Paper Ref	Sheet	Percentage Mark Awarded
FD3	1 of 17	71%

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Document E

A copy of the Claims

CLAIMS

1. A drain-clearing device comprising:

a ~~hemispherical~~ drain sealing member (1) with a central passage (15), for sealing against a drain opening; and 4

a water supply device (5) having

an elongate pipe (13) secured to the sealing member and communicating with the central passage in the sealing member,

a side arm (10) extending from an end of the pipe remote from the sealing member and communicating with the pipe for supplying water thereto, and

a valve mounted in the pipe to control flow of fluid between the side arm and the central passage

wherein the valve is a plunger valve comprising a stem (6') with a port (6'') and a closed top end, wherein the stem (6') is slidably mounted in the pipe (13) such that in an extended position the stem (6') blocks the side arm (10) from the pipe (13) so that water cannot flow into the pipe (13) and in a depressed position the stem (6') aligns the port (6'') with the side arm (10) so that water can flow into the pipe (13) and thus into the drain. 22

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2. A drain-clearing device according to claim 1, in which the hemispherical drain sealing member (1) is made of resiliently compressible material for sealing against the drain opening and is fixedly attached to a solid, disc-like, annular member (2) with a threaded aperture aligned with the central passage (15).

3. A drain-clearing device according to claim 2, wherein the drain sealing member is made of rubber.

4. A drain-clearing device according to any preceding claim, wherein the drain sealing member is hemispherical. ✓

~~4.~~5. A drain-clearing device according to any preceding claim, wherein the elongate pipe (13) is made of plastics or metal.

~~5.~~6. A drain-clearing device according to any preceding claim, wherein the length of the pipe is in the range of 20-60 cm.

~~6.~~7. A drain-clearing device according to any preceding claim, wherein the side arm (10) has a thread for connection to a hose to be attached to a water supply.

8. A drain-clearing device according to claim 1, further comprising a spring (9) positioned around the stem (6') of the valve and in abutment with the end of the pipe for urging the stem out of the pipe.

~~7.~~9. A drain-clearing device according to any preceding claim, wherein the valve comprises a knob at the closed top end, the knob being configured to abut against the end of the pipe when pushed down, precenting the stem from passing completely into the pipe. 1

10. A drain-clearing device according to any preceding claim ~~1~~, in which the valve is operable by the user to admit water. 1

11. A drain-clearing device according to any preceding claim, wherein the pipe (13) comprises an interior longitudinal groove and the stem (6') comprises a longitudinal rib configured to engage in the interior longitudinal groove. 1

12. A drain-clearing device according to any preceding claim, wherein the stem (6') comprises an interior longitudinal groove and the pipe (13) comprises a

longitudinal rib configured to engage in the interior longitudinal groove.

13. A kit of parts comprising a water supply part (5) and a plurality of drain sealing members (1) each with a central passage (15), for sealing against a drain opening, wherein the drain sealing members (1) have profiled shapes,
and wherein the water supply part comprises an elongate pipe (13) made of pressure-resistant material, with a side arm (10) and a plunger valve (6) mounted at the upper end of the pipe (13), the pipe being removably mountable in a respective sealing member (1).

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MARKS AWARDED: 32/35

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[**Instruction to Candidate:** Save your Answer document to your computer as a Word document. Convert the Answer document to a PDF. Check the Answer document to make sure that amended Claims are shown as you want in the Answer document. Upload the PDF-ed Answer document to the PEBX system.]

Letter to UKIPO

13 October 2021

by online filing

Dear Sir

I write in relation to UK patent application number GB 1818181.8 and hereby respond to the examination report under Section 18(3) UKPA 1977.

