

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JTEKT CORPORATION

Petitioner,

v.

GKN AUTOMOTIVE LTD.

Patent Owner.

Case IPR2016-00046

U.S. Patent No. 8,215,440

**PETITIONER'S SUBMISSION OF
DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT**

Petitioner's Submission of
Demonstrative Exhibits for Oral Argument
Case IPR2016-00046
U.S. Patent No. 8,215,440

In accordance with 37 C.F.R. § 42.70(b) and with the Board's Trial Order dated November 15, 2016 (Paper 22), filed herewith are Petitioner's demonstrative exhibits to be relied upon in the Oral Hearing for IPR2016-00046 scheduled on December 6, 2016. The demonstrative exhibits have been served to Patent Owner's counsel on November 25, 2016.

Respectfully submitted,

Oblon, McClelland, Maier &
Neustadt, LLP

Dated: December 2, 2016

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JTEKT Corp.
v.
GKN Automotive Ltd.

IPR2016-00046

U.S. Pat. 8,215,440

Petitioner's Demonstratives
December 6, 2016 Oral Argument

Overview

■ Institution Grounds:

- Claims 1, 4, and 5 anticipated by Teraoka
- Claims 1, 2, and 3 obvious over Teraoka in view of Watanabe
- Claims 6 and 7 obvious over Teraoka in view of Burrows

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

a primary axle which is permanently driven via the primary drive train; and

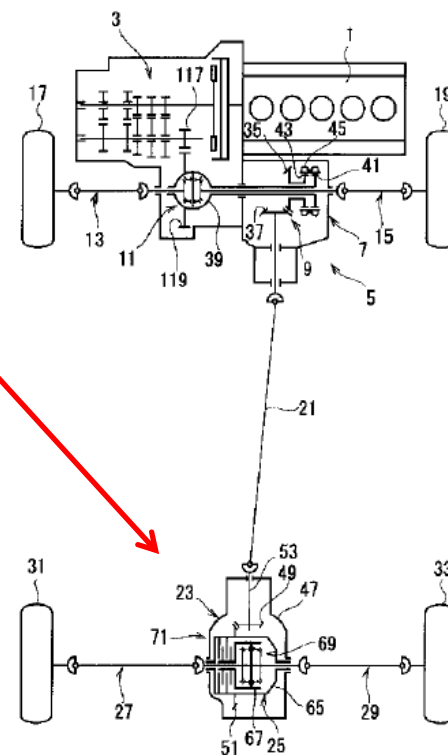
a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.

[FIG. 1]



Ex. 1001, claim 1.

See, e.g., Ex. 1002, Fig. 1; Petition, 15.

Teraoka compared to claim 1

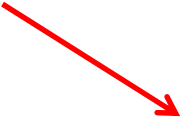
1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train; wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.



[0073] The driving force of the engine 1 is transmitted from the output gear 117 of transmission 3 via ring gear 119 to differential case 39 of front differential 11, and is distributed from the front differential 11 via front axles 13, 15 to the left and right front wheels 17, 19.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0073] ; Petition, 15.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

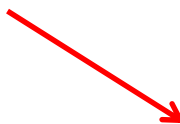
a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.



[0040] As shown in FIG. 1, this four-wheel drive vehicle comprises a transverse engine 1 (prime mover), a transmission 3, a transfer case 5, a two-four switching mechanism 7 (dog clutch) and direction changing gear set 9 which form a part of the transfer case 5, a front differential 11, front axles 13 and 15, left and right front wheels 17 and 19, rear wheel side propeller shaft 21, final speed reduction gear set 23 (final speed reduction mechanism), rear differential 25 (differential device), rear axles 27 and 29, left and right rear wheels 31 and 33 (wheels disengaged when in two-wheel drive), etc.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0040]; Petition, 15.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:


a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.



[0074] In four-wheel drive state, as described above, the two-four switching mechanism 7 and clutch mechanism 71 are coupled, and the driving force of the engine 1 is transmitted through differential case 39, transfer case 5 (two-four switching mechanism 7 and direction changing gear set 9) and propeller shaft 21 to final speed reduction gear set 23 and is subjected to speed reduction, after which it is transmitted via clutch mechanism 71 to rear differential 25 and is further distributed through pinion shaft 77 and pinion gear 79 to side gears 81, 83 and is transmitted via rear axles 27, 29 to left and right rear wheels 31, 33.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0074]; Petition, 15.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:


a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.



