

OPINION UNDER SECTION 74A

Patent	GB 2561987
Proprietor(s)	Cassellie Limited
Exclusive Licensee	
Requester	Beck Greener LLP
Observer(s)	Mohun Aldridge Sykes Limited (on behalf of the proprietor)
Date Opinion issued	24 September 2020

The request

1. The comptroller has been requested to issue an opinion as to whether claims 1 to 8 of GB 2561987 are invalid on the basis of :
 - i). Lack of novelty and/or inventive step given prior art patent documents:
D1 - US 5628492 'Lee' (Published 13th May 1997)
D2 - US 1383272 'Woore' (Published 28th June 1921).
 - ii). Comprising subject matter extending beyond that disclosed in the application as originally filed, referred herein as 'added matter'.
2. The requestor also comments on the priority date, the construction of the claims and on the allowability of the added matter request.

Observations

3. Observations on behalf of the proprietor have been received. They comment on the allowability of the request as well as discussing claim construction and refuting the invalidity arguments.
4. Observations in reply from the requestor were also received. These commented on claim construction and included additional discussion on inventive step.

Matters to be considered by this Opinion

Priority Date

5. Firstly, in part 5 of the request, there is an argument that the granted claims are not entitled to the declared priority date and instead, the filing date should be taken as the priority date. The argument concludes on page 7 with the requestor asking if this could be confirmed as part of the opinion on validity. The observer comments that this is not an issue to be subject to an opinion. I agree; The issue of priority is irrelevant to added matter and both documents provided were clearly published prior to the earliest priority date. I will therefore not give my opinion on whether the claims are entitled to their declared priority date.

Novelty and Inventive step

6. The first part of the request, i), refers to documents which were not considered during the prosecution of the patent or at any relevant proceedings. I will therefore give my opinion on Validity as regards Novelty.
7. The original request focusses on arguing that the claims lack novelty. There are no detailed arguments regarding inventive step based on document D1. The only inventive step argument based on D2 relates to claim 2 being obvious from D2 alone or in combination with D1; This argument follows from the assertion that claim 1 lacks novelty given D2. In their observations, the proprietor states that if any further inventive step arguments are made in reply by the requestor, they should be ignored as they would raise new grounds. Further inventive step arguments have been made by the requestor, who argue that they are not new grounds. I find that these do raise many new arguments not present in the original request, and thus I will not give my opinion on them.
8. I will not give my opinion on the validity of claim 1 through lack of inventive step. I will consider validity as regards inventive step, but only for claim 2, and limited to prior art document D2.

Added matter

9. Part ii) of the request needs careful consideration, as added matter was an objection considered during the pre-grant prosecution. The Office refuses requests that do no more than repeat arguments already considered pre-grant on the basis that it is inappropriate under Section 74A(3)(b) of the Patents Act.
10. During the pre-grant prosecution of the patent, the description was amended to delete all references to spring 236. Subsequently, third party (section 21) observations were filed alleging added matter among other things. In response, a further examination report issued stating that the third party observations have been considered and objections to added matter, lack of novelty, lack of inventive step, lack of clarity and lack of support;

11. The request has two allegations of added matter : **a)** Changes to the description and figures cause added matter - essentially by the removal of references to 'spring 236'; **b)** granted dependant claim 2 is an unallowable as an intermediate generalisation as the argue that the only support for the arrangement of claim 1 is for a unitary part, and not the 'releasable connected' arrangement in claim 2. It is argued that these issues were either not considered at all, or 'were ... not sufficiently considered' pre grant. The proprietor, in their observations, argue that no new arguments have been presented.
12. I find that part a) of the request regarding added matter was considered by the examiner pre-grant. I consider that part b) is merely indicating a 'knock-on' consequence which might follow on from part a). Thus part b) has also effectively been considered by the examiner pre-grant. I conclude that I should not give my opinion on invalidity through added matter.

The Patent

13. The invention is an in-line 'automatic' blocking valve suitable for use with apparatus connected to domestic water plumbing, such as taps, showers and central heating radiators. The valve can be located at a junction point where the plumbing system may be subsequently opened, the valve automatically closing to minimise spillage of water. The valve can be arranged so that when the junction is closed, a movable valve body is held fixed in a first open position due to a part of the assembled plumbing system being in contact. When the junction is opened by removing the contacting part of the plumbing system, the body is allowed to move to a second closed position; The valve body can be pushed to close by the water pressure behind it.

