

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Valeo North America, Inc. and Valeo Embrayages,
Petitioners,

v.

Schaeffler Technologies AG & Co. KG,
Patent Owner.

Case IPR2017-00442

U.S. Patent No. 8,573,374

**PETITION FOR *INTER PARTES* REVIEW
OF CLAIMS 1, 3–5, 8, 10, and 14–16 OF U.S. PATENT NO.
8,573,374 UNDER 35 U.S.C. § 312 AND 37 C.F.R. § 42.104**

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EXHIBIT LIST

- 1101 U.S. Patent No. 8,573,374 to Magerkurth et al.
- 1102 Declaration of Professor Steven Shaw
- 1103 PCT Publication No. WO 2009/067987 to Degler et al.
and certified translation
- 1104 DE 10 2007 057 448.9 to Degler et al. and certified
translation
- 1105 Wolfgang Reik, The Centrifugal Pendulum Absorber
Calming Down the Drivetrain, CTI Symposium, May
2009
- 1106 Excerpt from book provided to delegates at the 7th
International CTI Symposium, Innovative Automotive
Transmissions, Vol. 2, Dec. 3, 2008
- 1107 Declaration of Pascal Hervet
- 1108 File History for U.S. Patent No. 8,573,374 to
Magerkurth et al.
- 1109 U.S. Patent No. 7,073,646 to Sasse et al.
- 1110 PCT Publication No. WO 2004/018897 to Haller et al.
and certified translation
- 1111 U.S. Patent No. 6,026,940 to Sudau
- 1112 U.S. Patent No. 5,884,735 to Eckel et al.
- 1113 DE 196 54 894 to Schierling et al. and certified
translation

- 1114 U.S. Patent No. 8,161,739 to Degler et al.
- 1115 Wolfgang Reik, The Centrifugal Pendulum Absorber
Calming Down the Drivetrain, CTI Symposium,
December 2008

I. Mandatory Notices—Rule 42.8(a)(1)

Valeo North America, Inc. and Valeo Embrayages (collectively, “Valeo” or “Petitioner”) provide notice of the following:

Real Party-In-Interest: Valeo is the real party-in-interest.

Related Matters: Petitioner is unaware of any matters related to U.S. Patent No. 8,573,374 other than Patent Owner is filing a separate petition directed against the same patent, IPR2017-00441, directed against different prior art. The subject petition is based on a 35 U.S.C. § 119(c) bar to priority and therefore is not redundant with the other petition, which does not raise this issue.

For efficiency, Petitioner requests that the two petitions be handled by the same panel. And, if these petitions are not merged, Petitioner requests that the Final Written Decisions issue on the same day.

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The undersigned authorizes the Office to charge the fee required by 37 C.F.R. § 42.15(a) for this Petition for *inter partes* review to Deposit Account No. 15-0030. Any additional fees that might be due are also authorized.

II. Certification of Grounds for Standing—Rule 42.104(a)

Petitioner certifies that the '374 patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting *inter partes* review of the '374 patent on the grounds identified in this Petition.

III. Overview of Challenge and Relief Requested—Rule 42.104(b)

Petitioner requests *inter partes* review and cancelation of claims 1, 3–5, 8, 10, and 14–16 of the '374 patent. The '374 patent is subject to pre-AIA 35 U.S.C. §§ 102 and 103.

A. Prior Art Patents and Printed Publications

Review of the '374 patent is requested in view of the following:

Ex. 1103 – PCT Pub. No. WO 2009/067987 (“Degler”), published June 4, 2009, is available as prior art under § 102(a) because the '374 patent is not entitled to the benefit of foreign priority in view of 35 U.S.C. § 119(c) as explained below.

Ex. 1106 – W. Reik, The Centrifugal Pendulum Absorber Calming Down the Drivetrain (“Reik”), CTI Symposium, distributed December 2008, is available as prior art under § 102(a), also because the '374 patent is not entitled to the benefit of foreign priority in view of 35 U.S.C. § 119(c). Reference is made to the color figure in Ex. 1115 (identical to the black and white figure in Ex. 1106) for ease.

B. Grounds for Challenge

Petitioner requests cancelation of the challenged claims under the following statutory grounds:

1. Claims 1, 3–5, 8, 10, and 14–16 are unpatentable under 35 U.S.C. § 102 as anticipated by Degler.
2. Claims 1, 3–5, 8, 10, and 14–16 are unpatentable under 35 U.S.C. § 102 as anticipated by Reik.

Section VII demonstrates that there is a reasonable likelihood that Petitioner will prevail for each of the statutory grounds. *See* 35 U.S.C. § 314(a). Support for each ground of unpatentability is also provided in the Declaration of Professor Steven Shaw (Ex. 1102).

IV. Overview of the '374 Patent and the Prior Art

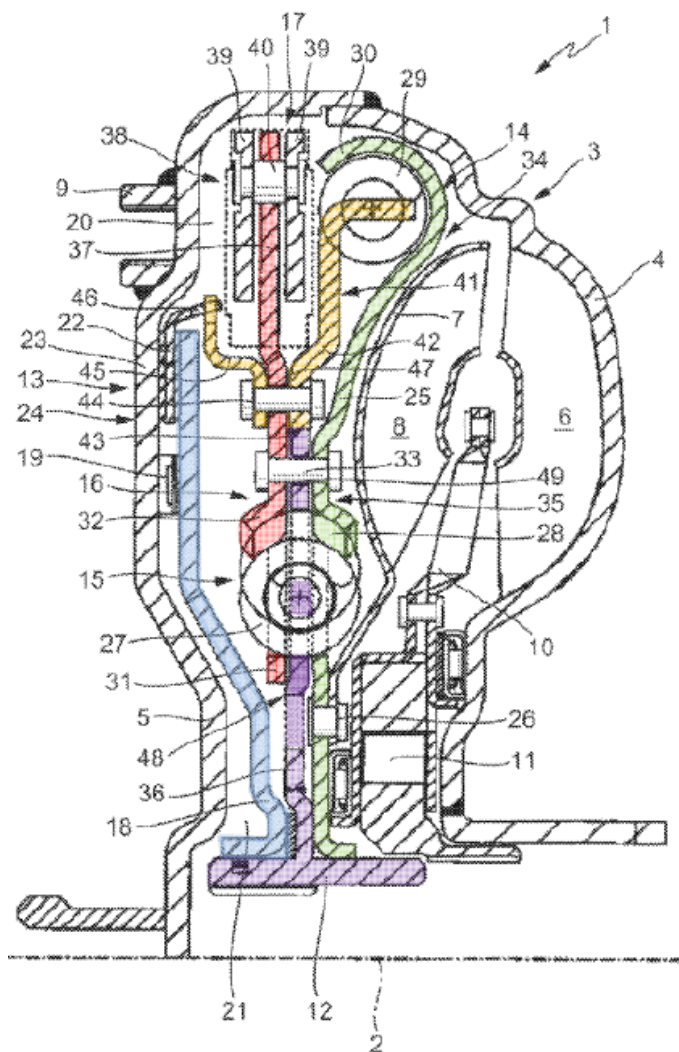
A. The '374 Patent

The '374 patent describes a torque converter that purportedly dampens vibrations well while taking up little assembly space. The torque converter has multiple damper stages disposed in series between a lock-up clutch and an output hub. A torsional vibration damper is arranged between the damper stages. (Ex. 1101, 1:63–2:5; Ex. 1102 ¶ 27.) The '374 patent touts that this configuration permits components of the damper stages to be shared, providing a lighter and narrower torque converter. (Ex. 1101, 2:5–18; Ex. 1102 ¶ 28.)

The '374 patent admits that prior art torque converters also had dampers arranged between the lock-up clutch and the output hub and between the turbine and the output hub. (Ex. 1101, 1:23–42; Ex. 1102 ¶ 29.) The '374 patent also acknowledges that it was known to use vibration absorbers such as centrifugal force pendulums to reduce

torsional vibrations. (Ex. 1101, 1:43–50; Ex. 1102 ¶ 30.)

The only drawing figure in the '374 patent, reproduced below with colored annotations, depicts a hydrodynamic torque converter 1 having a housing 3, an impeller 6, and a turbine 7 inside the housing 3. (Ex. 1101, 3:56–4:8; Ex. 1102 ¶ 32.)



'374 Patent

A lock-up clutch 13 (including piston 18 in blue) is mounted to

the housing 3. When the lock-up clutch is closed, it transmits torque from an internal combustion engine to the output hub 12 (purple) via first and second damper stages 14, 15, as follows: The input 41 (yellow) to the first damper stage receives torque from the lock-up clutch. The *output* of the first damper stage is a disk part 25 (green) that also forms a portion of the *input* of the second damper stage. (Ex. 1101, 4:38–40; Ex. 1102 ¶ 34.) The input of the second damper stage is completed by disk part 31 (red), which also forms the mounting part for the torsional vibration absorber 17. (Ex. 1101, 5:3–5; Ex. 1102 ¶ 35.) The output (purple) of the second damper stage is part of the output hub (purple).

