Question 1

A. Patentable Subject Matter--§101

The first validity challenge Holder faces is whether the invention is patentable subject matter (SM). Generally, "[a]nything under the sun that is made by man" is patentable SM (*Chakrabarty*); however, an applicant cannot patent laws of nature, natural phenomenon, or abstract ideas (*Alice, Nielson, Prometheus, Parke-Davis*). There is not a strong argument for unpatentable SM. Holder's two claims are for physical objects, not laws of nature that purportedly allow his screw with wings to not strip, not the phenomenon of non-stripping screws, and, under *Alice*, this is not based on an abstract idea because both claim a tangible object. Holder will not likely face any colorable unpatentable SM challenges.

B. Utility--§101 and §112

The next challenge to the '123 patent's validity is whether it is useful: having operable, (arguably) beneficial/moral, and practical utility (*In re Brana, Juicy Whip, In re Fisher*, and *Brenner*). Operable utility requires an invention work for its intended purpose and is not inherently unbelievable to a person having ordinary skill in the art (PHOSITA) (*In re Brana*). Beneficial/moral utility requires an invention have no social harm or deleterious purposes (*Juicy Whip*). Practical utility requires an invention (1) provide a well-defined particular public benefit (specific utility in *In re Fisher*) and (2) have a significant and presently available public benefit (substantial utility in *Brenner*).

Both claims likely have operable utility. The strongest counterargument is that the product is a complete failure and still strips; however, operable utility does not turn on complete market effectiveness, just some effectiveness. While Holder's product is a failure, there are no

facts suggesting it is inherently unbelievable or fantastic--key operability terms. Despite the market failures, the claims are likely operable.

Next, both claims likely have beneficial/moral utility. While it is arguable this is no longer a requirement for patentability, the modern approach focuses on protecting inventions that may not be an improvement over the current market comparables (*Lowell, Juicy Whip*). In both *Lowell* and *Juicy Whip*, courts upheld patents on products that were "worse" than market alternatives but were either cheaper or cleaner. Holder's product is a market failure; however, no facts suggest the rate of failure or the price Holder charges compared to the market. This is likely beneficially/morally operable because of the *Lowell*/*Juicy Whip* courts' broad protection of inventions under this doctrine.

Both claims are likely practically useful, clearing the specific and substantial utility hurdles. The specification's first paragraph evidences specific utility, noting its use as a new screw, which is what is claimed (i.e. not claiming a perpetual motion machine for use as a 5 lb. doorstop). That paragraph also evidences substantial utility, noting the claimed invention's use to prevent stripping screwheads (a real world use). Both claims likely have specific and substantial, and practical, utility. Because the claims likely meet all three utility requirements, Holder can easily rebut any utility arguments.

C. Adequate Disclosure--§112

Next, Con will challenge adequate disclosure. §112(a) requires the patent specification contain a written description of the invention and describe the manner and process of making it "in such full, clear, concise, and exact terms as to enable" a PHOSITA to make and use it.

§112(b) requires definite patent claims that "directly clai[m] the subject matter…the applicant regards as his invention."

a. Enablement--§112(a)

Enablement requires a claim-by-claim analysis, at the patent's filing, relative to the available technology, into whether a PHOSITA need perform undue experimentation to make and use the invention (*Incandescent Lamp*). *In re Wands* provides factors for determining whether undue experimentation is required. Both claims are analyzed for undue experimentation as of the effective filing date (EFD). Claim 1's EFD is 12/31/2015, when Holder initially filed. For claim 2, the facts only state that Holder amended after seeing the Japanese application, so I will assume this amendment was made when the Japanese application was published: 6/1/2016.

Claim 1 is broader than claim 2, so I will analyze this first. The troubling enablement language is the specification's note that the wings can be any shape, and this subsequent claim in claim 1(b)(ii). This is reminiscent of the *Incandescent Lamp* claim for all "carbonized fibrous or textile materials," where the Court found the patent did not discover a common quality to distinguish all these fibrous materials. Holder's best argument for enablement is arguing the addition of the wings themselves is a common quality to prevent stripping. Holder's forethought to note in his specification that the wings and central recessed portion (CRP) can be in any shape/number bolsters this argument. While some of the *Wands* factors favor undue experimentation (e.g. broad claim, no working examples of other wing arrangements, etc.), Holder can argue that because the inventive step of his claim is adding the wings, not the number of wings, once he explains the wings (as is done in the specification), there is no undue experimentation to vary the number of wings. While this is a broad claim, it is likely enabled for

the above reasons. Claim 2 is also likely enabled because claim 1's problems for indefinite wings numbers and CRP shape are solved by specifically claiming triangular wings and a square CRP.