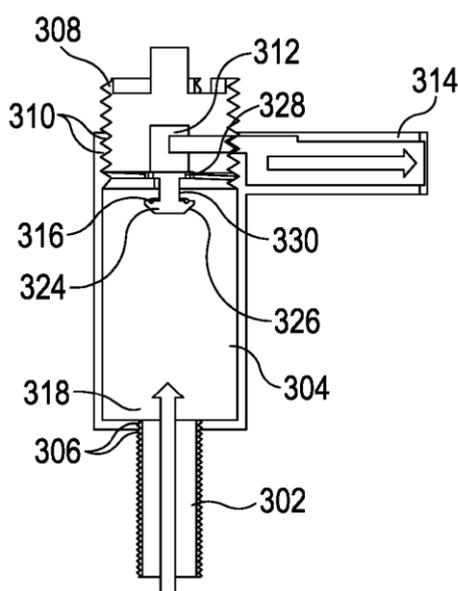


FIG. 13

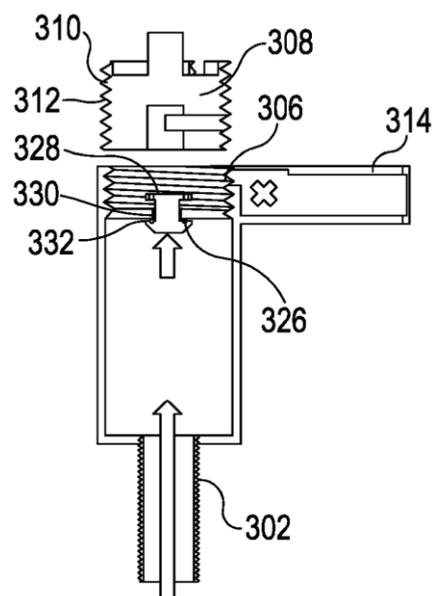
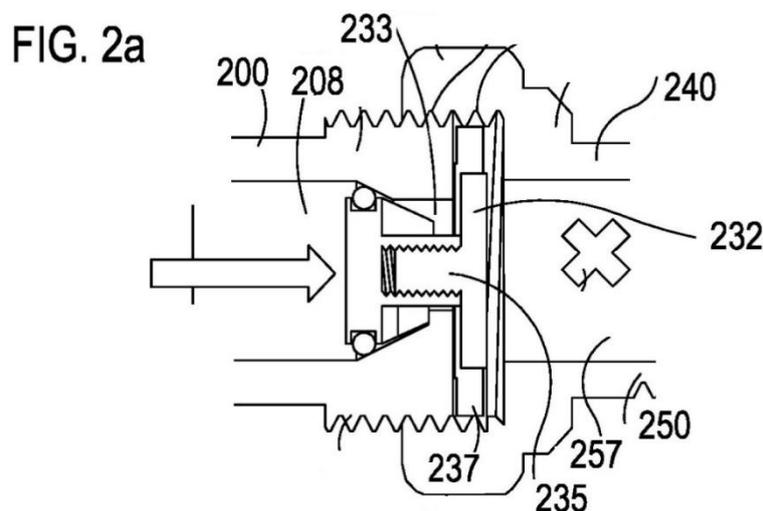


FIG. 14

14. The action of the blocking valve 'insert' is most easily seen in figures 13 and 14 above. These show an embodiment used with a tap, where a tap cartridge 308 is removable from the tap's body 304. The blocking valve comprises an actuation head

328 connected via a stem 330 to a blocking member 326. Figure 13 shows the assembled tap, where the cartridge 312 pushes the actuation head down, to move the blocking member away from its blocking position, thus fixing the blocking valve in the open position. The arrows show water entering the tap inlet and leaving via the spout. Figure 14 shows the tap cartridge removed from the tap body so that nothing now contacts the actuation head. The blocking valve is now free to move. The water pressure at the inlet pushes the blocking member to move upwards as the arrow indicated, closing the blocking valve and stopping water from passing to the spout or the rest of the open tap body. These figures do not clearly show that there is a passage that the shaft passes through, so when the valve is open, water passes around the blocking member and implicitly also through the passage next to the shaft. The passage is blocked by the blocking member when the valve closes.