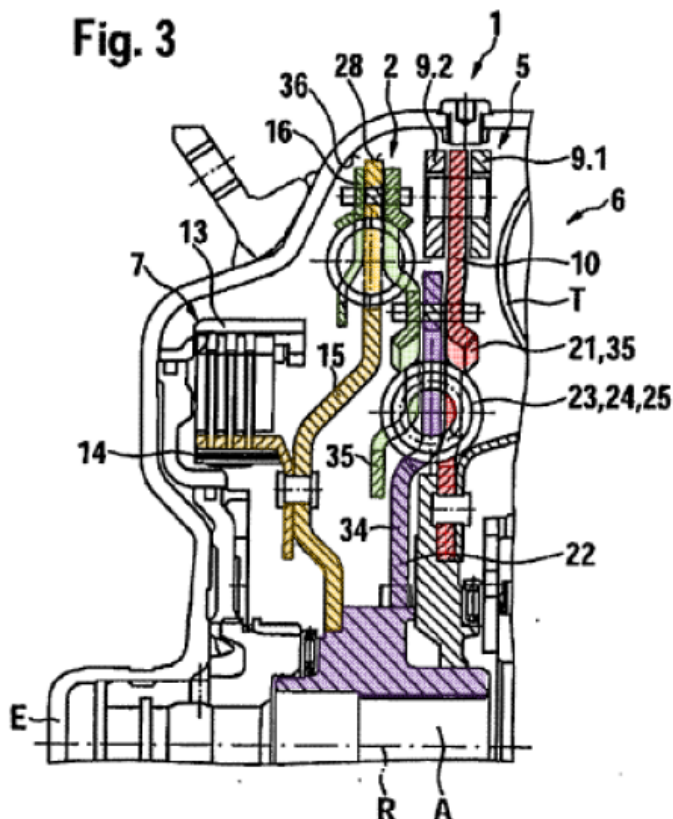
When the lock-up clutch is open, torque flows via impeller 6 to the turbine 7 which is fastened to disk part 25 (green). Because disk part 25 is the input of the second damper stage, torque is transmitted through the second damper stage 15 to the output hub (purple). (Ex. 1101, 4:8–16; Ex. 1102 ¶ 36.)

B. Summary of Select Prior Art

All the components of the claims were well-known in the art, as detailed below. Moreover, these components were arranged in the prior art in the same space-saving fashion taught by the '374 patent.

1. Degler

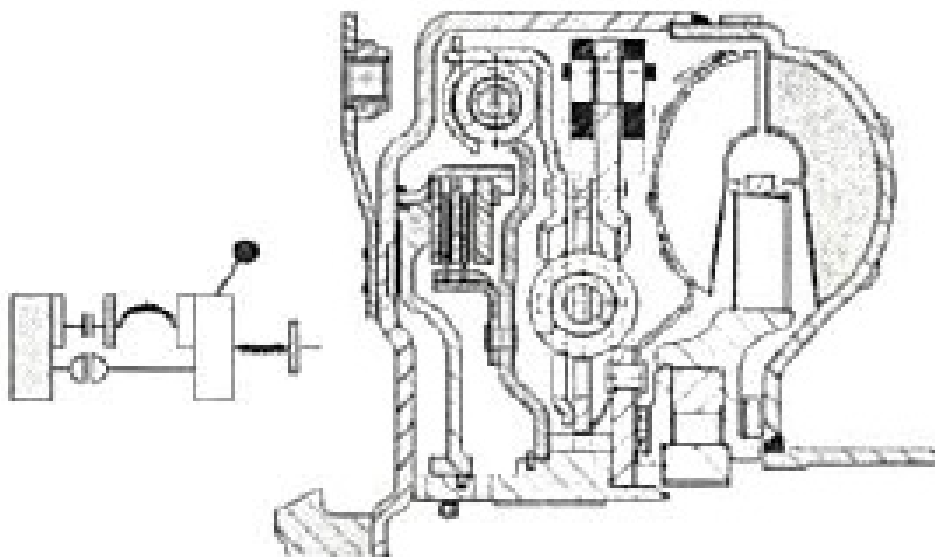
Degler describes a force transmission device optimized to reduce rotational irregularities over the engine's full operating range. (Ex. 1103, 3; Ex. 1102 ¶ 40.) Degler describes torque converters with at least two dampers connectable in series and a rotational-speed-adaptive vibration absorber, arranged between the damper stages. (Ex. 1103, 3; Ex. 1102 ¶ 40.) Degler's torque converter includes many of the same components as the '374 patent, highlighted below:



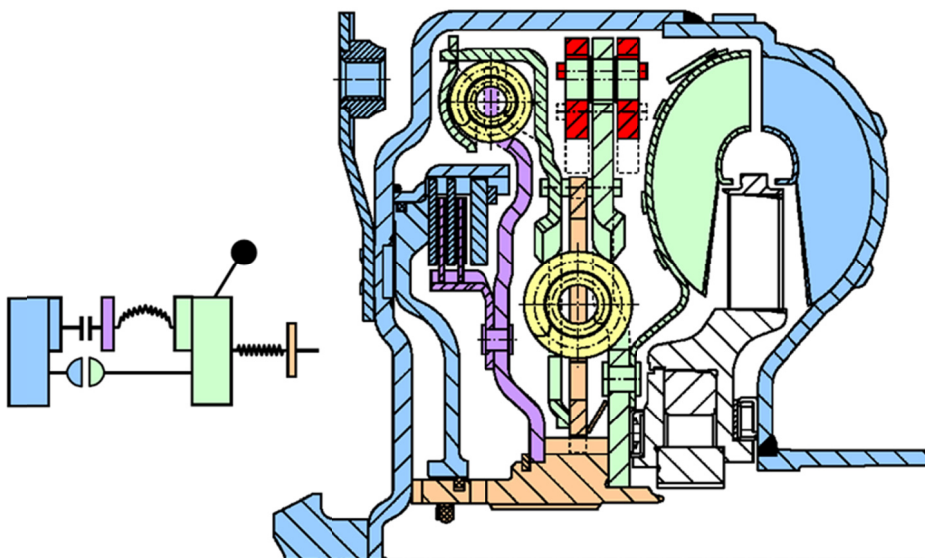
Degler Fig. 3

2. Reik

Reik is a paper and presentation distributed at the CTI Symposium in Berlin, Germany in December, 2008. (Ex. 1106 ; Ex. 1107.) The paper includes a schematic drawing of a hydrodynamic torque converter including the same components and orientations discussed and claimed in the '374 patent. (Ex. 1102 ¶ 42.)



(Ex. 1106, 512.) A color version of this figure from the presentation (Ex. 1115) rather than the black and white version from the book (Ex. 1106) is provided for ease:



As is apparent, the figures in Ex. 1106 and 1115 are identical. References in the petition and in Dr. Shaw's declaration are to the color figure from Ex. 1115 for visual ease.

V. Claim Construction

This Petition shows that the challenged claims are unpatentable when given their broadest reasonable interpretation in light of the specification. *See* Rule 42.100(b).

“Torsional vibration absorber” (claims 1–16) means a component or device designed to absorb torsional vibrations. As described in the '374 patent, this includes movable masses disposed on mounting parts. (Ex. 1101, 1:43–45.) Some examples of movable masses disposed on mounting parts are compensation flywheels, frequency-tuned mass-spring devices, and centrifugal-force pendulums. (*Id.*; Ex. 1102 ¶ 22.)

“Is parallel to” (claims 1–16) means “does not transfer torque generated by the engine along the power path but rotates with” the other components in the power path. This is consistent with the description of parallel components in the '374 specification and in Haller. (Ex. 1101, 5:12–16; Ex. 1110, 3:1–3; Ex. 1102 ¶ 23.) Both

documents describe absorbers that are parallel to the drivetrain such that they don't transfer engine torque, but they do rotate with the other components in the drivetrain.

“*In a pocket*” (claim 10) means “partially in a pocket.” The '374 specification describes that the lock-up clutch is axially mounted in a pocket, but claim 11 specifies that the lock-up clutch is formed out of a piston. In Fig. 1, the piston extends out of the pocket such that it is only *partially* in the pocket. (Ex. 1102 ¶ 24.)

VI. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is evidenced by the prior art. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (determining that the Board did not err in adopting the approach that the level of skill in the art was best determined by the references of record).

