(19) Europäisches Patentamt
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(11) **EP 3 748 092 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
09.12.2020 Bulletin 2020/50

(51) Int Cl.:
E03C 1/284 *(2006.01)*

(21) Application number: **19178344.8**

(22) Date of filing: **05.06.2019**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **Omega-Laser di Girardi Mauro**
31050 Vedelago (TV) (IT)

(72) Inventor: **GIRARDI, Mauro**
31050 VEDELAGO (TV) (IT)

(74) Representative: **Vinci, Marcello**
Ufficio Veneto Brevetti
Via Sorio 116
35141 Padova (IT)

(54) **TRANSPARENT, PARTIALLY COATED OUTLET DUCT**

(57) A U-shaped drainage duct (A) comprises a main body (1) which is made of a transparent plastic material and whose external surface is partly coated with paint or another opaque material (2), and wherein said paint or opaque material (2) is distributed on the external surface of said main body (1) along bands extending between the two openings (la) of the main body (1) in such a way as not to cover the external surface completely, for the purpose of making it possible to see any clogging present inside the drainage duct (A).

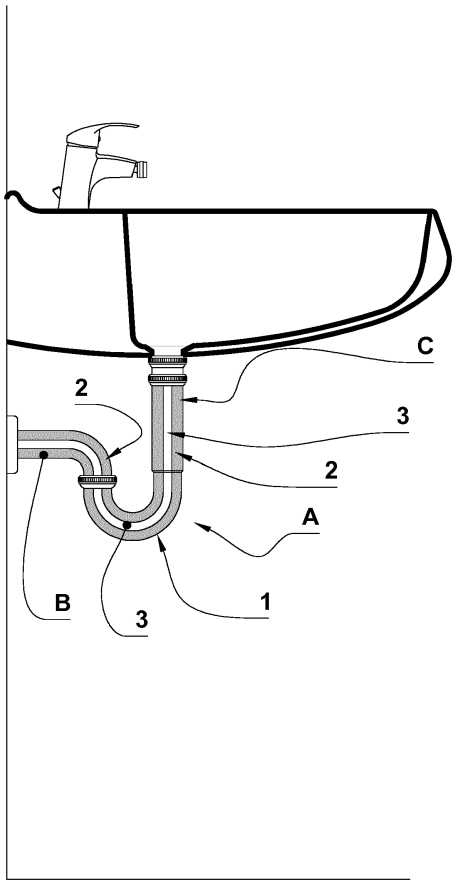

Fig. 1

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Description

[0001] The present invention concerns ducts and more specifically it concerns a new drainage duct provided with inspection windows.

[0002] The known piping lines and ducts are constituted by hollow cylindrical elements, usually called pipes, made of a plastic material and/or a ferrous material.

[0003] Drainage pipes and ducts are used to transport liquids carrying solid and semi-solid parts.

[0004] In the case of pipes, such as drainage pipes, said solid and semi-solid parts can become stuck and/or adhere to each other along sections of said pipes and ducts. All drainage pipes are opaque and it is not possible to see inside them.

[0005] In order to be able to view the inside of drainage ducts, usually for the purpose of localizing any clogging or deposit of material, it is necessary to disassemble the single pipe sections and resort to the use of sophisticated and costly equipment.

[0006] Pipes or portions of pipe provided with an observation window are known. Said observation window is small in size, indicatively with sides that are a dozen centimetres in length and serves just the function of making it possible to monitor the actual transit of the material carried by the pipe. In case of clogging, said observation windows make it possible to notice that the material does not transit through the pipe sections between two successive observation windows, but do not allow the clogged section to be localized precisely.

[0007] The subject of the present patent is a new drainage duct provided with preferably continuous inspection windows.

[0008] It is one object of the present invention to provide a new drainage duct that makes it possible to localize any clogging and deposit inside the pipe with no need to disassemble it.

[0009] It is another object of the present invention to provide a new drainage duct that makes it possible to localize any clogging and deposit inside the pipe with no need to use sophisticated and/or costly equipment.

[0010] It is another object of the present invention to provide a new drainage duct that makes it possible to localize any clogging and deposit over its entire extension.

[0011] It is another object of the present invention to provide a new drainage duct that makes it possible to observe directly everything that transits inside it.

[0012] These and other direct and complementary objects are achieved by the new drainage duct provided with preferably continuous inspection windows or in any case with transparent areas obtained on it.

