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(54) Title: DRILLING RIG WITH ATTACHED LIGHTING SYSTEM AND METHOD

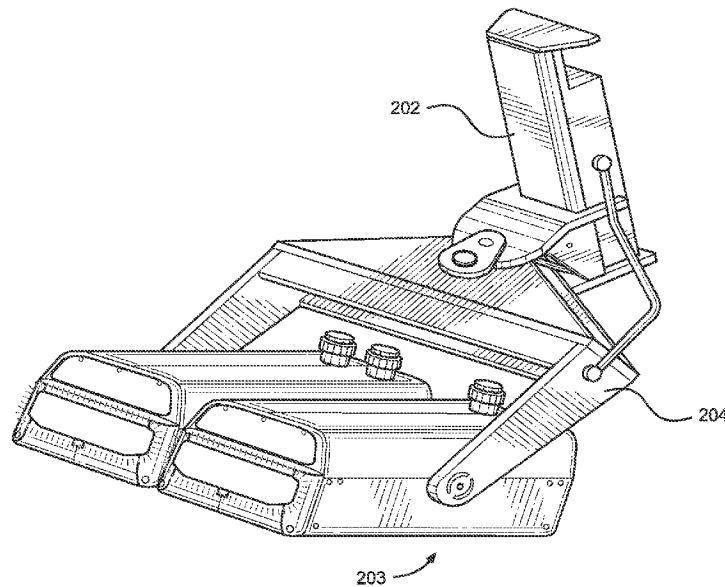


FIG. 2

(57) Abstract: An attachable lighting system for a drilling rig. A method of providing lighting to a drilling rig site comprising, attaching at least one light fixture directly to the crown of a drilling rig on each of at least two sides, wherein the light fixture contains a fixed or removable light fixture attachment connecting the light fixture to the crown, resulting in one or more of enhanced evenness of site lighting, reduced shadows, reduced light pollution, reduced power consumption and/or reduced diesel usage.



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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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DRILLING RIG WITH ATTACHED LIGHTING
SYSTEM AND METHOD

Cross-Reference to Related Applications

[0001] This international application claims the benefit of U.S. Provisional Application Ser. No. 62/381,941, filed August 31, 2016 which may relate to subject matter disclosed in one or more of U.S. Applications Ser. No. 62/366,377, filed July 25, 2016; Ser. No. 62/196,556, filed July 24, 2015; Ser. No. 14/093,097, filed November 29, 2013; Ser. No. 14/632,592, filed February 26, 2015; Ser. No. 62/109,966, filed January 30, 2015; and Ser. No. 62/127,020, filed March 2, 2015. The entirety of each of the aforementioned applications is specifically incorporated herein by reference for all purposes.

Field of the Invention

[0002] The present invention relates generally to the field of drilling apparatuses, such as oil drilling rig arrangements, and in particular to a lighting system for use on a drilling rig

Background of the Invention

[0003] Drilling rigs are used to form wellbores for the purpose of extracting oil, natural gas or other fluids from subsurface deposits. Drilling rigs can also be used for sampling subsurface mineral deposits, testing rock or ground fluid properties and for installing subsurface utilities, instrumentations, tunnels or wells. In implementation, drilling rigs may be mobile equipment transportable by truck, rail, trailers, or similar, rigs may also be semi-permanent and permanent fixtures as in the case for oil drilling of large wells. Marine-based structures are also widely known. Generally, the term drilling rig refers to an arrangement of equipment that is used to penetrate the subsurface of the earth's crust.

[0004] Drilling operations typically occur during daylight hours and visibility in and around the drilling rig has historically only been required when manual work is being done, inspection and calibration, for example. There is a desire to increase productivity by providing visibility during hours of low daylight, and this has thus far been accomplished by providing mobile lighting arrangements on vehicles proximate the drilling rig, or otherwise manually adding or providing impromptu lighting arrangements.

[0005] These arrangements are inadequate and not readily adaptable to systematic visibility improvements in appropriate locations around a drilling rig.

Summary of the Invention

[0006] A method of providing lighting to a drilling rig site is described herein including attaching at least one light fixture directly to the crown of a drilling rig on each of at least two sides of the crown, where the light fixture contains a fixed or removable light fixture attachment connecting the at least one light fixture to the crown, resulting in one or more of enhanced evenness of site lighting, reduced site shadows, reduced site light pollution, reduced site power consumption and/or reduced site diesel usage.

[0007] Additional embodiments described herein include: the method described above where the light fixture and light fixture attachment are a single piece; the method described above where the light fixture is fixed or adjustable; the method described above where the light fixtures are attached around the perimeter of the crown; the method described above where the light fixtures are attached to all sides of the crown; the method described above where more than one light fixture is attached to each side of the crown; the method described above where said each light fixture attachment holds one or more light fixture spaced vertically or horizontally from each other; the method described above where each lighting fixture can swivel and/or tilt; the method described above additionally including secondary containment; the method described above where the crown forms a generally rectangular shape; and the method described above where the lighting is provided to 180 degrees to 360 degrees around the drilling site.

[0008] A drilling rig is also described 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, resulting in one or more of enhanced evenness of site lighting, reduced site shadows, reduced site light pollution, reduced site power consumption and/or reduced site diesel usage.

[0009] Additional embodiments described herein include: the drilling rig described above where the light fixture and light fixture attachment are a single piece; the drilling rig described above where the light fixture is fixed or adjustable; the drilling rig described above where the light fixtures are attached around the perimeter of the crown; the drilling rig described above where the light fixtures are attached to all sides of the crown; the drilling rig described above

where more than one light fixture is attached to each side of the crown; the drilling rig described above where said each light fixture attachment holds more than one light fixture spaced vertically or horizontally from each other; the drilling rig described above where each lighting fixture can swivel and/or tilt; the drilling rig described above additionally including secondary containment; the drilling rig described above where the crown forms a generally rectangular shape; and the drilling rig described above where the lighting is provided to 180 degrees to 360 degrees around the drilling site.

[0010] These and additional embodiments are further described below.

Brief Description of the Drawings

[0011] Embodiments will now be described, by way of example only, with reference to the attached Figures, wherein:

[0012] Figure 1A is a lighting system mounted on a drilling rig as described herein.

[0013] Figure 1B is a side view of one embodiment of a light fixture as described herein.

[0014] Figure 2 is a perspective view of one embodiment of a light fixture as described herein.

[0015] Figure 3 is a perspective view showing an embodiment of secondary containment as described herein.

Detailed Description

[0016] An embodiment of a conventional drilling rig 40 with the light fixtures described herein is illustrated in Figure 1A, where the drilling rig 40 includes a derrick 14, which provides a support structure for a majority of the equipment used to raise and lower drillstring 25 into and out of a wellbore. The drillstring 25 may be an assembled collection of drillpipe, drill collars, or any other assembled collection of assorted tools and equipment connected together and run into the wellbore to facilitate the drilling of a well. The drillstring 25 may be raised and lowered into and out of the wellbore by the draw-works 7, which includes a spool powered by a motor or other power source 5. A drill line 12, which may be a thick, stranded metal cable, is run through a travelling block 11. Typically, the crown block 13 remains stationary while travelling block 11 moves vertically with the drillstring 25. The combination of the crown block 13 and the travelling block 11 provides a significant mechanical advantage for lifting the drillstring 25.

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