Before the earliest priority date of the '374 patent, various components were used to dampen and absorb vibrations in torque converters. (Ex. 1102 ¶ 15.) The '374 patent itself acknowledges that prior art torque converters utilized dampers and torsional vibration absorbers to reduce the effect of torsional vibrations caused by

internal combustion engines. (Ex. 1101, 1:23–42; Ex. 1102 ¶ 16.)

The prior art also demonstrates that companies such as DaimlerChrysler, Mannesmann Sachs/ZF Sachs, and Carl Freudenberg, were already seeking patent protection on compact torque converter designs with different damper and absorber arrangements. (Ex. 1110, Figs. 1–8, 2:15–20; Ex. 1111; Ex. 1112; Ex. 1113; Ex. 1102 ¶ 17.)

The prior art also evidences that a person having ordinary skill in the art (“PHOSITA”) knew to arrange torque converter components to minimize assembly space. (Ex. 1102 ¶ 18.) For example, Sasse shares components to reduce space (Ex. 1109, 5:3–34), and Haller uses existing space within the torque converter to decrease assembly space. (Ex. 1110, 3:9–16.)

As demonstrated by the prior art discussed below, the claims of the ’374 patent simply recite a combination of prior art elements that function predictably in their known manner.

VII. Identification of How the Challenged Claims Are Unpatentable

Pursuant to Rule 42.104(b), this section demonstrates that the challenged claims are unpatentable. Certain claim elements are annotated [a], [b], etc. for ease of cross-reference.

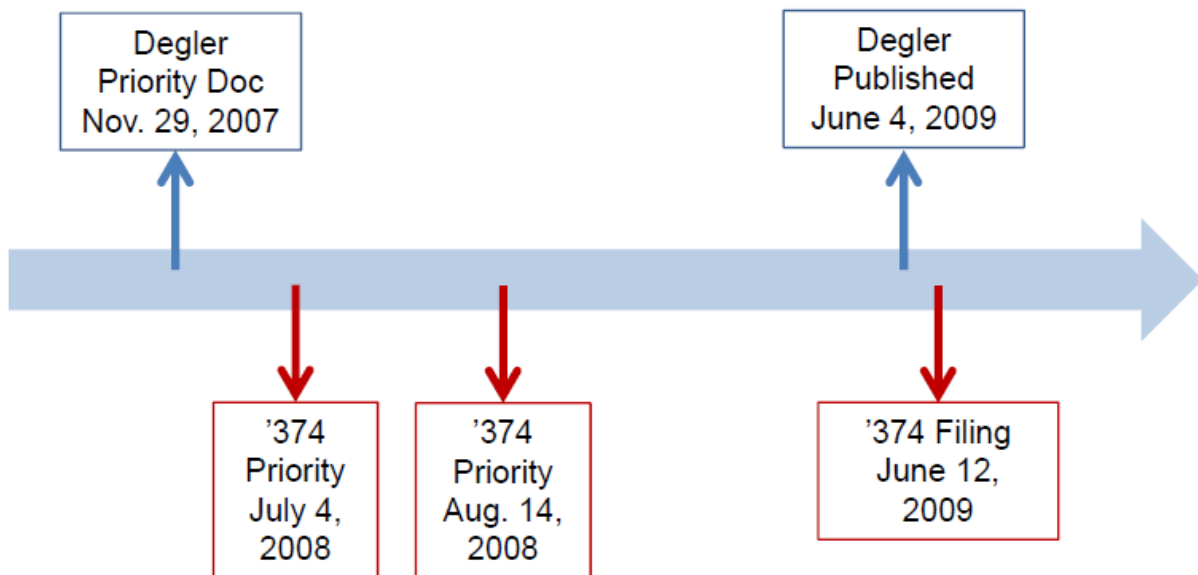
A. Ground 1: Claims 1, 3–5, 8, 10, and 14–16 are anticipated by Degler.

Degler, a PCT application filed by Patent Owner, was published on June 4, 2009, eight days before the PCT filing date of the '374 patent. Because Patent Owner is precluded by 35 U.S.C. § 119(c) from claiming priority to subject matter also disclosed in Degler's priority reference, Degler is prior art under 35 U.S.C. § 102(a) and anticipates claims 1, 3–5, 8, 10, and 14–16.

1. 35 U.S.C. § 119(c) precludes any foreign priority claim for subject matter disclosed in Degler's priority document.

Although the '374 patent claims the benefit of the July 4, 2008 and August 14, 2008 filing dates of German applications DE 10 2008 031 431 and DE 10 2008 037 808, Patent Owner is precluded from claiming priority for subject matter that is also disclosed in Degler's November 29, 2007 priority document (German application DE 10

2007 057 448) under 35 U.S.C. § 119(c). The relationship between these applications is shown in the following timeline:



Section 119(c) states:

(c) In like manner and subject to the same conditions and requirements, the right provided in this section may be based upon a subsequent regularly filed application **[’374 priority applications]** in the same foreign country instead of the first filed foreign application **[Degler priority application]**, provided that any foreign application filed prior **[Degler priority application]** to such subsequent application **[’374 priority applications]** has been withdrawn, abandoned, or otherwise disposed of, without having been laid open to public inspection and without leaving any rights outstanding, and *has not served, nor*

thereafter shall serve, as a basis for claiming a right of priority.

35 U.S.C. § 119(c) (interpolations and emphasis added).

Because Degler's priority document was the basis of Degler's priority claim, it has "served...as a basis for claiming a right of priority" and thus Section 119(c) applies. Notably, a U.S. national stage application was filed from Degler that claims priority to the Degler priority document, resulting in U.S. Patent No. U.S. Patent No. 8,161,739. (Ex. 1114.) As such, there can be no priority rights in the '374 priority applications for any subject matter that was also disclosed in the Degler priority application. Significantly, the body of the specification, figures, and claims of Degler's priority document (Ex. 1104) are identical to Degler (Ex. 1103).¹ Accordingly, claims 1, 3–5, 8, 10, and 14–16 (which are anticipated by Degler as explained below) are disclosed in the Degler priority application and are not entitled to priority.

¹ The only difference between the documents is that Degler's list of reference numerals (Ex. 1103, 20) includes four letters that are not included in the German priority application (Ex. 1104, 20).

2. Failure to comply with 35 U.S.C. § 119(c) precludes Patent Owner from relying on a foreign application to establish a constructive reduction to practice.

Patent Owner is also precluded from using the '374 patent's priority documents to establish constructive reduction to practice to swear behind Degler via 37 C.F.R. § 1.131. First, the Federal Circuit has expressed skepticism about the use of a foreign filing to establish constructive reduction to practice. *See In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989) ("The requirements and operation of section 119 differ from those of Rule 131. . . . Rule 131 provides a mechanism for removing specific prior art references, whereas section 119 is concerned only with an applicant's effective filing date."). Furthermore, the Office has held that while foreign patent applications may sometimes enjoy the benefit of constructive reduction to practice, they must first satisfy the requirements of 35 U.S.C. § 119(a). *See Ex parte Saito*, Appeal 2008-5777, 2008 Pat. App. LEXIS 7932, at 10 n.3 (BPAI Dec. 28, 2008) (appellant failed to meet the requirements of Section 119 by waiting over a year prior to file in the U.S. after filing in a foreign country).

Patent Owner has failed to meet the requirements of Section 119 by waiting over a year after filing the Degler priority document in Germany to file an application (PCT application resulting in the '374 patent) claiming the same subject matter in the U.S. Accordingly, Patent Owner cannot establish reduction to practice on the basis of its foreign filings to swear behind Degler.

3. Degler's anticipation of Claims 1, 3–5, 8, 10, and 14–16.

Because Patent Owner is precluded by 35 U.S.C. § 119(c) from claiming priority to subject matter also disclosed in Degler's priority reference, Degler is prior art under 35 U.S.C. § 102(a) and anticipates claims 1, 3–5, 8, 10, and 14–16.

