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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 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.
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 elongate pipe (13) is made of plastics or metal.
5. A drain-clearing device according to any preceding claim, wherein the length of the pipe is in the range of 20-60 cm.



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6. 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.
7. 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.
8. A drain-clearing device according to claim 1, in which the valve is operable by the user to admit water.



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**Amended Claims (cf as filed)**

1. A drain-clearing device comprising: a hemispherical drain sealing member (1) with a ~~central~~ passage (15) extending therethrough, for sealing against a drain opening; and 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 at a point remote from the sealing member and communicating with the pipe for supplying water thereto, and a plunger valve mounted in the pipe to control flow of liquid fluid between the side arm and the central passage.

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2. A drain-cleaning device according to claim 1, wherein the plunger valve is operable from an end of the pipe opposite the sealing member.

3. A drain-cleaning device according to claim 1 or claim 2, wherein the plunger valve comprises a hollow stem with a port and a closed top end.

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4. A drain-cleaning device according to claim 3, wherein the stem is slidably mounted in the pipe so that in an extended position the stem blocks the side arm from the pipe so that water cannot flow into the pipe and in an depressed position the stem aligns the port with the side arm so that water can flow into the pipe.

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5. A drain cleaning device according to claim 3 or claim 4, wherein the closed top end of the stem comprises a knob configured to prevent the stem from passing completely into the pipe.

6. A drain-clearing device according to any one of claims 3 to 5, further comprising a spring (9) positioned around the stem (6') of the valve and in

see ex cl 7

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abutment with an end of the pipe opposite the sealing member and for urging the stem out of the pipe.

7. A drain cleaning device according to any one of claims 3 to 6, wherein the stem comprises a longitudinal rib engaging in a corresponding groove in the interior of the pipe, or vice versa, for preventing rotation of the stem relative the pipe.

82. A drain-clearing device according to any preceding claim~~claim 1~~, in which the hemispherical drain sealing member (1) is made of resiliently compressible material for sealing against the drain opening.

9. A drain-clearing device according to any preceding claim, wherein the hemispherical drain sealing member (1) -and is fixedly attached to a solid, disc-like, annular member (2) with a threaded aperture aligned with the central passage (15).

103. A drain-clearing device according to claim 82, wherein the drain sealing member is made of rubber.

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

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

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

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14. A drain cleaning device according to claim 13, wherein the side arm (10) has a thread for connection to the hose. ✓

~~7. 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.~~ now cl 6

158. A drain-clearing device according to claim 1, in which the valve is operable by athe user to admit water.

16. A drain-clearing device kit comprising, a water supply device as defined in any one of claims 1 to 15; and a plurality of hemispherical drain sealing members as defined in any one of claims 1 to 15 and having different profiled shapes. ✓

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**MARKS AWARDED: 21/35**

14+7  
= 21

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## Response Letter

Dear IPO Examination Division

### RE. UK Patent Application Number GB1818181.8 (herein '81').

I write in response to the Examination Report under section 94(3) of the UK Patents Act 1977 before the deadline of 15<sup>th</sup> November 2021.

Please find enclosed patents form PF51 registering myself as agent for the above-referenced matter.

The applicant provides an amended set of claims along with observations to overcome the Examiner's objection.

Claim 1 is amended by

- Replacing 'central passage (15)' with 'passage (15) extending therethrough' [literal basis: 5/10].
- Replacing 'and end of the pipe' with 'the pipe at a point' [literal basis: 5/13]. ✓
- Replacing 'valve' with 'plunger valve' [literal basis: 5/23]
- Replacing 'fluid' with 'liquid' is inherent in claim 1 because the claim recites a 'water' supply device. ✓

New claim 2 having the feature 'wherein the plunger valve is operable from an end of the pipe opposite the sealing member' has basis in the context of the application as whole, and in particular this feature is evident in the figures, is implied at 7/8-9 and the advantage of this feature is described at 8/13-15. ✓

Therefore it is submitted that this feature has basis in the application as filed.

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stem

New claim 3 has basis at 5/23-25. Although this sentence also refers to a plunger valve including a spring, it is made clear in the application as filed at 8/23-25 (and by virtue of claim 7 as on file due to the repercussive effect) that the spring is an optional element of a plunger valve. ✓

ext/depr

New claim 4 has basis at 5/25-30.

knob

New claim 5 has basis at 5/33.

spring

New claim 6 is almost identical to claim 7 as on file subject to minor amendments for clarity which have basis in claim 1 as on file.

rib

New claim 7 has basis at 7/26-30.

Claim 2 as on file has been split up into two separate claims 8 and 9. Basis for these features being separated is found at 5/16-18 and see the word 'may' here.

Basis for claims 13 and 14 can be found at 6/10 ✓

Basis for new claim 16 can be found at 8/32-34.

### Novelty

It is submitted that amended claim 1 is novel over D1. D1 does not comprise a plunger valve. A plunger valve is a term of art, the valve comprises at least a stem having a port whereby the stem is plunged to actuate the valve. By contrast, D1 comprises a check valve 23/24/28 which has a very different structure to a plunger valve. ✓

It is submitted that amended claim 1 is novel over D2. D2 does not comprise a plunger valve. Rather, D2 comprises a stopper valve 45. ✓

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It is submitted that claims 2 to 15 are novel at least by virtue of their dependency on novel claim 1. It is submitted that claim 16 is novel at least for similar reasons to that of claim 1.

