

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re Application of Scott Andrews

Application: 18/429,221

Filed: January 31, 2024

**A POWDER COATING  
COMPOSITION SYSTEM AND  
PROCESS**

**AMENDMENTS AND REMARKS**

**IN RESPONSE TO 08/27/2025 OFFICE ACTION**

The applicant has fully considered the office action dated August 27, 2025. The present response is intended to be fully responsive.

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## CLAIMS

15. (Currently Amended) A system for fabricating a colored powder coating composition from a solid input filament, the system comprising:  
an electronic fabricator controller connected by at least one bus to a filament feeder and a filament mixer;  
~~a filament feeder comprised of a filament driver;~~  
[a] the filament mixer having comprised of comprising,  
a housing with an interior mixing chamber,  
a filament inlet in the housing for receiving into the mixing chamber a solid input filament from the filament feeder,  
an accessory port for receiving into the mixing chamber a functional input component,  
a heating element,  
a mixing mechanism in the mixing chamber,  
and a nozzle opening in the housing;  
~~joined through an inlet channel in a mixing chamber housing to an interior mixing chamber;~~  
~~the mixing chamber housing having an accessory port;~~  
~~said mixing chamber housing having a heating element and an extrudate channel between said interior mixing chamber and a nozzle opening;~~  
~~a mixing mechanism within said mixing chamber;~~  
an extrudate receiving platform for receiving an extrudate from the nozzle opening; and  
an extrudate powder mill for receiving the extrudate from the extrudate receiving platform and milling the extrudate.; and

~~an electronic fabricator controller having a fabricator processor, a fabricator memory, and a fabricator bus.~~

16. (Original)                    The system for fabricating a colored powder coating composition from a solid input filament of claim 15, further comprising a component vessel connected to the accessory port.

17. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 16, ~~further~~ ~~comprises~~ wherein the component vessel ~~having~~ has a metering mechanism.

18. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 17, ~~further~~ ~~comprises~~ wherein the metering mechanism is a valve associated with a flow meter sensor.

19. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 18, ~~further~~ ~~comprises~~ wherein the fabricator controller ~~electronically is~~ is connected by a bus to the flow meter sensor.

20. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 16, ~~further~~ ~~comprises~~ wherein the component vessel ~~containing~~ contains a functional input component under pressure.

21. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 20, further ~~comprises~~ comprising a pump generating the pressure ~~the component vessel containing a functional input component under pressure generated by a pump.~~

22. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 20, further ~~comprises~~ comprising the component vessel containing a functional input component under pressure generated by a propellant ingredient of the component vessel generating the pressure.

23. (Currently Amended)            The system for fabricating a colored powder coating composition from a solid input filament of claim 16, further ~~comprises~~ wherein the component vessel is removably connected to the accessory port.

## THE SPECIFICATION

Please replace paragraph 0051 of the specification with the following paragraph:

It is contemplated that a user of the system of the present invention will enter the desired weight of powder coating composition **70** to be fabricated into computer station **50** (e.g. through a mouse and/or keyboard). The data of the desired weight will be communicated to fabricator controller **40** which will use this data to determine from the instances of input formulation data object **540** and filament information data objects **550** received what the total quantity of each input filament **10** to be used must be. Fabricator controller **40** will also determine from the input formulation data object the rate that each input filament **10** must be fed into filament mixer **200** to maintain the correct ratio of input filaments in the extrudate mixture to achieve the desired color. Fabricator controller **40** will also determine the total time to feed the input filaments into the filament mixer **200** to obtain the desired weight of end-product. Fabricator controller **40** may also determine from the instances of input formulation data object **540** and filament information data objects **550** received other operational parameters for mixing mechanism **210** (e.g., pattern and/or rotational speed), active cooling mechanism fans **140a** and **140b** (rotational speed), interior mixing chamber **82 [240]** (e.g. temperature), extrudate receiving service **90** (e.g. movement direction and speed, temperature), and extrudate mill **150**. Fabricator controller **40** will communicate (send and/or receive) power, control, and/or data signals with the other system components over various system controller buses, such as is shown in **FIG 2** for example: Bus **41** (input bus), bus **42** (mixer bus), bus **43** (cooling bus), bus **44** (feeder bus), bus **46** (heating bus), bus **47** (temperature bus), bus **48** (receiving platform bus), and bus **49** (milling bus).

**THE DRAWINGS**

Please replace drawing sheet 2 and drawing sheet 5 with the corresponding replacement drawing sheets being submitted.

