

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 of Record

*Inter Partes* Review No.

IPR2023-00804

Patent No. 10,976,016

Filing Date: September 9, 2020

Issue Date: April 13, 2021

**DECLARATION OF JAKE HAMDAN**

Petitioner Ensign  
Exhibit 1008 - Page 1 of 84

TABLE OF CONTENTS

|       |                                                                                  |    |
|-------|----------------------------------------------------------------------------------|----|
| I.    | INTRODUCTION .....                                                               | 4  |
| II.   | BACKGROUND AND QUALIFICATIONS .....                                              | 5  |
| III.  | INFORMATION CONSIDERED .....                                                     | 6  |
| IV.   | LEGAL STANDARDS .....                                                            | 7  |
| A.    | Claim Construction .....                                                         | 7  |
| B.    | Anticipation .....                                                               | 9  |
| C.    | Obviousness .....                                                                | 10 |
| V.    | LEVEL OF SKILL IN THE ART .....                                                  | 19 |
| VI.   | THE ‘016 PATENT SPECIFICATION .....                                              | 20 |
| VII.  | THE PRIOR ART .....                                                              | 22 |
| A.    | Overview and State of the Prior Art as of 2018 .....                             | 22 |
| B.    | Admitted Prior Art (Ex. 1001, ‘016 Patent Background and Fig. 1) ..              | 39 |
| C.    | WO2018/042348 (“Gowanlock”) (Ex. 1003) .....                                     | 43 |
| D.    | Swivelpole Catalog (Ex. 1004) .....                                              | 45 |
| E.    | Chinese Patent No. 203215413U (“Chinese ‘413”) (Ex. 1005) .....                  | 47 |
| F.    | Magnalight YouTube video (copyright 2004-2012) (Ex. 1006) .....                  | 48 |
| VIII. | ANALYSIS AND IDENTIFICATION OF HOW CLAIMS 1, 2, and 23<br>ARE UNPATENTABLE ..... | 50 |
| A.    | Gowanlock Anticipates Claims 1, 2, and 23 .....                                  | 50 |
| B.    | Claims 1, 2, and 23 Are Obvious Over Gowanlock and Swivelpole<br>Catalog .....   | 54 |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|    |                                                                                                                 |    |
|----|-----------------------------------------------------------------------------------------------------------------|----|
| C. | Claims 1, 2, and 23 Are Obvious Over Swivelpole Catalog and<br>Chinese ‘413 in light of Admitted Prior Art..... | 62 |
| D. | Claims 1, 2, and 23 Are Obvious Over Magnalight YouTube video in<br>View of Admitted Prior Art .....            | 73 |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

I, Jake Hamdan, declare as follows:

**I. INTRODUCTION**

1. My name is Jake Hamdan. Herein, I give my opinions as to how a hypothetical person of ordinary skill in the art (“POSITA”) would understand the scope of the claims and whether certain claims of U.S. Patent No. 10,976,016 (‘016 Patent) are invalid. I provide technical bases for these opinions as appropriate.

2. I am an employee of Ensign Drilling Inc. and its Vice-President of Engineering. I am over eighteen years of age, and I would otherwise be competent to testify as to the matters set forth herein if I am called upon to do so.

3. I have prepared this Declaration for consideration by the Patent Trial and Appeal Board in the *Inter Partes* Review of U.S. Patent No. 10,976,016.

4. I provide this Declaration at the request of Ensign US Southern Drilling LLC, an affiliate of Ensign Drilling Inc., in connection with the above-captioned *Inter Partes* Review. I have been informed and understand that Ensign US Southern Drilling LLC contends that asserted claims 1, 2, and 23 of the ‘016 Patent are invalid.

5. I have been asked to provide my opinions regarding whether claims 1, 2, and 23 are unpatentable because they would have been either anticipated or obvious to a POSITA at the time of the alleged invention, in light of the prior art.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

6. After careful analysis it is my opinion that claims 1, 2, and 23 of the '016 Patent are invalid over the prior art I considered during my analysis. The individual analysis of each of these claims is set out below.

7. This declaration contains statements of my opinions formed to date and the bases and reasons for those opinions. I may offer additional opinions based on further review of materials in this case, including opinions and/or testimony of other expert witnesses. I make this declaration based upon my own personal knowledge and, if called upon to testify, would testify competently to the matters contained herein. I have not been compensated for my efforts in connection with the preparation of this declaration. My employment and compensation at Ensign Drilling Inc. is in no way contingent on the results of these or any other proceedings in relation to the above captioned patent.

8. In forming my opinions, I relied on my knowledge and experience in the field and on documents and information referenced in this Declaration.

## **II. BACKGROUND AND QUALIFICATIONS**

9. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in Exhibit 1007. The following is a brief summary of my relevant qualifications and professional experience.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

10. I am not an attorney. As shown in my *curriculum vitae*, I have extensive industry experience with engineering in the oil and gas industry. Specifically, I have over eighteen years of industry experience in the oil and gas industry generally, including experience designing, engineering, and managing numerous systems and components related to oil and gas rigs.

11. I have extensive expertise in all aspects of rigs, including engineering and design work related to derricks, crown decks, control systems, and well site lighting. I am an expert in all related aspects of oil and gas rigs design and engineering.

### **III. INFORMATION CONSIDERED**

12. I have considered the following documents:

- a. U.S. Patent No. 10,976,016 (the ‘016 Patent) (Ex. 1001)
- b. Prosecution History for the ‘016 Patent (Ex. 1002)
- c. Knowledge of a POSITA as Documented in “Overview and State of the

Prior Art as of 2018” Section and the exhibits referenced therein

d. Prior Art:

- WO2018/042348 (“Gowanlock”) (Ex. 1003)
- Swivelpole Catalog (Ex. 1004)
- Chinese Patent No. 203215414U (Chinese ‘413) (Ex. 1005)
- Larson Electronics / Magnalight YouTube video at <https://www.youtube.com/watch?v=EWXJeKNRs00> Ex. 1006.

Petitioner Ensign  
Exhibit 1008 - Page 6 of 84

13. In addition to the documents above, in forming the opinions expressed below, I have also considered:

e. My own knowledge and experience based upon my work in the fields of engineering, lighting, and rig design, as described above and in my CV; and

f. The level of skill of a POSITA at the time of the alleged invention and filing of the '016 Patent as described in detail below.

#### **IV. LEGAL STANDARDS**

14. I am not an attorney and have not been asked to offer my opinion on the law. However, as an expert offering an opinion on whether the claims in the '016 patent are patentable, I have been told that I am obliged to follow existing law.

15. I have been informed of the following legal standards, which I have applied in forming my opinions.

16. First, I understand that a claimed invention is only patentable when it is new, useful, and non-obvious in light of the "prior art." That is, the invention, as defined by the claims of the patent, must not be anticipated by or rendered obvious by the prior art.

##### **A. Claim Construction**

17. I understand that the claims define the invention. I also understand that an unpatentability analysis is a two-step process. First, the claims of the patent are

construed to determine their meaning and scope. Second, after the claims are construed, the content of the prior art is compared to the construed claims.

18. I have been told that the meaning of claim terms is considered from the viewpoint of one of ordinary skill in the art at the time of the alleged invention. Specifically, claim terms in *inter partes* review proceedings are to be given their ordinary and accustomed meaning as understood by a person of ordinary skill in the art in light of the specification and the prosecution history of the patent. I understand that the claims are generally not limited by the embodiments described in the specification.

19. I understand that in addition to the claims, specification, and prosecution history, other evidence may be considered to ascertain the meaning of claim terms, including textbooks, encyclopedias, articles, and dictionaries. I have been informed that this other evidence is often less significant and less reliable than the claims, specification, and prosecution history.

20. I understand that a court already construed certain terms in the '016 patent. (Ex. 1009, Court Order). I have been asked to employ the below constructions from that Court Order in my analysis.

“crown deck” (Claims 1, 2, and 23) - 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.

“mounting pole” (Claims 1 and 23) - A “mounting pole” is a pole used for mounting something. Both “mounting” and “pole” have their plain and ordinary meanings.

“bracket” (Claims 1 and 2) - A component or components connecting one part to another or holding a part.

“attached” (Claims 1 and 23), “connected” (Claim 2), and “coupled” (Claim 23) - Plain and ordinary meaning, which includes direct and indirect attachment, connection, and coupling.

## **B. Anticipation**

21. I have been told the following legal principles apply to analysis of patentability pursuant to 35 U.S.C. §102, a provision in the patent law regarding anticipation. I have been told that, in an *inter partes* review proceeding, a patent claim may be deemed unpatentable if it is shown by preponderance of the evidence (i.e., it is more likely than not) that the claim was anticipated by a prior-art patent or publication.

22. I have been told that for a claim to be anticipated, every limitation of the claimed invention must be disclosed by a single prior-art reference, viewed from the perspective of a person of ordinary skill in the art.

23. I have been informed by counsel that whether the single item of prior art anticipates every one of the elements is evaluated from the view of a person of ordinary skill in the art from his or her review of the particular piece of prior art. I have also been informed and understand that the description in the prior art reference does not have to be in the same words as the claim, but all the limitations must be present, either expressly or inherently, so that someone of ordinary skill in the art looking at the reference would have everything necessary to make and use the claimed invention.

### **C. Obviousness**

24. I understand that a patent claim is deemed invalid as “obvious” if it would have been obvious to a person of ordinary skill in the art at the time the invention was made. I also understand that under 35 U.S.C. § 103, a patent is invalid if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Obviousness may be shown by considering more than one item of

prior art in combination with others or based on a single prior art reference in combination with the general state of the art.

25. I understand that a conclusion of obviousness may be based upon a combination of prior art references. However, I also understand that a patent composed of several elements may not be proved obvious merely by demonstrating that each of its elements was independently known in the art. I further understand that there must be an appropriate articulation of a reason to combine the elements from the prior art in the manner claimed, and obviousness cannot be based on a hindsight combination of components selected from the prior art using the patent claims as a roadmap.

26. In determining whether an invention is obvious, I understand that obviousness is determined from the perspective of a person of ordinary skill in the art of the invention. In undertaking this analysis, it is important to consider four issues: (1) the scope and content of the prior art, (2) the differences between the prior art and the claim under consideration, (3) the level of ordinary skill in the art, and (4) any “secondary considerations” of non-obviousness.

27. In evaluating the scope and content of the prior art, I understand that the inquiry is whether the prior art was reasonably relevant to the particular problem faced by the inventor(s) in making the invention covered by the patent claims. I

understand that such relevant prior art includes prior art in the field of the invention and also prior art from other fields that a person of ordinary skill would look to when attempting to solve the problem. I further understand that, to determine obviousness, the courts look to the interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art.

28. In determining the differences between the invention covered by the patent claims and the prior art, I understand that the prior art references are not looked at in isolation. Rather, the claimed invention as a whole must be considered, and it must be determined whether or not it would have been obvious in light of all of the prior art.

29. I further understand that obviousness is determined from the perspective of a person of ordinary skill in the art, and that such a person is presumed to know all prior art, not just what the inventor may have known. The person of ordinary skill faced with a problem is able to apply his or her experience and ability to solve the problem and also look to any available prior art to help solve the problem.

