Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

Subject to its express reservation of rights to supplement or amend its contentions as may be appropriate in view of discovery, further investigation, and/or the claim construction process, Plaintiff Stratasys, Inc. ("Plaintiff" or "Stratasys") provides its preliminary disclosure of asserted claims and infringement contentions to Shenzhen Tuozhu Technology Co., Ltd., Shanghai Lunkuo Technology Co., Ltd., Bambulab Limited and Tuozhu Technology Limited (collectively, "Defendants" or "Bambu Lab"), pursuant to the Court's Scheduling Order, D.I. 20; the Court's October 30, 2024 Order extending the time to comply with P.R. 3-1, 3-2, 3-3, and 3-4, D.I. 22; and P.R. 3-1. Nothing in these contentions should be interpreted as an admission or concession regarding the scope of the asserted claims.

Disclosure of Asserted Claims for U.S. Patent No. 9,168,698 ("the '698 Patent") under P.R. 3-1(a): Claims 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, and 15.

Disclosure of Accused Instrumentalities for the '698 Patent under P.R. 3-1(b): For each of the Asserted Claims, all Bambu Lab branded or manufactured three-dimensional (3-D) printers with sensors for detecting force, including but not limited to the Bambu Lab A1 and Bambu Lab A1 mini printers, alone or in combination with Bambu Lab software, such as Bambu Studio or Bambu Handy, and all Bambu Lab Parts.

Bambu Lab has not yet produced any discovery. Based on information available to-date, the Bambu Lab A1 and A1 mini have no material differences relevant to these infringement contentions. See https://bambulab.com/en-us/compare (comparing A1 and A1 mini upon selection). The A1 includes several upgrades over the A1 mini, including a larger build volume, higher max build plate temperature, and larger display. *Id.* Accordingly, references to components or functionality of either the A1 or A1 mini in this chart—other than the larger build volume, higher max build plate temperature, and larger display—apply to both printers.

Disclosure of Priority Date under P.R. 3-1(e): The asserted claims of the '698 Patent are each entitled to a priority date of at least as early as October 29, 2013.

Disclosures under P.R. 3-1(c)-(d): Stratasys identifies in the chart below specifically where each element of each Asserted Claim is found within each Accused Instrumentality.

Disclosure under P.R. 3-1(f): At this time, Stratasys does not intend to rely on the assertion that its own products or other instrumentalities practice the claimed invention. Stratasys reserves the right to amend and/or supplement this disclosure as discovery progresses.

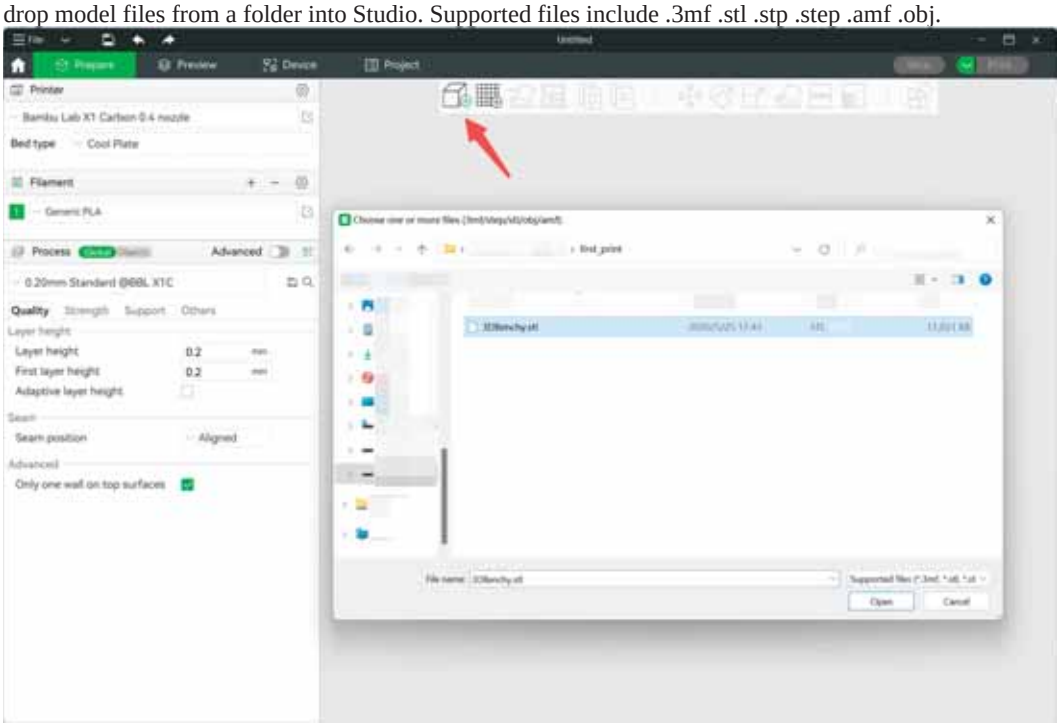
Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

Claim	Contention
1. A method comprising: identifying build instructions for fabricating an object;	To the extent the preamble of the claim is limiting, the Accused Instrumentalities are used for identifying build instructions for fabricating an object. Bambu Lab sells various 3D printers, such as the A1 and A1 mini, which are used for fabricating three-dimensional parts using build instructions.  https://us.store.bambulab.com/products/a1; *see also* https://bambulab.com/en/a1.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