15. Other embodiments are described : Figures 1a-d are a device for use with a shower; Figures 2a to 4 show a blocking valve inside a threaded compression connector such as for linking two pipes; Figures 7 to 10b show how a blocking valve can be arranged between a radiator outlet and a radiator control valve.
16. Below I reproduce a portion of figure 2a, showing the central detail of the valve insert (I have removed many of the figure labels for clarity). The insert is within a two part fluid channel comprising regions 208, 233 and 257. The connection between parts is shown loosened such that the threaded nut has moved (rightwards) away from washer 237 and push-plate 232 of the insert. Thus the insert has space to move (rightwards) to the closed position due to water pressure. In page 9 of the patent, part 235 is referred to as a stem rather than a 'shaft' as claimed. The figure suggests a releasable connection for the insert as threads can be seen in the stem 235. However, the description of the embodiments of figures 1 to 4 merely says the parts are joined together by the stem, there is nothing about the stem being threaded or releasably connected.



Claim construction

17. Before considering the novelty and inventive step issues raised in the request, I need to construe the claims of the patent – that is to say, I must interpret them in the light of the description and drawings as instructed by Section 125(1) :

125(1) For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.

In doing so, I must interpret the claims in context through the eyes of the person skilled in the art. Ultimately, the question is what the person skilled in the art would have understood the patentee to be using the language of the claims to mean. This is also referred to as applying a purposive construction. This approach has been confirmed in the recent decisions of the High Court in *Generics UK Ltd (t/a Mylan) v Yeda Research and Dev. Co. Ltd & Anor* [2017] EWHC 2629 (Pat) and the Court of Appeal in *Actavis Group & Ors v ICOS Corp & Eli Lilly & Co.* [2017] EWCA Civ 1671.

18. The granted claim set has a single independent claim 1 which reads :

*1. A plumbing valve for a pressurised conduit comprising:
a body portion having:
an inlet at a first end; and
an outlet at a second end;
the inlet and outlet in fluid communication with one another via a channel through the body portion and
an insert comprising:
a blocking member connected to one end of a shaft; and
an actuation head member having at least one aperture therein
and connected to the other end of the shaft;
wherein the shaft passes through the channel of the body portion,
and
wherein when the valve is in a first position, the blocking member is adjacent the inlet end of the channel, thereby blocking the channel and preventing fluid flow therethrough;
wherein when the valve is in a second position, the blocking member is spaced back from the inlet end of the channel, thereby allowing fluid flow therethrough;
wherein, the Insert moves from the first position to the second position upon a force being provided upon the actuation head member to cause axial displacement of the blocking member towards the inlet;
wherein, when in the second position and not installed in a pressurised conduit, no force acts upon the blocking member and the insert remains in situ; and
wherein the insert moves from the second position to the first position upon a force being provided upon the inlet side of the blocking member.*

19. The definition of the body portion and insert in claim 1 are generally straightforward to understand. However, the scope of the term 'shaft' is disputed by the requestor and proprietor, in particular what shape and size of element is meant by 'shaft'.

20. The proprietor, in observations on the request, argues that the normal meaning of shaft should be taken to be as follows :

“The normal meaning of “shaft” is a “rod” or “pole”, which is to say, “a long, thin stick”. Therefore, in a normal interpretation, the shaft should be a long, thin solid stick. “

They go on to look at the description of the embodiments noting that the word ‘stem’ is used instead of shaft for some embodiments. They assert that :

“Therefore, from the text and drawings, having regard to a purposive construction, it is reasonable for the skilled person to conclude that the shaft is a solid elongate structure positioned within the channel and connecting the blocking member and the actuation head member. Additionally, the shaft has an external diameter less than that of the blocking member and the actuation head member and less than that of the channel in order to permit the flow of fluid through the channel when the valve is in the open position, otherwise fluid cannot flow through the channel. ”.

21. The requestor, in reply to these observations, states that shaft means “a rod, pole or other suitable elongate member” and nothing more. Further they state that :

“ the granted claim requires that the insert “comprises” a shaft, and so the claimed structure is not exclusively limited to a single shaft. In other words, granted claim 1 would also cover an arrangement having multiple “shafts”. ”

