Intellectual Property Office

BL O/160/17

04 April 2017

PATENTS ACT 1977

APPLICANT	McAlpine & Co Limited
ISSUE	Whether patent application GB1111103.6 complies with Section 1(1)(b)
HEARING OFFICER	Ben Buchanan

DECISION

Introduction

1 Patent application GB1111103.6 entitled "Air admittance valve" was filed on 30 June 2011. It was published as GB2492379 on 2 January 2013. The compliance date has been extended twice, first to the 4 January 2017, then to 4 March 2017. Consideration of a further extension, should it be needed, will be taken into account in the course of these proceedings.

2 The application has been through numerous rounds of substantive examination and amendment where the Applicants (via their attorney Marks & Clerk LLP) have been unable to persuade the examiner that the invention involves an inventive step over the prior art and so is patentable according to section 1(1)(b). Having reached an apparent impasse, the Applicants requested a hearing and consequently the application has been forwarded to me to decide "on the papers".

3 I confirm in reaching my decision that I have considered all the correspondence on file, including the written statement of the inventor filed on the 22nd December.

The Law

4 Section 1(1) of the Patents Act deals with the conditions for grant of a patent, and states that:

A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -

(a) the invention is new;

(b) it involves an inventive step;

[other provisions not relevant]

Section 3 of the Act then sets out how the presence of an inventive step is to be determined:

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

5 It is well-established that the approach to adopt when assessing whether an invention involves an inventive step is to follow the steps originally set out by the Court of Appeal in *Windsurfing*[1] and reformulated by that Court in *Pozzoli*[2]. These steps are:

(1)(a) Identify the notional "person skilled in the art"

(1)(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

The invention

6 The present invention relates to an air admittance valve for a plumbing drainage system to allow water sealed plumbing traps to work correctly and prevent siphonage of the water seal that could permit sewer gases to enter the building. The construction of the valve is defined as having an air pressure actuated seal element for selectively sealing the air inlet and a portion of the housing which is substantially transparent to allow inspection of the internal workings without disassembly of the valve.

7 The description on pages 1 and 2 defines the problem that conventionally the air admittance valve will most likely be positioned in a roof void to which there is limited access and which is problematic for inspection. The transparent portion, it is proposed, allows a user to identify problems within the valve without the need for disassembly or removal of the valve.

The claims

8 The most recent set of claims were filed on 12 October 2016 and include a single independent claim 1, appendent claims 2-22 and an omnibus claim 23. For the purposes of this hearing I will concentrate on claim 1 initially and then address the

[1] Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd [1985] RPC 59

[2] Pozzoli SpA v BDMO SA [2007] EWCA Civ 588, [2007] FSR 37

appendent claims once the question of the inventive step of claim 1 has been resolved. The latest version of claim 1 is reproduced below.

Claim 1. An air admittance valve for a plumbing drainage system for a sewer, the air admittance valve including: a housing defining an interior space and having an air inlet for admitting air into the interior space, the housing adapted to be connected to a plumbing drainage system, such that, in use, the interior space is in communication with the plumbing draining system; and an air pressure actuated seal element for selectively sealing the air inlet; wherein at least a portion of the housing is substantially transparent.