Claim 1[a]: A hydrodynamic torque converter (1):

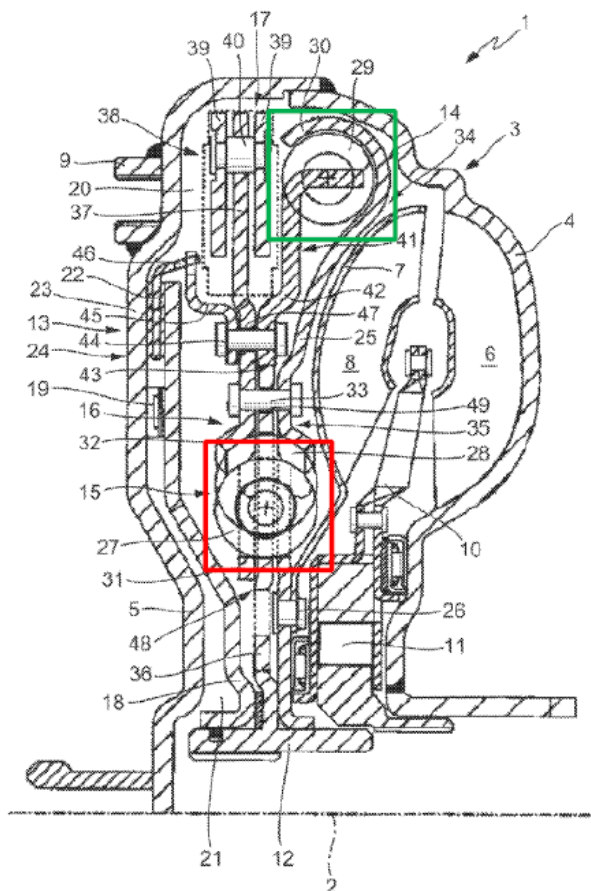
The preamble is not limiting, but nonetheless, Degler discloses hydrodynamic torque converters. (Ex. 1103, 9 (“Hydrodynamic component 6 can be constructed as a hydrodynamic clutch...in a particularly advantageous embodiment, as a hydrodynamic rotational-speed/torque converter...”).) Thus, Degler teaches element 1[a]. (Ex. 1102 ¶ 45.)

Claim 1[b]: with a turbine (7) driven by an impeller (6) as well as housing (3)

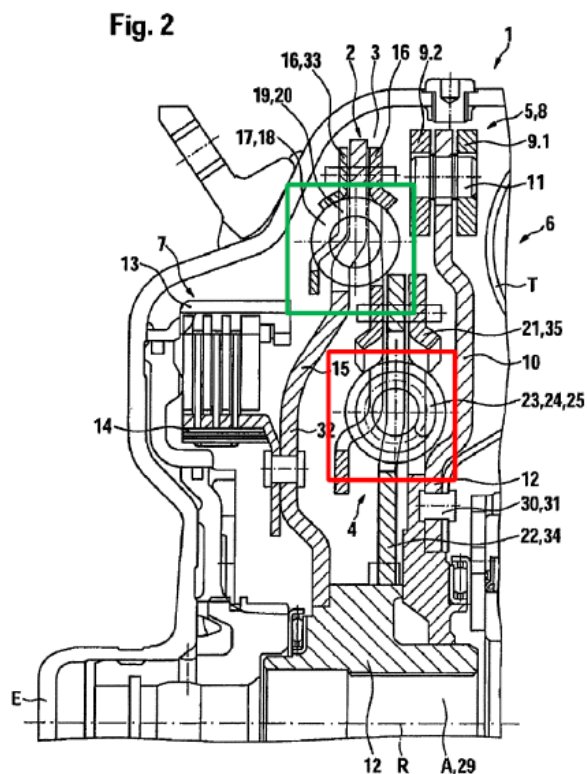
The hydrodynamic torque converter in Degler includes a turbine driven by an impeller in a housing. (Ex. 1103, 9 (“Hydrodynamic component 6 comprises at least one primary wheel functioning as pump impeller P...and one secondary wheel functioning as turbine wheel T...”)) The housing is visible in the figures. (Ex. 1103, Fig. 2.) Thus, Degler teaches element1[b]. (Ex. 1102 ¶ 46.)

Claim 1[c]: in which a torsional vibration damper (16) with multiple of damper stages (14, 15)

Degler discloses several examples of torsional vibration dampers with multiple damper stages. Degler’s two damper stages (first damper 3 (green) and second damper 4 (red) in Fig. 2 correspond with the first 14 and second 15 damper stages of the ’374 patent:



'374 Patent



Degler Fig. 2

(Ex. 1102 ¶ 47.) Thus, Degler teaches element 1[c]. (*Id.* ¶ 48.)

Claim 1[d]: a torsional vibration absorber (17)

Degler teaches rotational-speed-adaptive vibration absorbers such as the centrifugal pendulum absorber shown in Fig. 4. (Ex. 1103, 3 (“A force-transmission device constructed according to the invention...comprising...a rotational-speed-adaptive vibration

absorber”); Fig. 4.) Thus, Degler teaches element 1[d]. (Ex. 1102 ¶ 49.)

Claim 1[e]: and a lock-up clutch (13) are additionally installed

Degler’s torque converters include a lock-up clutch. (Ex. 1103, 9 (“Device 7 for bypassing hydrodynamic component 6 preferably has the form of a so-called lockup clutch...”).) Thus, Degler teaches element 1[e]. (Ex. 1102 ¶ 50.)

Claim 1[f]: wherein a first damper stage (14) and a second damper stage (15) are disposed between the lock-up clutch (14) and an output hub (12),

The ’374 patent describes two torque paths. Claim 1[f] describes the first torque path, *i.e.*, where torque passes through both damper stages when transferred from the lock-up clutch 14 to the output hub 12. (Ex. 1102 ¶ 51.)

Degler Figs. 1c and 2 embody torque paths similar to those described in the ’374 patent. In Figs. 1c and 2, the first damper 3 acts as a standard damper and the second damper 4 acts as a turbine damper, as in the ’374 patent. (Ex. 1103, 10 (“According to figure 1c, this arrangement of the two dampers 3 and 4 connected in series in the force flow in the force flow direction as viewed between input E

and output A is always connected downstream from mechanical power branch II”; Figs. 1c and 2); Ex. 1102, ¶ 52.) Thus, Degler teaches element 1[f]. (Ex. 1102 ¶ 53.)

Claim 1[g]: the second damper stage (15) is disposed between the turbine (7) and the output hub (12) and

As noted above, the ’374 patent describes two torque paths.

Claim 1[g] describes the second torque path, *i.e.*, where torque passes through the second damper stage 15 when transferred from the turbine 7 to the output hub 12. (Ex. 1102 ¶ 54.)

Degler Figs. 1c and 2 embody torque paths similar to those described in the ’374 patent. In Figs. 1c and 2, the second damper is active when the torque path is through the impeller/turbine, as in the ’374 patent. (Ex. 1103, 10 (“The tie-in of hydrodynamic component 6, especially with turbine wheel T, takes place here between the two dampers 3 and 4”; Figs. 1c and 2); Ex. 1102 ¶ 55.) Thus, Degler teaches element 1[g]. (Ex. 1102 ¶ 55.)

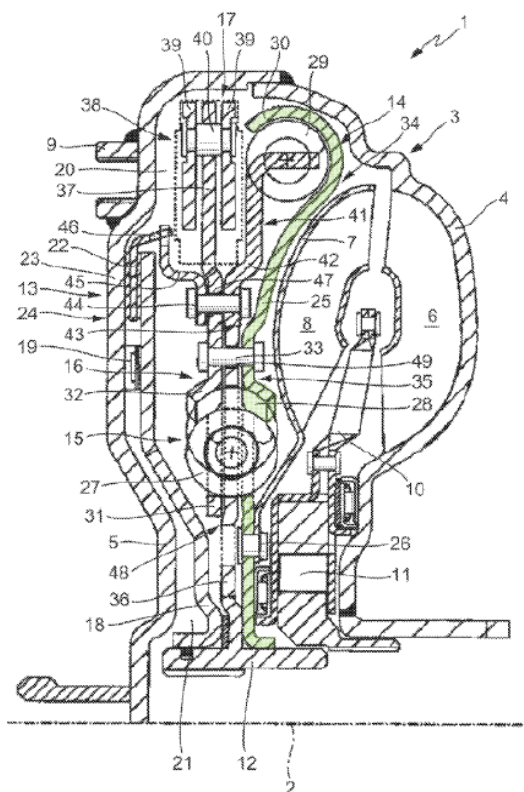
Claim 1[h]: the torsional vibration absorber (17) is parallel to both damper stages (14, 15).

In Degler Figs. 1c and 2, the vibration absorber 5 is parallel to both damper stages because it is connected to second damper stage 4

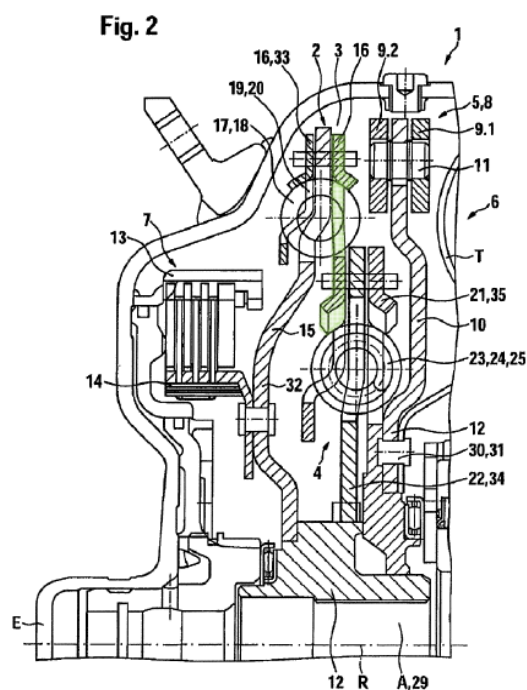
and does not transmit torque. (Ex. 1103, Fig. 2.) Thus, Degler teaches element 1[h]. (Ex. 1102 ¶ 56.)