b. Written Description (WD)--§112(a)

The WD requirement requires the application's disclosure reasonably convey to a PHOSITA the inventor possessed the claimed subject matter at the filing date (*Ariad*). This issue arises when either (1) the inventor amends their claims to add distinctions and elements not described in the original application, or (2) when the inventor claims too broadly (*Gentry Gallery*).

Claims 1 and 2 face similar WD challenges: Holder only possessed a square CRP and trapezoidal wings when initially filing. As discussed, Claim 1 is broad; however, adequate described can overcome claim breadth. Con may argue claim 1 does not describe all CRP and wing numbers and shapes; however, as discussed above in Enablement, the specification left this possibility open (unlike *Gentry Gallery* with a broad claim and narrow specification). There is sufficient evidence Holder possessed numerous CRP and wing numbers and shapes.

Claim 2 has a tougher WD hurdle because the specification picture has trapezoidal wings, not triangular ones. Because Holder did not add new matter in his claim 2 amendment, the initial specification must describe this claim. If Holder successfully argues he possessed more than trapezoidal wings when he initially filed, he can argue triangular wings were part of this possession (even if lacking a diagram). Though a tougher argument, the specification's open language makes it possible, albeit weaker than claim 1's argument.

c. Definiteness--§112(b)

A patent is indefinite if its claims, read in light of the specification, fail to inform a PHOSITA, with reasonable certainty, the scope of the invention (*Nautilus*). While viewed from a PHOSITA point of view, Con has a strong argument claim 1 is indefinite because there are infinite CRP and wing shapes and numbers. Holder's strongest counterargument is a comparison to *Orthokinetics*, where the indefiniteness allowed trial and error and PHOSITA gap filling. Holder can argue there are only a few viable combinations (such as trapezoidal vs. triangular wings) and, while not listed in the patent, a PHOSITA would know which would and would not work. Though a possibly indefinite claim, Holder has a strong counterargument. Claim 2 will not face strong definiteness arguments because it gives specific CRP and wing shapes.

D. Novelty (Anticipation)--§102

The next challenge focuses on patent novelty. Under the AIA, there are three novelty determinations: (1) the invention's prior art (PA), (2) whether that reference is excluded as PA, and (3) whether a single reference anticipates the invention.

a. Prior Art References--§102(a)

Under §102(a), a reference is PA if before the claimed invention's critical date (effective filing date (EFD)), anywhere in the world, it was either:

- (1) Patented, described in a printed publication, in public use, on sale, or otherwise available to the public before the EFD; or
- (2) Described in a US patent issued to another or in another's patent application effectively filed before the EFD of the claimed invention.

Phillips Screw (PS). The PS is PA because (1) it meets possibly all §102(a)(1) categories [it was patented in 1936, described in that patent (a printed publication), and commercially successful (presumably in public use, on sale, and otherwise available)] and (2) this was in 1936, before the claims' EFDs of 12/31/2015 and 6/1/2016 (see Enablement section above for my determination of EFDs).

Allen Screw (AS). The AS is PA under §102(a)(1) because (1) it was on sale and in public use worldwide in the 1980s and (2) this was before the claims' EFDs in 2015 and 2016.

Article. The professor's article is PA under §102(a)(1) because it was a printed publication that described the basic invention and it was published before either EFD.

Japanese Bolt (JB). The JB is PA under §102(a)(2) and poses the greatest novelty issue. Under §102(a)(2), a published patent application is backdated as prior art once published or issued. Additionally, under the AIA, US patent applications are backdated to their foreign application date (the global EFD (GEFD)) if the foreign patent is filed in the US within one year of its foreign filing. Con filed its Japanese application on 1/1/2015, and properly filed its US application within the one-year period, filing on 1/1/2016. Once the US application was published on 7/1/2017, this PA was backdated to the GEFD of 1/1/2015. Under §102(a)(2), because the GEFD of 1/1/2015 is before either of Holder's EFDs of 12/31/2015 and 6/1/2016, the JB is PA.

