

**Q1: Validity***Patentable Subject Matter*

Under §101, whoever invents or discovers any new and useful process, machine, manufacture, composition of matter, or any new and useful improvement thereof may obtain a patent. However, a series of Supreme Court case law has determined that laws of nature (*Prometheus*), abstract ideas (*Alice*), and natural products/physical phenomena (*Parke-Davis*) are excluded from patentable subject matter.

Here, a challenger to Pat's '123 Patent would argue that her invention claims a law of nature (i.e. the ability of a vent to release vacuum pressure, thereby allowing water to flow) and that her invention simply captures that law, with no inventive step added (*Prometheus*). Pat would respond that her invention claims an unconventional application of that natural law, not the law itself. Because her invention is a physical object, any challenge of unpatentable subject matter would likely fail.

*Utility*

Under §101, inventions must have utility at the time a patent application is filed. Inventions must have operable, beneficial, and practical utility. Operable utility means that the invention is not inherently unbelievable to a PHOSITA (e.g. not like a perpetual motion machine). Beneficial utility means that the invention is not frivolous or immoral (*Lowell*). Practical utility means that an invention must provide a well-defined, particular, and presently available benefit to the public (*Brenner*).

Here, Pat's '123 Patent likely has operable utility, as it would probably not be inherently unbelievable to a PHOSITA. The specification notes that anti-freeze faucets have long been in

existence, and Pat's invention encompasses a fairly straightforward addition to anti-freeze faucets such that a PHOSITA would likely believe that it would work. Her patent likely also has beneficial utility, as it is not frivolous or immoral. Rather, it provides the benefit of preventing burst or leaky pipes and damage to homes. It should be noted that, despite the relative ease of finding beneficial utility here, its requirement has been uncertain in the wake of *Juicy Whip*. Finally, Pat's '123 Patent likely has practical utility. Practical utility requires a finding of both specific (i.e. well-defined and particular to the invention) and substantial utility (i.e. immediately available to the public, as opposed to an object of use testing or further research). With regard to specific utility, Pat's specification notes the specific use of her invention "to provide a pressure release vent within the hydrant to break any vacuum seal." With regard to substantial utility, a user of this product would immediately reduce their risk of frozen or burst pipes. A challenger to the '123 Patent might attempt to argue that it lacks practical utility because it does not provide a readily available benefit to the public, as Pat has been unable to create a finished product. Pat would respond, likely successfully, that utility is judged from the time of filing and not based on whether a product is actually immediately available. Further, the requirement of "immediately available" benefit has not been interpreted as strictly as it sounds; therefore, Pat's '123 Patent likely has practical utility (*In re Brana*).

### *Disclosure*

Under §112, a patentee must adequately disclose her invention. The primary requirements of adequate disclosure as relevant here are enablement, written description, and definiteness.

1. Enablement

A patent applicant must describe the manner and process of making and using the claimed invention in such full, clear, concise, and exact terms as to enable a PHOSITA to make and use the full scope of the claimed invention without undue experimentation. “Undue” experimentation means that some gap-filling by the PHOSITA may be allowed; whether the amount of experimentation required is “undue” depends on (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Here, a challenger to the ‘123 Patent would argue that the terms “on one end”/“on the other end” and “sufficiently elongated” in elements (b), (c), and (e) of Claim 1 would require undue experimentation by a PHOSITA to determine where to place the valve plug and drain conduit, respectively, and how long to make the tube. A challenger might also argue that there is no direction for how to configure the vent in element (d), thereby requiring undue experimentation by a PHOSITA.

Pat would respond that there are only two possibilities for where to place the valve plug and drain conduit in elements (b) and (c) (i.e. the tube only has two ends) and therefore a PHOSITA would not need to engage in undue experimentation to determine where to place them. Regarding the length of the tube, Pat would respond that, given the ubiquity of anti-freeze faucets as noted in her specification, a PHOSITA would know how long the tube would need to be in order to keep water within the outer wall and therefore prevent it from freezing. Finally, regarding the placement of the valve plug and drain conduit, the length of the tube, and the configuration of the vent, Pat would respond that her specification, including drawings, provides

enough structural and functional information to enable a PHOSITA to determine where to place the various elements of her invention in relation to one another and how they should be configured to achieve the invention's purpose. Given the state of the prior art (which will be discussed in more depth below) and the relative skill of PHOSITAs, Pat has a fairly strong argument that the '123 Patent is enabled.