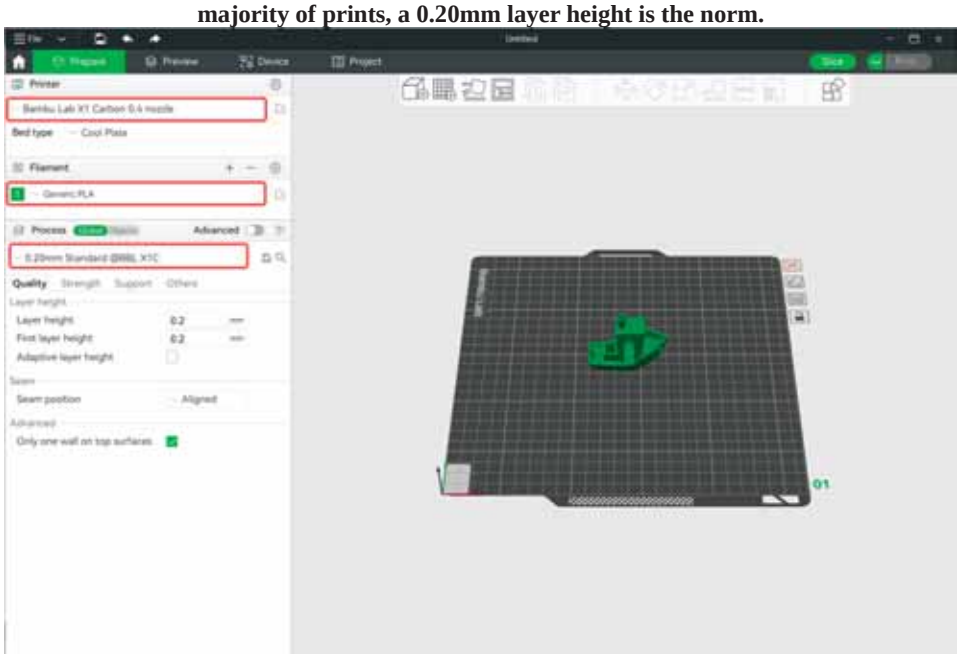
	 https://us.store.bambulab.com/products/a1-mini; *see also* https://bambulab.com/en/a1-mini/

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	For example, the Bambu Studio Quick Start Guide explains how a 3D model is loaded into Bambu Studio and is sliced to generate a .3mf file which is the file format used for the printer to be able to print the model. The .3mf file contains build instructions for controlling the Bambu Lab 3D printer during the printing of the object. See https://wiki.bambulab.com/en/software/bambu-studio/studio-quick-start: **"Add a model** On the top toolbar of the preview pane, click on the first icon **add** to import a model. You can also drag and drop model files from a folder into Studio. Supported files include .3mf .stl .stp .step .amf .obj. 

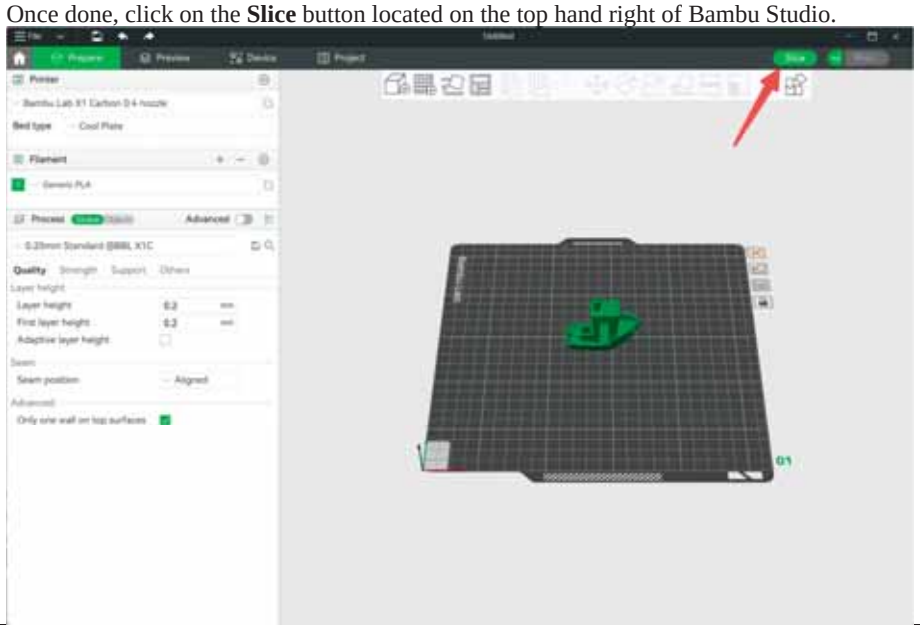
4

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Select Printer/Filament/Process presets To start slicing the model, you need to choose the presets for the machine you are using, for the filament you will print with and also the settings you want to print the model in. 1. Select the printer you are using from the drop-down list under **Printer**. This will also include the nozzle size you will be printing with 2. Under the **Filament** section, select the type of filament you intend to use from the drop-down list 3. Choose the layer height you want your model to be printed in from the **Process** drop-down menu. **Always remember that the smaller the layer height, the longer the print will take. For the majority of prints, a 0.20mm layer height is the norm.** 