[0066] When the clutch mechanism 71 is coupled in this manner, the driving force of the engine 1 is transmitted from outer case 65 to inner case 67 (differential mechanism 69) and is distributed through pinion shaft 77, pinion gear 79 and side gears 81, 83 to left and right rear wheels 31, 33, and the vehicle enters a four-wheel drive state.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0066]; Petition, 16.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.

[0075] Furthermore, in two-wheel drive state, as described above, the two-four switching mechanism 7 and clutch mechanism 71 are uncoupled and the rear wheel side power transmission system is disengaged.

[0076] Here, due to uncoupling of the two-four switching mechanism 7, rotation of the power transmission system (especially the large mass propeller shaft 21) stops from the two-four switching mechanism 7 to outer case 65, which is the input side member of the clutch mechanism 71, and to the outer plates 121, 123 of the main clutch 89 and pilot clutch 97.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0075-76]; Petition, 17.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.

[0055] Clutch mechanism 71 comprises outer case 65, inner case 67, main clutch 89 (wet multi-plate clutch), ball cam 91, pressure plate 93, cam ring 95, pilot clutch 97 (wet multi-plate clutch), armature 99, electromagnet 101, a controller, etc.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0055]; Petition, 17.

Teraoka compared to claim 1

1. A drive train of a vehicle, comprising a primary drive train and a secondary drive train, further comprising:

a primary axle which is permanently driven via the primary drive train; and

a secondary axle as part of the secondary drive train;

wherein the secondary axle is connectable to the primary axle via a switch-on mechanism of a switch-on device in order to allow the integration of the secondary drive train into the drive train so that the overall drive train power is transferred over both the primary axle and the secondary axle, and

wherein when the secondary axle is connected to the primary axle, the secondary drive train power is conveyed via at least one side shaft couplings into side shafts of the secondary axle and is transmitted to wheels of the secondary axle the secondary drive train having a shutdown section located between the switch-on device and the at least one side shaft coupling, whereby:

the switch-on mechanism and/or the side shaft couplings comprise at least one frictionally engaged coupling and when the secondary axle is disconnected from the primary axle in order to transfer the overall drive train power via the primary axle only, the shutdown section of the secondary drive train is decoupled from both the primary axle of the primary drive train and the wheels of the secondary axle.

[0075] Furthermore, in two-wheel drive state, as described above, the two-four switching mechanism 7 and clutch mechanism 71 are uncoupled and the rear wheel side power transmission system is disengaged.

[0076] Here, due to uncoupling of the two-four switching mechanism 7, rotation of the power transmission system (especially the large mass propeller shaft 21) stops from the two-four switching mechanism 7 to outer case 65, which is the input side member of the clutch mechanism 71, and to the outer plates 121, 123 of the main clutch 89 and pilot clutch 97.

Ex. 1001, claim 1.

See, e.g., Ex. 1002, [0075-76]; Petition, 17.

Teraoka compared to claim 4

4. The drive train as claimed in claim 1, wherein the switch-on device comprises a positively working power transmission gearing having an angular gear working via cogged wheels.

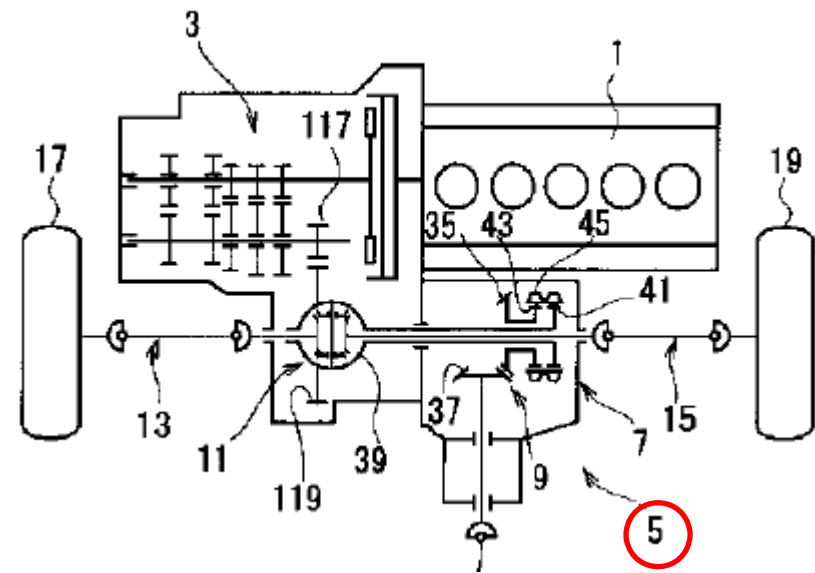
[0040] As shown in FIG. 1, this four-wheel drive vehicle comprises a transverse engine 1 (prime mover), a transmission 3, a transfer case 5, a two-four switching mechanism 7 (dog clutch) and direction changing gear set 9 which form a part of the transfer case 5, a front differential 11, front axles 13 and 15, left and right front wheels 17 and 19, rear wheel side propeller shaft 21, final speed reduction gear set 23 (final speed reduction mechanism), rear differential 25 (differential device), rear axles 27 and 29, left and right rear wheels 31 and 33 (wheels disengaged when in two-wheel drive), etc.

