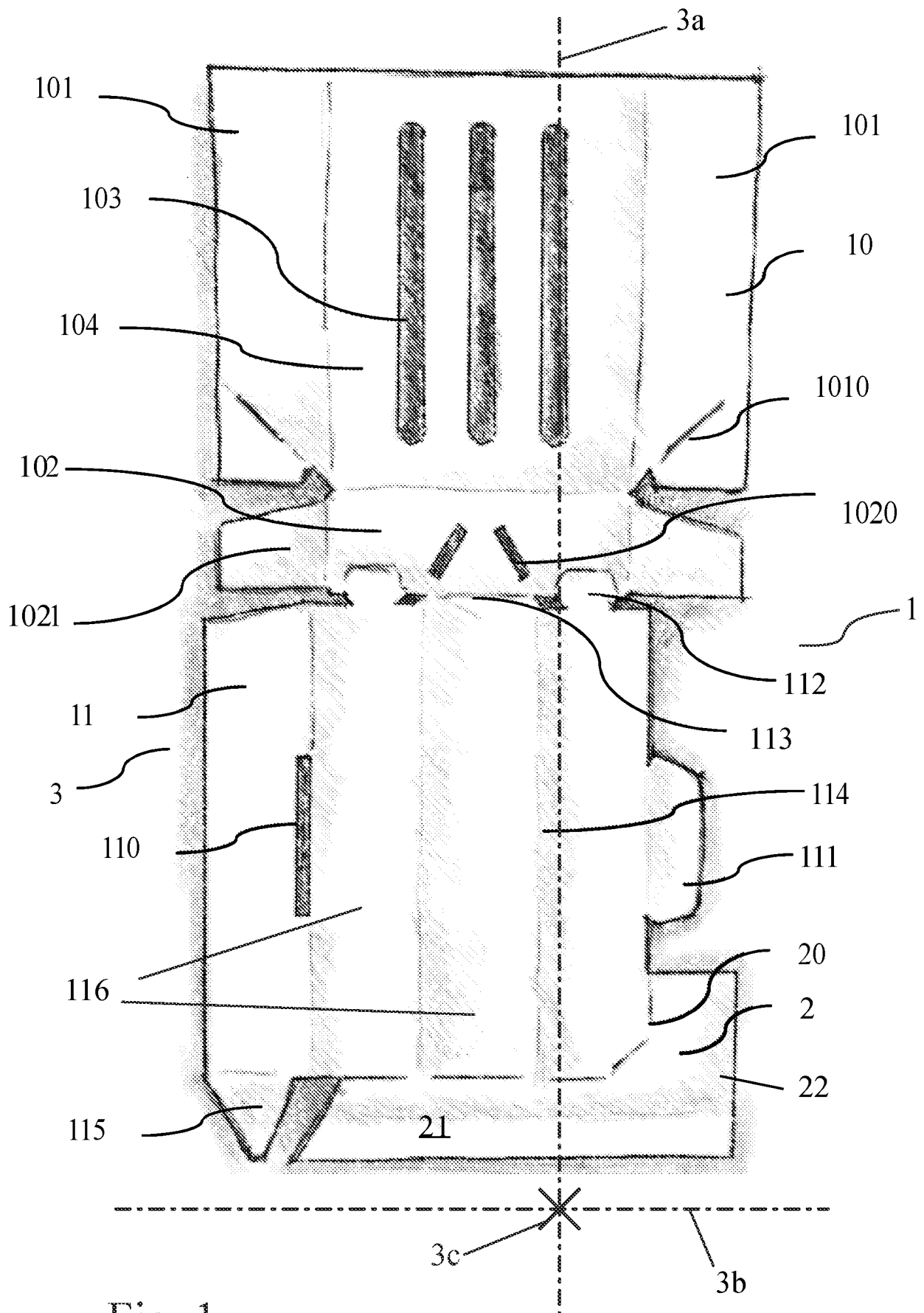