## 2. Written Description

Under §112, a patent disclosure must reasonably convey to a PHOSITA that the inventor had possession of the claimed subject matter as of the filing date (*Ariad*). Importantly, the Supreme Court in *Ariad* established that the written description requirement in §112 is distinct from the enablement requirement.

Written description issues typically arise either where (1) a patent applicant has amended her specification or (2) a patent application has claimed too broadly. As the facts expressly note that the '123 Patent was never amended, a challenger to its validity on the basis of written description would likely argue that Pat had claimed too broadly. In particular, a challenger could argue that Pat has failed to describe the structure of the vent in her invention or the length of the tube; therefore, a PHOSITA might not believe that Pat actually possesses what she claims.

Pat would respond that each element present in her claim (namely a tube, valve plug, drain conduit, and vent) is present in her specification; therefore, she has described what she claims and claimed what she describes. Looking to the four corners of her specification, her drawing provides a configuration of how each element fits together, and the written part of her specification describes how each element interacts in order to complete the invention's function. In this context, this disclosed correlation between the structure and function of Pat's invention, in light of the skill of a PHOSITA, likely renders her written description sufficient. It should be

noted that the drawing in her specification, while not limiting her claim scope, also reflects the upward extension of the vent claimed in Claim 2; therefore, this claim has also been described.

### 3. Definiteness

Under §112, a patent is invalid for indefiniteness if its claims, read in light of the specification and prosecution history, fail to inform a PHOSITA with reasonable certainty about the invention's scope (*Nautilus*).

Here, a challenger might argue that elements 1(b), 1(c), and 1(d) in the '123 Patent are means-plus-function elements that lack corresponding structure in the specification, thereby rendering them indefinite. Notably, they may be deemed means-plus-function elements even though the language "means for" is not used within the claim (*Williamson*). Further, a challenger might also argue that the use of the approximate term "sufficiently elongated" fails to put the public on notice of what length tubes they may use without running afoul of the patentee's rights.

Pat would respond that 1(b), 1(c), and 1(d) are not means-plus-function elements, as a valve plug, a drain conduit, and a vent are all physical structures provided within the claim. However, even if any or all of them were deemed means-plus-function elements, Pat would respond that the specification provides structures for the plug, drain conduit, and vent by featuring them as structural elements in the drawing. Further, with regard to element 1(e), Pat would respond that the claim provides implicit parameters; given that tube length is an important aspect of anti-freeze faucets already commonly in use, a PHOSITA would know how long a tube would need to be in order to "avoid freezing of any fluid retained in a structure's water pipes when the valve plug member is closed" (*Nautilus*). In light of these counter-arguments, Pat would likely succeed in establishing definiteness.

*Novelty*

Under §102, a patent can only issue if it is novel in light of the prior art. Determining novelty requires ascertaining the universe of prior art, excluding art subject to exceptions, and considering whether any of the remaining prior art anticipates the claimed invention. In this case, novelty will be determined under the America Invents Act (AIA) because the invention's filing date was after March 16, 2013.

1. Critical Date

Under the AIA, an invention's critical date is its date of filing. Therefore, the critical date of Pat's '123 Patent is January 1, 2015.

2. Universe of Prior Art (§102(a))

The '244 Patent is prior art under §102(a)(2) because it was filed and issued as a United States patent. Its effective date is its filing date: June 22, 1982.

Gas cans with vents to release vacuum pressure are prior art under §102(a)(1) because they are in public use; the fact pattern indicates that their inner workings are well known. The gas cans may also qualify as prior art because they are on sale; however, although they have presumably been the object of an offer for sale, it is arguable that they are not "ready for patenting," as the facts state that they are not subject to a patent. In any case, the effective date on which such gas cans entered the prior is no later than December 31, 2009, as the facts indicate that they began appearing "in the 2000s."