30. I understand that one rationale for determining obviousness of a claimed invention is that some reason within the prior art would have led one of ordinary

skill to modify the prior art reference or to combine prior art teachings to arrive at the claimed invention. Such reasons include the following:

a. combining prior art elements according to known methods to yield predictable results;

b. simple substitution of one known element for another to obtain predictable results;

c. use of a known technique to improve similar devices (methods or products) in the same way;

d. applying a known technique to a known device (method or product) ready for improvement to yield predictable results;

e. “obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

f. known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predicable to one of ordinary skill in the art; and

g. some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art teachings to arrive at the claimed invention.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

31. In determining whether or not the invention would have been obvious to one of ordinary skill in the art at the time the invention was made, I understand that you must consider whether or not the combination is more than the predictable use of prior art elements according to their established functions. If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique would have been obvious unless the actual application is beyond that person's skill. In answering this question, I understand that it will often be necessary to consider: any apparent reason to combine the known elements in the manner of the patent claims; teachings of multiple references; the effects of demands that were known to the community or that were present in the marketplace; and the background knowledge possessed by persons of ordinary skill in the art.

32. I understand that it is important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the invention does. Advances that would have occurred anyway in the ordinary course of development of the art may have been obvious, but consideration need not be limited to the same problem or same prior art elements, or same solution adopted by the inventor. I also understand that obviousness may not be shown if the proposed modification or

combination would change the principle of operation of the prior art being modified, such as rendering the prior art unsatisfactory for its intended purpose.

33. I further understand that it is appropriate to consider the level of common sense and creativity of persons of ordinary skill in the art, that familiar items may have obvious uses beyond their primary purposes, and that a person of ordinary Skill in the art may be able to fit the teachings of multiple patents and/or references together like the pieces of a puzzle.

34. I further understand that in certain circumstances, the fact that a combination was obvious to try might show that it was obvious under § 103. For example, when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely, but not necessarily, the product not of innovation but of ordinary skill and common sense.

35. I understand that the reason to select and combine features, the predictability of the results of doing so, and a reasonable expectation of success may be found in the teachings of the prior art references themselves, in the nature of any need or problem in the field that was addressed by the patent, in the knowledge of persons having ordinary skill in the field at the time, as well as in common sense or the level

of creativity exhibited by persons of ordinary skill in the art. I further understand that there need not be an express or explicit suggestion to combine references.

36. I further understand that if the combination of known elements yielded unexpected or unpredictable results, or if the prior art teaches away from combining the known elements, then this evidence would make it more likely that the claim that successfully combined those elements was not obvious. I further understand that if a reference teaches away from the invention when it would have discouraged a person of ordinary skill in the art from practicing the claimed invention, or when such a person would be led in a different direction than practicing the claimed invention.

37. I understand that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. I further understand that, when considering a disclosure or reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw from the reference.

38. In addition, I understand that objective indications of non-obviousness must also be considered. The presence of any of these indications may suggest that the invention was not obvious. I understand that no factor alone is dispositive, and that

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

the invention as a whole must be considered for obviousness or non-obviousness. I also understand that these objective indications are only relevant to obviousness if there is a connection, or nexus, between them and the invention of the patent claims.

I understand that these objective indications include:

- a. commercial success of the products or methods covered by the patent;
- b. claims;
- c. a long-felt need for the invention;
- d. failed attempts by others to make the invention;
- e. copying of the invention by others in the field;
- f. unexpected results achieved by the invention;
- g. praise of the invention by the alleged infringer or others in the field;
- h. the taking of licenses under the patent by others;
- i. expressions of surprise by experts and those skilled in the art at the making of this invention; and
- j. the patentee proceeded contrary to accepted wisdom of the prior art.

39. I have been informed by counsel that there must be a nexus or a connection between the evidence showing these factors and the inventions of the asserted claims, if this evidence is to be given weight in arriving at a conclusion on the obviousness issue; for example, if commercial success is due to market position,

Petitioner Ensign  
Exhibit 1008 - Page 17 of 84

advertising, promotion, salesmanship, or the like, or is due to features of the products other than those described in the asserted claims, then any commercial success may have no relation to the issue of obviousness.

40. I have been informed by counsel that, in my determination of obviousness, I must consider whether the patent owner of record (or such other person claiming the right to enforce the patent; hereafter “Patent Owner”) has demonstrated not only that such secondary considerations exist, but also whether Patent Owner has proven that there is sufficient nexus between these considerations and the claimed invention – in other words whether the claimed inventions in the patent contributed to these secondary considerations rather than the considerations being due to other features of the allegedly accused products, or any other actions taken in producing and marketing the accused products.

41. I have been informed by counsel that Patent Owner has the burden of proving any secondary consideration by a preponderance of the evidence, i.e., that Patent Owner must produce evidence which, considered in the light of all the facts, leads one to believe that what Patent Owner claims is more likely true than not; but that I

should keep in mind, that Ensign continues to bear the ultimate burden of proving invalidity by a preponderance of the evidence.<sup>1</sup>

## **V. LEVEL OF SKILL IN THE ART**

42. I am informed and understand that a person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the alleged invention. I am informed and understand that factors that may be considered in determining the level of ordinary skill in the art may include: (A) the type of problems encountered in the art; (B) prior art solutions to those problems; (C) the rapidity with which innovations are made; (D) the sophistication of the technology; and (E) the educational level of active workers in the field.

43. Upon consideration, in my opinion, a person of ordinary skill in the art (“POSITA”) is someone who 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

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<sup>1</sup> I am not aware at this time of any secondary consideration asserted by C&M Oilfield Rentals LLC as the Patent Owner of Record as to the ‘016 Patent (C&M Oilfield Rentals LLC is referred to herein as the “Patent Owner of Record”).

rigs, such as a drilling rig, where one or more lighting systems were used to illuminate the wellsite.

44. Lack of work experience could have been remedied by additional education, and vice versa. Such academic and industry experience would be necessary to appreciate what was obvious and/or anticipated in the industry and what a POSITA would have thought and understood at the time.

45. I have been informed that the earliest possible priority date of the '016 Patent is the provisional filing date of March 15, 2018. At that time, I possessed more than such experience and knowledge of a POSITA; hence, I am qualified to opine on the '016 Patent.

## **VI. THE '016 PATENT SPECIFICATION**

46. The '016 Patent describes a light unit attached to the frame of a drilling rig which includes a mounting pole 240, a light fixture 248 having a light, and a bracket 242, 244 configured to attach the mounting pole to the drilling rig. The light unit is standalone but can be part of a system that includes a plurality of light units that are mounted independently from each other to form what the '016 Patent describes as modular system. Ex. 1001, 2:25-61; Figs. 9A-9F.

47. Figure 9F shows the described system installed on a rig. Ex. 1000, Fig. 9F.

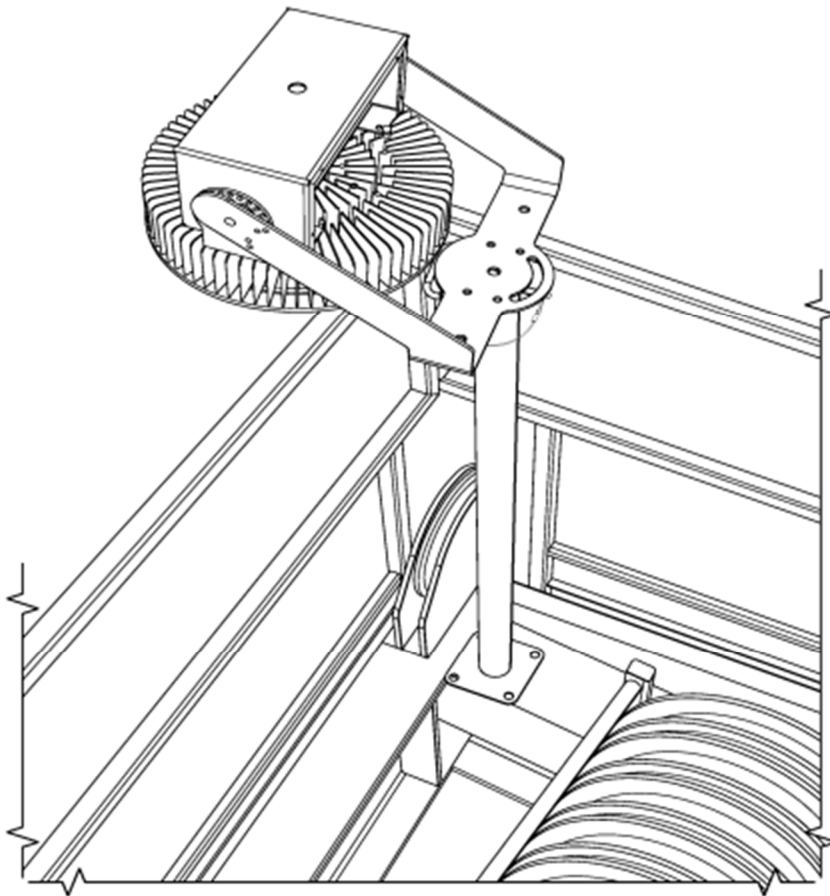


FIG. 9F

## **VII. THE PRIOR ART**

### **A. Overview and State of the Prior Art as of 2018<sup>2</sup>**

48. The following table summarizes some prior art that discloses early electrical lights including both incandescent lighting and energy efficient light emitting diodes (LED).

#### **49. Early Electrical Lights and LED Lighting**

| <b>EX. NO.</b> | <b>Filed</b> | <b>Published</b> | <b>Patent No.,<br/>Publication No.,<br/>Appl. No.</b> | <b>Description /<br/>Title</b> | <b>Assignee /<br/>Owner</b> |
|----------------|--------------|------------------|-------------------------------------------------------|--------------------------------|-----------------------------|
| 1020           | 1-04-1875    | 8-29-1876        | U.S. Pat. 181,613 to Woodward et al.                  | Electric Light                 | Edison Electric             |
| 1021           | 11-04-1878   | 1-27-1880        | U.S. Pat. 223,898 to Edison                           | Electric-Lamp                  | Edison Electric             |
| 1022           | 7/31/2012    | 5/21/2015        | U.S. 2015/0138780 to Yoshizawa et al.                 | Illumination Device            | Mitsubishi Chem. Corp.      |

50. Thus, the electric light bulb has existed in the prior art since as early as 1875, for providing illumination.

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<sup>2</sup> The Patent Owner of Record is well-aware of the prior art in these tables because I understand that it was disclosed by Ensign in its preliminary invalidity contentions.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

