

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NATIONAL OILWELL VARCO, L.P.,
Petitioner,

v.

TECHNICAL INDUSTRIES, INC.,
Patent Owner.

Case IPR2017-00860
Patent 7,552,640 B2

Before THOMAS L. GIANNETTI, BRYAN F. MOORE, and
JASON J. CHUNG, *Administrative Patent Judges*.

GIANNETTI, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

National Oilwell Varco, L.P. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–20 (all claims) of U.S. Patent No. 7,552,640 B2 (Ex. 1001, “the ’640 patent”). Paper 1 (“Pet.”). Technical Industries, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). After filing its Preliminary Response, Patent Owner disclaimed claims 1, 2, 4, 6, 8, 10, 13, 15, 17, and 19, leaving claims 3, 5, 7, 9, 11, 12, 14, 16, 18, and 20 of the ’640 patent at issue. Ex. 2007. Applying the standard set forth in 35 U.S.C. § 314(a), which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we granted Petitioner’s request and instituted an *inter partes* review on all those remaining challenged claims. Paper 14 (“Institution Dec.”).

Following institution, Patent Owner filed a Response to the Petition (Paper 18, “PO Resp.”) and Petitioner filed a Reply (Paper 26, “Pet. Reply”). In its Response, Patent Owner stated: “Patent Owner advises the Board that it will now disclaim Claims 3 and 12 of the ’640 patent.” PO Resp. 11.

An Oral Hearing in this case was held on May 17, 2018.¹ The Hearing Transcript (“Tr.”) is included in the record as Paper 38. At the Hearing, the Board and the parties reached agreement on the disposition of certain claims and grounds. Specifically, Patent Owner agreed to request

¹ The case was heard jointly with IPR2017-00910, involving the same parties and related patent 7,997,138.

adverse judgment as to claims 3 and 12. Tr. 4:3–5:2; 6:4–8; 60:6–10.

Reflecting this agreement, on July 2, 2018, the Board entered an Order granting adverse judgment on claims 3 and 12. Paper 39.

Having considered the evidence of record, and for the reasons set forth below, we determine that all remaining claims (claims 5, 7, 9, 11, 14, 16, 18, and 20) of the '640 patent are unpatentable.

II. BACKGROUND

A. *Related Matters*

The parties advise us that the '640 patent is asserted in *Technical Industries, Inc. v. National Oilwell Varco, L.P.*, Case No. 6:15-cv-02744 (W.D. La.). Pet. 3; Paper 4, 2. In addition, Petitioner has challenged three patents related to the '640 patent in IPR2017-00648, IPR2017-00699, and IPR2017-00910. Paper 4, 2.

B. *The '640 Patent*

The '640 patent is titled “Method for Inspection of Metal Tubular Goods.” The patent relates to the non-destructive testing of tubular metal goods (i.e., pipes). Ex. 1001, 1:19–20. More particularly, the patent relates to a non-destructive means for determination of wall conditions, particularly wall thickness data, of tubular metal goods by use of ultrasonic detection apparatus. *Id.* at 1:20–24.

The '640 patent acknowledges that the use of ultrasonic technology to inspect a metal tubular by determining wall thickness at a position on the tubular was known in the art prior to the time of invention. *Id.* at 2:39–3:3. The patent thus relates to improved methods to acquire, collect, assemble,

store, display, and utilize such data, not only for a determination for the presence or absence of defects, but also so that data from the inspection may be used to calculate projected performance of the tubular. *Id.* at 3:4–9. The '640 patent explains that “data contained in digital format which represents wall thickness or each incremental section of a tubular and the location of that section can be used in computations which predict the actual effect on the tubular to various stressors, including tensile, bending, collapse and burst forces, aging, etc.” *Id.* at 9:1–6.

The '640 patent discloses the use of ultrasonic technology to acquire incremental data representing small, discrete sections of the tubular wall, in association with three-dimensional positional data pertaining to each small, discrete section. *Id.* at 1:28–32. In this way, the wall of a metal tubular (or portions thereof) can be displayed, imaged, examined, and used in simulative or comparative programs as a three-dimensional object. *Id.* at 1:32–35.

According to the '640 patent, the prior art provided two-dimensional data and did not meet the need to improve the inspection of metal tubulars. The patent explains that while the prior art was able to measure wall thickness, circumferential position, and longitudinal position,

[t]ypically the data resulting from such testing [from the prior art] is displayed in two-dimensional form, as a numeric table or as a line on a graph (representing wall thickness at a position on the length of the tubular).

Ex. 1001 at 2:56–59. Still referring to the prior art, the '640 patent states: “From such data the general location of a suspected defect along the length of tubular, its magnitude and direction (whether too thin or too thick) can be

determined and the tubular joint marked for acceptance, rejection or repair.”

Id. at 2:62-66. The patent goes on to state:

[S]aid data was not useful for substantial purposes therebeyond. Namely, without three-dimensional data as to both the defect and the remainder of the tubular, the effect that defect might have concerning performance of the tubular could not be calculated with mathematical precision.

Id. at 2:66-3:3.

The '640 patent provides no further details about how use of a “three-dimensional form” provides additional “mathematical precision,” through a mathematics formula, picture, computer program, or any other means.

C. Illustrative Claim

Originally, the '640 patent had 20 claims. Following the Oral Hearing, adverse judgment was entered as to claims 3 and 12. Paper 39. *See* discussion *supra*. Thus, taking into account Petitioner's prior dedication of claims 1, 2, 4, 6, 8, 10, 13, 15, 17, and 19, claims 5, 7, 9, 11, 14, 16, 18, and 20 remain. *See supra*.

Claim 1, now dedicated, was the only independent claim. Each of the challenged claims, therefore, depends, directly or indirectly, from claim 1, which is reproduced below. Following claim 1 are reproduced dedicated claim 2, which depends from claim 1, dedicated claim 3, which depends from claim 2, dedicated claim 4, which depends from claim 3, and illustrative challenged claim 5, which depends from claim 4.

1. Method for collection and storage of information representing wall thickness of tubular goods, comprising:

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