

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ENSIGN US SOUTHERN DRILLING LLC,
Petitioner,

v.

C&M OILFIELD RENTALS, LLC
D/B/A C-MOR ENERGY SERVICES
Patent Owner.

Case No. IPR2023-00804
U.S. Patent No. 10,976,016

**DECLARATION OF DR. GARY WOOLEY IN SUPPORT OF
PATENT OWNER'S RESPONSE TO
PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 10,976,016**

Exhibit 2006

I, Gary Wooley, declare as follows:

I. INTRODUCTION & QUALIFICATION

A. Engagement

1. My name is Gary R. Wooley, and I am over 18 years of age.
2. I have been retained on behalf of C&M Oilfield Rentals, LLC (“C&M” or “Patent Owner”) to prepare a declaration in support of the Patent Owner’s Response for *inter partes* review of U.S. Patent No. 10,976,016 (the “’016 Patent”). My firm is being compensated at an hourly rate of \$720 for my time working in this matter. My firm’s compensation is not contingent on my findings or the outcome of this proceeding. My firm and I have no financial interest in the ’016 Patent, Petitioners, Patent Owner, or the outcome of this matter.
3. Patent Owner has asked me to offer opinions regarding the ’016 Patent, including the patentability of claims 1, 2, and 23 (which I may refer to subsequently as the “Challenged Claims”) in view of the prior art identified and discussed in the Petition and the accompanying exhibits. This declaration sets forth the opinions I have reached to date regarding these matters.
4. This declaration briefly outlines my background and qualifications to provide my opinion, describes the technology at issue and background of the art, identifies materials I reviewed to prepare this declaration, and sets forth my understanding of the patent claims as my analysis regarding the application of the patent claims of the prior art provided to me. I reserve the right to supplement my

opinions in the future, to clarify responses where appropriate, and to take into account new information as it becomes available to me.

B. Qualifications

5. I am a Registered Professional Engineer in the state of Texas.

6. I received a Bachelor of Science in Mechanical Engineering from Louisiana State University in 1969. I received a Masters of Science in Engineering Mechanics from Louisiana State University in 1970. I received a Ph D. in Engineering Science from Louisiana State University in 1972 with minors in Applied Mathematics and Mechanical Engineering.

7. Early in my career I was an employee of four major oil and gas operating companies: Shell, Chevron, Exxon, and Arco.

8. I have participated in and been a member of professional organizations including the American Society of Mechanical Engineers, Society of Petroleum Engineers, American Petroleum Institute, and ASM.

9. Since 1978, I have served as a consultant for oil and gas operators, drilling contractors, service and supply companies, manufacturers, and others for onshore and offshore wells around the world.

C. Information Considered

10. My opinions are based on a review of the materials of record in this proceeding, including the '481 Patent and its prosecution history, and all exhibits

submitted by Petitioner and Patent Owner or otherwise referenced or cited in those submissions. In reaching my opinions, I have relied upon my general knowledge and experience in the field and also considered the viewpoint of a person having ordinary skill in the art (“POSITA” or “skilled artisan”) at the time of the filing date of the provisional application to which the ’016 Patent claim priority, i.e., March 15, 2018.

II. PERSON HAVING ORDINARY SKILL IN THE ART

11. I understand that Petitioner has proposed the following level of ordinary skill in the art:

A person of ordinary skill in the art (“POSITA”) would have had at least a bachelor’s degree in petroleum engineering, mechanical engineering, civil engineering, construction, architecture, or a similar degree with a year or more experience working on or around rigs, such as a drilling rig, where one or more lighting systems were used to illuminate the wellsite. Additional experience would substitute for lack of a formal degree.

Pet. at 19.

12. I am a POSITA according to Petitioner’s definition, as I have at least the amount of experience and education, as described in the Petition.

III. OVERVIEW OF THE ’016 PATENT

13. A POSITA would recognize that the ’016 Patent relates to a novel lighting system for use on drilling rigs. Ex. 1001, Abstract. These systems are

“critical to ensure continuous and safe operation of well sites.” *Id.*, 1:13-14. The ’016 Patent explains that, “[t]o ensure even and effective lighting of the well site, lighting systems have previously been installed on the uppermost portion of the drilling rig, also referred to as the ‘crown’ of the rig.” *Id.*, 1:14-17. According to the patent, “[p]rior art crown-mounted lighting systems developed for oil rigs are limited in several ways,” including that “[t]heir designs are complicated and designed for specific rigs or rig types” and, “[t]ypically, once they are designed for a particular rig or a particular type of rig, the lighting systems designs are limited and are not able to be adapted for other uses.” *Id.*, 1:17-22.

14. The patent further explains that “[p]rior art lighting systems for drilling rigs are fixed, monolithic structures that are typically crown or frame systems, with a single size and layout accommodating one type of light and rig.” *Id.*, 1:23-26. Thus, “they are heavy and typically require cranes along with multiple workers for installation, removal, and adjustments.” *Id.*, 1:27-28. For example, “[a] typical rig lighting frame system may require between 6 and 12 hours for installation.” *Id.*, 29-30. “Due to the high cost of operating a rig, any such delay is extremely inefficient for the operator of a wellsite.” *Id.*, 1:35-37. These inefficiencies “also increase the time required to be spent on maintaining these systems, which also increases safety risk.” *Id.*, 1:37-39.

15. Unlike the prior art, the '016 Patent claims, among other things, a modular lighting system mounted on a rig where a plurality of light units are each separately attached to a crown deck of the rig and comprise a mounting pole, a light fixture having one or more lights, and a bracket configured to attach the mounting pole to the crown deck of a rig. *See, e.g., id.*, claim 1. Generally, these have a “low profile to minimize the wind shear forces that may be experienced by the light units at the top of a structure.” *Id.*, 4:58-60.

16. Figures 6 and 7A (below) provide an overview of one embodiment. *Id.*, 2:10-15, 3:5-8. Light fixture 248 (green) may be connected to light bracket 400 (orange). *Id.* at 4:31-40. Mounting pole 240 (light green) is attached to the crown deck using brackets 300 and 310 (top and bottom, respectively) (purple) that attach to top rail 242 (red) and bottom rail 244 (red). *Id.*, 3:38-59, 4:30-53.

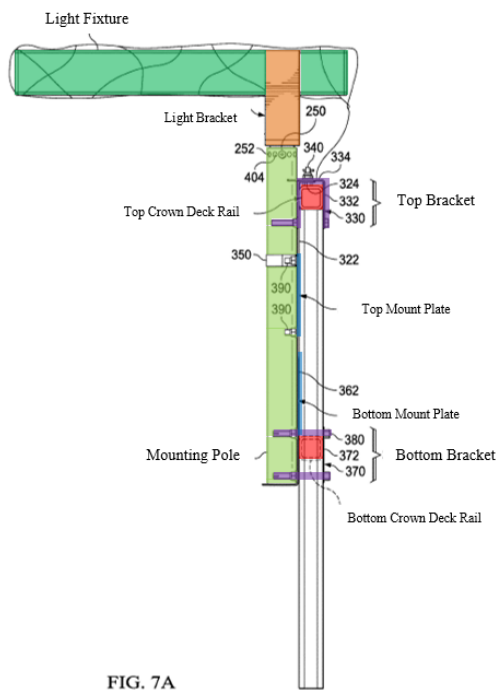


FIG. 7A

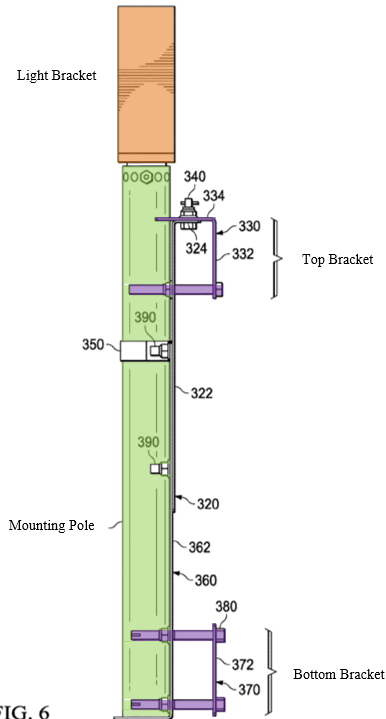


FIG. 6

17. Trial has been instituted for challenged claims 1, 2, and 23. Independent claims 1 and 23 are illustrative of the challenged claims' subject matter (ID at 5-6):

1. A modular lighting system mounted on a rig, the modular lighting system comprising:
 - a) a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:
 - b) a mounting pole;
 - c) a light fixture comprising one or more lights; and
 - d) a bracket configured to attach the mounting pole to the crown deck of the rig.

Ex. 1001, 7:31-39.

23. A rig comprising:

- a) a derrick;
- b) a crown deck at the top of the derrick; and
- c) a plurality of light units, each light unit separately attached to the crown deck, each light unit comprising:
- d) a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles; and
- e) a light fixture comprising one or more lights, the light fixture coupled to the mounting pole.

Ex. 1001 at 8:39-48.

IV. LEGAL STANDARDS

18. I am not a lawyer and have not been asked to offer my opinion on the law. Counsel has informed me of the applicable legal standards, as set forth below. I have applied these legal standards in my analysis.

A. Invalidity

19. It is my understanding that, under the patent laws, a claim of an issued patent is invalid if it does not cover eligible subject matter, it is not novel, and/or obvious in light of what came before, and/or if the patent fails to meet the formal requirements of written description, enablement, and definiteness.

20. I further understand of what came before, for the purposes of determining whether the claimed invention is novel and nonobvious, is referred to as “prior art.” The claims of a patent are invalid if they are anticipated by the prior art (*i.e.*, are not novel) and/or are obvious in light of the prior art.

21. I have been informed that, for purposes of determining whether a patent or patent application is prior art to a claimed invention, the patent or patent application is considered to be effectively filed (i) as of the actual filing date of the patent or application, or (ii) if the patent or application includes a claim of priority to or benefit of an earlier filing date, then as of the filing date of the earliest such application that describes the claimed invention.

B. Anticipation

22. I understand that “anticipation” is a question of fact and that for a reference to anticipate a claimed invention it must disclose (either explicitly or inherently) each and every element set forth in the claim for that invention. I further understand that the requirement of strict identity between the claim and the reference is not met if a single element or limitation required by the claim is missing from the applied reference.

23. It is further my understanding that a disclosure in a prior art reference must be arranged in the same way as in the claims such that different embodiments and/or disclosures in a reference cannot be combined for purposes of anticipation if they were not arranged in that way in the reference. In other words, every limitation of a claim must identically appear in a single prior art reference and be arranged in the same way as the challenged claim for the reference to anticipate a claim.

24. It is my understanding that (among other reasons) a patent claim is invalid if the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention. I understand there are exceptions to this rule, which include, for example, that a disclosure made 1 year or less before the effective filing date of a claimed invention shall not be prior art to the claimed invention if:

- the disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or
- the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor or a joint inventor or another who obtained a subject matter disclosed directly or indirectly from the inventor or a joint inventor.

25. I further understand that an element is disclosed inherently in a prior art reference if it is necessarily present in the prior art reference.

C. Obviousness

26. I understand that a claimed invention is unpatentable if the differences between the invention and the prior art are such that the subject matter of the claim as a whole would have been obvious at the effective filing date to a person having ordinary skill in the art to which the subject matter pertains (*i.e.*, a POSITA).

27. It is my understanding that obviousness is a question of law based on underlying factual issues including (1) the scope and content of the prior art, (2)

the differences between the prior art and the challenged claims, (3) the level of ordinary skill in the pertinent art, and (4) the existence of secondary considerations such as commercial success, long-felt but unresolved needs, failure of others, copying, industry praise, etc.

28. I should first determine the scope and content of the prior art.

29. It is also my understanding that I should then consider the differences, if any, between the prior art and each challenged claim; and that in doing so, although it is proper to consider differences between the claimed invention and the prior art, I should not focus on only the differences, because the test is whether the claimed invention as a whole would be obvious over all of the prior art. It is also my understanding that, in evaluating validity, each claim of the patent must be considered separately and in its entirety.

30. It is my understanding that the next step is to determine the level of ordinary skill in the art to which the claimed invention pertains at the time the invention was made.

31. It is my understanding that the next step is to determine the level of ordinary skill in the art to which the claimed invention pertains at the time the invention was made.

32. It is my understanding that a person of ordinary skill in the art is presumed to have knowledge of the relevant prior art at the time of the claimed

invention; and that if I find that the available prior art shows, discloses, teaches or suggests each of the elements of the challenged claims, I should determine whether a POSITA would have a reason to combine or coordinate these elements in the same manner as the challenged claim.

33. I understand that an obviousness evaluation can be based on a combination of multiple prior art references.

34. I understand that for a single reference or a combination of references to render obvious the claimed invention, a POSITA must have been able to arrive at the claimed invention by altering or combining the applied reference or references.

35. It is my understanding that a patent claim composed of several elements is not proven obvious merely by demonstrating that each of its elements was independently known in the art. Rather, obviousness would arise only where it is determined that the claimed invention implemented a predictable variation of prior art elements or amount to nothing more than the predictable use of prior art elements according to their established functions.

36. I understand that the prior art references themselves may provide an explicit suggestion, motivation, or reason to combine, but that the suggestion to combine may also arise from the state of the prior art generally.

37. It is my understanding that obviousness analyses can often be improperly distorted by hindsight bias. Hindsight bias can arise when an obviousness evaluation is influenced by the fact that the patented invention has already explained and demonstrated the solution to the problem and has already made clear the benefits of the claimed invention. My understanding is that once a problem has been solved, the solution may thereafter seem obvious in hindsight once the solution is already known. To avoid applying improper hindsight bias while conducting an obviousness evaluation, I should consider only what was known before the invention and cast my mind back to the time of the inventions before the '016 Patent existed and consider whether the invention as a whole would have been obvious to a person of ordinary skill in the art, taking into consideration any interrelated teachings of the prior art, the effects of demands known to the marketplace, and the background knowledge possessed by a person having ordinary skill in the art.

38. In sum, my understanding is that prior art teachings are properly combined where a POSITA having the understanding and knowledge reflected in the prior art and confronted by the problem facing the inventor would have been led to make the combination of elements recited in the claims. Under this analysis, the prior art references themselves, or any need or problem known in the field of

endeavor at the time of the invention, can provide a reason for combining the elements of multiple prior art references in the claimed manner.

D. Preponderance of Evidence

39. I understand that unpatentability in an *inter partes* review must be proven by a “preponderance of evidence” showing that the purported prior art reference(s) disclose each and every element of a claim. I further understand that any proposed obviousness combination—including at least how such references could be combined and the motivation(s) to combine the specific references and/or purported knowledge of a POSITA in the specific way proposed—must also be shown by preponderance of evidence.

V. CLAIM CONSTRUCTION

40. It is my understanding that, in its Institution Decision, the Board applied the claim constructions as set forth in the Claim Construction Order and Memorandum dated April 7, 2022, from the Western District of Texas proceeding. ID at 8 (citing Ex. 1009, 17-18).

41. I further understand that Patent Owner agrees that those claim constructions should apply. Thus, in rendering my expert opinions, I applied the constructions as set forth in the Claim Construction Order from the Western District of Texas proceeding.

VI. GOWANLOCK DOES NOT ANTICIPATE THE CHALLENGED CLAIMS

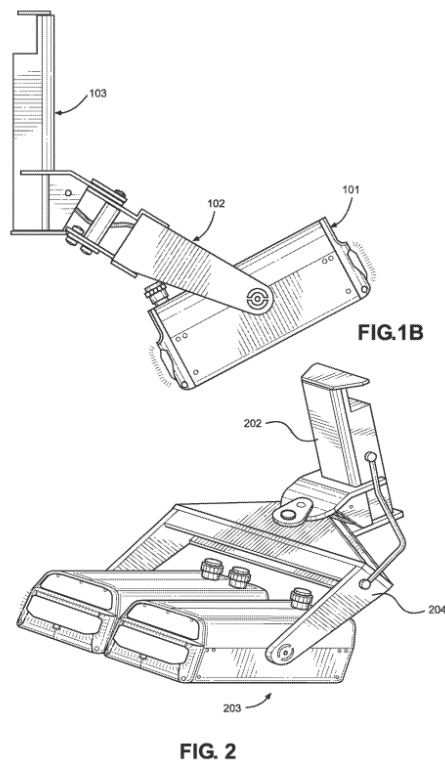
42. In my opinion, Petitioner did not show that Gowanlock anticipates claims 1, 2, or 23. Gowanlock does not disclose any of a “crown deck,” a “mounting pole,” “a bracket configured to attach the mounting pole to the crown deck of the rig,” or “the bracket” to be “connected to the crown deck of the rig using bolts.”

A. Overview of Gowanlock

43. Reference WO 2018/042348A1 to Gowanlock (“Gowanlock”) is titled “Drilling Rig with Attached Lighting System and Method.” Ex. 1003, code (54). A POSITA would understand Gowanlock to disclose a “method of providing lighting to a drilling rig site,” by attaching the light fixture “directly to the crown of a drilling rig on each of at least two sides, wherein the light fixture contains a fixed or removable light fixture attachment connecting the light fixture to the crown[.]” *Id.*, code (57).

44. Figures 1A, 1B, and 2 of Gowanlock exemplify the relevant disclosures of the reference.

45. Figure 1A depicts a “lighting system mounted on a drilling rig[.]” *Id.* at [0012]. The disclosed drilling rig 40 “includes a derrick 14,” a “crown block 13,” and a plurality of light fixtures 29 “attached directly to the crown.” *Id.* at [0016], [0019]. Figures 1B and 2 (below) depict a side view and a perspective view, respectively, of the asserted embodiment of a light fixture. *Id.* at [0013], [0014].



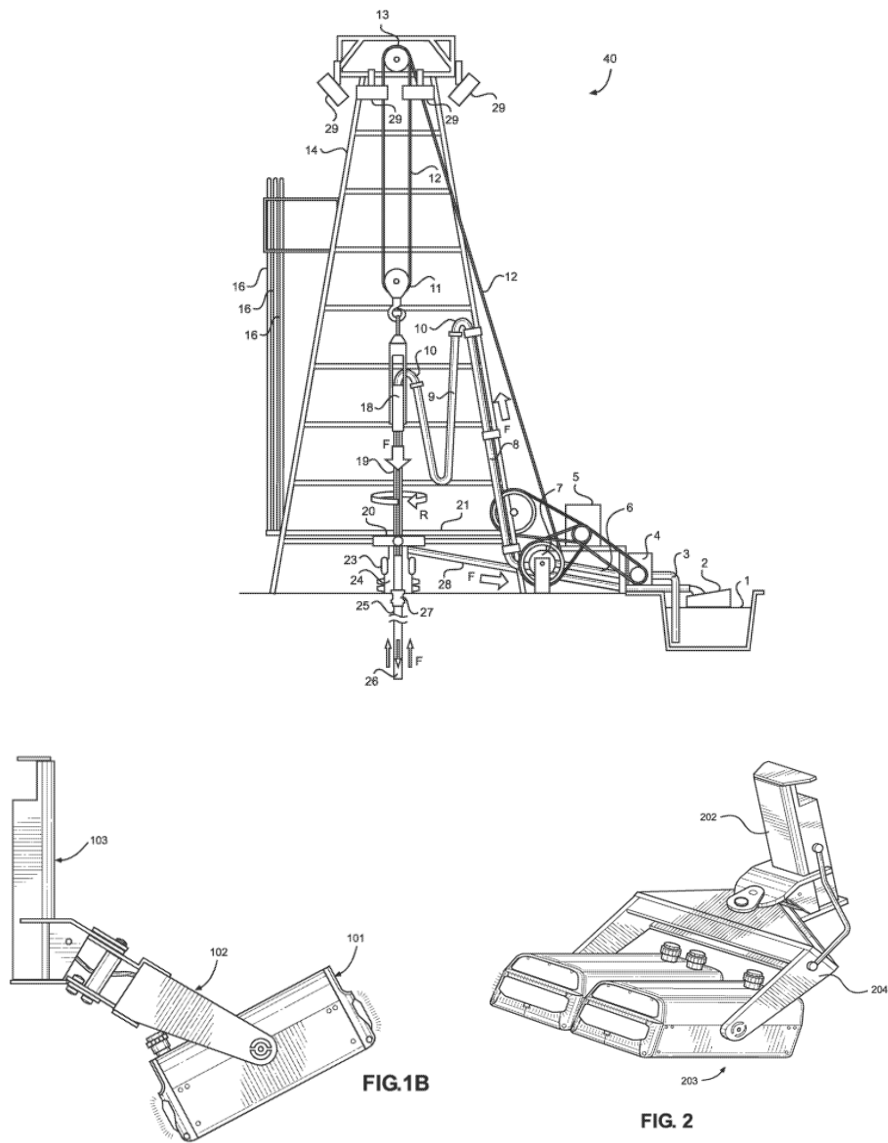
46. “The light fixture (101 and 203) as shown in this embodiment ... is held by a bracket (102 and 204).” *Id.* The bracket, in turn, is “connected to the crown directly through the light fixture attachment (103 and 202).” *Id.* The bracket further serves a function of “permit[ting] the light fixture to swivel both in a horizontal and vertical orientation.” *Id.*

B. Gowanlock does not disclose a “crown deck.”

47. Each of claims 1, 2, and 23 recite a “crown deck.” Under the agreed construction, the term “crown deck” means “a collection of structures within the crown that includes a walking surface, parts supporting the walking surface, and any associated handrail.” Pet. at 20. In my opinion, the Board appropriately determined in the Institution Decision that Gowanlock discloses no such thing. ID at 17.

48. In my view, none of Figures 1A, 1B, or 2 on which Petitioner relies discloses a “crown deck.” For example, Figure 1A (below) shows “a lighting system mounted on a drilling rig.” Ex. 1003 at [0012]. At most, Gowanlock discusses a “crown” and a “crown block 13” in connection with this figure. *Id.* at [0016]. A POSITA would understand a “crown” to mean a “collection of structures at the uppermost portion of a drilling rig,” Pet. 20, and a “crown block” to refer to the “assembly of sheaves or pulleys mounted on beams at the top of the derrick or mast over which a hoisting line is reeved.” Ex. 2024; *see also* Ex. 2023 (defining “Crown Block and Water Table” as “an assembly of sheaves or pulley mounted on beams at the top of the derrick”).

49. Figures 1B and 2 do not disclose a “crown deck” either. *See* Pet. 52-57. Instead, they disclose a “light fixture” (101, 203), a “bracket” (102, 204), and a “light fixture attachment” (103, 202). Ex. 1003 at [0013], [0014]. In my opinion, there is nothing in these figures that discloses a “crown deck.”



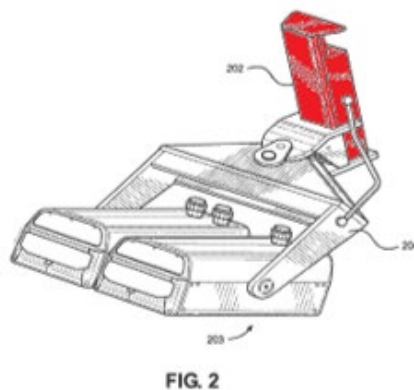
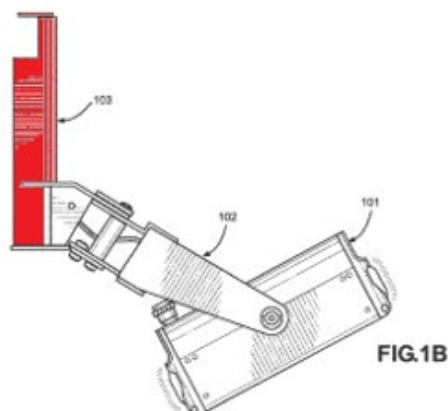
50. The Petition also cites paragraph 81 of Mr. Hamdan’s Declaration for purported support. Pet. 52-54. However, I found no technical reasoning or evidentiary support for Mr. Hamdan’s opinions; the paragraph simply recited the “summary chart” from the Petition. *Compare* Ex. 1008 ¶ 81, *with* Pet. 55-57. As I explained above, there is nothing in the reference that discloses—or even suggests—a “crown deck.”

C. Gowanlock does not disclose a “mounting pole.”

51. A POSITA would not find Gowanlock to disclose a “mounting pole” either.

52. *First*, citing Figures 1A, 1B, and 2, Petitioner contends “Gowanlock discloses a short mounting pole which it describes as a ‘light fixture attachment (103 and 202)’ in paragraph [0019].” Pet. at 52. However, a “light fixture attachment (103 and 202) is not a “mounting pole,” and Petitioner never provides an explanation to the contrary.

53. As shown in Figures 1B, 2, and 3 (below), Gowanlock’s “light fixture attachment” (red) is a short, singular component with a rectangular indentation at one end that hangs off the rig. Gowanlock discusses the “light fixture attachment” just once: “[a]nd in this embodiment, the light fixture is connected to the crown directly through the light fixture attachment (103 and 202).” Ex. 1003 at [0019]. In my opinion, a POSITA would not recognize such a structure as a “mounting pole” because it is explicitly referred to as an “attachment.”



54. **Second**, citing Mr. Hamdan’s Declaration, Petitioner asserts that “Gowanlock discloses a short mounting pole which it describes as a ‘light fixture attachment (103 and 202)’ in paragraph [0019].” Pet. 52. But again, Mr. Hamdan repeats the Petition’s “summary chart” for the “mounting pole” limitations. Ex. 1008 ¶ 81. Mr. Hamdan offers no analysis or evidence beyond the following statement: “FIGS. 1A, 1B, and 2 above show a mounting pole for light fixtures 29. For example see 202 in Figure 1B.” *Id.*

55. **Third**, Mr. Hamdan admitted at deposition that he “wouldn’t say [Gowanlock] literally discloses a mounting pole.” Ex. 2012 at 104:20-21. Instead, changing course from his declaration, Mr. Hamdan testified that Gowanlock “inherently and visually discloses a mounting pole.” *Id.* at 105:4-7. In my opinion, the Board should reject Mr. Hamdan’s contradicting opinions.

56. Mr. Hamdan did not opine in his declaration that Gowanlock inherently discloses a “mounting pole.”

57. When asked for his understanding of what an “inherent disclosure” is, Mr. Hamdan indicated it meant “obvious or implied or common,” and he confirmed that was the understanding he applied in rendering his opinions in this case. *Id.* at 95:20-21. However, the standard for inherency provided to me by Patent Owner’s counsel requires that an element is necessarily present in the prior art reference.

58. Mr. Hamdan testified that paragraphs 84 and 85 of his declaration

provide the basis for his opinion that Gowanlock inherently discloses a “mounting pole.” Ex. 2012 at 105:16-17. But those paragraphs say nothing about Gowanlock inherently disclosing a “mounting pole.”

59. In my opinion, regardless of whether express or inherent, a POSITA would not consider Gowanlock’s “light fixture attachment” to be a “mounting pole” as claimed. As I explained above, a POSITA would understand Gowanlock to teach *away* from the use of a “mounting pole” because it expressly (and only) uses the “light fixture attachment” for an underslung connection directly to the crown. There would be no reason for a POSITA to consider this reference when dealing with a mounting pole attached to handrails on the crown deck.

D. Gowanlock does not disclose “a bracket configured to attach the mounting pole to the crown deck of the rig.”

60. A POSITA would not interpret Gowanlock to disclose a “bracket configured to attach the mounting pole to the crown deck of the rig.”

61. Petitioner contends “Gowanlock discloses a bracket (102 and 204) configured to attach the mounting pole to the crown deck of the rig,” citing Figures 1A, 1B, and 2 in support. Pet. 52. In my opinion, this is wrong for at least three, key, reasons:

62. **First**, as I explained above, Gowanlock does not disclose a “crown deck.” As such, Gowanlock cannot disclose “a bracket configured to attach the mounting pole to *the crown deck* of the rig,” as the claims require.

63. **Second**, I also explained above that Gowanlock does not disclose a “mounting pole.” As such, Gowanlock cannot disclose “a bracket configured to attach the *mounting pole* to the crown deck of the rig,” as the claims require.

64. **Third**, bracket 102 and 204 in Gowanlock’s Figures 1B and 2 is not “configured to attach the mounting pole to the crown deck of the rig.” *See* Ex. 1003 at [0019]. Gowanlock explains: “[t]he light fixture (101 and 203) as shown in this embodiment also in Figure 1B and in perspective view in Figure 2 is held by a bracket (102 and 204) which permits the light fixture to swivel both in a horizontal and vertical orientation.” Ex. 1003 at [0019]. The “bracket (102 and 204)” attaches the light to the “light fixture attachment” but not to anything else, let alone a crown deck. *Id.* This configuration with a “bracket” (green) is also shown in Figures 1B and 2 below. Thus, a POSITA would recognize that Gowanlock’s “bracket” is not “configured to attach the mounting pole to the crown deck of the rig” because it is explicitly configured to attach a *light fixture* directly to the *light fixture attachment*.

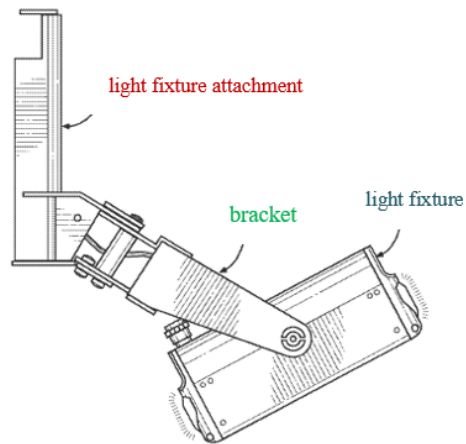


FIG. 1B

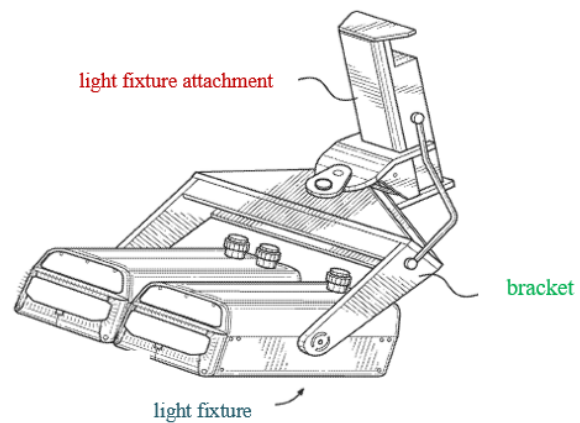


FIG. 2

Ex. 1003 at Figs. 1B, 2 (annotated).

65. Petitioner's citation to the expert declaration fares no better, as I noted previously for other limitations, Mr. Hamdan repeats the Petition's "summary chart," and fails to identify where Gowanlock discloses the limitation or provide any technical reasoning or other evidentiary support. Pet. 52; Ex. 1008 ¶ 81.

66. In my opinion, Petitioner's "summary chart" does not compel a different result either. As shown below, the statements after the citation to Gowanlock's [0019] are not statements from [0019] at all, but rather *Petitioner's* desired manifestation passed off as quotes from Gowanlock. Based on my review of the reference, the words "crown deck," "deck," "mounting pole," "pole," and "handrail" do not appear anywhere in Gowanlock.

Pet. 57	Ex. 1003 at [0019] (in relevant part)
"[0019] The light fixture (101 and 203) as shown in this embodiment also in Figure 1B and in perspective view in Figure 2 is held by a bracket (102 and	"[0019] ... The light fixture (101 and 203) as shown in this embodiment also in Figure 1B and in perspective view in Figure 2 is held by a bracket (102 and

204) which permits the light fixture to swivel both in a horizontal and vertical orientation. The brackets and mounting poles also allow mounting or affixing the lights to differently configured, designed, or configured crown decks, including handrails.”	204) which permits the light fixture to swivel both in a horizontal and vertical orientation. And in this embodiment, the light fixture is connected to the crown directly through the light fixture attachment (103 and 202). ...”
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Compare Pet. 57, and Ex. 1008 at pp. 52-53, with Ex. 1003 at [0019].

67. Thus, I believe the Board reached the correct conclusion in its Institution Decision when it did not find this limitation to be disclosed. ID at 17.

E. Gowanlock does not disclose “the bracket is connected to the crown deck of the rig using bolts.”

68. In my opinion, Gowanlock does not disclose that “the bracket is connected to the crown deck of the rig using bolts,” as claim 2 requires.

69. Knowing Gowanlock does not literally disclose any bolts (let alone bolts connecting “the bracket” “to the crown deck of the rig”), Petitioner asserts “Gowanlock discloses a bracket (102 and 204) which is inherently connected to the crown deck of the rig using bolts.” Pet. 53; *see id.* at 57 (“FIGs. 1B and 2 above inherently employ bolts to connect the bracket to the crown deck.”); Ex. 2012 at 119:2-7 (“Q. Is it your opinion that figures 1B and 2 inherently show bolts employed to connect the bracket to the crown deck or literally shows bolts employed to connect the bracket to the crown deck? A. Inherently shows bolts.”), 120:16-19 (“Q. ... Gowanlock does not literally disclose a bracket connected to the crown deck of the rig using bolts, correct? A. Literally, no.”).

70. Under the standard explained to me by Patent Owner’s counsel, for an inherent disclosure, the missing characteristic must be necessarily present, or inherent, in the single anticipating reference. Yet, Petitioner does not—and cannot—point to any disclosure in Gowanlock indicating that the bolts are necessarily used. *See* Pet. 53, 57. In my opinion, a POSITA would recognize that the underslung lights of Gowanlock don’t have to be attached to the crown with bolts. The same functionality can be achieved by using, for example, rivets, screws, pins, clamps, or by welding or gluing the light fixture attachments to the crown.

71. The Board correctly determined in “Petitioner has not demonstrated the Gowanlock’s bracket is connected to the crown deck using bolts, or that bolts are necessarily present in Gowanlock’s structure.” ID at 18. Petitioner does not and cannot show evidence to the contrary.

VII. GOWANLOCK IN VIEW OF SWIVELPOLE DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

72. In my opinion, Petitioner has failed to show that Gowanlock in view of Swivelpole renders claims 1, 2, or 23 obvious.