51. The following table summarizes some prior art that discloses elevated lighting systems including lighting towers:

52. **Elevating Lighting Systems**

| EX. NO. | Filed AIA (35 U.S.C. § 102) | Published AIA (35 U.S.C. § 102) | Patent No., Publication No., Appl. No. | Description / Title                                                | Assignee / Owner               |
|---------|-----------------------------|---------------------------------|----------------------------------------|--------------------------------------------------------------------|--------------------------------|
| 1023    | 7/16/1970                   | 10/3/1972                       | U.S. Pat. 3,696,241 to Meyer et al     | Light Fixture Tower                                                | Meyer Mfg. Inc.                |
| 1024    | 12/15/1969                  | 12/24/1974                      | U.S. Pat. 3,856,639 to Rohn et al.     | High-Level Light Tower with Light Lowering Device and Control Sys. | Rohm Mfg. Co                   |
| 1025    | 9/23/1987                   | 2/27/1990                       | U.S. Pat. 4,903,442 to Trommen         | Mast for Measuring or Illumination Purposes                        | G.A. Pfeleiderer GmbH & Co. KG |
| 1026    | 6/9/1988                    | 6/26/1990                       | U.S. Pat. 4,937,717 to Betzvog, Jr.    | Lighting System for Hazardous Areas                                | Betzvog, Jr.                   |
| 1027    | 10/28/1992                  | 12/21/1993                      | U.S. Pat. 5,272,611 to Lai             | Electrical Cord Assy for Illumination-Adjustable Lighting Fixture  | Lai                            |
| 1028    | 5/20/1998                   | 12/5/2000                       | U.S. Pat. 6,155,696 to Winton et al.   | Lighting Assy Raised and Lowering Along Pole                       | NSI Enterprises, Inc.          |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|      |            |            |                                            |                                                                      |                                |
|------|------------|------------|--------------------------------------------|----------------------------------------------------------------------|--------------------------------|
| 1029 | 1/30/1905  | 5/2/1905   | U.S. Pat.<br>788,707 to<br>Coverstone      | Light Tower                                                          |                                |
| 1030 | 1/18/2006  | 8/10/2006  | US<br>2006/0176708<br>to Gordin et al.     | Single Arm<br>Mogul Mount<br>for Sports<br>Lighting<br>Fixtures      | Musco<br>Corp                  |
| 1031 | 12/6/2005  | 9/4/2008   | US<br>2008/0212329<br>to Duguay et al.     | Assy of LED<br>for Lighting<br>Applications                          |                                |
| 1032 | 2/25/2011  | 8/30/2012  | US<br>2012/0217897<br>to Gordin et al.     | Compact and<br>Adjustable<br>LED Lighting<br>Apparatus and<br>Method | Musco<br>Corp                  |
| 1033 | 5/20/1998  | 12/5/2000  | U.S. Pat.<br>6,155,696 to<br>Winton et al. | Lighting Assy<br>Raised and<br>Lowering<br>Along Pole                | NSI<br>Enterprises,<br>Inc.    |
| 1034 | 9/15/1982  | 5/22/1984  | U.S. Pat.<br>4,450,507 to<br>Gordin        | Composite<br>Photometric<br>Method                                   | Mycro-<br>Group Co             |
| 1035 | 8/21/1992  | 12/21/1993 | U.S. Pat.<br>5,272,609 to<br>Nelson        | Portable<br>Lighting Unit                                            | Century<br>Mft &<br>Equip Inc. |
| 1036 | 1/18/2002  | 8/19/2003  | U.S. Pat.<br>6,607,285 to<br>Citron et al. | Light<br>Adjustment<br>Apparatus                                     | Genie<br>Indus. Inc.           |
| 1037 | 10/29/2008 | 5/8/2012   | U.S. Pat.<br>8,172,438 to<br>Konop         | Low-Profile<br>Collapsible<br>Lighting<br>System                     | Magnum<br>Power<br>Prods, LLC  |
| 1038 | 5/6/2009   | 5/14/2013  | U.S. Pat.<br>8,439,534 to<br>Roe et al.    | Mobile<br>Lighting<br>Apparatus                                      |                                |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|      |            |           |                                              |                                                                    |                                                   |
|------|------------|-----------|----------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------|
| 1039 | 4/28/2009  | 5/27/2014 | U.S. Pat.<br>8,734,163 to<br>Gordin et al.   | Illumination<br>Scheme Using<br>a Mobile<br>Lighting Eval.<br>Sys  | Musco<br>Corp                                     |
| 1040 | 4/16/2010  | 1/13/2015 | U.S. Pat.<br>8,931,932 to<br>Lipscomb et al. | Moisture<br>Release Valve<br>for an Outdoor<br>Lighting<br>Fixture | G.H.L. Int'l<br>Inc.,<br>Magnum<br>Power<br>Prods |
| 1041 | 1/18/2002  | 7/24/2003 | US<br>2003/0137840<br>to Citron et al.       | Light<br>Adjustment<br>Apparatus                                   |                                                   |
| 1042 | 10/20/2014 | 4/21/2016 | US<br>2016/0109079<br>to McKinley et<br>al.  | Light Tower<br>Assembly                                            | McKinley<br>Srvs.<br>Equip., Inc.                 |
| 1043 | 11/23/2015 | 5/18/2017 | US<br>2017/0141721<br>to Schmidt             | Modular<br>Photovoltaic<br>Light and<br>Power Cube                 | Daniel L.<br>Robertson                            |

53. These prior art patents and publications disclose the general concept of mounting lights, including LED lights, on elevated positions to provide illumination of the area below. For example, U.S. Patent No. 10,236,820 entitled *Modular Photovoltaic Light and Power Cube*, provides a telescoping lighting tower that was designed for “[c]onstruction” and “industrial operations” such as oil drilling wells. See U.S. Patent No. 10,236,820 at (1:16-20).

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

54. The following table summarizes some prior art lighting systems for illuminating drilling rigs for safer nighttime drilling activities in and around the well-site.

55. **Lights Installed on Drilling Rigs**

| EX. NO. | Filed AIA (35 U.S.C. § 102) | Published AIA (35 U.S.C. § 102) | Patent No., Publication No., Appl. No. | Description / Title                          | Assignee / Owner         |
|---------|-----------------------------|---------------------------------|----------------------------------------|----------------------------------------------|--------------------------|
| 1044    | 9/9/1955                    | 7/14/1959                       | U.S. Pat. 2,895,039 to Hutchison       | Derrick Girth Light                          | Frank E. Hutchison       |
|         |                             |                                 |                                        |                                              |                          |
| 1045    | 4/28/2008                   | 10/30/2008                      | US 200/0266859 to Palmisano, Jr.       | Easy-Glide Offshore Ready Light Tower System | Lester J. Palmisano, Jr. |

56. These lights installed on oil-drilling rigs were provided to illuminate the well-site for providing safer working conditions during night-time. For example, U.S. Patent No. 2,895,039, filed September 9, 1955, entitled *Derrick Girth Light*, describes the light on a drilling rig for providing necessary illumination for work around a drilling rig by providing a secure attachment device for lights in the drilling rig's derrick, sometimes called a mast. U.S. Patent No. 7,988,343 to Palmisano, Jr., entitled *Easy-Glide Offshore Ready Light Tower System*, discloses a telescoping,

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

elevated lighting system for illuminating offshore drilling rigs for night-time operations.

57. The following table summarizes some prior art lighting systems for installing lights on handrails, brackets, and frame-type systems that are commonly part of the structures on or around a rig and associated equipment and facilities:

58. **Lights Installed on Hand rails, Brackets & Frames**

| EX. NO. | Filed AIA (35 U.S.C. § 102) | Published AIA (35 U.S.C. § 102) | Patent No., Publication No., Appl. No.           | Description / Title                                               | Assignee / Owner      |
|---------|-----------------------------|---------------------------------|--------------------------------------------------|-------------------------------------------------------------------|-----------------------|
| 1046    | 10/16/2003                  | 4/21/2005                       | U.S. Pat. App. Publ. 2005/0083690A1 to Griffin   | Horizontally and Vertically Adjustable Lighting System and Method | FarSight LLC          |
| 1047    | 1/26/1926                   | 3/19/1929                       | U.S. Patent No. 1,706,215 to Davidson            | Adjustable Coupling Means                                         | Am. Safety Device Co. |
| 1048    | 11/29/1965                  | 12/19/1967                      | U.S. Patent No. 3,358,952 to Burns               | Ground Mounted Antenna Support                                    | Burns, Loren D.       |
| 1049    | 12/24/1984                  | 6/17/2986                       | U.S. Patent No. 4,595,165 to Klingensmith et al. | Adjustable Anchoring Assembly                                     | Aluminum Co. of Am.   |
| 1050    | 2/15/1990                   | 10/29/1991                      | U.S. Patent No. 5,060,435 to Bogdanow            | Bracket for Support of Vertical Pole                              | Bogdanow, Anatol L.   |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|      |            |           |                                               |                                                                          |                    |
|------|------------|-----------|-----------------------------------------------|--------------------------------------------------------------------------|--------------------|
| 1051 | 3/3/1998   | 9/4/2001  | U.S. Patent No. 6,283,425 to Liljevik         | Mounting Bracket                                                         | Allgon AB          |
| 1052 | 12/20/2002 | 7/27/2004 | U.S. Patent No. 6,768,474 to Hunt             | Antenna Mounting Assembly and Method                                     | SPX Corp.          |
| 1053 | 2/22/2005  | 8/25/2005 | U.S. Patent Publ. 2005/0184207 to Bertram III | Magnetic Bed-Rail Attachment Particularly Suited to Sterile Environments | Bertam III, Morton |

59. As demonstrated by the references above and the further evidence described in the next paragraph it was common knowledge to a person of ordinary skill in the art (POSITA) as of C&M's alleged March 15, 2018 provisional filing date of the patent that:

- (1) Plurality of lights were commonly used to illuminate wellsites;
- (2) A plurality of lights were commonly attached to rigs including to the crown deck and/or to the hand railings that typically are around a crown deck for safety;
- (3) Lights were commonly mounted on mounting poles of various shapes and sizes using, for example, mounts and brackets;
- (4) Brackets were commonly used with, for example, bolts to attach one item

Petitioner Ensign  
Exhibit 1008 - Page 28 of 84

to another such as a mounting pole to a crown deck and/or to a handrail; and

(5) Many items including mounting poles have been attached to crown decks and/or hand rails surrounding a crown deck.

60. Further evidence that (1) through (5) of the preceding paragraph were each common knowledge and/or known to a person of ordinary skill in the art (POSITA) as of C&M's alleged March 15, 2018 provisional filing date of the patent is shown in the below photos which show pre-2003 rigs with light units separately attached to a railing around a crown deck with brackets using bolts. One of the rigs was configured to allow the lights to be mounted at different positions – one position on the top of hand rail and the other on the bottom hand rail kickplate.

61. The photos below and reproduced in Exhibit 1012 are true and correct copies of photos from my files and each truly, fairly, and accurately depict the state of the rigs as of the time they were taken prior to the March 15, 2018 filing date (some of the pictures show the rigs on their side for maintenance or storage). Further, the photos below and reproduced in Exhibit 1012-A are true and correct copies of photos from my files and each truly, fairly, and accurately depict the current state of the remaining rig, which has been in storage and in the same condition since before March 15, 2018. Oilfield companies routinely take pictures of rigs and other oilfield

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

structures to record or capture the condition and other visible information about the  
rigs and structures and I maintain those pictures in a secure electronic storage folder.



Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



Detail:



Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016





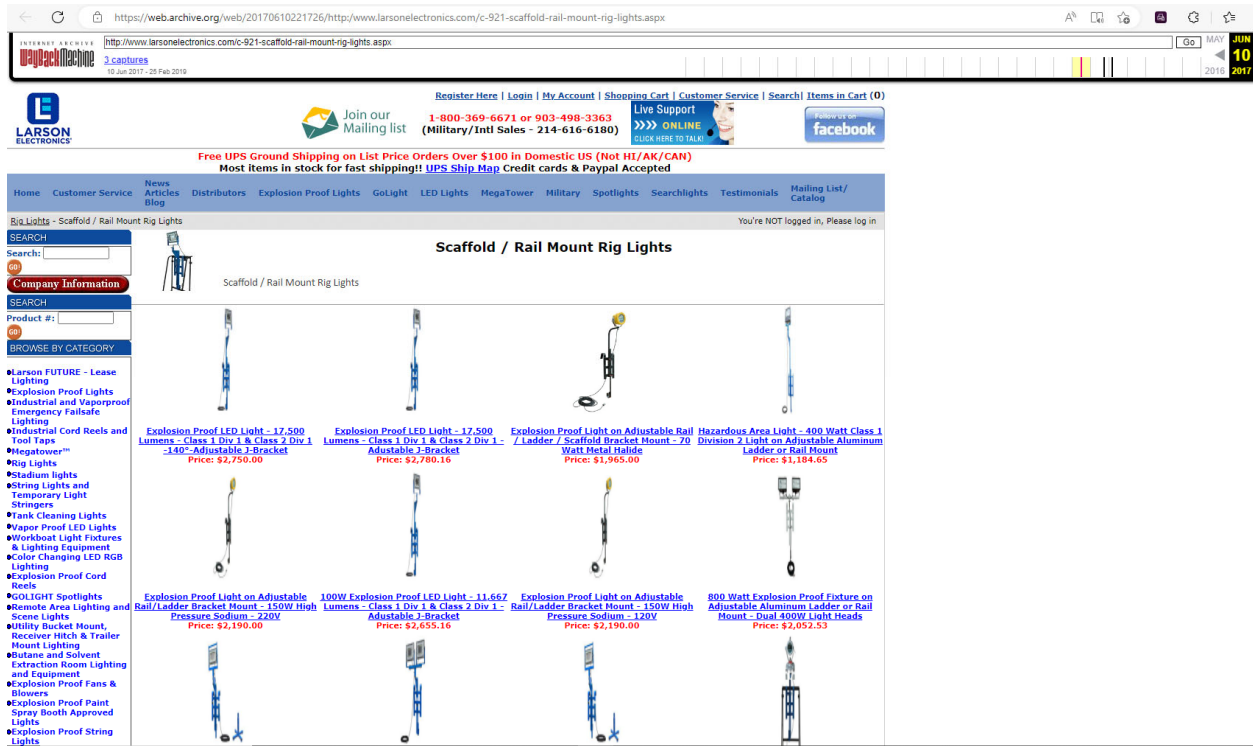
62. Other photos show other aspects, individually or collectively, of (1) through (5) of paragraph 59 were known to a POSITA and others working in or around rigs and/or oil and gas equipment. The photos below and reproduced in Exhibit 1013 are true and correct copies of photos from my files and each truly, fairly, and accurately depict the state of the structures shown as of the time the pictures were taken and show how, as I know from my experience and work on and with rigs, that various equipment, including lights, flags, and electrical boxes, have been affixed to hand railing and other structures on a rig since before I started working on rigs in 2004. Ex. 1013.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



63. As yet further evidence the below excerpt from a 2017 Lighting Catalog shows many type of rig lights that may be mounted to a hand railing surrounding a crown deck as the catalog characterizes these as “Scaffold / Rail Mount Rig Lights”. Ex. 1014, screenshot of this hyperlink: [Scaffold / Rail Mount Rig Lights - Larson Electronics \(archive.org\)](#). Ex. 1014 is a true and correct copy of a screenshot of search results for Larson Electronics website as it existed in 2017 found by using the Wayback Machine, which is publicly accessible and a known trustworthy source of information about the content of websites.

# Declaration of Jake Hamdan supporting Petition for Inter Partes Review of U.S. Patent No. 10,976,016



64. Numerous YouTube videos from 9 years ago or more listed below demonstrate the ease with which one can attach a light with a mounting pole to a railing using a rail mount to affix the rig lights. These videos are publicly accessible on YouTube and can be located by using basic search terms, and were disseminated by Larson Electronics. True and correct copies of these videos obtained by a video and screen capture application in MP4 format are Exhibits 1006 and 1015-1 to 1015-4.

9 years ago

<https://www.youtube.com/watch?v=3jPNnZikJoo> (Exhibit 1015-1)

<https://www.youtube.com/watch?v=TUhlbV3puOU> (Exhibit 1015-2)

Petitioner Ensign  
Exhibit 1008 - Page 36 of 84

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

10 years ago

<https://www.youtube.com/watch?v=21PeSCUd9DA> (Exhibit 1015-3)

[https://www.youtube.com/watch?v=X04M\\_ZGv81M](https://www.youtube.com/watch?v=X04M_ZGv81M) (Exhibit 1015-4)

<https://www.youtube.com/watch?v=EWXJeKNRs00> (Exhibit 1006)

65. Screenshots below of the installation are at approximately the 20 second point in the video at

<https://www.youtube.com/watch?v=EWXJeKNRs00> Ex. 1006. Exhibit 1006 is prior to the filing date and readily and publicly accessible by a POSITA using simple search terms, such as rail mount light oil field, which yields the referenced video and others using similar brackets for mounting lights on a hand rail. The following are screen shots of what is shown in Exhibit 1006:

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016





**B. Admitted Prior Art (Ex. 1001, '016 Patent Background and Fig. 1)**

66. I have been informed that admissions in the Background of the '016 patent may be used to establish the background knowledge possessed by a person of ordinary skill in the art, provide a factual foundation as to what a skilled artisan would have known at the time of the invention, supply missing claim limitations that

were generally known prior to the filing date, and support a motivation to combine particular disclosures.

67. The '016 patent admits in the Background that “To 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.” (Ex. 1001, 1:14-17).

68. Further, the Background describes the at least some of the problems known by a POSITA in or around the time of the filing of the '016 Patent.<sup>3</sup> That is,

Prior 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. Because they are a single structural unit, they are heavy and typically require

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<sup>3</sup> As described in the “Overview and State of the Prior Art as of 2018” section above, the '016 Patent overstates the known issue to a POSITA as it was common knowledge to solve these issues as shown by, for example, the photos in Exhibit 1012 attaching lights to the crown deck and/or a surrounding handrail back in 2003 or using brackets like those shown in the 2009 YouTube video in Exhibit 1006.

cranes along with multiple workers for installation, removal, and adjustments. A typical rig lighting frame system may require between 6 and 12 hours for installation. Further, before a derrick can be moved, the lighting systems must be removed—again with all of the necessary equipment and personnel—and a similar amount of time may be required for uninstallation. These installation and uninstallation times extend the time needed between rig deployments. Due to the high cost of operating a rig, any such delay is extremely inefficient for the operator of a wellsite. These factors also increase the time required to be spent on maintaining these systems, which also increases safety risk. (Ex. 1001, 1:23-39).

69. The prior art Figure 1 below from the '016 Patent shows lights attached to the crown 110 of a drilling rig such that the ground around the drilling rig is illuminated when in use. (Ex. 1001, Fig. 1 and 2:25-32).

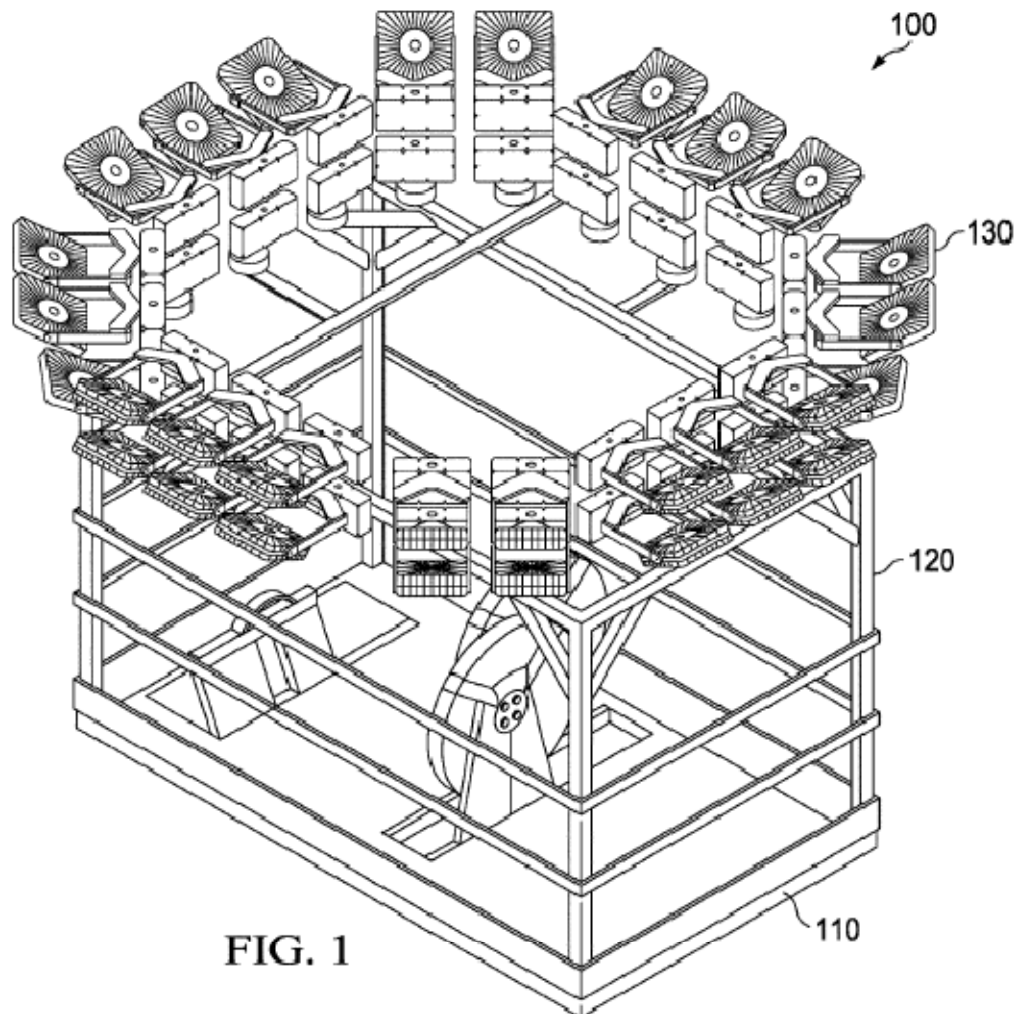


FIG. 1

70. The admissions above in the '016 Patent are consistent with my opinion that it was common knowledge to a person of ordinary skill in the art (POSITA) as of C&M's alleged March 15, 2018 provisional filing date of the patent that:

- (1) Plurality of lights were commonly used to illuminate wellsites; and
- (2) A plurality of lights were commonly attached to rigs (directly or  
Petitioner Ensign  
Exhibit 1008 - Page 42 of 84

indirectly) including to the crown deck and/or to handrails .

71. The admissions above also demonstrate that as of C&M's March 15, 2018 provisional filing date a POSITA would be well-aware that the method of attaching lights to a rig using a frame-based structure in prior art Figure 1 of the '016 Patent should be modified to make the plurality of lights less heavy, easier to install, easier to uninstall, safer to install, and safer to access for maintenance.

**C. WO2018/042348 ("Gowanlock") (Ex. 1003)**

72. Gowanlock was filed August 30, 2017 claiming priority to an August 30, 2016 provisional. Ex. 1003. Gowanlock published on March 8, 2018 and is prior art as it was filed a week before the March 15, 2018 provisional application to which the '016 Patent claims priority. Ex. 1003.

73. Gowanlock describes a drilling rig "including a derrick or mast and crown, having a drilling site lighting system attached thereto, comprising at least one light fixture attached directly to the crown 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." Ex. 1003, paragraph [0008].