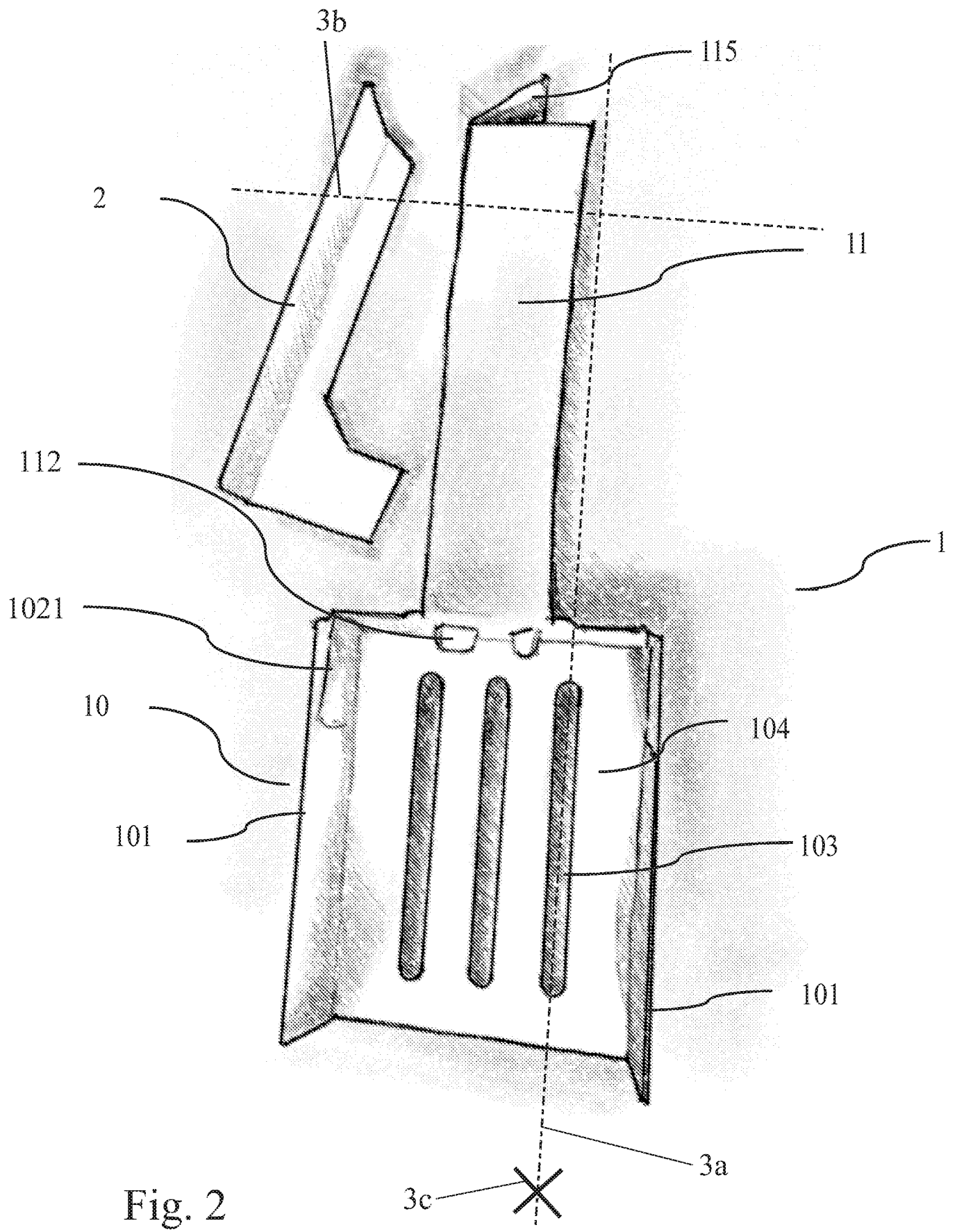