A. Swivelpole Overview

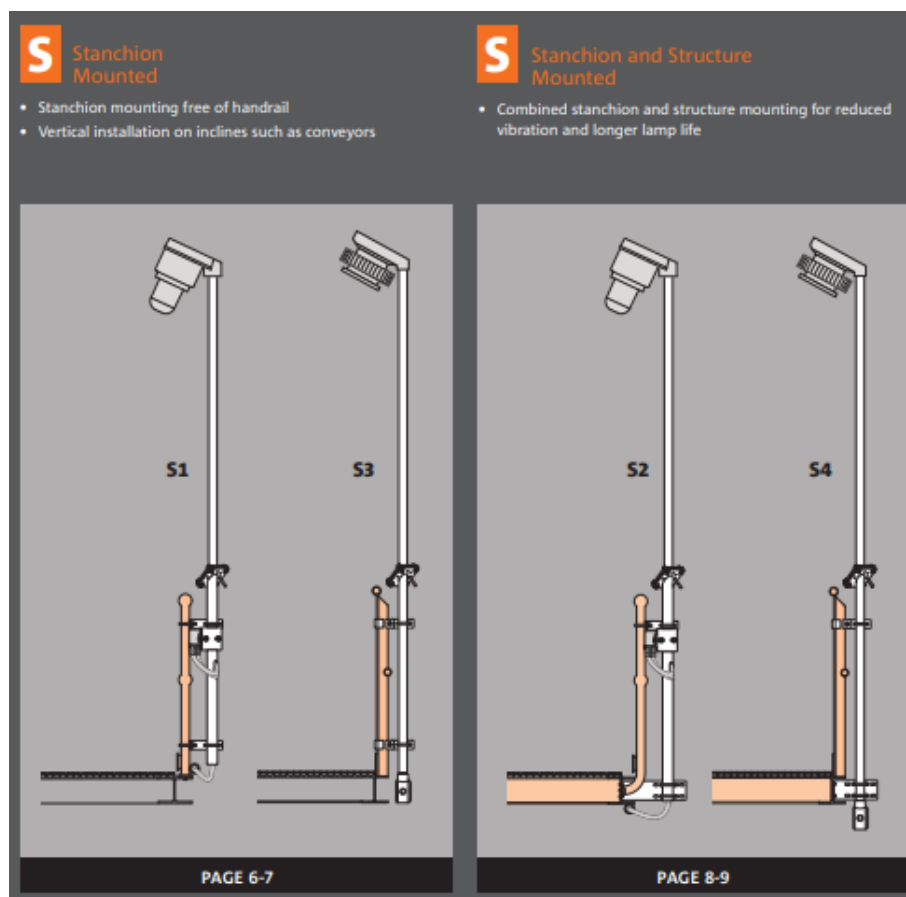
73. A POSITA would recognize the Swivelpole Catalog (“Swivelpole”) to disclose a lighting system, the “core” of which “is its unique [] swivel mechanism.” Ex. 1004 at 4. Its “swivel mechanism lets you lower – and rotate – a light fitting to a safe working level in minutes” without “ladders,” “scaffolding,” or “fall arrest

systems.” *Id.* at 2. This mechanism “[a]llows one-person” to “control[] lowering of the pole top section and luminaire.” Ex. 1004 at 4. I find this ease of installation and versatility to be the front-and-center of the Swivelpole catalog.

74. Mr. Hamdan also confirmed Swivelpole’s “main feature” being “advertis[ed]” and “emphasize[d]” in the catalog is its swivel mechanism that allows the light to be lowered and rotated. Ex. 2012 at 306:7, 310:11-17. He further admitted that the swivel mechanism is what distinguishes Swivelpole from a flagpole “[o]r just a regular light pole.” *Id.* at 306:7-24. As such, in Mr. Hamdan’s view, if Swivelpole did not have the swivel mechanism, it would not be an effective product in the market. *Id.* at 309:17-22.



Id. at 3.



75. Here, Petitioner specifically identifies the S1 and S3 products, as shown above. Pet. at 25, 67; *see also* Ex. 1008 at ¶¶ 77, 83. Applications for the Swivelpole products include “[w]alkway lighting, platforms, stairways, spiral stairways, conveyors.” Ex. 1004 at 6; *see also id.* at 8 (“[i]deal for area lighting along industrial walkways, platforms, stairways, spiral stairways”), 9 (same and adding “roof tops”) For this purpose, they employ small, low-power “LED” and “Well Glass” lights. *Id.* at 9-11. The figures labeled S1 and S2 in the figure above illustrate “Well Glass” lights, and the figures labeled S3 and S4 illustrate small “LED” lights. The systems can withstand luminaires with a maximum weight of 44 lbs. Ex. 1004 at 5. And

“[s]ite engineers” are “responsible for determining the relevant design criteria, including design wind speed.” *Id.*

B. The references do not disclose a “crown deck.”

76. As I explained above in connection with Ground 1, Petitioner has not demonstrated that Gowanlock discloses a “crown deck.” For Ground 2, Petitioner reuses the same arguments for “crown deck” as in Ground 1. Pet. 58-59, 63, 65-69.

77. In my opinion, Swivelpole does not disclose a “crown deck” either.¹ Indeed, Mr. Hamdan admits Swivelpole “doesn’t literally disclose a crown deck.”

¹ Citing pages 26 through 27 of Patent Owner’s Preliminary Response, the Board incorrectly stated that, “[l]ater in its Preliminary Response, Patent Owner later acknowledges that Petitioner identifies a crown deck in Swivelpole.” ID at 27 (citing Paper 6 at 26-27). Nowhere on pages 26 through 27 (or elsewhere) of the Preliminary Response does Patent Owner “acknowledge[] that Petitioner identifies a crown deck in Swivelpole.” Instead, Patent Owner maintained that (1) Swivelpole does not disclose a “crown deck,” and (2) Petitioner failed to show otherwise. *See, e.g.*, Paper 6 at 23 (“Neither Petitioner nor its expert ever identify any alleged ‘crown deck’ in Swivelpole. Nor could they.”), 27 (“A ‘crown deck’ is a specific structure disclosed in neither Gowanlock nor Swivelpole.”).

Ex. 2012 at 122:6-7. He also admits Swivelpole does not “specifically disclose a pole that is attached to the handrail of a crown deck.” *Id.* at 122:10-18.

78. Instead, in Mr. Hamdan’s view, Swivelpole “literally discloses a pole that could be mounted to a handrail of a deck.” *Id.* at 122:5-9 (“A. It literally discloses a crown deck? A. It ***doesn’t literally disclose a crown deck***, but it literally discloses a pole that ***could be*** mounted to a handrail of a deck.”). I believe Mr. Hamdan’s opinion is incorrect and should not be considered to for two reasons.

79. ***First***, Mr. Hamdan speculates about the possibility of installing Swivelpole’s products on the crown deck. There is no evidence of their compatibility.

80. ***Second***, and relatedly, “a handrail of a deck” is not the same as a “crown deck.” A POSITA would recognize that a “deck” is not the same as a “crown deck” and a “handrail of a deck” is not the same as the handrail of a crown deck. Crown decks are built hundreds of feet in the air and are subject to a wide range of harsh weather conditions, including strong winds, rapid changes in wind direction, oil rig sway, and vibrations. All of these, as well as the obvious threat of lighting strike hazards, are to be considered when one designs a crown deck. Even Mr. Hamdan admitted to this during his deposition. Ex. 2012 at 59:17-21 (admitting that all walking surfaces for an oil site are not necessarily walking surfaces of a crown deck), *id.* at 143:25-144:3 (admitting that none of the walking surfaces discussed in Exhibit

3 to deposition are crown decks), *id.* at 132:25-133:6 (admitting that not all handrails associated with a rig are handrails of a crown deck). A reference to a generic “deck” does not make it obvious for a POSITA that Swivelpole’s products would be suitable in these kinds of conditions.

81. Although Swivelpole also discusses applications including “[w]alkway lighting, platforms, stairways, spiral stairways, conveyors,” Ex. 1004 at 6, it never discloses a “crown deck,” the walking surface of a crown deck, or its associated handrail, as the term’s construction requires. For the same reasons as described above in connection with the use of a device on a generic “deck,” a POSITA would not have found it obvious that a lighting system employed to illuminate walkways, platforms, stairways, spiral stairways, and conveyors would be suitable for applications on a “crown deck.”

82. Petitioner further contends that “[a] POSITA would readily employ the lights, mounting poles, and brackets shown in the Swivelpole catalog above to separately attach a plurality of light units to a crown deck or a hand railing, i.e., guard rail, around the crown deck.” Pet. 66-67. But the figures on Swivelpole’s page 6 to which Petitioner points do not show a “crown deck,” or a lighting system that a POSITA would “readily” recognize as suitable for a “crown deck,” and neither Petitioner nor Mr. Hamdan identify anything to the contrary. Ex. 1004 at 6.

83. As explained previously, a POSITA would not understand the use of Swivelpole on a general walkway, platform, or stairway to disclose the use on a “crown deck.” At the very least, Swivelpole has low-power light fixtures designed to illuminate an area only 8-10 feet immediately beneath the lights, such as the area around a person’s feet on a sidewalk or low platform. Swivelpole also uses a slender, low-strength pole. A POSITA would recognize that such components would not be acceptable for lighting a well site from the crown deck 100+ feet away where the components would be subject to crown deck’s harsh environment.

84. According to the Board, “[p]age three of Swivelpole includes a photograph depicting a walking surface, parts supporting the walking surface, and a handrail, and the same structures are depicted in the drawings of the ‘Stanchion Mounted’ and ‘Stanchion and Structure Mounted’ options on page six of Swivelpole.” ID at 30. From this, the Board concluded “Petitioner makes a sufficient showing that Swivelpole in combination with Gowanlock teaches a crown deck.” *Id.*

85. While the board gave credence to this ground, in my opinion, the Board misapprehended the purported evidence in the Petition. Pages 3 and 6 do not show a “crown deck,” which is construed as “a collection of structures within the crown that includes a walking surface, parts supporting the walking surface, and any associated handrail.” Ex. 1009 at 17; ID at 8. More so, when making this finding,

the Board did not have the benefit of Mr. Hamdan's later admissions that showing a general walking surface with a handrail is not the same as showing the crown deck's walking surface or the associated handrail. Ex. 2012 at 143:25-144:3 (admitting that not all walking surfaces associated with a rig are walking surfaces of a crown deck); *id.* at 132:25-133:6 (admitting that there can be handrails associated with a rig that are not handrails of a crown deck).

86. Here, changing the Swivelpole's application from general walking surfaces or handrails to a "crown deck" would require a complete change to its structure and principles of operation. For example, low power lamps that light a small area on the ground have lower weight than high power light fixtures needed at the crown deck of a derrick. Heavier light fixtures that are exposed to additional external loads such as wind and vibrations at a crown deck require brackets and connections that are substantially stronger than those of Swivelpole's product.

87. In fact, even Mr. Hamdan admitted that, in the combined Gowanlock-Swivelpole system, he "probably wouldn't use [Swivelpole's] swivel joint." Ex. 2012 at 292:21-293:5. He could not "think of any value off the top of [his] head" that the swivel joint would provide in a lighting system connected to a crown deck. *Id.* at 294:18-20. He explained there would be no need for the swivel joint for someone to access the light. *Id.* at 290:13-20. Although that may be beneficial for applications "[a]ll over the backyard of the buildings" or at locations having "lower

heights” so that raising the Swivelpole’s light would illuminate the “lower height” walking surface (i.e., where people are walking underneath it), it would not be beneficial for a lighting system attached to a crown deck that is intended to illuminate the ground of the wellsite beneath the rig. *Id.* at 290:21-291:9.

C. The Gowanlock-Swivelpole combination of does not disclose a “mounting pole.”

88. For the reasons I discussed above in connection with Ground 1, which are incorporated here, a POSITA would not find Gowanlock to disclose a “mounting pole.” The Gowanlock-Swivelpole combination for Ground 2 fares no better.

89. In my opinion, Swivelpole does not disclose the “mounting pole” required by the claims. A POSTA would recognize from the claims’ plain language that the mounting pole must be attached to the crown deck. Given the harsh environmental conditions I outlined previously, a POSITA would have recognized that Swivelpole’s long, slender pole with a swivel joint would be prone to snapping in half atop a crown deck, rendering it unsafe for such a purpose.

D. The combination does not disclose “a bracket configured to attach the mounting pole to the crown deck of the rig.”

90. As I explained above in connection with Ground 1, Petitioner fails to show that Gowanlock discloses “a bracket configured to attach the mounting pole to the crown deck of the rig.”

91. Petitioner alleges that if “Gowanlock is asserted to somehow be missing this limitation, it was common knowledge and/or well-known by POSITA to use a bracket to attach a mounting pole to a crown deck (or anything else) as is described and/or shown throughout the Swivelpole catalog.” Pet. 61; *id.* (same for claim 2 but adding “using bolts”).

92. But neither Petitioner nor its expert identify “a bracket configured to attach the mounting pole to the crown deck of the rig,” as required. Instead, Petitioner relies on Mr. Hamdan’s declaration—a copy of the Petition’s “summary chart.” *Compare* Pet. 65-69, with Ex. 1008 at ¶83. In the summary chart, Petitioner and Mr. Hamdan contend that Swivelpole “shows a bracket configured to attach the mounting pole to the crown deck or a hand railing, i.e., guard rail, around the crown deck.” Pet. 68; Ex. 1008 at pp. 57. But, neither Petitioner nor Mr. Hamdan identify “a bracket configured to attach the mounting pole to the crown deck of the rig” as claimed. Pet. 65-69; Ex. 1008, ¶ 83.

93. Even if Swivelpole disclosed a bracket attached to a handrail of some sort, a POSITA would recognize that such a bracket is not “***configured to attach*** the mounting pole ***to the crown deck*** of the rig.” As I explained previously, Petitioner overlooks that a “crown deck” is not just any structure with a walking surface or a handrail. *See supra* Section VII(B) at ¶¶ 80-87.

94. Indeed, a POSITA would never use any Swivelpole bracket to “attach the mounting pole to the crown deck of the rig” because it would not be assumed to withstand the rigors of the environment at the top of the rig. There are critical, meaningful differences between the mounting kits for the Swivelpole products and the claimed bracket. For example, crown decks experience significant vibrations and sway when the rig is drilling or being operated. Crown decks are also subject to high winds and other weather elements, including a risk of lightning strikes. and sudden, drastic changes in wind pressure, let alone constant exposure to other elements. A general “mounting kit” to attach a Swivelpole product to some undisclosed stanchion or structure for general walkways, platforms, or stairways is not the same as “a bracket configured to attach the mounting pole to the crown deck of the rig.”

95. Further, although Mr. Hamdan opines that “[a] POSITA would readily employ the lights, mounting poles, and brackets shown in the Swivelpole catalog [] to separately attach a plurality of light units to a crown deck” (Ex. 1008 at ¶ 83), he admitted that he “[w]ouldn’t use any of the brackets” in either of Gowanlock or Swivelpole and instead “would use something similar.” Ex. 2012. at 279:11-18. When further asked whether he would use Gowanlock’s brackets 102 and 204 (which do not disclose the claimed bracket limitation as discussed *supra* in Section VI(D)) in the combined system, he testified that he “can’t say whether [he] would

use the brackets since [he] do[es]n't have any – any technical information on the bracket regarding the material and thickness and strengths.” *Id.* at 270:19-271:1.

96. Beyond admitting that he “[w]ouldn’t use any of the brackets” in either of Gowanlock or Swivelpole and instead “would use something similar,” Ex. 2012 at 279:11-18, he never explains how Swivelpole’s alleged “brackets” would be combined with any of Gowanlock’s components, *id.* at 233:16-234:8 (admitting that he does not specifically explain in his declaration how Swivelpole’s alleged “brackets” would be combined with any of Gowanlock’s components). Mr. Hamdan further admitted that he would want to assess the risk associated with use of any mounting components before approving it for use on a crown deck, including “what could fail on this component” and “what’s the potential consequences of that failure.” Ex. 2012 at 255:12-16.

97. In contrast to Mr. Hamdan, I reviewed the “mounting kits” discussed in the Swivelpole catalog and the Swivelpole products that these kits would purportedly mount. A POSITA would not have used the “mounting kits” because the Swivelpole catalog indicates their intended purpose is to secure lightweight poles to illuminate the area along generic walkways. As explained above, crown decks and the accompanying high power lighting systems are vastly different from generic walkways because they are subject to severe weather conditions, oil rig sway, and vibrations. These kits were never intended to be subjected to such stress. Even if,

against all odds, one were to attempt using them, a POSITA would have had to perform substantial redesign, computational analysis, and testing to ensure such a kit would be suitable for mounting heavy lights onto a crown deck.

E. The combination does not disclose a “bracket [] connected to the crown deck of the rig using bolts.”

98. As I explained above in connection with Ground 1, Gowanlock does not disclose “the bracket” that “is connected to the crown deck of the rig using bolts” as claim 2 requires.

99. In my opinion, a POSITA would recognize that Swivelpole does not disclose this limitation either. Despite stating that “[t]he Swivelpole catalog figure above shows a bracket that *may be* connected to the crown deck or a hand railing, i.e., a guard rail, around the crown deck using bolts,” Petitioner fails to identify the alleged “bracket,” let alone “bolts” that connect it to the crown deck of the rig, as required by claim 2. Pet. 68; *id.* at 61; Ex. 1008 at p. 58 (same).

100. Assuming the “figure above” refers to the Swivelpole image appearing on page 67 of the Petition (reproduced from Swivelpole’s page 6), that figure purports to show “Stanchion Mounted” and “Stanchion and Structure Mounted” products for “[w]alkway lighting, platforms, stairways, spiral stairways, conveyors.” Ex. 1004 at 6. But nowhere does Petitioner or its expert identify the “bracket” of claim 1 that “is *connected to the crown deck of the rig using bolts*” as required by claim 2. As I explained previously, Swivelpole does not disclose “the crown deck

of a rig,” nor does it disclose a “bracket” or “bolts” that Petitioner could conceivably identify.

101. To the extent Petitioner points to any alleged brackets or bolts purportedly appearing in Swivelpole in connection with a general walking surface or a general handrail, Mr. Hamdan admitted that identifying such general surfaces or handrails does not equate to identification of a “crown deck” specifically. Ex. 2012 at 59:17-21 (admitting that all walking surfaces for an oil site are not necessary walking surfaces of a crown deck), *id.* at 143:25-144:3 (admitting that none of the walking surfaces discussed in Exhibit 3 to deposition are crown decks), *id.* at 132:25-133:6 (admitting that not all handrails associated with a rig are handrails of a crown deck).

102. In fact, beyond admitting that he “[w]ouldn’t use any of the brackets” in either of Gowanlock or Swivelpole and instead “would use something similar,” Ex. 2012 at 279:11-18, Mr. Hamdan admitted that he does not identify the alleged bolts he would use in the combined Gowanlock and Swivelpole system, he would need to “size the bolts according to the analysis that you do,” and he would not use any bolts allegedly disclosed in either Gowanlock or Swivelpole for the combined system. *Id.* at 300:4-5.

103. Finally, Petitioner also contends that “bolts are a well-known attachment mechanism for use with brackets.” Pet. 57. I note that, even if bolts or

brackets were known in isolation, the claim does not recite “bolts” or “brackets” generally; instead, it requires that “the bracket is connected to the crown deck of the rig using bolts.” Neither Petitioner nor Mr. Hamdan identify any such bolts or brackets for the Gowanlock-Swivelpole combination. In my view, a POSITA would understand that brackets could be connected to a structure by other means such as welds, bonds, clamps, screws, pins, threads, among others.

F. A POSITA would not have been motivated to combine the references with a reasonable expectation of success.

104. As I explained in detail above, Petitioner has not shown that Gowanlock and Swivelpole teach or suggest all of the limitations in claims 1, 2, and 23. However, even if the Board finds that Petitioner met its burden to show that Gowanlock and Swivelpole disclose all limitations, a POSITA would not be motivated to combine the references with a reasonable expectation of success. There are several reasons for this.

i. There is no motivation to combine Gowanlock and Swivelpole with a reasonable expectation of success.

105. Petitioner argues that “[a] POSITA would readily know to combine the mounting poles and brackets shown in the Swivelpole catalog with the method to separately attach a plurality of light units to a crown deck or a hand railing, i.e., guard rail, around the crown deck as taught by Gowanlock.” Pet. at 34; Ex. 1008, ¶ 84; Ex. 2012 at 233:6-15 (confirming that the specific combination of Gowanlock

and Swivelpole on which Mr. Hamdan bases his obviousness opinions would include (i) Swivelpole's mounting poles and brackets, and (ii) Gowanlock's method to separately attach a plurality of light units to a crown deck or hand railing).

106. Yet, as I outlined in Sections VI(B) and VII(B), neither Gowanlock nor Swivelpole discloses a "crown deck," or even a handrail associated with one. There can be no motivation to combine *based on* a POSITA's alleged desire "to separately attach a plurality of light units to a crown deck or hand railing, i.e., guard rail, around the crown deck as taught by Gowanlock." Pet. at 34; Ex. 1008 at ¶ 84. In the combined system, a POSITA would either use the Swivelpole on a general walkway or stairway around the wellsite as Swivelpole discloses, in which case none of the teachings of Gowanlock would be relevant or maintained. Or the Swivelpole would be used with Gowanlock's system at the *crown*, as Gowanlock does not teach a *crown deck*.

107. To explain why a POSITA would allegedly make this combination, Petitioner argues that "a POSITA would combine the references for the obvious and predictable result of placing or improving modular lighting on a crown deck," specifically suggesting that "a POSITA would readily attach lights as shown in Gowanlock to a Swivelpole mounting pole on a crown deck and/or handrail because the Swivelpole, which swivels from a point on a pole, would make the lights more accessible and easier to adjust." Pet. 34 (citing Ex. 1008, ¶ 85). I disagree.

108. Starting with Gowanlock, Petitioner did not identify any reason a POSITA would want to change the Gowanlock “light fixture attachment” to an alleged Swivelpole pole or alleged Swivelpole bracket. *See* Pet. 33-38; Ex. 1008, ¶¶ 83-91.

109. In my view, Petitioner does not acknowledge that Gowanlock’s “light fixture attachment” is a critical aspect of Gowanlock, as the “light fixture attachment (103 and 202)” attaches the light to the crown and brackets (102 and 204), which are located between the “light fixture attachment” and the “light fixture,” allowing “the light fixture to swivel both in a horizontal and vertical orientation.” Ex. 1003 ¶ 19. Petitioner offers no explanation for how including Swivelpole’s alleged poles is compatible with Gowanlock’s system or how Swivelpole’s alleged poles have adequate strength. They are not compatible, and Petitioner offers no modification that removes Gowanlock’s lights or its means of attaching the system to the crown.

110. Gowanlock discloses a system whereby “the light fixture is connected to the crown directly through the light fixture attachment (102 and 202).” Ex. 1003 at [0019]; *see also id.* [0008]. As shown in Gowanlock’s Figures 1B, 2, and 3, the “light fixture attachment” is a short, singular component with a rectangular indentation at one end that hands off of the rig.

111. In my opinion, it would fundamentally alter Gowanlock’s intended purpose to combine (i) Gowanlock’s method of using a light fixture attachment (102

and 202)—a short, singular component—to attach a light fixture directly to the crown, thereby keeping the Gowanlock system’s center of gravity close to the rig, with (ii) Swivelpole’s long, slender pole with swivel joint allowing it to snap in half. For example, the Swivelpole products have an installed height of 8 or 10 feet from a “walkway” level. Ex. 1004 at 8-11. And its “swivel mechanism lets you lower – and rotate – a light fitting to a safe working level in minutes” without “ladders,” “scaffolding,” or “fall arrest systems.” *Id.* at 2. As such, using Swivelpole’s long, slender pole with swivel joint would both (i) extend the center of gravity further away from the rig, and (ii) introduce a new (and unnecessary) potential point of failure at the swivel joint.

112. Indeed, for the proposed combination, Mr. Hamdan admits that he would gut the very essence of Gowanlock. He admitted that he “wouldn’t use [item] 202” because it “would have been replaced with the Swivelpole, if you were to combine the two.” Ex. 2012 at 270:4-7. He explained that he “likely wouldn’t use 202 or even anything that looks like 202 because its function is not necessary anymore, as that part of the fixture or bracket is intended to affix the light fixture and bracket to the crown.” *Id.* at 272:21-273:3.

113. Petitioner also fails to identify any reason a POSITA would want to add Swivelpole’s bracket to the Gowanlock system. Gowanlock’s system already uses “a bracket (102 and 204), which permit the light fixture [101 and 203] to swivel in

both a horizontal and vertical orientation.” ID at 13; Ex. 1003 at [0019]. And it is “through the light fixture attachment (103 and 202)” that “the light fixture is connected to the crown.” Ex. 1003 at [0019]. Swivelpole’s function of swiveling, which is designed to snap the poles to a perpendicular angle for installation, adjustment and maintenance of the light fixtures, Ex. 1004 at 4, is unnecessary to Gowanlock’s system, and it would do little more than add unwanted cost and complexity to the system.

114. If anything, a POSITA would not be motivated to use the Swivelpole product with its swivel joint and “mounting kit” on a crown or crown deck because it would increase the “DROPS” risk, and it would be unacceptable to customers without stringent design evaluation and testing. Combining or modifying Gowanlock and Swivelpole as Petitioner suggests would increase the risk of both static dropped objects (object that falls due to gravity without application of external force (e.g., corroded scaffolding)) and dynamic dropped objects (object that falls due to being acted upon by applied force (e.g., cement bag knocked over by forklift)). Moreover, secondary containment as discussed in Gowanlock for the light fixture only would not remedy the DROPS risk associated with the Swivelpole that introduces a swivel hinge that can operate as an additional point of failure in the combined/modified system that Petitioner proposes. Specifically, should the swivel hinge fail as it is subjected to the harsh environment at the top of the rig and wear

and tear from operation, it is not only the light fixture itself that may fall but also the top portion of the pole, as well as all of the components required to make the swivel joint function as intended. And, as Mr. Hamdan admits, “[t]he heavier” a system gets, “the more parts they have,” and “[y]ou are just adding more potential for DROPS situations.” Ex. 2012 at 179:11-15.

115. Turning to Swivelpole, I believe Petitioner did not identify any valid reason a POSITA would want to use the Swivelpole’s alleged pole (of relatively low power and strength) or its alleged bracket with Gowanlock’s higher-powered and more durable system to result in the claimed invention. *See* Pet. 33-38; Ex. 1008, ¶¶ 83-91.

116. For example, neither Petitioner nor its expert acknowledge that the swivel joint in Swivelpole is a critical aspect of the Swivelpole reference and provides the very essence of its intended purpose. *See* Pet. 33-38; Ex. 1008, ¶¶ 83-91. The “core” of Swivelpole “is its unique [] swivel mechanism.” Ex. 1004 at 4. Its “swivel mechanism lets you lower – and rotate – a light fitting to a safe working level in minutes” without “ladders,” “scaffolding,” or “fall arrest systems.” *Id.* at 2.

117. In fact, Mr. Hamdan admitted that the swivel joint, which allows the user to lower and rotate a light fitting to a safe level for maintenance, is the Swivelpole’s main feature. Ex. 2012 at 306:7-14 (confirming that the Swivelpole’s main feature is its swivel mechanism that allows the user to lower and rotate a light

fitting to a safe level in minutes); *id.* at 310:11-17 (confirming that Swivelpole's purpose is to add an additional feature to a mounting pole that allows the top portion to lower and rotate for maintenance of the light). It is the swivel mechanism that "[a]llows one-person" to "control[] lowering of the pole top section and luminaire." Ex. 1004 at 4.

118. Yet, a POSITA would be motivated to remove the Swivelpole swivel joint in the combined Gowanlock and Swivelpole system. Indeed, Mr. Hamdan admitted that he "probably wouldn't use their swivel joint" and it is "very likely" that he would remove the swivel joint feature. Ex. 2012 at 292:21-293:5. He explained that "the swivel joint allows you to bring the upper portion of the pole down to a lower height so you could maintain the light." *Id.* at 288:18-20. He further explained that if the lights of the system were "accessible...the way they are," then there would not be a need for the swivel joint mechanism. *Id.* at 290:10-12. That swivel joint mechanism would be more useful where a POSITA is seeking to illuminate a walkway immediately below the light versus seeking to illuminate the wellsite beneath the crown deck instead of the crown deck itself. *Id.* at 291:6-9. For this reason, he opined that, "[c]onventionally," you "probably wouldn't see" a Swivelpole on a crown deck. *Id.* at 292:3-4. Because persons "are not hanging out at the crown," and persons "are going up to the crown deck to perform very – you know, specific tasks," a Swivelpole with its swivel joint would not be useful versus

“a high traffic area” where “you are walking underneath it.” *Id.* at 192:6-15. And he admitted that he would not “want to be adding unnecessary weight.” *Id.* at 295:18-21; *id.* at 298:25-1 (explaining that “[a]ny weight you are going to add to the mast has to be checked”). To determine if there were ever a scenario where he would use the swivel joint on the Swivelpole in the combined Gowanlock and Swivelpole system, he would need to “do a thorough review and analysis on the pros and cons”—a review and analysis that he did not perform for this action. *Id.* at 293:18-20.

119. Similarly, a POSITA would understand that use of the Swivelpole with swivel joint would be non-sensical in the context of the combined Gowanlock and Swivelpole system. For example, the Gowanlock system is slung under the crown and attached via a “light fixture attachment.” Ex. 1003 at [0019]. Accordingly, as Mr. Hamdan admitted, in the Gowanlock system, you would “have to go work underneath the deck to be able to adjust” or do maintenance work on the lights. Ex. 2012 at 276:10-17. In my view, this would be impracticable, dangerous, and undesirable to a POSITA.

120. Gowanlock’s heavy under slung “light fixture attachment” and lights would render Swivelpole inoperable for its intended purpose. There would be no need to “lower – and rotate – a light fitting” as contemplated by Swivelpole if Swivelpole’s long slender pole is slung under the crown as shown in Gowanlock. In

this proposed combination, the maintenance worker would either be (i) *below* the combined system's "light fitting," whereby there would be no need lower, rotate, or otherwise swivel the light fitting so that the worker can reach it, or (ii) *above* the combined system's "light fitting," whereby the leverage required to raise (not "lower," as Swivelpole suggests) the "light fitting" so that the worker could reach it would increase the burden on the worker and diminish any efficiency that the system might otherwise purport to provide. And, in either event, means such as a ladder, scaffolding, and fall arrest system would be required—the use of which that Swivelpole is designed to avoid.

121. Moreover, a POSITA would not have a reasonable expectation in combining Gowanlock's heavy, underslung "light fixture attachment" with Swivelpole's long, slender pole because a POSITA would know the combination would result in an impractical and unsafe system. For example, any attempt to combine Gowanlock's "light fixture attachment" with Swivelpole's long, slender pole (which a POSITA would not be motivated to do for the reasons I outlined above) would require significant modifications to and re-engineering of support and connection types, materials, and other features and functionality that would likely affect the load bearing capacities of each element and the structural integrity of the system as a whole.

122. In addition, a POSITA would be deterred from combining Gowanlock and Swivelpole and would not have a reasonable expectation of success in doing so based on height of Swivelpole's alleged pole. As described above, the Swivelpole products have an installed height of 8 or 10 feet from a "walkway" level. Ex. 1004 at 8-11. A POSITA would understand that a long, slender pole extended at such height above the crown deck would not readily withstand the high winds and vibrations at the crown deck.

123. In summary, the two systems are incompatible. For example, a POSITA would not be motivated to combine the references or expect to have success in doing so because the combined system would result in a disproportionate weight distribution and would risk structural instability in the face of lateral loads from wind, vibrations from operation of the rig, and lightning strikes.

124. Beyond this incompatibility, a POSITA would not be motivated to combine or have a reasonable expectation of success in combining Gowanlock and Swivelpole because extending Gowanlock's "light fixture attachment" above the rig via Swivelpole's generic poles would likely create obstacles during the crown raise and lowering operations. For example, if Swivelpole's alleged pole is used as Petitioner contends, then the light at the top of the alleged pole would extend at least 8-10 feet above the crown deck. With such extension, the safest approach would be to remove the system during mast raising and lowering. As Mr. Hamdan admitted,

he would “never consider a light that had to be – we would never design a light that would have to be removed for transportation” or during “mast raising and lowering.” Ex. 2012 at 177:25-178:3. Reasons that he would never consider such a system include increased safety risk. *Id.* at 179:11-15.

125. There would also be additional increased safety risks associated with the proposed Gowanlock and Swivelpole system. For example, as discussed above, a POSITA would understand that combining or modifying Gowanlock and Swivelpole as Petitioner suggests would increase the risk of both static and dynamic dropped objects. The types of secondary containment discussed in the DROPS publications and Gowanlock would not remedy the risk given the introduction of Swivelpole’s swivel hinge and the increased weight of the combined system.

126. Moreover, Mr. Hamdan himself does not have any reasonable expectation of success, as he confirmed that there would be myriad analyses and considerations that he would have to take into account before approving any light system’s use on a crown deck—analysis and considerations that he did not address for the combined Gowanlock and Swivelpole system. Ex. 2012 at 344:9-19. As such, Mr. Hamden could not even identify what materials would be used in the combined system, the strength of any such materials, the wall thickness of any alleged pole to be used, the alleged bracket that would be used, or the alleged bolts that would be used. *Id.* at 241:10-13. He explained that “in engineering, if you’re

going to modify something, you are going to have to run analysis on it.” *Id.* at 241:11-13. He further explained that “[y]ou would have to create a drawing that’s analyzed and engineered, absolutely and approved and reviewed.” *Id.* at 242:15-17. Yet he did not do any of that here.

ii. Petitioner’s alleged motivations to combine are inaccurate and insufficient.

127. In my opinion, Petitioner’s alleged motivations to combine do not change the result.

128. ***First***, I believe it would not be “a simple combination of known elements to obtain predictable results” to “separately attach pole mounted lights with brackets attached to a crown deck or a hand railing around a crown deck,” as Petitioner contends. Pet. 35. Nor would a POSITA understand the proposed combination to be a “simple substitution of one known element (the Swivelpole catalog lights) for another (Gowanlock’s separately attached crown deck lights) to obtain predictable results.” *Id.*

129. Instead, combining or substituting elements from each of Swivelpole and Gowanlock would require modifications to and re-engineering of support and connection types, materials, and other features and functionality that would affect the load bearing capacities of each element and the structural integrity of the system as a whole. Specifically, a POSITA would not simply seek to adapt the ideas from Swivelpole to apply them to Gowanlock or vice versa because much engineering

effort would be required. For example, the significant increase in mechanical loads for heavy light fixtures and external forces such as wind and vibration at the top of a derrick would require engineering design work. The design process would include calculations, perhaps computer modeling, laboratory testing, and field testing to develop an initial design, evaluate preliminary designs, and revise designs.