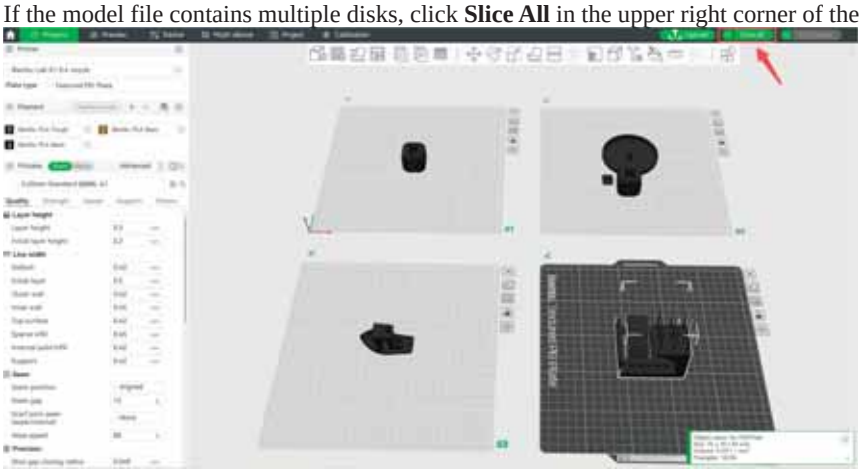
5

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Slice plate Once done, click on the **Slice** button located on the top hand right of Bambu Studio. 

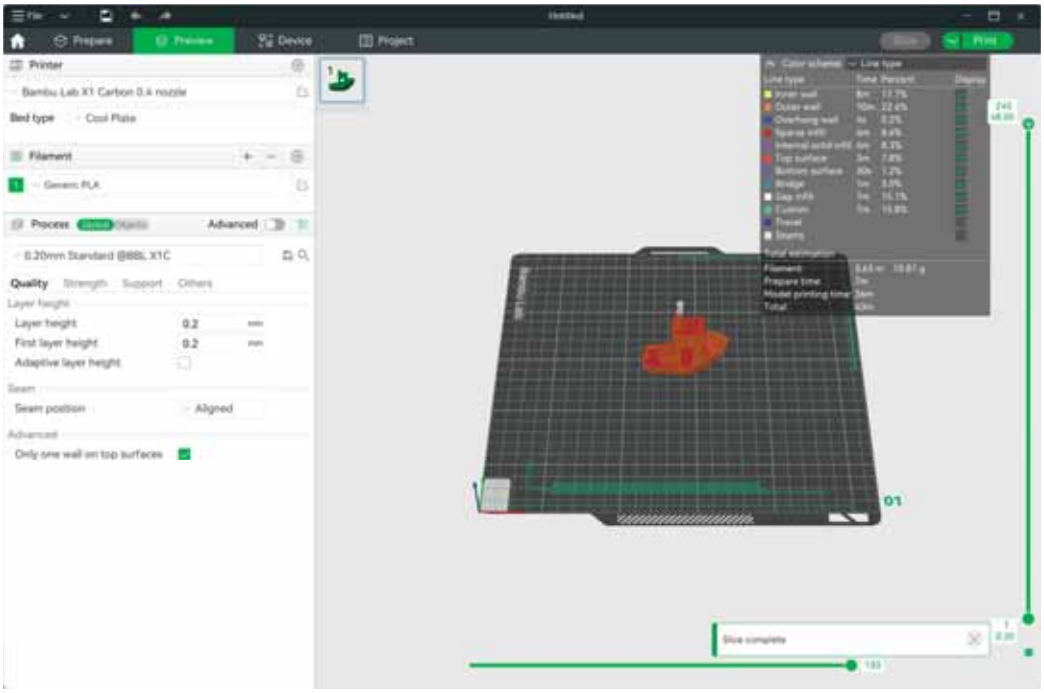
6

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	If the model file contains multiple disks, click **Slice All** in the upper right corner of the screen.  Once done, the slicer will take you to the Preview pane which will show you what the sliced model looks after processing the .3mf file. The histogram on the right hand side will also show you information on the printing times for each parameter of the print.

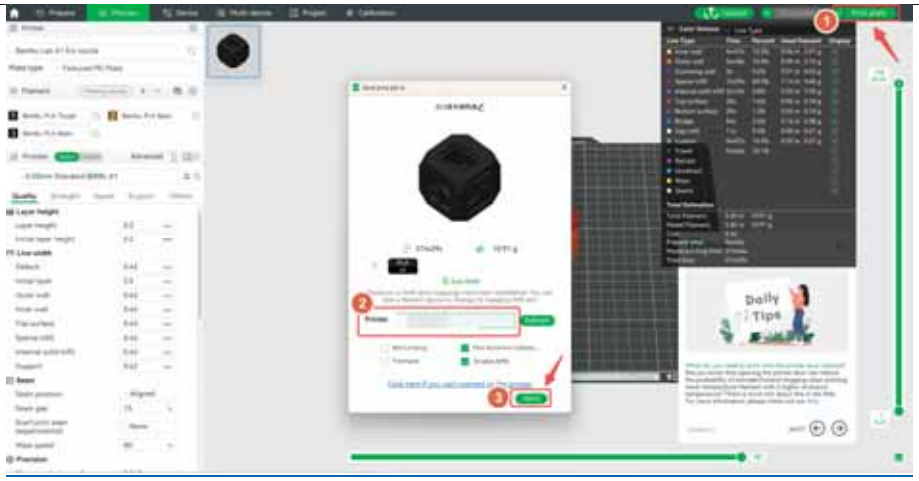
7

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



Send print job
Print plate
Click **Print** on the top right-hand corner. This will prompt a pop-up window with a quick preview of the model and will also ask you to select the Printer you want to send it to from the drop-down list, and you will also give you the option to choose whether or not you want the printer to perform certain functions like Bed Leveling, flow calibration, etc before the print starts. Once done, click “Send” to send the file to the printer and start printing.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



Bambu Handy can similarly send build instructions for a model to the Bambu Lab A1 and A1 mini printers for printing. See https://wiki.bambulab.com/en/studio-handy/handy/bambu-handy-quick-start:

"**Page Introduction**
[Models] Interface Functions
The "Models" interface is where you can access MakerWorld, allowing you to share models with others and view their work. You can also directly send your favorite models for printing.

