



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.
14/774,810	09/11/2015	Stuart Ogle	1576-1276	5653
10800	7590	12/23/2019	EXAMINER	
Maginot, Moore & Beck LLP One Indiana Square, Suite 2200 Indianapolis, IN 46204			LONG, ROBERT FRANKLIN	
			ART UNIT	PAPER NUMBER
			3731	
			MAIL DATE	DELIVERY MODE
			12/23/2019	PAPER

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STUART OGLE and HSIU-KAI LIAO

Appeal 2019-003284
Application 14/774,810
Technology Center 3700

Before JENNIFER D. BAHR, LINDA E. HORNER, and LEE L. STEPINA,
Administrative Patent Judges.

BAHR, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–18. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Robert Bosch Tool Corporation and Robert Bosch GmbH. Appeal Br. 2.

CLAIMED SUBJECT MATTER

Appellant's invention is directed to "power tools and in particular to mechanisms for controlling the speed of a rotary power tool output shaft." Spec. ¶ 2. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. A power tool comprising:
 - a housing defining a longitudinal axis and having a nose portion;
 - a variable speed motor enclosed within the housing and including an output member that extends from the nose portion of the housing parallel to the longitudinal axis, the variable speed motor being configured to receive a speed control signal and to drive the output member at different drive speeds depending on a parameter of the speed control signal;
 - a speed signal generator configured to generate the speed control signal;
 - a power circuit that connects the speed signal generator to a power source; and
 - a slide switch slidably supported on the housing and being operably connected to the power circuit, the slide switch being slidable between a first position and a second position in relation to the housing and being configured to output a variable selection signal having a value that depends on a location of the slide switch in relation to the first and the second positions,
 - wherein the speed signal generator is coupled to receive the selection signal from the slide switch and to generate the speed control signal such that the parameter of the speed control signal depends on the value of the selection signal,
 - wherein, when the slide switch is in the first position, the slide switch opens the power circuit and cuts off power to the speed signal generator,
 - wherein, when the slide switch is moved from the first position toward the second position, the power circuit is closed and power is supplied to the speed signal generator.

EVIDENCE

The prior art relied upon by the Examiner is:

Name	Reference	Date
Hirschburger	US 6,380,502 B1	Apr. 30, 2002
Kawano	US 2012/0024552 A1	Feb. 2, 2012
Takano ²	EP 2 039 479 A1	Mar. 25, 2009

REJECTIONS

Claims 1, 2, 11, and 12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Takano and Hirschburger.

Claims 3–10 and 13–18 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Takano, Hirschburger, and Kawano.

OPINION

Obviousness Based on Takano and Hirschburger (Claims 1, 2, 11, and 12)
Claims 1 and 2

Independent claim 1 recites a power tool comprising, in pertinent part, “a speed signal generator”; “a power circuit that connects the speed signal generator to a power source; and a slide switch” that is “slidable between a first position and a second position . . . and . . . configured to output a variable selection signal having a value that depends on a location of the slide switch in relation to the first and the second positions” and that, when in the first position, “opens the power circuit and cuts off power to the speed signal generator, wherein, when the slide switch is moved from the first

² Although the first named inventor on this European patent application is Shinji Watabe, the Examiner and Appellant refer to this reference as “Takano” (the third named inventor). *See, e.g.*, Final Act. 3, 6; Appeal Br. 4. Thus, we do likewise herein for convenience.

position toward the second position, the power circuit is closed and power is supplied to the speed signal generator.” Appeal Br. 12 (Claims App.).

The Examiner found that Takano discloses a power tool comprising, in relevant part, a speed signal generator (driving signal generating section 19), a power circuit (control section 9 and inverter driving circuit 18), and a slide switch (trigger switch 8) configured to output a variable selection signal having a value that depends on a location of the slide switch in relation to the first and second positions. Final Act. 3. The Examiner also found that main contact 8b of Takano’s trigger switch 8 “is an on/off switch” and outputs “a signal(ON/OFF signal) designating ON/OFF of the motor(3).” *Id.* at 4. However, the Examiner found,

Takano fails to disclose when the slide switch is in the first position, the slide switch opens the power circuit and cuts off power to the motor, and wherein, when the slide switch is moved from the first position toward the second position, the power circuit is closed and power is supplied to the motor.