130. One such factor to be evaluated is material, as selecting the proper material to be used and assessing its strength is a critical part of a POSITA's design process. Light duty systems can, and should, be made from relatively weak and less expensive material (e.g., plastic or low strength steel). That is not the type of materials that a POSITA would use for an application to be connected to a crown deck, as the system would need to be heavier duty and more structurally stable. Neither Petitioner nor its expert considered any of this.

131. Another factor that would need to be considered is the structural integrity of the alleged light fixture, bracket, connection, and pole to be used. All of this must be analyzed, and a POSITA would not expect the combined Swivelpole-Gowanlock system to pass evaluation. The analysis required (none of which Mr. Hamdan did) is accomplished through engineering calculations, computer modeling, laboratory testing, and field testing. Part of the structural analysis would evaluate the load bearing capacity of the bracket and connection, and of the pole and its attachment to the crown deck. Contrary to the suggestion of Petitioner and its expert,

a POSITA would not take the structural integrity of a Swivelpole product and simply expect it will work on a higher-weight light fixture mounted on a crown deck and exposed to wind and vibrations.

132. ***Second***, a POSITA would not be motivated to “combine the references for the obvious and predictable result of placing or improving modular lighting on a crown deck of a rig.” Pet. 34. Nor would a POSITA be motivated to combine the references based on “the use of known techniques (attaching lights with brackets and poles to a crown deck or a hand railing around a crown deck) to improve similar devices in the same way.” *Id.* at 35-36. Notably, Petitioner does not identify what result would be predictable of why any such combination would result in “improving modular lighting on a crown deck of a rig” or “improv[ing] similar devices in the same way.” *See* Pet. at 36; Ex. 1008 at ¶ 86. This is particularly problematic where neither Gowanlock nor Swivelpole disclose “modular lighting on a crown deck of a rig” or “attaching lights with brackets and poles to a crown deck or hand railing around a crown deck” for the reasons discussed above in Sections VI(B) and VII(B).

133. In fact, a POSITA would be concerned with keeping weight low, increasing ease of installation, ensuring an easy rig move, minimizing the overall number of components used, and maintaining the structural integrity of the system as a whole—none of which would result from combining Gowanlock and Swivelpole.

134. Consistent with this, Mr. Hamdan admitted that “you don’t want to be adding unnecessary weight” to the crown (Ex. 2012 at 295:18-21), and “we definitely want to avoid adding weight to the crown,” *id.* at 297:3-4. He admitted that to add weight “would require an analysis,” including “a mast-raining analysis” to determine “whether the weight is acceptable and it’s still within the factor of safety allowed,” “the stress analysis on the actual stem of the mast,” and “[t]he overturning moment calculations that we have to do as well with added weight.” *Id.* at 297:7-18. Put simply, “[a]ny weight you are going to add to the mast has to be checked.” *Id.* at 298:25-1. Again, Mr. Hamdan did none of this in forming his conclusory opinion that a POSITA would be motivated to use the Swivelpole’s alleged poles and alleged brackets.

135. **Third**, I note that a POSITA would not be motivated to combine Gowanlock and Swivelpole in the manner that Petitioner alleges where, as Petitioner contends, “the combination addresses the known problems (admitted in the Background of the ’016 patent) with certain types of rig lighting that used heavy frames that added weight and were potentially difficult to install because cranes were required.” Pet. 35; Ex. 1008 at ¶ 86. Petitioner similarly contends that a POSITA would be motivated to combine the references because it “addresses the known problems [] with certain types of rig lighting that used heavy frames that added

weight and were potentially difficult to install because cranes were require.” Pet. 35; Ex. 1008 at ¶ 86.

136. The ’016 Patent discusses problems with the prior art systems included (i) weight of the system; (ii) the requirement to use cranes and multiple workers for installation, removal and adjustment; (iii) the requirement to remove the system before moving the derrick; and (iv) the increase in safety risk associated with the increased time required to be spent on maintaining the system. But the proposed combination of Gowanlock and Swivelpole would not address these problems and, if anything, exacerbate them.

137. Regarding the weight of the system, combining Gowanlock and Swivelpole would result would result in the additional weight of Gowanlock’s heavy lights and/or block-like “light fixture attachment” to be attached to the crown deck (which neither reference discloses) via the long, slender Swivelpole, which would create a disproportionate weight distribution and would risk structural instability in the face of the environment at the top of the rig. As Mr. Hamdan also admitted, “you don’t want to be adding unnecessary weight” to the crown (Ex. 2012 at 295:18-21), and “we definitely want to avoid adding weight to the crown,” *id.* at 297:3-4.

138. Regarding the use of equipment and multiple workers for installation, removal, and adjustment, that problem is unlikely to be resolved by the system resulting from the combination of Gowanlock and Swivelpole. For example, more

than one worker would likely be required for installation and maintenance of the resulting system. As another example, installation and maintenance would likely require use of ladders, scaffolding, fall arrest systems, and additional DROPS protections. Ex. 2012 at 173:2-9 (Mr. Hamdan explaining that, before using a system on the crown deck, he would want to “mak[e] sure all the DROPS issues are all checked off,” “mak[e] sure it’s not going to break,” and “mak[e] sure...it’s structurally sound and safe”).

139. Regarding the requirement to remove the system before moving the derrick, the combination of Gowanlock and Swivelpole would result in having the light units extended out further from the derrick than what Gowanlock contemplates. With the light units extending away from the derrick, the light system is likely to create obstacles during the crown raise and lowering operations. The result would be that the system would need to be removed from the rig when moving to a new site—one of the very problems that the ’016 Patent seeks to avoid.

140. Different mounting configurations for a system at the top of a drilling rig would likely affect a raise analysis. Indeed, Mr. Hamdan confirmed that he would want to conduct the raise analysis before considering whether to use *any* lighting system on a crown deck. Ex. 2012 at 297:7-18. And, in my view, the proposed combination of Gowanlock and Swivelpole would still require significant time to install and maintain the system, thereby increasing safety risks to workers.

141. **Fourth**, Petitioner is incorrect to suggest that Gowanlock would have benefitted from the way in which “the Swivelpole products” “swivel to allow installation, adjustment, and maintenance of the light fixtures, [to] provide functionality and flexibility to the rig lighting.” Pet. 35. As described *supra* (Section VII(F)(i)), a POSITA would not be motivated to use the Swivelpole’s swivel joint mechanism and, in fact, would be motivated to remove the swivel joint for any alleged combination, thereby rendering the Swivelpole product inoperable for its intended use.

142. In addition, Gowanlock’s system already uses “a bracket (102 and 204), which permit the light fixture [101 and 203] to swivel in both a horizontal and vertical orientation.” ID at 13; Ex. 1003 at [0019]. And it is “through the light fixture attachment (103 and 202)” that “the light fixture is connected to the crown.” Ex. 1003 at [0019]. Swivelpole’s swiveling function, which is designed to snap the poles to an angle for “installation, adjustment and maintenance of the light fixtures,” is unnecessary to Gowanlock’s system, and it would do little more than add unwanted cost and complexity to the system.

143. **Fifth**, Petitioner alleges that a POSITA would be motivated to combine Gowanlock and Swivelpole because “lights with mounting poles attached with brackets have been attached to many items such as guardrails for years using tools

available in most hardware stores and commonly fabricated in oil field equipment fabrication shops and rig upyards.” Pet. 36.

144. But this does not provide any specific motivation to combine (i) Swivelpole’s alleged mounting poles and alleged brackets, and (ii) Gowanlock’s alleged method to separately attach a plurality of light units to a crown deck or hand railing, as Petitioner proposes. *See* Pet. at 34; Ex. 1008, ¶ 84. Indeed, even if generic lights, generic mounting poles, or generic brackets were known in general, Petitioner identifies no reason why a POSITA would be motivated to combine those components allegedly known to be used in separate applications to arrive at the claimed invention that is specific to a crown deck.

145. Moreover, even if generic lights, generic mounting poles, or generic brackets were known in general, the claimed invention requires a specific system with specific configuration for use on a crown deck. And, as Mr. Hamdan admitted, (i) not all walking surfaces associated with a rig are walking surfaces of a crown deck (Ex. 2012 at 143:25-144:3); and (ii) there are handrails associated with rigs that are not handrails of a crown deck, *id.* at 132:25-133:6. Critically, a POSITA would know that generic lights, generic mounting poles, or generic brackets cannot be used on a crown deck where the environment is significantly different than, for example, a light pole for a general walking surface around the base of the rig.

146. *Sixth*, in my opinion, a POSITA would not be motivated to combine Gowanlock and Swivelpole to arrive at the claimed invention just because Swivelpole allegedly “shows that its mounting poles *may be* readily attached to hand railings.” Pet. 34. However, the inquiry is whether a POSITA would be motivated to do so, not if it “may be” done. Even if Swivelpole’s alleged pole “may be readily attached to hand railings,” that does not speak to any reason that a POSITA would be motivated to combine both Gowanlock and Swivelpole to arrive at the claimed invention, which requires much more than attaching mounting poles to general hand railings.

147. *Seventh*, Petitioner asserts that a POSITA would have “had good reasons to pursue the known options in the Swivelpole catalog using ordinary skill and common sense to arrive at” the challenged claims, Pet. 37-38, and there is “only a finite number of ways to attach lights to a crown deck or a surrounding hand railing.” Pet. 37. I disagree. The evidence of record shows otherwise. For example, Mr. Hamdan admitted that lights could be attached to a structure by welds or fastener assemblies including combinations of one or more of lock washers, wires, castle nuts, or cotter pins. Ex. 2012 at 56:4-10 (welds), 362:15-18 (lock washers, wires, castle nuts, cotter pins). In fact, a POSITA would recognize that welding may be preferred because it is permanently affixed for increased structural stability. Other alternatives may include strap systems. And even so, Swivelpole itself identifies a

non-exhaustive list of 33 different possible ways of attaching a single mounting pole to the crown deck. Ex. 1004 at 12-14. At bottom, whether a POSITA would use one form of attachment mechanism over another would be dictated by the particular application (which here is a crown deck of a rig), the materials to be used, the strength of those materials, and other properties such as thickness. In other words, that there are different ways to attach components generally does not mean a POSITA would be motivated to combine Gowanlock and Swivelpole to arrive at the claimed invention.

148. ***Eighth***, Petitioner argues that a POSITA would be motivated to combine Gowanlock and Swivelpole because “use of ... mounting poles with brackets and bolts allows mounting or affixing the lights to differently configured, designed, or configured decks, including those with or without handrails.” Pet. 34-35; Ex. 1008 ¶ 85. But even Mr. Hamdan admitted that he would not use for his combined Gowanlock and Swivelpole system any of (i) Swivelpole’s alleged pole as it is designed (with a swivel joint) (Ex. 2012 at 287:15-20), (ii) any bracket allegedly disclosed in Gowanlock or Swivelpole (*id.* at 279:14-18), or (iii) any bolts allegedly disclosed in Gowanlock or Swivelpole (*id.* at 299:22-300:10). So, it cannot be said that any “use of ... mounting poles with brackets and bolts” would motivate a POSITA to combine Gowanlock and Swivelpole. And none of this would allow for “mounting or affixing the lights to differently configured, designed, or

configured decks” in a manner not already provided for in each of the Gowanlock and Swivelpole references.

VIII. SWIVELPOLE AND HAIFENG ’413, IN VIEW OF APA DO NOT RENDER THE CHALLENGED CLAIMS OBVIOUS.

149. In my view, Petitioner has failed to show that Swivelpole and Chinese ’413 (referred to in this declaration as “Haifeng ’413”) in view of the APA render claims 1, 2, or 23 obvious.

A. Overview of Haifeng ’413 and APA

i. Haifeng ’413

150. A POSITA would understand the Haifeng ’413 Patent, entitled “Novel Lighting Lamp Stand for Oil Drilling Rig Well Site,” to disclose a “lamp stand for an oil drilling rig well site [with] a lamp base, an upper half part of the lamp stand, a lower half part of the lamp stand, and a lamp head.” Ex. 1005 at (57). Figure 1 (below) shows an exemplary embodiment of the disclosed invention.

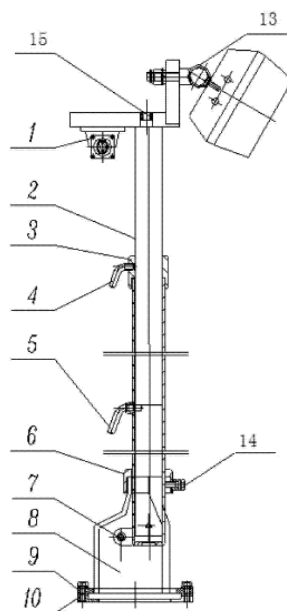


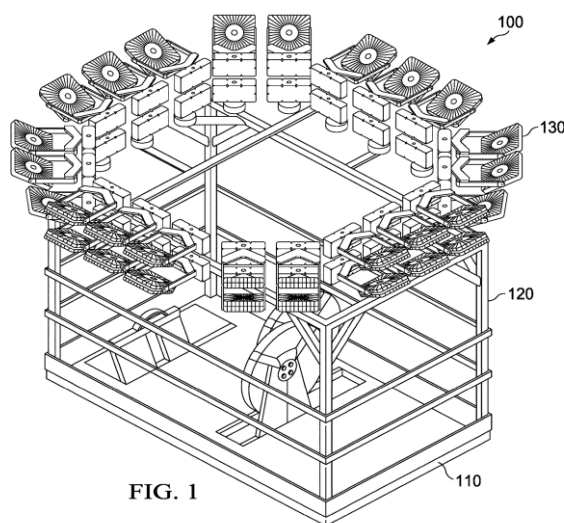
Fig. 1

151. The above figure depicts: “1. explosion-proof connector; 2. upper half part of the lamp stand (pole); 4. bent handle top screw; 5. support top screw; 6. fixing sleeve (locking device); 7. pin shaft; 8. lamp base; 9. lamp base pressure plate; 10. lamp base bottom plate; 11. lamp fixing member; 12. lamp cross bar (suspension device); 13. lamp head; 14. fixing screw; 15. guard wire apron.” *Id.* ¶ 18. And “[t]here is a fixing plate 10 under the lamp base,” which is welded on the top of a platform. *Id.* ¶ 23.

ii. “Admitted Prior Art”

152. The ’016 Patent’s Figure 1 “illustrates a prior art crown-mounted frame-based lighting system.” Ex. 1001 at 1:53-64. “The prior art lighting system is built from a single frame 120 which includes multiple frame lights 130.” *Id.* at 2:25-27. “The frame lights 130 are rigidly fixed onto the frame 120 and cannot be

adjusted or repositioned.” *Id.* at 2:27-29. “The frame 120 may be installed on the crown 110, or top, of a drilling rig such that the ground around the drilling rig is illuminated when in use.” *Id.* at 30-32.



B. The references do not disclose a “crown deck.”

153. As I explained in detail above in connection with Ground 2, Swivelpole does not disclose a “crown deck.” A POSA would also understand that both Haifeng ‘413 and the APA fail to disclose a “crown deck.”

154. As to APA, Petitioner points to Figure 1 from the ’016 Patent as purportedly “show[ing] a lighting system mounted on a rig.” Pet. 76. But a “rig” is not a “crown deck,” which is specific collection of structures according to Petitioner’s own construction. *Compare id.*, with *id.* at 20.

155. Indeed, the ’016 Patent describes Figure 1 as showing “a prior art crown-mounted frame-based lighting system.” Ex. 1001 at 1:63-64. As Petitioner

acknowledges, a “crown” is a collection of structures at the uppermost portion of a drilling rig. Pet. 20. But a crown is not a “crown deck,” which is a collection of structures *within the crown* that includes a walking surface, parts supporting the walking surface, and any associated handrail. *Id.* As the Board appropriately noted, “APA expressly refers to Figure 1 as illustrating a *crown*.” ID at 41.

156. Although the Board acknowledged in the ID that Figure 1 of the ’016 Patent “expressly refers to Figure 1 as illustrating a crown” (and thus not a “crown deck”), the Board also noted that “Figure 2 also includes elements 110, which it labels ‘Existing Crown Deck 110.’” *Id.* From this the Board found that POSITA “would have understood from the depiction and description of Figure[] 2 in the ’016 patent that Figure 1 includes a crown deck.” ID at 42.

157. However, the Board overlooked that the specification only states that “[t]he frame 120 may be installed on *the crown 110, or top*, of a drilling rig such that the ground around the drilling rig is illuminated when in use.” Ex. 1001 at 2:30-32 (emphasis added). Item 110 is nowhere else mentioned in the written description, and there is not a single statement therein that describes item 110 as a “crown deck.”

158. Moreover, there is nothing inconsistent about Figure 2 showing the more specific “existing crown deck” in relation to the crown 110. Specifically, Figure 2 “shows a three-dimensional isometric view of three embodiment of the improved elevated structure-mounted lighting system that are depicted relative to

the crown deck.” *Id.* at 1:65-67; *id.* at 2:33-36 (explaining the same for Figs. 2-3). And, as the agreed-to construction acknowledges, a “crown” is “the collection of structures at the uppermost portion of a drilling rig,” and the “crown deck” is “a collection of structures within the crown that includes a walking surface, parts supporting the walking surface, and any associated handrail.” Pet. 20; Ex. 1008 ¶ 20.

159. The WDTX court in its claim construction memorandum—from where Petitioner pulled its construction of “crown deck”—rejected this same position based on item 110 in the figures of the ’016 Patent. Ex. 1009 at 6. The court explained that the use of “110” to describe the crown in Figure 1 and the reference to “Existing Crown Deck 110” in Figure 2 is a “one-off labeling oddity.” *Id.*

160. Petitioner also cites Figure 1 from Haifeng ’413 for this limitation, providing the following conclusory statement without ever identifying a “crown deck”: “A POSITA would readily employ lights, mounting poles, and brackets...to make a modular lighting system *mounted on a rig* as it is admitted in the ’016 Background that the existing system in Figure 1 is too heavy and difficult to install.” *Id.* at 76-77. However, a POSITA would recognize that a mounting a light anywhere on a rig is not what is claimed, and Petitioner nowhere identifies a “crown deck” in Haifeng ’413. Nor can it. *See e.g.*, Ex. 1005.

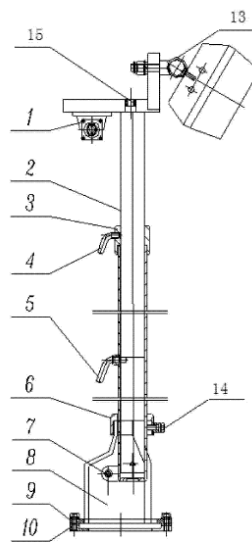


Fig. 1

161. Indeed, Mr. Hamdan admitted that Figure 1 of Haifeng '413 does not show a rig, a derrick, a crown deck, or handrails. Ex. 2012 at 58:14-60:13. Instead, he argued (outside the scope of his declaration) that he can infer Haifeng '413's lamp stand would be installed on a rig because (i) its title refers to "oil drilling rig well site" (*id.* at 44:15-18); (ii) it refers to "[a] novel lighting lamp support of a petroleum drilling machine well site" (*id.* at 44:19-25); (iii) it has a "base plate" (*id.* at 55:6-7) and (iv) "it has to fold down for transportation" (*id.* at 55:7-10).

162. Each of Mr. Hamdan's arguments fails. As to (i) and (ii), Mr. Hamdan admitted "the well site and the rig is [sic] two different – are two different things." *Id.* at 53:18-20. He testified that a "well site" is "just a piece of land" that is leased by the oil company "where you're going to go drill the wells." *Id.* at 54:6-8. For this reason, I believe the reference to an "oil drilling well site" or "lighting lamp support of a petroleum drilling machine well site" would not lead a POSITA to

conclude that the Haifeng '413 system is installed on a rig, let alone a “crown deck” as claimed.

163. As to (iii) regarding an alleged “base plate,” a POSITA would recognize that Haifeng '413 discloses no such thing. At best, Haifeng '413 discusses “a lamp bottom plate and a lamp base pressure plate” where “the lamp base pressure plate is fixed on the lamp base bottom plate, and the lamp base is rotatably arranged on the lamp base pressure plate.” Ex. 1005 at claim 2, [0006], [0021]. The “lamp base pressure plate” is item 9 in Figure 1, and the “lamp base bottom plate” is item 10. *See id.* at [0018].

164. To the extent Mr. Hamdan intended to identify “fixing plate 10 under the lamp base” (which he did not in his declaration, and Petitioner did not in the Petition), Haifeng '413 states the “fixing plate 10” “can be welded on the top of a platform of a part that needs lighting.” *Id.* at [0023]. But, as discussed *supra* in Section XX, Mr. Hamdan admitted that disclosing a general platform in or around a rig site is not the same as disclosing a crown deck specifically, and I agree. Even so, the welding of “fixing plate 10” is in reference to “a platform of a part that needs lighting,” and a POSITA would not understand a “crown deck” itself to be “a part that needs lighting.” Ex. 1004 at [0023]. Indeed, Mr. Hamdan admitted the same. Ex. 2012 at 291:2-9.

165. As to (iv) regarding Mr. Hamdan’s belief that the Haifeng ’413 system “has to fold down for transportation” (*id.* at 48:18-22), the reference discloses no such thing. Instead, “[t]he upper half part of the lamp stand is fitted on the lower half part of the lamp stand achieve [sic] to slide up and down and rotate.” Ex. 1005 at [0020]. It says nothing about “folding down” or doing so “for transportation.” But even if the Haifeng ’413 system “has to fold down for transportation,” a POSITA would not understand from that feature that the Haifeng ’413 system is installed on a rig, let alone a “crown deck.” As Mr. Hamdan admitted, conventional lighting towers used around a wellsite can be folded down or disassembled for transportation, but that does not mean that the lighting towers are installed on a rig. Ex. 2012 at 51:2-6.

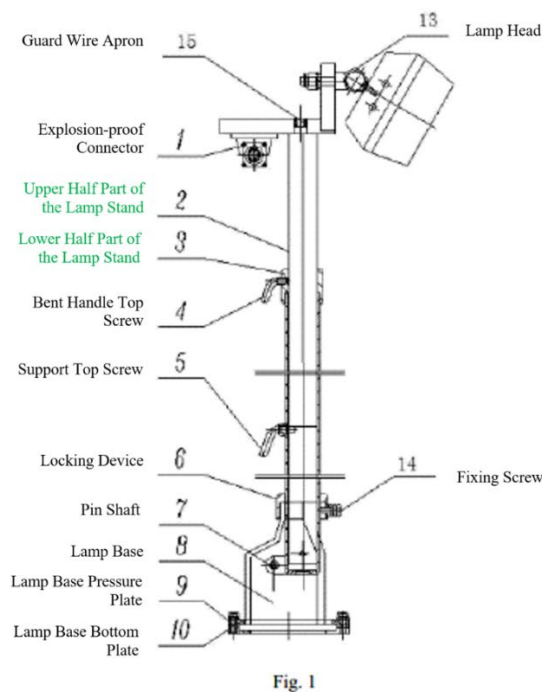
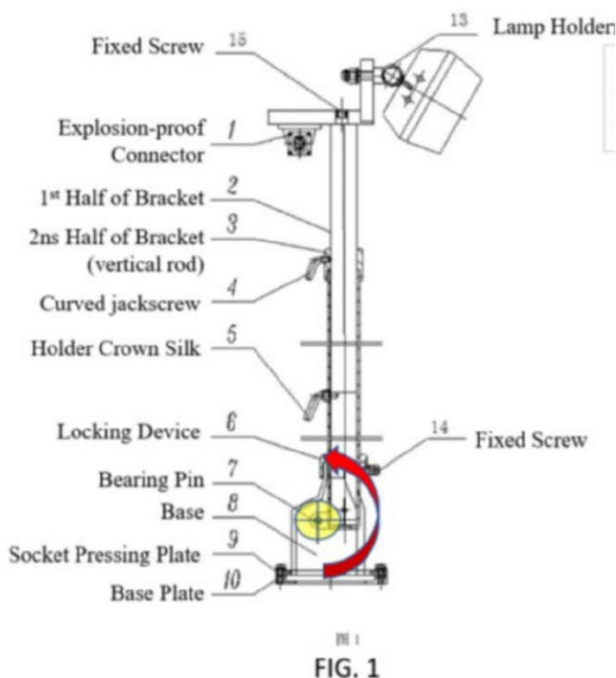
C. The references do not disclose “a bracket configured to attach the mounting pole to the crown deck of the rig.”

166. As I explained in connection with Ground 2, Swivelpole does not disclose “a bracket configured to attach the mounting pole to the crown deck of the rig.” This reasoning applies here as well.

167. A POSITA would recognize that Haifeng ’413 does not disclose this limitation either. Petitioner alleges that “Haifeng ’413 figure [] show[s] a bracket configured to attach the mounting pole to the crown deck or a hand rail, i.e., guard rail, around the crown deck.” Pet. 79. Petitioner purports to identify items 2 and 3

in Figure 1 of Haifeng '413 as the claimed “bracket.” There are multiple reasons I disagree with this assertion.

168. **First**, Petitioner’s annotated Figure 1 (bottom left) misrepresents Haifeng '413. *Compare* Pet. 78, and Hamdan Decl. ¶79 with Ex. 1005 at ¶ 18. Items 2 and 3 in Figure 1 are part of a lamp stand. Haifeng '413 explains that Figure 1 shows “2. upper half part of the lamp stand” and “3. lower half part of the lamp stand.” Ex. 1005 at [0018]. It adds that “[a] lamp stand part 2 and lamp stand part 3 are two fully independent parts.” Ex. 1005 at [0023]. The Board agreed “that Petitioner’s annotation of Figure 1 is inaccurate, and elements 2 and 3 are incorrectly labeled as parts of a bracket.” ID at 42.



Compare Pet. 78, with Ex. 1005 at Fig. 1 (annotated).

169. **Second**, Haifeng '413's lamp stands part 2 and 3 are not as Petitioner contends "configured to attach the mounting pole to the crown deck or a hand rail, i.e., guard rail, around the crown deck." Pet. 79. Haifeng '413 never discusses a "crown deck," "hand rail," or even a "guard rail." Petitioner identifies no evidence to the contrary.

170. Moreover, a POSITA would not understand the lamp stands' items 2 and 3 to be "configured to attach the mounting pole to the crown deck of the rig" as the claim requires. Indeed, Mr. Hamdan admitted that Figure 1 of Haifeng '413 does not show a rig, a derrick, a crown deck, or handrails. Ex. 2012 at 58:14-60:13. And each of the reasons that Mr. Hamdan offers for purportedly being able infer Haifeng '413's lamp stand would be installed on a rig are misplaced for the reasons I discussed above in *supra* Section VII(D). For example, Haifeng '413 refers to use on a well site, which Mr. Hamdan confirmed is not a rig but instead the general land where the drilling is to occur. Ex. 2012 at 54:6-8.

171. **Third**, the only discussion in Haifeng '413 of attaching the lamp stand is by welding, not a bracket: "There is a fixing plate 10 under the lamp base, which can be welded on top of a platform of a part that needs lighting." Ex. 1005 at [0023]; *see* ID at 42 (discussing the same). Thus, a POSITA would not understand Haifeng '413 to disclose a bracket, let alone one that is "configured to attach the mounting pole to the crown deck of the rig," as claim 1 requires.

172. Petitioner and its expert do not (and cannot) rely on any APA for this missing element. *See* Pet. 79; Hamdan Decl. p. 72. There is nothing in the cited APA (*i.e.*, Figure 1 of the '016 Patent) that could reasonably be interpreted to disclose a “bracket configured to attach the mounting pole to the crown deck of the rig.” A POSITA would recognize this figure to disclose a lighting system attached to the frame surrounding a crown. Thus, any brackets employed by such a system would not be connected to the crown deck or the associated handrail.

D. The references do not disclose a “bracket [] connected to the crown deck using bolts.”

173. For the reasons discussed above in connection with Ground 2, also incorporated here, I believe Petitioner fails to show that Swivelpole discloses “a bracket [] connected to the crown deck using bolts.”

174. Similarly, Petitioner also fails to show that Haifeng '413 discloses this limitation. Petitioner alleges that “Haifeng '413 figure above show[s] a bracket that *may be* connected to the crown deck using bolts.” Pet. 79. However, neither Petitioner nor its expert provide support for this conclusion. Indeed, Haifeng '413 never mentions or shows bolts, a crown deck, or even brackets, and a POSITA would not understand those elements to be disclosed in Haifeng '413.

175. Petitioner does not rely on any APA for this limitation. Pet. 73; Ex. 1008 at 71. Nor could it, as a POSITA would not understand this limitation to be disclosed by the APA (*i.e.*, Figure 1 of the '016 Patent). As I outlined in-depth

previously, a wide variety of connections may be employed on such systems. *See supra* Section VII(E). A POSITA would be unable to conclude which of these connections is used on this specific system without any additional disclosures, which Petitioner failed to provide.

E. A POSITA would not have been motivated to combine the references with a reasonable expectation of success.

176. In my opinion, Petitioner has not shown that the references for Ground 3 teach or suggest all of the limitations in claims 1, 2, and 23. But, even if the Board finds that Petitioner met its burden to show that the references disclose all limitations, there is no factually-supported reason why a skilled artisan would have had reason to combine the teaching of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so.

i. There is no motivation to combine the references with a reasonable expectation of success.

177. Although I find the proposed combination unclear, it appears Petitioner contends on the one hand that the proposed Swivelpole-Haifeng ‘413-APA combination would combine (1) (a) “the lights, mounting poles and brackets shown in the Swivelpole catalog,” or (b) “the lights, mounting poles and brackets shown in...Chinese ’413, with (2) the alleged “crown deck” of the APA (i.e., Figure 1 of the ’016 Patent). *See* Pet. 39; Ex. 1008 ¶ 94.

178. I find that a POSITA would not be motivated to combine the references in this way (or any way) or have a reasonable expectation of success in doing so for multiple reasons.

179. **First**, there is no valid, non-hindsight reason that a POSITA would want to use the Swivelpole’s “lights, mounting poles and brackets” with the APA. *See* Pet. 38-44; Ex. 1008, ¶¶ 92-101. For example, as discussed *supra* in Section VII(F), Swivelpole’s swivel joint is a critical aspect of the Swivelpole reference and provides the very essence of its intended purpose. The “core” of Swivelpole “is its unique [] swivel mechanism.” Ex. 1004 at 4. Its “swivel mechanism lets you lower – and rotate – a light fitting to a safe working level in minutes” without “ladders,” “scaffolding,” or “fall arrest systems.” *Id.* at 2.

180. In fact, Mr. Hamdan admitted that the swivel joint, which allows the user to lower and rotate a light fitting to a safe level for maintenance, is the Swivelpole’s main feature. Ex. 2012 at 306:7-14 (confirming that the Swivelpole’s main feature is its swivel mechanism that allows the user to lower and rotate a light fitting to a safe level in minutes); *id.* at 310:11-17 (confirming that Swivelpole’s purpose is to add an additional feature to a mounting pole that allows the top portion to lower and rotate for maintenance of the light). It is the swivel mechanism that “[a]llows one-person” to “control[] lowering of the pole top section and luminaire.” Ex. 1004 at 4.

181. Yet a POSITA would be motivated to remove the Swivelpole swivel joint for any system to be allegedly attached to a crown deck. Indeed, Mr. Hamdan admitted that he “probably wouldn’t use their swivel joint” and it is “very likely” that he would remove the swivel joint feature. Ex. 2012 at 292:21-293:5. As I explained previously, to remove the swivel joint in this way would render the Swivelpole product inoperable for its intended purpose. *See supra* Section VII(F).

182. In addition, it would fundamentally alter the fundamental purpose of the APA’s “frame-based lighting system” to add the alleged “lights, mounting poles and brackets shown in the Swivelpole catalog.” The APA’s “frame-based lighting system” as shown in Figure 1 of the ’016 Patent is designed to be monolithic and stationary relative to the crown on which it sits. *Id.* at 1:63-64. The ’016 Patent explains that the “frame-based lighting system” is “built from a single frame 120 which includes multiple frame lights 130.” Ex. 1001 at 2:25-27. In contrast, the Swivelpole shows a singular light system with “swivel mechanism” to “lower” and “rotate” the light at various orientations. Ex. 1004 at 2, 4. For a POSITA to obtain any value from the “swivel” feature to “lower” and “rotate” a light at various orientations, a POSITA would need to completely rework the APA’s “frame-based lighting system” that designed to be monolithic and stationary relative to the crown on which it sits—a feat that would not even be possible without literally removing all components of the APA system rather than adding to them.

183. Similarly, it would fundamentally alter the fundamental purpose of the APA's "frame-based lighting system" to add the Haifeng '413's alleged "lights, mounting poles and brackets." As discussed, the APA's "frame-based lighting system" is designed to be monolithic and stationary relative to the crown on which it sits and includes "multiple frame lights 130." Ex. 1001 at 1:63-642:25-27. In contrast, the Haifeng '413's system shows only a single "lamp stand" with an upper half part and lower half part where the upper half part is fitted over the lower half part "to slide up and down and rotate." Ex. 1005 at [0020]. The "lamp stand" also has a "light base" that "can be rotated by 360 degrees." Ex. 1005 at [0023]. For a POSITA to obtain any value from the telescoping feature of the Haifeng '413 system via its upper and lower halves or the feature of a 360 degree rotatable base, a POSITA would need to completely rework the APA's "frame-based lighting system" that is designed to be monolithic and stationary relative to the crown on which it sits—a feat that would not even be possible without literally removing all components of the APA system rather than adding to them.

184. I believe Petitioner also fails to identify any reason a POSITA would want to add the alleged "lights" of either Swivelpole or Haifeng '413 to the APA. For example, the APA's "frame-based lighting system" is "built from a single frame 120 which includes multiple frame lights 130." Ex. 1001 at 2:25-27. It is these "multiple frame lights 130" that provide the lumen output required to light the well

site surrounding the derrick. A POSITA would understand that this could be a distance of 100 feet or more away from the light source.