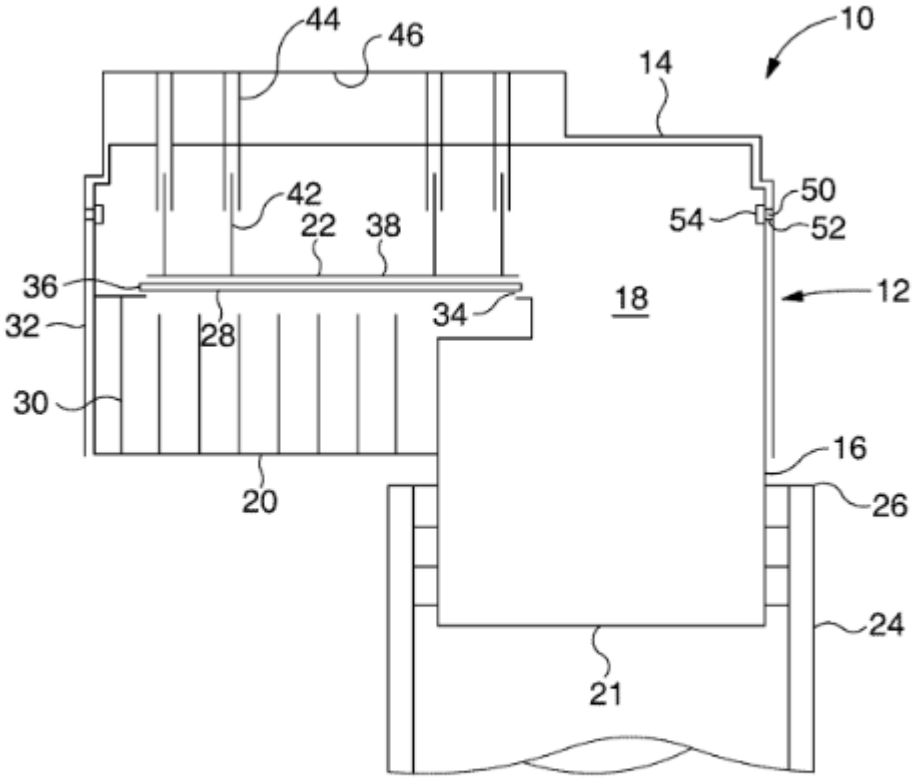


Figure 1

9 In the associated drawings and description the transparent portion is identified as the cap 14 and the valve seal is labelled 22. In assessing whether the claimed invention is inventive or not I will follow the *Windsurfing/Pozzoli* approach.

Applying the Windsurfing/Pozzoli test

10 Step 1(a) of the test requires me to identify the notional skilled person in the art. The examiner framed the person skilled in the art as a manufacturer or product designer of valves for plumbing systems in a building. The Applicant and their Attorney contest this, arguing that the skilled person in this case would be a designer of a valve for use in waste water systems. The Attorney has argued that valves are

ubiquitous and there are many types of valves for many different applications. I agree, although I consider that the skilled person would not be bound quite so tightly to the context in which the valve is being used, but would also take into consideration what the valve is being used for. In the current application, the scope of the skilled addressee's level of skill would be the use of valves *for allowing air into* a plumbing system to permit the system to work effectively. Therefore, on reviewing the arguments I consider the skilled person to be a designer of air intake valves in buildings.

11 In step 1(b) I need to identify the relevant common general knowledge of that person. The examiner argued that his common general knowledge would comprise knowledge of valves for a variety of uses in plumbing systems in buildings and would not be limited to just valves used in plumbing drainage systems for sewers; that their knowledge would span both freshwater and dirty water plumbing systems. The Applicant and their Attorney strongly contest this, arguing that the skilled person would not consider reviewing documents which describe plumbing systems for handling fresh water because the designer would know that such systems are likely to be inappropriate for plumbing systems handling grey water. Both the Applicant and their Attorney put forward comprehensive arguments to contend that only the inventor is in a position to advise on whether material fell within the common general knowledge. As the Applicant highlights in his written submission of the 22nd December he has extensive experience and has made significant patent filings in this field. His observations are interesting, however I am not sure that the level of expertise of the Applicant is necessarily commensurate with that of the skilled person. Having found that the Applicant has drawn the skilled person too narrowly, I find that the scope of the common general knowledge afforded to that person has also been too narrowly formulated.

12 In my assessment the common general knowledge of such a person would not extend to all valves employed in every type of plumbing system, but would also not exclude consideration of both wastewater and fresh water systems. A designer of an air intake valve in either system may be looking to solve a common problem, such as the prevention of air being drawn into the system to prevent siphoning and to permit the system to work correctly. They would be focused on finding, or be aware of, appropriate valves for the purpose of allowing air into the system, and not be limited by in which side of the system it will find application.