I enclose a copy of form 51. 1

Amendments

Claim 1 has been amended to specify the valve is a plunger valve comprising a stem with a port and a closed top end, wherein the stem is slidably mounted in the pipe such that in an extended position the stem blocks the side arm from the pipe so that water cannot flow into the pipe and in a depressed position the stem aligns the port with the side arm so that water can flow into the pipe and thus into the drain. Basis for this amendment may be found at least at page 5, lines 23 to 30. Page 8 lines 23 to 25 makes it clear that the spring discussed in this section is an optional feature. 2

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Claim 1 has been further amended such that it no longer specifies that the drain sealing member is hemispherical. Basis for this amendment may be found at least at page 6, lines 28 to 32, from which it is clear that a hemispherical shape is not required because, as is stated at this section "…The drain sealing member 1 can be made in different sizes and shapes for different drain openings… ". Accordingly, the hemispherical shape is not required, and sealing members of other sizes and shapes are clearly and unambiguously disclosed in the application as filed. 2

New claim 4 has been introduced, basis for this claim may be found at least in claim 1 as filed, and at page 5, lines 8 to 10 (…a hemispherical sealing member for sealing a drain opening …"). 1

Previous claim 7 has been deleted. The remaining claims have been renumbered accordingly.

New claim 9 has been introduced. Basis for this claim may be found at least at page 5 lines 24 and lines 30 to 33. 1

Previous claim 8 (now renumbered as claim 10) has been amended to depend on any preceding claim, rather than only on claim 1. Basis for this amendment may be found at page 6 lines 13 to 17 as well as from the specification as a whole, from which it is clear that the operation of the valve by a user to admit water need not depend only on claim 1, as the features of the other claims do not interfere with or prevent the feature of this claim. 1

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New claim 11 has been introduced. Basis for this claim may be found at least at page 7 lines 25 to 30.

New claim 12 has been introduced. Basis for this claim may be found at page 7 lines 25 to 30.

New claim 13 has been introduced. Basis for this claim may be found at page 8 lines 26 to 34, of which lines 32 to 34 specifically make it clear that a set may be provided with a number of hemispheres having profiled shapes and a water supply part, as well as page 5 lines 6 to 12 which provides basis for the features of the water supply part. 1

None of the amendments constitute abandonment of subject matter. The applicant reserves the right to reintroduce deleted subject matter in this application or in any divisional application.

Clarity

The feature of the stem referred to in previous claim 7 (now renumbered as claim 8) is now introduced in claim 1. This feature in the claim therefore no longer lacks an antecedent – it is introduced as being part of the valve. The claims are therefore clear. 1

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Novelty

Claim 1 as amended is novel over D1 at least because D1 does not disclose:

- A drain-clearing device comprising a plunger valve comprising a stem with a port and a closed top end, wherein the stem is slidably mounted in the pipe such that in an extended position the stem blocks the side arm from the pipe so that water cannot flow into the pipe and in a depressed position the stem aligns the port with the side arm so that water can flow into the pipe and thus into the drain.

Instead, the device of D1 has a check valve in the handle so that reverse flow through the handle is prevented while the cap is being flexed under downward movement of the handle. However, this is not the same as a plunger valve as described above, at least because the plunger valve allows the flow of water into the pipe when it is moved downwardly, as opposed to preventing upward flow. 2

As D1 therefore fails to disclose each and every feature of claim 1 as amended, claim 1 as amended is novel over D1.

Although the examiner has raised no objections relating to novelty with reference to D2, and I therefore understand that the examiner regards the application as

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already having novelty over D2, for completeness I note that claim 1 as amended is also novel over D2 at least because D2 does not disclose:

- A drain-clearing device comprising a water supply device having an elongate pipe secured to a sealing member and communicating with the central passage in a sealing member;
- a side arm extending from an end of a pipe remote from the sealing member and communicating with the pipe for supplying water thereto; or
- a plunger valve comprising a stem with a port, a closed top end, wherein the stem (6') is slidably mounted in the pipe (13) such that in an extended position the stem (6') blocks the side arm (10) from the pipe (13) so that water cannot flow into the pipe (13) and in a depressed position the stem (6') aligns the port (6'') with the side arm (10) so that water can flow into the pipe (13) and thus into the drain

Instead, D2 only ever discloses an air supply device and does not even consider or hint at a water supply device, nor at any use of water. 1

D2 provides an air supply device (pressure ball 3 when in communication with a compressor or air pump via air inlet 33 (see page 17 lines 20 to 22, for example). ✓ This is not the same as a water supply device because it does not supply water.