74. Figure 1 of Gowanlock shown below depicts a modular lighting system mounted on a rig. Ex. 1003, Figure 1A.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

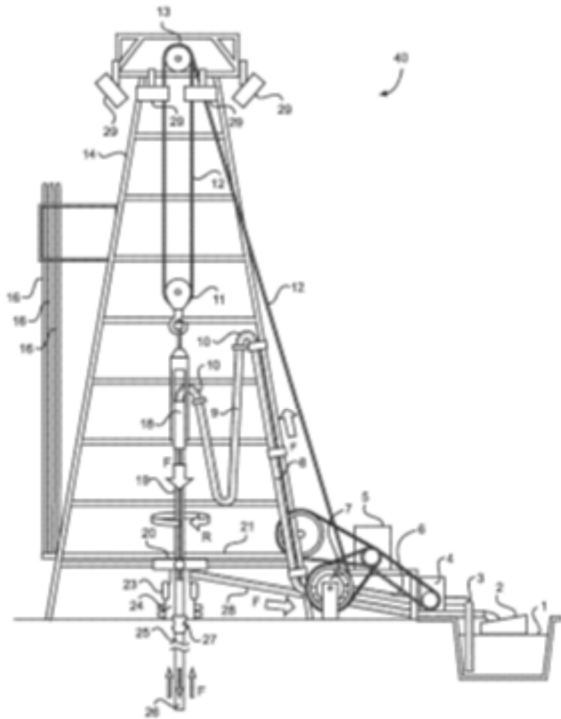
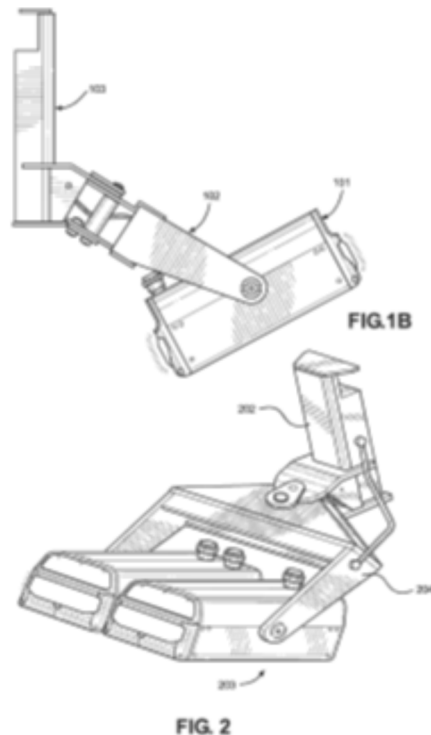


FIG. 1A

75. A plurality of lights are attached to the crown deck at the top of the derrick with each light being separately attached using a pole, a bracket, and bolts as shown in Figure 1A above and Figure 1B and Figure 2 below. Ex. 1003, Figures 1A, 1B, and 2.



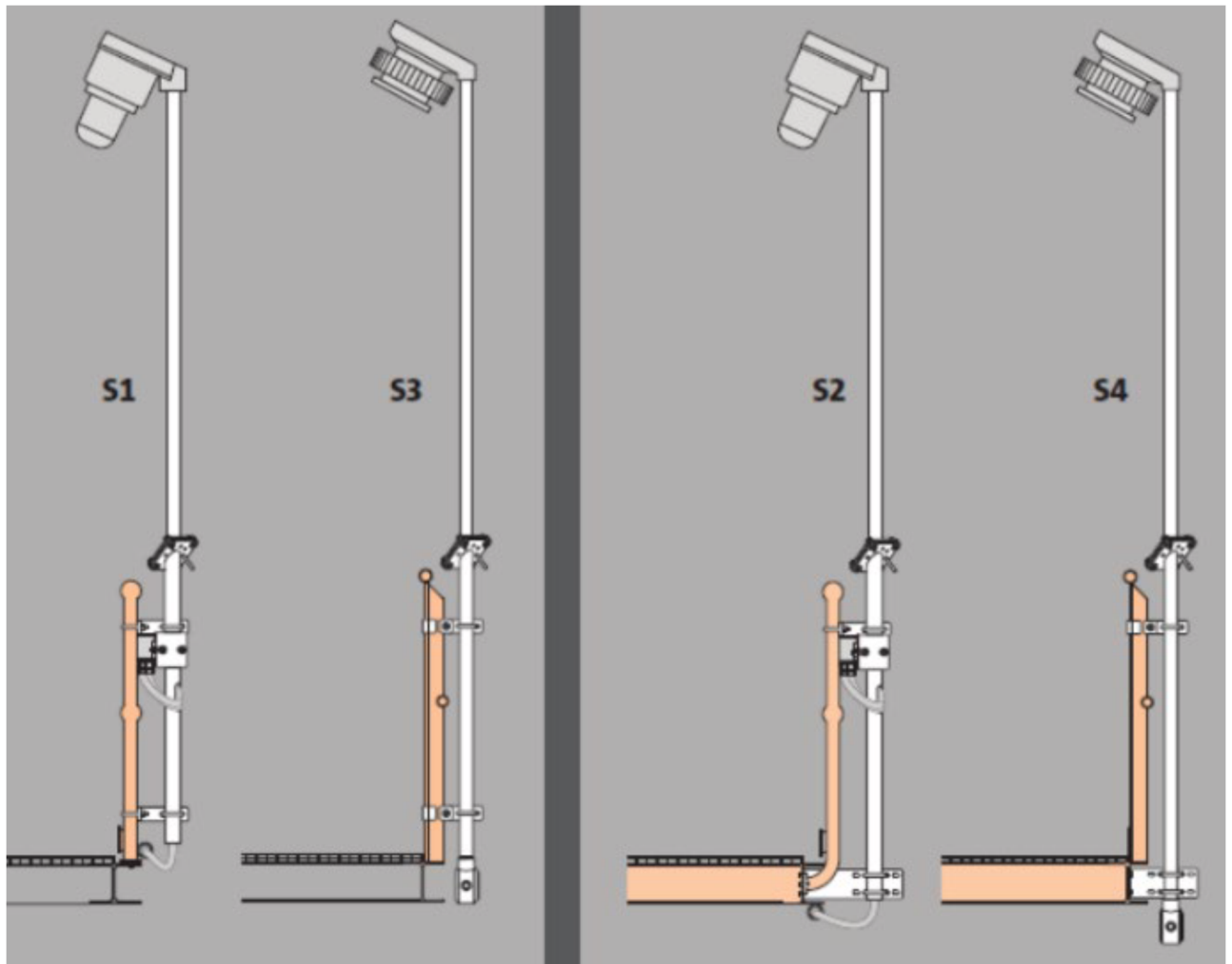
#### **D. Swivelpole Catalog (Ex. 1004)**

76. The Swivelpole Catalog was printed in March 2014. Ex. 1004. The Swivelpole catalog is therefore prior art to the '016 Patent with its earliest possible filing date of March 15, 2018. Exhibit 1004 is a true and correct copy of the 2014 Swivelpole Catalog, which is available online and in the file history of the '016 Patent.

77. The Swivelpole catalog expressly notes that it is useful in the oil and gas industry and notes that it may be mounted in many different configurations including to handrails which it refers to as “guardrails”. Ex. 1004. As shown in the Swivelpole

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

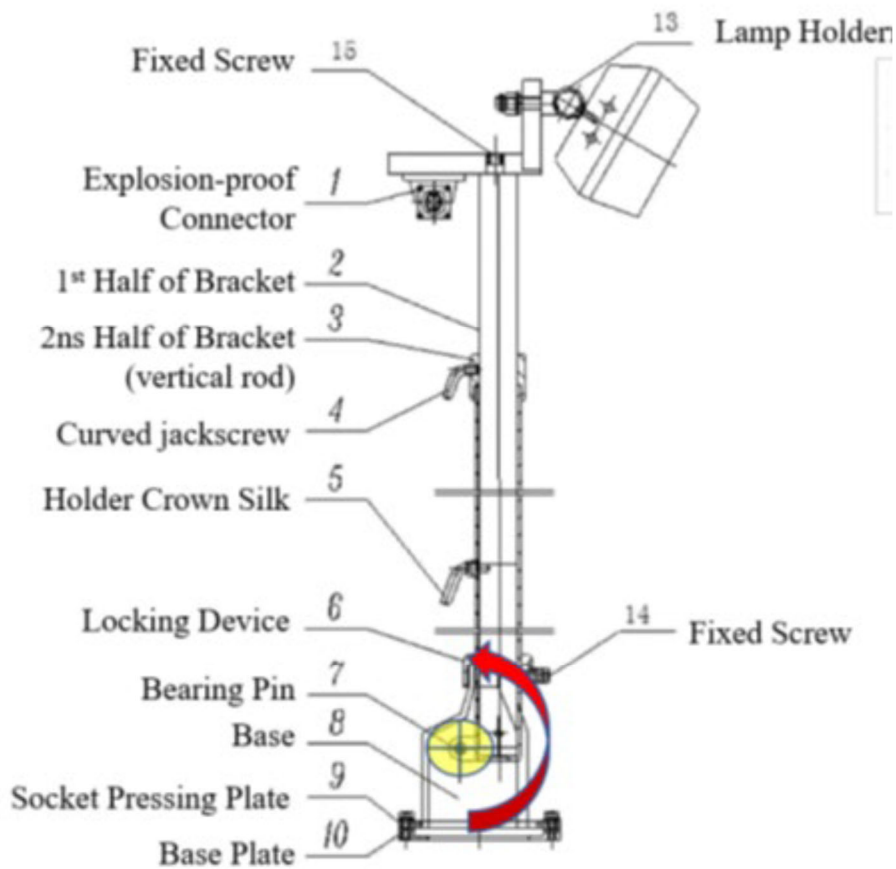
catalog, figures S1 and S3 below depict handrail mounting configurations that, of course, include brackets and bolts. See, for example, Ex. 1004, Figures S1 and S3 and page 16 stating “It features a sturdy right angle bracket which simply bolts to an existing structure.”



**E. Chinese Patent No. 203215413U (“Chinese ‘413”) (Ex. 1005)**

78. Chinese ‘413 is entitled “Novel Lighting Lamp Support of Petroleum Drilling Machine Well Site”. Ex. 1005. Chinese ‘413 was filed March 6, 2013 and published September 25, 2013. Ex. 1005. Chinese ‘413 is therefore prior art to the ‘016 Patent’s earliest filing date of March 15, 2018.

79. Chinese ‘413 allows one to carry out the regulation of illumination scope in limited space and adjust the angle of illumination for lights on oil drilling rigs. Ex. 1005. Annotated Figure 1 below shows a representative light with lights, bolts, and brackets that may be attached to an oil drilling rig. Ex. 1005.



**F. Larson Electronics / Magnalight YouTube video (copyright 2004-2012) (Ex. 1006)**

80. The YouTube video at Exhibit 1006 demonstrates how easily one may attach a light on a pole to a hand railing (such as one that may be surrounding a rig's crown) deck using a bracket.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016





## **VIII. ANALYSIS AND IDENTIFICATION OF HOW CLAIMS 1, 2, and 23 ARE UNPATENTABLE**

### **A. Gowanlock Anticipates Claims 1, 2, and 23**

81. As shown in the claim chart below, every feature is described or inherent in Gowanlock's disclosure. Thus, claims 1, 2, and 23 are anticipated.

