UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/083,277	03/17/2005	Nathan Jon Schara	02580-P0258B	6849

24126 7590 01/24/2013
ST. ONGE STEWARD JOHNSTON & REENS, LLC
986 BEDFORD STREET
STAMFORD, CT 06905-5619

EXAMINER
SMITH, PHILIP ROBERT

ART UNIT	PAPER NUMBER
3779	

NOTIFICATION DATE	DELIVERY MODE
01/24/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentpto@ssjr.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NATHAN JON SCHARA,
ERIC LAWRENCE HALE, and
HANS DAVID HOEG

Appeal 2011-002580
Application 11/083,277
Technology Center 3700

Before ERIC GRIMES, MELANIE L. McCOLLUM, and
JEFFREY N. FREDMAN, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method for remote control of a variable direction of a view endoscope. The Examiner rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Statement of the Case

Background

The Specification teaches "a system which merges/combines the advantages of robotic endoscope holders with the advantages of a variable direction of view endoscope" (Spec. 2 ¶ 06).

The Claims

Claims 1 and 7 are on appeal. Claim 1 is representative and reads as follows:

> 1. A method for allowing a user to remotely control a movement of a variable direction of view endoscope having a longitudinal axis, a tip, and a view vector movable relative to the longitudinal axis, the method comprising the steps:
>
> a) establishing an original position of the tip of the endoscope;
>
> b) inputting an endoscope moving command provided by a user to move the endoscope in a desired direction relative to an object displayed on a display device;
>
> c) computing an incremental movement of the endoscope based on the command provided by the user and on the original position of the endoscope;
>
> d) moving the endoscope in the desired direction so that the tip of the endoscope always moves in a direction commanded by the user;
>
> e) inputting view vector moving command provided by the user to move the view vector relative to the longitudinal axis in a desired direction relative to an object displayed on the display device; and
>
> f) moving the view vector relative to the longitudinal axis of the distal end of the endoscope so that the view vector moves in a direction commanded by the user.

The issue

The Examiner rejected claims 1 and 7 under 35 U.S.C. § 103(a) as obvious over Mizuno[1] and Hale[2] (Ans. 4-7).

The Examiner finds that "Mizuno discloses a method for allowing a user to remotely control a movement of a variable direction of view endoscope having a longitudinal axis, a tip, and a view vector movable relative to the longitudinal axis" (Ans. 4). The Examiner finds that Mizuno teaches steps a)-f) of claim 1 (Ans. 4-5). The Examiner finds that "Mizuno does not disclose moving the view vector *relative to the longitudinal axis of the distal end* of the endoscope. The view vector disclosed by Mizuno is *coincident* with the longitudinal axis of the distal end of the endoscope; it is not capable of moving 'relative to' it." (Ans. 6).

The Examiner finds that Hale teaches "a 'variable direction-of-view endoscope 11' having a 'working vector 22' corresponding to the direction-of-view" (Ans. 6). The Examiner finds it obvious to "substitute the variable direction-of-view endoscope disclosed by Hale for the physically deflecting endoscope disclosed by Mizuno. A skilled artisan would be motivated to do so in order to provide an intuitive and versatile movement means that does not require movement of the scope within the cavity. It is well understood that movement of the scope within the cavity adds to the risk of the patient being injured or burned" (Ans. 6-7).

---

[1] Mizuno et al., US 6,120,433, issued Sep. 19, 2000.
[2] Hale et al., US 6,695,774 B2, issued Feb. 24, 2004.

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that Mizuno and Hale render obvious the method of claim 1?

Findings of Fact

1. Mizuno teaches "a surgical manipulator system which is designed to insert a medical device such as an endoscope into a body cavity of a subject for the purpose of examining the interior of the cavity and performing surgery within the cavity" (Mizuno, col. 1, ll. 9-12).

2. Mizuno teaches that "[s]ince each incremental encoder used can detect nothing more than a relative amount of motion, both slave arms **5** and **7** must be subjected a return-to-origin operation so that their absolute positions may be determined" (Mizuno, col. 10, ll. 38-42).

3. Mizuno teaches that the "slave manipulator **101** comprises a medical device **103** and a robot **104** for holding the device **103**. . . The robot **104** comprises a plurality of arms. Hence, it has many degrees of freedom, capable of moving linearly and rotating the medical device **103**" (Mizuno, col. 19, ll. 1-7).

4. Mizuno teaches that "the slave manipulator **101** and the master manipulator **111** are connected to a controller **121**. The controller **121** controls the slave manipulator **101** so that the distal portion of the slave manipulator **101** may be oriented in the same way as the distal portion of the master manipulator **111**" (Mizuno, col. 19, ll. 20-25).

5. Mizuno teaches that "[o]nce the distance the instrument arm **5** is to be moved has been calculated by means of the coordinate transforms,

the data showing this distance is supplied . . . As a result, the instrument slave manipulator is moved" (Mizuno, col. 9, ll. 17-31).

6. Mizuno teaches that the "the distal portion of the scope **105** may be bent in the same direction and by the same angle as the arm connecting the HMD **112** to the master manipulator **111**, and the medical instruments **106** and **107** may be moved in the same way as the master arms **113** and **114**" (Mizuno, col. 19, ll. 25-29).

7. Mizuno teaches that the "distal portion of the scope **105** can be bent in various directions. The distal portions of the instruments **106** and **107** can be bent in various directions, too" (Mizuno, col. 19, ll. 10-13).