13 Moving on to step 2 of the test, I must identify the inventive concept of the claim, or if that cannot readily be done, construe it. In the exchanges between the examiner and the Attorney the construed inventive concept would seem to have been agreed upon as the provision of a substantially transparent portion of housing in an air admittance valve. While that definition reflects what is defined in claim, I am not convinced that this clearly and unambiguously defines the scope of the claim in a way which the line of argument presented by the Applicant and their representatives supports. Significantly, the claim makes no mention as to the location, purpose or suitability of the transparent portion with regards to it being used to inspect the valve mechanism, leaving much to be read into the limits of the proposed monopoly of the claim when purposively construed in light of the description. In plain terms the claim simply requires 'at least a portion of the housing is substantially transparent', which does

not define the invention as expressed in paragraph 6 above. The next two steps must therefore be analysed in the light of this ambiguity.

14 Addressing step 3 of the test I must identify the differences between the cited prior art and the inventive concept. The examiner identified two air admittance valves FR29449837 A1 (NICOLL)) and EP2241686 A1 (STUDOR) which it is agreed disclose all the features of claim 1 except for a portion of the housing which is transparent. The closer of the two is NICOLL in which in the final paragraph of page 7 it discloses a removable section of the housing to allow for inspection and maintenance of the valve flap, pointing towards the desirability of easy inspection to ensure that any problems with the valve can be easily checked. Figures 3, 4 & 5 show the bonnet 103 which can be separated from the valve for inspection of the seal (or flapper) 112.