Ex. 1001, claim 4.

See, e.g., Ex. 1002, [0040-41]; Petition, 18.

Teraoka compared to claim 5

5. The drive train as claimed in claim 4, wherein the switch-on device is arranged on the primary axle and the secondary drive train output is, when the secondary drive train is connected to the primary axle, engaged to the primary drive train by the switch-on mechanism.



Ex. 1001, claim 5.

See, e.g., Ex. 1002, Fig. 1; Petition, 18.

Claims 2 and 3 - Teraoka in view of Watanabe

Claims 2 and 3

2. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a driving power distribution without a differential gearing between the drive wheels of the secondary axle to ensure transverse compensation.

3. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a drive power distribution without differential gearing between the primary axle and the secondary axle, to ensure longitudinal compensation.

Ex. 1001, claims 2 and 3.

Watanabe

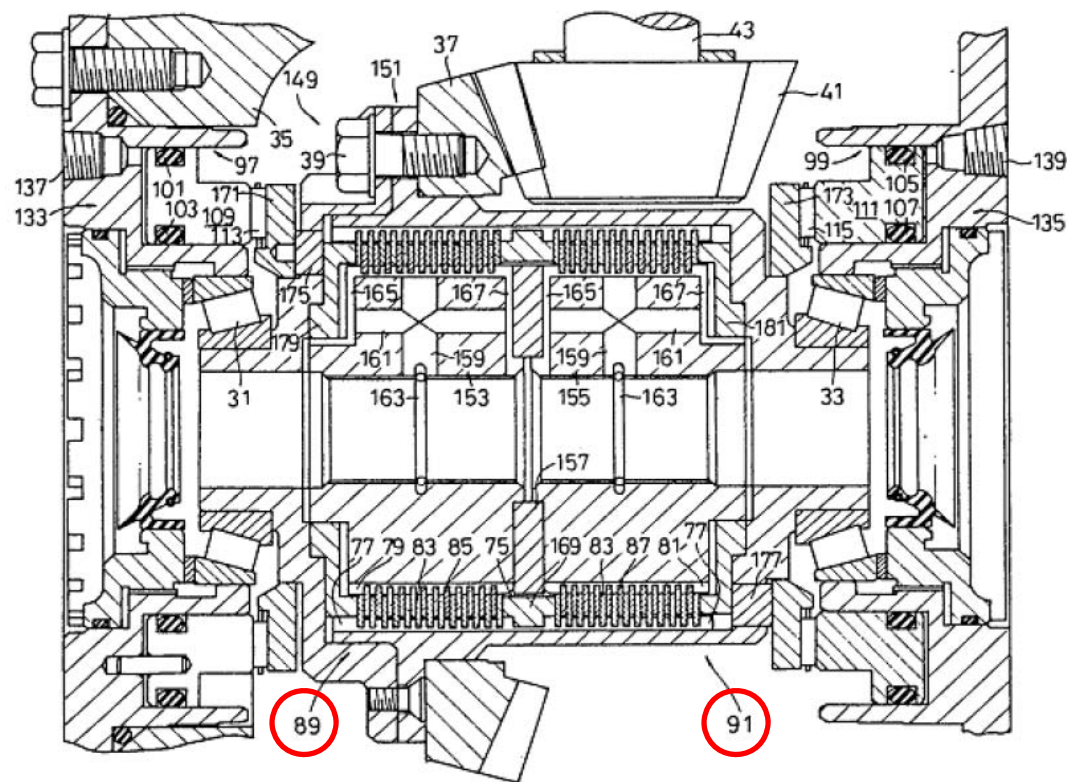


FIG 3

Ex. 1003, Fig. 3.