Claim 3: The hydrodynamic torque converter (1) according to claim 1, wherein a disk part (25) is allocated to two damper stages (14, 15) as one piece.

Claim 3 requires that a single disk part is shared between the first and second damper stages. (Ex. 1102 ¶ 57.) As shown in the '374 patent, disk part 25 (green) is a single component shared between both damper stages. The same relationship exists in Degler Fig. 2:



'374 Patent



Degler Fig. 2

(Ex. 1102 ¶ 57.) Moreover, Degler specifically teaches that “integral

construction between primary part 21 and secondary part 16 is also possible.” (Ex. 1103, 13.) Thus, Degler anticipates claim 3. (*Id.* ¶ 58.)

Claim 4[a]: The hydrodynamic torque converter (1) according to claim 1, wherein the torsional vibration absorber (17) comprises a plurality of absorber masses (39), and

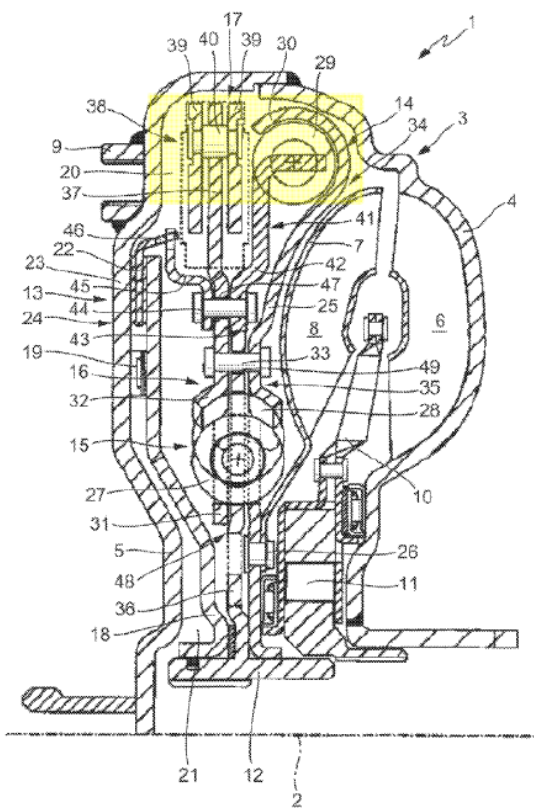
Degler describes torsional vibration absorbers with a plurality of absorber masses. (Ex. 1103, 6 (“inertial masses are pendulum-mounted on the inertial-mass support device”); Fig. 4.) Thus, Degler anticipates element 4[a]. (Ex. 1102 ¶ 59.)

Claim 4[b]: a mounting part (37) of the torsional vibration absorber (17) forms a disk part (31) of an input part (35) of the second damper stage (15).

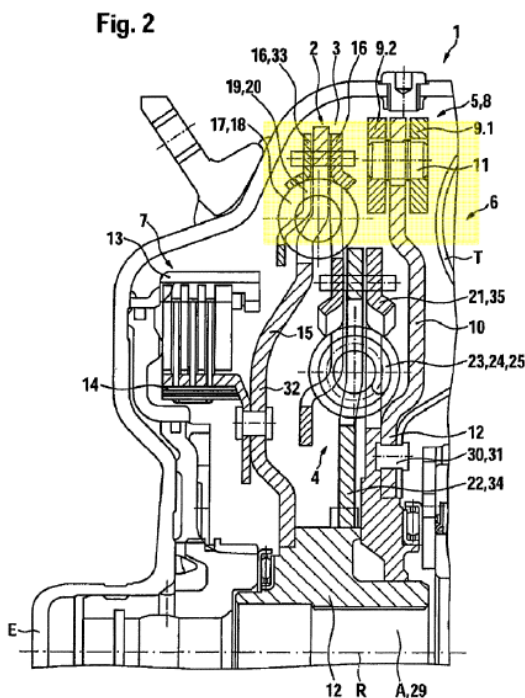
Claim 4[b] specifies that the mounting part of the torsional vibration absorber forms an input part of the second damper stage. (Ex. 1102 ¶ 60.) In Degler Fig. 3 the torsional vibration absorber is mounted on the disk input 21 of the second damper stage. (Ex. 1103, Fig. 3.) Thus, Degler anticipates element 4[b]. (Ex. 1102 ¶ 60.)

Claim 5: The hydrodynamic torque converter (1) according to claim 4, wherein absorber masses (39) of the torsional vibration absorber (17) and energy accumulators (29) of the first damper stage (14) disposed over the circumference are radially at the same height but axially spaced apart.

Claim 5 specifies that the absorber masses and the springs of the first damper stage be axially spaced apart but radially at the same height, as illustrated in Fig. 1 of the '374 patent. (Ex. 1102 ¶ 61.) Under the broadest reasonable interpretation, this includes instances where there is overlap between the radial height of the absorber masses and the springs of the first damper stage, as shown in the '374 patent and Degler Fig. 2:



'374 Patent



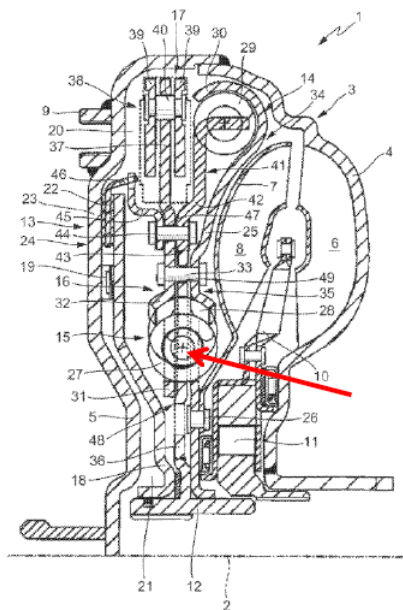
Degler Fig. 2

(Ex. 1102 ¶ 62.) Thus, Degler anticipates claim 5. (*Id.* ¶ 63.)

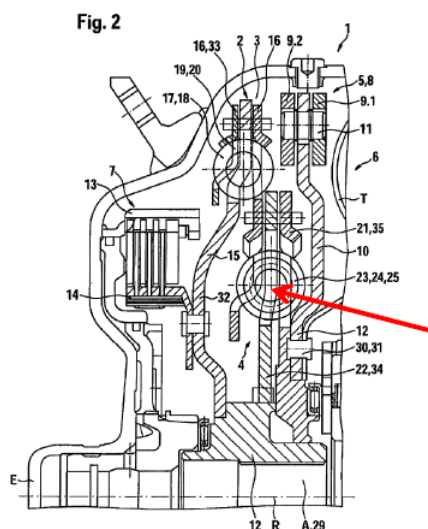
Claim 8: The hydrodynamic torque converter (1) according to claim 1, wherein energy accumulators (27) are distributed over the circumference of the second damper stage (15) based on a middle mounting diameter radially within turbine blades (8) of the turbine (7).

Claim 8 requires that the middle mounting diameter, *i.e.*, center of the springs of the second damper, be radially within (below) the turbine. (Ex. 1102 ¶ 64.)

As shown in the '374 patent, the central portion of the springs of the second damper are mounted below the turbine. The same relationship can be seen in Degler (although the turbine is largely not shown), annotated with red arrows illustrating the center of the springs of the second damper located below the turbine:



'374 Patent



Degler Fig. 2

(Ex. 1102 ¶ 65.) Thus, Degler anticipates element 8. (*Id.* ¶ 66.)

Claim 10: The hydrodynamic torque converter (1) according to claim 1, wherein the lock-up clutch (13) in a closed state is axially mounted in a pocket (24) formed in a housing wall (23) radially inward of fastening means (9) provided on external part of the torque converter (1).

Claim 10 specifies that, when closed, at least the mounting portion of the lock-up clutch is axially mounted in a pocket in the housing wall below fastening means on the housing. (Ex. 1102 ¶ 67.) The hydrodynamic torque converter in Degler Fig. 2 has a fastening bracket on the housing of the torque converter for attaching the housing to a drive. (Ex. 1103, Fig. 2; Ex. 1102 ¶ 68.) And, as shown in Fig. 2, when closed, the clutch 7 is axially mounted in a pocket formed in the housing wall radially inside of the fastening bracket. Thus, Degler anticipates claim 10. (Ex. 1102 ¶ 68.)

Claim 14: The hydrodynamic torque converter (1) according to claim 1, wherein in the closed state of the lock-up clutch (13) the torsional vibration absorber (17) acts between both damper stages (14, 15).