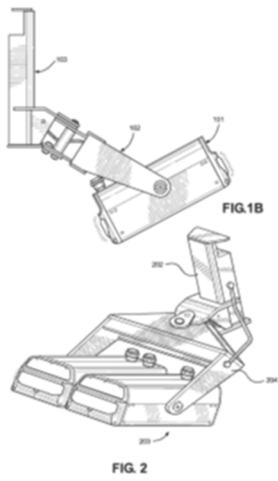
US 10,976,016 B2

Petitioner Ensign  
Exhibit 1008 - Page 50 of 84

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                                    |                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Claim Language</b></p> <p>1. A modular lighting system mounted on a rig, the modular lighting system comprising:</p>         | <p><b>WO2018/042348</b></p> <p>FIG. 1A shows a modular lighting system mounted on a rig.</p> <p><b>FIG. 1A</b></p>                                                |
| <p>a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:</p> | <p>FIGs. 1A, 1B, and 2 illustrate a plurality of light units wherein each light unit is separately attached to a crown deck of the rig.</p> <p><b>FIG. 1A</b></p> |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>a mounting pole;</p>                                                               | <p>FIGs. 1A, 1B, and 2 above show a mounting pole for light fixtures 29. For example see 202 in Figure 1B.</p>                                                                                                                                                                                                                                                                                                                                                                               |
| <p>a light fixture comprising one or more lights; and</p>                             | <p>FIGs. 1A, 1B, and 2 above illustrate a light fixture comprising one or more lights. See, for example, 29, in FIG. 1A above.</p>                                                                                                                                                                                                                                                                                                                                                           |
| <p>a bracket configured to attach the mounting pole to the crown deck of the rig.</p> | <p>FIGs. 1A, 1B, and 2 above illustrate a bracket configured to attach the mounting pole to the crown deck of the rig.</p> <p>[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,</p> |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                                                |                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                | designed, or configured crown decks, including handrails.                                                                                                                                                                                                  |
| <b>Claim Language</b>                                                                                                                          |                                                                                                                                                                                                                                                            |
| 2. The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts.                                  | FIGs. 1B and 2 above show bolts employed to connect the bracket to the crown deck. Further, bolts are a well-known attachment mechanism for use with brackets and/or crown decks as shown in, for example, prior art photos in Ensign document production. |
| <b>Claim Language</b>                                                                                                                          |                                                                                                                                                                                                                                                            |
| 23. A rig comprising:                                                                                                                          | FIG. 1A above shows a rig.                                                                                                                                                                                                                                 |
| a derrick;                                                                                                                                     | A derrick 14 is shown in FIG.1A above.                                                                                                                                                                                                                     |
| a crown deck at the top of the derrick; and                                                                                                    | A crown deck is shown at the top of the derrick in FIG.1A above.                                                                                                                                                                                           |
| a plurality of light units, each light unit separately attached to the crown deck, each light unit comprising:                                 | FIGs. 1A, 1B, and 2 above of WO2018/042348 illustrate a plurality of light units wherein each light unit is separately attached to a crown deck of the rig. This is also shown in, for example, Fig. 1 of US2018/0187873.                                  |
| a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles; and | FIGs. 1A, 1B, and 2 above show a separate mounting pole for each light unit. For example see 202 in Figure 1B.                                                                                                                                             |
| a light fixture comprising one or more lights, the light fixture coupled to the mounting pole.                                                 | FIGs. 1A, 1B, and 2 above illustrate a light fixture comprising one or more lights wherein the light fixture is coupled to the mounting pole. See, for example, 29, in FIG. 1A above.                                                                      |

|  |  |
|--|--|
|  |  |
|--|--|

82. As shown in the claim chart above, every feature is described or inherent in Gowanlock. Therefore, Claims 1, 2, and 23 are anticipated.

**B. Claims 1, 2, and 23 Are Obvious Over Gowanlock and Swivelpole Catalog**

83. As shown in the claim chart in Section A above, every feature is described or inherent in Gowanlock's disclosure. What's more, to the extent that any feature is missing a POSITA would readily include that feature from the Swivelpole catalog as shown in the claim chart below.

| US 10,976,016 B2                                                                       |                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Claim Language                                                                         | WO2018/042348                                                                                                                                                                                                           |
| 1. A modular lighting system mounted on a rig, the modular lighting system comprising: | FIG. 1A shows a modular lighting system mounted on a rig.<br><br>A POSITA would readily employ lights, mounting poles, and brackets shown in the Swivelpole catalog to make a modular lighting system mounted on a rig. |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

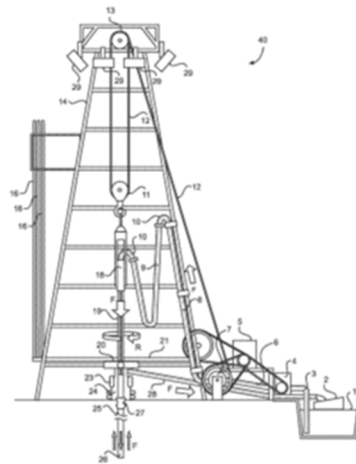


FIG. 1A

a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:

Gowanlock FIGs. 1A, 1B, and 2 below illustrate a plurality of light units wherein each light unit is separately attached to a crown deck of the rig.

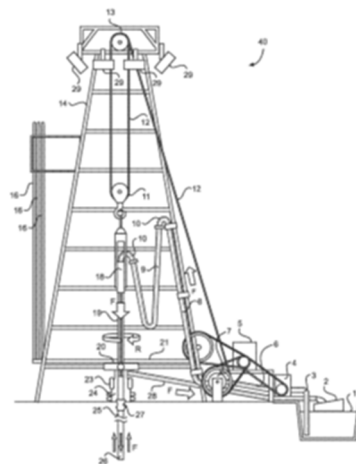
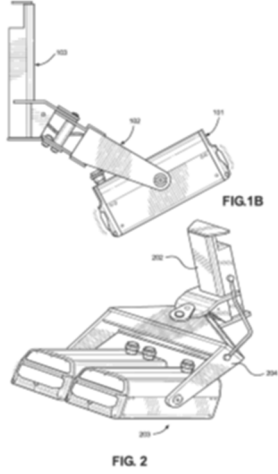
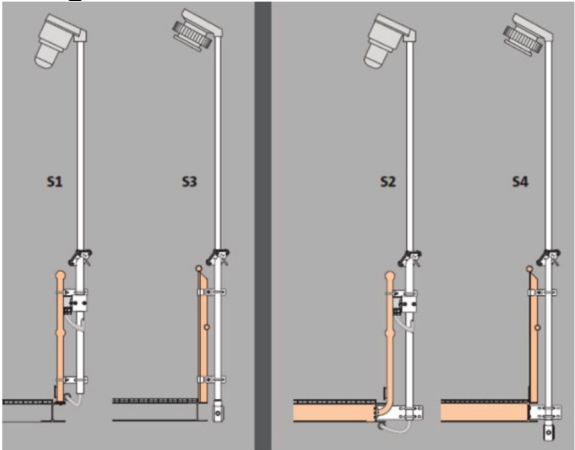


FIG. 1A

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |  <p>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.</p>  <p>Swivelpole catalog figure</p> |
| <p>a mounting pole;</p> | <p>Gowanlock FIGs. 1A, 1B, and 2 above show a mounting pole for light fixtures 29. For example see 202 in Figure 1B.</p> <p>A POSITA would readily employ the lights, mounting poles, and brackets</p>                                                                                                                                                                                                                                                   |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                               | shown in the Swivelpole catalog figure above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| a light fixture comprising one or more lights; and                                                            | <p>FIGs. 1A, 1B, and 2 above illustrate a light fixture comprising one or more lights. See, for example, 29, in FIG. 1A above.</p> <p>The Swivelpole catalog figure above shows a light fixture comprising one or more lights.</p>                                                                                                                                                                                                                                                                                                                                                                  |
| a bracket configured to attach the mounting pole to the crown deck of the rig.                                | <p>Gowanlock FIGs. 1A, 1B, and 2 above illustrate a bracket configured to attach the mounting pole to the crown deck of the rig.</p> <p>Gowanlock [0019] states “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.”</p> <p>The Swivelpole catalog figure above 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.</p> |
| <b>Claim Language</b>                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2. The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts. | FIGs. 1B and 2 above show bolts employed to connect the bracket to the crown deck.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                | <p>The Swivelpole catalog figure above 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.</p> <p>Further, bolts are a well-known attachment mechanism for use with brackets and/or crown decks as shown in, for example, the pictures that are in Exhibit 1012, 1012-A, and Exhibit 1013.</p>                                          |
| <b>Claim Language</b>                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 23. A rig comprising:                                                                                          | FIG. 1A above shows a rig.                                                                                                                                                                                                                                                                                                                                                                                          |
| a derrick;                                                                                                     | A derrick 14 is shown in FIG.1A above.                                                                                                                                                                                                                                                                                                                                                                              |
| a crown deck at the top of the derrick;<br>and                                                                 | A crown deck is shown at the top of the derrick in FIG.1A above.                                                                                                                                                                                                                                                                                                                                                    |
| a plurality of light units, each light unit separately attached to the crown deck, each light unit comprising: | <p>Gowanlock FIGs. 1A, 1B, and 2 above illustrate a plurality of light units wherein each light unit is separately attached to a crown deck of the rig.</p> <p>A POSITA would readily know to 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.</p> |
| a mounting pole, wherein each light unit comprises a separate mounting pole,                                   | FIGs. 1A, 1B, and 2 above show a separate mounting pole for each light unit. For example see 202 in Figure 1B.                                                                                                                                                                                                                                                                                                      |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                |                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| such that the system comprises a plurality of mounting poles; and                              | Light units comprising a separate mounting pole for each light are depicted in the Swivelpole catalog above and a POSITA would know to use a plurality.                                                                                                                     |
| a light fixture comprising one or more lights, the light fixture coupled to the mounting pole. | FIGs. 1A, 1B, and 2 above illustrate a light fixture comprising one or more lights wherein the light fixture is coupled to the mounting pole. See, for example, 29, in FIG. 1A above.<br><br>The Swivelpole catalog above shows a light fixture coupled to a mounting pole. |

84. 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. This combination would obtain claims 1, 2, and 23.

85. The Swivelpole catalog shows that its mounting poles may be readily attached to hand railings, i.e., guardrails or a floor like a crown deck. A POSITA also knows that hand railings have long surrounded crown decks for safety. Exs. 1012, 1013. Thus, a POSITA would combine the references for the obvious and predictable result of placing or improving modular lighting on a crown deck of a rig. That is, 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 pole, which swivels from a point on the pole, would make the lights more accessible and easier to adjust. In addition, the use of Swivelpole mounting poles with brackets and bolts allows mounting or affixing the lights to differently configured, designed, or configured crown decks, including those with or without handrails.

86. In sum, the POSITA would combine the references and be motivated to do so because the implementation of the combination is (1) 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; (2) simple substitution of one known element (the Swivelpole catalog lights) for another (Gowanlock's separately attached crown deck lights) to obtain predictable results; (3) the Swivelpole products, which swivel to allow installation, adjustment, and maintenance of the light fixtures, provide functionality and flexibility to the rig lighting envisaged by Gowanlock; (4) 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; and (5) 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.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

87. A POSITA would have reasonably expected to succeed 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.

88. For example, a light fixture or other items are commonly attached to a handrail via a pole, a bracket, and/or one or more screws or bolts. Ex. 1013.



