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Published:

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(54) Title: PROTECTION UNIT AGAINST RATBITE

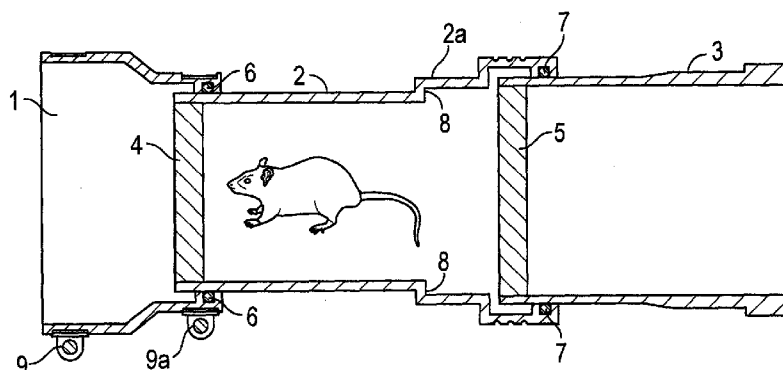


FIG.2

(57) Abstract: The application suggests a protection unit preventing rats or other rodents to gnaw holes in the edges existing in a sewage pipe system, in particular near joints of two pipes or where pipes having different diameters are connected to each other forming an edge. The protection unit consists of a metal ring, covering the edge to be protected. Preferably, the metal ring is provided with at least one flange, being fastened by forced fit within the opening of the pipe. Rats thus cannot gnaw at the edge of the pipe end.

WO 2014/063706 A1

**Protection unit against ratbite.**

This invention relates to a protection unit against ratbite on sewage pipes.

5 CN 201 943 180 discloses a protection unit, to preventing rats from leaving a sewage system through openings in the end of the pipes being part of the sewage system.

The protection unit constitutes of a cylinder being opened upwards for being connected to a sewage pipe. Downwards and along the surface, a  
10 net structure is provided.

This protection unit is intended to prevent the possibility for rats to leave the end pipe in a sewage system.

Now it is a purpose with the invention to realise a protection unit, in  
15 particular to prevent rats or other pets, to leave a sewage system, especially by biting those edges existing in the sewage system.

The purpose is realised through a protection system defines in the preamble of claim 1, that is characterized in, that the protection unit is  
20 mounted on an edge of an end termination of a sewage pipe or on an edge forming a transition between two sewage pipes, where said sewage pipes having different diameters, said protection unit consists of a strengthening part covering the edge.

25 In those cases where sewerage pipe that are connected to each other and having different diameters, thereby creating an edge, it is advantageous if, as stated in claim 2, that protection unit consist of a disk, said disk is formed as a ring with a hole, said ring having the same dimensions as the edge.

In order to secure the free ends of a pipe in a sewage system it is expedient as stated in claim 3, that the disk has at least one downward pointing flange, that abuts against that part of the drainage surface, that contiguous the edge or, as stated in claim 4, that the disk is formed as a ring having two elastic flanges for providing a pressure against the drainage pipe or, as stated in claim 5, that the disk is formed as a ring having two flanges, each flange is provided with an inner self-cutting thread.

Expedient, as stated in claim 6, is the protection unit made in a metal or a metallic alloy.

The invention will now more fully be explained in connection with the drawing on which

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Fig. 1 illustrates part of a pipe system in a sewage system, whereas

Fig. 2 the pipe system on fig. 1 in cross section.

On the figures 1 denotes a funnel shaped pipe, being connected to a sewage pipe 2 that via an edge 8, is connected to a sewage pipe part 2a, having a bigger diameter than the sewage pipe 2.

The sewage pipe part 2a is connected to a sewage pipe 3. These sewage pipes can be manufactured in a plastic material, such as PVC or the like.

To the end of funnel shaped pipe 1, a not shown sewage pipe can be connected, being formed of cement, clay or the like hard material. The non-shown sewage pipe can be fixed by use of a strap 9.