Claim 14 requires that the torsional vibration absorber act between both damper stages when the lock-up clutch is closed. (Ex. 1102 ¶ 69.) Degler states that its embodiments are “characterized in that the rotational-speed-adaptive vibration absorber is disposed

between the dampers at least in one force-flow direction over the damper arrangement.” (Ex. 1103, 3.) Thus, Degler anticipates claim 14. (Ex. 1102 ¶ 70.)

Claim 15: The hydrodynamic torque converter (1) according to claim 1, wherein the torsional vibration absorber (17) is connected non-rotatably with the turbine (7).

In Degler Fig. 2 the mounting part of the rotational-speed-adaptive vibration absorber is connected indirectly to rotate with the turbine. (Ex. 1103, Fig. 6, *see also* 4 (“rotational-speed-adaptive vibration absorber is connected at least indirectly to rotate with the secondary wheel. By the association of the rotational-speed-adaptive vibration absorber with the turbine wheel, this can preferably be active in all operating conditions...”); Ex. 1102 ¶ 71.) Thus, Degler anticipates claim 15. (Ex. 1102 ¶ 71.)

Claim 16: The hydrodynamic torque converter (1) according to claim 1, wherein in the opened state of the lock-up clutch (13) the torsional vibration absorber (17) is connected non-rotatably with the turbine (7).

In Degler Fig. 2 the mounting part of the rotational-speed-adaptive vibration absorber is connected indirectly to rotate with the turbine when the lock-up clutch is open. (Ex. 1103, Fig. 6, *see also* 4

(“rotational-speed-adaptive vibration absorber is connected at least indirectly to rotate with the secondary wheel...By the association of the rotational-speed-adaptive vibration absorber with the turbine wheel, this can preferably be active in all operating conditions...”); Ex. 1102 ¶ 72.) Thus, Degler anticipates claim 16. (Ex. 1102 ¶ 72.)

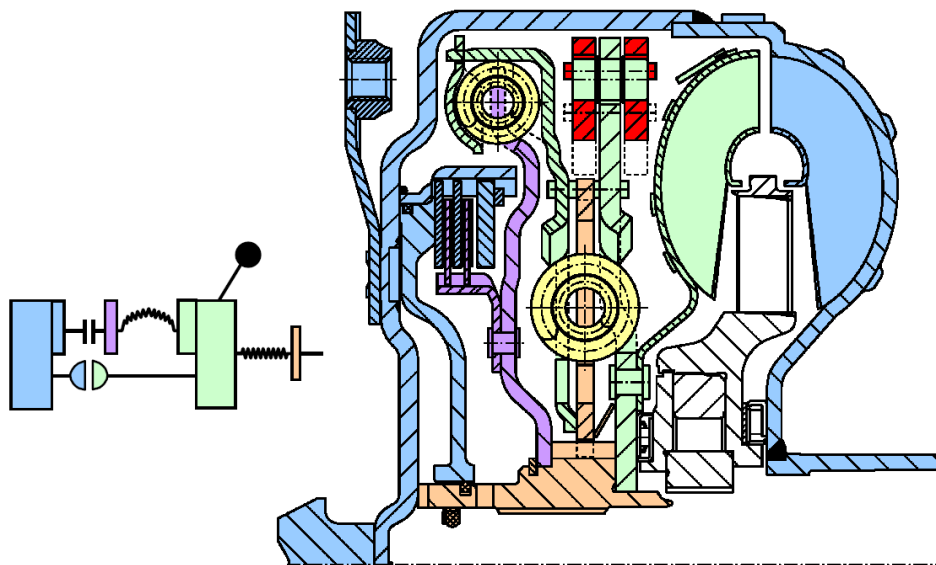
B. Ground 2: Claims 1, 3–5, 8, 10, and 14–16 are anticipated by Reik.

Reik, a Patent Owner employee, distributed the conference paper and associated PowerPoint in Ex. 1106 and 1115 in December 2008, six months before the PCT filing date of the ’374 patent (and again in May 2009, Ex. 1105). As explained in Ex. 1107, Reik was publicly presented and publicly available at that time.

Because Patent Owner is precluded by 35 U.S.C. § 119(c) from claiming priority to subject matter also disclosed in Degler’s priority reference (explained above), the ’374 patent is not entitled to its priority dates and Reik is prior art under 35 U.S.C. § 102(a), anticipating claims 1, 3–5, 8, 10, and 14–16.

Claim 1[a]: A hydrodynamic torque converter (1):

The preamble is not limiting, but nonetheless, Reik discloses hydrodynamic torque converters. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 74.)



Thus, Reik teaches element 1[a]. (Ex. 1102 ¶ 75.)

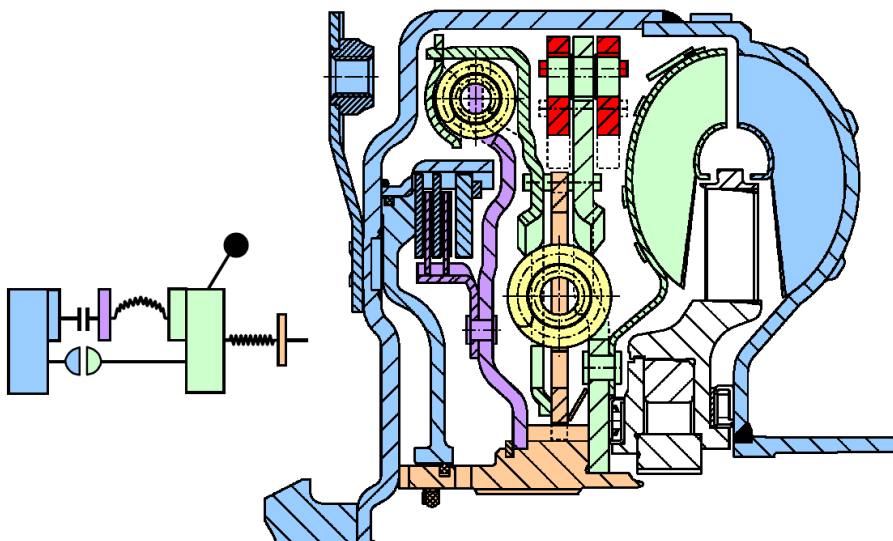
Claim 1[b]: with a turbine (7) driven by an impeller (6) as well as housing (3)

The hydrodynamic torque converter in Reik includes a turbine (green) driven by an impeller (blue) in a housing. (Ex. 1106, 512; Ex. 1115, 35.) Thus, Reik teaches element 1[b]. (Ex. 1102 ¶ 76.)

Claim 1[c]: in which a torsional vibration damper (16) with multiple of damper stages (14, 15)

Reik discloses a torsional vibration damper with multiple stages. (Ex. 1106, 512; Ex. 1115, 35.) Reik's two damper stages

(shown in yellow) correspond with the first 14 and second 15 damper stages of the '374 patent:



(Ex. 1102 ¶ 77.) Thus, Reik teaches element 1[c]. (*Id.* ¶ 78.)

Claim 1[d]: a torsional vibration absorber (17)

Reik teaches rotational-speed-adaptive vibration absorbers such as the centrifugal pendulum absorber. (Ex. 1106, 512; Ex. 1115, 34; Ex. 1102 ¶ 79.) Thus, Reik teaches element 1[d]. (Ex. 1102 ¶ 79.)

Claim 1[e]: and a lock-up clutch (13) are additionally installed

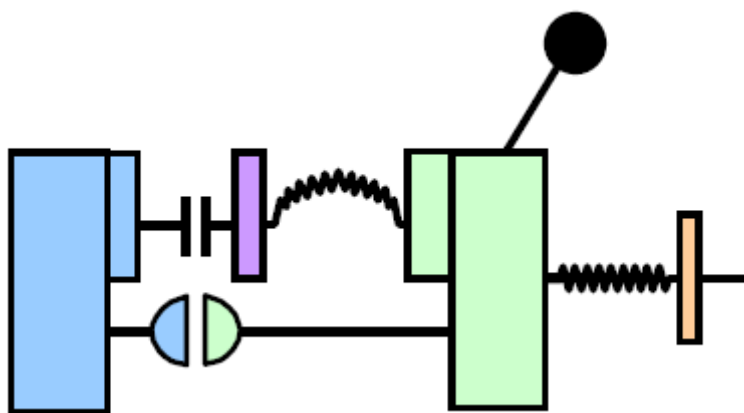
Reik's torque converter includes a lock-up clutch. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 80.) Thus, Reik teaches element 1[e]. (Ex. 1102 ¶ 80.)

Claim 1[f]: wherein a first damper stage (14) and a second damper stage (15) are disposed between the lock-up clutch (14) and an output hub (12),

As discussed above, the '374 patent describes two torque paths.