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### Inventive Step

Whether the amended claims possess an inventive step is judged using the Windsurfer test as restated in Pozzoli. The test is judged at the effective date of '81 [*the date in 2018 when the application was filed because '81 has no claim to priority*].

1(a) – The Person Skilled in the Art ('PSA') is a designer of devices for clearing drains [4/3 and preamble of all claims]. ✓

1(b) – The Common General Knowledge ('CGK') of the PSA is traditional plungers set out in Figs 1 and 2 of document D.

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### Claim 1

The inventive concept of claim 1 is use of a plunger valve for controlling the flow of pressured water in a simple and unrestricted manner for clearing a drain. ✓

The difference between the inventive concept and the state of the art (document C) is that document C uses a check valve as opposed to a plunger valve. <sup>D1</sup>

This difference would not be obvious to the PSA. Firstly, the check valve has a very small cross section restricting flow of water whereas choice of a plunger valve allows unrestricted flow. Secondly, the check valve is not for controlling whether or not water can enter the device of document C, rather it is simply there to facilitate pressure when the plunger of C is plunged. ✓

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Use of the plunger valve allows for a very simple device that allows the inflow of water to the device to controlled easily.

The PSA would not modify document C to have a plunger valve instead of a check valve because this simply would not work in the context of document C.

There is no motivation in document C to be able to control the inflow of water to the device by the device itself (i.e. by actuating a valve) because document C is concerned with unblocking a sink where water can easily be turned off at the tap.

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There is nothing in document C that would lead the PSA to adapt doc C to have a plunger valve.

The PSA would not even consider doc D because it is not concerned with water.

1

- Inventive step argument over D2 – don't need a source of compressed air.

Clarity

Unity

1

It is submitted that there are no unity issues.

Kind regards,

Agent.

**MARKS AWARDED: 20/37**

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### Notes to Client

- Client has a 'small business' - therefore, probably not a huge amount of funds available. I also note that the Client is particularly interested in the application of her device to toilets. ✓
- Although I have said in the draft letter I write in response before the deadline of 15<sup>th</sup> November 2021, we can actually timely respond by 15<sup>th</sup> January 2022 because there is available an additional two months as of right under S117B of the UK Patents Act 1977. Let me know if you would like more time to consider this draft response and my comments and we can make use of this extension and adapt the dates in the draft letter accordingly. ✓
- However, in reference to the bullet point directly above, I note that this application was filed in 2018 without a claim to priority. Therefore, the UK compliance period (by which time the application must be in order for allowance) will end no earlier than middle of 2022. Explain to Client we have a good amount of time to deal with this application but that we should not delay things in case we need another round of prosecution. Therefore probably best to respond sooner than later if at all possible.
- **Explain Examiner's objection to claim 7 and how I have dealt with it.** 1
- **Potential argument for novelty.** One option, which I discounted, was to argue that claim 1 was itself novel by virtue of the feature 'and a valve mounted in the pipe to control the flow of fluid between the side arm and the central passage'. This is because in D1 the valve is not located ✓

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between what the Examiner considers to be the pipe and the side arm and likewise for D2. Rather, the valves are located proximal the drain sealing element of D1 and D2, away what the Examiner considers to be their side arms. However, I think this argument is weak because in each case (of D1 and D2) when their valves are open fluid nevertheless can flow from their side arm to their central passageway. In other words, the construction of the term 'control flow of fluid between' would have to be construed quite narrowly for this argument to work and I do not think that is useful.

- Clarity** – I have softened 'central passage' recited in claim 1 so that the passage does not need be central. There is clear basis for this at 5/10. I have done this because I think it would be quite easy to design around your claim by having a non-central passage, especially if using sealing members of different shapes. Both D1 and D2 have central passages (at 27 and 62 respectively) so softening this feature will not affect arguments for novelty and inventive step.
- Clarity** – I have replaced 'and end of the pipe' with 'the pipe at a point'. This is because claim 1 could otherwise require that the side arm extends from an absolute end of the pipe – in view of Figures 1 and 2 of your application this is clearly not correct. Furthermore, claim 1 would otherwise be easy to design around because a variant's side arm could extend from a point a little below the end of the pipe and possibly not infringe. I believe 'at a point remote from the sealing member' would be construed as extending at least from the half of the pipe opposite to where

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the sealing member is attached to the pipe. Furthermore, claim 7 requires a spring associated with the valve to also be positioned at 'the end of the pipe' so without making this amended to claim 1, claim 7 wouldn't quite make sense to me.

- <sup>3?</sup> **Claim 2 introduced as a back up in case Examiner not persuaded 'plunger valve' is a term of art.** 2
- **If going for 'plunger valve', not spring not always needed. Make sure spring not necessary – design around 8/23-25.** 1
- Note to self. The Client has already prosecuted this application. Check the file wrapper to make sure I am not re-introducing previously addressed problems before sending this to the Client. 1

**MARKS AWARDED: 10/28**

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