22. I have some sympathy for the requestor’s position and I consider that the proprietor has construed the term ‘shaft’ too narrowly. Whilst it is correct to look at the context of the specification, I disagree that it must be viewed as being ‘a long thin solid stick’. I also disagree that claim 1 must be read to restrict the diameter of the shaft compared to the blocking member or the actuation head.
23. I note that claim 1 omits any detail of the shape or size the shaft, merely stating that its function is to connect the blocking member to the actuation head, and that the shaft be positioned in the conduit. I also note that the size and shape of the shaft are not specified in any dependant claim, nor are they greatly discussed in the description. I think that the proprietor is right that it is implicit that the shaft has to be arranged to permit flow of fluid through the channel, as the specification teaches that, in-use, the shaft remains in the channel when the valve is either open or closed. Other than that, I should construe ‘shaft’ broadly and thus take it to mean : An elongate body mechanically connecting a blocking member at one end to an actuation head at the other end, the shaft positioned in the channel and arranged to allow fluid to also flow though the channel.
24. I need to take care deciding what the remaining half of claim 1 means as the references to forces are not immediately clear. Apart from referring to a pressurised conduit, there is little in the claim explicitly describing what the forces might be, or what might cause them.
25. The embodiments of invention give the reader examples of what produces these forces. First is the water pressure at the inlet pushing on the blocking member, which tries to put the insert into the first, closed position. Second is the contact force on the insert of a connected plumbing element at the outlet. In each embodiment these two forces substantially oppose each other at the insert.
26. I note that the explicit mention of water pressure causing the insert to move to the first closed position is only provided in the last claim of the set, claim 8. However,

despite it being in a dependant claim, I think that this feature, though broadly in terms of a fluid, must be read as implicit in claim 1, because otherwise, it is too difficult to make sense of the references to the pressurised conduit. Reading the patent specification, it is clearly a goal that fluid pressure acts on the insert blocking member.

27. I note that mention of a fitting urging the insert into the second open position is only introduced in dependant claim 4. As claim 1 is for just the valve, I do not find there is a need to imply any limitation in claim 1 as to what might provide this second force on the insert.
28. The request in particular focusses on the section of the claim '*... wherein, when in the second [open] position and not installed in a pressurised conduit, no force acts upon the blocking member and the insert remains in situ; ...*' as being problematic. It says that, despite the fact that forces of ambient air pressure and gravity will necessarily act on even when disconnected, a pragmatic view would instead read this section as meaning that the valve could remain in the open position.
29. I agree to the extent that this part of claim 1 should be construed as meaning the valve itself does not provide any other significant forces which act on the insert, apart from the fact that the shaft remains inside the channel in use.
30. The request also says that '*remains in situ*' should be read as meaning it :

'would only move to the closed position in response to a force applied upon the inlet side of the blocking member'.

I disagree that 'remains in situ' means that the insert is somehow held in place in the open position as there is no disclosure of this happening in the granted specification. The reader of the granted patent will understand that, for example, when the valve body is disconnected at both the inlet and outlet, the valve does not preferentially hold the insert at any position. I do not construe claim 1 as requiring the insert be biased, instead 'no force acts' and 'remains in suit' are construed to mean the insert is not biased to either position.

31. I conclude the second part of claim 1 be construed as meaning : i). the valve is arranged to move the insert from the open to closed position due to pressure from fluid in the pressurised conduit acting on the blocking head; ii). that a separate force can be applied to the actuation head to at least move the insert from the closed to open position and iii). the valve itself does not provide a significant force to bias the insert, such as from the closed to open position, if there is no force applied to the blocking member or actuating head.
32. The dependant claims are fairly straightforward to understand, though I will comment on claim 2 which reads :

2. A plumbing valve according to claim 1, wherein the blocking member is releasably connected to the actuation head member.

Claim 1 requires these members be at either end of the shaft, but claim 2 does not mention the shaft at all. I do not think that claim 2 means that these members are directly connected and that the shaft is optional, but that the skilled reader would

understand the shaft is present. I therefore construe claim 2 as requiring the shaft to either be releasable connected to one or to both of the members, or that the shaft itself comprise a releasable connection.

The Law

33. Section 1(1) of the Act reads:

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

- (a) the invention is new;*
- (b) it involves an inventive step...*

34. Section 2(2) of the Patents Act 1977 states:

The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.

35. Section 3 of the Patents Act 1977 states:

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).