Claim 1[f] describes the first torque path, *i.e.*, where torque passes through both damper stages when transferred from the lock-up clutch 14 to the output hub 12. (Ex. 1102 ¶ 81.)

Reik embodies torque paths similar to those described in the '374 patent. In Reik, the first damper acts as a standard damper and the second damper acts as a turbine damper, as in the '374 patent. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 82.)



As shown along the top of Reik's circuit diagram, torque goes through the lockup clutch (blue) to the purple input of the first damper, then through the green disk components to the second

damper and out the output (orange). Thus, Reik teaches element 1[f].

(Ex. 1102 ¶ 83.)

Claim 1[g]: the second damper stage (15) is disposed between the turbine (7) and the output hub (12) and

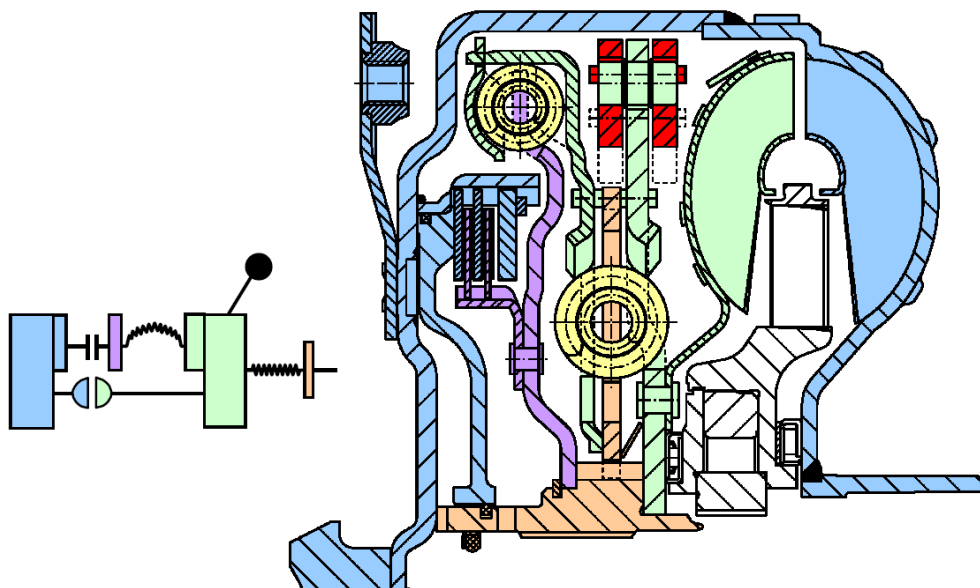
As noted above, the '374 patent describes two torque paths.

Claim 1[g] describes the second torque path, *i.e.*, where torque passes through the second damper stage 15 when transferred from the turbine 7 to the output hub 12. (Ex. 1102 ¶ 84.)

Reik embodies torque paths similar to those described in the '374 patent. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 85.) As shown along the bottom of Reik's circuit diagram (*see above*), torque goes through the turbine and impeller (blue and green semi-circles), then to the green disk components and through the turbine damper and out the output (orange). Thus, Reik teaches element 1[g]. (Ex. 1102 ¶ 86.)

Claim 1[h]: the torsional vibration absorber (17) is parallel to both damper stages (14, 15).

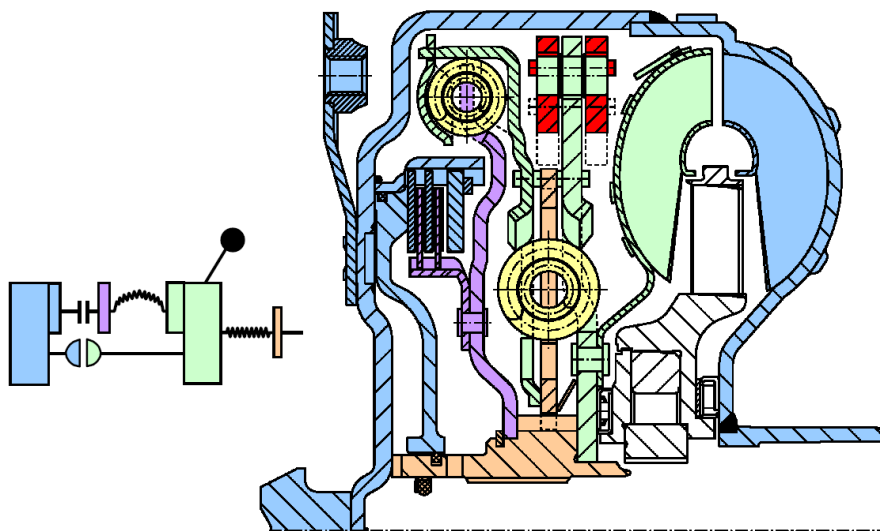
In Reik, the vibration absorber (masses in red) is parallel to both damper stages because it is connected to the second damper stage and does not transmit torque:



(Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 87.) Reik's circuit diagram illustrates this arrangement, with the absorber (black circle) mounted between the two damper stages, which are schematically represented by springs. Thus, Reik teaches element 1[h]. (Ex. 1102 ¶ 88.)

Claim 3: The hydrodynamic torque converter (1) according to claim 1, wherein a disk part (25) is allocated to two damper stages (14, 15) as one piece.

Claim 3 requires that a single disk part is shared between the first and second damper stages. (Ex. 1102 ¶ 89.) The same relationship is depicted in Reik, with the green component shared between the first and second damper stages:



(Ex. 1102 ¶ 90.) The green component forms the output of the first damper stage and part of the input of the second damper stage. Thus, Reik anticipates claim 3. (*Id.* ¶ 91.)

Claim 4[a]: The hydrodynamic torque converter (1) according to claim 1, wherein the torsional vibration absorber (17) comprises a plurality of absorber masses (39), and

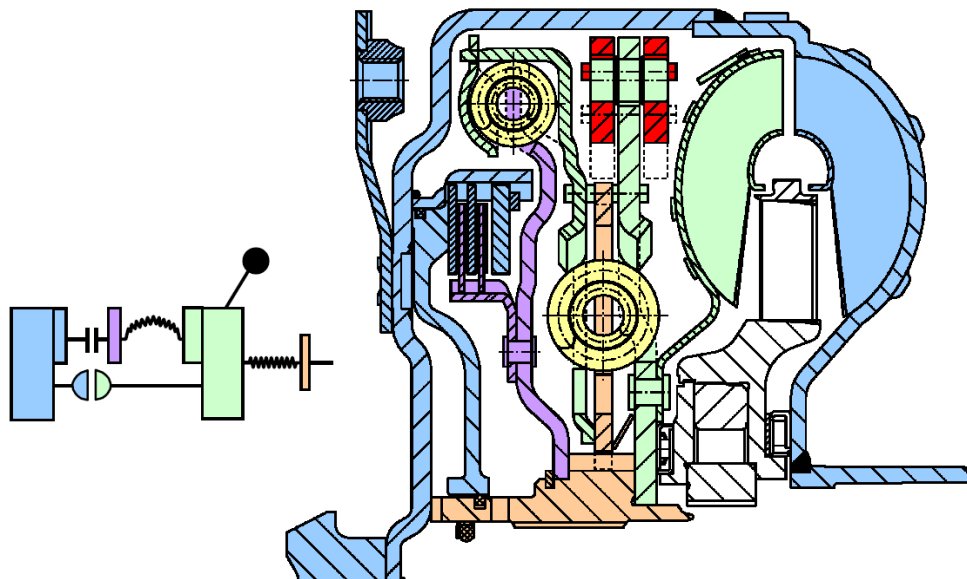
Reik teaches rotational-speed-adaptive vibration absorbers with multiple masses. Indeed, the description of Fig. 19 on page 512 of Ex. 1106 refers to the “centrifugal pendulum absorber” with “pendulums,” *i.e.*, multiple masses. (Ex. 1106, 512; Ex. 1102 ¶ 92.) Thus, Reik anticipates element 4[a]. (Ex. 1102 ¶ 93.)

Claim 4[b]: a mounting part (37) of the torsional vibration absorber (17) forms a disk part (31) of an input part (35) of the second damper stage (15).

Claim 4[b] specifies that the mounting part of the torsional vibration absorber forms an input part of the second damper stage. (Ex. 1102 ¶ 94.) In Reik the torsional vibration absorber is mounted on the disk input of the second damper stage (shown in green). (Ex. 1106, 512; Ex. 1115, 35.) Thus, Reik anticipates element 4[b]. (Ex. 1102 ¶ 95.)

Claim 5: The hydrodynamic torque converter (1) according to claim 4, wherein absorber masses (39) of the torsional vibration absorber (17) and energy accumulators (29) of the first damper stage (14) disposed over the circumference are radially at the same height but axially spaced apart.