As it can be seen from fig. 2, the funnel shaped pipe 1 is connected to the sewage pipe by use of an annular seal (O-ring) and a strap 9a.

The sewage pipe 3 is connected to the sewage pipe part 2a by an annular seal 7.

As it further can be seen, protrudes the free end of the sewage pipe 2 into the funnel shaped pipe 1.

This free end is terminated by an edge, that for inst. a pet such as a rat can bite in, and thereby bite hole in the sewage pipe, and on this way  
5 escape out of the sewage system.

To preventing this, is according to the invention, a metal ring 4 is fastened around the sewage pipes free end, that covers the edge of the sewage pipe, said metal ring being formed with downward going flanges. The metal ring is placed on the sewage pipes free end by use of a press  
10 force or an inner self-cutting thread.

In the same way, the free end of the sewage pipe 3 can be provided by a metal ring 5.

The above mentioned edge 8 can also be protected against bite, simply to place a metal disk on the edge which could be done by use of an  
15 adhesive.

By the invention, an effective measure is provided in securing that rats cannot bite in pipes of a sewage system end thereby escaping from the sewage system.

## Claims

1. Protection unit against ratbite on sewage pipes, **characterized in**,  
5 that the protection unit is mounted on an edge of an end  
termination of a sewage pipe or on an edge forming a transition  
between two sewage pipes, where said sewage pipes having  
different diameters, said protection unit consists of a strengthening  
part covering the edge.  
10
2. Protection unit according to claim 1, **characterized in**, that the  
protection unit consist of a disk, said disk is formed as a ring with  
a hole, said ring having the same dimensions as the edge.
- 15 3. Protction unit according to claim 2, **characterized in**, that the disk  
has at least one downward pointing flange, that abuts against that  
part of the drainage surface, that contiguous the edge.
4. Protection unit according to claim 3, **characterized in**, that the  
20 disk is formed as a ring having two elastic flanges for providing a  
pressure against the drainage pipe.
5. Protection unit according to claim 3, **characterized in**, that the  
disk is formed as a ring having two flanges, each flange is provided  
25 with an inner self-cutting thread.
6. Protection unit according to claim 1 - 5, **characterized in**, that the  
protection unit is made in a metal or a metallic alloy.