D2 does not provide a side arm extending from the end of a pipe. Valve 33 of D1 is a valve, not a side arm, and it extents from the *side of a conduit* that connects 1

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to the pressure ball 3, and not from the *end of a pipe* (see figure 3, for example). Furthermore, it is not for supplying water, but for supplying air.

Regardless of the position of the connecting rod 4 as controlled by the trigger 2, there is no way for water to flow into the pipe because only air is supplied.

As D2 therefore fails to disclose each and every feature of claim 1 as amended, claim 1 as amended is novel over D2.

The remaining claims are also novel at least by virtue of their dependencies on claim 1. 1

Inventive step

Following Pozzoli…

The skilled person is a manufacturer or user of plumbing equipment.

Their common general knowledge includes drains, pipes, and plungers, because they would encounter these in their day-to-day work, particularly when clearing blockages in drains. 1+1

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Document D1 is an example of the state of the art because is provides an improved plunger for clearing blockages in drains (page 16 lines 2 to 3).

The inventive concept of claim 1 of the present application is how to easily clear blockages from a drain such that the user does not have to be in contact with dirty water. ✓

As mentioned above in relation to novelty, claim 1 differs from D1 at least in that D1 does not disclose:

- A drain-clearing device comprising a plunger valve comprising a stem with a port, a closed top end, and wherein the stem is slidably mounted in the pipe such that in an extended position the stem blocks the side arm from the pipe so that water cannot flow into the pipe and in a depressed position the stem aligns the port with the side arm so that water can flow into the pipe and thus into the drain.

The skilled person would not be able to arrive at the invention according to claim 1 on the basis of D1 and their common general knowledge. This is at least because in D1 downward movement of the handle causes the valve to close, thus preventing the flow of water. This is opposite to the teaching of the present invention, wherein in a depressed position water can flow through the valve, whereas in an extended position water cannot enter the pipe. 1 1

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D1 goes so far as to encourage such valve-closing movement, suggesting that the user should pump the handle (page 14 lines 25 to 30), thus causing repeated interruption of the flow into the drain. The present invention removes blockages from drains precisely by supplying a flow of water into the drain, and not by interrupting the said flow. 1

There is nothing in D1 to motivate the skilled person to modify the device of D1, nor even to hint to the skilled person that they may have a reason to do so.

As mentioned in relation to novelty, the invention as claimed differs from D2 at least in that the invention relates to the provision of water into the drain whereas D2 relates to the provision of air.

The skilled person would not even consider D2 because it is not suitable for use in a domestic setting, due to the requirement of a supply of compressed air. 1

However, even if the skilled person did consider D2, they would also not be able to arrive at the invention according to claim 1 on the basis of D2 and their common general knowledge. This is at least because D2 only ever discusses the use of air to clear a blockage and does not at any point consider or even hint at the use of water. 1

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Even if the skilled person sought to combine the disclosures of D1 and D2, they would still not arrive at the invention as claimed. This is because they would adapt the device of D1 to provide a flow of air therethrough, which would not work because the air would not be pressurised and would therefore not create enough force to remove a blockage. Alternatively, they might seek to adapt the device of D2 to provide a flow of water therethrough, however the pipework and valves are all configured for air supply and therefore would not allow a fast enough flow of water to remove a blockage. Accordingly, the combination of D1 and D2 is impractical and any resulting would simply not work. It is beyond the capabilities of a skilled but uninventive person to combine the teachings of these two documents and then to further modify the resulting device to thereby arrive at something functional.

2

Without further motivation and without something obvious to try, the skilled person would therefore be simply unable to arrive at the invention as claimed.

Therefore, claim 1 is inventive. The remaining claims are also inventive at least by virtue of their dependencies on the application as filed.