There are two main tabs in the upper left corner of this screen. The "Discover" tab is where you can browse models and designers, and the "Following" tab is where you can check out the latest posts from designers you are following.

You can also access the contests section from the "Discover" tab. Bambulab regularly organizes contests, and designers from around the world participate in them. You can explore others' ideas or even participate yourself. Exciting prizes are awarded to the winners of each contest!
…

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	[Device] Interface Functions After completing the printer binding, the application will automatically return to the device screen. The Device interface contains the top bar, printer monitoring image, item currently being printed (or the last previously printed item), and the printer controls.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

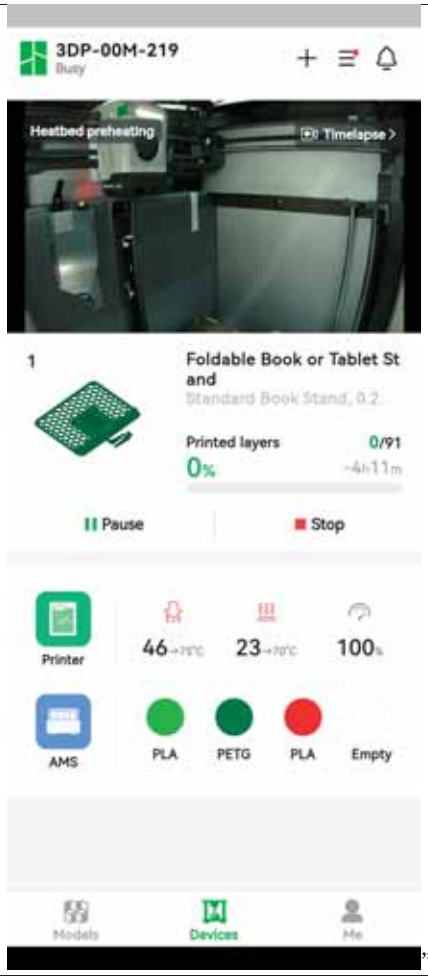
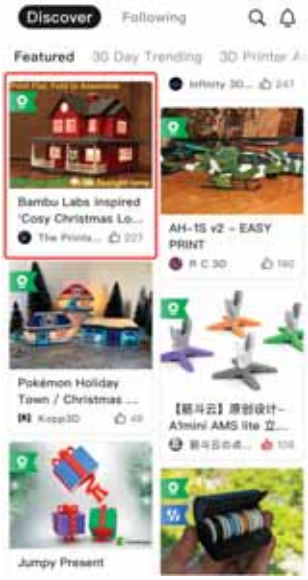
	

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	See also https://wiki.bambulab.com/en/makerworld/tutorials/printing-tutorial-on-bambu-handy: "**Basic Printing Tutorial** This chapter focuses on how to print 3D models on Bambu Handy. We will use a typical multi-part model as an example to cover various aspects involved in the printing process. **Step 1. Find a captivating 3D model** You can browse through the model list or use the search function to find the models you like.  Browse the model list and choose a model to print **Step 2. Choose a Print Profile**

12

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Print Profile contains both the 3D data and print settings of a model. Usually, a model has several available print profiles. You can choose which Print Profile to use for printing based on your printer type, its ratings, and features(such as multi-colors).”

13

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

initiating a build using a three-dimensional printer comprising a fabrication tool and one or more sensors mechanically coupled to the fabrication tool,	The Accused Instrumentalities are used for initiating a build using a three-dimensional printer comprising a fabrication tool and one or more sensors mechanically coupled to the fabrication tool. Bambu Studio and Bambu Handy, as well as the user interface on the Bambu Labs 3D printers (e.g., A1 and A1 mini printers) provide a prompt to the user to begin printing the object. A request to fabricate an object from a three-dimensional model can be received at least via: 1) the user interface on the printer; or 2) via Bambu Studio or Handy app. See https://wiki.bambulab.com/en/software/bambu-studio/studio-quick-start: **Printing from Bambu Studio** When printing with Bambu Studio, it's possible to send the sliced files directly to the printer via Wi-Fi. Here's how to do it: 1. Import the 3D model you want to slice, and after adjusting the settings, click on the **Slice** button 2. After the model has been sliced, click on the **Print** button. A window will show up where the printer can be selected, and the calibration options can be enabled or disabled. 3. When ready to print, simply click the **Send** button, and the file will be sent to the printer. The printing process will start. receiving a request