Fig. 1



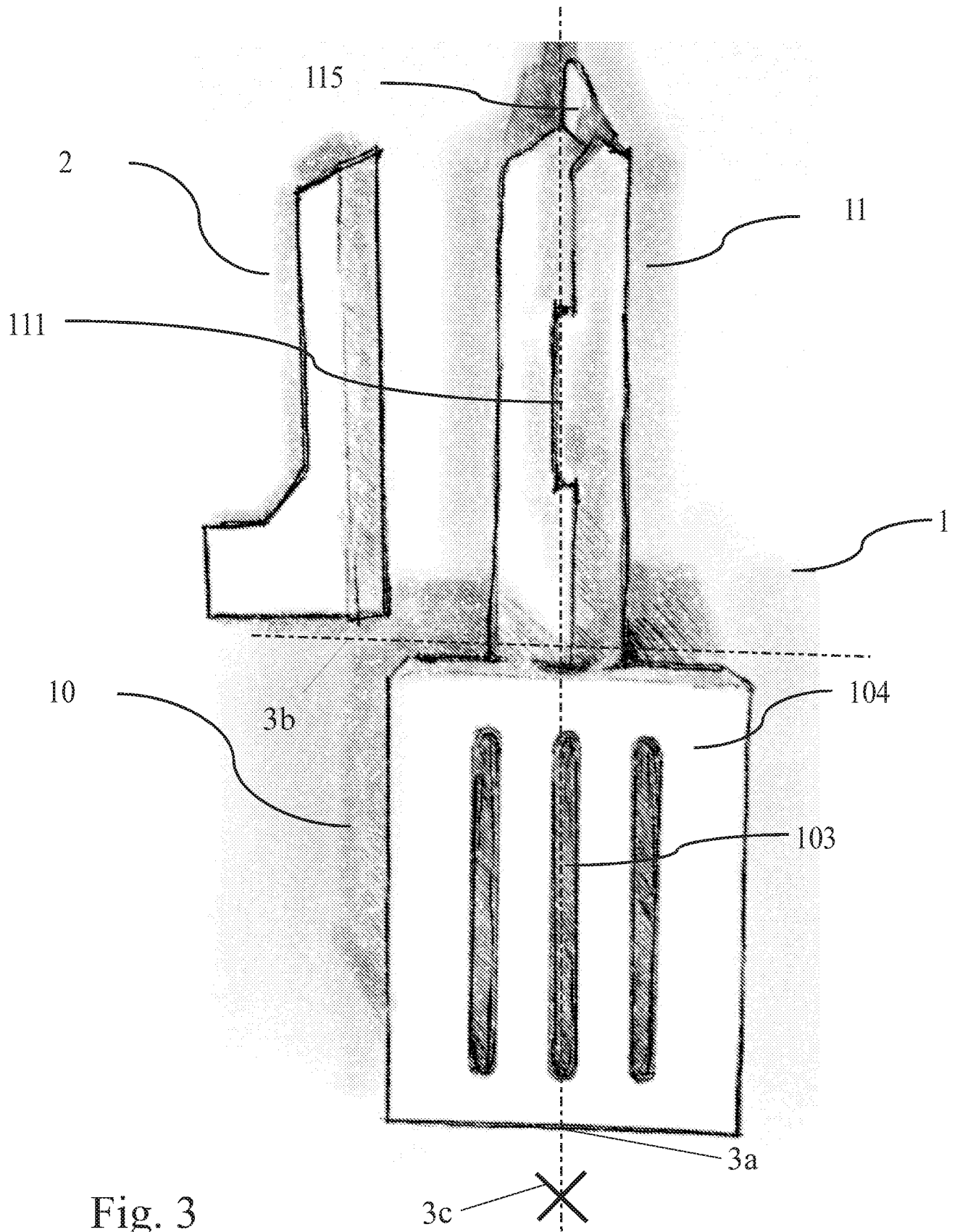


Fig. 3

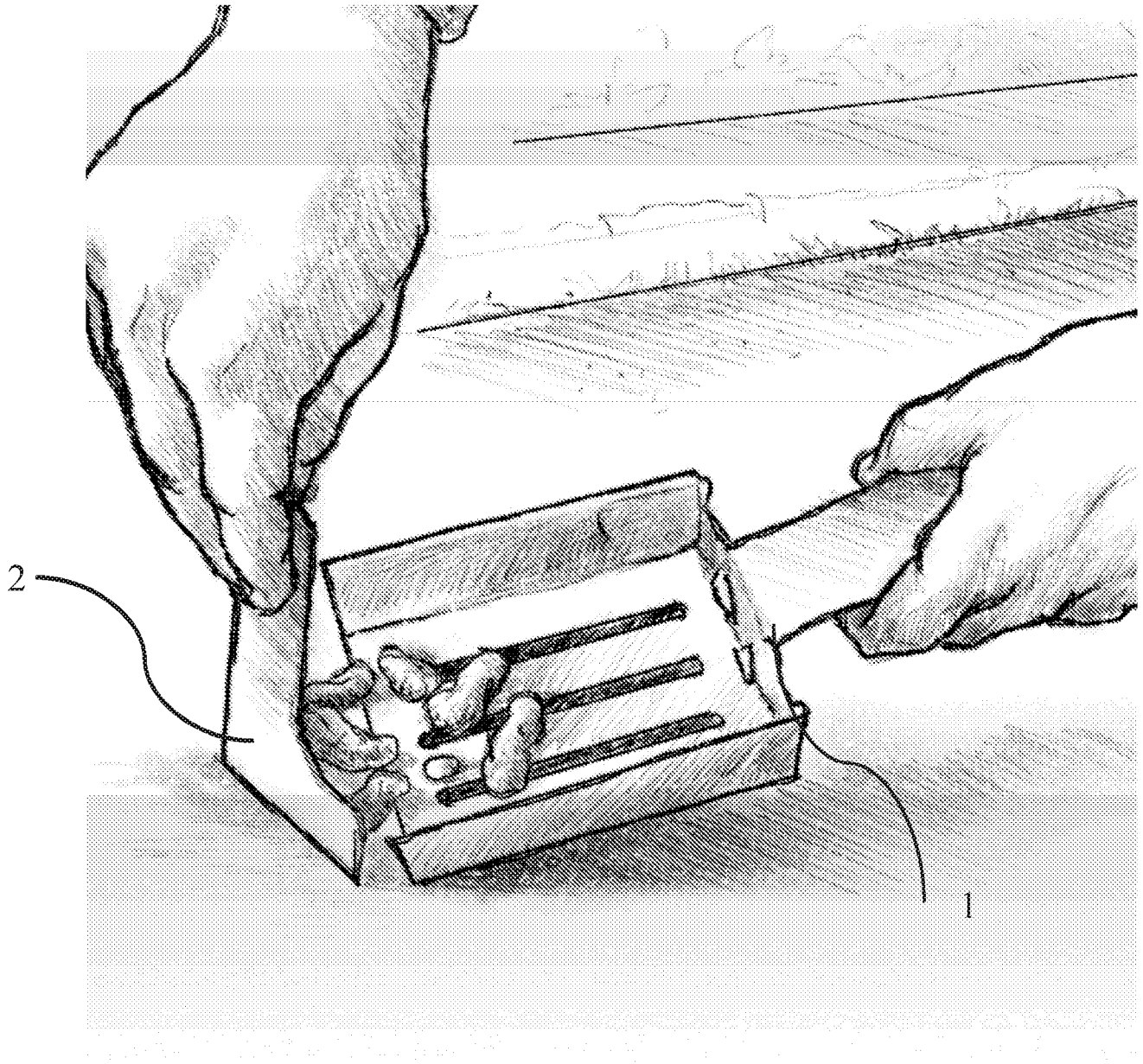


Fig. 4

1

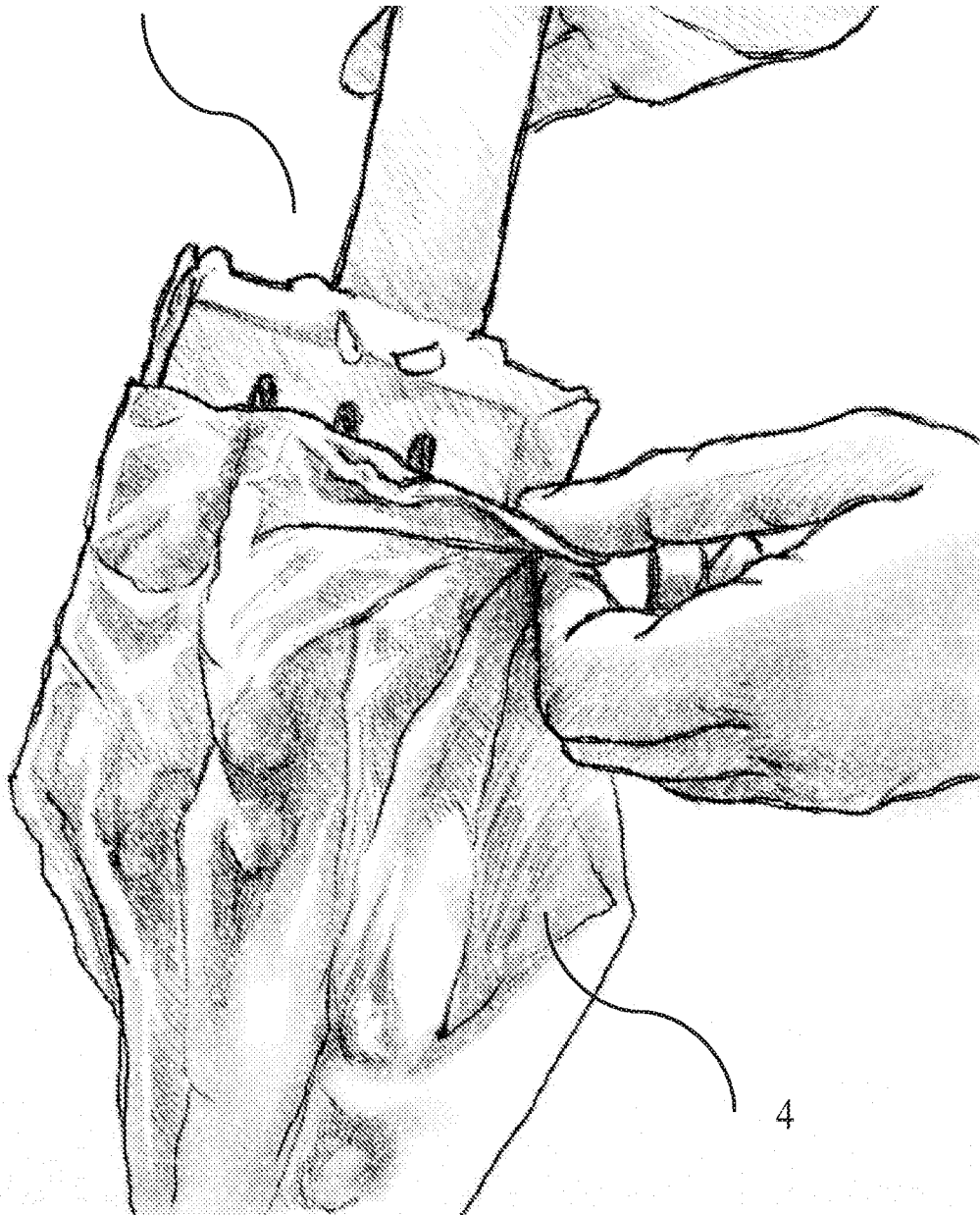


Fig. 5

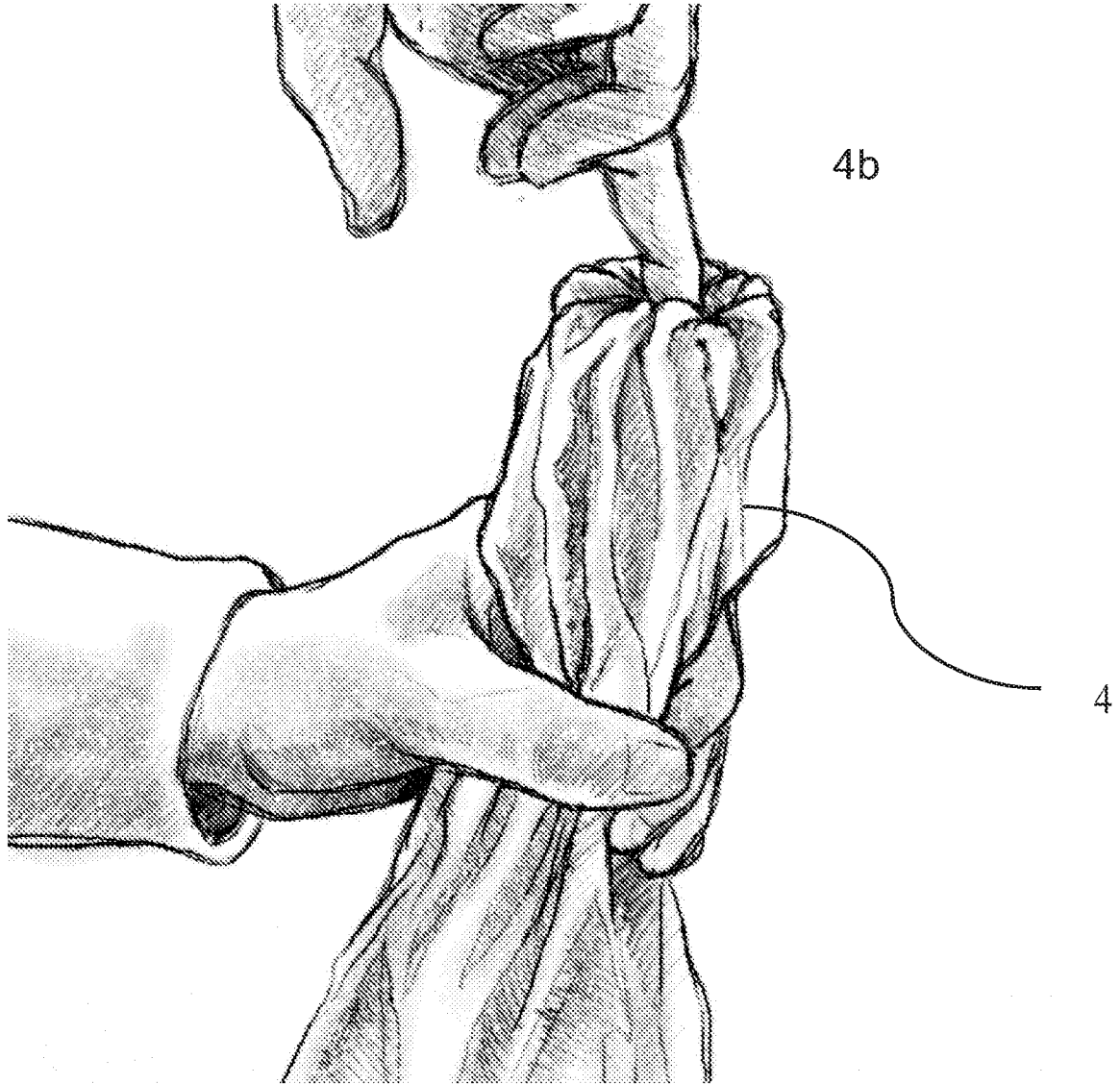


Fig. 6

