

0084

(E21B 43/117 (2006.01))

Examiner Colin Watts

Dear Sir:

Re: Serial No: 2,933,756
Owner: HUNTING TITAN, INC.
Title: BOX BY PIN PERFORATING GUN SYSTEM AND
METHODS
Filed: May 22, 2015



AMENDMENT

With respect to the Examiner's Action dated May 25, 2017, Applicant files an Amendment in response thereto, as follows:

IN THE DESCRIPTION

Page 12, after 2nd line of Figure 19E, insert --- Figure 19F is a detail from the cross-section view shown in Figure 19C. ---

Page 14, after 2nd line of Figure 26F, insert --- Figure 26G is an axial cross-section view as indicated in Figure 26C. ---.

Please delete description pages 12 and 14 as filed and insert new description pages 12 and 14 enclosed.

IN THE CLAIMS

Amend Claims 15, 19, 22, 52 and 74 as set forth in the copy of these five claims attached as an Appendix. A complete set of claims 1 - 75 is filed.

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IN THE DRAWINGS

Drawing Sheet 8/32, cancel "FIG. 13A".

Drawing Sheet 9/32, renumber "FIGS. 13B - 13F" as **new FIGS. 13A - 13E**.

Delete drawing sheets 8/32 and 9/32 containing the above noted FIGS. and insert newly amended drawing pages 8/32 and 9/32. Amendments are shown in red and circled on the copy.

REMARKS

Applicant acknowledges with appreciation the thorough review of the application by the Examiner.

DESCRIPTION

Applicant has inserted brief references to FIGS. 19F and 26G shown in the drawings but not set forth in the brief description of the drawings.

DRAWINGS

Applicant has deleted Figure 13A and renumbered Figures 13B to 13F as **new Figures 13A - 13E** for consistency with the brief description of these Figures.

CLAIMS

As noted above, Applicant has amended certain claims, namely, claims 15, 19, 22, 52 and 74, but has enclosed a new and complete set of the claims 1 - 75.

OBJECTION

As Applicant appreciates the Action, the Examiner has adopted the reasoning and analysis of the IPRP in rejecting various claims as anticipated, and all claims 1 to 75 as lacking invention or obviousness.

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As Applicant appreciates the IPRP, the more significant art cited appears as follows:

US 2012/0199352 A1 to Lanclos et al.
US 5,392,860 A to Ross
US 2013/0118342 A1 to Tassaroli
US 4,650009 A to McClure et al.
US 2008/0047716 A1 to McKee et al.
US 2005/0229805 A1 to Myers Jr. et al.
US 2011/0042069 A1 to Bailey et al.
US 2,216,359 A to Spencer
US 2008/0047456 A1 to Li et al.
US 2007/0084336 A1 to Neves

Regarding Claim 1:

Lanclos does not disclose inserting a cartridge into a perforating gun as claimed.

Instead, Lanclos discusses a cartridge that "can be inserted within the annular cartridge sub 68 for easy assembly". (Paragraph 22) Lanclos describes that cartridge sub 68 is "coupled in series with the downstream perforating gun 62₂." (Id.)

Regarding Claim 5:

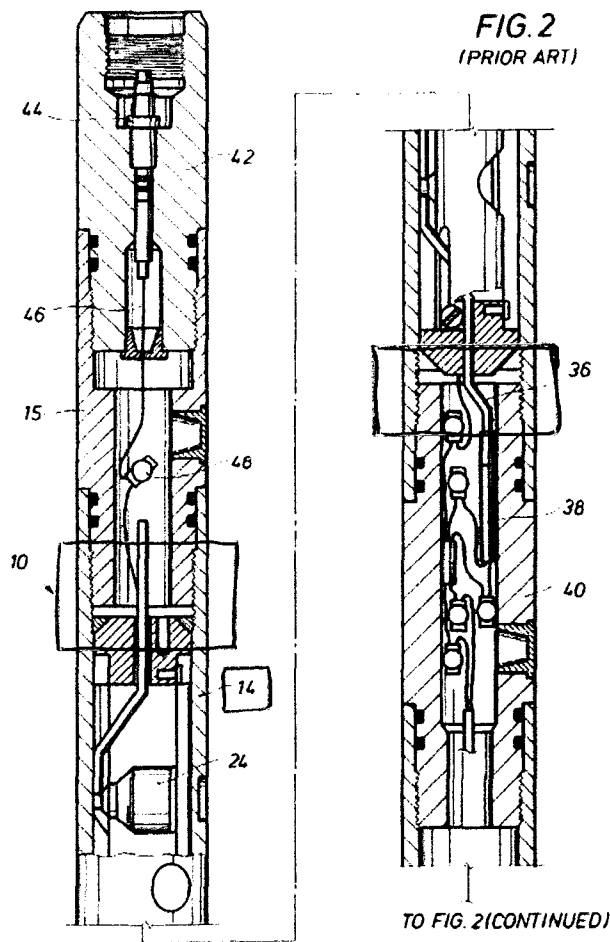
Lanclos does not disclose wherein at least one of the electrical contacts is a pin adapted to engage a socket. Instead, the cited portion of Lanclos in the IPRP discloses a coaxial connector, not a pin.

Regarding Claim 48:

Lanclos does not disclose a perforating gun body comprising a substantially cylindrical tube; and upper end of the tube having internal threads; a lower end of the tube having external threads; wherein the lower end has a smaller diameter than the upper end. Instead Lanclos discloses a standard perforating gun 14 having internal threads at both ends as identified in the red boxes in the annotated figure below. Items 42, 15, 14, and 40 in Figure 2 of Lanclos are

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not a perforating gun body as claimed. Instead, they are "upper connection sub 42", "connecting subs 15", "perforating gun 14", and "firing head 40." Lanclos describes these as separate components performing separate functions. What is claimed here is a perforating gun body analogous to the body indicated by reference numeral 14 in Lanclos but with additional novel features. Regarding the threading and sizing of the ends that had previously not been used because perforating gun body walls are typically not thick enough to support both internal and external threads. That is the reason why systems like Lanclos teach a perforating gun body with internal threads and subs with external threads, because the subs are made from machined billets while the gun bodies are made from tubes.



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Regarding Claim 54:

Lanclos does not disclose a detonator proximate the upper end of the cartridge. Item 78 cited by the IPRP is not a detonator but is a "ground lead." (Paragraph 23).

Regarding Claim 52:

Claim 52 has been amended to make the perforating gun body an element of the claim. No perforating gun body is disclosed by Ross.

Regarding Claims 74-75:

Claim 74 has been amended to make clear that the claimed detonating cord bore is straight and circular. Further, item 48 of McClure is not a detonator but, rather, a shaped charge initiated by the detonating cord 24. Additionally, since the detonating core "bore" of McClure has no central axis, it's central axis cannot be offset by 35 degrees from the detonator bore axis.

OBVIOUSNESS

Regarding Claim 9:

It would not have been obvious to one of ordinary skill in the art to transport the loaded perforating gun of Lanclos to a well site because Lanclos's device would not be safe to transport according to relevant explosive handling laws and regulations because Lanclos's device attaches a detonator to the explosive load directly, providing no electrical shunt.

Regarding Claim 10:

It would not have been obvious to thread the perforating gun bodies of Lanclos together because that would render Lanclos non-functional. Lanclos requires a cartridge sub 68 to

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