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NORTON ROSE FULBRIGHT US LLP 1301 Avenue of the Americas NEW YORK, NY 10019-6022			BOECKMANN, JASON J	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* AMOS ALBERT, ANDREAS MICHAELS,  
CHRISTIAN GLUNK, and SIMON BOECK

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Appeal 2019-005271  
Application 15/576,047  
Technology Center 3700

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Before: JOHN C. KERINS, DANIEL S. SONG, and WILLIAM A. CAPP,  
*Administrative Patent Judges.*

CAPP, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant<sup>1</sup> seeks our review under 35 U.S.C. § 134(a) of the final rejection of claims 14, and 16–31. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Robert Bosch GmbH as the Applicant and real party in interest. Appeal Br. 2.

## THE INVENTION

Appellant's invention relates to weed control. Spec. 1. Claim 14, reproduced below, is illustrative of the subject matter on appeal.

14. A device for damaging weed, comprising:  
a pressure-conveyance unit designed to convey a fluid under pressure;  
a fluid-dispensing unit which is fluidically connected to the pressure-conveyance unit and is developed to dispense the pressurized fluid to the weed in order to damage it, the fluid-dispensing unit having at least one valve that includes one of: (i) a piezoactuator, (ii) an electroactive polymer actuator, or (iii) a magnetoresistive actuator;

wherein the pressure-conveyance unit is developed to convey the fluid to the fluid-dispensing unit under such a high pressure that the weed is damaged due to kinetic energy of the fluid dispensed by the fluid-dispensing unit, the fluid-dispensing unit dispensing to the weed the fluid in a pulsed manner and under the high pressure to damage the weed.

## THE REJECTIONS

The Examiner relies upon the following as evidence in support of the rejections:

NAME	REFERENCE	DATE
Ballu	US 2013/0233940 A1	Sept. 12, 2013
Clearwater <sup>2</sup>	Non-Patent Literature	May 7, 2014

The following rejections are before us for review:

1. Claims 14 and 17–26 are rejected under 35 U.S.C. § 102(a)(1) as anticipated by Ballu.

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<sup>2</sup> *Weed Removal With A Pressure Washer?* Pressure Washing Clearwater. <https://www.pressurewashingclearwater.com/blog/weed-removal-with-a-pressure-washer>

2. Claims 14 and 16–30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ballu and Clearwater.

3. Claim 31 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ballu.

## OPINION

### *Anticipation of Claims 14, and 17–26 by Ballu*

#### *Claims 14 and 17–22*

The Examiner finds that Ballu discloses each and every limitation of claim 14. Final Act. 2–3. In particular, the Examiner finds that fluid is dispensed under such high pressure that weeds are damaged by kinetic energy. *Id.* at 2. The Examiner further finds that Ballu dispenses fluid in a pulsed manner. *Id.* at 2–3.

Appellant argues that Ballu fails to dispense liquid in a pulsed manner. Appeal Br. 4. Appellant argues that the Examiner’s reliance on paragraph 67 of Ballu is misplaced as such paragraph merely refers to electrical pulses used in controlling injectors 21. *Id.* Appellant further argues that Ballu does not dispense fluid under high pressure as claimed. Appeal Br. 5. According to Appellant, Ballu sprays plants, but does not mention how powerfully or gently the nozzle sprays the plants. *Id.*

The Examiner responds by stating that fluid exits nozzle 1 in a pulsed manner. Ans. 3. According to the Examiner, this follows from the fact that injectors 21 inject fluid into body 3, which is directly connected to nozzle 1. *Id.* The Examiner further notes that there are no valves or blockages between the injectors 21 and nozzle 1. *Id.*

Another way to look at it is to consider body 3 and nozzle 1 to be part of the injector. Since *there is nothing in the flow path*

between 21 and nozzle 1, body 3 and nozzle 1 can be considered an extension of the injector 21. Fluid injected by injector 21 in a pulsed manner will exit nozzle 1 in a pulsed manner, directly onto a plant or weed.

*Id.* at 3–4 (emphasis added).

With respect to the high pressure issue, the Examiner notes that the term “damage” is very broad and that some weeds are quite fragile and easily damaged. *Id.* For example, the Examiner states that fluid exiting nozzle 1 of Ballu will damage a dandelion by separating its white seeds. *Id.*

Ballu is directed to a spraying system. Ballu, Abstract. Ballu’s system features active substance injectors 21 disposed upstream from fluid dispensing spray nozzles 1. *Id.* ¶¶ 15–16. This design makes it possible to incorporate the active substance, such as a fertilizer or herbicide, just before the actual spraying of the liquid. *Id.* ¶ 17. This allows adjustment of the dosing of the active substance. *Id.* ¶ 18.

Ballu features body 3 interposed between injectors 21 and nozzle 1. *Id.* Fig. 1. Body 3 is adapted to mix the liquid to be sprayed with the active substance. *Id.* ¶¶ 43, 71. Contrary to the Examiner’s findings that “*there is nothing in the flow path*” between injectors 21 and nozzle 1 (Ans. 3–4), body 3 is equipped with a static mixer, baffles, or propellers. *Id.* ¶ 43. Body 3 is in fluid communication with primary conduit 7. *Id.* ¶ 59. Injectors 21 are in fluid communication with secondary conduits 23. *Id.* Means for creating turbulence are provided in body 3 to facilitate mixing between the liquid to be sprayed and the active substance leaving injectors 21. *Id.* ¶ 60. Ballu also features means such as valves or membrane regulators to maintain the sprayed liquid at constant pressure. *Id.* ¶ 65. Ballu regulates the flow rate of active substance in each secondary

conduit 23 using regulators or valves. *Id.* ¶ 66. One manner that may be used to regulate the flow rate of the active substance is by using electrical pulses, in a discrete variation mode, in injectors 21. *Id.* ¶¶ 67, 73.