[0013] The new drainage duct provided with inspection windows comprises a tubular straight or elbow-shaped body.

[0014] Said tubular element can be straight and constitute a linear pipe section or curved and constitute a drain-trap or a fitting between two angled pipes.

[0015] Said drainage duct is provided with two or more transparent portions.

[0016] More specifically, each transparent portion preferably extends over the entirety or most of the drainage duct itself.

[0017] Each transparent portion, in particular in the shape of a band, has preferably constant width over its entire length, between the two openings of the drainage duct itself. Said transparent portions are preferably distributed homogeneously along the circumference of the drainage duct.

[0018] According to the preferred solution, the new drainage duct is provided with two transparent portions, located diametrically opposite each other with respect to the longitudinal axis of the element itself.

[0019] The new drainage duct with continuous inspection windows can be made of any suitable material or combination of suitable materials.

[0020] According to an embodiment, the new drainage duct is made of a transparent plastic material, wherein its external surface is coated with paint or another opaque material along two or more bands extending between the two openings of the drainage duct. The areas extending between the two openings of the drainage duct that are not coated with paint or another covering material are transparent.

[0021] According to the preferred solution, a duct made of a transparent material is completely coated with a paint layer and successively the paint is removed from one or more parts by means of laser radiation.

[0022] The characteristics of the new drainage duct provided with continuous inspection windows will be highlighted in greater detail in the following description, making reference to the attached drawings, which are enclosed hereto by way of non-limiting example.

[0023] The attached table illustrates a practical embodiment of the invention by way of non-limiting example.

[0024] Figure 1 shows a side view of an example of embodiment.

[0025] The new drainage duct (A) comprises a main body (1) in the shape of an elbow, made of a transparent plastic material.

[0026] Paint or another opaque material (2) is applied to the external surface of said main body (1).

[0027] More specifically, said paint or opaque material (2) is distributed on the external surface of said main body (1) along two or more bands extending between the two openings (1a) of the main body (1).

[0028] The areas (3) of the external surface of said main body (1) that are not coated with said paint or opaque material (2) make it possible to see the transparent plastic material that makes up the main body (1), thus providing continuous transparent windows (3) that extend over the entire length of the drainage duct (A).

[0029] Figure 1 shows the preferred example of embodiment of the new drainage duct (A), in which there are two continuous windows (3) arranged so that they are diametrically opposite each other with respect to the

longitudinal axis of the main body (1) of the drainage duct (A).

[0030] Each window (3) makes it possible to view the inside of the new drainage duct (A) over its entire length.

[0031] The presence of two or more inspection windows (3), preferably in diametrically opposite positions, makes it possible to observe the inside of the new drainage duct (A) through one of said windows (3), while the light, be it natural or artificial, for example the light of an electric torch, penetrates through the other, diametrically opposite window (3).

[0032] In this way, with the light provided by a window (3) other than the observation window, it is possible to obtain an optimal view of the inside of the new drainage duct (A), as everything that is transiting through or is stationary inside the new drainage duct (A) can be seen through the transparent material.

[0033] It is possible to view also the delivery pipe C and the outlet pipe B.

[0034] Therefore, with reference to the above description and the attached drawings, the following claims are expressed.

Claims

1. Drainage duct (A) in the shape of an elbow, **characterized in that** it comprises a main body (1) which is made of a transparent plastic material and whose external surface is partially coated with paint or another opaque material (2), and wherein said paint or opaque material (2) is partially distributed on the external surface of said main body (1) in such a way as not to cover completely the external surface of the transparent plastic material that makes up the main body (1), forming preferably continuous transparent windows (3) that extend over the length of the drainage duct (A).

2. Drainage duct (A) according to claim 1, **characterized in that** it has an angled shape.

3. Drainage duct (A) according to the preceding claims, **characterized in that** the areas that are not coated with said paint or opaque material (2) are at least two, and wherein said at least two areas not covered by said paint or opaque material (2) are diametrically opposite each other with respect to the axis of the main body (1).