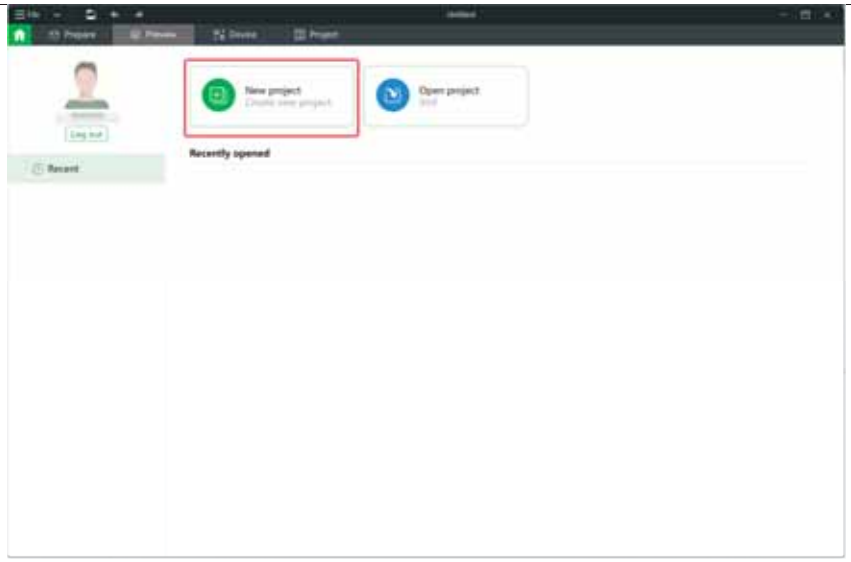
14

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	"What is Bambu Studio? **Bambu Studio** is based on PrusaSlicer by Prusa Research, which is from Slic3r by Alessandro Ranellucci and the RepRap community. Bambu Studio is our cutting-edge, feature-rich slicing software developed by Bambu Lab, which is used to prepare the files for 3D printing. It contains project-based workflows, systematically optimized slicing algorithms, and an easy-to-use graphic interface, bringing users an incredibly smooth printing experience. …. **First Print** **Log in to your account (optional, but strongly recommended)** ***[Prerequisite]: You will need the BambuNetworking plugin in order to log in***. This is required to enable print history which allows you to reprint your history models on the Bambu Handy app. Also, your user settings can be synchronized to Bambu Cloud in order to share information among your PC devices. …. **Create a new project** To start slicing a model, click on **New Project**.

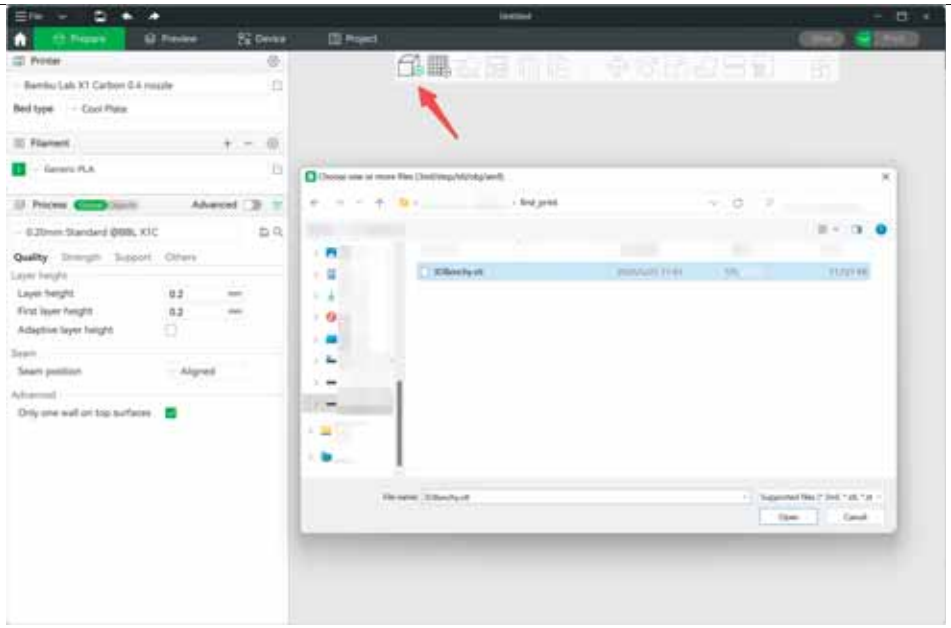
15

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 **Add a model** On the top toolbar of the preview pane, click on the first icon **add** to import a model. You can also drag and drop model files from a folder into Studio. Supported files include .3mf .stl .stp .step .amf .obj.

16

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



….

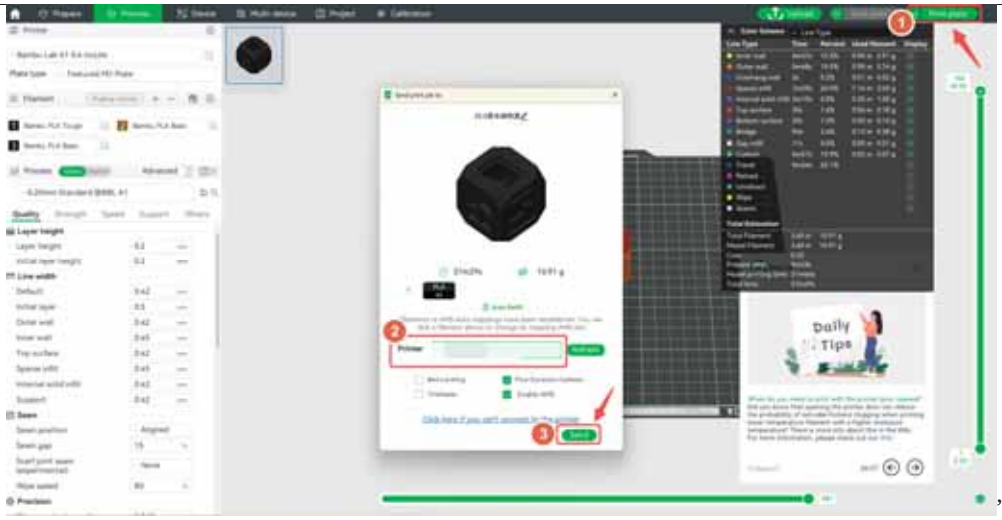
Send print job

Print plate

Click **Print** on the top right-hand corner. This will prompt a pop-up window with a quick preview of the model and will also ask you to select the Printer you want to send it to from the drop-down list, and you will also give you the option to choose whether or not you want the printer to perform certain functions like Bed Leveling, flow calibration, etc before the print starts. Once done, click “Send” to send the file to the printer and start printing.