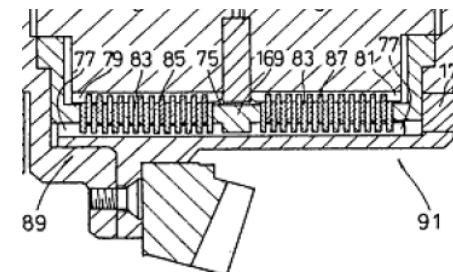
Watanabe compared to claims 2 -3

2. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a driving power distribution without a differential gearing between the drive wheels of the secondary axle to ensure transverse compensation.

3. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a drive power distribution without differential gearing between the primary axle and the secondary axle, to ensure longitudinal compensation.

When the multiple plate clutches 89 and 91 are tightened, the rear wheels 25 and 27 are driven and the vehicle enters 4WD mode. Because the drive power is dispersed to all four wheels, the drive power distribution per wheel falls, reducing the likelihood of slipping as the gripping force is spread out. Accordingly, straight-line motion of the vehicle and driving stability are improved.

When the multiple plate clutches 89 and 91 are released, drive power transmission to the rear wheels 25 and 27 is cut off and the vehicle enters two-wheel-drive (2WD) mode, which improves gas mileage and provides front engine/front drive 2WD characteristics.



Ex. 1001, claims 2 and 3.

See, e.g., Ex. 1003, 147, Fig. 3; Petition, 20-21.

Watanabe compared to claim 2

2. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a driving power distribution without a differential gearing between the drive wheels of the secondary axle to ensure transverse compensation.

And by increasing or decreasing the tightening force individually for the multiple plate clutches 89 and 91, the distribution ratio of the drive power between the right and left rear wheels 25 and 27 can be adjusted and the differential rotation can be controlled.

Ex. 1001, claim 2.

See, e.g., Ex. 1003, 147; Petition, 20-21.

Watanabe compared to claim 3

3. The drive train as claimed in claim 1, having a side shaft coupling for each side shaft of the secondary axle and wherein when the secondary axle is connected to the primary axle, the side shaft couplings allow a drive power distribution without differential gearing between the primary axle and the secondary axle, to ensure longitudinal compensation.

Changing the drive power distribution ratio between the front and rear wheels during cornering allows adjustment of the cornering force of each, and, as above, steering characteristics of the vehicle can be improved. In

* * *

creating a tendency to under-steer. If the drive power distribution to the rear wheels 25 and 27 is increased to reduce the cornering force thereof, the under-steering typical of such vehicles can be corrected.

Teraoka + Watanabe

- Numerous reasons to combine:
 - Reduce weight by eliminating differential
 - Providing a larger shutdown section
 - Improving control and providing torque vectoring
 - Obvious to try

Teraoka + Watanabe

■ Reduce weight

- Supported by Mr. Becker’s direct and cross-examination testimony
 - Ex. 1005, ¶ 45
 - Ex. 2020, Becker Tr. at 94:4-9; 110-111; 136-137; 140-141; 175:14-22
- Supported by prior art references
 - Teraoka, Ex. 1002 ¶ [0089]
 - Watanabe, Ex. 1003, 147 (lower right column) and 148 (lower right column)
- Supported by GKN’s expert and exhibits
 - Ex. 2007 at 2; Ex. 2019 at 636
 - Ex. 1012, Stein Tr. at 77:14-18

Teraoka + Watanabe

- Provide a larger shutdown section

- Watanabe is relevant to Teraoka's problem:

If a 2-4 switching mechanism is provided and 2WD mode is switched to, releasing the multiple plate clutches 89 and 91 causes rotation of the drive system for the rear wheels 25 and 27 to stop. Accordingly, useless rotation and the wear, vibration, and noise caused thereby can be prevented, as can a concomitant fall in mileage.

Ex. 1003, 148, lower left.

