Intellectual Property Office

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08 September 2015

PATENTS ACT 1977

APPLICANT	Mr Jamie Nicolas Fairchild and Restorative Techniques
ISSUE	Whether patent application GB1100761.4 complies with section 76(2)
HEARING OFFICER	Mrs S E Chalmers

DECISION

1 Patent application GB 1100761.4 entitled “High pressure superheated water cleaning system” was filed on 18 January 2011 and published as GB 2487364 on 25 July 2012.

2 Throughout several rounds of correspondence the examiner has maintained that the application as amended contains added matter. The examiner and the agent have been unable to reach an agreement on this issue. Therefore, at the request of the agent, the matter has come to me for a decision on the papers.

3 I am grateful to the agent, Mr Richard Smith of Handsome I.P. for his submission of 14 July 2015, which I have taken into account in coming to my decision.

4 If I find in favour of the applicant, the application will be remitted back to the examiner to continue with the substantive examination.

The invention

5 The invention relates to a high pressure superheated water cleaning system for delivering high pressure superheated water for the removal of surface coatings or contamination from a substrate. The system comprises a water pump connected to a boiler by means of a first high pressure hose, and a second high pressure hose connected to the boiler for delivering the high pressure superheated water to a gun provided with a lance and nozzle. Cold water is pressurised by the pump before passing through the first high pressure hose to the boiler, where the water is subsequently superheated and ejected out through the second high pressure hose. The nozzle is in use held adjacent to the substrate so that a surface coating such as paint, or contamination, may be removed therefrom by the action of the water.

6 This decision is based on the most recent set of claims, filed on 16 February 2015. There are 7 claims, with claim 1 relating to a high pressure superheated water cleaning system being the only independent claim. Claim 1 reads:

7 *"1. A high pressure superheated water cleaning system for delivering high pressure superheated water, for removal of surface coatings such as paint, or contamination from a wide range of substrates, the system comprising:*

a central tubular metal frame boiler unit, the boiler unit comprising stainless steel panels, and configured to use diesel or kerosene as fuel to heat water therein;

a detachable tubular metal framed water pump unit, the pump unit detachable from the boiler unit, and comprising:

a primary outlet for supplying pressurized water to the boiler unit; and a secondary outlet for allowing flushing of the boiler unit with water, and for allowing connection to a second boiler unit;

a first flexible high pressure hose connected between the pump unit and the boiler unit, and arranged to pass cold pressurized water from the pump unit to the boiler unit;

a detachable jerry can fuel container, the jerry can fuel container detachable from the boiler unit;

a pick-up connection to supply fuel to the boiler from the jerry can, the pick-up connection being detachable from the jerry can;

a holster for holding the pick-up connection when detached from the jerry can;

and a hose set comprising a second high pressure hose having an 8mm bore and a gun with a lance and a nozzle, for receiving high pressure superheated water from the boiler unit;

wherein the system is configured such that a reduction in pressure of water from the pump unit results in an increase in temperature of high pressure superheated water provided by the boiler unit."

8 Should I find this claim is not allowable, the agent has submitted an auxiliary request for me to consider. This auxiliary request differs from the latest set of claims only in that the last three lines of claim 1 are replaced by the phrase: "*wherein the system is configured such that a restriction in pressure of water from the pump unit* ***maintains the maximum temperature*** *of high pressure superheated water provided by the boiler unit* ***of 150 degrees centigrade.***"

The law

9 The section of the Act concerning added matter is section 76(2), which reads:

"76(2) No amendment of an application for a patent shall be allowed under section 15A(6), 18(3) or 19(1) if it results in the application disclosing matter extending beyond that disclosed in the application as filed."

10 In *Bonzel and Schneider (Europe) AG v Intervention Ltd* [1991] RPC 553 Aldous J described the task of determining whether an amendment to the description had the result that a patent as granted disclosed matter which extended beyond that disclosed in the application as:

(1) to ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application;

(2) to do the same in respect of the patent as granted;

(3) to compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition. The comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly.