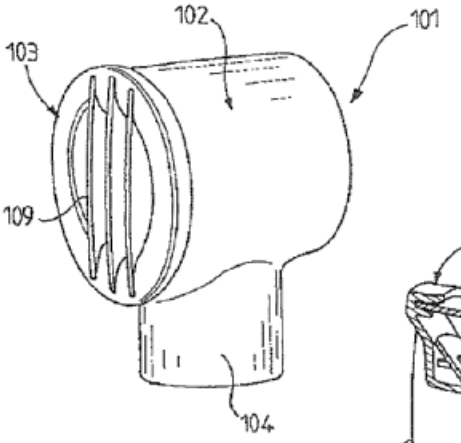


FIG.3

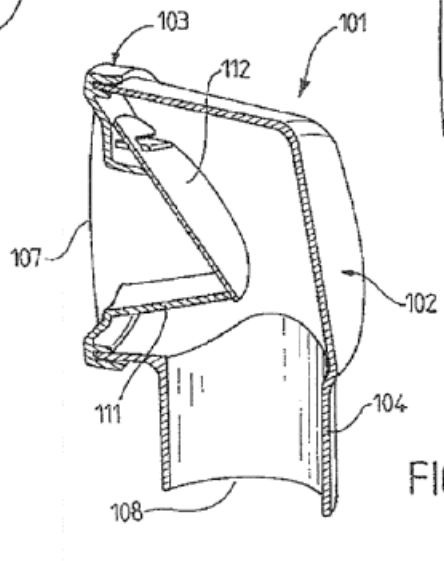


FIG.4

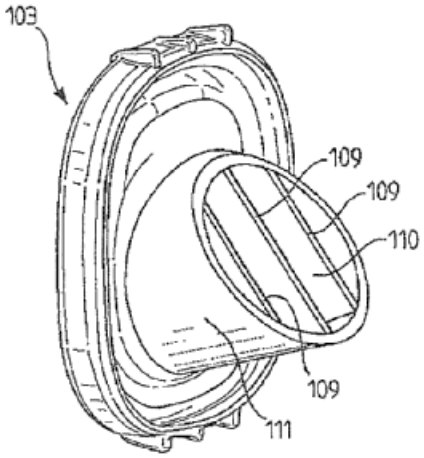
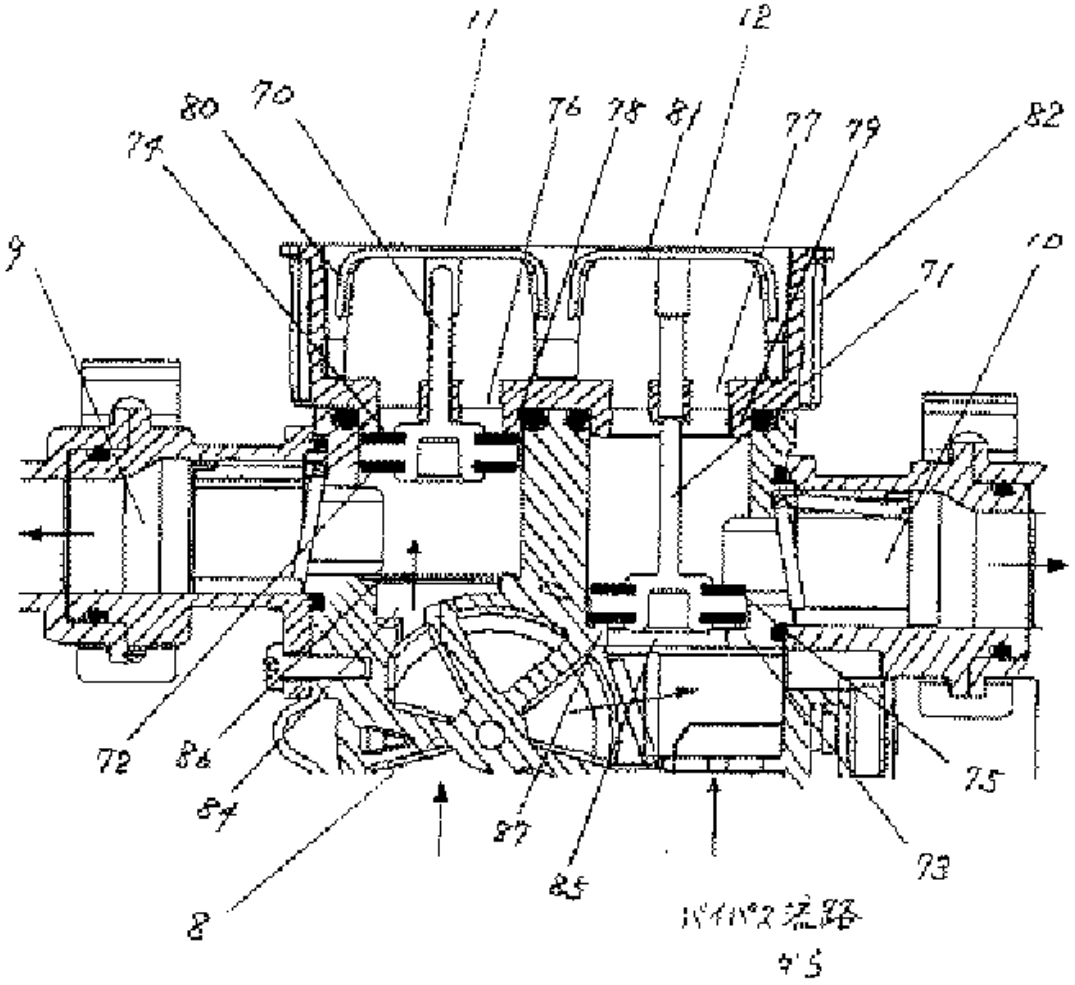


FIG.5

15 The remaining documents cited show transparent parts of housing which are used in the general field of valves for inspection and maintenance of air inlet/exhaust valves but not within the field of a water drainage system in a building. Briefly, CN 2718333 Y (GAO), CN 2210978 Y (ZHANG) and US7025079 (ELNAR) disclose air bleed off valves rather than air intake valves. JPH10318397 A (KUBOTA KK) shows an air valve in which the valve is not air pressure actuated, but comprises a float to prevent water leaking from the system. KR20100001046U (WOODANG), DE2021715A1 (EGGEMANN) and JP 2002174348 A (KUBOTA KK) are water valves having observation windows for inspection of the valve seal.