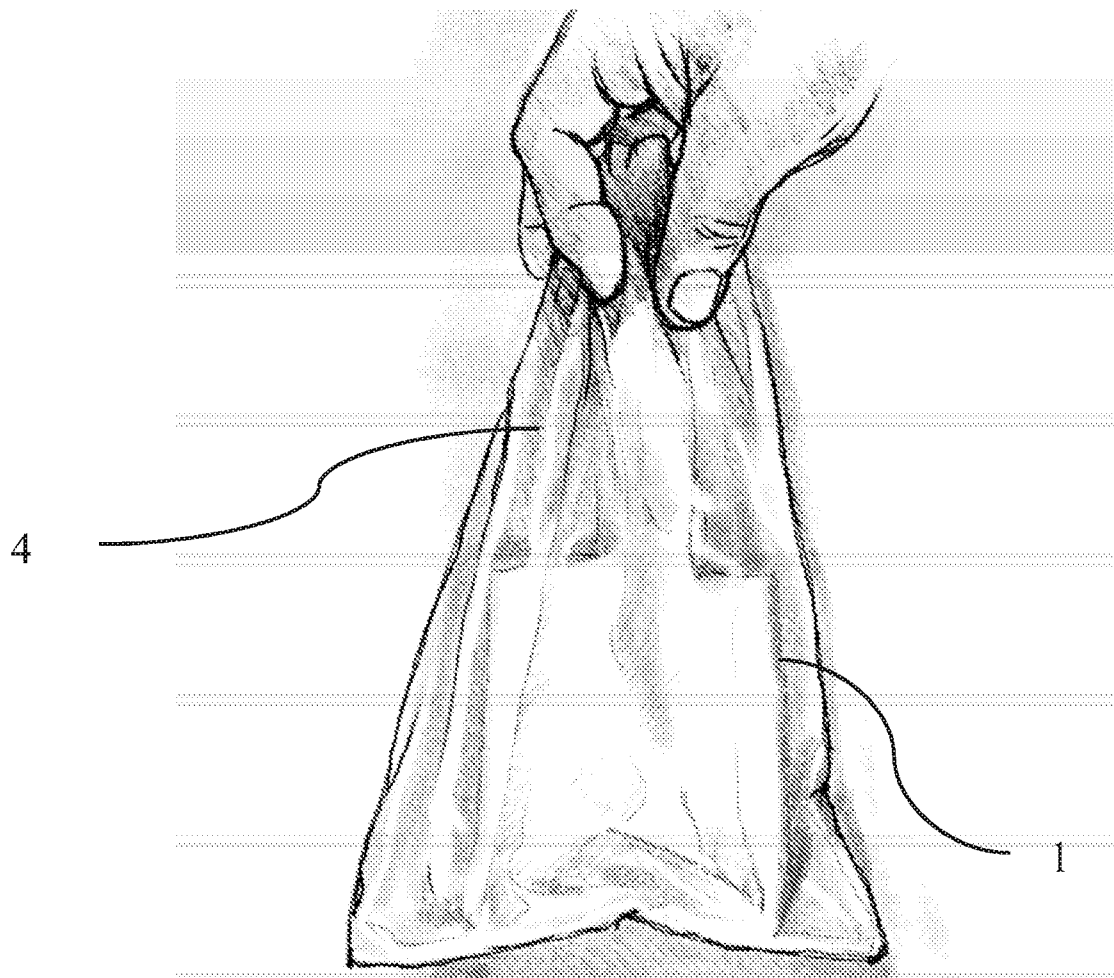


Fig. 7

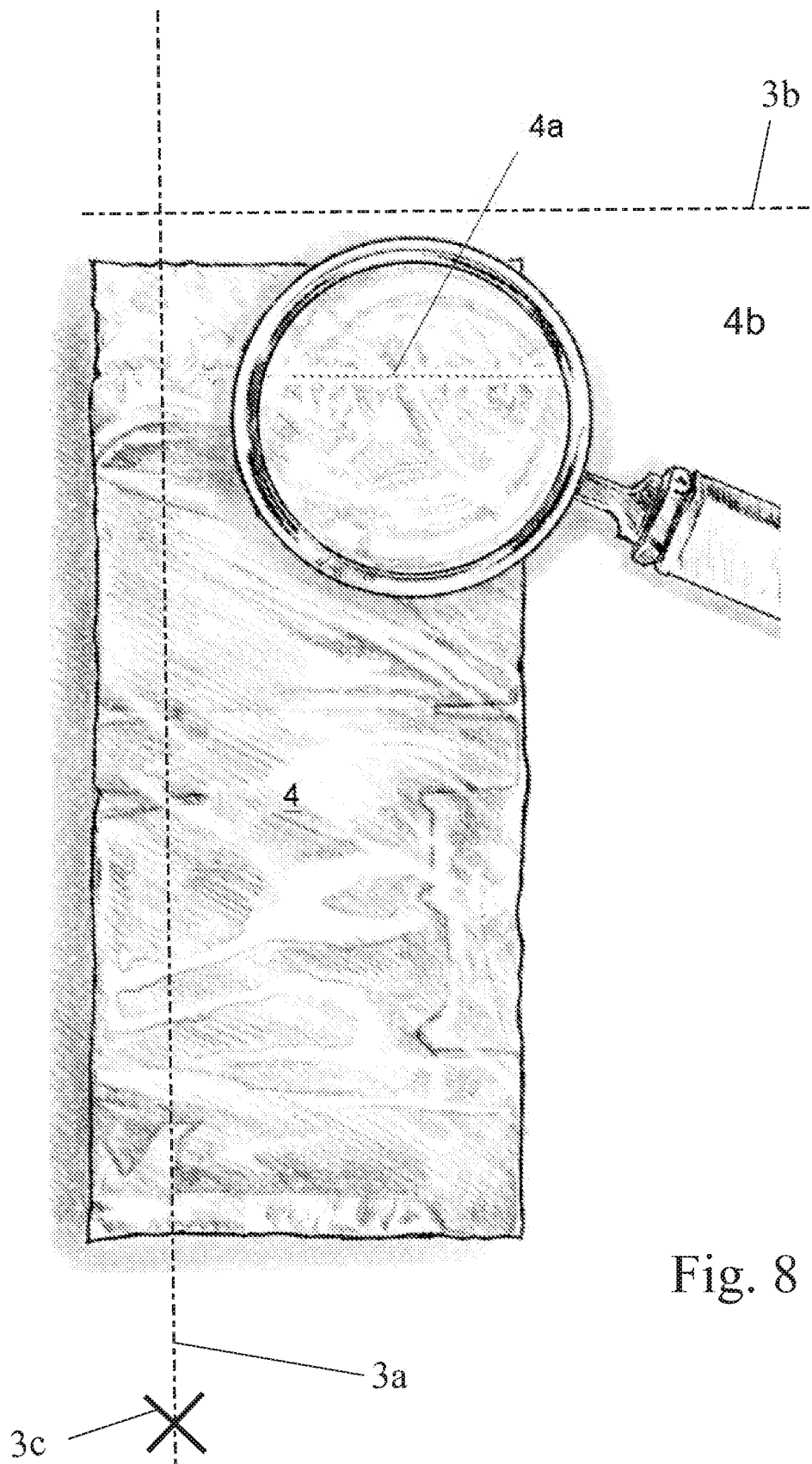


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2020/050301

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01K23/00 A01K1/01 E01H1/12
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)
A01K E01H

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 2005/258655 A1 (MATTHEWS JANET [US] ET AL) 24 November 2005 (2005-11-24) paragraphs [0048] - [0065]; figures 1-4 -----	1-9
A	US 5 584 519 A (MYLES J SCOTT [US] ET AL) 17 December 1996 (1996-12-17) column 3, line 30 - column 4, line 56; figures 1, 5, 9 -----	1-9
A	US 2008/134981 A1 (SELENKE ALBERT A [US] ET AL) 12 June 2008 (2008-06-12) paragraphs [0018] - [0030]; figures 1, 2, 5, 8, 11 -----	1-9
A	BR MU8 600 799 U (SILVESTRE LUCIA HELENA [BR]) 27 April 2007 (2007-04-27) claim 1; figures 1-4 -----	1-9



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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005258655	A1	24-11-2005	NONE
US 5584519	A	17-12-1996	NONE
US 2008134981	A1	12-06-2008	NONE
BR MU8600799	U	27-04-2007	NONE