17

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



”

See also https://wiki.bambulab.com/en/studio-handy/handy/bambu-handy-quick-start:

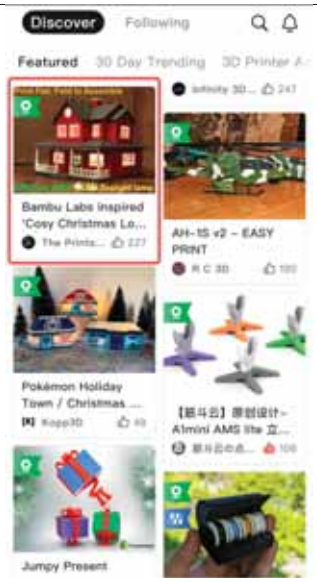
- **Printing History:** This option displays the printing history of jobs sent via the cloud for the current account over the last 3 months; jobs printed via SD card and LAN mode are not saved in the history. You can click on a specific record in the history to view the printing details or click the "Print Again" button to reprint the model. When printing again, you can manually select the material for that print, or you can print a specific part from that project when there are multiple parts. More information on printing specific parts will be covered in the advanced features section.

18

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Print Parts/Skip Parts There are two situations where you can select specific printing part. One of them is when the print is sent to the printer by bambu studio, you can select which part to print in the devices screen. The other is if the print is initiated from print history or pulled directly from MakerWorld. In both situations, if there are multiple parts in one plate, you can select which part you want to print using Print Parts/Skip Parts function, thus saving both time and materials. Note that if you choose to skip a part during the printing process, the operation can not be undone, and you will need to start printing again if you want to print the part. For more information about print parts/skip parts, reference to Skip objects. See also https://wiki.bambulab.com/en/makerworld/tutorials/printing-tutorial-on-bambu-handy: **"Basic Printing Tutorial** This chapter focuses on how to print 3D models on Bambu Handy. We will use a typical multi-part model as an example to cover various aspects involved in the printing process. **Step 1. Find a captivating 3D model** You can browse through the model list or use the search function to find the models you like.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 Browse the model list and choose a model to print **Step 2. Choose a Print Profile** Print Profile contains both the 3D data and print settings of a model. Usually, a model has several available print profiles. You can choose which Print Profile to use for printing based on your printer type, its ratings, and features(such as multi-colors).

20

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

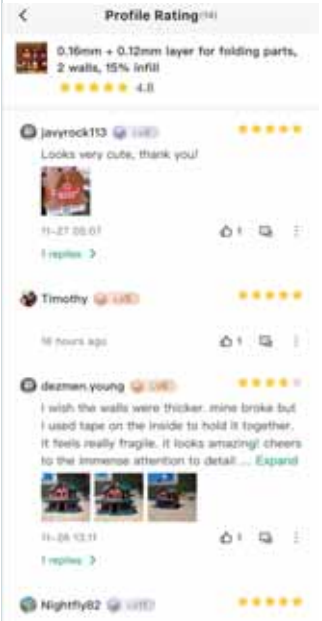
1. Click “Prepare to Print”

2. Select your printer type and a print profile

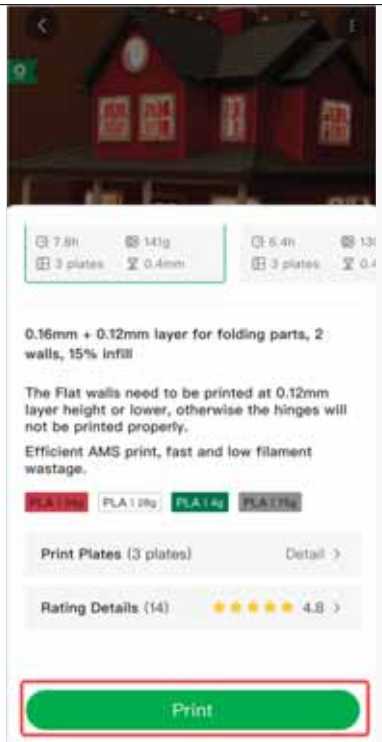
3. [Optional] You may check other users' review of the selected print profile

21

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



A example of reviews of selected print profile. If other users print successfully, you may also use this.

