

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 19

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HARALD BORTFELD,
ALFRED KLATT and UWE WINKELHOLZ

Appeal No. 2002-0882
Application 09/161,146

HEARD: September 19, 2002

Before FRANKFORT, MCQUADE, and NASE, Administrative Patent Judges.

MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Harald Bortfeld et al. originally took this appeal from the final rejection (Paper No. 7) of claims 1 through 5 and 10 through 16. Upon consideration of the appellants' appeal brief (Paper No. 10), the examiner issued an office action (Paper No. 11) reopening prosecution and entering superseding rejections of claims 1 through 5 and 10 through 16. In response, the appellants filed a supplemental brief (Paper No. 12) which effectively reinstated the appeal. Claims 6 through 9, the only other claims pending in the application, stand allowed.

THE INVENTION

The invention relates to a method and apparatus "for shortening the time required for shifting gears in a semi-automatic, electronically controlled motor vehicle transmission by reduction of clutch engagement response time" (specification, page 1). The appellants' specification defines a semi-automatic transmission as "a transmission in which the selection of a particular gear by a driver electronically actuates a gear shifting operation, and in which a clutch is selectively disengaged during the shifting of gears by a driver-operated clutch pedal" (page 1). Representative claims 1 and 14 read as follows:

1. Method for shortening a duration required for shifting gears in a semi-automatic transmission for motor vehicles controlled by an electronic system with a microprocessor and including a shifting command emitter for initiation of a gear shifting operation carried out by synchronization equipment in the transmission, the transmission further including a clutch, an input shaft, an output shaft, and an acknowledgment device for emitting an acknowledgment signal to a driver that re-engagement of the clutch may be properly effected, the method comprising:
determining a beginning of synchronization of the transmission during a shifting operation; and
emitting the acknowledgment signal at said beginning of synchronization.

14. In a semi-automatic transmission of the type in which operation is controlled by an electronic system with a microprocessor, initiation of a gear operation being carried out by synchronization equipment in the transmission actuated by operation of a shifting command emitter, and in which a clutch is disengaged during the gear switching operation, the transmission

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including an input shaft, an output shaft, and an acknowledgment device for emitting an acknowledgment signal to a driver that re-engagement of the clutch may be properly effected, the synchronization equipment including at least one sliding bushing movable along the input shaft by operation of actuating elements, the improvement comprising:

distance sensors installed on at least one of said at least one sliding bushing or the actuating elements of said at least one sliding bushing for the recognition of a beginning of a synchronization process by evaluation of a movement covered by said at least one sliding bushing along the input shaft, thereby permitting the acknowledgment signal to be emitted at a point in time advance of completion of the synchronization process.

THE PRIOR ART

The prior art items relied on by the examiner to support the appealed rejections are:

Holdeman	4,440,042	Apr. 3, 1984
Morscheck et al. (Morscheck)	4,676,115	Jun. 30, 1987
Asahara et al. (Asahara)	5,195,035	Mar. 16, 1993
Kojima et al. (Kojima)	5,612,880	Mar. 18, 1997
Showalter et al. (Showalter)	5,771,477	Jun. 23, 1998

The prior art discussed on pages 1 and 2 of the appellants' specification (the admitted prior art).

THE REJECTIONS

Claims 1, 2, 10 through 12 and 14 through 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Showalter in view of Morscheck and the admitted prior art.

Claims 3 through 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Showalter in view of Morscheck, the admitted prior art and Kojima.

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Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Showalter in view of Morscheck, the admitted prior art and Asahara.

Attention is directed to the appellants' main, supplemental and reply briefs (Paper Nos. 10, 12 and 14) and to the examiner's last office action and answer (Paper Nos. 11 and 13) for the respective positions of the appellants and the examiner regarding the merits of these rejections.¹

DISCUSSION

Showalter, the examiner's primary reference, discloses a four wheel drive vehicle comprising an internal combustion engine 42, a conventional transmission 44 (either manual with a clutch or automatic) and a transfer case 28 for shifting between low and high gear ranges upon manual actuation of a selector switch 202 by the vehicle operator. The transfer case includes a planetary gear assembly fully described in U.S. Patent No. 4,440,042 to Holdeman which is incorporated by reference into the Showalter disclosure (see column 4, lines 23 through 25). Of note is that

¹ Although the statement of the first rejection in Paper No. 11 does not include claims 10 through 12 and 14 through 16, the accompanying explanation of the rejection shows that the omission was inadvertent.