36. To determine whether or not an invention defined in a particular claim is inventive over the prior art, I will rely on the principles established in *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588, in which the well-known Windsurfing steps were reformulated:

(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;

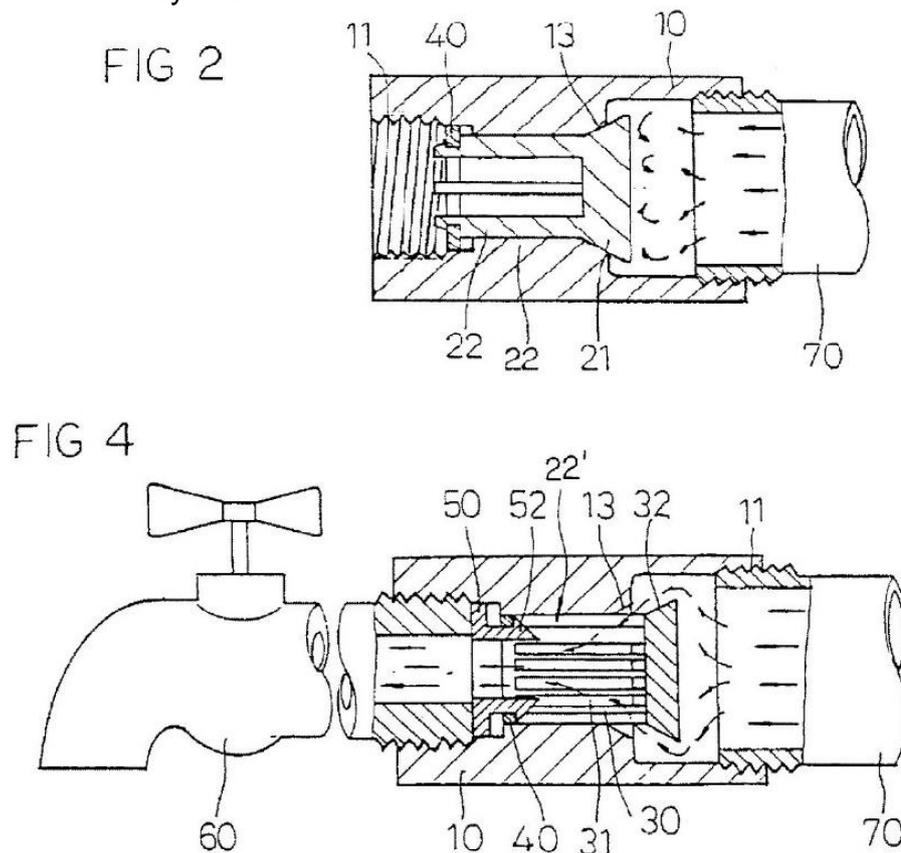
(4) Viewed without any knowledge of the alleged invention as claimed, determine whether those differences constitute steps which would have been obvious to the person skilled in the art.

Novelty

37. The requestor provided two patent documents as prior art, I will consider each in turn.

D1 - US 5628492 (Published 13th May 1997)

38. The two embodiments shown in D1 are of an 'automatic' valve element arranged as a connector. This is shown in the figures between the inlet of a tap and a water pipe. Figures 2 and 4 below showing the tap 60 disconnected and then connected to the valve connector body 10.