185. In contrast, the Swivelpole products are intended to light areas such as walkways, stairways, and conveyors that are immediately beneath the Swivelpole product. Ex. 1004 at 6 (discussing “applications”), 8-11 (indicating installed heights of 8-10 feet). With this, the 8-10 foot height of the light for the Swivelpole product is designed to light the area just 8-10 feet beneath it. I believe a POSITA would understand that a light designed to light an area 8-10 feet away is not the same as a light capable of lighting an entire wellsite area around a derrick over 100 feet away. As Mr. Hamdan admitted, “if the lights supplied by Swivelpole or the lights that are shown in the figures are not – that adapt to that mount, that light mount, aren’t strong enough, then you would look to an alternative light with more lumens to attach to the Swivelpole.” Ex. 2012 at 256:19-266:6. Thus, a POSITA would not be motivated to use the lights of the Swivelpole products with the APA.

186. Likewise, I find that a POSITA would not be motivated to use the lights of the Haifeng ’413 “lamp stand for an oil drilling rig well site” with the APA because they too would be insufficient to illuminate the wellsite surrounding the derrick from the crown, which could be over 100 feet away. Specifically, given the depicted height of the “upper half part of the lamp stand” and “lower half part of the lamp stand” combined in the Haifeng ’413 system, a POSITA would understand that

the Haifeng '413 system is designed to illuminate the area directly beneath the lamp head rather than the entire wellsite area surrounding a derrick at 100+ feet away.

187. In addition, as I discussed *supra* in Section VII(F), a POSITA would not be motivated to use the Swivelpole product with its swivel joint and “mounting kit” on a crown or crown deck because it would increase the “DROPS” risk. Combining or modifying Swivelpole and the APA as Petitioner suggests would increase the risk of both static and dynamic dropped objects. Specifically, should the swivel hinge fail as it is subjected to the harsh environment at the top of the rig and wear and tear from operation, it is not only the light fixture itself that may fall but also the top portion of the pole, as well as all of the components required to make the swivel joint function as intended. And, as Mr. Hamdan admits, “[t]he heavier” a system gets, and “the more parts they have,” “[y]ou are just adding more potential for DROPS situations.” Ex. 2012 at 179:11-15. With this greater “potential for DROPS situations,” a POSITA would not be motivated to use Swivelpole’s alleged “lights, mounting poles and brackets” with the APA’s frame-based light system at the crown.

188. Likewise, a POSITA would not be motivated to use the Haifeng '413 system on a crown or crown deck because it would similarly increase the “DROPS” risk. For example, the system discussed in Haifeng '413 includes *at least* 14-15 major components as identified in Figure 1. See Ex. 1005 at Fig. 1. Those

components include an explosion-proof connector, upper half part of the lamp stand, lower half part of the lamp stand, bent handle top screw, support top screw, fixing sleeve, pin shaft, lamp base, lamp base pressure plate, lamp base bottom plate, lamp fixing member, lamp cross bar, lamp head, fixing screw, and guard wire apron. *Id.* at [0018]. This is a quintessential example of a situation where “the more parts” in a system, “[t]he heavier” a system gets, and “[y]ou are just adding more potential for DROPS situations,” as Mr. Hamdan testified. Ex. 2012 at 179:11-15. With this greater “potential for DROPS situations,” a POSITA would not be motivated to use Haifeng ’413’s alleged “lights, mounting poles and brackets” with the APA’s frame-based light system at the crown.

ii. Petitioner’s provided “motivations” to combine are nonsensical.

189. In my opinion, Petitioner’s alleged motivations to combine do not change the result.

190. ***First***, Petitioner wrongly contends it would be “a simple combination of known elements to obtain predictable results, i.e., separately attached pole mounted lights with brackets attached to a crown deck or a hand railing around a crown deck.” Pet. 42. A POSITA would not understand the proposed Swivelpole-Haifeng ’413-APA combination to be a “a simple combination of known elements.” For example, a POSITA would understand that to use Swivelpole’s or Haifeng ’413’s alleged “lights, mounting poles and brackets” with the APA’s frame-based

light system at the crown, as Petitioner alleges, would require a complete reworking of each system. As described above, the APA's frame-based light system is intended to be monolithic, high-power, and stationary relative to the crown. To add Swivelpole's or Haifeng '413's alleged "lights, mounting poles and brackets" would require modifications to and re-engineering of support and connection types, materials, and other features and functionality that would affect the load bearing capacities of each element and the structural integrity of the system as a whole.

191. ***Second***, I note that a POSITA would not be motivated to combine Swivelpole or Haifeng '413 with the APA "for the obvious and predictable result of placing or improving modular lighting on a crown deck of a rig to make a plurality of lights less heavy, easier to install, easier to uninstall, safer to install, and safer to access," as Petitioner alleges. *See* Pet. 39, 41; Ex. 1008 ¶ 97. Neither Petitioner nor its expert provide any reason why that would be the case. *See id.*; Ex. 1008 at ¶ 97. I find such conclusory statements to be nothing but hindsight.

192. Moreover, some general desire for "mak[ing] a plurality of lights less heavy, easier to install, easier to uninstall, safer to install, and safer to access" does not imply that a POSITA would conclude the alleged "plurality of lights" in either of Swivelpole or Haifeng '413 is too heavy, not easy to install/uninstall, not safe to install, or not safe to access or that some increase in ease of installation/uninstallation or safety of installation/access is desirable in either of Swivelpole or Haifeng '413.

193. **Third**, Petitioner alleges that “a POSITA would readily attach lights to a mounting pole on a crown deck and/or handrail and be motivated to do so because it would make the lights more accessible and easier to adjust.” Pet. 41-42; Ex. 1008 ¶ 97. And Petitioner similarly alleges that “the use of mounting poles with brackets and bolts allows mounting or affixing the lights to different configured, designed, or configured [sic] crown decks, including those with or without handrails.” Pet. 42; Ex. 1008 ¶ 97. But I find these unsupported statements about “lights,” “a mounting pole,” “brackets,” and “bolts” to be untethered from the particular features of the proposed Swivelpole-Haifeng ’413-APA combination.

194. **Fourth**, Petitioner asserts that the Swivelpole-Haifeng ’413-APA combination would be a “simple substitution of one known element (a plurality of the Swivelpole catalog lights attached to the crown deck) for another (prior art Figure 1 frame lights attached to the crown deck) to obtain predictable results.” Pet. 42. But a boilerplate allegation that it would be a “simple substitution of one known element...for another...to obtain predictable results” without more is not enough for a POSITA to find sufficient rationale to make a proposed combination obvious.

195. **Fifth**, Petitioner asserts the Swivelpole-Haifeng ’413-APA combination constitutes “the use of known techniques (attaching lights with brackets and poles to a crown deck or a hand railing around a crown deck) to improve similar devices in the same way.” Pet. 42. Petitioner never explains how adding the APA

or Haifeng '413 would improve Swivelpole. More so, I note that what Petitioner alleges was a “known technique” is not disclosed in any of Swivelpole, Haifeng '413, or the APA for the reasons discussed *supra* in Section VII(F).

196. ***Sixth***, a POSITA would not have “had good reasons to pursue the known options in the Swivelpole catalog or Haifeng '413 using ordinary skill and common sense ... using ordinary skill and common sense to arrive at” the challenged claims, as Petitioner contends. Pet. 44. I believe the opposite to be the case. As described above, a POSITA would be deterred from combining Swivelpole, Haifeng '413, and APA in the manner that Petitioner alleges, including because it would increase safety risks and require completely reworking each system that would fundamentally alter the purpose of each system.

197. ***Seventh***, Petitioner incorrectly contends that “[t]here are only a finite number of ways to attach lights to a crown deck or surrounding hand railing,” suggesting that this would be a motivation to combine Swivelpole, Haifeng '413, and the APA. *See* Pet. 44. But, as I discussed *supra* in Section VII(F), the record refutes the suggestion that some “finite number of ways to attach lights to a crown deck or surrounding hand railing” would motivate a POSITA to specifically combine Swivelpole, Haifeng '413, and APA in the manner alleged. record shows otherwise. For example, Mr. Hamdan admitted that lights could be attached to a structure by welds or fastener assemblies including combinations of one or more of lock washers,

wires, castle nuts, or cotter pins. Ex. 2012 at 56:4-10 (welds), 362:15-18 (lock washers, wires, castle nuts, cotter pins). As I explained previously, welding may be preferred because it is permanently affixed for increased structural stability. Indeed, Haifeng '413 *only* discloses welding as a means of attaching components to one another or the system to any some unidentified location around a well site. Ex. 1005 at [0023]. Other alternatives may include strap systems.

198. At bottom, whether a POSITA would use one form of attachment mechanism over another would be dictated by the particular application (which here is a crown deck of a rig), the materials to be used, the strength of those materials, and other properties such as thickness. In other words, that there are different ways to attach components generally does not mean a POSITA would be motivated to combine Swivelpole, Haifeng '413, and APA to arrive at the claimed invention.

IX. MAGNALIGHT VIDEO AND APA DO NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

199. A POSITA would recognize that Petitioner has failed to show that the Magnalight Video in view of the APA renders claims 1, 2, or 23 obvious.

A. Overview of Magnalight Video

200. A POSITA would recognize that Magnalight video (Ex. 1006) depicts a person assembling and disassembling some sort of light device. The video shows a person in what appears to be an industrial work area with no rig or any other indicia of a wellsite. The text description beneath the video viewer purportedly states that

the device shown in the video is an “adjustable aluminum mount” with an “adjustable J-hook bottom bracket.” Ex. 1006A. The device allegedly includes a “Work Light” with a “yolk” providing “vertical 90 degrees of tilt and 360 degrees of pivot rotation.” *Id.* The “Work Light” is described as a “12 volt work light.” *Id.* Petitioner and its expert provide two screen shots (reproduced below) from the video in discussing its alleged disclosures.



Pet. 29-30, 46-47, 86-87; Ex. 1008 at 49-50, 74-75, 80-81.

B. The references do not disclose a “crown deck.”

201. As I explained above in connection with Ground 3, Petitioner has not shown that the APA satisfies the “crown deck” limitation.

202. In my opinion, Magnalight does not disclose a “crown deck” either. For certain limitations of claim 1 that recite a “crown deck,” Petitioner makes conclusory statements about the limitation being “described and/or shown in the Magnalight

YouTube video.” Pet. 81-82; Ex. 1008 at 78-82. But Petitioner never identifies a “crown deck” as allegedly disclosed by Magnalight. Indeed, for the limitation of claim 23 that recites “a crown deck at the top of the derrick,” Petitioner only relies on the APA as allegedly disclosing it. *See* Pet. 83; Ex. 1008 at 82 (not relying on Magnalight as allegedly disclosing “a crown deck at the of the derrick”).

203. Petitioner does not attempt to identify a “crown deck” in Magnalight because there is none. Indeed, Mr. Hamdan admitted that the Magnalight video does not disclose a rig, let alone a “crown deck” of a rig. Ex. 2012 at 330:7-10 (“Q. ... There’s nothing in the Magnalight video that shows a rig, right? A. That shows a rig? I do not recall seeing a rig on the Magnalight video.”).

204. Nevertheless, Mr. Hamdan contends that the Magnalight video shows the device therein “has the ability to be attached to a handrail that exists on a crown deck” because, in his view, the rectangular structure with wheels in the video “could be interpreted as it’s intended to mimic a handrail.” Ex. 2012 at 330:7-334:5. I disagree. A POSITA would not understand the rectangular structure with wheels in the video and located on the ground to be a “handrail” and certainly not a handrail associated with a “crown deck.” Even Mr. Hamdan eventually admitted that (i) he does not know what the Magnalight video creators or participants intended the rectangular object in the video to “mimic,” (ii) a handrail around a crown deck does

not have wheels at the bottom, and (iii) the rectangular object in the video is not being used as a handrail in the video. Ex. 2012 at 333:5-20, 336:7-337:6.

C. The references do not disclose a “mounting pole.”

205. Petitioner does not (and cannot) rely on the APA as allegedly disclosing a “mounting pole.” Pet. 81, 87-89; Ex. 1008 at 82-83.

206. Instead, Petitioner summarily states that “[a] POSITA would readily employ the lights, mounting poles, and brackets shown in the Magnalight YouTube video above.” Pet. 87; *see also id.* at 81-84, 87-89. But neither Petitioner nor its expert ever identify what constitutes a “mounting pole” in the Magnalight video. Indeed, I find that a POSITA would not understand the device in the Mangalight video to include a “mounting pole” because it shows only a J-hook bracket of some sort with two linear components that fold at the center of the J-hook bracket.

207. Beyond that, Mr. Hamdan provides only (i) an unidentified and undated photo as allegedly showing that “a light fixture or other items are commonly attached to a handrail via a pole, a bracket, and/or more screws or bolts,” Ex. 1008 ¶ 108, and (ii) a picture of a flag pole in support of the conclusory statement that “[p]oles have been attached to crown deck hand railing with flag, airplane lights, and other structures attached,” *id.* at ¶ 1009. But Mr. Hamdan admitted that he does not rely on either of these photos (also appearing at Ex. 1008 ¶ 62) as part of his alleged obviousness combination. *See* Ex. 2012 at 337:1-14. I note, a POSITA would

understand that there is a critical difference between (i) the structure and function of a pole used to mounting a lighting system on a crown deck, and (ii) the structure and function of a pole use to fly a flag or the like.

D. The references do not disclose a “a bracket configured to attach the mounting pole to the crown deck of the rig.”

208. Petitioner does not (and cannot) rely on the APA as allegedly disclosing this limitation. Pet. 81, 87-89; Ex. 1008 at 82-83.

209. Magnalight does not disclose this limitation either because a POSITA would understand that the alleged “bracket” to which Petitioner and its expert point is not “configured to attach the mounting pole to the crown deck of the rig,” as required. Specifically, a POSITA would recognize that Magnalight shows a temporary J-hook bracket that cannot be used “to attach the mounting pole to the crown deck of the rig” because, as shown in the video, it is easily lifted off of the silver, rectangular structure with wheels and actually appears to wobble as it is both installed and removed. Ex. 1006 at 0:35–0:37. This confirms what a POSITA would already understand: the Magnalight device would not be able to withstand the harsh conditions at a “crown deck” of a rig and would pose impossible structural hurdles to any such use.

E. The references do not disclose “the bracket is connected to the crown deck of the rig using bolts.”

210. Petitioner does not (and cannot) rely on the APA as allegedly disclosing this limitation. Pet. 81, 87-89; Ex. 1008 at 82-83.

211. Magnalight does not disclose this limitation either. For the reasons I discussed above, which are expressly incorporated here, Magnalight does not disclose “a bracket configured to attach the mounting pole to the crown deck of the rig.” As such, it cannot disclose that “the bracket is connected to the crown deck of the rig using bolts.”

212. Indeed, Petitioner only suggests that “[t]he Magnalight Youtube video shows a bracket that *may be* connected to the crown deck or a hand railing, i.e., guard rail, around the crown deck using bolts.” Pet. 88; Ex. 1008 ¶ 111. I believe this is because Magnalight does not actually disclose a “bracket” that “is connected to the crown deck of the rig using bolts.” A POSITA would not understand otherwise. Instead, a POSITA would understand that the Magnalight device does not use bolts and instead uses a “J-hook” system that simply sits on top of the structure to which it is to be mounted.

213. Petitioner’s statement that “[t]he Magnalight YouTube video and/or as commonly known by a POSITA disclose a bracket that *may be* used to connect to the crown deck of the rig using bolts,” is also misleading. Pet. 82; Ex. 1008 ¶ 111. Just because something *could be* done in the abstract based on the present knowledge

does not mean that a POSITA would have recognized the reference as disclosing or suggesting it without the benefit of hindsight.

F. A POSITA would not have been motivated to combine the references with a reasonable expectation of success.

214. In my opinion, Petitioner has not shown that the references for Ground 4 teach or suggest all of the limitations in claims 1, 2, and 23. But, even if the Board found that Petitioner met its burden to show that the references disclose all limitations, there is no factually-supported reason why a skilled artisan would have had reason to combine the teaching of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so.

1. There is no motivation to combine the references with a reasonable expectation of success.

215. I find that a POSITA would not be motivated to combine Magnalight with the APA with a reasonable expectation of success. The foremost reason for this is that a POSITA would not consider using the Magnalight device at the top of a rig where the frame-based system of the APA is located. Specifically, the Magnalight video shows a flimsy device with a J-hook and two folding linear structures that is not attached to the silver, rectangular device in a stable fashion. The video further shows that the Magnalight device is easily lifted off of the rectangular structure, and the device appears to wobble as it is both installed and removed. off of the silver,

rectangular structure with wheels and actually appears to wobble as it is both installed and removed. This confirms for a POSITA that it would not be appropriate, adequate, secure, or safe for use at the top of a rig. In other words, a POSITA would not understand the Magnalight device's ability to sit on top of the rectangular structure in the video to translate to the type of robust, secure, and sturdy system that would be required for something located at the top of a rig.

216. In addition, it would alter the fundamental purpose of the APA's "frame-based lighting system" to add the Magnalight device. As discussed, the APA's "frame-based lighting system" is designed to be monolithic and stationary relative to the crown on which it sits and includes "multiple frame lights 130." Ex. 1001 at 1:63-642:25-27. In contrast, the Magnalight video purportedly shows an "adjustable aluminum mount" with an "adjustable J-hook bottom bracket." Ex. 1006A. The device allegedly includes a "Work Light" with a "yolk" providing "vertical 90 degrees of tilt and 360 degrees of pivot rotation." *Id.* For a POSITA to obtain any value from the adjustability, tilt, and pivot rotation features of the Magnalight device, a POSITA would need to completely rework the APA's "frame-based lighting system" that is designed to be monolithic and stationary relative to the crown on which it sits. This would require removing and replacing all components of the APA system rather than adding to them.

217. The inverse is true too: combining Magnalight with the APA would alter the fundamental purpose of Magnalight. To utilize the APA's "frame-based lighting system" as part of the combined system in any way, a POSITA would understand that it would be necessary to remove the specific type of adjustability, tilt, and pivot rotation offered by Magnalight. Again, this would be a replacement of Magnalight, not an addition to it.

218. Moreover, a POSITA would not be motivated to combine Magnalight and the APA with a reasonable expectation of success because a POSITA would understand that Magnalight's light would be unsuitable for use at the top of a rig to illuminate the wellsite around the base of the derrick. Specifically, a POSITA would understand that the "12 volt work light" that can allegedly mount to a "rail, ladder, or scaffolding" is designed to illuminate an area within a relatively close distance from the light. A POSITA would not understand a "12 volt work light" to be appropriate for illuminating the wellsite surrounding a derrick at 100+ feet away.

219. Another reason is that combining Magnalight and APA would present significant safety risks, including additional, unwanted "DROPS" risks. This would include an increased risk of static and dynamic dropped objects. For example, if the loose-fitting "J-hook" failed when subject to the harsh environment at the top of the rig (which is likely), or the rotatable components did not withstand the wear and tear to which it would be subject (which is also likely), it is not only the "Work Light"

itself that may fall but also all of these additional components that make the Magnalight function according to its design. With this greater potential for DROPS situations, a POSITA would not be motivated to use the Magnalight with the APA's frame-based light system at the crown.

2. *Petitioner's alleged motivations to combine are inaccurate and insufficient.*

220. I further find that Petitioner's alleged motivations to combine do not change the result.

221. ***First***, Petitioner is wrongly asserting that it would be "a simple combination of known elements to obtain predictable results, i.e., separately attached pole mounted lights with brackets attached to a crown deck or a hand railing around a crown deck." Pet. 48; Ex. 1008 at ¶ 107. A POSITA would understand that to use Magnalight's device with the APA's frame-based light system at the crown, as Petitioner alleges, would require a complete redesign of each system. As I explained above, the APA's frame-based light system is intended to be monolithic, high-power, and stationary relative to the crown. To add the Magnalight would require modifications to and re-engineering of support and connection types, materials, and other features and functionality that would affect the load bearing capacities of each element and the structural integrity of the system as a whole.

222. ***Second***, a POSITA would not be motivated to combine Swivelpole or Haifeng '413 with the APA "for the obvious and predictable result of placing or

improving modular lighting on a crown deck of a rig to make a plurality of lights less heavy, easier to install, easier to uninstall, safer to install, and safer to access,” as Petitioner alleges. *See* Pet. 48; Ex. 1008 ¶ 106. Neither Petitioner nor its expert provide any reason why that would be the case. *See id.*; Ex. 1008 at ¶ 106. For a POSITA, such conclusory statements are nothing but hindsight, as described above in Section VII(F).

223. Moreover, some general desire for “mak[ing] a plurality of lights less heavy, easier to install, easier to uninstall, safer to install, and safer to access” does not imply that a POSITA would combine Magnalight and APA with a reasonable expectation of success. There is no evidence that a POSITA would have been motivated to somehow increase Magnalight’s ease of installation/uninstallation or safety of installation or access.

224. ***Third***, Petitioner argues that “a POSITA would readily attach lights to a mounting pole on a crown deck and/or handrail and be motivated to do so because it would make the lights more accessible and easier to adjust” because the description underneath the video viewer purports to state: “The adjustable aluminum mount can be attached to ladders, ship rails, hand rails, catwalks and scaffolding to facilitate convenient placement of this 12 volt work light.” Pet. 48 (quoting Ex. 1006-A). That description says nothing about accessibility. And, as described above, the so-

called “adjustability” of Magnalight would deter a POSITA from combining Magnalight with APA. *See supra* at VII(F).

225. ***Fourth***, Petitioner argues that the combination would be a “simple substitution of one known element (a plurality of Magnalight YouTube video attached to the crown deck) for another (prior art Figure 1 frame lights attached to the crown deck) to obtain predictable results.” Pet. 49. But a boilerplate allegation that it would be a “simple substitution of one known element...for another...to obtain predictable results” without more would not provide a POSITA with sufficient rationale to support obviousness of the proposed combination.

226. ***Fifth***, Petitioner contends a POSITA would be motivated to combine the references because “the use of known techniques (attaching lights with brackets and poles to a crown deck or a hand railing around a crown deck) to improve similar devices in the same way.” Pet. 49. But Petitioner never explains how adding the APA to Magnalight would improve Magnalight. Moreover, what Petitioner alleges was a “known technique” is not disclosed in any of Magnalight or APA for the reasons discussed *supra* in Sections VII(F).

227. ***Sixth***, Petitioner further contends that a POSITA “had good reasons to pursue the known options in the Larson Electronics / Magnalight YouTube video using ordinary skill and common sense to arrive at” the challenged claims. Pet. 50-51. But references to common sense cannot be used as a wholesale substitute for

reasoned analysis and evidentiary support. And, as I described above, a POSITA would be *deterred* from combining Magnalight and APA for reasons including that it would increase safety risks and require completely reworking each system that would fundamentally alter the purpose of each system.

228. ***Seventh***, Petitioner incorrectly contends that “[t]here are only a finite number of ways to attach lights to a crown deck or surrounding hand railing,” suggesting this would motivate a POSITA to combine Magnalight and APA. Pet. 50. This is unsupported for the same reasons discussed above in Section VII(F), which are incorporated here.

229. ***Eighth***, Petitioner suggests a POSITA would have reasonably expected to succeed in combining the identified references “because lights with mounting poles attached with brackets have been attached to many items such as guardrails for years using tools available in most hardware stores and commonly fabricated in oil field equipment fabrication shops and rig upyards.” Pet. 49. But this would not provide a POSITA any specific motivation to combine any aspects of Magnalight and APA in the manner that Petitioner proposes.

230. ***Ninth***, Petitioner argues that at least one of the references “shows that its mounting poles *may be* readily attached to hand railings.” Pet. 48. But what a POSITA “may” or “could” do is not enough to provide a POSITA with a motivation to combine. And even if the Magnalight device “may be readily attached to hand

railings” (it cannot), that does not speak to any reason that a POSITA would be motivated to combine Magnalight to APA to arrive at the claimed invention, which requires more than attaching alleged poles to general hand railings.

X. OBJECTIVE INDICIA OF NONOBVIOUSNESS

231. I have been informed that objective, real-world evidence, such as a long-felt but unmet needs, industry praise, commercial success, licensing, and copying can be evidence that patent claims were not obvious. I have been asked to consider and explain the nature and import of any such evidence in view of at least claims 1, 2, and 23 of the '016 Patent. I have also been asked to provide my opinion as to how this objective evidence should be weighed against the evidence that Petitioner contends shows the claims are unpatentable.

232. As set forth below, Patent Owner's use of the “Crown Jewel™” products embody the systems claimed in claims 1, 2, and 23 of the '016 Patent, and there is strong and compelling objective evidence that the disclosed lighting systems elegantly solved a long-felt need, were highly successful commercially, generated widespread industry praise, and prompted the release of a substantially similar system by Patent Owner's competitor. In addition, at least two direct competitors licensed or tried to license the '016 Patent.

233. Based on this, it is my opinion that even if the Board were to find that the systems of claims 1, 2, and 23 to be obvious in view of the prior art and the

arguments provided by Petitioner and Mr. Hamdan, the robust real-world objective evidence demonstrating that the claimed systems were not obvious to those working in the field at the time would clearly outweigh such a finding.

A. “Crown Jewel™” embodies the systems of claims 1, 2, and 23 of the ’016 Patent.

234. For the purpose of this Response, I have been asked whether Patent Owner’s “Crown Jewel™” product embodies claims 1, 2, and 23 of the ’016 Patent. Based on my review of the challenged claims, the information provided to me in connection with this IPR, and my familiarity with the Crown Jewel and how it is used, my conclusion is that claims 1, 2, and 23 cover the Crown Jewel system offered by Patent Owner.

235. The details of my analysis are set forth in Appendix A, which is a claim chart in which I set forth my opinions regarding each element of the challenged claims. I also understand that the photographs at Exhibit 2007-2010 are from Patent Owner of its Crown Jewel installed on one of Petitioner’s Rigs. For the purposes of this Response, I have not been asked to analyze, nor have I analyzed, whether use of the Crown Jewel product embodies any other claims of the ’016 Patent besides those listed in Appendix A. I do not intend for my statements in Appendix A to be weighed any differently than my statements here.

B. Long-felt need

236. A POSITA would recognize that prior art lighting systems used to provide illumination at a well site included conventional lighting towers. Conventional lighting towers are not attached to the rig and instead constitute a standalone system that is generally attached to a trailer with generator to provide power to the lamps. The generators typically rely on diesel fuel, which can be costly and create a risk of spills. And the mast of the lighting tower may be able to be raised or lowered depending on whether it is in use or being moved. In addition, lighting towers typically illuminate only a relatively restricted and confined area. As a result, it usually requires several lighting towers in an attempt to sufficiently illuminate the wellsite area. Critically, lighting towers are limited in their height from the ground.

237. Based on my experience, prior art lighting systems also included frame-based lighting systems. As the '016 Patent's Figure 1 exemplifies, these systems employed sturdy frames mounted at the top of a crown. Ex. 1001 at Fig. 1. The frame-based systems ensured that the frame lights were safely secured to a crown and would not detach from the sway and vibrations of the rig, as well as weather conditions. However, such systems were complicated to install, maintain, and transport due to their weight and size.

238. In hindsight, the industry required a lighting solution that could be mounted at a greater height than conventional lighting towers (and thus distribute

light to a wider area), installed and transported without increased time and manpower, used to provide adequate illumination to the well site below a rig without increased or costly power consumption (such as by use of diesel fuel). A POSITA would recognize—as Petitioner’s references demonstrate—no one in the field had developed a way of achieving these goals. Even though some tried to address certain of these issues (such as Gowanlock introducing underslung lights), Patent Owner’s Crown Jewel product was the first lighting system that offered a complete package.

C. Industry Praise

239. I am aware of numerous examples of professionals in the oil and gas industry praising the Patent Owner’s product and recognizing its novelty. Though I have not endeavored to collect an exhaustive list of such instances, I include excerpts from some examples below.

- For example, an employee from Chesapeake Energy stated: “The pole mounted design is a game changer, prior designs were heavy frame-based designs or those lights that had to be welded to the crown deck. C-MOR’s design is beautiful given its light weight and extendibility above the crown deck, allowing the attached lights to extend beyond the handrails or even turned inward during rig moves.” Ex. 2016.

- As another example, a drilling engineer from XTO Energy stated: “I think we’re all in agreement that this system is far more superior than using the light plants. ... After looking at the design and price, I know we all feel there should be no reason not to have these on every rig in the Permian.” Ex. 2017 at 9.
- And a drilling and completions engineer from Marathon Oil stated: “[s]afety, C-MOR Crown Jewel™ is a no-brainer. Anyone that says they believe in safety better have a Jewel on top of the crown.” Ex. 2017 at 9.

D. Commercial Success

240. Patent Owner’s release of Crown Jewel introduced a new approach to lighting systems for oil rigs that exist previously. I am aware of no product on the market prior to Crown Jewel that could be used in a way that achieved the claimed combination of elements and provided the unique benefits identified above.

241. Based on my conversations with C&M, I understand that since the Crown Jewel’s introduction in 2018, its rentals grew rapidly. For example, the revenue from 2018 through approximately November of 2023 for rental and sale of the Crown Jewel is at least [REDACTED]. And the revenue from 2018 through approximately November 2023 for installation, maintenance, and other support for the Crown Jewel is at least [REDACTED]. *Id.*

242. Further, based on my conversations with C&M, I understand that to date, the Crown Jewel has been installed on over [REDACTED] standard drilling rigs across the United States. There are approximately [REDACTED] active Crown Jewel systems installed on drilling rigs today, amounting to approximately [REDACTED] of total active rigs in the United States.

E. Licensing

243. From my conversations with C&M I also learned that two major competitors of Patent Owner, Apollo Lighting Solutions and Cleantek Industries, have licensed C&M's patents, including the '016 Patent.

F. Copying

244. Since the introduction of Crown Jewel, Petitioner has introduced its own substantially similar device, [REDACTED]
[REDACTED] Ex. 2011; Ex. 2012 at 289:14-24 ([REDACTED]
[REDACTED]).

245. I further understand that Mr. Hamdan—[REDACTED]
[REDACTED]—admitted that [REDACTED]
[REDACTED]
[REDACTED] Ex. 2012 at 351:24-352:21. In fact, [REDACTED]
[REDACTED]

[REDACTED]

[REDACTED] Ex. 2014; Ex. 2012 at 356:24-357:7, 357:14-358:24, 359:18-22, 366:18-22. I understand that, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (*id.* at 205:22-26:2, 362:2-364:8).

246. It is further evident that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Ex. 2012 at 221:13-19, 228:14-24. As confirmed by Ensign's produced documents, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Ex. 2012 at 226:8-227:6.

247. I have prepared a detailed claim chart illustrating how ELLS version 2 embodies the challenged claims of the '016 Patent. Appendix B. Ultimately, as I summarize in the figure below from one of Petitioner's own documents (annotations added), the ELLS version 2 satisfies each limitation of the claims.



248. Indeed, Mr. Hamdan told Ensign's President that the ELLS version 2

 Ex. 2011. Mr. Hamdan also admitted that







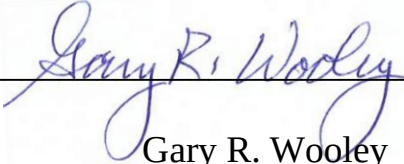


XI. CONCLUSION

249. For the above reasons, it is my opinion that the claims of the '016 Patent are not rendered obvious in view of the grounds presented by Petitioner.

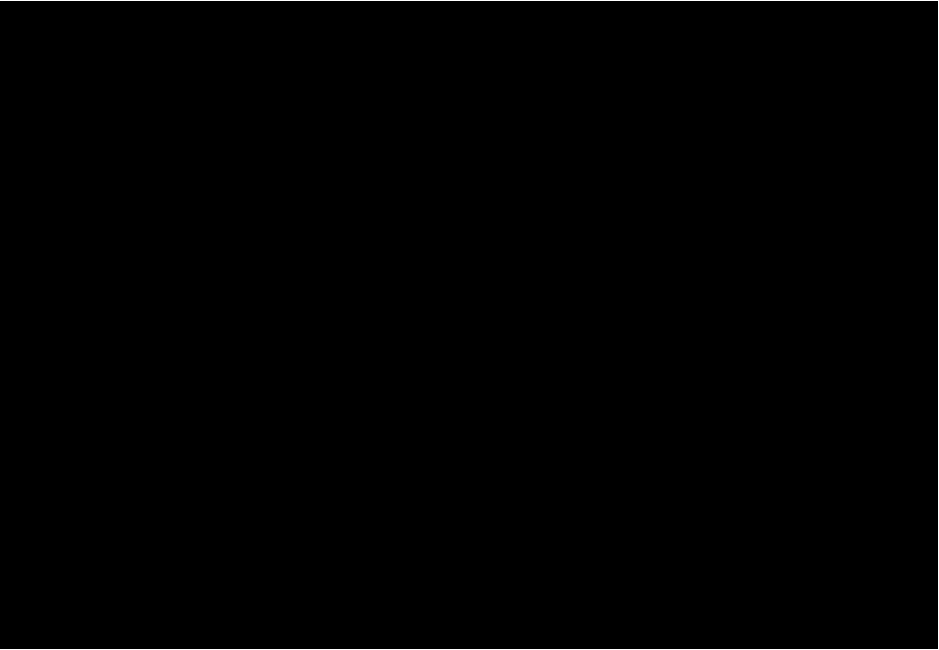
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the results of these proceedings.