Pat's invention (i.e. the one claimed in her '123 Patent) may be prior art under §102(a)(1) because it was in public use when she showed it to her neighbors at their monthly civic association meeting. There is no indication that this use was experimental, and thus it is not subject to the experimental use exception (*City of Elizabeth*). There may be an argument that this

meeting did not constitute a public disclosure, if Pat knew all of her neighbors present and did not relinquish control of the invention at any time (*Moleculon*). However, the disclosure took place at a public, formal meeting, and even a single, non-confidential use may qualify as public use (*Eggbert*). Therefore, it is likely that this disclosure constituted a public use, and in fact Pat may prefer that it constitute a public use for purposes of excluding some other prior art, as will be discussed in more depth below. The effective date of this public use is October 1, 2014.

The German catalogue may count as a printed publication under §102(a)(1) because the facts indicate that it was widely disseminated, and the catalogue was presumably accessible to the interested public if it featured information about this type of product. However, the issue of public accessibility may be challenged depending on additional facts regarding the nature of the magazine. Assuming that it satisfies both the “widely disseminated” and “public accessibility” requirements to constitute a printed publication, the catalogue’s effective date is its date of publication: June 2014. As no specific date is given, it will be assumed that the catalogue entered the prior art on June 30, 2014. It should be noted that, although the catalogue seems to be advertising the hose bib for sale, based on its inclusion of a price, it likely would not enter the prior art as “on sale” because advertisements typically do not trigger the on-sale bar.

Finally, the FRU ‘456 Patent is prior art under §102(a)(2) because it was filed and issued as a United States patent. Its effective date is its filing date: November 1, 2014.

### 3. Exclusions from Prior Art

Pat’s hose bib will be excluded from the prior art under §102(b)(1) because it is attributable to Pat and has an effective date less than a year prior to Pat’s filing date.

The German catalogue will be excluded from the prior art under §102(b)(1) because it is attributable to Pat (the facts indicate that “Pat’s research into the problem turned up an entry” in the catalogue) and has an effective date less than a year prior to Pat’s filing date.

The FRU ‘456 Patent will be excluded from the prior art under §102(b)(2) because it is belated; the effective date of this patent occurred after Pat had already publicly disclosed her invention on October 1, 2014. The exclusion of this piece of prior art explains why Pat may want to argue that the use of her invention at her neighborhood’s monthly civic association meeting constituted a public use, as described above.

#### 4. Anticipatory Prior Art

In order to anticipate a claimed invention, a prior art reference must disclose each and every element of a claimed invention (*Structural Rubber Products Co. v. Park Rubber Co.*). For anticipation purposes, prior art from all fields is considered. The proper comparison in an anticipation inquiry is between the patentee’s claims and the entirety of the prior art product, patent, application, or publication. Here, I will define the elements of Claim 1 as 1) a tube, 2) a valve plug, 3) a drain conduit, and 4) a vent. Further, although language in the preamble is generally not read as a claim limitation, I will note that the invention encompasses a freezeless wall hydrant (*Eaton*). The elements of Claim 2 are the same, except that the vent in the third element must extend upward.

The remaining prior art (i.e. that not excluded under §102(b)) includes the ‘244 Patent and the gas cans with pressure-releasing vents. Neither piece of prior art is anticipatory. The ‘244 Patent encompasses a freezeless wall hydrant with a tube, valve plug, and drain conduit, but it lacks a vent. Although the ‘244 Patent does not actually claim the hose bib and elongated pipe, as mentioned above, the proper comparison is between the patentee’s claims and the accused



product. A gas can, on the other hand, is not a freezeless wall hydrant and lacks a tube, valve plug, and drain conduit, but it includes a vent. It should be noted that a prior art reference generally must enable in order to be deemed anticipatory (*In re Hafner*); however, as neither reference is anticipatory here, it is not necessary to consider whether they enable. If they were considered anticipatory, it is likely that the '244 Patent would enable, given that it presumably satisfied the requirements to issue as a patent, including enablement. As to the gas cans, they may not need to enable, as they are tangible objects. In short, Pat's '123 Patent has not been anticipated by the prior art and is therefore novel.