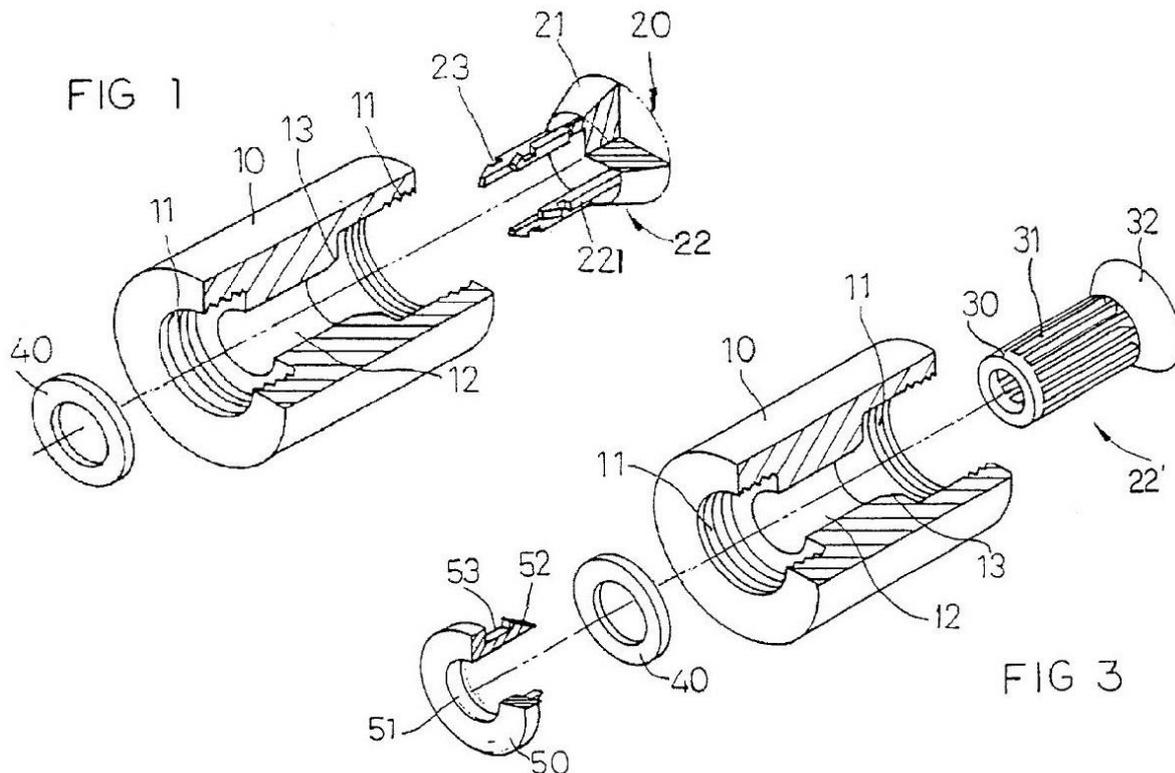


In figure 2, the water pressure in supply pipe 70 pushes the conical stopper head 21 so that it moves over countersunk opening 13 thus closing the valve to prevent water escaping from the disconnected opening 11. In figure 4, a tap is connected to the valve such that the end of the tap pushes the "driving shaft 22'" to move the stopped head 32 away from the opening 13, overcoming the water pressure. Thus the valve is held open by the presence of the tap. The water can pass around the head and thus through the valve body to the tap. Figures 2 and 4 have different embodiments of the moving assembly (insert) within the valve body 10, but both substantially operate in the same manner.

39. The requestor argues that all of the features of the body portion and the insert in the first part of claim 1 are shown in D1. They go on to state that the valve operates as required by the second part of claim 1 and thus D1 shows claim 1 lacks novelty.

40. The proprietor argues that the insert of D1 is different to that claimed because D1 does not show a shaft that is *“a single long, thin solid stick”*. They say that D1 instead shows two types of shaft : a). as figures 1 and 2 show, *“at least two sticks...with a hollow section between ... to permit water to pass therethrough”*; b). as figures 3 and 4 show, *“the flow of fluid is through the hollow centre of the ‘shaft’*. They also note that the shaft of either embodiment are such the *“external diameter contacts the internal surface of the channel”* . The proprietor does not discuss the other features of claim 1.
41. In response, the requestor argues that their construction of shaft is wrong, and that it should not be construed as being limited to be either ‘thin’ nor ‘solid’. They argue that the single hollow shaft 30 of figures 3 and 4 in D1 does fall within the scope of the shaft of claim 1. They argue that the rods 221 of figure 1 and 2 taken together could also be understood to comprise a shaft as claim 1 requires, and note that D1 states *“the driving shaft 22 comprises at least two parallel and elongate base rods 221”*. They also argue that each rod 221 could itself be considered a shaft, as they consider that claim 1 is not limited to having only a single shaft.
42. I consider that the proprietor is construing the shaft of the insert of claim 1 too narrowly. My construction is that the shaft is an elongate body located within the fluid channel, provides a mechanical connection and is arranged to allow fluid to flow in the channel.
43. Comparing D1 to the first part claim 1, I find D1 does show a ‘valve body’ 10 with a channel 12 having inlet and outlet, and a moving insert. Looking at the embodiment of figure 3 in particular, the insert does comprise a ‘blocking member’ 32 at one end of a shaft 30 with an ‘actuation head member’ 50 at the other end of the shaft. The shaft 30 is an elongate member and is arranged to allow water to flow in the channel, and thus it falls within the scope of the shaft of claim 1. Thus the first part of claim 1 is disclosed by D1.
44. I now need to compare D1 to the second part of claim 1, which describes the valve positions and how the insert may move. The act of attaching tap in D1 can provide an over-riding force on the ‘actuation head’ to cause the insert to move from a second position to the first position. If the connector of D1 is connected to a pressured pipe but not the tap, then there will necessarily be a force that now biases the insert to the closed second position. The pipe pressure is expected to overcome friction or air pressure forces. If the connector is disconnected from both the pipe and the tap, then it will be substantially only frictional, air pressure and gravitational forces left to act on the insert. I find that D1 operates is the same way to forces from the tap and water to open and close the valve. Thus I find that the second part of claim 1 is disclosed.
45. I thus conclude that the invention of claim 1 is disclosed by at least the embodiment of figures 2 and 4 in document D1, and thus it is my opinion that claim 1 lacks novelty.
46. Looking at the dependant claims, it is also my opinion that all the features of claims 3 to 8 are shown by the D1 disclosure, and so these claims also lack novelty. I note that the proprietor does not comment on the dependant claims.