89. Poles have been attached to crown deck hand railing with flag, airplane lights, and other structures attached. Ex. 1013.



90. There are only a finite number of ways to attach lights to a crown deck or a surrounding hand railing. The POSITA had good reasons to pursue the known options in the Swivelpole catalog using ordinary skill and common sense to arrive at Claims 1, 2, and 23 of the ‘016 Patent.

91. Thus, Claims 1, 2, and 23 are obvious.

**C. Claims 1, 2, and 23 Are Obvious Over Swivelpole Catalog and Chinese ‘413 in light of Admitted Prior Art**

92. As described above, the ‘016 Patent Owner of Record admitted that before the filing date it was known that, “To 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.” (Ex. 1001, 1:14-17).” It was also known that the prior art Figure 1 in the ‘016 Patent should be modified to make

the plurality of lights less heavy, easier to install, easier to uninstall, easier to adjust, and safer as stated in the '016 Patent. Ex. 1001, 1:23-39.

93. A POSITA seeking to make lights in prior art Fig. 1 less heavy, easier to install, easier to uninstall, and safer would readily use the Swivelpole catalog and/or Chinese '413 to obtain claims 1, 2, and 23.

94. A POSITA would readily know to employ the lights, mounting poles, and brackets shown in the Swivelpole catalog or Chinese '413 to separately attach a plurality of light units to a crown deck or a hand railing, i.e., guard rail, around the crown deck. A POSITA also knows that hand railings have long surrounded crown decks for safety. Ex. 1012, 1013.

95. The Swivelpole catalog shows that its mounting pole may be readily attached to hand railings, i.e., guardrails. Thus, a POSITA would combine the references 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, easier to adjust, safer to install, and safer to access for maintenance safer, each of which is an obvious motivating factor. Further, a POSITA would readily attach lights to a mounting pole on a crown deck and/or handrail and be motivated to do so because its swivel features would make the lights more accessible and easier to adjust. In addition, the use of mounting poles with brackets and bolts allows

mounting or affixing the lights to differently configured, designed, or configured crown decks, including those with or without handrails.

96. Chinese '413 allows one to carry out the regulation of illumination scope in limited space and adjust the angle of illumination for lights on oil drilling rigs. Ex. 1005. Annotated Figure 1 below shows a representative light with lights, bolts, and brackets that may be attached to an oil drilling rig. Ex. 1005.

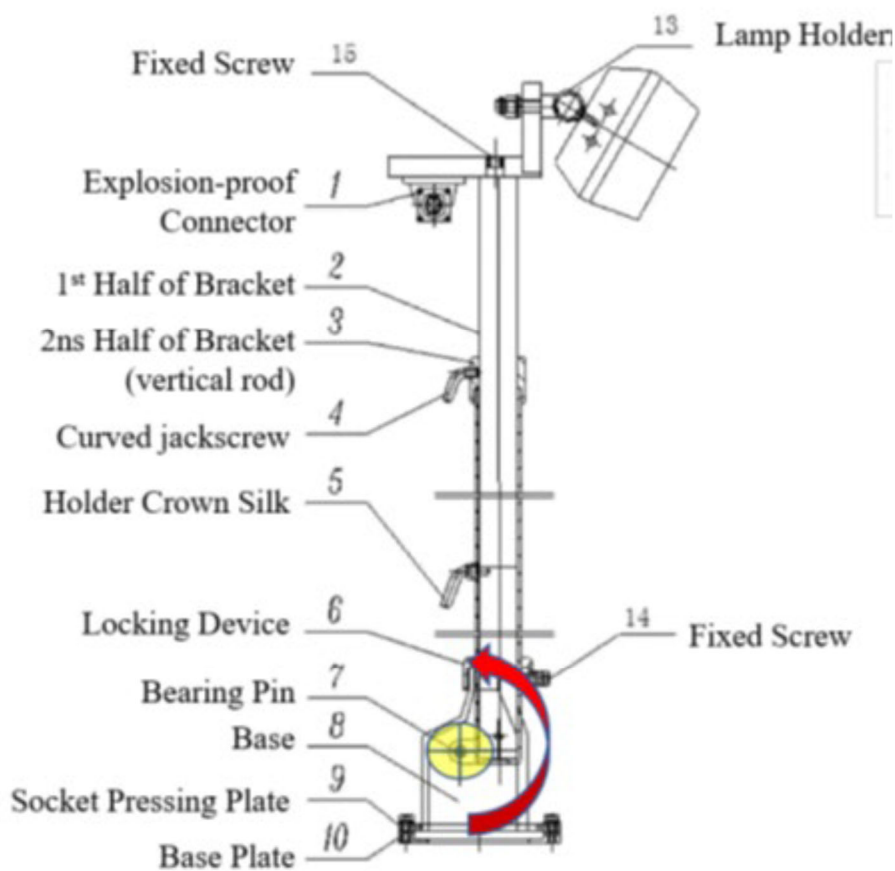


FIG. 1

97. Thus, a POSITA would combine the references 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 for maintenance, each of which is an obvious motivating factor. Further, 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. In addition, the use of mounting poles with brackets and bolts allows mounting or affixing the lights to differently configured, designed, or configured crown decks, including those with or without handrails.

98. In sum, the POSITA would separately attach a number of the mounted pole lights in the Swivelpole catalog or '413 Chinese to a crown deck as in claims 1, 2, and 23 because the implementation is (1) 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; (2) 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; ; (3) the Swivelpole products and the '413 Chinese, which move to allow installation, adjustment, and maintenance of the light fixtures, provide functionality and flexibility to the rig lighting; and (4) the use

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

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. A POSITA would have reasonably expected to succeed 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.

99. For example, a light fixture or other items are commonly attached to a handrail via a pole, a bracket, and/or one or more screws or bolts.



100. Poles have been attached to crown deck hand railing with flag, airplane lights, and other structures attached.

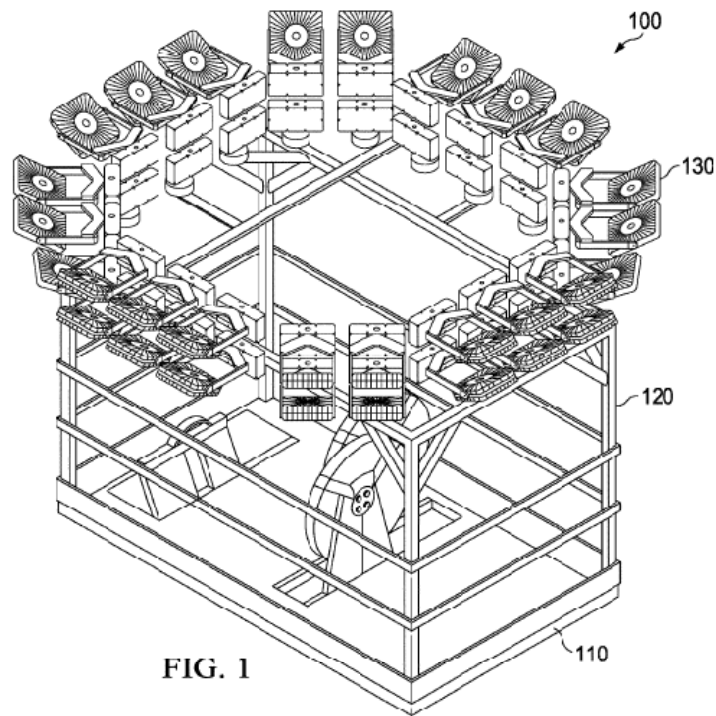
Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



101. There are only a finite number of ways to attach lights to a crown deck or a surrounding hand railing. The POSITA had good reasons to pursue the known options in the Swivelpole catalog or '413 Chinese using ordinary skill and common sense to arrive at Claims 1, 2, and 23 of the '016 Patent.

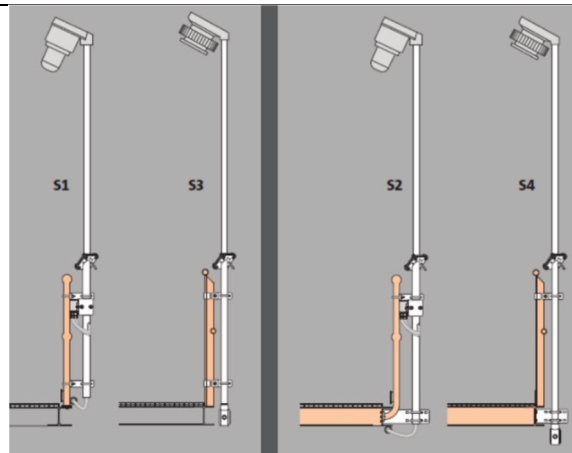
102. Thus, Claims 1, 2, and 23 are obvious as further shown in this chart:

| US 10,976,016 B2                                                                       |                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Claim Language                                                                         | Swivelpole Catalog and Chinese '413 in light of Admitted Prior Art              |
| 1. A modular lighting system mounted on a rig, the modular lighting system comprising: | Prior art FIG. 1 from the '016 Patent shows a lighting system mounted on a rig. |



A POSITA would readily employ lights, mounting poles, and brackets shown in the Swivelpole or Chinese '413 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.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



Swivelpole catalog figure  
Chinese '413

|                                                                                                                                    |                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                    | <p>FIG. 1</p>                                                                                                                                                                                                                                                   |
| <p>a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:</p> | <p>A POSITA would readily employ the lights, mounting poles, and brackets shown in the Swivelpole catalog or Chinese '413 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.</p> |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                               |                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a mounting pole;                                                                                              | A POSITA would readily employ the lights, mounting poles, and brackets shown in the Swivelpole catalog figure or Chinese '413 figure above.                                                                                                                                                    |
| a light fixture comprising one or more lights; and                                                            | The Swivelpole catalog figure and Chinese '413 figure above show a light fixture comprising one or more lights.                                                                                                                                                                                |
| a bracket configured to attach the mounting pole to the crown deck of the rig.                                | The Swivelpole catalog figure and Chinese '413 figure above show a bracket configured to attach the mounting pole to the crown deck or a hand railing, i.e., guard rail, around the crown deck.                                                                                                |
| Claim Language                                                                                                |                                                                                                                                                                                                                                                                                                |
| 2. The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts. | <p>The Swivelpole catalog figure and Chinese '413 figure above show a bracket that may be connected to the crown deck or a hand railing, i.e., guard rail, around the crown deck using bolts.</p> <p>Bolts are a well-known attachment mechanism for use with brackets and/or crown decks.</p> |
| Claim Language                                                                                                |                                                                                                                                                                                                                                                                                                |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                                                |                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23. A rig comprising:                                                                                                                          | FIG. 1 above shows a rig.                                                                                                                                                                                                                                               |
| a derrick;                                                                                                                                     | A derrick is shown in FIG.1 above.                                                                                                                                                                                                                                      |
| a crown deck at the top of the derrick; and                                                                                                    | A crown deck is shown at the top of the derrick in FIG.1 above.                                                                                                                                                                                                         |
| a plurality of light units, each light unit separately attached to the crown deck, each light unit comprising:                                 | A POSITA would readily know to employ the lights, mounting poles, and brackets shown in the Swivelpole catalog above and Chinese '413 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. |
| a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles; and | Light units comprising a separate mounting pole for each light are depicted in the Swivelpole catalog and Chinese '413 above and a POSITA would know to use a plurality.                                                                                                |

|                                                                                                |                                                                                                 |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| a light fixture comprising one or more lights, the light fixture coupled to the mounting pole. | The Swivelpole catalog and Chinese '413 above shows a light fixture coupled to a mounting pole. |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|

**D. Claims 1, 2, and 23 Are Obvious Over Larson Electronics / Magnalight YouTube video in View of Admitted Prior Art**

103. As described above, the '016 Patent Owner of Record admitted that before the filing date it was known that, "To 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." (Ex. 1001, 1:14-17)." It was also known that the prior art Figure 1 in the '016 Patent should be modified to make the plurality of lights less heavy, easier to install, easier to uninstall, and safer as stated in the '016 Patent. Ex. 1001, p.21 of 24, col. 1, lines23-39.