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Holdeman teaches that the planetary gear assembly can be employed in an automotive transmission or a transfer case (see Holdeman at column 2, lines 32 through 35). Showalter's invention focuses on providing smooth low to high transfer case shifts with minimal gear clashing and noise. As described in the reference, this involves

[a] method and apparatus for operating a power transfer device such as a vehicle transfer case having shaft speed sensors, a two speed (high-low) drive assembly, a[n] electrically, pneumatically or hydraulically operated shift operator and a microprocessor comprising the steps of sensing the speeds of the transfer case input shaft and output shaft, calculating the rate of change ($\Delta S/\Delta t$) of the speed of the input shaft, predicting, based upon such rate of change, a time when the input shaft and the output shaft will be synchronized and commencing movement of such shift operator at a time prior to such synchronization in order to effect engagement of such clutch into high gear at substantially the instant synchronization is achieved [column 1, lines 49 through 61].

As conceded by the examiner (see page 2 in Paper No. 11), Showalter does not respond to the limitations in independent claims 1 and 14 relating to the semi-automatic transmission or to the device for emitting at the beginning of, or before completion of, synchronization an acknowledgment signal to the driver that re-engagement of the clutch may be properly effected.

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Showalter's transfer case is not a semi-automatic transmission within the meaning of claim 1,² and thus does not embody a clutch of the sort recited or emission to the driver of an acknowledgment signal that re-engagement of the clutch may be properly effected. To overcome these deficiencies in Showalter, the examiner turns to Morscheck and the admitted prior art.

Morscheck discloses a semi-automatic mechanical change gear transmission

having means to sense manual selection of a particular gear ratio, means to sense and/or calculate the rotational speed of the jaw clutch members associated with the selected gear ratio, a power synchronization device for selectively accelerating and/or decelerating the rotational speed of input shaft driven transmission members, preferably independent of the rotational speed of the prime mover, and a device to inhibit movement of the shift rails until synchronization of the clutch members of the selected jaw clutch is sensed [column 1, lines 10 through 20].

The admitted prior art encompasses a transmission that produces, after a shifting operation is completed, an acknowledgment informing the driver that re-engagement of the clutch may be effected.

² See the above reproduced definition from the appellants' specification for the term "semi-automatic transmission." Words defined in the specification must be given the same meaning when used in a claim. McGill, Inc. v. John Zink Co., 736 F.2d 666, 674, 221 USPQ 944, 949 (Fed. Cir.), cert. denied, 469 U.S. 1037 (1984).

In proposing to combine Showalter, Morscheck and the admitted prior art to reject independent claims 1 and 14, the examiner first implies (see page 2 in Paper No. 11) that Holdeman, incorporated by reference into Showalter, would have suggested utilizing Showalter's transfer case as an automotive transmission, and then concludes that it would have been obvious to a person of ordinary skill in the art "to combine the synchronization prediction [of Showalter] and the semi-automatic transmission of Morscheck et al. because such modification would result in a semi-automatic transmission that can predict synchronization and complete shifts faster" (Paper No. 11, pages 2 and 3), and

to use the acknowledgement [sic] device of the admission in the invention of Showalter et al. and Morscheck et al. because in order to increase the speed of synchronization in a semi-automatic transmission that has a manual clutch the driver would have to be the recipient of the signal instead of an automatic clutch actuator in an automatic transmission [Paper No. 11, page 3].

There is nothing in the combined teachings of the foregoing prior art items, however, which would have suggested such wide ranging modifications of the Showalter transfer case and its method of operation. The radical nature of these modifications and the lack of any underlying incentive or motivation in the

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prior art corroborate the appellants' position that the examiner has engaged in an impermissible hindsight reconstruction of the invention set forth in independent claims 1 and 14 by using these claims as blueprints to selectively piece together isolated disclosures in the prior art. Accordingly, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of claims 1 and 14, and dependent claims 2, 10 through 12, 15 and 16, as being unpatentable over Showalter in view of Morscheck and the admitted prior art.

As neither Kojima nor Asahara cures the above noted shortcomings in the examiner's evidentiary showing, we also shall not sustain the standing 35 U.S.C. § 103(a) rejection of dependent claims 3 through 5 as being unpatentable over Showalter in view of Morscheck, the admitted prior art and Kojima, or the standing 35 U.S.C. § 103(a) rejection of dependent claim 13 as being unpatentable over Showalter in view of Morscheck, the admitted prior art and Asahara.

SUMMARY

The decision of the examiner to reject claims 1 through 5 and 10 through 16 is reversed.

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REVERSED

CHARLES E. FRANKFORT)	
Administrative Patent Judge)	
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JOHN P. MCQUADE)	
Administrative Patent Judge)	INTERFERENCES
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JEFFREY V. NASE)	
Administrative Patent Judge)	

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