## **REMARKS**

In response to the office action the applicant hereby submits amendments to claims 15, and 17-23. Applicant also submits replacement sheets for sheets 2 and 5 of the drawings with amendments made to FIG 2 and FIG 7 (the addition of a line to reference numeral 240 in each figure). Applicant also submits a replacement for paragraph 0051 of the specification.

No new matter is added by the amendments. Entry of the amendments and consideration of the remarks below is respectfully requested.

### **I. The Drawings & Specification Objection Have Been Addressed**

It is believed that the amendments to the drawings and specification have fully addressed or rendered moot the objections to the drawings and specification. Specifically, the applicant has submitted replacement sheets for sheets 2 and 5. A line associating reference numeral 240 with a structure depicted in figure 2 and figure 7 has been added. A replacement for paragraph 0051 is also submitted herewith where the correct reference numeral 82 for the interior mixing chamber is added with the incorrect reference numeral 240 being deleted.

### **II. Means-Plus-Function Claim Interpretation Does Not Apply**

The applicant objects to a “means-plus-function” interpretation of the pending claims by the examiner under 35 U.S.C. §112 ¶ 6. As the office action concedes nowhere in the claims is there any element where the applicant has used the word “means”. Accordingly, there is a strong rebuttable presumption that 35 U.S.C. §112 ¶ 6 does not apply. See e.g. *Samsung Electronics America v. Prisia Engineering* 948 F.3d 1342,1353-54 (Fed. Cir. 2020). See also *Inventio AG v. ThyssenKrupp Elevator Americas Corp.* 649 F.3d 1350, 1356

(Fed. Cir. 2011) (“[T]he presumption flowing from the absence of the term "means" is a strong one that is not readily overcome.”)

The presumption that 35 U.S.C. §112 ¶ 6 does not apply is certainly not rebutted by the examiner simply pointing out that a claim element incorporates an allegedly functional term in its lexicography. The existence of functional language does not alone suffice to establish a means-plus-function interpretation: “[F]unctional language may be employed [] to limit the claims without using the means-plus-function format.” *Mastermine Software Inc. v. Microsoft Corp.* 874 F.3d 1307, 1313 (Fed. Cir. 2017).

We agree with Samsung that the term "digital processing unit" is not a "means-plus-function" limitation subject to analysis under section 112, paragraph 6. Because the reference to the digital processing unit does not contain the words "means for," there is a rebuttable presumption that section 112, paragraph 6, does not apply to that limitation. *Williamson*, 792 F.3d at 1348. That presumption can be overcome, but only "if the challenger demonstrates that the claim term fails to `recite sufficiently definite structure' or else recites `function without reciting sufficient structure for performing that function.'" *Id.* at 1349.

The question whether the term "digital processing unit" invokes section 112, paragraph 6, depends on whether persons skilled in the art would understand the claim language to refer to structure, assessed in light of the presumption that flows from the drafter's choice not to employ the word "means." The Board pointed to **no evidence that a person skilled in the relevant art would regard the term "digital**

**processing unit" as purely functional.** In fact, Prisia argued to the Board, based on testimony from its expert (the inventor), that the digital processing unit recited in the claims is "an image processing device that people in the art are generally familiar with." J.A. 896. As used in the claims of the '591 patent, the term "digital processing unit" clearly serves as a stand-in for a "general purpose computer" or a "central processing unit," each of which would be understood as a reference to structure in this case, not simply any device that can perform a particular function.

*Samsung Electronics America v. Prisia Engineering* 948 F.3d 1342,1353-54 (Fed. Cir. 2020) (emphasis added)

[T]he words of a claim "are generally given their ordinary and customary meaning." . . . We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application. . . . Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, **but in the context of the entire patent, including the specification**. . . . "We cannot look at the ordinary meaning of the term ... in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."

*Phillips v. AWH Corp.* 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (emphasis added). See also *Inventio AG v. ThyssenKrupp Elevator Americas Corp.* 649 F.3d

1350, 1357 (Fed. Cir. 2011) (“[I]t is proper to consult the intrinsic record, including the written description, when determining if a challenger has rebutted the presumption that a claim lacking the term "means" recites sufficiently definite structure.”)