47. This leaves claim 2 to be considered, which reads “A plumbing valve according to claim 1, wherein the blocking member is releasably connected to the actuation head member.”. As I explain above, I construe claim 2 as requiring the shaft to either be releasable connected to one or to both of the members, or that the shaft itself comprise a releasable connection.
48. I reproduce figures 1 and 3 from D1 below which are exploded diagrams corresponding to the embodiments of figures 2 and 4 respectively.



The 'insert' is assembled by bringing the parts together from either side of the body 10 such that the 'shaft' is retained in the channel 12 of the valve body. In figure 1 retaining washer 40 is held in grooves 23 of the four rods 221 comprising the driving shaft 22. In figure 3, the washer is held via grooves 53 in at least two 'arrow shaped legs 52' of the pushing seat 50, that seat in turn connected to the driving shaft 30 by the legs 52 fitting into slots 31.

49. The request states that

“Pushing seat 50 and washer 40, or washer 40 alone, are separate components connect to end of driving shaft 31 in use. Components are not glued or fixed other than by press-fit connection so would be releasable.”

The proprietor does not comment on this.

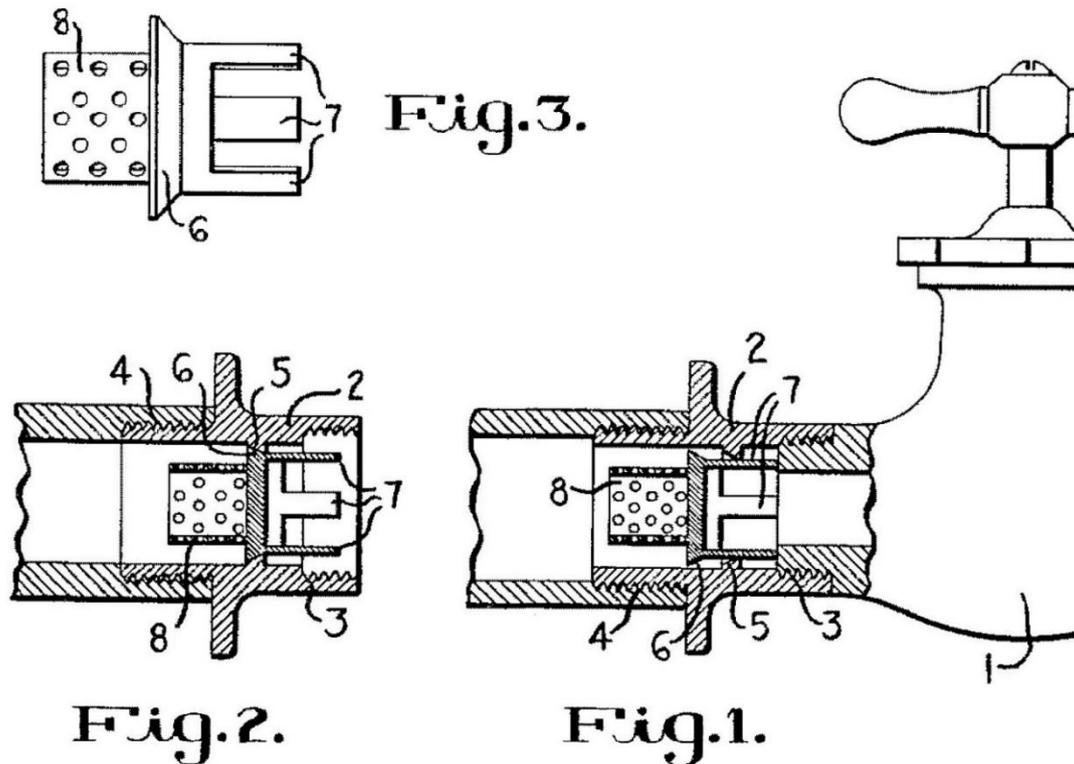
50. Comparing D1 to claims 1 and 2, the 'actuation head' comprises either the washer 40 or the seat 50, with the 'blocking member' made integral with 'the shaft'. The skilled reader is told in D1 that the insert parts are 'simple and easy to assemble' as the parts effectively clip/snap together without the need of glue or retaining fixtures. D1 shows that, in use, the assembled insert is to be left in place. The description is

silent about whether the insert might subsequently be removed or disassembled.