104. A POSITA seeking to make lights in prior art Fig. 1 less heavy, easier to install, easier to uninstall, and safer would readily use the Larson Electronics / Magnalight YouTube video (Ex. 1006) to attach a light on a pole to a hand railing (such as one that may be surrounding a rig's crown) deck using a bracket and obtain Claims 1, 2, and 23.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016





105. A POSITA would readily know to employ the lights, mounting poles, and brackets shown in Larson Electronics / Magnalight YouTube video to separately attach a plurality of light units to a crown deck or a hand railing, i.e., guard rail, around the crown deck. A POSITA also knows that hand railings have long surrounded crown decks for safety. Exs. 1012, 1013.

106. Larson Electronics / Magnalight YouTube video shows that its lights on a mounting pole may be readily attached to hand railings, i.e., guardrails. Indeed, the text accompanying the video on line states “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.” Thus, a POSITA would combine the references 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, easier to adjust, safer to install, and safer to access for maintenance each of which is an obvious motivating factor. Further, 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.

107. In sum, the POSITA would separately attach a number of the mounted pole lights in Larson Electronics / Magnalight YouTube video to a crown deck as in claims 1, 2, and 23 because the implementation is (1) 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; (2) 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

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

the crown deck) to obtain predictable results; (3) the Larson Electronics / Magnalight YouTube video is readily available for purchase without any apparent patent licensing issues or can be assembled by a POSITA using components (metal bars, bolts, nuts, and hooks) that are also readily available or could be constructed; and (4) 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. A POSITA would have reasonably expected to succeed 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.

108. For example, a light fixture or other items are commonly attached to a handrail via a pole, a bracket, and/or one or more screws or bolts.



Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

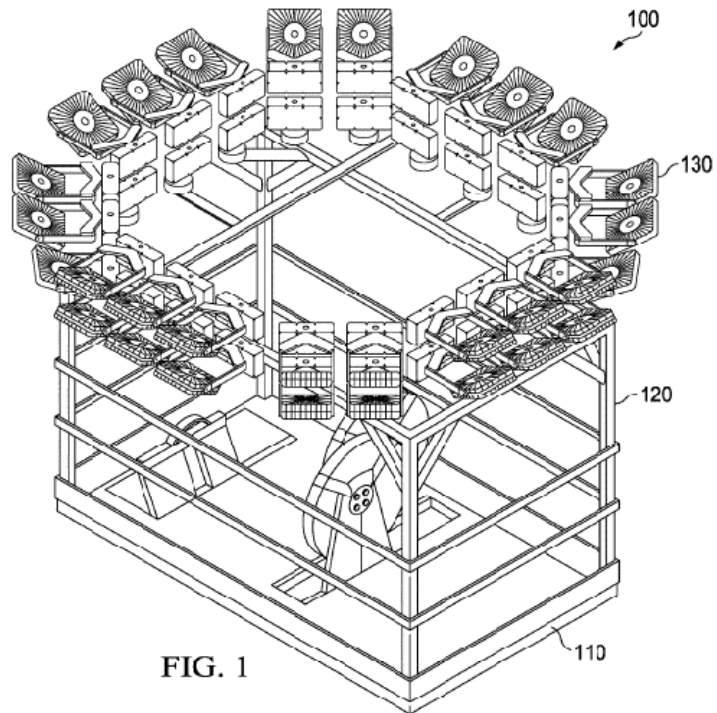
109. Poles have been attached to crown deck hand railing with flag, airplane lights, and other structures attached.



110. There are only a finite number of ways to attach lights to a crown deck or a surrounding hand railing. The 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 Claims 1, 2, and 23 of the '016 Patent.

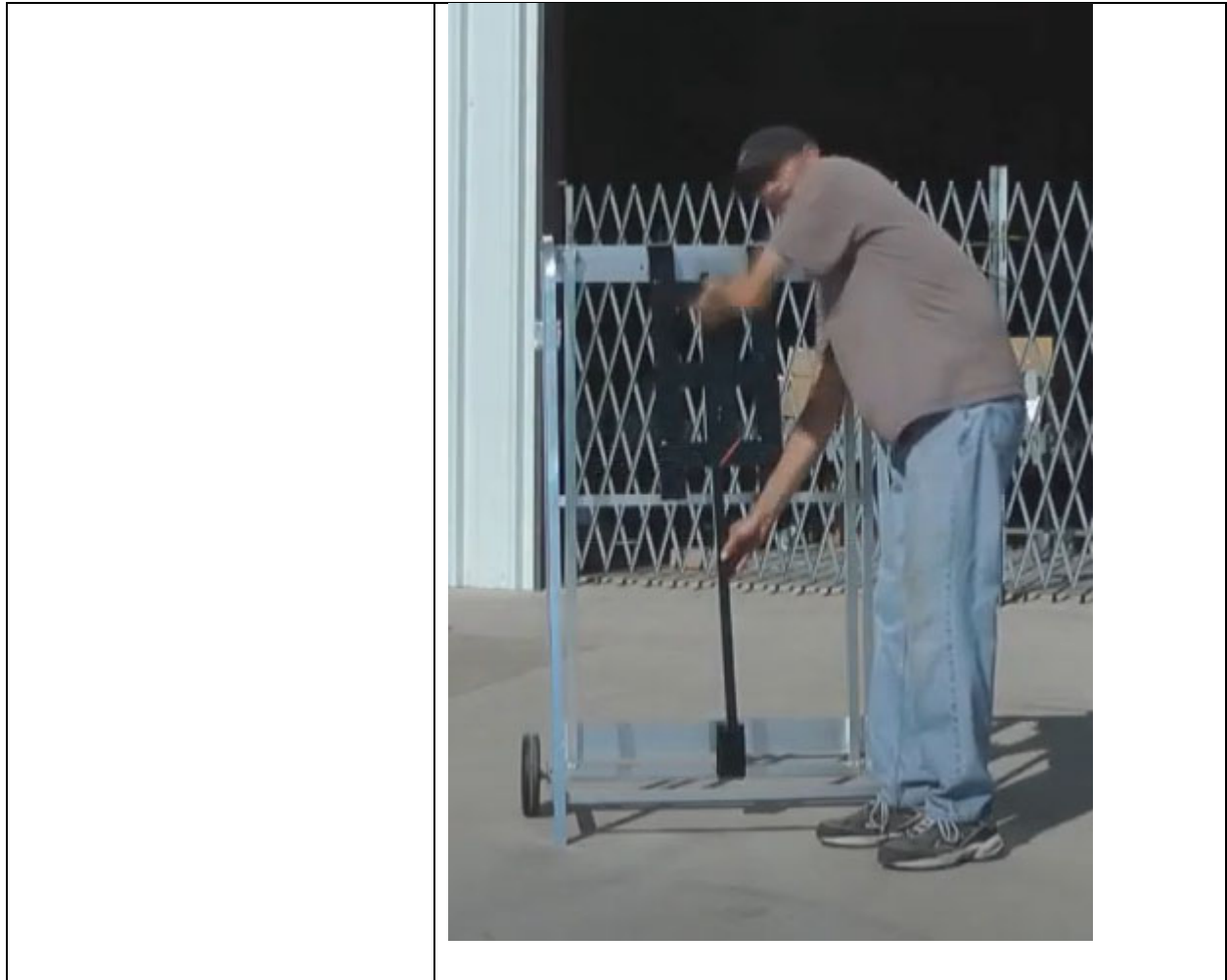
111. Thus, Claims 1, 2, and 23 are obvious as further shown in this chart

| US 10,976,016 B2                                                                       |                                                                                 |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Claim Language                                                                         | Larson Electronics / MagnaLight YouTube Video in Light of Admitted Prior Art    |
| 1. A modular lighting system mounted on a rig, the modular lighting system comprising: | Prior art FIG. 1 from the '016 Patent shows a lighting system mounted on a rig. |



A POSITA would readily employ lights, mounting poles, and brackets shown in the Larson Electronics / Magnalight YouTube video 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.

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016



Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                                    |                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                    |                                                                                                                                                                                         |
| <p>a plurality of light units, each light unit separately attached to a crown deck of the rig, and each light unit comprising:</p> | <p>A POSITA would readily employ the lights, mounting poles, and brackets shown in the Larson Electronics / Magnalight YouTube video 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.</p> |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

|                                                                                                                |                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a mounting pole;                                                                                               | A POSITA would readily employ the lights, mounting poles, and brackets shown in the Larson Electronics / Magnalight YouTube video above.                                                                                                                                              |
| a light fixture comprising one or more lights; and                                                             | The Larson Electronics / Magnalight YouTube video above shows a light fixture comprising one or more lights.                                                                                                                                                                          |
| a bracket configured to attach the mounting pole to the crown deck of the rig.                                 | The Larson Electronics / Magnalight YouTube video above 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.                                                                                          |
| <b>Claim Language</b>                                                                                          |                                                                                                                                                                                                                                                                                       |
| 2. The lighting system of claim 1, wherein the bracket is connected to the crown deck of the rig using bolts.  | <p>The Larson Electronics / 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.</p> <p>Bolts are a well-known attachment mechanism for use with brackets and/or crown decks.</p> |
| <b>Claim Language</b>                                                                                          |                                                                                                                                                                                                                                                                                       |
| 23. A rig comprising:                                                                                          | FIG. 1 above shows a rig.                                                                                                                                                                                                                                                             |
| a derrick;                                                                                                     | A derrick is shown in FIG.1 above.                                                                                                                                                                                                                                                    |
| a crown deck at the top of the derrick; and                                                                    | A crown deck is shown at the top of the derrick in FIG.1 above.                                                                                                                                                                                                                       |
| a plurality of light units, each light unit separately attached to the crown deck, each light unit comprising: | A POSITA would readily know to employ the lights, mounting poles, and brackets shown in the Larson Electronics / Magnalight YouTube video 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.           |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

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|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                |                                                                                                                                                                                    |
| a mounting pole, wherein each light unit comprises a separate mounting pole, such that the system comprises a plurality of mounting poles; and | Light units comprising a separate mounting pole for each light are depicted in the Larson Electronics / Magnalight YouTube video above and a POSITA would know to use a plurality. |
| a light fixture comprising one or more lights, the light fixture coupled to the mounting pole.                                                 | The Larson Electronics / Magnalight YouTube video above shows a light fixture coupled to a mounting pole.                                                                          |

Declaration of Jake Hamdan supporting Petition for Inter Partes Review of  
U.S. Patent No. 10,976,016

I hereby declare that statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. Should further information become available to me as this matter proceeds, I may revise my opinions accordingly as necessary. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

 Digitally signed  
by Jake Hamdan  
Date: 2023.03.30  
12:42:48 -06'00'

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JAKE HAMDAN

Date: 30/03/2023