- Ex. 1012, Stein Tr. 88:19-90:11 (reducing drag torque in Teraoka reduces energy loss, Watanabe teaches stopping rotation of the central driveline to reduce energy loss)

Petitioner's Reply, 7-9.

Teraoka + Watanabe

- Improve control and provide torque vectoring
 - Ex. 1003, 148 teaches improving steering characteristics, driving ease, and stability by changing drive power distribution between front and rear wheels.
 - Ex. 2012, 3 says torque vectoring and torque management devices gaining interest.
 - Ex. 2005 shows multi-clutch system used in commercial embodiment to achieve torque vectoring.
 - Ex. 1012, Stein Tr. 98:2-99:1 (torque vectoring known as a desirable concept before the '440 patent) and 96:7-98:17 (torque vectoring capability desirable).

Teraoka + Watanabe

- Obvious to try

- Ex. 2020, Becker Tr. 89:19-90:17 (desired performance drives design).
- Ex. 1012, Stein Tr. 46:9-47:7 (different manufacturing specifications move designer to choose different components).

Claims 6 and 7 - Teraoka in view of Burrows

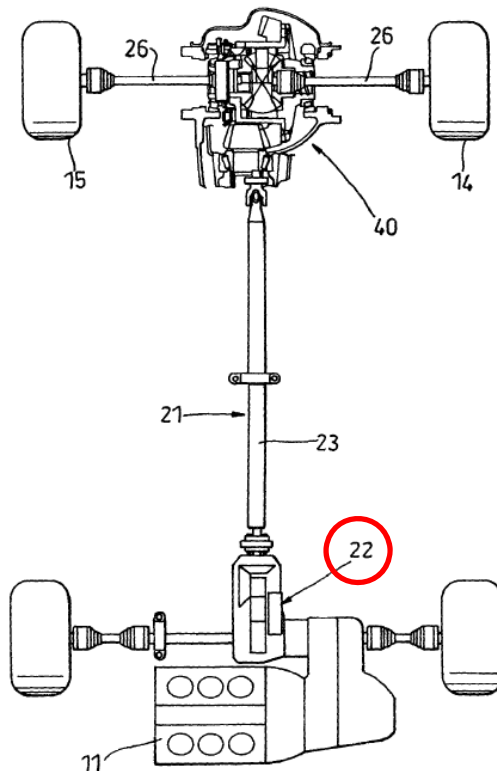
Claims 6 and 7

6. The drive train as claimed in claim 5, wherein a speed synchronization in the switch-on mechanism of the power transmission gearbox for the establishment of a positive lock is supported by the at least one side shaft couplings.

7. The drive train as claimed in claim 6, wherein the at least one side shaft couplings is formed by a frictionally engaged multiple disc clutch, whereby the friction plates connected in a torque-proof way to the secondary drive wheels cooperate as inner plates with an inner plate carrier and whereby the friction plates located on the drive train-side of the vehicle cooperate with an outer plate carrier as outer plates.

Ex. 1001, claims 6 and 7.

Burrows



A control strategy for operation of a dog clutch for a dynamic change in two wheel drive mode causes the clutch 22 to spin-up the auxiliary driveline 21 to the best estimated synchronisation speed for connection to the rear wheels 14,15. The clutch 22 would then disengage quickly whilst simultaneously the synchroniser device would smoothly engage the dog clutch. The clutch 22 then re-engages quickly.

Ex. 1004, Fig. 2.

Fig. 2

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Ex. 1004, 8:7-11.

Burrows compared to claim 6

6. The drive train as claimed in claim 5, wherein a speed synchronization in the switch-on mechanism of the power transmission gearbox for the establishment of a positive lock is supported by the at least one side shaft couplings.

The gearbox 18 is connected to the rear wheels 14,15 through first clutch means in the form of a PTO (Power Take-off) clutch 22, typically a multiplate wet clutch, driven only when four wheel drive mode is operable. The PTO clutch 22 is connected to a longitudinally extending main drive shaft 23 through a transmission assembly 24. The main

* * *

In the second example of the invention shown in Fig.2, only those features that are substantially different from the example shown in Fig.1 will be described in detail. The main difference is that, in the auxiliary driveline 21 to the rear wheels 14,15, the main drive shaft 23 transmits torque to a free running differential 40 of the type marketed by GKN as the TFS differential. The differential 40 disconnects the rear drive shafts 26 from the main drive shaft 23 eliminating side gear and pinion meshing losses in the differential and removing energy losses from spinning the main drive shaft 23. The differential 40 may include a dog clutch or a one-way (e.g. roller sprag type) clutch in which case the spinning-up of the auxiliary driveline 21 must be synchronised before the clutch is re-engaged. A synchroniser device may be incorporated within the differential 40 which thus acts as releasable torque transmitting means.