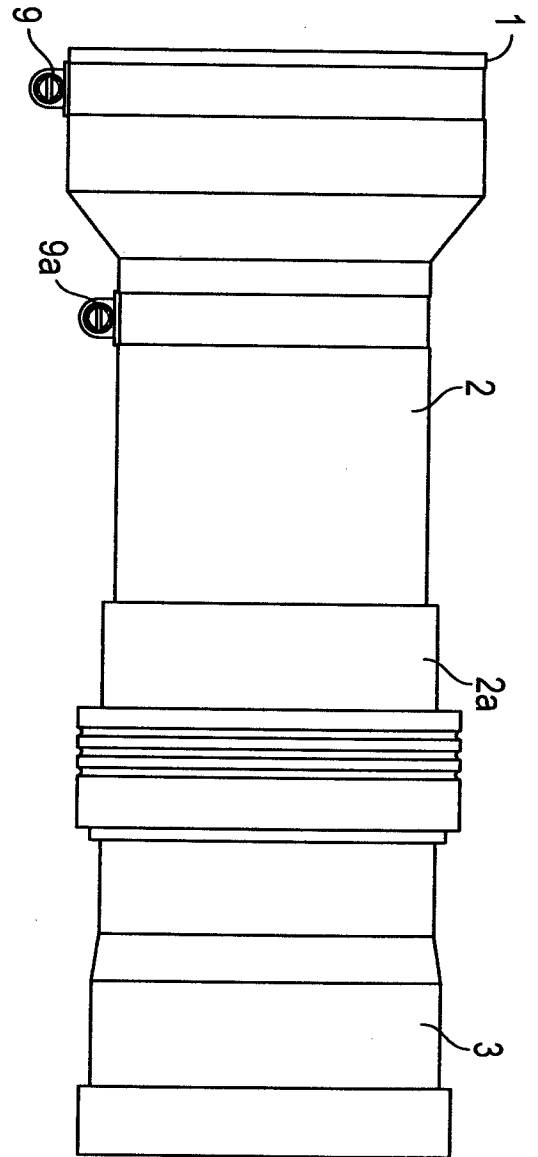


FIG. 1

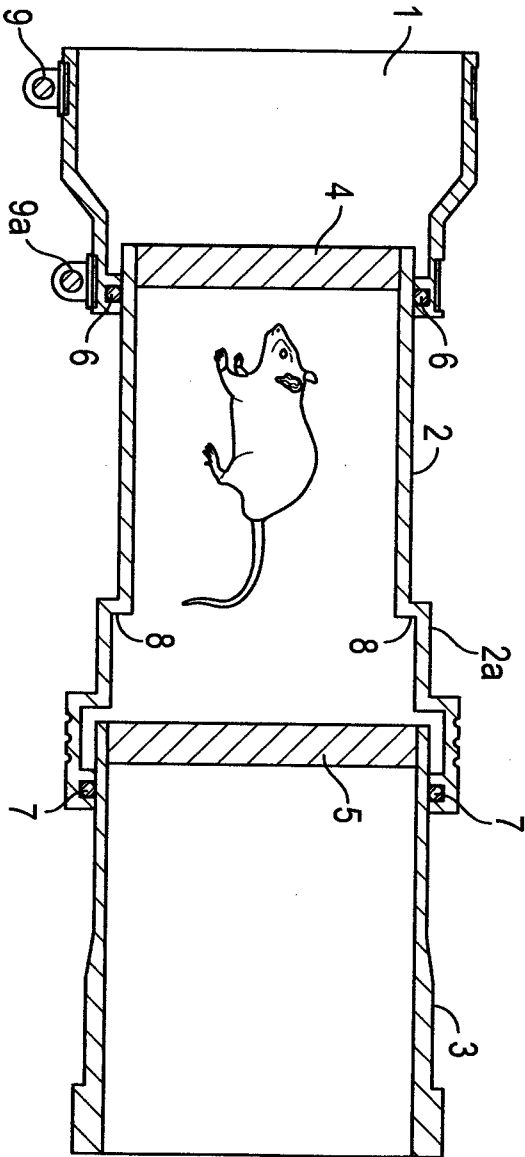


FIG. 2

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/DK2013/000072

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. E03F7/06 F16L57/00 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) E03F F16L		
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		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 295 07 705 U1 (SCHAEFER WILHELM [DE]) 24 August 1995 (1995-08-24) claim 19; figure 1 -----	1-3,6
X	DE 88 11 706 U1 (BERGROHR GMBH) 27 October 1988 (1988-10-27) page 5, paragraph 1; figure 1 -----	1-3,6
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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  <p align="center">17 January 2014</p>	Date of mailing of the international search report  <p align="center">27/01/2014</p>	
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  <p align="center">Geisenhofer, Michael</p>	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/DK2013/000072

## 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.: 4, 5  
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:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
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:

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.:

### 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/DK2013/000072

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 29507705	U1	24-08-1995	NONE
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DE 8811706	U1	27-10-1988	NONE
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 4, 5

Claim 4 and 5 define a protection unit consisting of a ring-shaped disk being provided with either two elastic flanges or two flanges with an inner self-cutting thread. However, it is not clear where these flanges are arranged, how they are orientated and how they interact with the pipe end. Furthermore, these claims are not supported by the description and drawing since the description neither mentions an embodiment with two flanges nor do the drawing show any flanges at all. The claims were only repeated literally in the description.

It is therefore not possible to determine the alleged scope of protection of claims 4 and 5. Thus, a meaningful search was not possible for the subject-matter of said claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.