8. Mizuno teaches that the "surgical manipulator system further comprises a master arm **8** and a head-mount display **9** (hereinafter referred to as 'HMD') . . . The master arm **8** is input means for the instrument slave manipulator, and the HMD **9** is input means for the scope slave manipulator" (Mizuno, col. 5, ll. 49-54).

9. Hale teaches "a control and indicator apparatus for a variable direction-of-operation endoscopic instrument [that] comprises a handle, a pointer, and a linking system connecting the handle to the endoscopic instrument" (Hale, col. 2, ll. 56-60).

10. Hale teaches that:

> By manipulating the handle-pointer assembly **10**, the working vector **22** can be made to rotate about the third axis **24**, a forth [sic] axis **32** and a fifth axis **34** to parallel the changing direction of the first axis **14** and the changing orientation of the indicator **20**. It should be noted that axes **34** and **32** are parallel to the first axis **14** and the second axis **18**, respectively. With the degrees of freedom available, any working direction and orientation can be selected intuitively

> by pointing the handle **12** towards a target and spinning it as desired while the direction and orientation of the handle **12** show the configuration of the working vector **22**.

(Hale, col. 4, ll. 11-21).

11. Hale teaches "an integrated electromechanical three degree of freedom handle and coinciding pointer assembly. In this embodiment, the handle-pointer assembly controls the instrument mechanics through sensors that send signals to actuators in the endoscopic instrument" (Hale, col. 4, l. 65 to col. 5, l. 1).

12. Hale teaches an improvement which "provides the user with integrated intuitive control of multiple degrees of freedom of an endoscopic instrument, an effective and intuitive representation of the direction and orientation of the working vector of an endoscopic instrument, and a better understanding of the overall spatial configuration of the instrument" (Hale, col. 6, ll. 22-27).

Principles of Law

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Analysis

Mizuno teaches a method for allowing a user to remotely control movement of a variable direction of view endoscope, including performing each of steps a) – f) of claim 1 (FF 1-8; *see* Ans. 3-5).

The Examiner finds that "Mizuno does not disclose moving the view vector *relative to the longitudinal axis of the distal end* of the endoscope. The view vector disclosed by Mizuno is *coincident* with the longitudinal axis

of the distal end of the endoscope; it is not capable of moving 'relative to' it." (Ans. 6). The Examiner finds that Hale teaches "a 'variable direction-of-view endoscope 11' having a 'working vector 22' corresponding to the direction-of-view" (Ans. 6; FF 9-11).

Applying the *KSR* standard of obviousness to the findings of fact, we agree with the Examiner that an ordinary artisan would have reasonably found it obvious to incorporate the variable direction-of-operation feature of the endoscopic instrument of Hale into Mizuno's endoscopic instrument "in order to provide an intuitive and versatile movement means that does not require movement of the scope within the cavity. It is well understood that movement of the scope within the cavity adds to the risk of the patient being injured or burned" (Ans. 6-7). Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

Appellants contend that the "Office Action provides no reason why one would be motivated to change Minuzo [sic] to employ a mechanism for pivoting the view vector without requiring the movement of the scope within the cavity" (App. Br. 9). Appellants contend that "Minuzo [sic] does not describe a small endoscope for performing a minimally invasive diagnostic procedure. Rather, it employs a medical device for performing surgery, of which the endoscope is a small part" (App. Br. 9).

We are not persuaded. The Examiner has identified a specific reason to combine, which is to reduce the risk of inappropriate motion of the endoscope during surgery (see Ans. 6-7). In addition, while we are fully aware that hindsight bias often plagues determinations of obviousness,

Graham v. John Deere Co., 383 U.S. 1, 36 (1966), we are also mindful that the Supreme Court has clearly stated that the "if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill" *KSR*, 550 U.S. at 417.

That is precisely the rejection at issue here. Hale expressly teaches an improvement which "provides the user with integrated intuitive control of multiple degrees of freedom of an endoscopic instrument, an effective and intuitive representation of the direction and orientation of the working vector of an endoscopic instrument, and a better understanding of the overall spatial configuration of the instrument" (Hale, col. 6, ll. 22-27; FF 12). An ordinary artisan, taught by Hale of a endoscopic device which provides greater degrees of freedom for visualization and movement (FF 10, 12), would have reasonably applied this improvement to other endoscopic instruments including the endoscopic instrument of Mizuno.

Appellants contend that to "suggest that it would be obvious to employ the claimed method when it would require a complete design of Minuzo's [sic] scope (105) is improper" (App. Br. 10). Appellants contend that "it is unclear how one even could make the suggested substitution" (App. Br. 12).

We are not persuaded. While Appellants contend that a substantial redesign would be required, the evidence of record demonstrates that the only required changes to the Mizuno device would be the incorporation of the handle and pointer system, and gears and disk system of Hale into the

Mizuno device (FF 9-11). As the Examiner explains, "there is nothing extraordinary about Mizuno's 'scope 105'" (Ans. 11). The Examiner finds that "[w]hen the physician moves his head, for example, 15° to the left, the 'scope 105' physically deflects to the left until the direction of view has changed by 15°. VDOV endoscopes (like the one disclosed by Hale) are equally capable of effecting a 15° view vector adjustment" (Ans. 11). This combination results in no change in the basic principles of operation of either of the cited references, but instead represents "the predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

Conclusion of Law

The evidence of record supports the Examiner's conclusion that Mizuno and Hale render obvious the method of claim 1.

SUMMARY

In summary, we affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as obvious over Mizuno and Hale. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claim 7, as the claim was not argued separately.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

lp