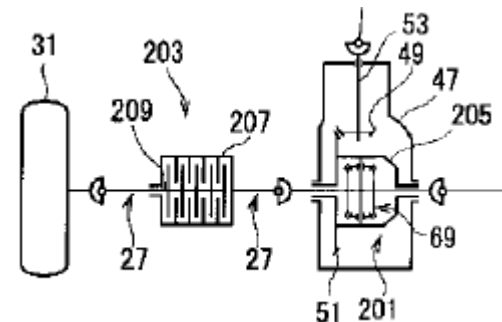
Ex. 1001, claim 6.

Ex. 1004, 4:21-24, 8:7-11; Petition, 24.

Teraoka compared to claim 7

7. The drive train as claimed in claim 6, wherein the at least one side shaft couplings is formed by a frictionally engaged multiple disc clutch, whereby the friction plates connected in a torque-proof way to the secondary drive wheels cooperate as inner plates with an inner plate carrier and whereby the friction plates located on the drive train-side of the vehicle cooperate with an outer plate carrier as outer plates.

[0102] Main clutch 89 is arranged between rotary case 207 and inner shaft 209. Pressure plate 93 is spline-coupled by its inner circumference to inner shaft 209 and presses the rotary case 207 against and binds it to the main clutch 89 upon receiving thrust force of ball cam 91.



[0106] When electromagnet 101 is excited, the armature 99 is attracted and pilot clutch 97 is engaged, ball cam 91 is actuated, engaging the main clutch 89, the clutch mechanism 203 is coupled, and relative rotation of rear axles 27, 27 is locked.

Ex. 1001, claim 7.

Ex. 1002, [0102], [0106], Fig. 3 excerpt; Petition, 24-25.

Teraoka + Burrows

- One skilled in the art would have been motivated to combine Teraoka and Burrows to provide a shutdown section.

Teraoka + Burrows

During two wheel drive conditions, the driveline components connected to the rear wheels may be caused to rotate due to frictional drag between the components in the driveline.. This driveline drag is a major contributor to fuel inefficiencies and ways have been sought to minimize the residual drag in four wheel drive systems operating in two wheel drive mode. One method of reducing driveline drag is to disconnect the main rear wheel drive shaft from the rear wheel rear drive shafts using a differential of the type sold by GKN under the name of the TFS free running differential. This differential allows the rear drive shafts to be disconnected from the differential casing so that there are no losses between the differential bevel gears and the pinions and no drive to the main drive shaft. Such systems are generally switched between four wheel drive mode and two wheel drive mode when the vehicle is stationary.

The present invention seeks to provide a four wheel drive system in which the re-connection between two wheel drive mode and four wheel drive mode may be made while the vehicle being driven. This may be termed "dynamic driveline reconnect". However, a

Ex. 1004, 1.

Teraoka + Burrows

- Burrows is not limited to ATVs:
 - Figures depict six-cylinder engines
 - Passenger cars can encounter aggressive driving scenarios
 - Uses GKN free running differential, intended for passenger cars
 - Prior art in Burrows is directed to passenger cars
 - Burrows is applicable to vehicles with longitudinally-mounted engines

Secondary Considerations:

None sufficient to rebut *prima facie* obviousness

No Secondary Considerations

- No nexus to claims 2-3 and 6-7:
 - Rely on Twinster, but GKN has not shown Twinster to be covered by claims.
 - Industry praise not specific to features of claims.
 - Industry awards not specific to features of claims.
 - Commercial success has no factual basis related to features of claims.
 - No unexpected results.

THANK YOU

OBLON

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies service of
PETITIONER'S SUBMISSION OF DEMONSTRATIVE EXHIBITS FOR ORAL
ARGUMENT on the counsel of record for the Patent Owner by filing this
document through the PTAB E2E System as well as delivering a copy via
electronic mail to the following address:

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Dated: December 2, 2016

/W. Todd Baker/

W. Todd Baker

Reg. No. 45,265