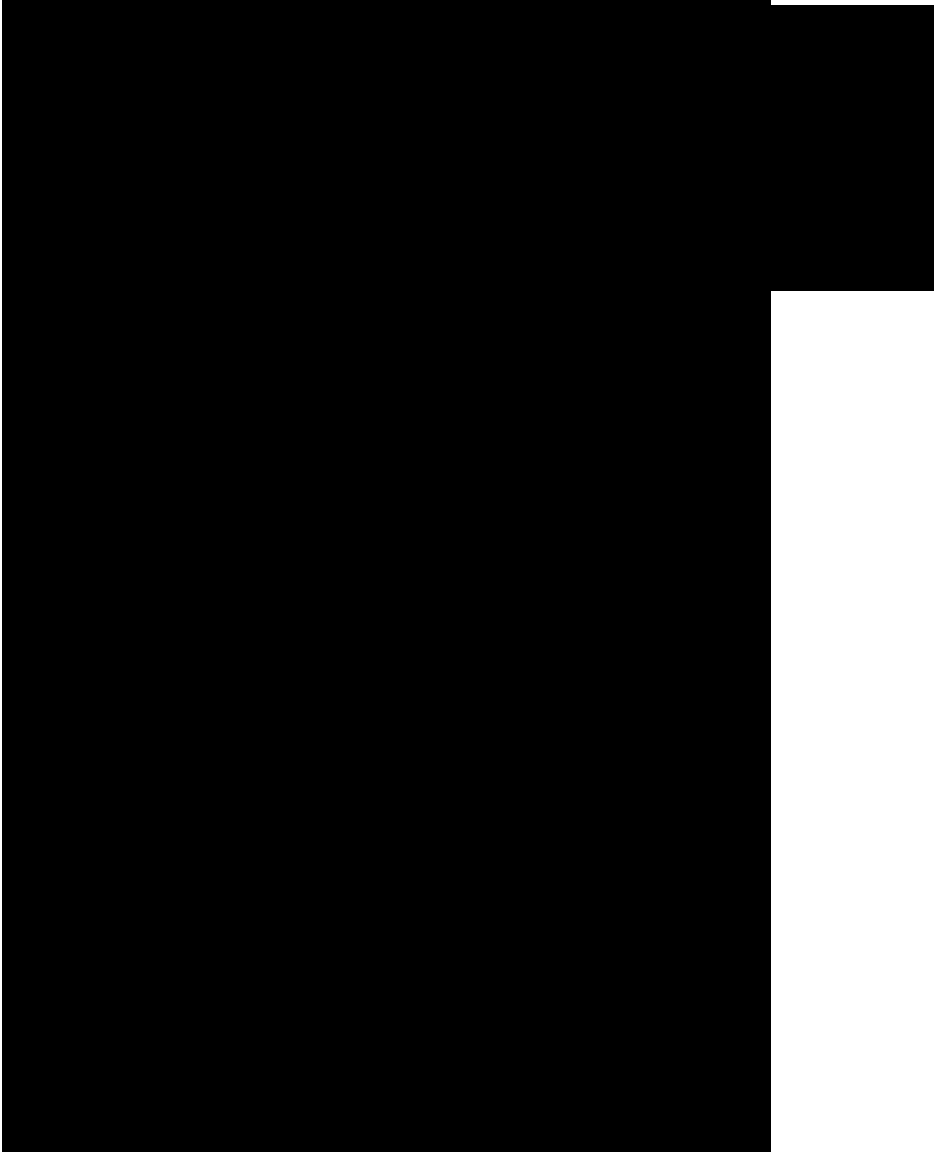
Executed 18 January 2024, in Houston, Texas

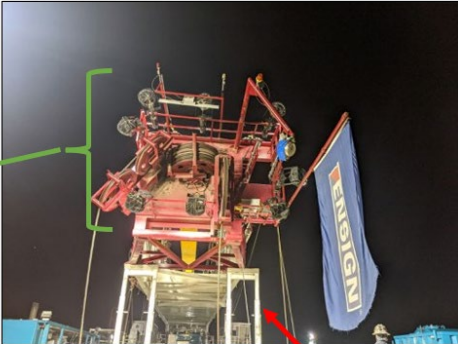
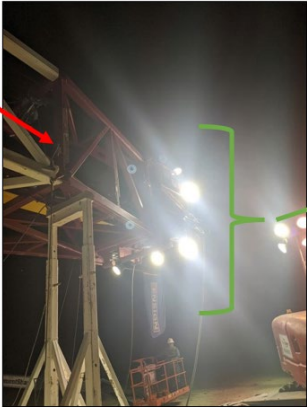


Gary R. Wooley

Appendix A

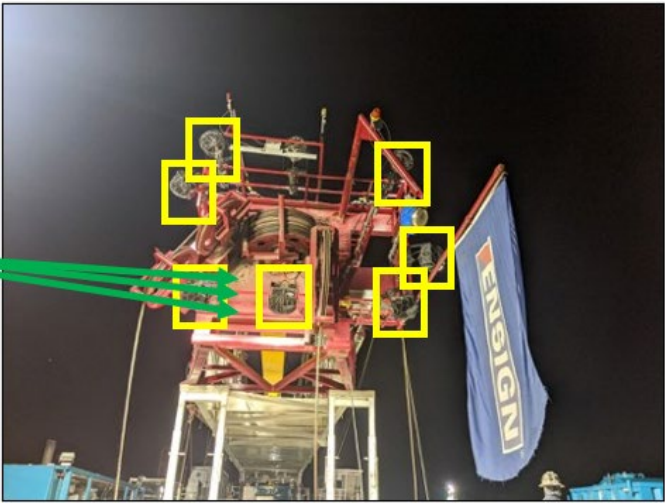
Element	C&M's Crown Jewel
1[p]: A modular lighting system mounted on a rig, the modular lighting system comprising:	C&M's Crown Jewel is a modular lighting system mounted on a rig (shown in a down rig position where the derrick is laying parallel to the ground). For example: 

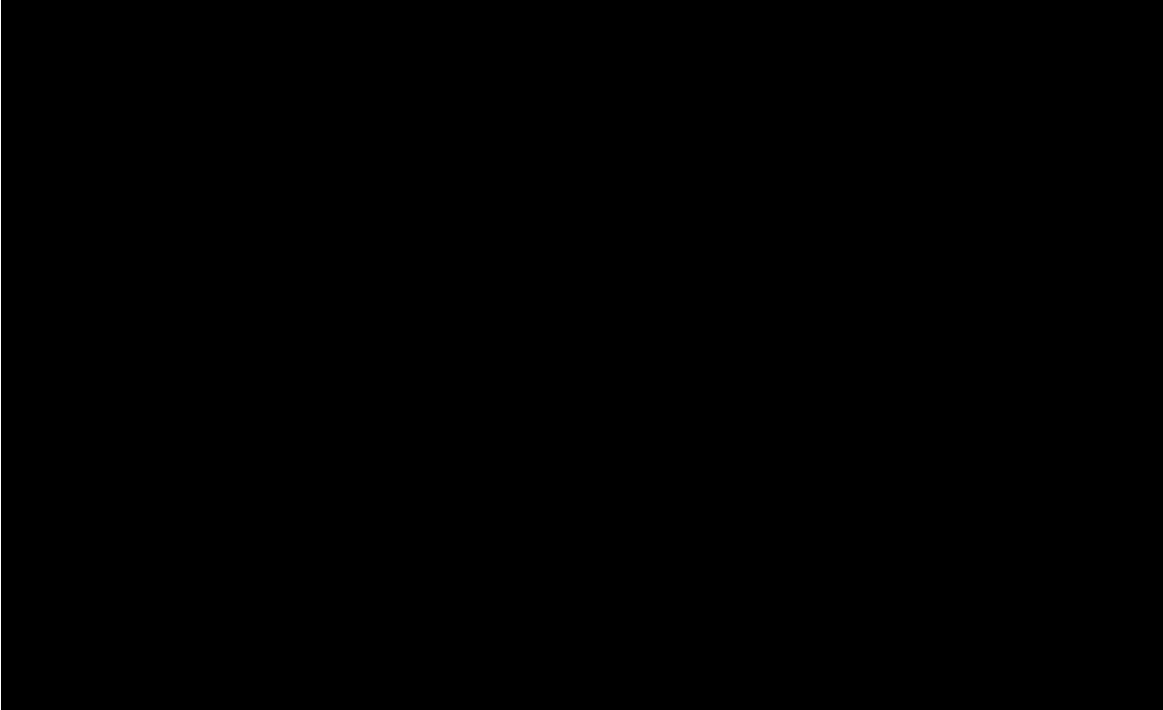
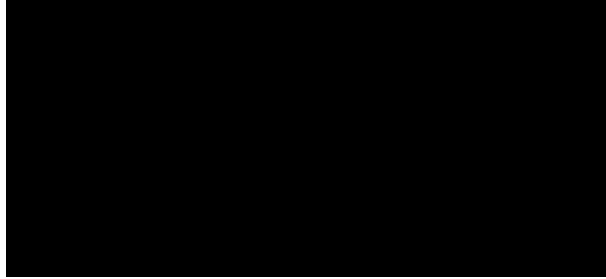
Element	C&M's Crown Jewel
	

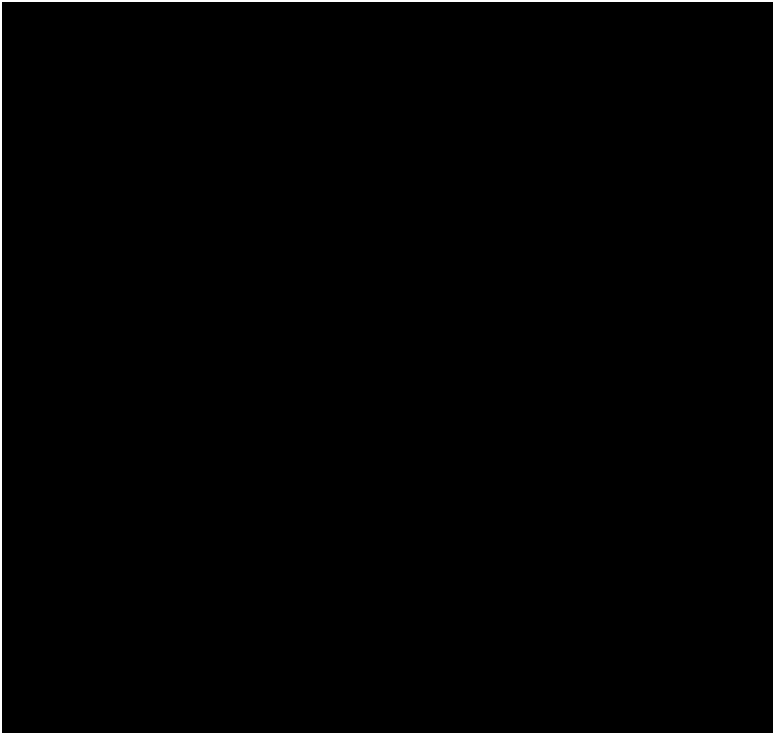
Element	C&M's Crown Jewel
	 Modular lighting system Rig Ex. 2007 (annotations added).  Rig Modular lighting system Ex. 2008 (annotations added).

Element	C&M's Crown Jewel
	Q. You are aware that C&M offers a product known as the Crown Jewel? A. Yes. Q. And the Crown Jewel is a lighting system that's offered by C&M, correct? A. Yes. Q. And C&M's Crown Jewel lighting system is used to illuminate oil rig well sites, correct? A. Yes. Ex. 2012 at 64:2-11. Q. And you understand that the Crown Jewel attaches to the crown deck of a rig, correct? A. To the crown, yes, deck, rails. <i>Id.</i> at 64:12-15.

Element	C&M's Crown Jewel
1[a]: a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:	The Crown Jewel has a plurality of light units, each light unit separately attached to a crown deck of the rig. For example: 

Element	C&M's Crown Jewel
	Crown deck of the rig  Ex. 2007 (annotations added).

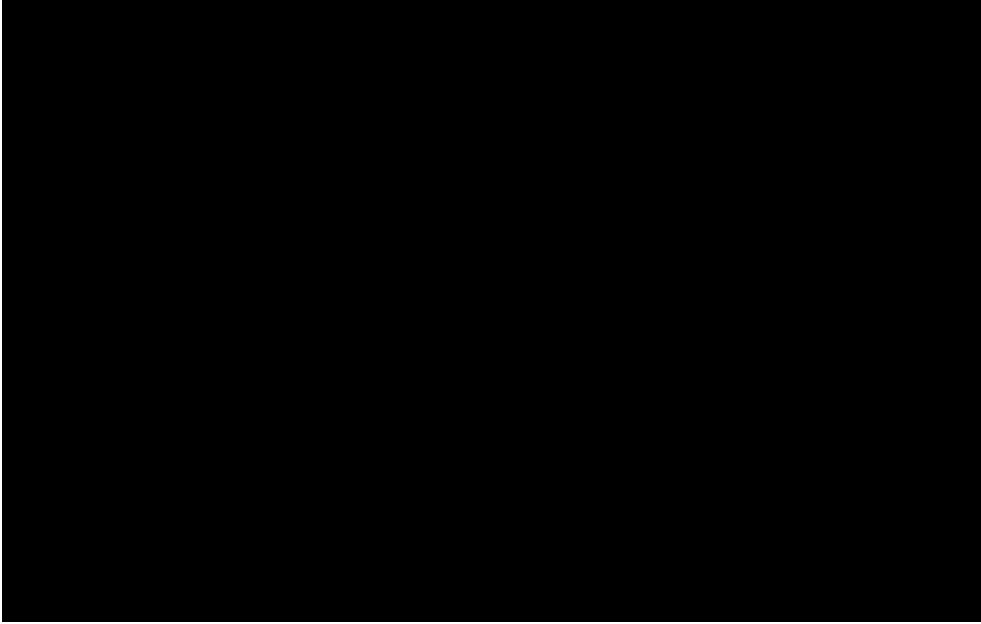
Element	C&M's Crown Jewel
	  Ex. 2014 (annotations added).

Element	C&M's Crown Jewel
	 Ex. 2014 (annotations added).

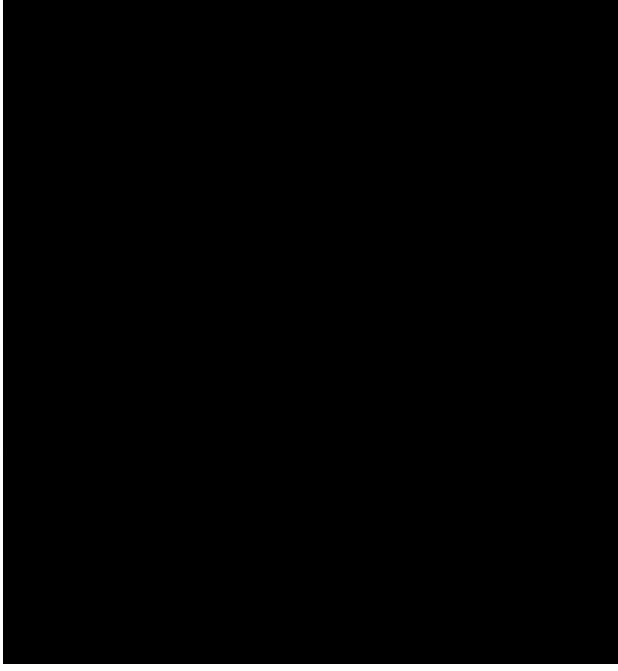
Element	C&M's Crown Jewel
	A large black rectangular redaction box covers the majority of the page content, obscuring any text or images that might have been present. A small green letter 'k' is visible on the right edge of the redaction box. Ex. 2014 (annotations added). Q. And you understand that the Crown Jewel attaches to the crown deck of a rig, correct? A. To the crown, yes, deck, rails.

Element	C&M's Crown Jewel
	Ex. 2012 at 64:12-15. Q. If C&M's Crown Jewel lighting system connects to the handrail of a crown deck, it is connected to the crown deck, correct? A. If it's connected to the handrail of the crown deck, yes. <i>Id.</i> at 75:4-8. Q. Okay. So if C&M's Crown Jewel lighting system is attached to a handrail that is accompanying a crown deck, it is attached to the crown deck, correct? A. Correct. Q. Okay. And if C&M's Crown Jewel product is attached to the parts supporting the walking surface of a crown deck, it is attached to a crown deck, correct? A. Correct. <i>Id.</i> at 78:14-23.

Element	C&M's Crown Jewel
	 <i>Id.</i> at 202:10-24.
1[a][i]: a mounting pole	Each light unit of the Crown Jewel has a mounting pole. For example:

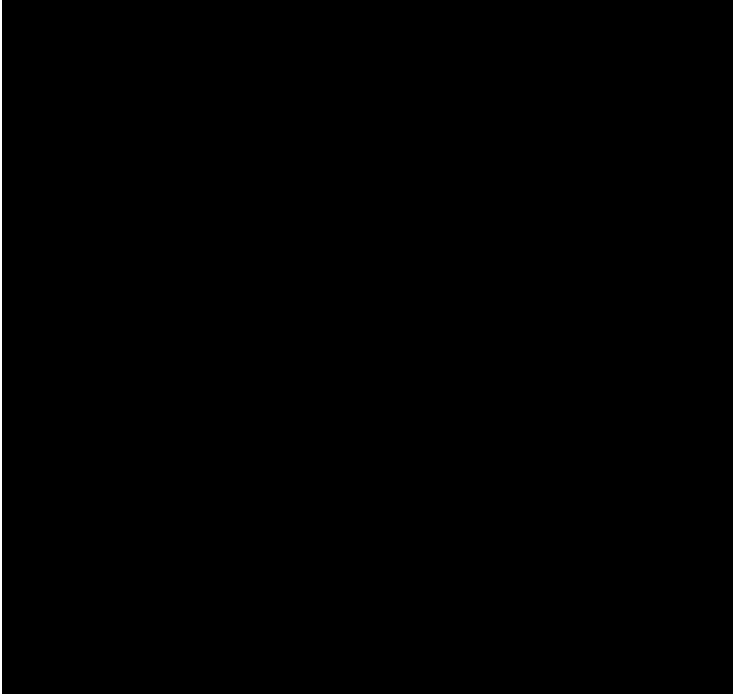
Element	C&M's Crown Jewel
	 Ex. 2014 (annotations added).

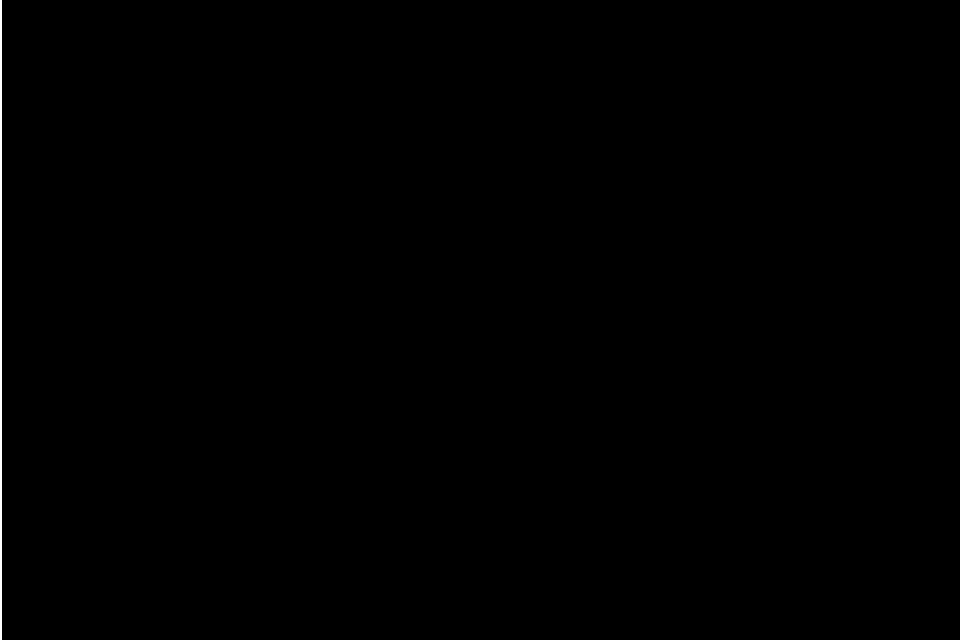
Element	C&M's Crown Jewel
	

Element	C&M's Crown Jewel
	

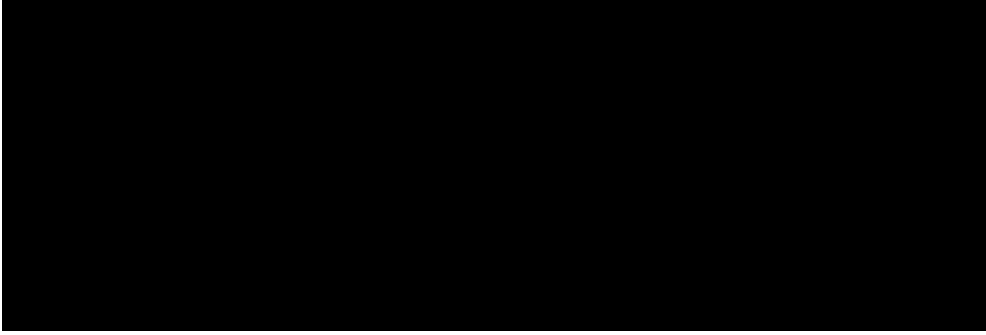
Element	C&M's Crown Jewel
	 Mounting pole Ex. ##### (annotations added).
1[a][ii]: a light fixture comprising one or more lights; and	Each light unit of the Crown Jewel has a light fixture comprising one or more lights. For example:

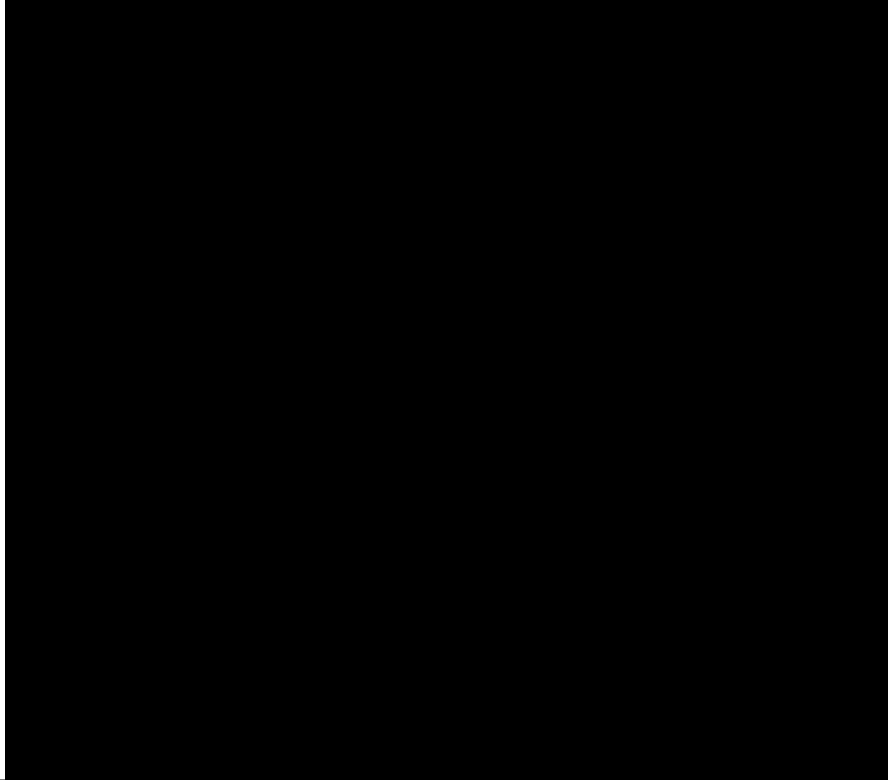
Element	C&M's Crown Jewel
	 Ex. 2013 at p.10 (annotations added).

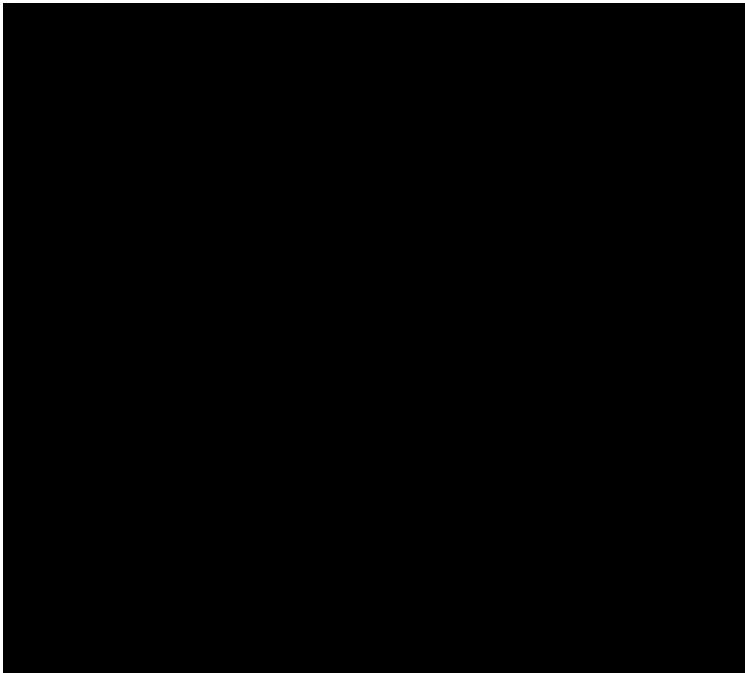
Element	C&M's Crown Jewel
	

Element	C&M's Crown Jewel
	

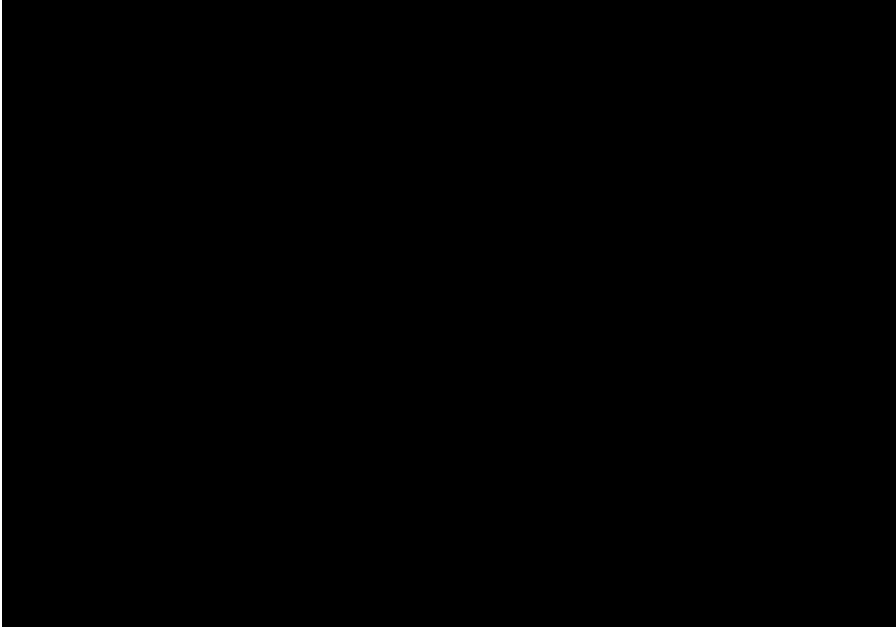
Element	C&M's Crown Jewel
	 Ex. 2008 (annotations added). Q. And you understood that the EIKO's lights used by C&M also for the Crown Jewel clamp to the handrails on the crown, right? A. Yes, I knew that. Ex. 2012 at 228:21-24.

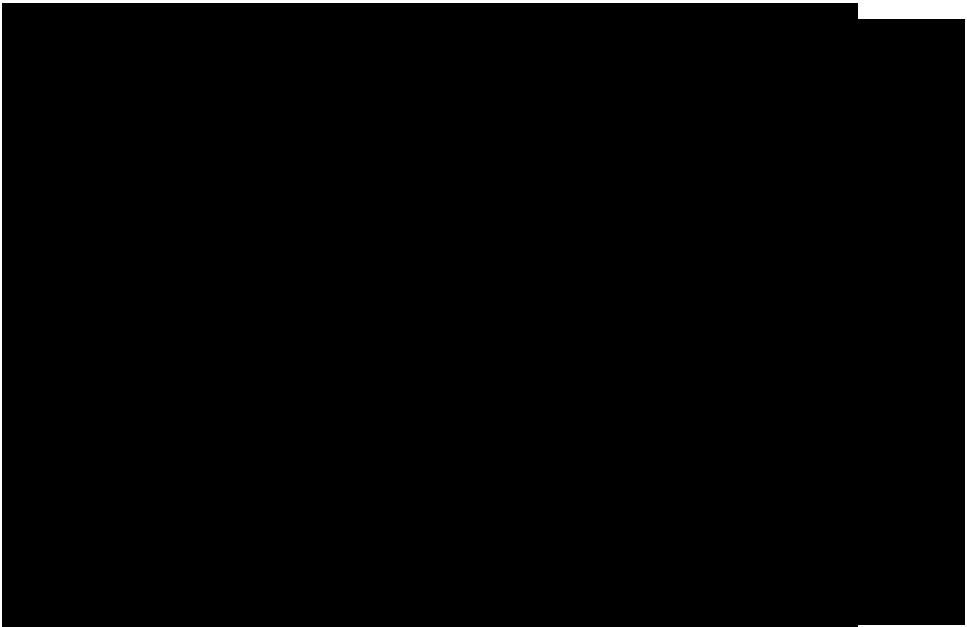
Element	C&M's Crown Jewel
	 Ex. 2012 at 202:10-14.
1[a][iii]: a bracket configured to attach the mounting pole to the crown deck of the rig.	Each light unit of the Crown Jewel has a bracket configured to attach the mounting pole to the crown deck of the rig. For example:

Element	C&M's Crown Jewel
	 Ex. 2014 (annotations added).

Element	C&M's Crown Jewel
	 Ex. 2013 at p.10 (annotations added).

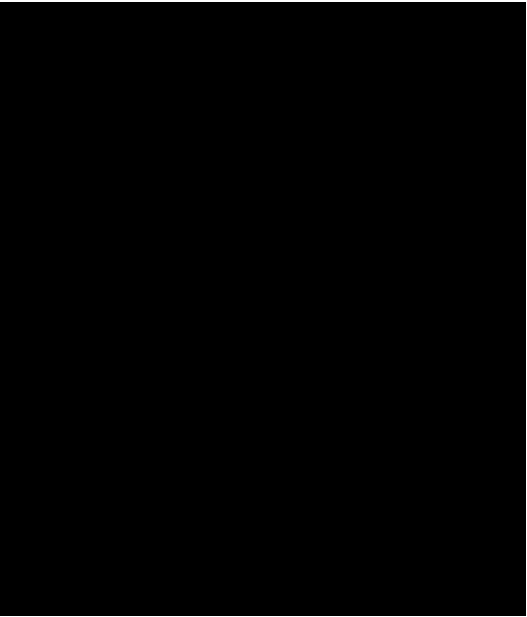
Element	C&M's Crown Jewel
	 Bracket Crown deck of the rig Ex. 2009 (annotations added).

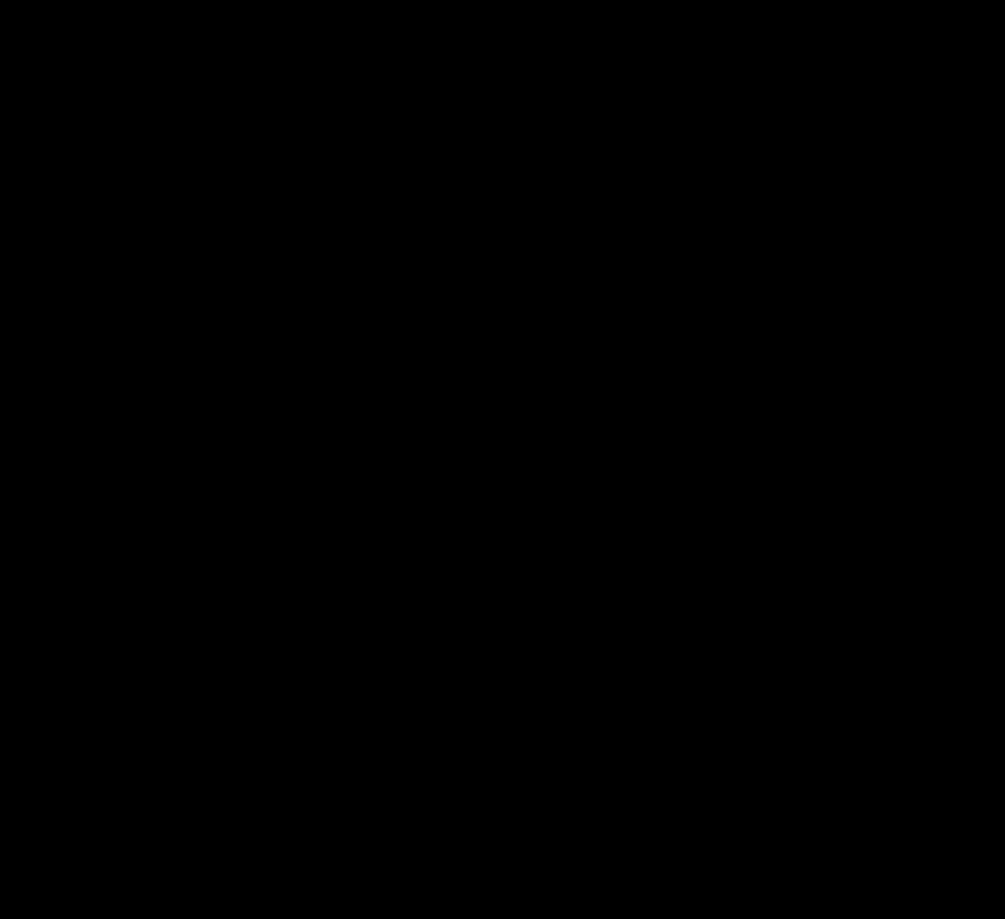
Element	C&M's Crown Jewel
	 Ex. 2007 (annotations added).

Element	C&M's Crown Jewel
	 Ex. 2012 at 202:15-24.
The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts.	The Crown Jewel is the lighting system of claim 1 for the reasons discussed above in connection with claim 1, which are incorporated here. The Crown Jewel's bracket is connected to the crown deck of the rig using bolts. For example:

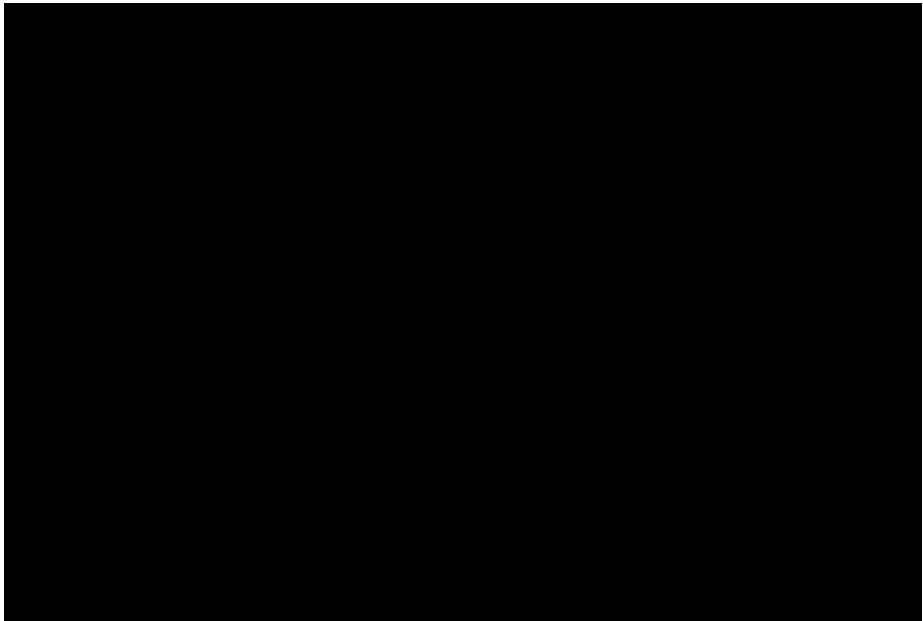
Element	C&M's Crown Jewel
	 Ex. 2009 (annotations added).