It is respectfully submitted that each of the claim terms identified in the office action would readily be understood by a person of ordinary skill in the art when read by them “in the context of the entire patent, including the specification” to be referencing a definite structure, not simply a means for performing a function. More importantly, applicant does not bear the burden of proving that this is so when the applicant has not used “means” language in the claims: It is the examiner’s heavy burden to present actual evidence that shows otherwise, and the examiner has presented no such evidence.

a. A “Filament Driver” Is Structural, Not Means-Plus-Function

With respect to the claim term “filament driver” the examiner concedes that this term does not use the word means but asserts that it uses a generic placeholder coupled with functional language without reciting sufficient structure to perform the recited function. The examiner’s assertion is incorrect.

“[T]he essential inquiry is not merely the presence or absence of the word ‘means,’ but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. [citation omitted]. “What is important is ... that the term, as the name for structure, has a reasonably well understood meaning in the art.”

*DYFAN, LLC v. Target Corp.*, 28 F. 4th 1360, 1365 (Fed. Cir. 2022)

Claim terms "need not connote a single, specific structure," and may instead "describe a class of structures" and still recite "sufficiently definite structure" to not invoke § 112 ¶ 6. Apple, 757 F.3d at 1300. In *Apple*, we explained that structure can be recited in various ways, including through the use of "a claim term with a structural definition that is either provided in the specification or generally known in the art," or a description of the claim limitation's operation and "how the function is achieved in the context of the invention." . . . In cases where it is clear that a claim term itself connotes some structure to a person of ordinary skill in the art, "the presumption that § 112, ¶ 6 does not apply is determinative" in the absence of "more compelling evidence of the understanding of one of ordinary skill in the art."

*Id.* at 1366

The term "filament driver" is not a generic placeholder. The term would be understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for a device "that can physically move an input polymer filament in a controlled manner into filament mixer". See ¶¶ 0054-0056 of the specification. The term is also one familiar to those skilled in the art. See e.g., Exhibit A - *Constant pressure filament driver for extruder heads in three-dimensional object printers*, U.S. patent 10,682,796 Mandel et. al. See also Exhibit B - *The Filament Drive Mechanism of Your 3D Printer's Thermoplastic Extruder*, 3D Printing For Dummies, Hausman &

Horne 2017 available at (<https://www.dummies.com/article/technology/programming-web-design/3d-printing/filament-drive-mechanism-3d-printers-thermoplastic-extruder-244602/>). See also Exhibit C - *Double Geared Filament Driver X 1.75 mm* available for sale from WASP (<https://www.3dwasp.shop/en/prodotto/double-geared-filament-driver-x-1-75-mm/>). Accordingly, the strong presumption that §112 ¶ 6 does *not* apply to the term “filament driver” is determinative. *DYFAN, LLC v. Target Corp.*, 28 F. 4th 1360, 1366 (Fed. Cir. 2022).

b. A “Filament Mixer” Is Structural, Not Means-Plus-Function

The term “filament mixer” does not use the word “means” and is also not a generic placeholder. First, the term “filament mixer” in the claims as amended is expressly claimed as comprising several clearly defined structural elements. Second, the term “filament mixer” would be clearly understood by persons of ordinary skill in the art, in light of the specification, to have a sufficiently definite meaning of being a mixing device for receiving and combining input filaments. See e.g., ¶¶ 0016, 0051, 0054, 0069, 0070, and FIGS 2 & 4.

First, the fact that a particular mechanism — here “detent mechanism” — is defined in functional terms is not sufficient to convert a claim element containing that term into a “means for performing a specified function” within the meaning of section 112(6). Many devices take their names from the functions they perform. The examples are innumerable, such as “filter,” “brake,” “clamp,” “screwdriver,” or “lock.” Indeed, several of the devices at issue in this case have names that describe

their functions, such as "graspers," "cutters," and  
"suture applicators."

*Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F. 3d 1580, 1583 (Fed. Cir. 1996)

The term “filament mixer” is exactly the type of term *Greenberg* says is structural – a noun naming a class of device by its function. See e.g., Exhibit D - Merriam Webster definition (defining a mixer as “a container, device, or machine for mixing”), <https://www.merriam-webster.com/dictionary/mixer>. So, a person of skill in the art, applying the simple ordinary meaning of the word “mixer” to the claim term “filament mixer” when read in the context of the entire claim and specification, would clearly understand the meaning of “filament mixer” to be a structural device for mixing filaments, the particular structure of which is set forth in the claim, and is described and illustrated in the specification and drawings. Accordingly, the strong presumption that §112 ¶ 6 does *not* apply to the term “filament mixer” is determinative. *DYFAN, LLC v. Target Corp.*, 28 F. 4th 1360, 1366 (Fed. Cir. 2022).