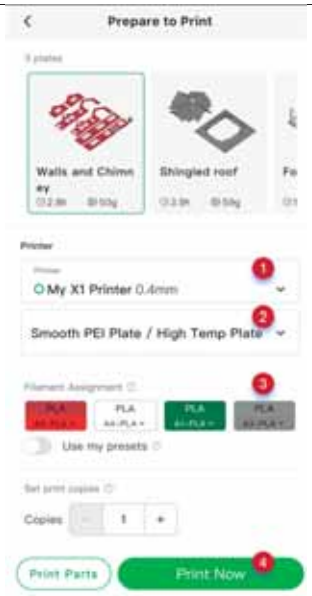


4. Click “Print” button to continue with this print profile

Step 3. Print the 1st plate

22

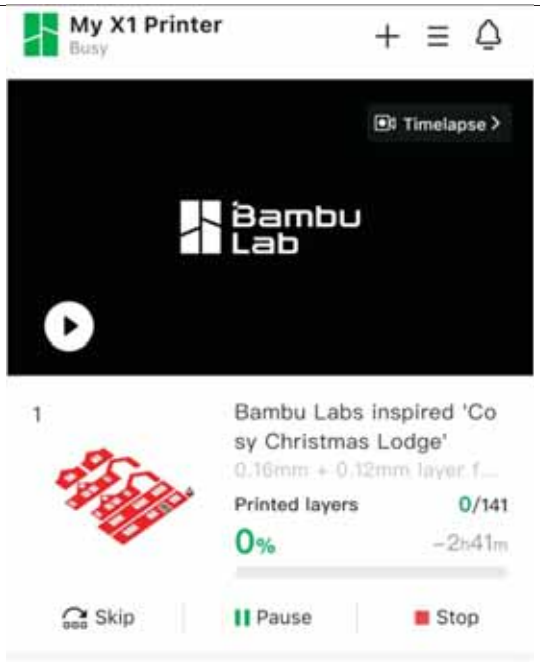
Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



Printer with AMS
Here, several settings need to be checked/configured:

1. check/select the printer you want to set the print job to
2. check/select the plate type you are using
3. set filament(s)
    - if AMS installed: Bambu Handy will auto-assign the AMS slot (A1~A4) for target filament used in current print job according to the filament type and color. You may also change it according to your requirement.
    - if no AMS: choose the filament tye mounted on the printer.
4. Click the "Print Now" button to send the print job to the designated printer.

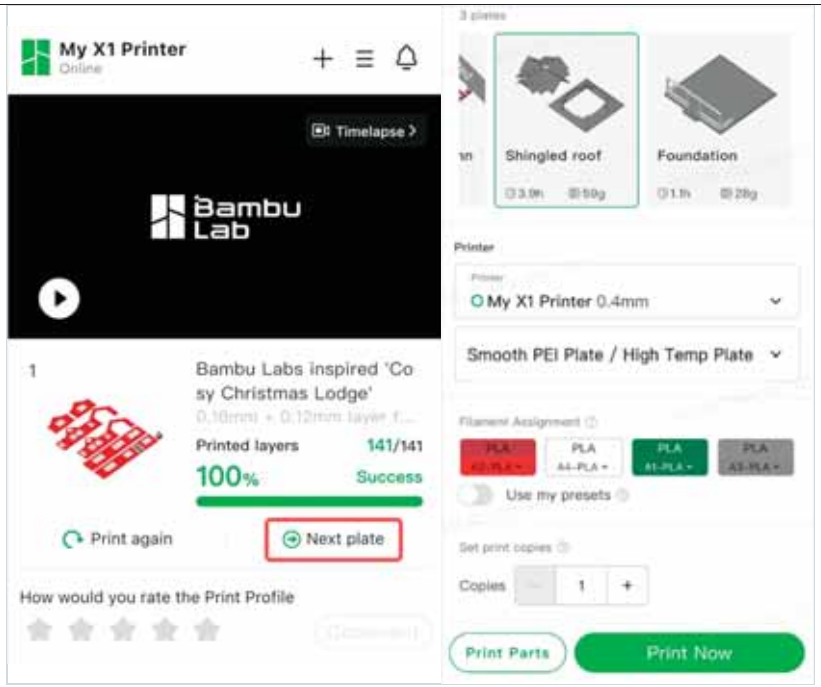
After sending the print job, it will auto-jump to the device page where you can monitor the progress of the print.



Note:

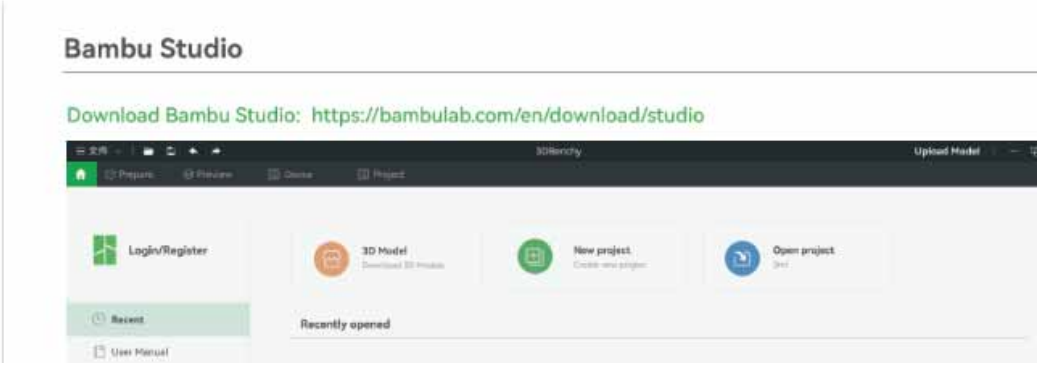
- If you have installed AMS and find that the slots in the **Filament Assignment** section display "?" when setting up materials, you need to configure the material types and colors for each slot of AMS on the device page first. AMS can automatically recognize Bambu Lab's materials, so manual configuration is not necessary.
- You may have noticed other settings, which will be explained in the Advanced Features section.