Concluding remarks

The application is believed to meet the requirements of the Act and Rules. Favourable reconsideration is therefore requested. In the event that the examiner

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has any further objections, they are invited to telephone the undersigned. Otherwise, it is requested that prosecution be continued in writing.

Yours faithfully

Mr Barrel

Encs. Amended claims – revision marked

Amended claims – clean

Form 51

MARKS AWARDED: 24/37

24

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Memo to client

Date: 13 October 2013

To: Mrs Waterman

From Mr Barrel

- Thank you for your letter. Please find enclosed a draft response with draft amended claims as requested.
- The deadline for response is 15 November 2021 and so we have some time, however I should be grateful to have your comments and instructions at you earliest convenience. 1
- I would like to check the filing date of this application to confirm the compliance deadline (which will be the later of 4.5 years from the filing date (no priority) or 1 year from the first examination report). Assuming that this is the first examination report, the compliance deadline will be 15 July 2022 – although this is also plenty of time, we should keep this date in mind because the application must be in order for grant by the compliance deadline, or else it will be refused. 2
- The examiner has correctly identified that claim 1 as filed is not novel, because each of the features described in claim 1 as filed is also disclosed by document D1. We therefore need to make some amendments to claim 1 in order to achieve novelty over D1. ✓
- From your letter, I understand that it is important that your invention will unblock a toilet, which it can do because it seals wee against the drain outlet. This advantage is apparently achieved through the provision of a sealing member made of a resiliently compressible material. However, the ✓

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sealing member of D1 is also made of a resiliently compressible material (the "dome-shaped rubber cap", se page 13 line 6) and so this does not help us to achieve novelty. 2

- D1 does not disclose a solid annular supporting member however, and it is the solid annular supporting member that provides a firm backing for the sealing member of your invention. The inclusion of both features in claim 1 would therefore make the claim novel over D1. However, I have not chosen these features are those on which to base the amendment to claim 1 because D2 has an end stopper made of rubber having a solid annular supporting member (see page 17 lines 18 to 19). This is quite similar to the arrangement of your drain sealing member and the examiner has commented that "slight differences in the shape and arrangement of components in D1 do not change the function of the device". It would thus appear that arguing that such features provide an inventive step would be challenging. 3
- Instead, I note that your letter also points out that you do not restrict the flow of water and that you do not need to use compressed air. These advantages seem to arise from your choice of a plunger valve (as discussed at page 5 lines 23 to 30, for example). Neither D1 nor D2 have such a valve. D1 discloses an optional check valve at page 13 line 19 and further discussed at page 14 lines 10 to 18 but this valve does not work in the same way as your plunger valve. D2 also has a valve (see e.g. page 16 line 15) but as you note, D2 works with air and not with water. For these reasons, I have instead amended claim 1 to discuss the valve. 2 1

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- I have included a number of additional dependent claims which each appear to relate to further technical advantages. These may provide further fallback positions if the examiner raises further objections. 1
- I have also introduced a claim to a kit of parts as I noticed that this option was discussed at page 6 lines 26 to 34 but was not claimed. As you may sell such kits this claim could cover them. However, the clarity of the claim is less than perfect and I would like to revise this further before filing the response. 1
- I have not included a claim to a method because it seems more likely that you would sell the equipment rather than seek to license the method. However, if I have misinterpreted this point, please let me know. ✓
- It does not appear that a divisional application would be relevant in this instance, but if the current situation changes and a divisional application becomes useful (for example, to seek separate protection for the kit of parts), it would be necessary to file the divisional while this application is still pending and at least 3 months before the compliance deadline. 1
- If you are unlikely to have time to review this response before the 15 November 2021 deadline, please let me know. We can obtain a 2-month extension of time to this deadline, which is available as of right and can be requested retroactively, should this be necessary. 1
- If you have any questions, please do not hesitate to contact me. Otherwise, I look forward to hearing from you with your instructions.

MARKS AWARDED: 15/28

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