In operation, Ballu places a liquid to be sprayed into primary vat 5. *Id.* ¶ 74. Primary pump 13 sends the liquid to be sprayed into bodies 3 distributed on ramp 9, thereby allowing liquid to be sprayed by nozzles 1. *Id.* ¶ 75. Although injectors 21 regulate the quantity of active substance dispensed per unit area, pump 13 is kept at a constant pressure. *Id.* ¶ 77.

Having read and considered the teachings of Ballu, we find no underlying factual basis to support the Examiner's position that Ballu sprays at high pressure to damage weeds. Indeed, the same system that Ballu uses to disperse herbicide is also used to disperse fertilizer. *Id.* ¶¶ 68, 74. We view dispersing fertilizer as promoting the health of plants, not trying to damage them with kinetic energy. To the extent that Ballu operates to kill weeds, it appears to do so chemically, not through the mechanical force of kinetic energy.

In like manner, we find no underlying factual basis to support the Examiner's position that Ballu dispenses fluid in a pulsed manner. As we understand Ballu, constant spray pressure is generated by primary pump 13 and maintained at constant pressure by means described in paragraph 65. *Id.* ¶¶ 46, 65, Fig. 1. Injectors 21, which are relied on by the Examiner as providing pulsing, merely inject active substance into body 3 for mixing with fluid from primary conduit 7. Furthermore, because body 3 is equipped with a static mixer, baffles, propellers and other means for creating turbulence to facilitate mixing between the active substance leaving injectors 21 and entering body 3 (see *id.* ¶ 43, 60), and the liquid to be

sprayed from primary conduit 7, we are not persuaded that pulsing from injectors 21, if any, would cause pulsing at nozzle 1 when the fluid is dispensed after such mixing.

As an alternative explanation, the Examiner states that Ballu can be operated in a pulsed manner by repeatedly turning the device on and off.

Ans. 4. This alternative explanation lacks sufficient merit to warrant further consideration.

For a prior art reference to anticipate a claim, it must disclose all of the limitations of the claim, “arranged or combined in the same way as in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008). The Examiner errs in finding that Ballu anticipates claim 14.

We do not sustain the Examiner’s anticipation rejection of claim 14, neither do we sustain the rejection of claims 17–22 that depend therefrom.

#### *Claims 23 and 24*

Claim 23 is an independent claim that is substantially similar in scope to claim 14. Claims App. As with claim 14, claim 23 contains limitations directed to high pressure spray dispensed in a pulsed manner. *Id.* Claim 24 depends from claim 23. *Id.*

The Examiner’s rejection of these claims suffers from the same infirmities that were identified above with respect to claim 14. Thus, for essentially the same reasons expressed above in connection with claim 14, we do not sustain the rejection of claims 23 and 24.

#### *Claims 25 and 26*

Claims 25 and 26 are independent method claims. Claims App. As with claim 14, claims 25 and 26 contain limitations directed to high pressure spray dispensed in a pulsed manner. *Id.* The Examiner’s rejection of these

claims suffers from the same infirmities that were identified above with respect to claim 14, such that we do not sustain the rejection of claims 25 and 26.

*Unpatentability of Claims 14 and 16–30  
over Ballu and Clearwater*

The Examiner finds that Ballu discloses “all aspects” of the claimed invention except for an exit velocity that is greater than or equal to 60 m/s and a kinetic energy that is greater than or equal to 0.03 J. Final Act. 5. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ballu to increase the velocity of sprayed fluid. *Id.* According to the Examiner, a person of ordinary skill in the art would have done this to kill weeds. *Id.*

The Examiner’s factual findings and conclusion of unpatentability are not supported by the record before us, among other things, because Ballu does not teach pulsed spraying as previously discussed in connection with the anticipation rejection of claim 14. Furthermore, we are not persuaded that a person of ordinary skill in the art would modify a sprayer that is gentle enough to disperse fertilizer, such as Ballu, and cause it to spray with a high kinetic energy, pulsed spray. Among other things, a person of ordinary skill in the art would have to modify the broadly dispersed spray pattern of Ballu and greatly concentrate the spray to cover only a narrow area, and likely increase fluid pressures, to generate sufficient kinetic energy to damage weeds. There is no indication in the references themselves or from the Examiner’s reasoning and analysis that would support such a modification or a motivation to do so.

We do not sustain the Examiner’s unpatentability rejection of claims 14 and 16–30 over Ballu and Clearwater.

*Unpatentability of Claim 31  
Over Ballu*

The Examiner finds that Ballu teaches “all aspects” of the invention except for pulses being between 0.1 ms and 0.2 ms. Final Act. 5. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to set the pulse times within the claimed limits. *Id.* According to the Examiner, a person of ordinary skill in the art would have done this to optimize the amount of fluid being sprayed. *Id.*

The Examiner’s factual findings and legal conclusion of unpatentability are in error for reasons previously discussed with respect to the anticipation and unpatentability rejections of claim 14. For essentially the same reasons, we do not sustain the Examiner’s unpatentability rejection of claim 31.

CONCLUSION

<b>Claims Rejected</b>	<b>§</b>	<b>Reference(s)</b>	<b>Aff’d</b>	<b>Rev’d</b>
14, 17-26	102	Ballu		14, 17-26
14, 16-30	103	Ballu, Clearwater		14, 16-30
31	103	Ballu		31
<b>Overall Outcome</b>				14, 16-31

REVERSED