c. A “Mixing Mechanism” Is Structural, Not Means-Plus-Function

Similarly, the claim element “mixing mechanism” does not use the word “means” and is not a generic placeholder. The term would be readily understood by a person of skill in the art reading the specification and drawings to be the structure within the mixing chamber that generates the forces to combine the liquefied input filaments. See ¶ 0078. Just as with the term “detent mechanism” in *Greenberg*, it is not legally required that the term “mixing mechanism” immediately call to mind when viewed in isolation a single well-defined structure. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F. 3d 1580, 1583 (Fed. Cir. 1996). Rather, the specification must be considered when evaluating whether a term conveys structure. *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004). Here, the

specification provides detailed structural examples of the “mixing mechanism,” and the drawings depict physical components. See ¶¶ 0073, 0078, and FIGS 11-12. These disclosures demonstrate that (1) the inventor used “mixing mechanism” to identify physical mechanical components, not abstract functional results; (2) a person of skill in the art would understand what structures fall within that term; and (3) the claim term “mixing mechanism” is tied to concrete structural implementations in the disclosure—further confirming that it connotes structure. See e.g., *Inventio AG v. ThyssenKrupp Elevator Americas Corp.* 649 F.3d 1350, 1358-59 (Fed. Cir. 2011). Accordingly, the strong presumption that §112 ¶ 6 does *not* apply to the term “mixing mechanism” is determinative. *DYFAN, LLC v. Target Corp.*, 28 F. 4th 1360, 1366 (Fed. Cir. 2022). See also *Inventio AG v. ThyssenKrupp Elevator Americas Corp.*, 649 F.3d 1350, 1359–60 (Fed. Cir. 2011).

d. A “Metering Mechanism” Is Structural, Not Means-Plus-Function

The claim element “metering mechanism” does not use the word “means” and is not a generic placeholder. The term would be readily understood by a person of skill in the art reading the specification to be the structure used to control the amounts of a functional input component introduced from the component vessel into mixing chamber through the accessory port. See ¶ 0065. Just as with the term “detent mechanism” in *Greenberg*, it is not legally required that the term “metering mechanism” immediately call to mind when viewed in isolation a single well-defined structure. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F. 3d 1580, 1583 (Fed. Cir. 1996). Rather, the specification must be considered when evaluating whether a term conveys structure. *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004). Here, the specification provides a detailed structural example of the “metering mechanism” being a flow valve. See ¶¶ 0065. A person of ordinary

skill in the art would understand that a flow valve is a well-known, conventional device for controlling and regulating fluid flow. See, e.g., *Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338 (Fed. Cir. 2014); *In re Danly*, 263 F.2d 844 (CCPA 1959); *MBO Labs v. Becton, Dickinson*, 474 F.3d 1323 (Fed. Cir. 2007). Because the specification identifies the metering device as a flow valve, the term is fully supported and understood as a structural component, not merely a functional or means-plus-function element. No additional structural disclosure is required, and a person of ordinary skill in the art would readily recognize the claimed “metering device” as a structural device, such as the exemplary flow valve described.

e. A “Heating Element” Is Structural, Not Means-Plus-Function

The term “heating element” does not use the word “means” and is not a generic place holder. The term “heating element” is a well-known noun for a class of devices with a well understood ordinary meaning of being a device which converts energy, such as electricity, into heat. See e.g., Exhibit E - Merriam-Webster at <https://www.merriam-webster.com/dictionary/heating%20element>. So, a person of skill in the art would, applying the ordinary meaning of the term “heating element” to the claim term “heating element” when read in the context of the entire claim and specification, clearly understand the meaning of “heating element” to be a definite structural component of the filament mixer for producing heat. Accordingly, the strong presumption that §112 ¶ 6 does **not** apply to the term “heating element” is determinative. *DYFAN, LLC v. Target Corp.*, 28 F. 4th 1360, 1366 (Fed. Cir. 2022).

Accordingly, on this record the applicant objects to any attempt by the examiner to construe the claim elements contrary to the way they have been drafted by the applicant, which is **without** the use of means-plus-function language.

**III. The Claim Objections Have Been Addressed**

It is believed that the amendments to the claims submitted herewith have fully addressed or rendered moot the objections to the claims.