51. It is my opinion, given the evidence before me, that both of the embodiments in D1 have a releasable connection between the blocking member and actuation head and thus claim 2 lacks novelty over the disclosure of D1.

D2 - US 1383272 (Published 28th June 1921)

52. D2 also shows an 'automatic' valve, here arranged as a plumbing connector 2. The embodiment shows valve 2 between a tap 1 and a water pipe 4. Figures 1 and 2 show the tap 1 connected and disconnected respectively. Inside the valve 'body' 2, is a movable valve 'insert' 6, shown more clearly in figure 3.



When the tap is disconnected and the connected pipe has water pressure, as in figure 2, the valve insert 6 is pushed to a closed position to contact annular valve seat 5. The perforated cage 8 is said to '*centre the pressure ... insuring its proper and prompt seating*'. When the tap is connected, the arms 7 are pushed by contacting the end of the tap, overcoming the force of the water and moving the valve insert to an open position with a gap between the valve and seat for the water to flow. It can be seen that the body 2 has an inlet, outlet and a linking channel holding the insert.

53. The Request argues that the 'insert' of D2 is shaped to provide a blocking member and the arms 7 provide an actuation head and define apertures between the arms, the arms forming '*another end of the shaft*', where the shaft is seen in the figures.
54. The proprietor argues that it is incorrect to view the arms 7 as both the shaft and the actuating member, though they note that the request was not clear in identifying the shaft in D2. They also argue, based on their narrow construction of 'shaft', that D2

does not allow for a solid shaft, nor is there a shaft in D2 that has a narrower diameter than the blocking member and actuation head member.

55. In response to the proprietor, the requestor argues that :

It is perfectly possible for the arms 7 to correspond to both claimed elements since the arms 7 fulfil the technical function of both of these elements. As set out in our construction, the term "connected" is somewhat of a red herring and the shaft and actuation head member as claimed may be unitary or otherwise.

56. As I explain above, I disagree with the narrow construction of the term shaft, instead I take a broader view of this as meaning an elongate connecting member arranged to allow water to flow in the channel. To recap, claim 1 requires the insert to have a connecting shaft located in the channel and, at either end of the shaft, a blocking member and an actuation head having at least one aperture.

57. D2 does show how the end of the insert's arms 7 contact the tap as figure 1 shows, so the tap can apply a force moving the insert. The arms are said in D2 to "form a guide for the valve in the valve seat" and "are disposed close to the walls of the valve seat to insure a positive seating of the valve onto its seat." Thus in D2, I view the arms as providing the equivalent function of both the shaft in the channel and the actuation head member with aperture(s) as required in claim 1. While the insert of D2 does extend in the channel, it does not have an identifiable 'actuation head member' located at the end of a shaft. However, whilst I agree that claim 1 does allow for the insert to be formed as a unitary element, the claim still requires both a shaft and an actuating head with an aperture. It is my opinion that D2 does not disclose such a shaft and actuating head. While the arms 7 function similarly, they are distinct from what is claimed.

58. Looking at the rest of claim 1, I find that the valve body and the way the insert moves in D2 does match the claim. The insert will move between the first and second positions as required due to forces applied to it. The insert will remain in situ when the forces are absent.

59. I conclude that D2 does not disclose the insert as claim 1 requires and thus it is my opinion that claim 1 is not shown to lack novelty given D2. The same thus follows for dependant claims 2 to 8.

Inventive step

60. The request provided no detailed argument regarding a lack of inventive step of claim 1, and thus I will not give my opinion on the matter. I will also not consider the further arguments raised in the response to the proprietors observations, as I consider they are new arguments.

61. The only inventive step argument in the request was that, since claim 1 lacked novelty from D2, dependant claim 2 was obvious given either the disclosure of D1 in combination with D2 or on the basis of routine workshop variation of D2. Because I did not find that claim 1 lacked novelty due to D2, I decline to give my opinion on the lack of inventive step of claim 2.

Conclusion

62. It is my opinion that claims 1 to 8 are invalid as they lack novelty in the light of the disclosure of document D1, US 1383272.

Application for review

63. Under section 74B and rule 98, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

Gareth Lewis
Examiner

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.