### *Obviousness*

Under §103, a person is not entitled to a patent if a PHOSITA would consider the subject matter as a whole obvious at the time of the invention. Nonobviousness refers to technical, not economic, triviality. The obviousness inquiry requires 1) determining the scope and content of the prior art, 2) ascertaining the differences between the prior art and the claims at issue, 3) finding the level of ordinary skill in the pertinent art, 4) determining the obviousness or nonobviousness of the subject matter, and 5) referring to relevant secondary considerations (*Graham*). For purposes of this inquiry, a PHOSITA is presumed to know all of the prior art in analogous fields, meaning all prior art either 1) from the same field of endeavor regardless of the problem being addressed, or 2) reasonably pertinent to the particular problem the inventor is trying to solve (*In re Clay*). Steps 1 and 2 here align with the novelty discussion above, and that discussion can be referenced for those points.

Here, a challenger to the '123 Patent would argue that it would be obvious to a PHOSITA, exercising ordinary creativity, to combine the elements of the '244 Patent and the gas

cans. In making this argument, a challenger would posit that a PHOSITA is an average engineer with a focus on plumbing and fluidity. Although Pat subjectively was not aware of the gas cans, a PHOSITA attempting to solve the problem of releasing vacuum pressure in order to allow a fluid to flow from a container would be. To that end, the facts specifically note that “engineers knew about the vacuum relieving valve technology” and that “the solution was relatively easy.”

Pat would respond that a PHOSITA should be defined as someone like her: a “garage inventor”; therefore, such a PHOSITA would not know about the gas cans. Further, Pat would respond that secondary considerations, like the long-felt but unsolved needs of the community, cut in favor of nonobviousness; after all, if the solution was obvious, then why did it take, at minimum, three years for someone to add a pressure-relieving vent to an anti-freeze hydrant? However, Pat’s arguments would likely fail; given the problem being solved, a PHOSITA probably would be presumed to know about the gas cans with pressure-releasing vents, and it would probably be obvious for such a PHOSITA to combine the elements of the ‘244 Patent and the gas cans.

## **Q2: Infringement**

Under §271, anyone who makes, uses, offers to sell, or sells a patented invention without authorization infringes the patent.

### *Literal Infringement*

A finding of literal infringement requires that all elements in the claim be present in the accused product (“That which anticipates if before, infringes if after.”). The first step in the infringement inquiry is to interpret the claims as a matter of law. The claim language provides

the starting point; however, if the meaning remains unclear, other parts of the patent may be considered for context, such as the specification and drawings. Only if these avenues have been exhausted can extrinsic evidence, like dictionaries or testimony, be considered (*Phillips*). If the claim meaning is still ambiguous, then “it should be so construed, if possible, to sustain [its] validity.” (*ACS Hospital Sys.*).

Here, both inventions encompass freezeless water hydrants with elements including a tube, a drain conduit (or “outlet”), a vent, and a valve plug. Although the facts indicate that the claims in the ‘456 Patent are “similar but not identical to” Pat’s, the correct comparison is between Pat’s claims and the accused product. The valve plugs here will likely not be the subject of debate. As to the tube, Pat may argue that the plain language of her claim encompasses any tube that is long enough to avoid the water within it freezing; since FRU’s patent was designed for this purpose, its tube is presumably long enough to avoid freezing. FRU may respond that the language of Pat’s claim is ambiguous and that, in light of its specification and drawings, Pat’s tube element encompasses only those tubes that are of typical length for anti-freeze hydrants (i.e. at least 4” longer than FRU’s). Pat would probably have a successful argument here, because the claim language fairly straightforwardly refers to tubes long enough to avoid freezing, and limitations from the specification (if it can even be argued that there is such a limitation in Pat’s specification) should not be read into the claim.

As to the drain conduit, Pat may argue that this is a means-plus-function element and that any structure that completes the functions of connecting a hose and discharging water is equivalent and, therefore, literally infringes. FRU would likely argue that this element is not means-plus-function, because the structure is provided in the claim (i.e. the claim provides that it must be “on the other end of said tube”) and that, as FRU’s outlet is offset and does not connect

to the tube, this element does not literally infringe. Because the plain language of Pat's claim contains this limitation, FRU may succeed here.