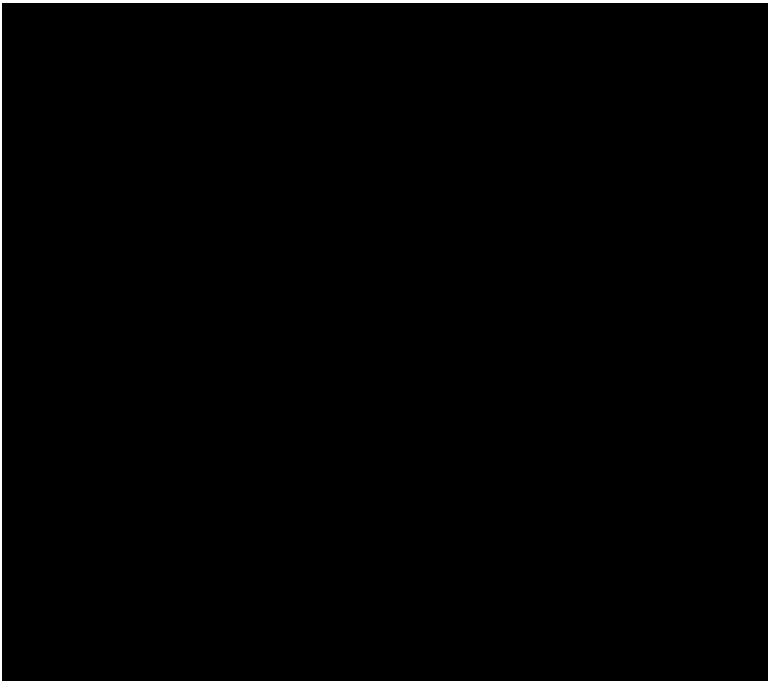
Element	C&M's Crown Jewel	
		ASSEMBLY LIST 

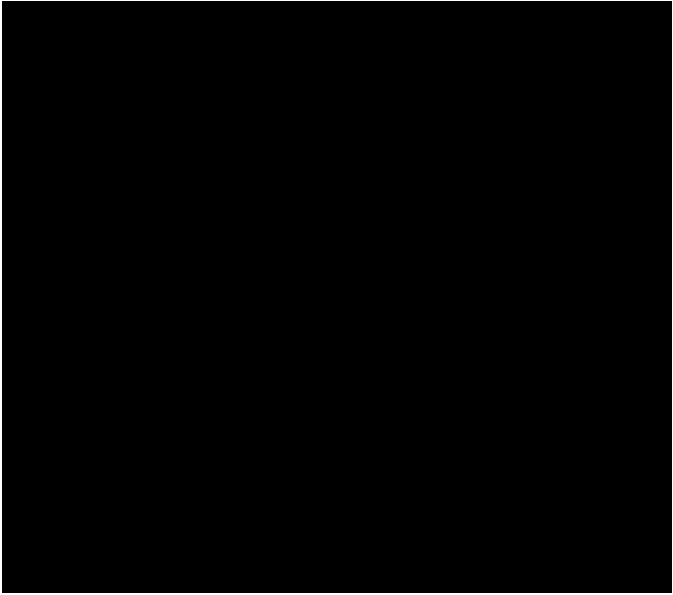
Element	C&M's Crown Jewel
	 Ex. 2007 (annotations added).

Element	C&M's Crown Jewel
	 <i>Id.</i>

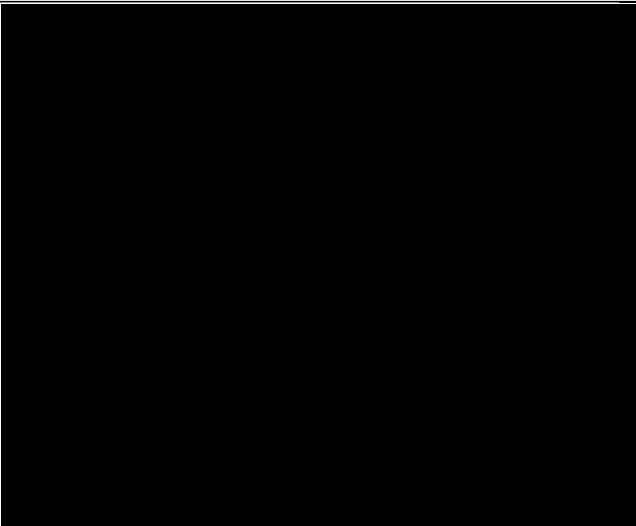
Element	C&M's Crown Jewel
	 Ex. 2009 (annotations added).

Element	C&M's Crown Jewel
	 Ex. 2012 at 202:15-24.
23[p]: A rig comprising:	When used, the Crown Jewel is installed on a rig. For example:

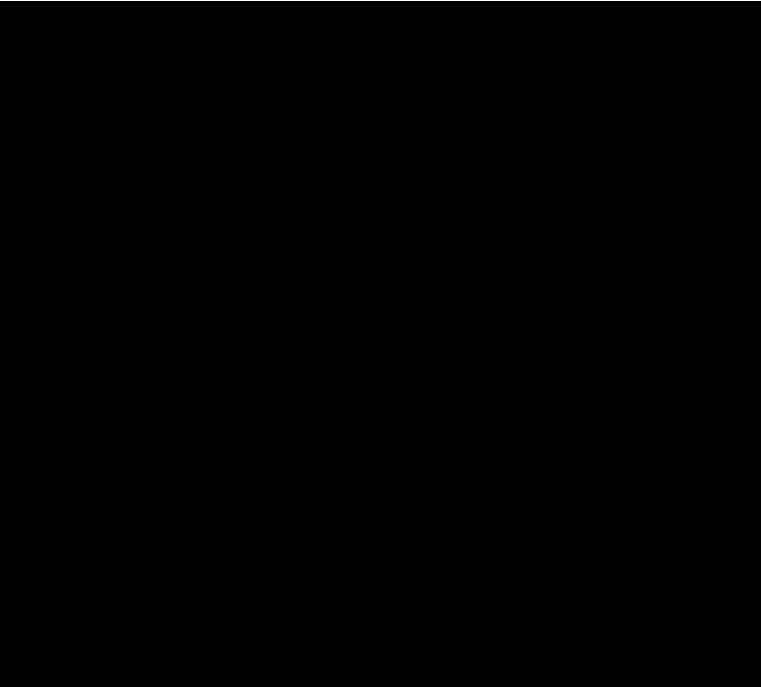
Element	C&M's Crown Jewel
	 Ex. 2013 p.9 (annotations added).

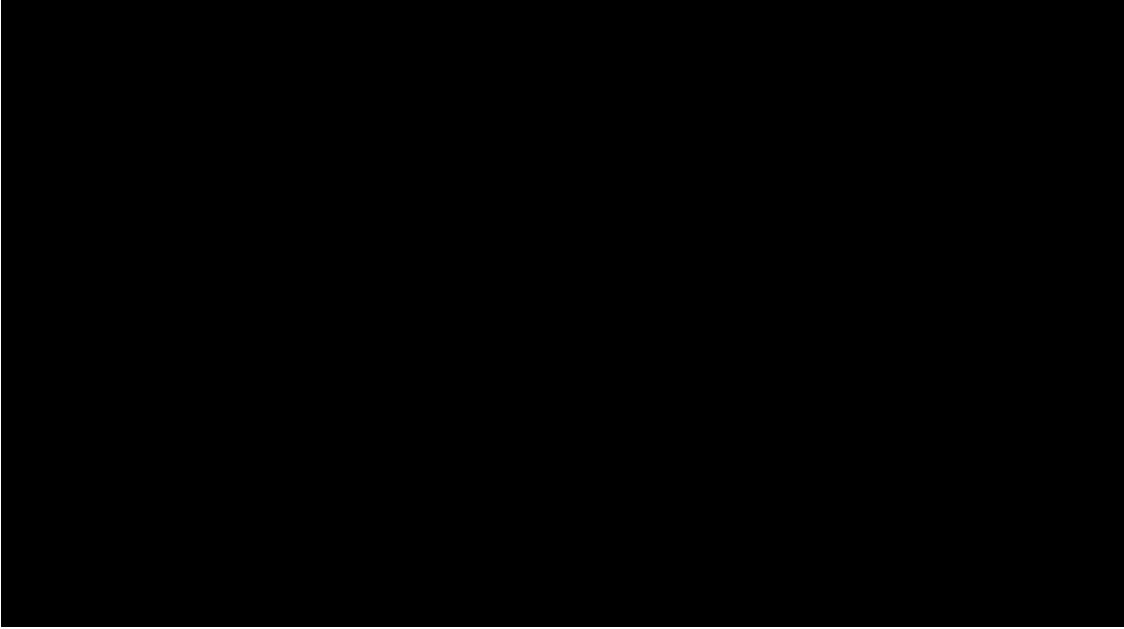
Element	C&M's Crown Jewel
	 Ex. 2013 p.10 (annotations added).

Element	C&M's Crown Jewel
	Rig  Ex. 2008 (annotations added).

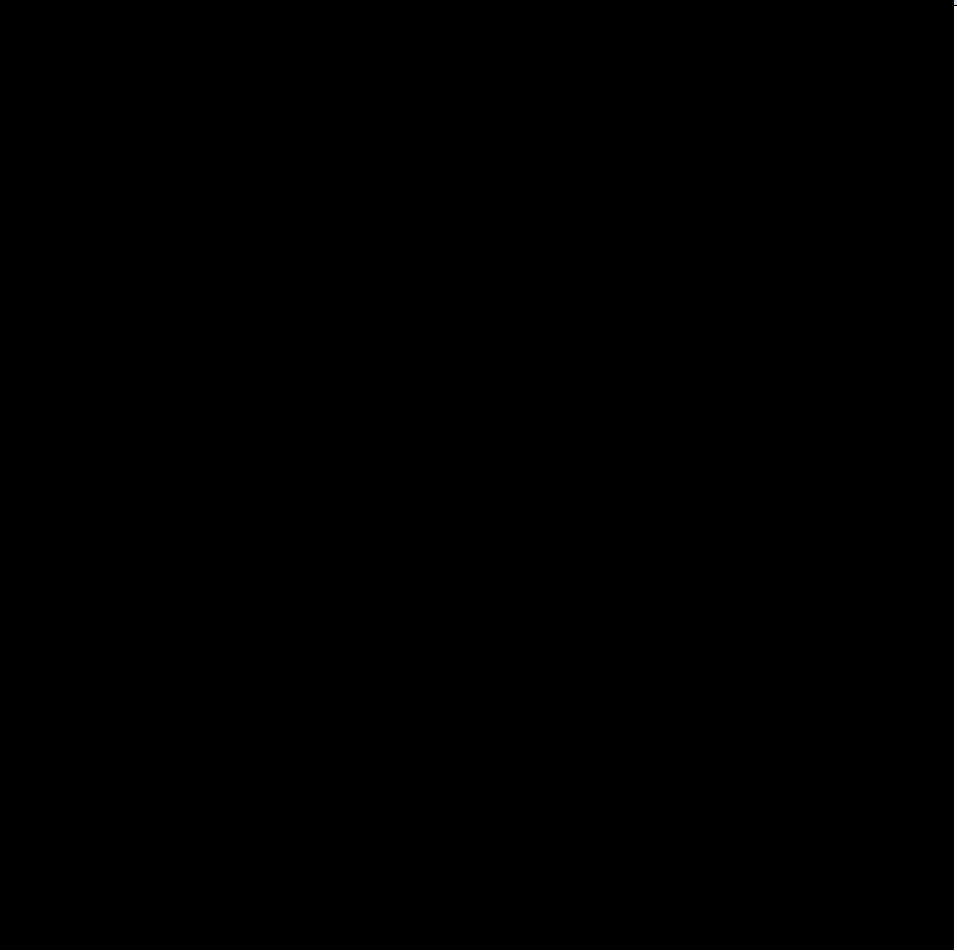
Element	C&M's Crown Jewel
	 Ex. 2013 p.11 (annotations added).
23[a]: a derrick;	When used, the Crown Jewel is installed on a rig that has a derrick. For example:

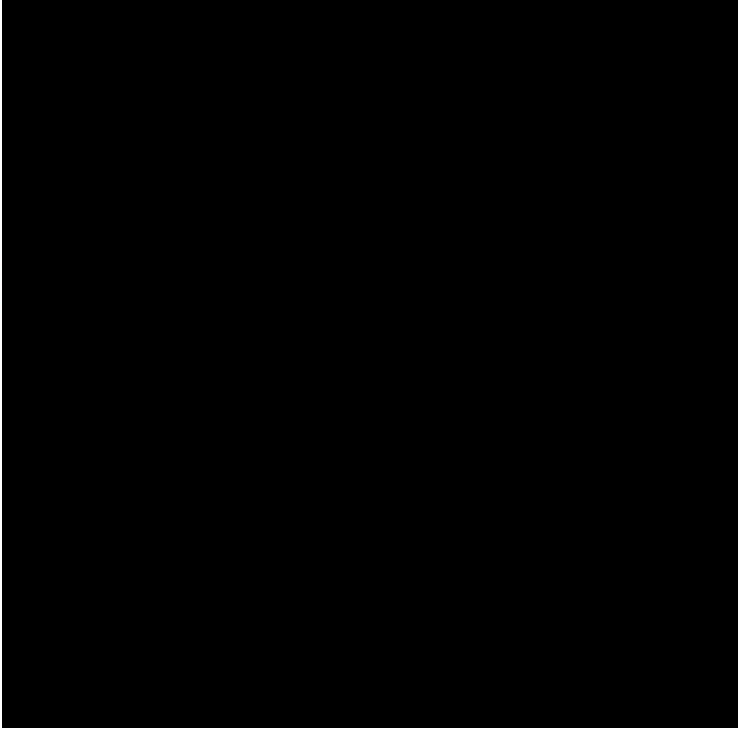
Element	C&M's Crown Jewel
	derrick

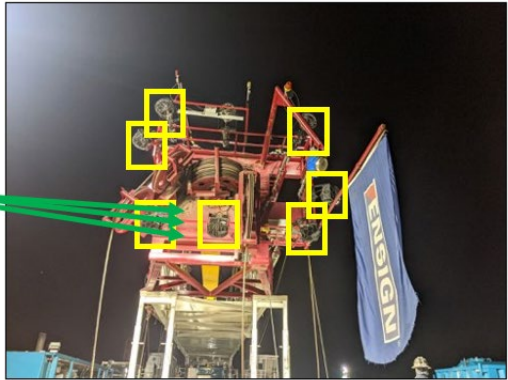
Element	C&M's Crown Jewel
	Ex. 2008 (annotations added).
23[b]: a crown deck at the top of the derrick; and	When used, the Crown Jewel is installed on a rig that has a crown deck at the top of the derrick. For example:  Ex. 2013 p.9 (annotations added).

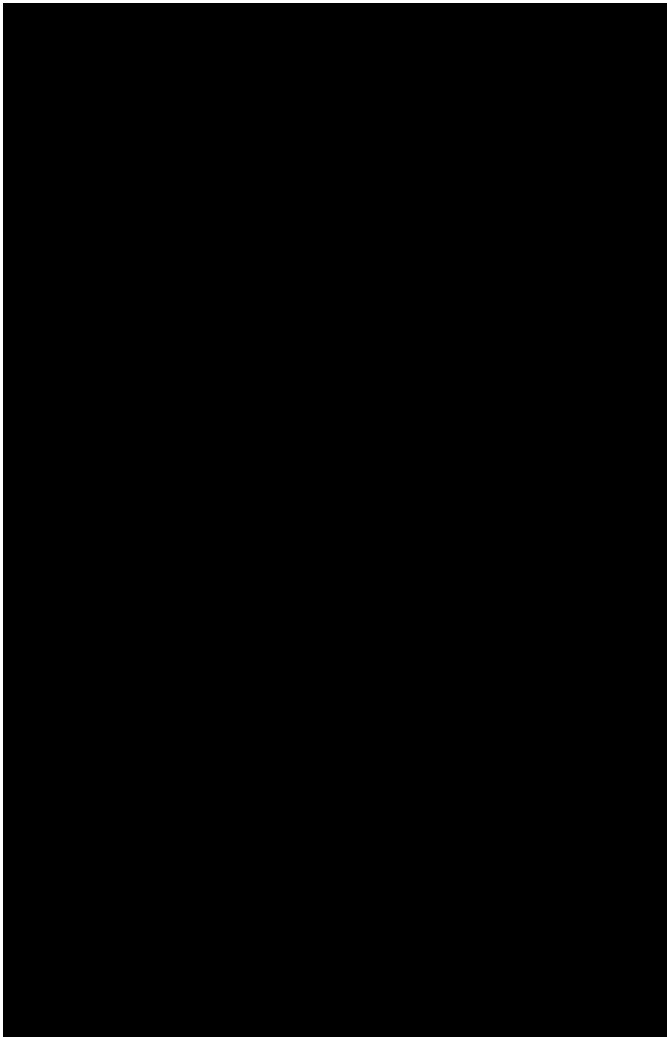
Element	C&M's Crown Jewel
	 Ex. 2013 p.10 (annotations added). Q. And you understand that the Crown Jewel attaches to the crown deck of a rig, correct? A. To the crown, yes, deck, rails. Ex. 2012 at 64:12-15.

Element	C&M's Crown Jewel
	Q. If C&M's Crown Jewel lighting system connects to the handrail of a crown deck, it is connected to the crown deck, correct? A. If it's connected to the handrail of the crown deck, yes. <i>Id.</i> at 75:4-8. Q. Okay. So if C&M's Crown Jewel lighting system is attached to a handrail that is accompanying a crown deck, it is attached to the crown deck, correct? A. Correct. Q. Okay. And if C&M's Crown Jewel product is attached to the parts supporting the walking surface of a crown deck, it is attached to a crown deck, correct? A. Correct. <i>Id.</i> at 78:14-23.

Element	C&M's Crown Jewel
	 Ex. 2012 at 202:10-24.
23[c]: a plurality of light units, each light unit separately	The Crown Jewel has a plurality of light units, each light unit separately attached to the crown deck. For example:

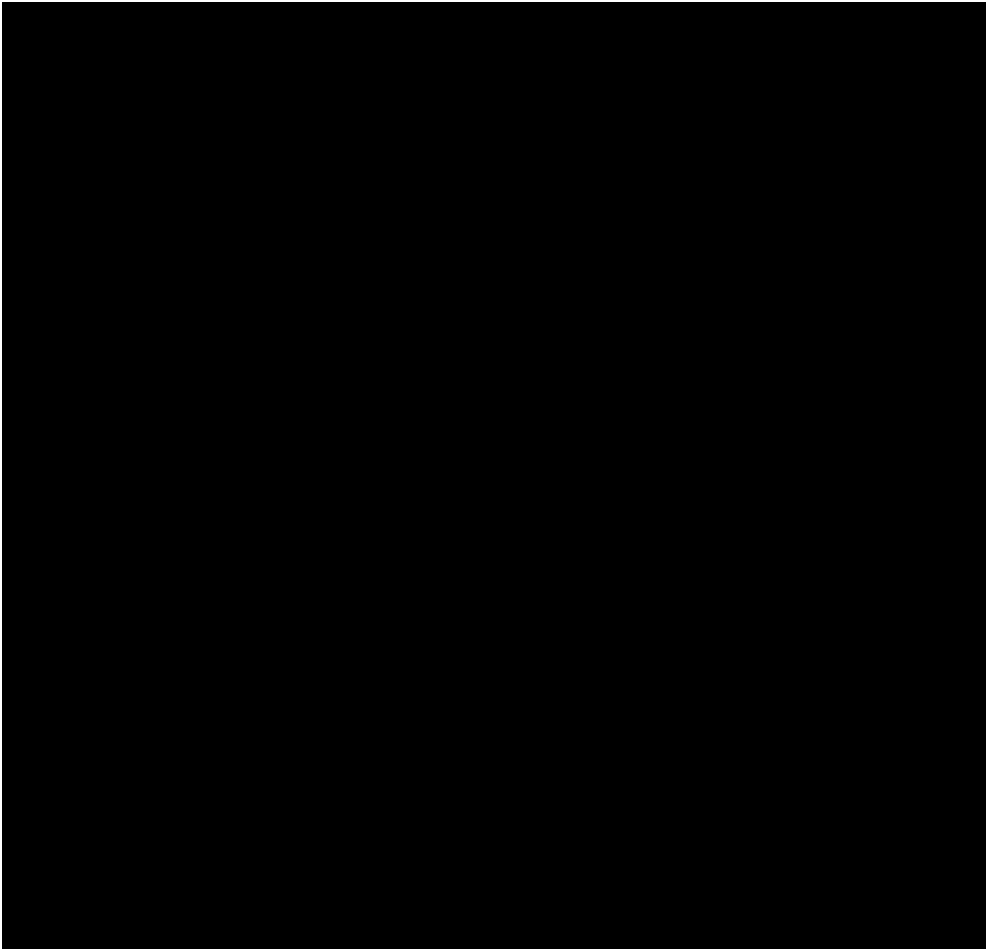
Element	C&M's Crown Jewel
attached to the crown deck, each light unit comprising:	

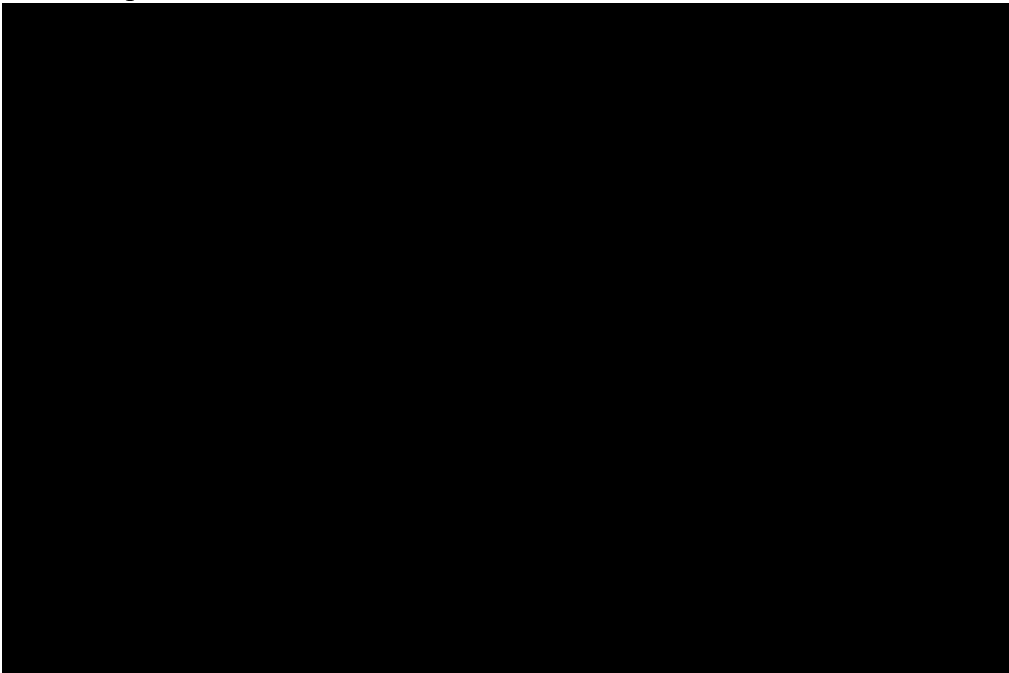
Element	C&M's Crown Jewel
	Crown deck of the rig  Ex. 2007 (annotations added). 

Element	C&M's Crown Jewel
	 Ex. 2007 (annotations added).

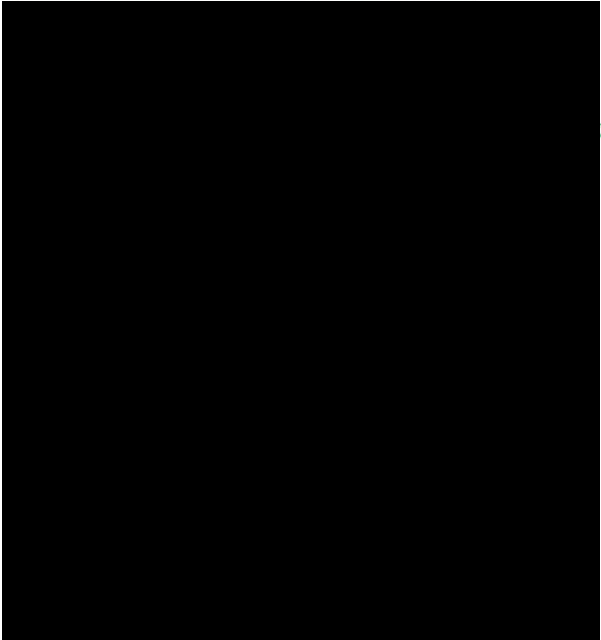
Element	C&M's Crown Jewel
	Ex. 2007 (annotations added). Q. And you understand that the Crown Jewel attaches to the crown deck of a rig, correct? A. To the crown, yes, deck, rails. Ex. 2012 at 64:12-15.

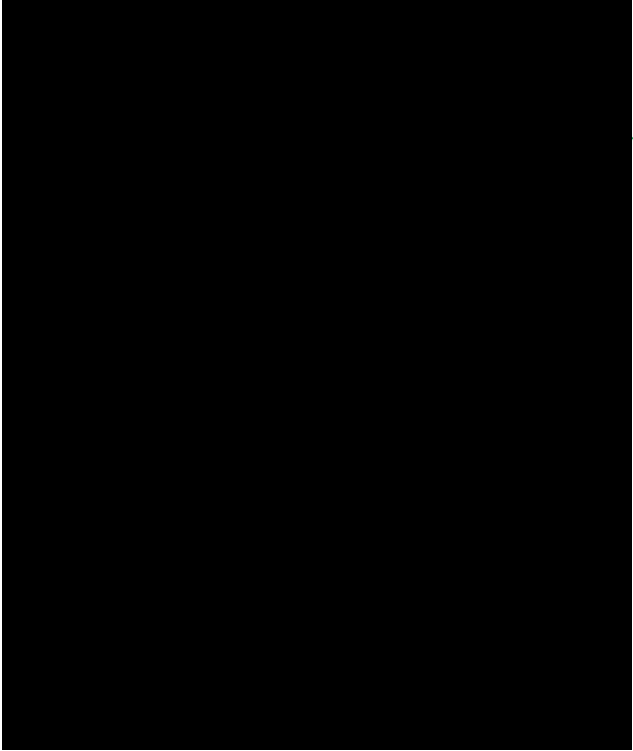
Element	C&M's Crown Jewel
	Q. If C&M's Crown Jewel lighting system connects to the handrail of a crown deck, it is connected to the crown deck, correct? A. If it's connected to the handrail of the crown deck, yes. <i>Id.</i> at 75:4-8. Q. Okay. So if C&M's Crown Jewel lighting system is attached to a handrail that is accompanying a crown deck, it is attached to the crown deck, correct? A. Correct. Q. Okay. And if C&M's Crown Jewel product is attached to the parts supporting the walking surface of a crown deck, it is attached to a crown deck, correct? A. Correct. <i>Id.</i> at 78:14-23.

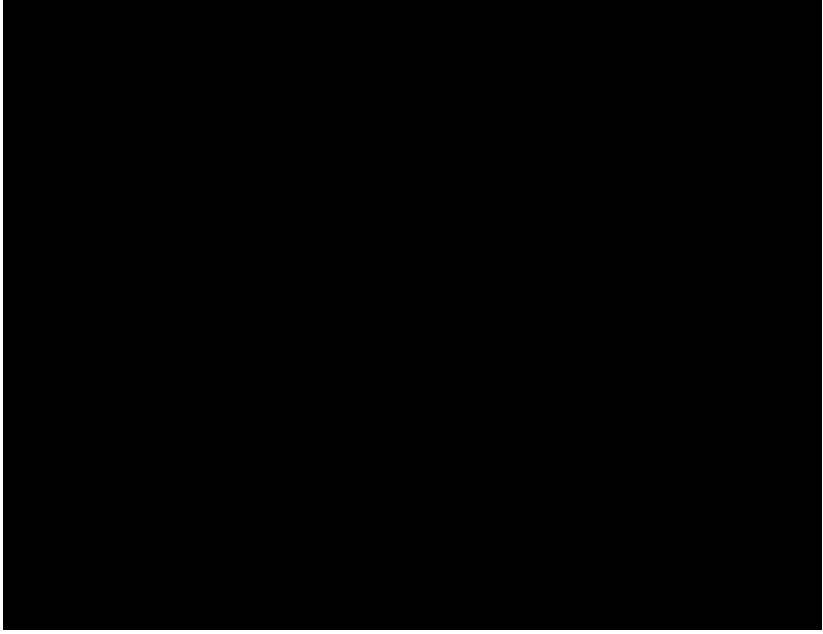
Element	C&M's Crown Jewel
	 <i>Id.</i> at 202:10-24.
23[c][i]: a mounting pole, wherein each light unit comprises a	The Crown Jewel has a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles. For example:

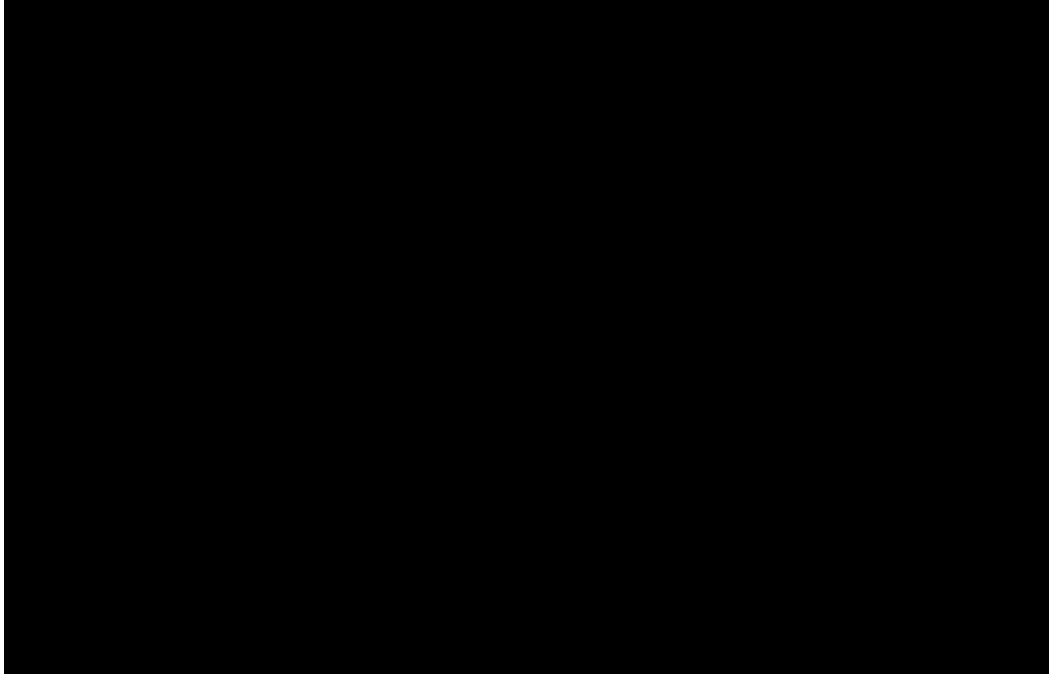
Element	C&M's Crown Jewel
separate mounting pole, such that the system comprises a plurality of mounting poles; and	For example:  Ex. 2007 (annotations added).

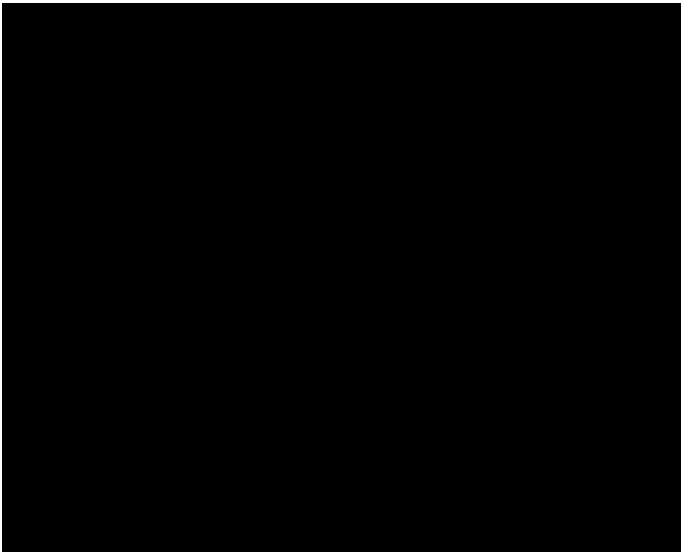
Element	C&M's Crown Jewel
	

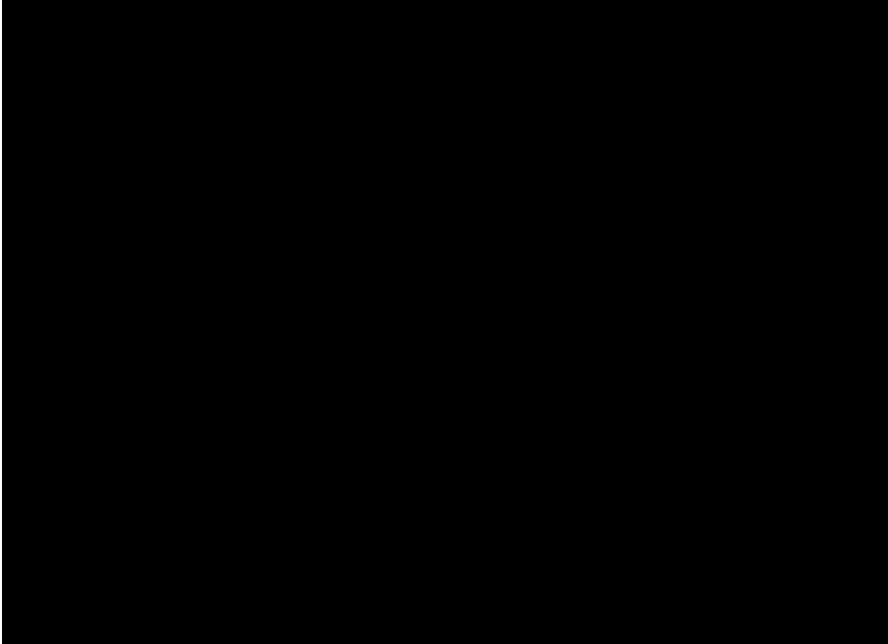
Element	C&M's Crown Jewel
	 Ex. 2013 p.10 (annotations added).