Holder's Screw (HS). The HS is PA under §102(a)(1) because it was on sale on 12/15/2014. Arguably, Con may argue this was in public use when the manufacturer had the plans, under *Moleculon* and *Beachcombers*, Holder has a strong argument that he maintained control over the invention by only contracting for manufacturing services (the manufacturer did

not actually use the invention). Using the on sale date of 12/15/2014, the HS is still PA because this is before the EFDs in 2015 and 2016.

b. Prior Art References Exclusions--§102(b)

Under §102(b), inventors may disclose and commercially exploit their inventions for one year before filing for a patent. If an inventor waits longer than one year, they lose their rights to seek a patent. Under §102(b)(1), an invention that would be PA under §102(a)(1) is not considered PA if either (A) the disclosure was made by the inventor…or (B) the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor…. Under §102(b)(2), an invention that would be PA under §102(a)(2) is not considered PA if (B) the subject matter disclosed had, before its effective filing, been publicly disclosed by the inventor….

PS and AS. The PS and AS are not removed as PA under §102(b)(1) because they entered the public domain in 1936 and in, at least, 1989, so they were not made one year before either EFD.

Publication. The publication is removed as PA because the professor is describing Holder's invention, and, thus, under §102(b)(1)(B), they indirectly received the information from Holder's own disclosure.

JB. The JB is likely removed as PA under §102(b)(2)(B). As discussed above in the HS analysis as PA, the HS was on sale on 12/15/2014, a half-month before the JB was publicly disclosed in its 1/1/2015 Japanese application. Because the inventor (Holder) disclosed his invention before the JB disclosure, JB is not effective PA under the AIA.

HS. The HS is likely PA and not excludable under §102(b)(1). Holder put his invention on sale on 12/15/2014, over one year before his earliest EFD of 12/21/2015. The HS is effective PA for both claims (the discussion in the HS section above on whether the manufacturing sale moves the disclosure date back is moot because the on sale date is still over one year before the earliest EFD).

c. Anticipation

Under §102, PA only anticipates a claim if all of a claim's elements are described in that single piece of PA (the All Elements Rule (AER) in *Robertson*). I am considering the elements of each claim as: (1) a threaded shaft, (2) a head, (3) a recessed portion, and (4) wings.

PS and AS. Neither of these meet the AER because they are both missing the wing elements.

Publication and JB. The publication and JB will not be analyzed because they are not PA; however, if the publication were considered, it likely does not have all elements because it only describes the "basic discovery." For the JB, if considered, the claims and specification are somewhat different. While we do not have enough information to know if this meets the AER, it is unlikely.

HS. The HS likely anticipates claim 1 because it possesses all four elements, meeting the AER, and the facts do not state the invention was altered from when it was initially sold. There is a tougher argument for claim 2, because the wing shape is altered from the initial product (triangular vs. trapezoid). Holder can argue to the court this element was a "trapezoidal wing" and not just a wing; however, this contradicts his enablement and written description arguments

above. This is likely anticipatory PA for both claims and renders Holder's patent invalid under the AIA.

E. Obviousness--§103

Con will challenge the patent as obvious. Obviousness assesses the technical, not economic, triviality of the patented invention and asks whether a PHOSITA, faced with the same problem, would select the patented elements to combine (*Graham*). An obviousness analysis is conduced under the *Graham* test:

- (1) Determining the scope and content of the prior art (PA)
- (2) Ascertaining the differences between the PA and the claims at issue
- (3) Finding the level of ordinary skill in the art [a PHOSITA is presumed to know all of the PA (*Winslow*)]
- (4) Determining obviousness of the subject matter to a PHOSITA; and
- (5) Considering secondary factors.

First, the references that were PA under §102 are also PA under §103 if they are pertinent references in analogous arts (*Clay*). The invention's pertinent art is, as stated in the specification, construction. The facts indicate the Holder Screw (HS) PA pieces are within the construction art. Holder may argue the Phillips Screw (PS) and Allen Screw (AS) are not in the construction field (the facts indicate Holder could not effectively use the PS in construction and the AS failed in construction); however, the PS woodworking and AS furniture building fields are likely analogous under *Clay* because they particular problem faced in both fields (screw stripping) is that which the inventor is involved. [NOTE: I am not considering the Japanese Bolt (JB) in my obviousness analysis because it was not deemed PA under §102(a)(2)(B); however, if

it were considered, Holder could argue the bolt field is not analogous to the screw field, but *Clay* would likely find the same stripping problem in both.]