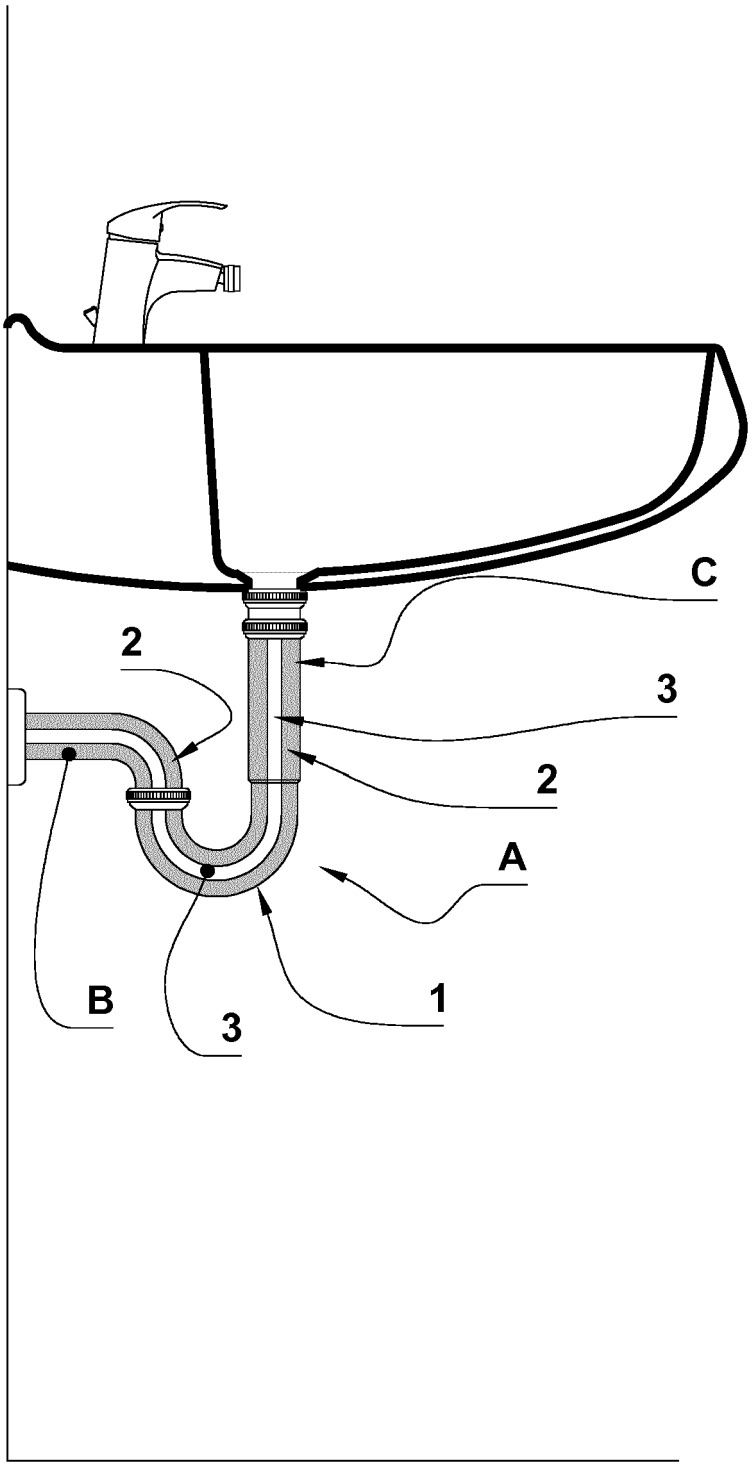

Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 19 17 8344

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 4 230 582 A (TULEJA ANTHONY Z) 28 October 1980 (1980-10-28)	1-3	INV. E03C1/284
Y	* column 4, line 54 - line 61; figure 1 *	1-3	
X	US 2003/163869 A1 (BOSCH LOUIS [US]) 4 September 2003 (2003-09-04) * paragraph [0019]; figures 1-3 *	1-3	
X	DE 10 2017 005258 A1 (LESSING ELHARDT [DE]) 3 January 2019 (2019-01-03) * paragraph [0006]; figure 1 *	1-3	
Y	FR 2 904 085 A1 (SAS SANITEC OCENE SOC PAR ACTI [FR] ET AL.) 25 January 2008 (2008-01-25) * page 4; figure 1 *	1-3	
			TECHNICAL FIELDS SEARCHED (IPC) E03C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 November 2019	Horst, Werner

CATEGORY OF CITED DOCUMENTS

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
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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 17 8344

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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19-11-2019

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82