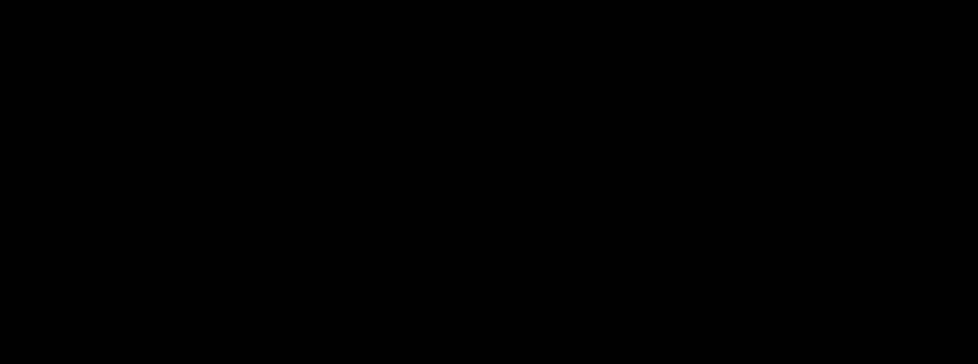
Element	C&M's Crown Jewel
	 ng

Element	C&M's Crown Jewel
	
23[c][ii]: a light fixture comprising one or more lights, the light fixture coupled to the mounting pole.	The Crown Jewel has a light fixture comprising one or more lights, the light fixture coupled to the mounting pole. For example:

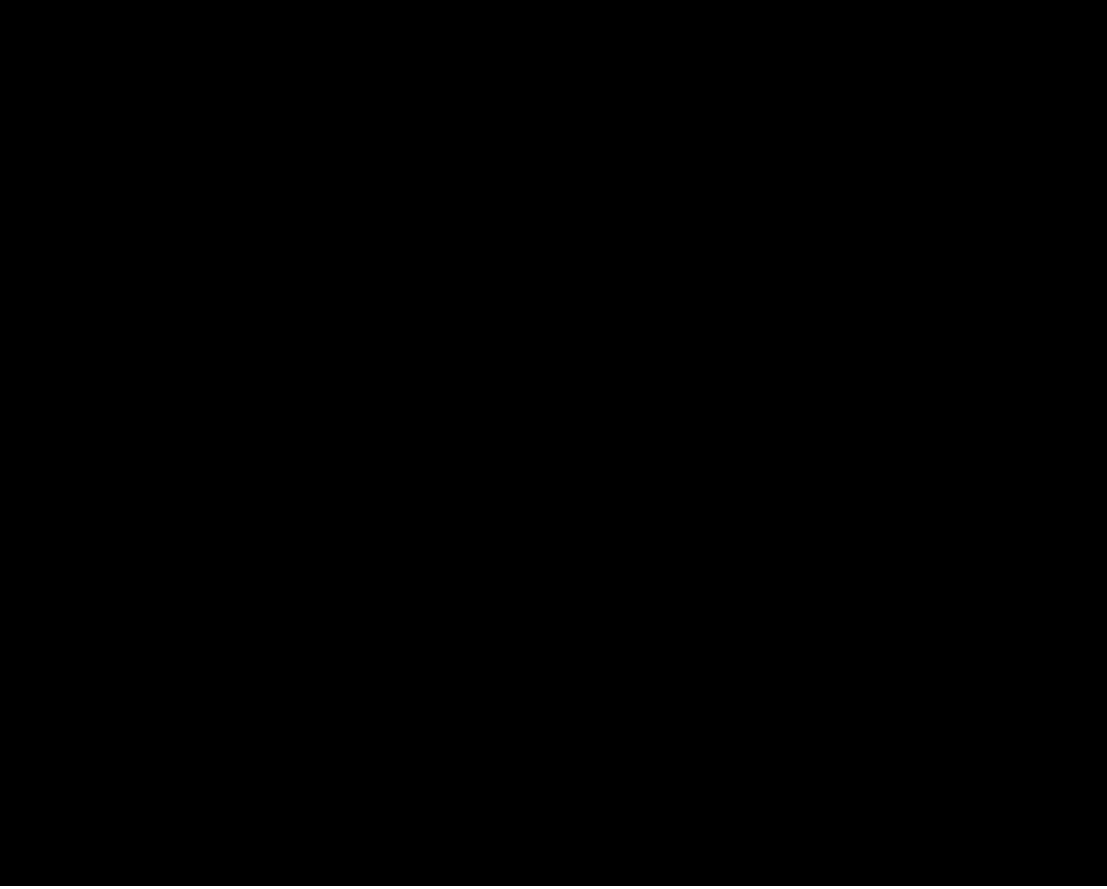
Element	C&M's Crown Jewel
	 Exhibit 2014 (annotations added).

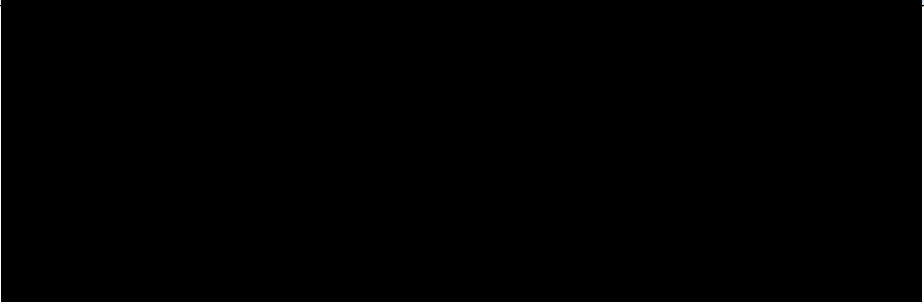
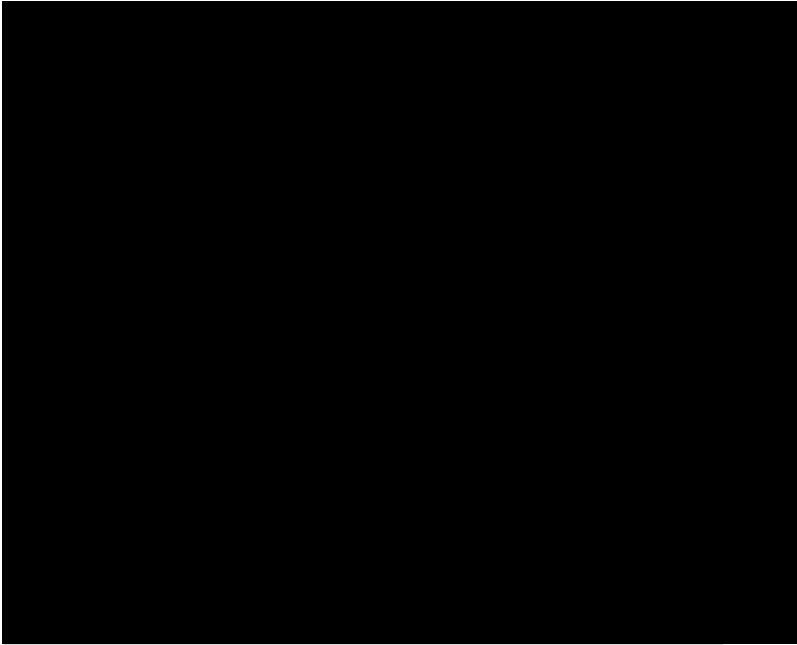
Element	C&M's Crown Jewel
	 Ex. 2013 p.10 (annotations added).

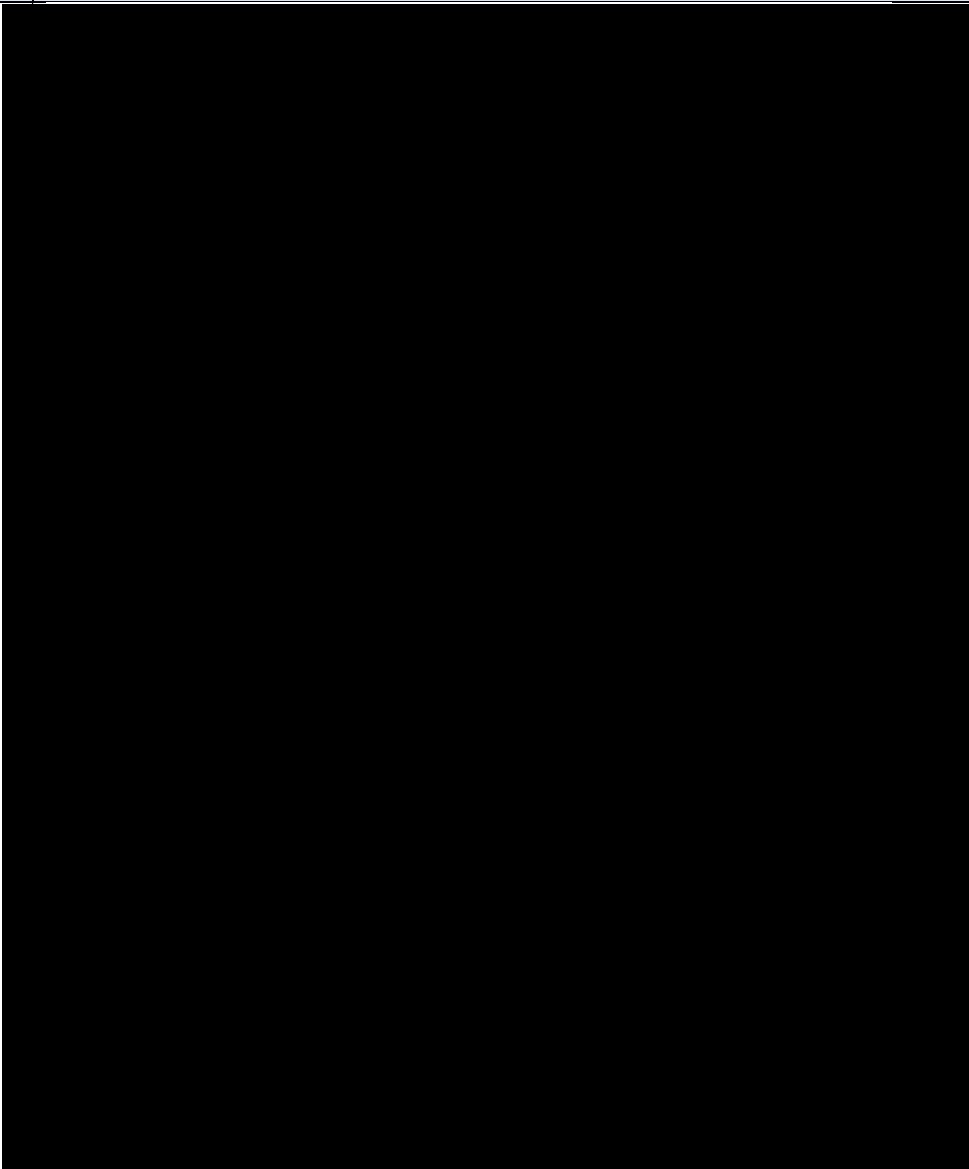
Element	C&M's Crown Jewel
	 Q. And you understood that the EIKO's lights used by C&M also for the Crown Jewel clamp to the handrails on the crown, right? A. Yes, I knew that. Ex. 2012 at 228:21-24.

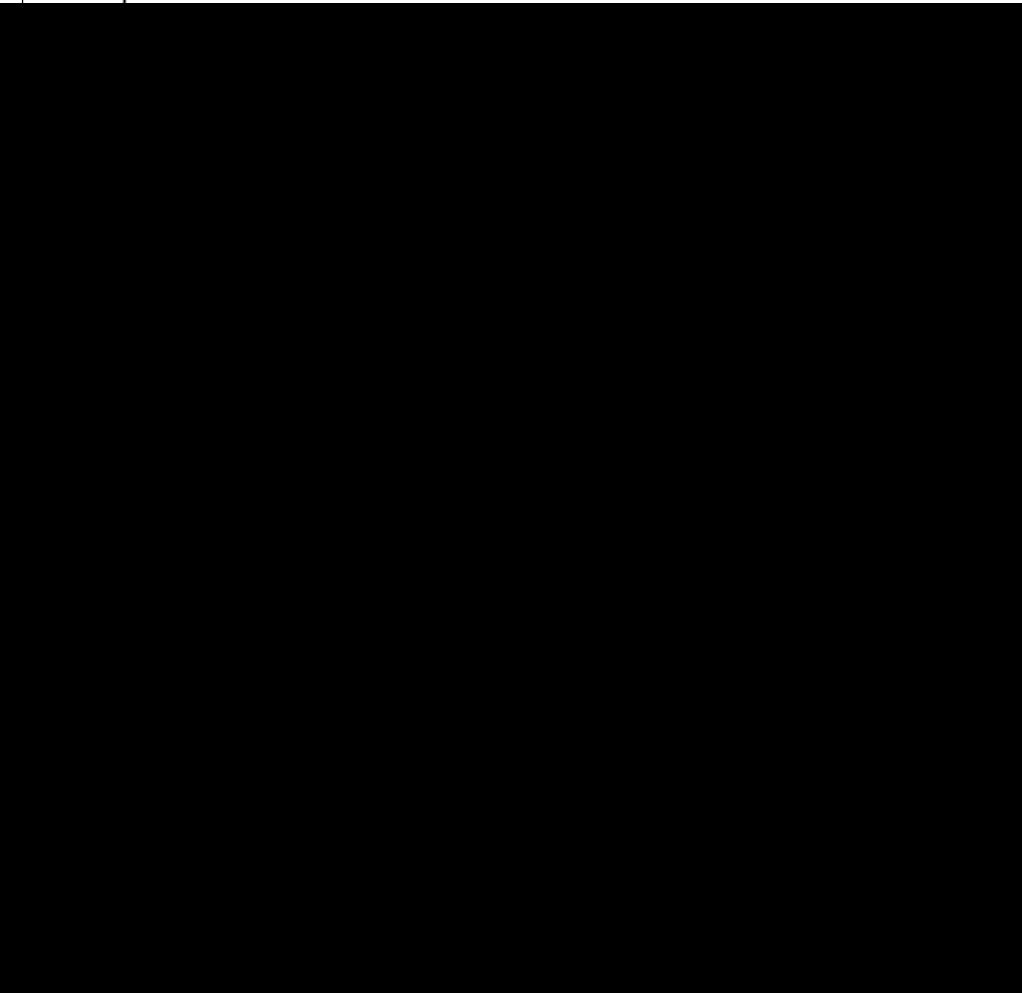
Element	C&M's Crown Jewel
	 <i>I</i>

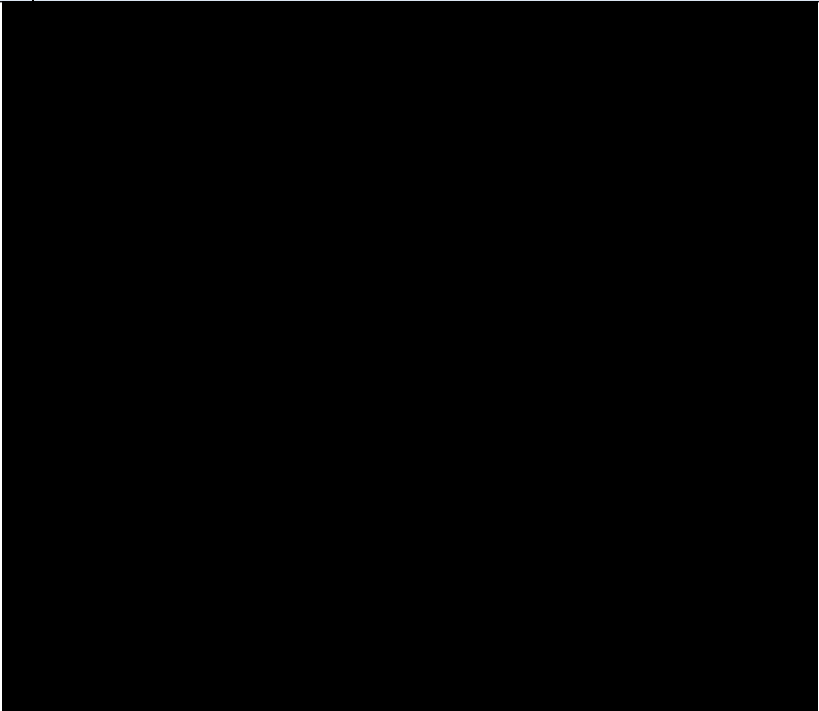
Appendix B

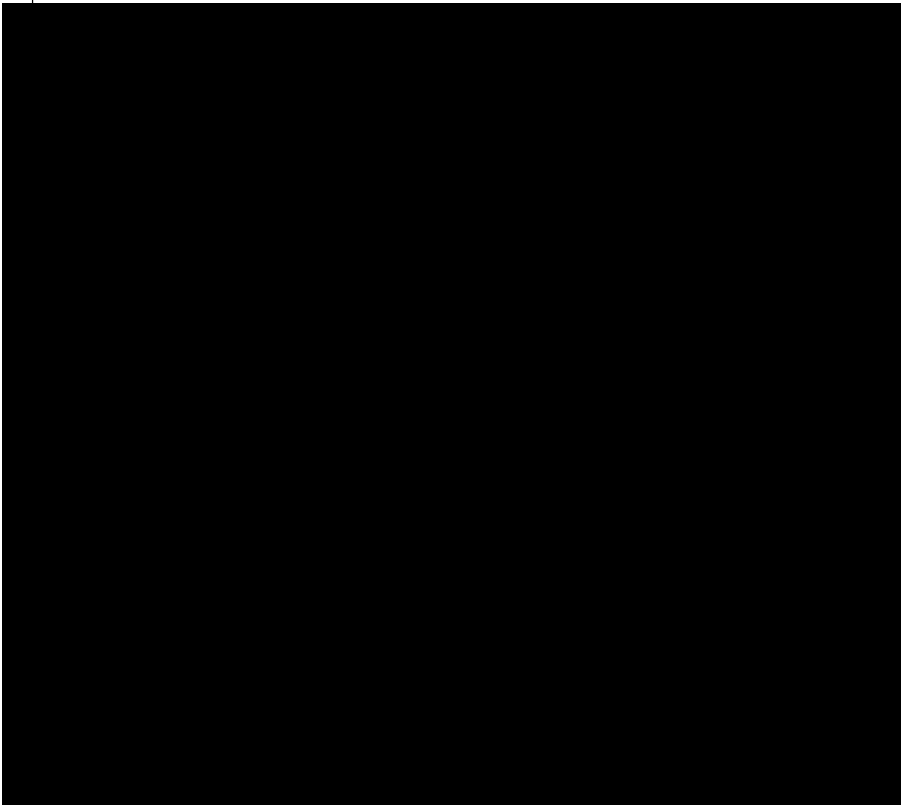
Element	ELLS Version 2
1[p]: A modular lighting system mounted on a rig, the modular lighting system comprising:	The ELLS v2 is a modular lighting system mounted on a rig. For example: 

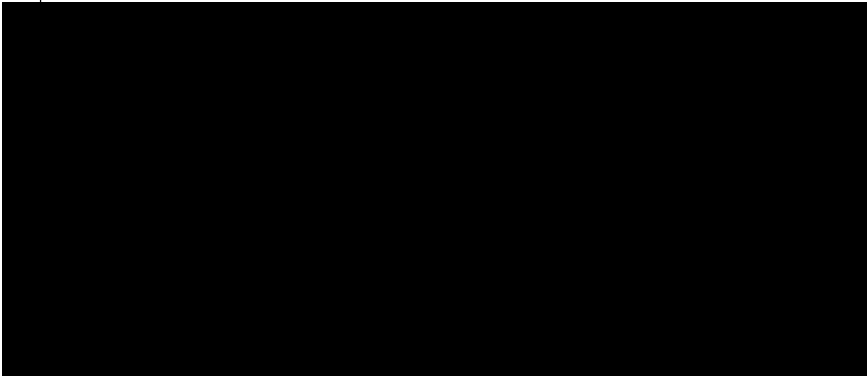
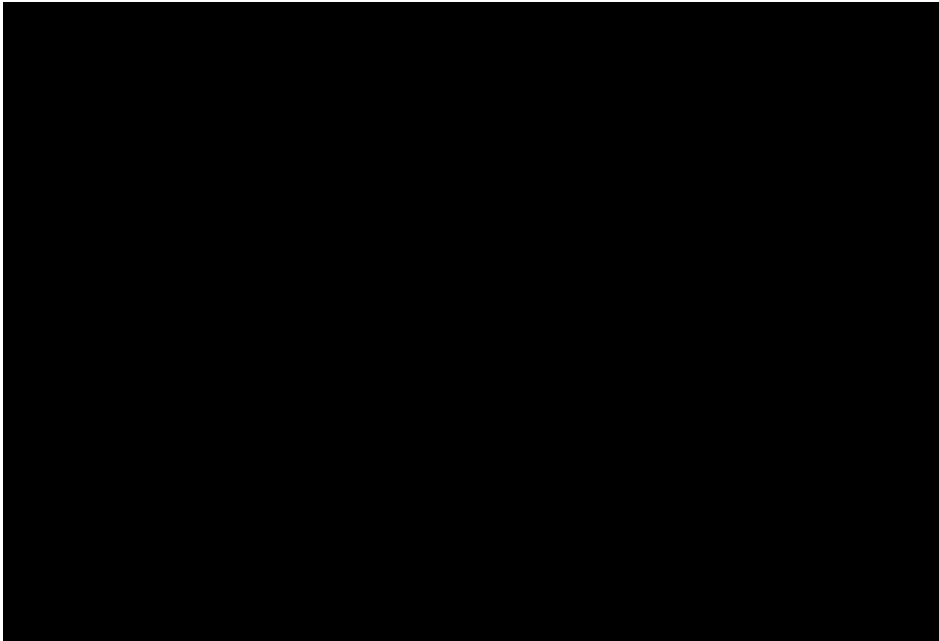
Element	ELLS Version 2
	 Ex. 2012 at 182:14-18.
1[a]: a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:	The ELLS v2 has a plurality of light units, each light unit separately attached to a crown deck of the rig. For example:  Ex. 2011 (annotations added).

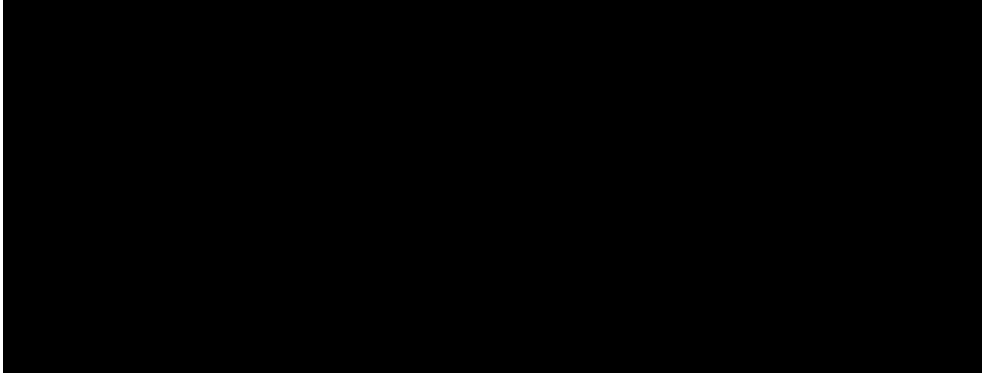
Element	ELLS Version 2
	

Element	ELLS Version 2
	

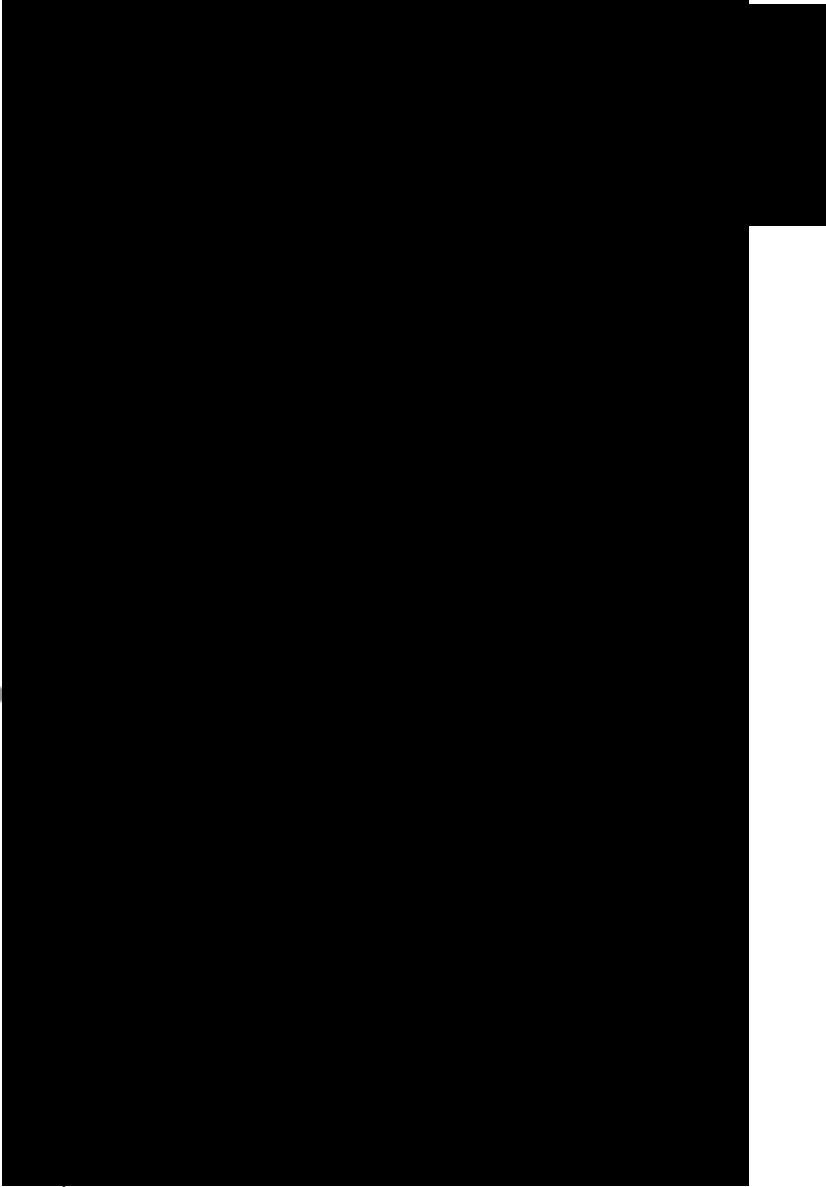
Element	ELLS Version 2
	
1[a][i]: a mounting pole	Each light unit of the ELLS v2 has a mounting pole. For example:

Element	ELLS Version 2
	

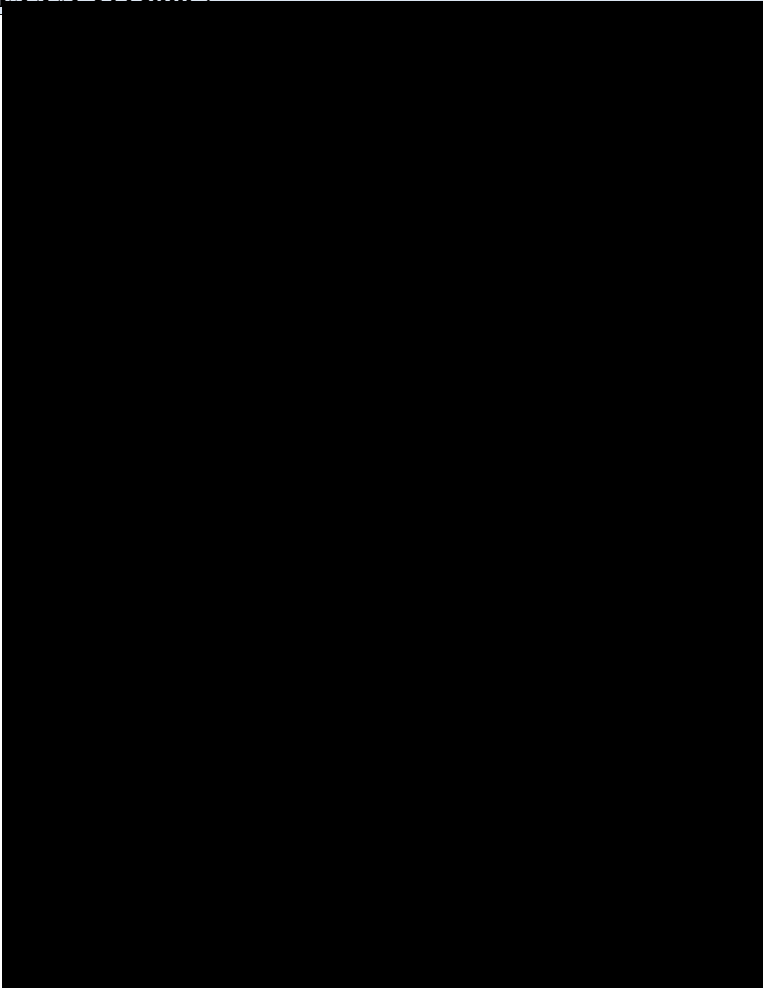
Element	ELLS Version 2
	
1[a][ii]: a light fixture comprising one or more lights; and	Ex. 2012 at 189:6-12. Each light unit of the ELLS v2 has a light fixture comprising one or more lights. For example: 

Element	ELLS Version 2
	Ex. 2011 (annotations added).  Ex. 2012 at 202:10-14.
1[a][iii]: a bracket configured to attach the mounting pole to the crown deck of the rig.	Each light unit of the ELLS v2 has a bracket configured to attach the mounting pole to the crown deck of the rig. For example:

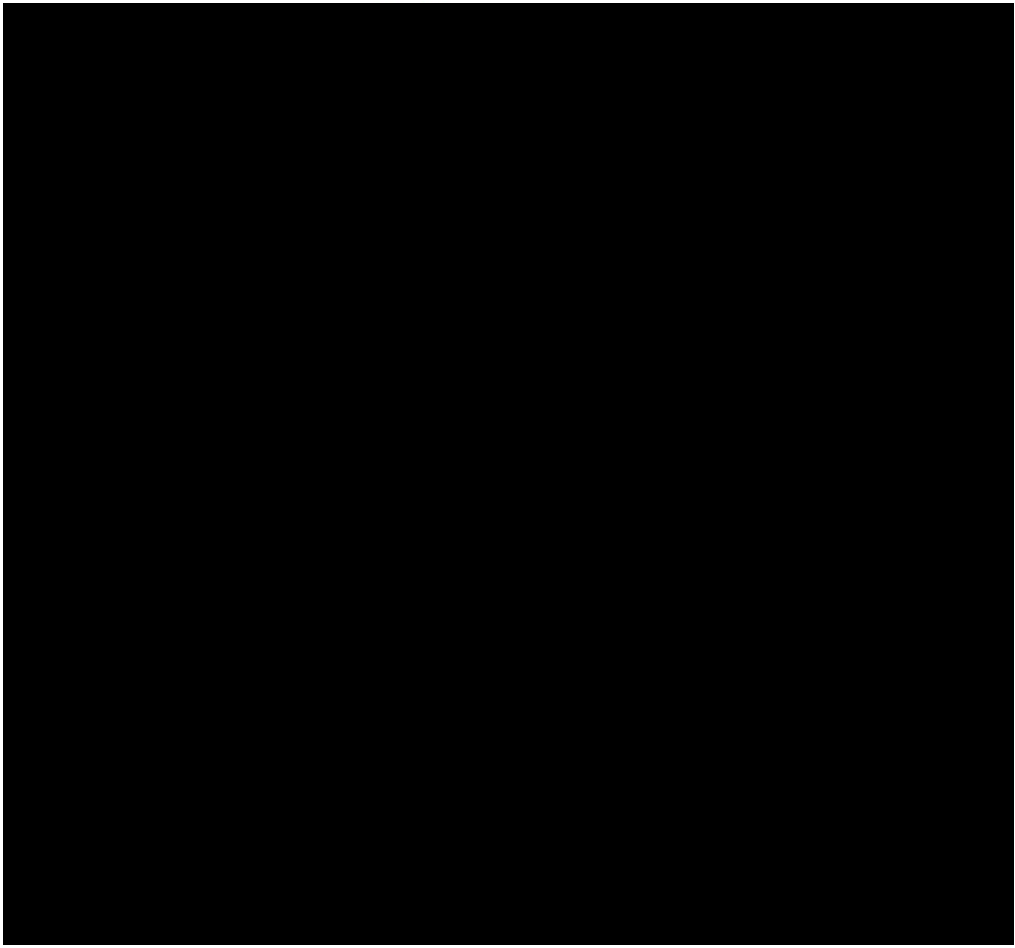
Element	ELLS Version 2
	Ex. 2011 (annotations added). Ex. 2012 at 171:3-8.