Second, the differences between the PA and claims are that the claims contain wings, whereas most of the other PA does not contain wings. Third, Holder and Con will argue over the level of ordinary skill in the art. Holder will argue the PHOSITA is a common handyman, while Con will argue a mechanical engineer is the PHOSITA. The facts do not definitively indicate how a court will rule; however, Holder can argue this long-felt need shows the skill is lower than Con's articulation.

Fourth, Holder faces a tough argument on non-obviousness. As the facts state, preventing stripping is a long-felt need. As early as the Phillips Patent, the art has discussed "firm contact" of the faces and the driver as means to increase torque around different points along an equidistant line. Con can strongly argue that the wings in Holder's claims are obvious to a PHOSITA because once the Phillips Patent disclosed wedged engagements and firm contact of the head and the driver, a PHOSITA would obviously increase the surface area contact between the head and driver to increase the torque without stripping the bolt. Holder's strongest retort would be that he is not claiming increased surface area with the head and driver, but that his wings allow for greater torque application to the head (supported by the professor's publication claiming his wings reduce stripping). Despite this argument, it is likely that this is obvious to a PHOSITA with knowledge of the prior art.

Holder can argue that some secondary considerations support his claims' nonobviousness. Under *Hybritech,* a long-felt but unsolved need may indicate nonobviousness if the invention solves that need. The facts state preventing stripping is a long-felt need, especially in the construction field where the PS and AS failed. Holder can point to Ikea's failure to

convert the AS for construction uses. He can point to the JB invention as a simultaneous invention in the bolt field. While these are helpful, they are unlikely to overcome the strong nonobviousness arguments in the above paragraph, especially because Con can point to the lack of commercial success as a strong secondary factor (under *Hybritech*). Both claims are likely obvious in light of the PA.

Question 2

Holder can sue Con for direct infringement of the '123 patent's claims 1 and 2. Under §271(a), whoever, without authority, makes, uses, offers to sell, or sells any P-ed invention…infringes the P. Literal infringement requires that all elements from the claims in the P are found in the infringing device [the All Elements Rule (AER)]. If the AER is not met, a court tests for direct infringement under the doctrine of equivalents (DoE), which asks whether "the accused product or process contain[s] elements identical or equivalent to each claimed element of the P-ed invention" (*Warner-Jenkinson*). Under the DoE, infringement occurs where the accused product performs substantially the same function, in substantially the same way, with the substantially same result (*Graver Tank*).

To determine infringement, a court construes the claims' meanings as a matter of law at a Markman Hearing. Claim language provides the starting point to determine if the alleged infringing product contains the elements of the P being infringed (*Yeomans*, *Phillips*). Then, other parts of the patent can be used, such as the specification, drawings, and prosecution history (*Phillips*). Finally, the court can consider extrinsic evidence, like dictionaries and the inventor's testimony (*Phillips*). In my Anticipation section above, I determined the claim elements as: (1) a threaded shaft, (2) a head, (3) a recessed portion, and (4) wings.

a. Claim 1

Holder will argue Con is infringing claim 1 because the product it sells has all the elements of its claim because the Japanese Bolt (JB) has a threaded shaft to screw into a bolt (like the screw's threaded shaft), it has a head, and the head has a square indentation and four wings. Con's primary counterarguments will be (1) that the preamble cannon of claim construction limits claim 1 to only screws, (2) the claim only refers to anti-stripping shafts, not all threaded shafts, (3) the specification limits the claim language to a square central recessed portion (CRP) and four trapezoidal wings, and (4) the use of "protruding" limits the wings to their configuration in the drawing.

Con can first argue it does not infringe claim 1 because that claim derives meaning from the preamble (*Eaton Corp.*). Con can argue the limiting language of the screw and torque system highlights the utility of the invention: to prevent screw stripping. Con's bolt, which is not used to prevent stripping, falls outside this claim scope. This is likely a strong argument.