Claim 5 specifies that the absorber masses and the springs of the first damper stage be axially spaced apart but radially at the same height, as illustrated in Fig. 1 of the '374 patent. (Ex. 1102 ¶ 96.) This orientation is met by Reik:

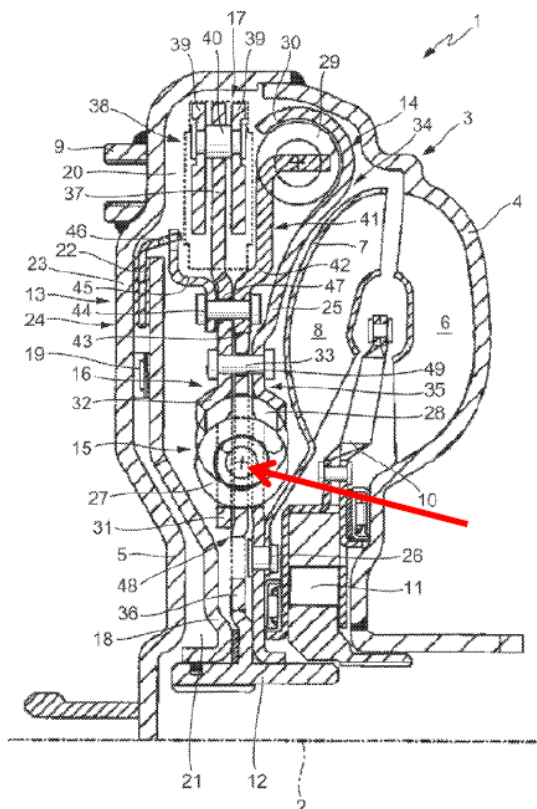


(Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 97.) Thus, Reik anticipates claim 5. (Ex. 1102 ¶ 98.)

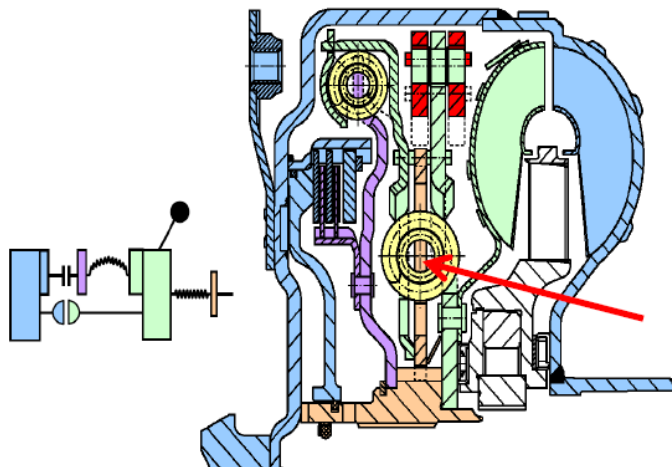
Claim 8: The hydrodynamic torque converter (1) according to claim 1, wherein energy accumulators (27) are distributed over the circumference of the second damper stage (15) based on a middle mounting diameter radially within turbine blades (8) of the turbine (7).

Claim 8 requires that the middle mounting diameter, *i.e.*, center of the springs of the second damper, be radially within (below) the turbine. (Ex. 1102 ¶ 99.) As shown in the '374 Fig., the central portion of the springs of the second damper are mounted below the turbine. The same relationship is depicted in Reik, annotated with red arrows

illustrating the center of the springs of the second damper located
below the turbine:



'374 Patent



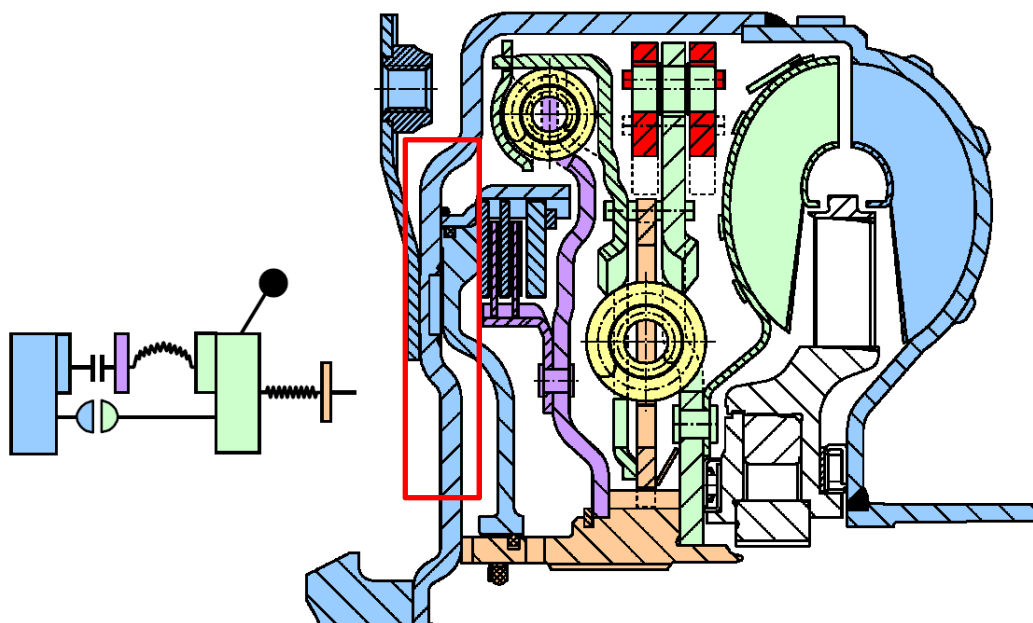
Reik

(Ex. 1102 ¶ 100.) Thus, Reik anticipates claim 8. (*Id.* ¶ 101.)

Claim 10: The hydrodynamic torque converter (1) according to claim 1, wherein the lock-up clutch (13) in a closed state is axially mounted in a pocket (24) formed in a housing wall (23) radially inward of fastening means (9) provided on external part of the torque converter (1).

Claim 10 specifies that, when closed, mounting portion of the lock-up clutch is in a pocket in the housing wall below fastening

means on the housing. (Ex. 1102 ¶ 102.) The hydrodynamic torque converter in Reik shows the clutch is axially mounted in a pocket formed in the housing wall radially inside of the fastening bracket, annotated with a red square below:



(Ex. 1102 ¶ 103.) Thus, Reik anticipates claim 10. (*Id.* ¶ 104.)

Claim 14: The hydrodynamic torque converter (1) according to claim 1, wherein in the closed state of the lock-up clutch (13) the torsional vibration absorber (17) acts between both damper stages (14, 15).

Claim 14 requires that the torsional vibration absorber act between both damper stages when the lock-up clutch is closed. (Ex. 1102 ¶ 105.) In Reik, the torsional vibration absorber is disposed between the dampers at least in one force-flow direction over the

damper arrangement. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 106.)

Reik depicts this arrangement in the circuit diagram where the absorber is schematically shown connected between the two springs representative of the dampers. Thus, Reik anticipates claim 14. (Ex. 1102 ¶ 106.)

Claim 15: The hydrodynamic torque converter (1) according to claim 1, wherein the torsional vibration absorber (17) is connected non-rotatably with the turbine (7).

In Reik the mounting part of the rotational-speed-adaptive vibration absorber is connected indirectly to rotate with the turbine. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 107.) Reik depicts this arrangement by coloring the mount for the absorber and the turbine shell in green. Thus, Reik anticipates claim 15. (Ex. 1102 ¶ 107.)

Claim 16: The hydrodynamic torque converter (1) according to claim 1, wherein in the opened state of the lock-up clutch (13) the torsional vibration absorber (17) is connected non-rotatably with the turbine (7).

In Reik the mounting part of the torsional vibration absorber is connected indirectly to rotate with the turbine when the lock-up clutch is open. (Ex. 1106, 512; Ex. 1115, 35; Ex. 1102 ¶ 108.) Reik's circuit diagram depicts this arrangement by showing the absorber

connected to a component that is the same color as the turbine. (Ex. 1102 ¶ 108.) Thus, Reik anticipates claim 16. (*Id.*)

VIII. CONCLUSION

For the foregoing reasons, Petitioner asks that *inter partes* review of the '374 patent be instituted and that claims 1, 3–5, 8, 10, and 14–16 be canceled.

Respectfully submitted,

Dated: December 7, 2016

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CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§
42.6(e) and 42.105(b) on Patent Owner by Express Mail of a copy of
this Petition for *Inter Partes* Review and supporting materials at the
correspondence address of record for the '374 patent:

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CERTIFICATE OF COMPLIANCE

The undersigned certifies this document complies with the type-volume limitation of 37 C.F.R. § 42.24. The petition contains 5,540 words, as calculated by the Microsoft Word program excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

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