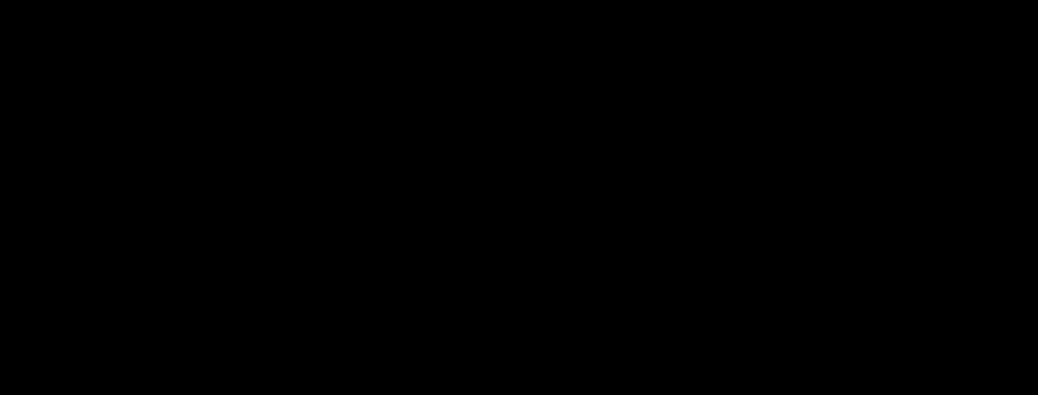
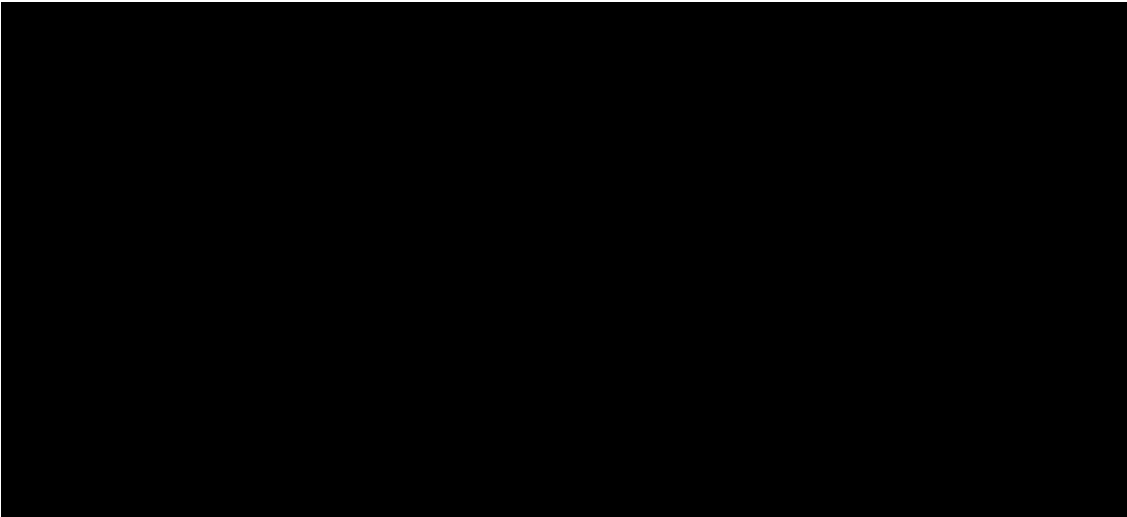
Element	ELLS Version 2
	

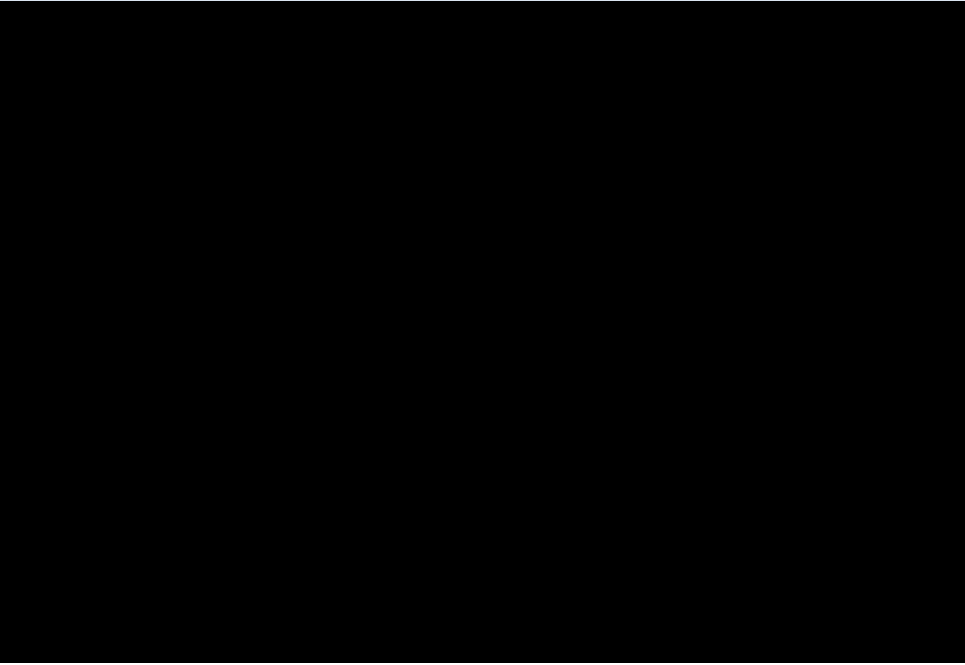
Element	ELLS Version 2
	Ex. 2012 at 199:22-200:10. 
The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts.	The ELLS v2 is the lighting system of claim 1 for the reasons discussed above in connection with claim 1, which are incorporated here. The Crown Jewel's bracket is connected to the crown deck of the rig using bolts. For example:

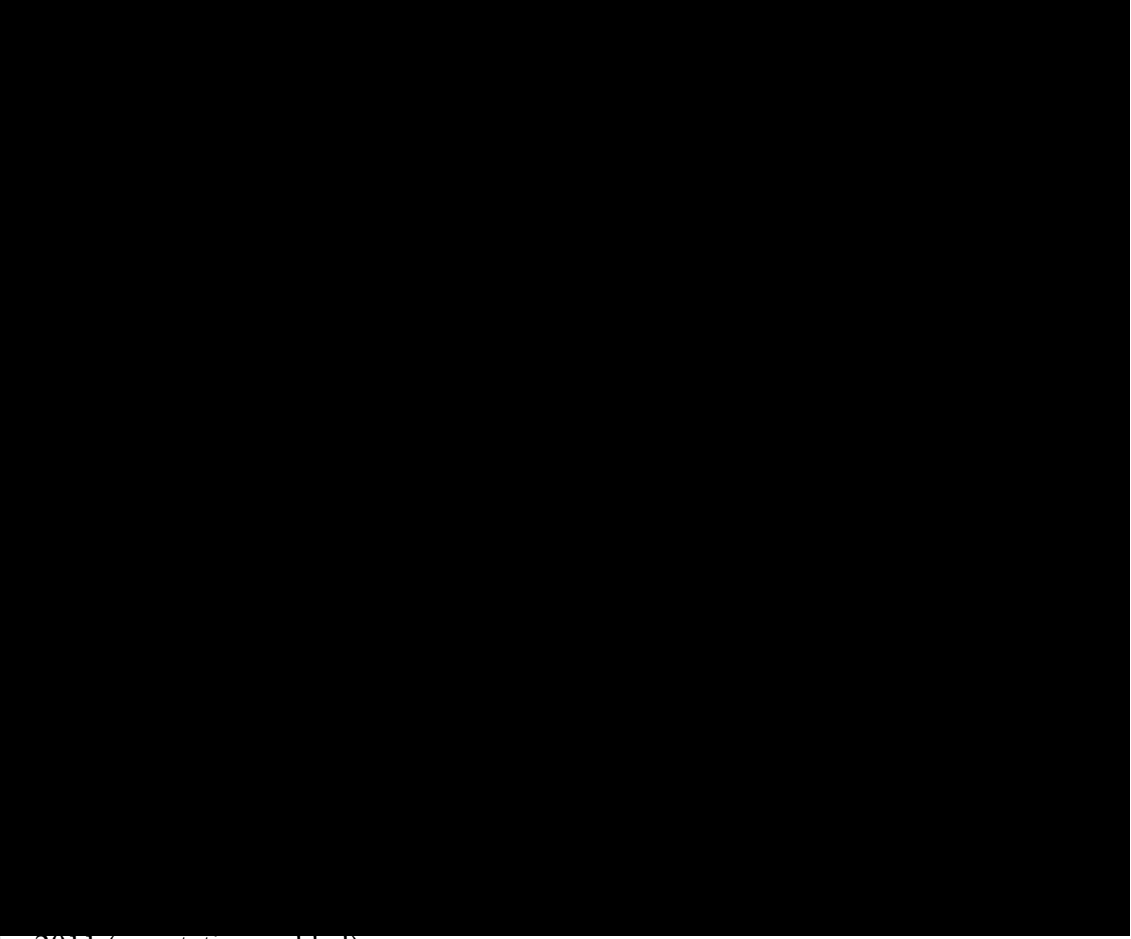
Element	ELLS Version 2
	

Element	ELLS Version 2
	A large black rectangular redaction box covers the majority of the table's content area, obscuring all text and data within the 'ELLS Version 2' column. E -

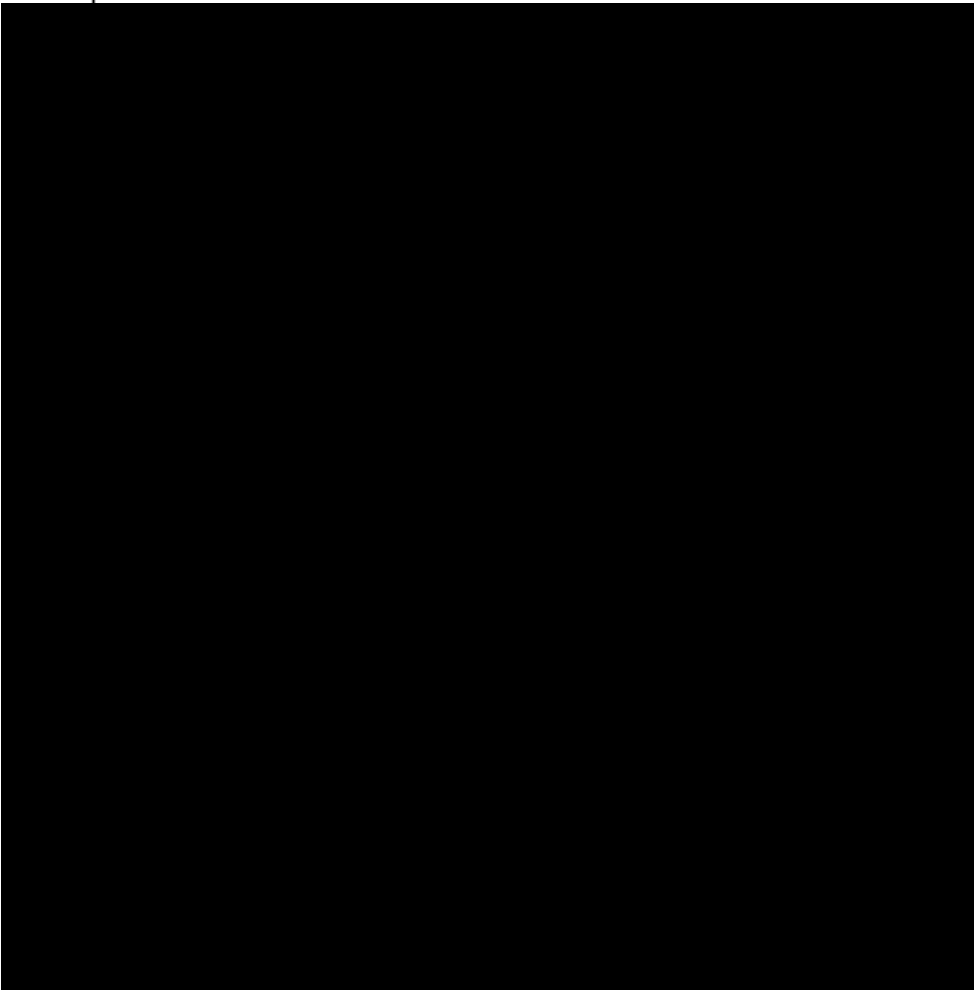
Element	ELLS Version 2
	Ex. 2012 at 199:22-200:10.
23[p]: A rig comprising:	When used, the ELLS v2 is installed on a rig. For example: 

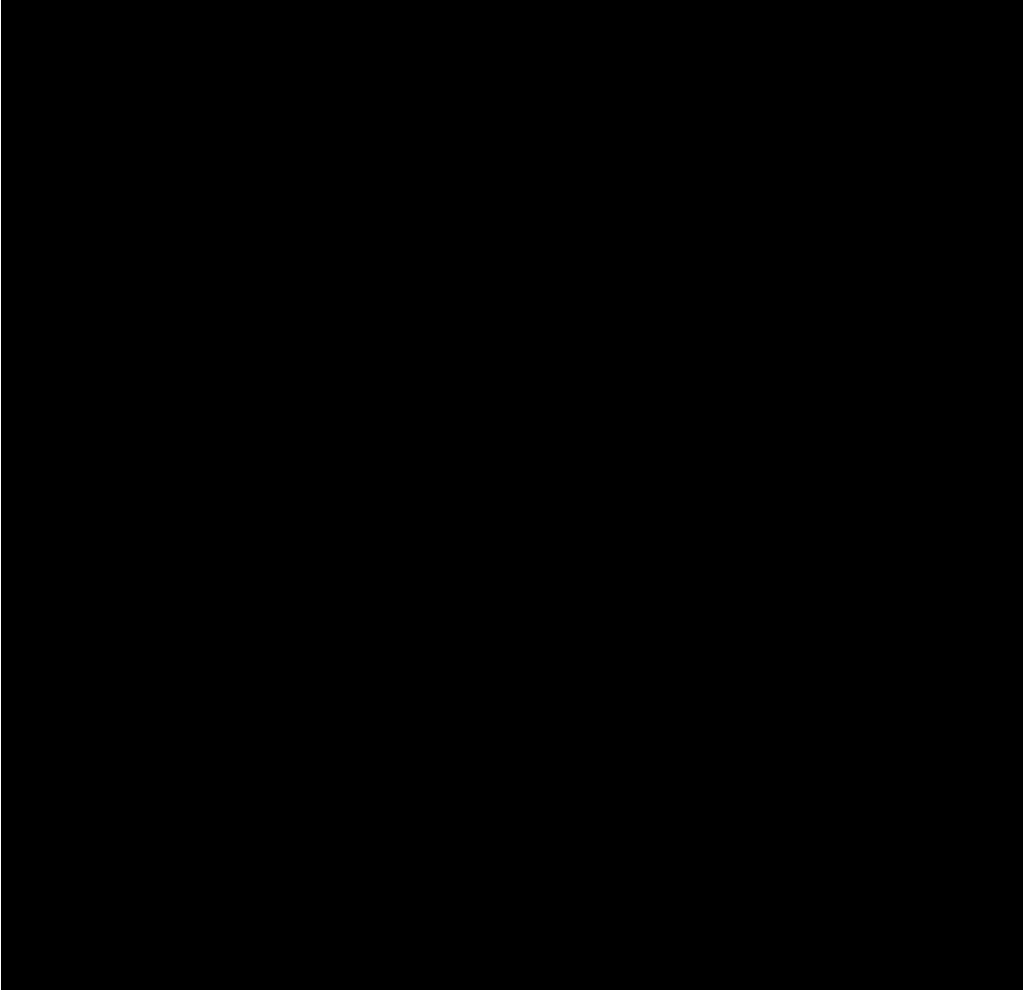
Element	ELLS Version 2
	
23[a]: a derrick;	When used, the ELLS v2 is installed on a rig that has a derrick. For example:  Ex. 2011 (annotations added).

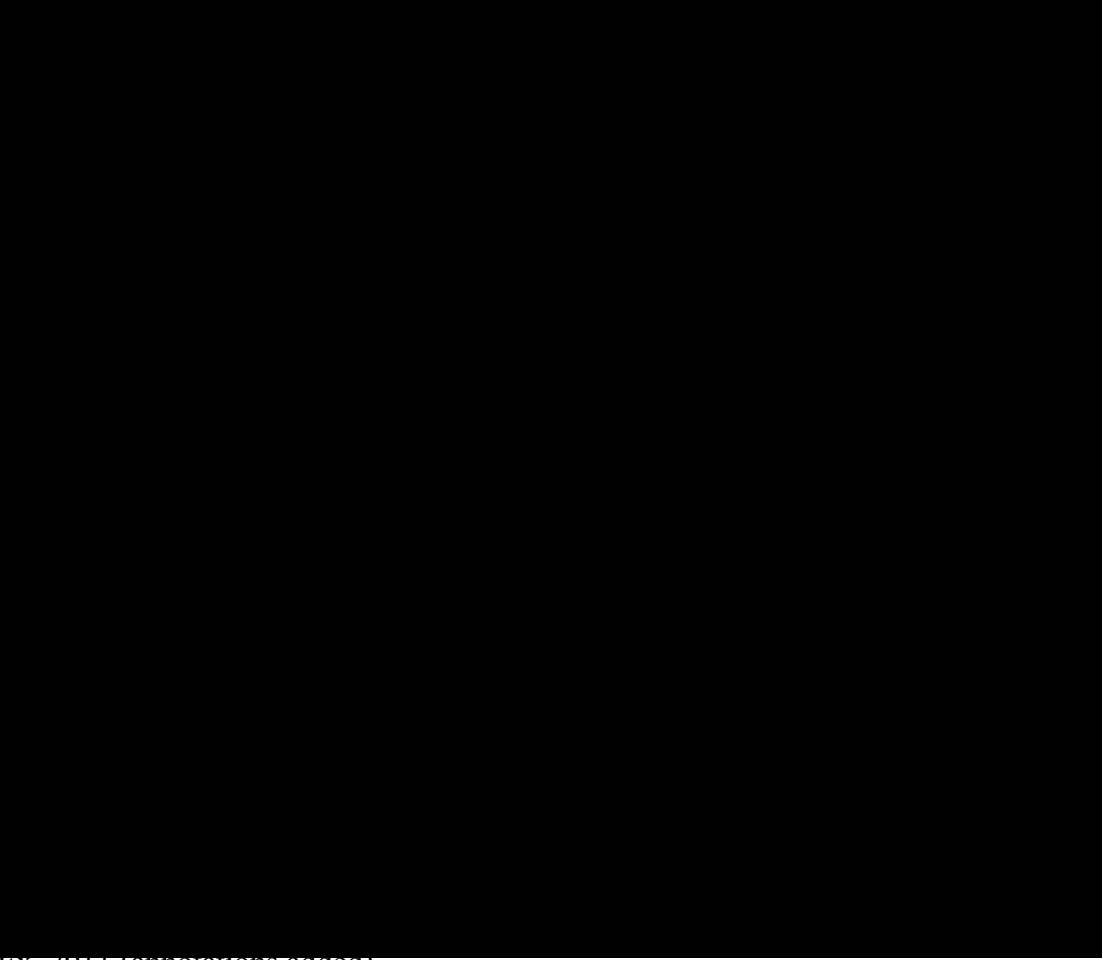
Element	ELLS Version 2
	
23[b]: a crown deck at the top of the derrick; and	When used, the ELLS v2 is installed on a rig that has a crown deck at the top of the derrick. For example:

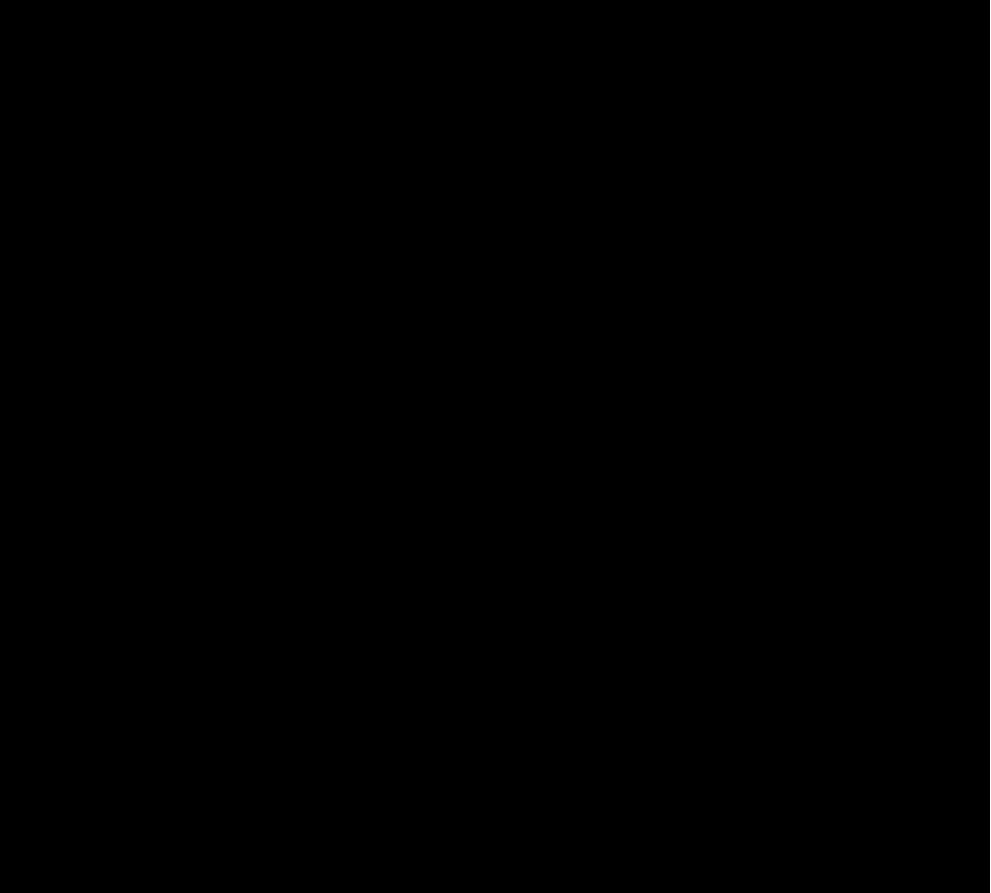
Element	ELLS Version 2
	 Ex. 2011 (annotations added).

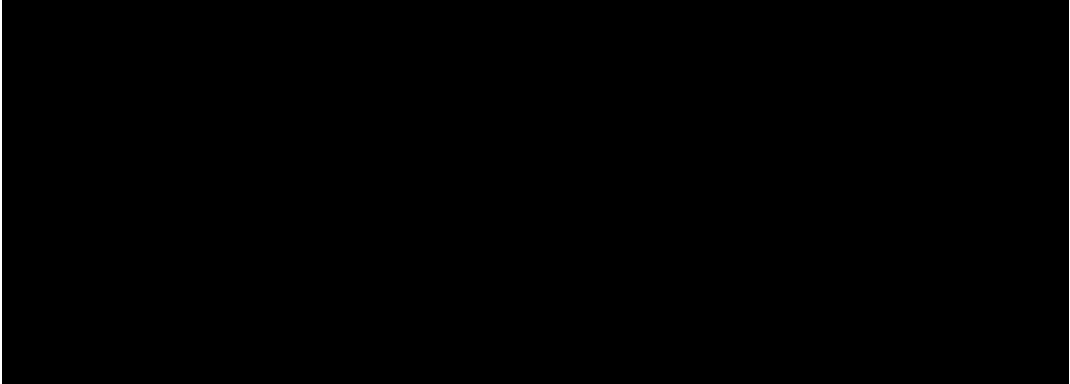
Element	ELLS Version 2
	Ex. 2012 at 199:12-17.

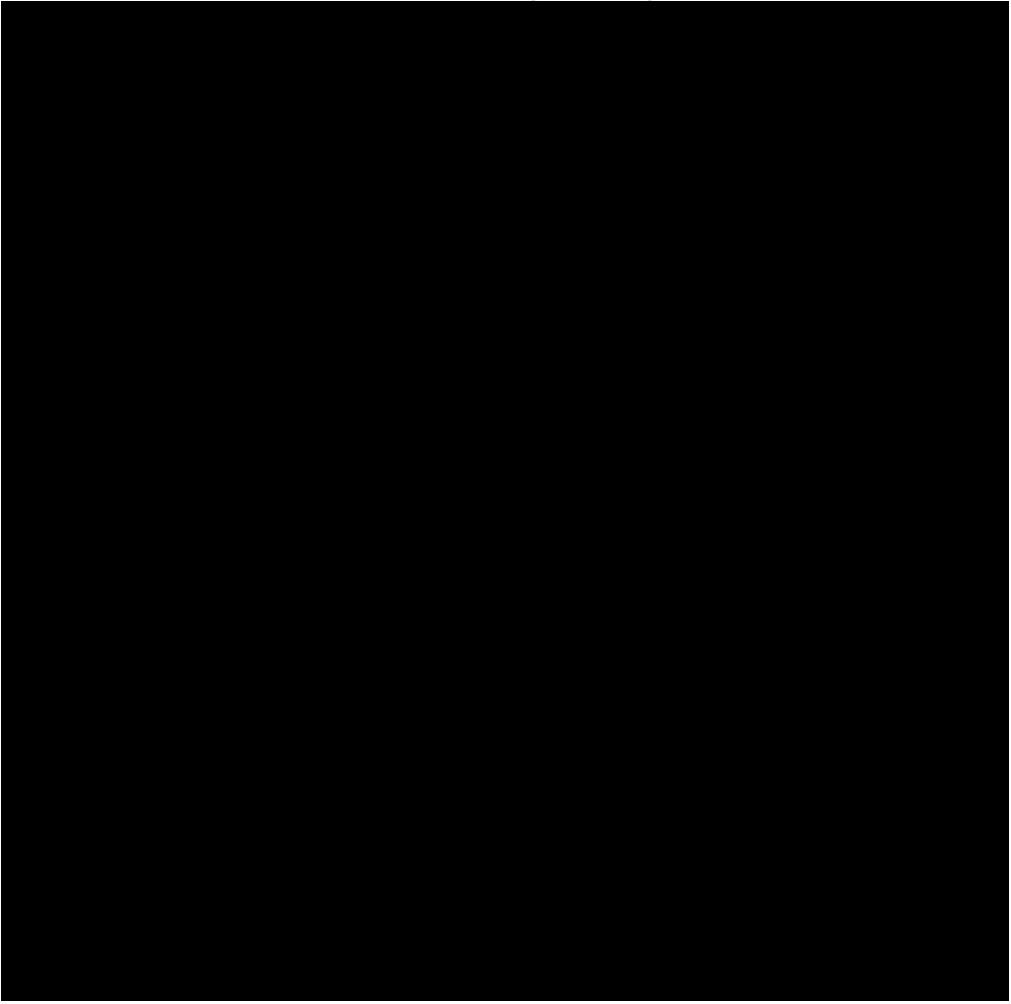
Element	ELLS Version 2
	

Element	ELLS Version 2
	
23[c]: a plurality of light units, each light unit separately attached to the	The ELLS v2 has a plurality of light units, each light unit separately attached to the crown deck. For example:

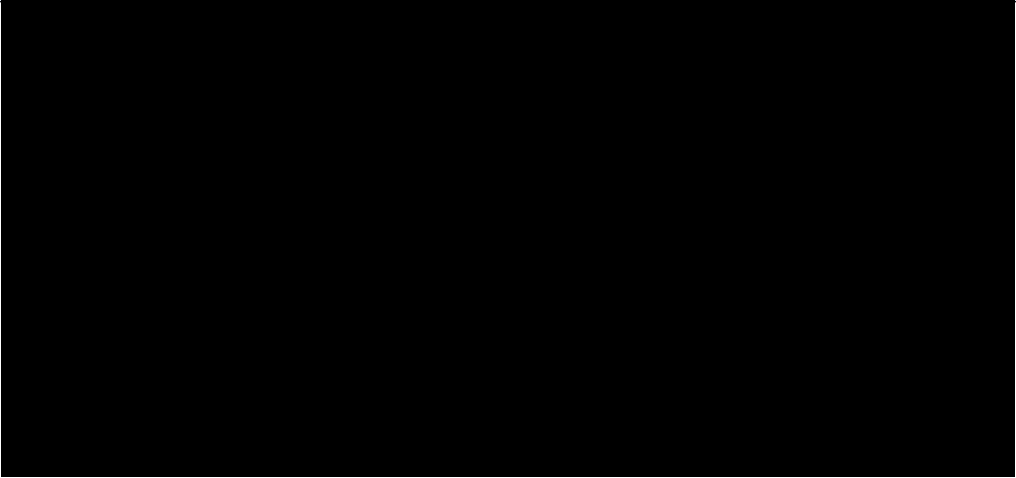
Element	ELLS Version 2
crown deck, each light unit comprising:	 Ex. 2011 (annotations added).

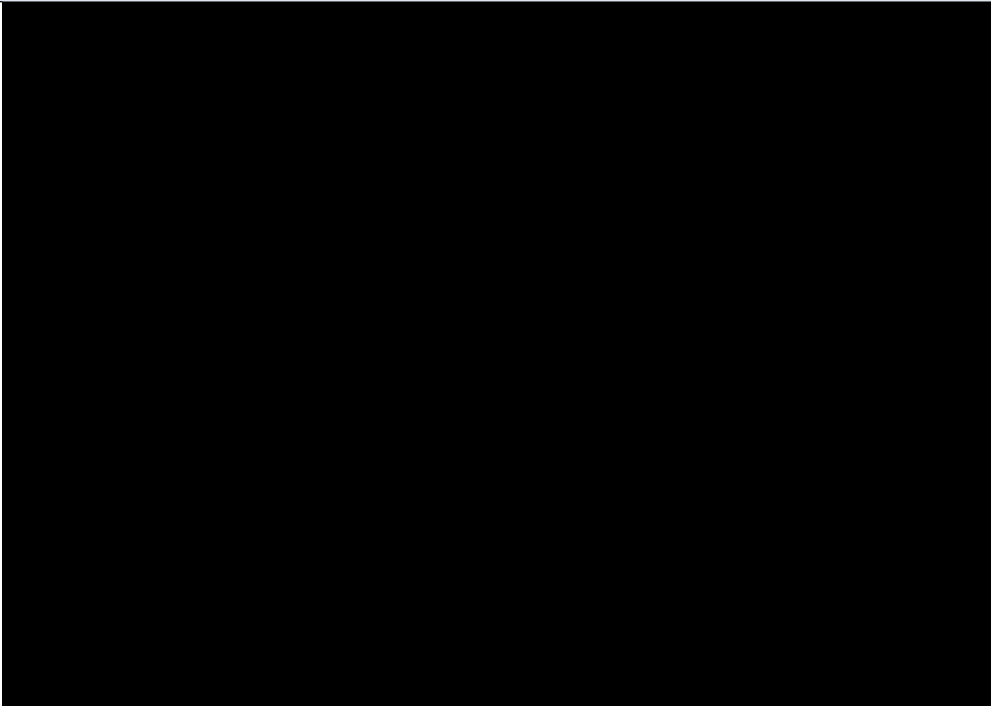
Element	ELLS Version 2
	 Ex. 2012 at 171:3-8.

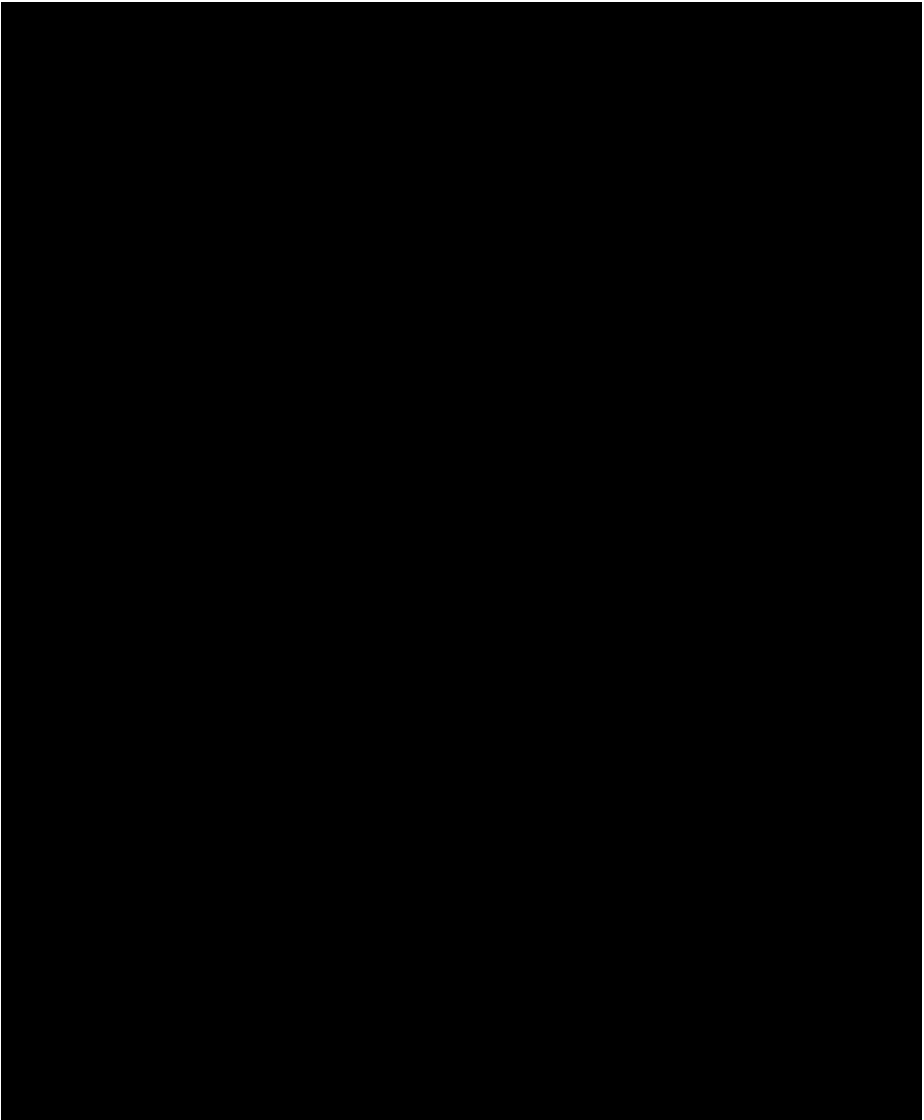
Element	ELLS Version 2
	

Element	ELLS Version 2
	
23[c][i]: a mounting pole, wherein each light unit comprises a separate	The ELLS v2 has a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles. For example:

Element	ELLS Version 2
mounting pole, such that the system comprises a plurality of mounting poles; and	

Element	ELLS Version 2
	
23[c][ii]: a light fixture comprising one or more lights, the light fixture coupled to the mounting pole.	The ELLS v2 has a light fixture comprising one or more lights, the light fixture coupled to the mounting pole. For example:

Element	ELLS Version 2
	 Ex. 2012 (annotations added).

Element	ELLS Version 2
	

Element	ELLS Version 2
	