As to the vent, Pat will likely argue that the plain language of her claims is not limited to a one-way, extending vent. Further, as mentioned in the above discussion about definiteness, this may be a means-plus-function element, in which case Pat could argue that FRU's multiple-holed vent is equivalent to hers. FRU may respond that, under the canon of claim differentiation, Pat's claims encompass only vents that extend outward; as Claim 2 refers specifically to vents that extend upward, Claim 1 must refer to vents that extend in any other direction. Further, Pat's specification shows an outwardly extending vent. Pat, in return, may counter that claim differentiation favors her interpretation; as Claim 2 refers specifically to vents that extend upward, Claim 1 should be read to refer to vents that do not extend at all. Additionally, she will rightfully point out that limitations from the specification should not be read into the claim. In short, Pat has a fairly good chance of success on this point.

Finally, FRU might argue that the offset handle in their invention is not an element in Pat's '123 Patent; however, the open language of Pat's claims encompass any inventions with all of its elements plus any others.

### *Doctrine of Equivalents*

The doctrine of equivalents is an equitable rule designed to impose infringement liability in certain circumstances where direct infringement is not found. The test is whether the accused product performs the same function the same way to achieve the same result as the claimed invention (*Graver Tank*). However, there must be an equivalent to each element in the claimed

invention, and it is subject to prosecution history estoppel (*Warner-Jenkinson, Festo*).

Prosecution history estoppel is not at issue here, based on the facts given.

Even if Pat fails to establish literal infringement, she has a strong argument that FRU has infringed her patent under the DOE. The accused product uses a configuration of a tube, drain conduit, vent, and valve plug; the valve plug is used to stop the flow of water through the tube, the vent is used to release vacuum pressure, and the drain conduit is used to release water and connect a hose; and it is designed to prevent water from becoming trapped in the tube and freezing. Therefore, both inventions perform the same function the same way to achieve the same result.

#### *Defense of Inequitable Conduct*

In defense, FRU could argue that Pat misrepresented or omitted material information with the specific intent to deceive the PTO when she failed to disclose the German catalogue. Material information is that which would have prevented the PTO from allowing the claim (*Therasense*). The materiality and intent thresholds must be met separately. A finding of inequitable conduct would invalidate the '123 Patent in its entirety.

Here, it is unclear whether awareness of the German catalogue would have prevented the PTO from allowing Pat's claim; on the one hand, it would be excluded from the prior art under §102(b)(1). However, in certain circumstances, affirmative acts of egregious misconduct might satisfy the materiality requirement. Pat's statement ("They don't need to know about that, now do they?"), depending on the context, might indicate that she thought the catalogue was irrelevant. However, read differently, it might indicate both that she affirmatively chose not to

present the PTO with material information and that her intent in doing so was to deceive the PTO. Therefore, FRU may have a strong defense of inequitable conduct.

### **Q3: Novelty Under '52 Act**

#### *Critical Date*

Under the 1952 Act, the critical date of the '123 Patent for novelty would be date of invention, i.e. the date of reduction to practice: October 1, 2014. The critical date for statutory bars would be date of filing: January 1, 2015.

#### *Universe of Prior Art*

##### 1. Novelty

FRU's '456 Patent might be excluded from the prior art under §102(g)(1). As Pat conceived first but reduced to practice later, she would have to prove that she was diligent from a time prior to FRU's conception through her own RTP. The German catalogue might also be included under §102(a), as it was published prior to Pat's RTP; however, if it is deemed work done by the inventor, as it was based on Pat's research, it may be excluded despite a literal reading of the statute (*In re Katz*).

##### 2. Statutory Bars

The 1952 Act would exclude Pat's invention from the prior art altogether under §102(b).

#### *Anticipation*

If the German catalogue based on Pat's research is included, it may anticipate her '123 Patent, thereby rendering it non-novel. However, this would depend on whether the printed publication was enabling.

**FINAL WORD COUNT: 4,195**

**Have a great summer!**