Id.

The Examiner found that Hirschburger teaches a hand tool with a slide switch (switch 16 and switch lever 22) that moves from a first position to a second position and opens the power circuit, cutting off power to the motor, when the slide switch is in the first position, wherein the power circuit is closed, supplying power to the motor, when the slide switch is in the second position. Final Act. 5. The Examiner determined it would have been obvious

to modify Takano's trigger switch or include another slide switch to have the slide switch or trigger that when is in the first position, the slide switch opens the power circuit and cuts off power to the motor, and wherein, when the slide switch is

moved from the first position toward the second position, the power circuit is closed and power is supplied to the motor and a signal generator for improved control and as taught by Hirschburger . . . provides different resistance levels/signals depending on the amount the trigger is slid/squeezed as taught by Takano.

Id.

For the reasons explained by Appellant on pages 6–7 of the Appeal Brief and pages 2–4 of the Reply Brief, Takano’s trigger switch 8 does not open and/or close a power circuit that connects the speed signal generator (i.e., driving signal generating section 19) to a power source. In particular, Takano discloses that “[a]n operator turns on an unillustrated main switch,” which “causes power for driving the control section 9 to be supplied thereto and the control section 9 starts the operations shown in Fig[ure] 5.” Takano ¶ 45. As illustrated in Figure 2 of Takano, driving signal generating section 19 is part of control section 9. *See id.* ¶ 37 (disclosing that control section 9 includes driving signal generating section 19, inverter driving circuit 18, stroke detecting section 20, applying voltage setting section 21, trigger operation presence/absence detecting section 22, etc.). Thus, the “unillustrated main switch” (not trigger switch 8) opens or closes the power circuit that connects driving signal generating section 19 to the power source.

Takano’s trigger switch 8 includes main contact 8b, which is in an OFF state until operation section 8A of trigger switch 8 is depressed to a stroke distance of at least L1. Takano ¶ 45; *see id.*, Fig. 3. In the OFF state, voltage V_{sw} output from main contact 8b is high, and the determination result at step S11 in Figure 5 is “No.” *Id.* ¶ 45. When the operator depresses operation section 8A to a stroke distance of at least L1, main contact 8b is

turned ON and voltage V_{sw} output from main contact 8b switches to low, thereby causing the determination result at step S11 to be “Yes.” *Id.*; *see id.*, Figs. 3, 5. When driving signal generating section 19 receives a signal from trigger operation presence/absence detecting section 22 that voltage V_{sw} is low, driving signal generating section 19 supplies switching signals to switching elements to power motor 3. *Id.* ¶ 45; *see id.*, Fig. 5 (steps S12, S13).

If, at some point, it is determined that voltage V_{sw} is high (i.e., a “Yes” determination result at step S14 in Figure 5), which may happen as a result of the operator removing his/her hand from operation section 8A or as a result of vibration or noise, for example, Takano’s control section 9 makes a determination whether or not voltage V_{vr} output from speed contact 8a of trigger switch 8 is lower than a threshold voltage (step S15 in Figure 5). Takano ¶¶ 6, 46. If the determination result at step S15 is “Yes,” Takano’s control section 9 interprets this to mean the operator has truly removed his/her hand from operation section 8A, and driving signal generating section 19 sets switching signals H1 to H6 to a low level, thereby stopping the supply of power to motor 3 (step S16 in Figure 5). *Id.* ¶ 47. If, on the other hand, the determination result at step S15 is “No,” Takano’s control section 9 determines whether or not voltage V_{sw} remains high for TA seconds (step S17 of Figure 5). *Id.* ¶ 48. If the determination result at step S17 is “Yes,” Takano’s control section 9 interprets this to mean the operator’s hand has truly been removed from operation section 8A, and stops supply of power to motor 3 and applies brake 31 (step S16 in Figure 5). *Id.* If the determination at step S17 is “No,” Takano’s control section 9 interprets this to mean that an erroneous detection of V_{sw} being high was

made at step S14, and control goes to step S13, meaning that motor 3 continues operating as it is. *Id.* ¶ 49.