**IV. The Claims As Amended Satisfy 35 U.S.C. §112(b)**

Original claims 15–23 stand rejected under 35 U.S.C. §112(b) as being indefinite for allegedly failing to particularly point out and distinctly claim the invention.

Applicant has amended the claims, and respectfully submits that with such amendments the claims fully satisfy the requirements of 35 U.S.C. §112(b).

The Examiner asserts that certain limitations (e.g., the “electronic fabricator controller,” “fabricator processor,” “fabricator memory,” “fabricator bus,” “filament feeder,” “extrudate receiving platform,” and “extrudate powder mill”) purportedly “lie alone with no structural or functional integration” into the remaining system components. Applicant respectfully submits that, when the claims as amended are properly construed in light of the specification as a whole, the scope of the claimed invention is clear to one of ordinary skill in the art, and the claims satisfy the definiteness requirement of §112(b). Nonetheless, in the interest of furthering prosecution, and with no intention of narrowing the scope of the claims, the applicant has amended the claims to provide clarification.

It is well established that the claims must be interpreted in light of the specification and the understanding of one skilled in the art. *See, e.g., Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014); *In re Moore*, 439 F.2d 1232 (CCPA 1971); *Energizer Holdings, Inc. v. ITC*, 435 F.3d 1366 (Fed. Cir. 2006). The Federal Circuit has repeatedly held that claims must be read in light of the specification, not in isolation. “The definiteness of the language employed in a claim must be analyzed—not in a vacuum, but always in light of the teachings of the prior

art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.” *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971). “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. . . The claims do not stand alone but are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315–17 (Fed. Cir. 2005) (en banc). “A patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). In the present case, the specification expressly describes the structural and functional relationships among the claimed components such that when the claims as amended are read in light of the specification one of skill in the art would readily understand with reasonable certainty the scope of the invention.

For example, the structural and functional relationship of the “electronic fabricator controller” to the other claimed components is described in detail in the specification as determining and communicating power, control, and/or data signals with the other claimed system components to control their operation. See Specification ¶¶ 0049–0053. Likewise, the “fabricator processor,” “fabricator memory,” and “fabricator bus” are components of that same controller, providing control logic, data storage, and communication interconnects that direct operation of the mechanical subsystems. See Specification at ¶¶ 0050.

Applicant further notes that the claimed system employs conventional components - such as processors, memory, buses, drivers, feeders, mixers, and heating elements - whose basic structures and functions are well known in the art. The Federal Circuit has long held that a patent specification “need not teach, and preferably omits, what is well known in the art.” *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986); see also *Fonar Corp. v. General Electric Co.*, 107 F.3d 1543, 1549 (Fed. Cir. 1997); *In re Knowlton*, 481 F.2d 1357, 1366 (CCPA 1973). Accordingly, it is unnecessary to provide detailed structural descriptions of standard electronic components, particularly where, as here, their functions and interconnections are expressly disclosed and would be readily understood by one of ordinary skill in the art.

a. Claim 15

It is respectfully submitted that a person of ordinary skill in the art when reading claim 15 in light of the specification (¶¶0049-0053) and supporting drawings (e.g., FIG 2) would clearly understand how the claimed electronic fabricator controller and the fabricator processor, fabricator memory, and fabricator bus “tied back into” the other components of the claimed system. More specifically, a person of ordinary skill in the art would readily understand that the fabricator controller and its associated processor, memory, and bus are used, to determine and communicate “the signals used to activate, turn off, and/or control” other components of the claimed system, such as for example the claimed filament feeder component. *Id.*

A person of ordinary skill in the art when reading claim 15 in light of the specification and supporting drawings would also clearly understand how the claimed filament feeder is “tied back into” the other components as it is expressly described in the specification as being “used to move (i.e., feed) the input filaments 10 into

filament mixer **200** and is contemplated to comprise at least one filament driver **300** for each input polymer filament.” See e.g., specification ¶ 0054.

A person of ordinary skill in the art when reading claim 15 in light of the specification and supporting drawings would also clearly understand how the claimed extrudate receiving platform is “tied back into” the other components: The specification clearly describes how “The liquid extrudate mixture **70** exits extrudate channel **84** through an opening in nozzle **80** and is deposited onto an extrudate receiving platform **90** where it is solidified preferably into a substantially planar sheet.” See specification ¶ 0079.