11 In *Richardson-Vicks Inc.'s Patent* [1995] RPC 568 Jacob J summarised this by saying: "the test of added matter is whether a skilled man would, upon looking at the amended specification, learn anything about the invention which he could not learn from the unamended specification."

Arguments

12 In her last report of 14 May 2015 the examiner identified the details in claim 1 that she considered were not supported by the application as filed. The matter identified was the final passage of claim 1, that is to say:

"...wherein the system is configured such that a reduction in pressure of water from the pump unit results in an increase in temperature of high pressure superheated water provided by the boiler unit."

13 During the course of the examination of the application attention has been drawn to paragraph 5 of the original description where it is said that "In order to maintain the maximum temperature of 150°C, the pressure is restricted". The examiner has argued that this statement does not teach towards a reduction in pressure of water from the pump causing an increase in temperature of the water, and that the skilled addressee would not understand "restriction" to mean "lowered". The examiner has also argued that it is counterintuitive for a reduction in pressure to result in an increase in temperature in the water provided by the boiler, particularly when superheated water relies on a higher pressure in order to maintain water temperatures in excess of 100°C.

14 Paragraph 5 of the original description goes on to state that "it is also possible to connect one pump unit to two boilers and back to one gun in order to obtain 150°C at the maximum pressure of 160 bar". The examiner has argued that this statement does not unambiguously disclose that a reduction in pressure of water from the pump results in an increase in temperature of the water provided by the boiler. Furthermore, the examiner has argued that this statement simply discloses that additional heating elements are required to obtain maximum temperature at maximum pressurization, and that this teaches away from reducing pressure in order to achieve a higher water temperature.

15 Mr Smith has, in a first strand of his written submission, referred to paragraph 2 of the description where it is said that “The pump unit generates a water pressure of 30-160bar (450-2300 psi) with a maximum flow rate of approximately 10 litres per minute”. Mr Smith argues that it would be apparent to the skilled person that varying the generated water pressure between the minimum (30 bar) and the maximum (160 bar) results in a change in the flow rate over a range up to a maximum of 10 litres a minute. In particular, as a basic principle of continuum mechanics, he asserts this passage would indicate to the skilled person that a reduction in pressure reduces the flow rate and an increase in pressure increases the flow rate. He then makes the point that as the cold pressurized water passes from the pump unit through the hose to the boiler, the flow rate through the boiler is dependent upon the pressure of the water supplied by the pump unit.

16 In his submission Mr Smith states that it is well known to engineers working in the field of boilers that there are two basic forms of boiler:

(i) The fire-tube boiler in which hot gas from a fire passes through one or more tubes running through a sealed container of water, passing heat to the water which can then be extracted from the sealed container.

(ii) The water-tube boiler in which water circulates in tubes heated externally by a fire, where cold water can be injected at one end of the tubes and hot water can be extracted from the other end of the tubes.

17 Mr Smith argues that as the boiler is being supplied with pressurized cold water from a pump, the skilled person would understand the boiler to be of the water-tube type, as otherwise the benefit of pressurizing the water before being sealed within a container would be lost. He also asserts that it is well known that fire-tube boilers are unsuitable for pressures above approximately 24 bar (350 psi), which is below the operating pressures of the claimed system. For these reason, he submits that the skilled person would understand that references to “boilers” in the specification are references to water-tube boilers.

18 Assuming the boiler to be of the water-tube type, Mr Smith goes on to describe how, if the flow rate of the water through the boiler is reduced, the water will spend longer inside the boiler and thus be heated to a higher temperature. He argues that this is how boilers work and would be understood by the skilled person. It is also backed up by paragraph 5 of the description where it is said “In order to maintain the maximum temperature of 150°C, the pressure is restricted”. He submits that it is implicit from this statement that “if the pressure is increased above this restricted level, the temperature of the water provided by the boiler would decrease below 150°C”.