Con can also argue, in light of the preamble and specification, the "threaded shaft" claim language is further limited to screws and requires a pointy end to prevent stripping (thereby arguing Con does not literally infringe the threaded shaft element). While this helps a literal infringement counterargument, Holder has a strong DoE argument that these shafts perform substantially the same function (threading a bolt/screw), in substantially the same way (by being screwed), obtaining substantially the same result (tightening the bolt/screw into wood or a nut). While Con may argue this element is limited to screws, Holder's DoE argument is likely successful.

Con can argue the claim language for the CRP and wings is ambiguous within the claim itself. Looking at the specification, the CRP and wings are depicted as square and trapezoidal

(not triangular) pieces. Holder also has a strong argument that the limits from the specification (based on the diagram) should not be read into the claim itself, and that if the claim is not supported by the specification, this should be decided at trial under a §112(a) adequate disclosure analysis. This is likely a persuasive argument.

Con can try to argue the "protruding" language limits the wings to only protrude from the CRP from the middle to the right edge of the CRP, not the middle of the CRP where the JB's wings protrude. Because this claim language is ambiguous, Con can argue the specification only describes the wings in this orientation, and not in the middle of the CRP. This could be a persuasive literal infringement argument, but would likely fail the DoE for the same reasons listed above. While Con can argue it does not literally or equivalently infringe claim 1, Holder has strong counterarguments for its preferred claim language.

b. Claim 2

Many of the same arguments listed above are applicable for claim 2 direct infringement and claim construction because the preamble carries over the issues from arguments (1) and (2) above. The main differences will be arguing the claim language of the CRP and wings, when limited, are not supported by the specification. However, for the reasons discussed above in my adequate disclosure sections, and Holder's argument that this should be reserved for trial, this will not likely persuade a court. Con likely also infringes claim 2 of the patent for the same reasons it infringes claim 1.

Question 3

Under the 1952 Act, prior art (PA) is generally defined with references to the patent holder's date of invention, as opposed to the AIA focus on public disclosure and filing date. The invention date depends on the inventor's conception date and whether the inventor diligently reduced the invention to practice (RTP). There are four main categories of '52 Act prior art that may anticipate this application: §102(a), (e), (g), and (b).

102(a). An invention is not novel if, before the invention date, it was (1) publicly known or publicly used by others in this country, or (2) patented or described in a printed publication in the US or abroad. Holder's invention date is the critical date and the facts state Holder began experiments in 3/2014, but did not send plans to China to produce the invention until 6/1/2014. Thus, the invention was not RTP until 6/1/2014 and PA before then must be assessed (under *Brown* this is when there is appreciation the invention works). This will not affect the Phillips Screw (PS) or the Allen Screw (AS) because both were publicly known (through a patent and through sales) in the US before 6/1/2014; however, as discussed in my above AIA novelty section, neither anticipate the '123 patent.

Under the '52 Act, the invention date is now 6/1/2014: when Holder first RTP the invention. Therefore, the Japanese Bolt (JB) is PA because it was RTP on 5/2014, before 6/1/2014. The professor's publication was published on 6/1/2015, after the 6/1/2014 invention date, and, thus, is not PA.

102(e). An earlier invention will disqualify the applicant if before the applicant's invention date (1) it was described in a pending US patent application and (2) the pending application was ultimately published or granted. This favors Holder because he filed his patent in the US one day before Con. A foreign filer (Con) can backdate its application (just like the

AIA), but only if it properly designates the US under the PCT and files in English. Con filed in Japanese, so it does not benefit from its 1/1/2015 Japanese filing date, and thus filed after Holder's application, and is not PA under §102(e).

102(g). Generally, the first to conceive and RTP gets the patent. However, the first to conceive and the last to RTP may receive the patent if that party can show either unbroken diligence in attempting to RTP or that the first party to RTP abandoned, suppressed, or concealed the invention (*Peeler*). No facts show Con abandoned, suppressed, or concealed its invention; however, Holder can argue he had unbroken diligence from his conception (3/2014) through his RTP (6/1/2014) because the facts do not state otherwise. Though Con RTP'd first, §102(g) gives Holder priority if he can actually prove his conception in 3/2014 and show his diligence through his RTP.

102(b). Statutory bars invalidate a patent if either (1) the invention was patented or described in a printed publication in the US or abroad more than one year before the patent application or (2) the invention was in public use or on sale in the US more than one year before the US patent application. As discussed in my AIA novelty section, Holder placed his invention on sale in the US over one year before his filing date of 12/31/2015; thus, §102(b) bars Holder's right to a patent.