A person of ordinary skill in the art when reading claim 15 in light of the specification and supporting drawings would also clearly understand how the claimed extrudate powder mill is “tied back into” the other components. The specification clearly describes how “The surface of extrudate receiving platform **90** that extrudate **70** is deposited onto for solidification may be moveable (e.g., a conveyer belt) under the control of fabricator controller **40** for transporting extrudate **70** either directly into extrudate mill **150** (e.g., falls off the end of conveyer platform into extrudate mill **150**) or onto/into a moveable platform or container that can be used to physically move (e.g. by hand carrying) the solidified extrudate mixture **70** to be received into extrudate mill **150**. Extrudate mixture **70** travels through extrudate mill **150** to be comminuted to final powder form.” See specification ¶ 0080.

b. Claim 17

Claim 17 has been amended to address the office action rejection.

c. Claim 18

The Applicant respectfully traverses the rejection of claim 18. When claim 18 is read in light of the specification it would be clear to a person of ordinary skill in the

art the manner in which the metering mechanism is associated with a flow sensor. The specification describes in detail how the metering mechanism is opened and closed by the fabricator controller based on feedback received by a flow sensor associated with the metering mechanism that indicates the amount of functional input component that has passed from component vessel through the metering mechanism into the mixing chamber. See ¶ 0065. A person of ordinary skill in the art would therefore readily understand that the claimed flow sensor is associated with the metering mechanism in such a manner that it can measure the amount of functional component input passing through the metering mechanism.

d. Claim 19

Claim 19 has been amended to address the office action rejection.

e. Claim 20

Claim 20 has been amended to address the office action rejection.

f. Claim 21

Claim 21 has been amended to address the office action rejection.

g. Claim 22

Claim 22 has been amended to address the office action rejection.

h. Claim 23

Claim 23 has been amended to address the office action rejection.

In view of the claim amendments and remarks it is respectfully submitted that one of ordinary skill in the art would readily understand from the specification how each recited component is integrated, both structurally and functionally, into the overall claimed system. The claims therefore do particularly point out and distinctly claim the subject matter which the inventor regards as the invention with the

reasonable certainty required under §112(b). Applicant respectfully requests withdrawal of the rejection.

**V. There Is No Support In The Office Action For The Asserted Obviousness Type Double Patenting Rejection**

The Applicant respectfully traverses the rejection of claims 19-23 under obviousness-type double patenting over U.S. patents 10,836,077; 11,69,314; and 11,904,505. The rejection is deficient because the office action does not provide a reasoned explanation as to why the claims in the instant application are obvious in view of claims of the cited earlier patents.

It is not sufficient to merely cite the three earlier patents and then provide one sentence stating only that a first of a plurality of inlet channels might be construed as corresponding with the claimed inlet channel with each additional such inlets corresponding to the claimed accessory port. This does not give the Applicant proper notice of the basis for the rejection. The Examiner must identify specific claim limitations *and* explain why a person of ordinary skill in the art would find the claimed combination obvious. See *In re Longi*, 759 F.2d 887, 892–93 (Fed. Cir. 1985); *Ex parte Fry*, 94 USPQ2d 1072, 1077 (BPAI 2010). This has not been done, and so the Applicant respectfully requests that the rejection be withdrawn.

If the Examiner maintains the rejection and provides a persuasive detailed rationale showing how particular claims of the prior patents render the instant claims obvious, including specific claim limitations and supporting reasoning, as is required, then the Applicant would be willing to file a terminal disclaimer to overcome the obviousness-type double patenting rejection, in accordance with the provisions of 37 C.F.R. § 1.321(c) and MPEP § 804.02.

**SUPPORTING EXHIBITS**

As part of, and in support of, the reply to the office action the applicant is submitting the following exhibits:

- Exhibit A - *Constant pressure filament driver for extruder heads in three-dimensional object printers*, U.S. patent 10,682,796 Mandel et. al.
- Exhibit B - *The Filament Drive Mechanism of Your 3D Printer's Thermoplastic Extruder*, 3D Printing for Dummies, Hausman & Horne 2017.
- Exhibit C - *Double Geared Filament Driver X 1.75 mm* for sale from WASP
- Exhibit D – Merriam-Webster online dictionary definition of a mixer
- Exhibit E - Merriam-Webster online dictionary definition of a heating element

**CONCLUSION**

Entry of the amendments, supporting exhibits, remarks, favorable consideration, and prompt allowance of all pending claims in the application is respectfully requested.

Date: November 24, 2025

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\_\_\_\_\_

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