19 Mr Smith has also referred to the section of paragraph 5 which states “As the system is modular, it is also possible to connect one pump unit to two boilers and back to one gun in order to obtain 150°C at the maximum pressure of 160 bar”. He argues that the only way that the skilled person would be able to reconcile this sentence with the rest of the specification would be to adopt the interpretation that the boiler is a water-tube type regardless of whether the two boilers are provided in series or parallel.

20 A second strand of argument has also been provided in the written submission. This strand focuses solely on the passage in paragraph 5 which states “In order to maintain the maximum temperature of 150°C, the pressure is restricted”. Mr Smith argues that “the skilled person would understand that in this case the word ‘maintain’ is equivalent to stating ‘prevent from dropping below’, as it is impossible to increase the temperature above the maximum of 150°C”. In relation to the phrase “the pressure is restricted”, he submits that the skilled addressee would understand this to mean the pressure is reduced below some maximum pressure. In other words, this passage could be rewritten as “In order to prevent the temperature from dropping below the maximum temperature of 150°C, the pressure is reduced below some maximum pressure”. It would therefore follow to the skilled person that raising the pressure would result in lowering the temperature and vice versa.

21 A third, rather lengthy, strand of argument touches on why the invention is said not to contravene the laws of physics, the relevance or otherwise of the Extended Antoine Equation referred to by the examiner in her report of 14 May 2015, and a discussion of how the pump of the invention is said to operate. In particular, it seeks to explain why well-established physical laws are not broken by the invention but I do not think it necessary to reproduce the details here.

Analysis

22 I start by observing that the application as filed was drafted without professional assistance. As such, it contains a number of apparent ambiguities which I shall need to reconcile to decide whether or not the claims contain added matter. I note that neither the examiner nor Mr Smith have defined the “skilled man” as set out in the test defined in *Richardson-Vicks Inc.’s Patent.* For the purpose of this decision, I shall define this person as someone eg an engineer, who has a good knowledge and practical experience of heating systems, particularly boilers, and their application.

23 I have carefully considered Mr Smith’s arguments and I am inclined to accept them. In my opinion, the skilled person would conclude that the boiler of the invention is of the water-tube type. There is no reason to pump cold water at up to 160 bar into the boiler if it is of the fire-tube type, as all the advantage of pressurizing the water would be lost.

24 Paragraph 5 describes how the system provides water at a maximum of 150°C and up to 160 bar, so again the skilled person would conclude that if the water is being supplied to the boiler at up to this pressure, and also being ejected from the boiler at up this pressure, then the boiler must be of the water-tube type given the stated limitations of fire-tube type boilers. After accepting that the boiler is implicitly of the water-tube type I also agree that lowering the flow rate, or reducing the pressure of the water, from the pump would result in an increase in temperature. Reducing the pressure would necessarily increase the time the water spends in the boiler, thus increasing the temperature of the water.

25 I accept Mr Smith’s argument that regardless of whether the pressure of the water is reduced somewhat from its suggested maximum, superheated water would still be produced by water pressurized to between 30 and 160 bar. The skilled person would readily realise that the pressure of the water supplied from the pump could be

reduced from its maximum whilst the system as a whole would still serve to provide high pressure superheated water.

26 I therefore find that the skilled person would, when seeking to put the invention into practice, conclude that the invention implicitly comprises a water-tube boiler, and thus a reduction in pressure, and flow rate through the boiler, would result in a higher water temperature. The amended claims do not add matter. There is therefore no need for me to consider the auxiliary claims.

Decision

27 I have found that the amended claims of 16 February 2015 do not contain added matter, and thus they do not contravene section 76(2) of the Act. I therefore remit the case back to the examiner to continue with the substantive examination.

28 I note that the compliance period of this application according to section 20(1) of the Act expired on 18 July 2015. To keep the application alive, it will therefore be necessary to extend this period by two months under Rule 108 by filing Patents Form 52 together with the appropriate fee. Further extensions may be required if the application is to proceed. Any such extensions are at the discretion of the Comptroller.

Appeal

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

Mrs S E Chalmers

Deputy Director, acting for the Comptroller