16 The closest valve with a transparent inspection portion cited in the correspondence is JP2004316806 A (TOTO Ltd) which shows a vacuum breaker valve in a freshwater system.

【図4】



17 In the valve, sections 80, 81 and 82 can be formed from transparent material to ensure that the motion of the mechanism can be visually observed. Therefore TOTO shows a transparent portion of the housing which allows inspection of the movement of the seal element (as outlined in appendent claim 3 of the current application) used in an ‘air admittance valve’, albeit one that is not suitable for use in a plumbing drainage system.

18 The difference between the cited prior art and the inventive concept defined in the claim would therefore be the use of a transparent portion of a housing in an air intake valve for inspection of the working of the valve, instead of a removable section as disclosed in NICOLL.

19 Moving on to step 4 I need to assess whether, when viewed without any knowledge of the alleged invention as claimed, those differences constitute steps which would

have been obvious to the person skilled in the art or do they require any degree of invention?

20 A person skilled in the art of designing air inlet valves for use in buildings would be aware of existing valves such as those defined in NICOLL and STUDOR. NICOLL discloses an air admittance valve including an air pressure activated seal element for selectively sealing the air inlet. It additionally provides access for inspecting the valve by the removal of a cap portion. It shows that a way of easily inspecting and accessing such valves has been considered and is perceived as desirable. The Applicant's argument that transparent portions have not been shown in a valve of the type specified in the application is noted, however, were that to be shown it would provide a novelty anticipation and the question here is whether such a modification provides an inventive step.

21 As it has been shown in the NICOLL that such inspection of the valve mechanism within the field of air exhaust valves in a waste system is known and desirable. I consider that a person skilled in the art would view the replacement of the cap with a transparent cap section to be a routine workshop development. Such a modification has been suggested in a wide variety of other air intake and release valves cited in the prosecution of this application, most notably in TOTO which also defines a valve used to prevent siphoning in a water system. I am of the opinion that, motivated to enable inspection of the air admittance valve in situ, the skilled person would consider these documents in combination and arrive at the current inventive concept. Claim 1, as currently drafted, therefore lacks the necessary inventive step for a patent to be granted.

22 Moving on to consideration of the appendent claims, claims 2 and 3 further require that the transparent portion of the housing is positioned to permit inspection of the interior space and that movement of the seal element would be visible. This would be the case using a transparent cap in the device described in NICOLL and therefore claims 2 & 3 would not provide a non-obvious advance over the prior art discussed above. However the features of claim 4, in stipulating that an operation of the seal element in a plane perpendicular to the movement of the seal element is visible through the housing would not be readily achieved. It would seem, than that incorporation of claim 4 in claim 1 would overcome the inventive step objection which is the subject of this decision.

23 Such an amendment would also resolve the issues of clarity and construction of claim 1 discussed in step 2 of the test above. Having found that the claim as it stands is not patentable I have not fully considered every other claim. Nonetheless, it is my opinion that the remaining claims do not define features which are not known or obvious, or which clearly enhance the synergy of the features of claim 1 in defining the inventive concept. Specifically, unlike the examiner, I am not convinced that incorporating one of claims 6, 18, 19 & 20 into claim 1 will provide a patentable advance over the prior art.

Conclusion

24 I find that claim 1, when properly construed, does not define an invention as required by section 1(1)(b). In its current state I would therefore refuse the application under section 18(3). I note that the Applicant has requested that they be permitted to file

amendments if appropriate. In light of my finding outlined above I therefore remit the application for the Applicant to make such amendments and for these to be considered by the examiner.

25 Also, as noted above the extended compliance period prescribed by Rule 30 of the Patents Rules expired on 4 March 2017. As the Applicant has already extended the period twice, at the time of writing, a further extension will be required if the application is to proceed. The Applicant may apply for a further extension, to the 4th May, in order to effect these changes which, as indicated in official correspondence dated 6th February I expect to be allowed

Appeal

26 Any appeal must be lodged within 28 days after the date of this decision.

Ben Buchanan

Deputy Director, acting for the Comptroller