It is clear from the above discussion of Takano's operation, particularly the discussion of steps S14, S15, and S17, that control section 9 must be able to detect whether or not main contact 8b is in the OFF position, and driving signal generating section 19 must supply switching signals H1 to H6 in accordance with this determination, even if operation section 8A of trigger switch 8 is in the first position (not depressed to at least a stroke distance of L1) and main contact 8b is in the OFF state. Thus, Takano's trigger switch 8 (on which the Examiner reads the claimed "slide switch") does not open a power circuit between driving signal generating section 19 (on which the Examiner reads the claimed "speed signal generator") and the power source and cut off power to driving signal generating section 19 when trigger switch 8 is in the first position, as required in claim 1. *See* Reply Br. 3 (arguing that because "control section 9 can detect when the trigger is in the OFF position and perform actions while the trigger is in the OFF position, the trigger 8 clearly does not open and close a power circuit to the control section 9").

Hirschburger teaches a hand tool having a slide switch mechanism comprising carrier plate 24 and wiper arms 42 that appears to operate in a similar manner to speed contact 8a of Takano's trigger switch 8, in that each switch outputs a level of voltage to be applied to the motor based on the position of the slide switch. *See, e.g.*, Hirschburger 3:11–13; 4:2–10, 32–38; Takano ¶¶ 38, 45. Appellant argues, persuasively,

[b]ased on the combined teachings of Takano and Hirschburger, a person of ordinary skill in the art is taught *at most* to replace the trigger 8 of Takano with a slide switch as

taught by Hirschburger to generate a variable selection signal for a speed signal generator while maintaining a separate “main switch” as taught by Takano for controlling power to the speed signal generator.

Appeal Br. 8.

It is not apparent, and the Examiner does not explain with sufficient clarity and specificity, why a person having ordinary skill in the art would have been prompted to combine the teachings of Takano and Hirschburger in a manner that would result in a slide switch that is “slidable between a first position and a second position . . . and . . . configured to output a variable selection signal having a value that depends on a location of the slide switch in relation to the first and the second positions” and that, when in the first position, “opens the power circuit and cuts off power to the speed signal generator, wherein, when the slide switch is moved from the first position toward the second position, the power circuit is closed and power is supplied to the speed signal generator,” as recited in claim 1. Accordingly, we do not sustain the rejection of claim 1, or claim 2, which depends from claim 1, as unpatentable over Takano and Hirschburger.

Claims 11 and 12

Independent claim 11 requires a “slide switch including a first circuit and a second circuit,” and recites steps of “moving [the] slide switch . . . from a first position toward a second position,” “connecting power to a speed signal generator via the first circuit when the slide switch moves away from the first position,” and “outputting a speed selection signal to the speed signal generator via the second circuit . . . with a value dependent upon a position of the slide switch in relation to the first and second positions.”

Appeal Br. 14–15 (Claims App.).

Takano's trigger switch 8 includes a second circuit (speed contact 8a) that outputs a speed selection signal (Vvr) to driving signal generating section 19 with a value dependent upon a position of operation section 8A of trigger switch 8. *See, e.g.*, Takano ¶¶ 38, 45. However, as discussed above, Takano's trigger switch 8 does not include a first circuit via which power is connected to driving signal generating section 19 when operation section 8A of trigger switch 8 moves away from a first position. Further, for the reasons set forth above, it is not apparent, and the Examiner does not explain with sufficient clarity and specificity, why a person having ordinary skill in the art would have been prompted to combine the teachings of Takano and Hirschburger in a manner resulting in a slide switch including both first and second circuits that operate as recited in claim 11. Accordingly, we do not sustain the rejection of claim 11, or claim 12, which depends from claim 11, as unpatentable over Takano and Hirschburger.

*Obviousness Based on Takano, Hirschburger, and Kawano
(Claims 3–10 and 13–18)*

The Examiner's application of Kawano in rejecting claims 3–10, which depend from claim 1, and claims 13–18, which depend from claim 11, does not make up for the aforementioned deficiency in the combination of Takano and Hirschburger. *See* Final Act. 7–10. Accordingly, we do not sustain the rejection of claims 3–10 and 13–18 as unpatentable over Takano, Hirschburger, and Kawano.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 11, 12	103(a)	Takano, Hirschburger		1, 2, 11, 12
3–10, 13–18	103(a)	Takano, Hirschburger, Kawano		3–10, 13–18
Overall Outcome				1–18

REVERSED