Step 4. Print other plates
If the model contains more than one plate, you can click “Next Plate” button to continue printing the next plate.



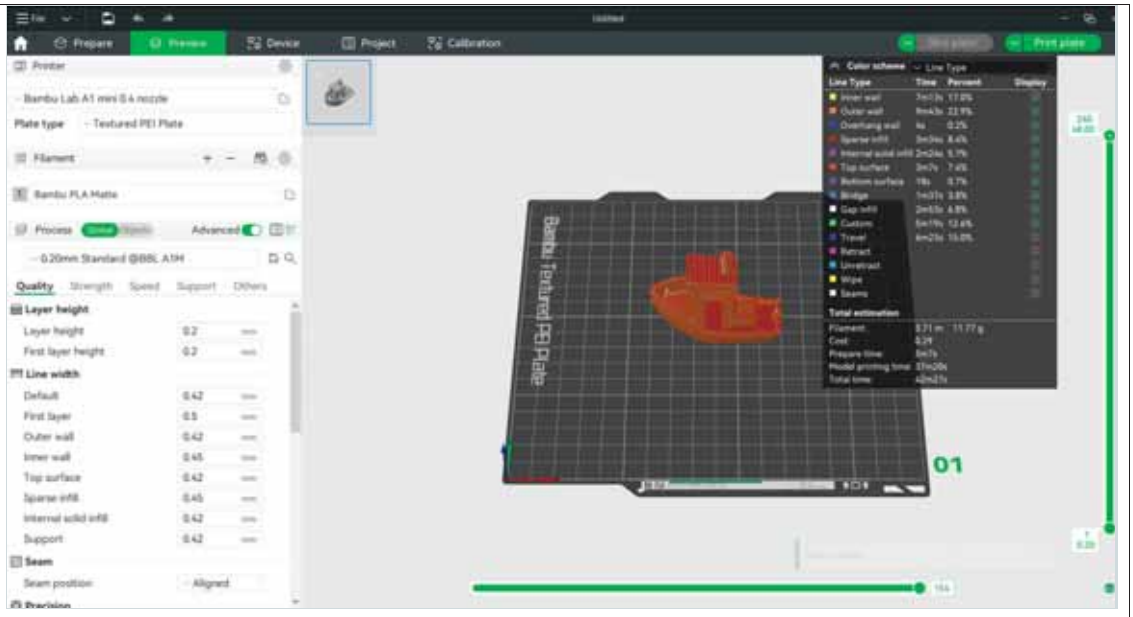
Alternatively, you may also quickly jump to the next plate from the print history of this model."

25

	See also https://wiki.bambulab.com/en/a1-mini/manual/first-print-with-external-spool: **2. Start printing** **After ensuring the filament is loaded and the build plate is in place, you can proceed with printing.** **1. Initiate a print job using Bambu Studio** **Install the Bambu Studio** Click here to download Bambu Studio : https://bambulab.com/en/download/studio  **"Slice and send the print**

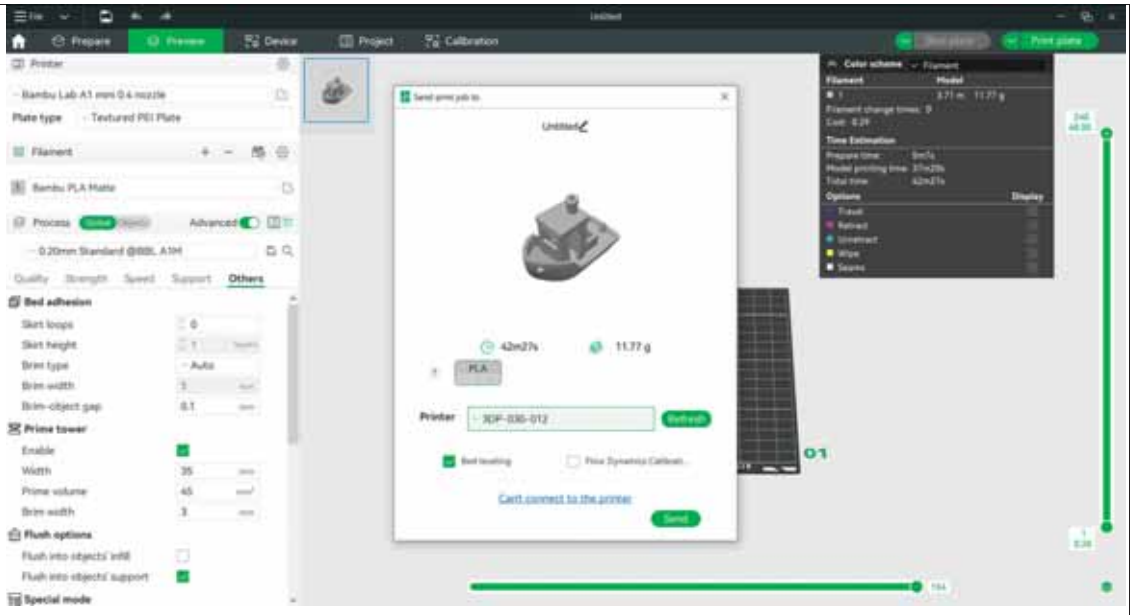
26

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

27

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 **2. Initiate the print using the built-in file.** **Click "Print files" on the home page to access the built-in files on the SD card.**

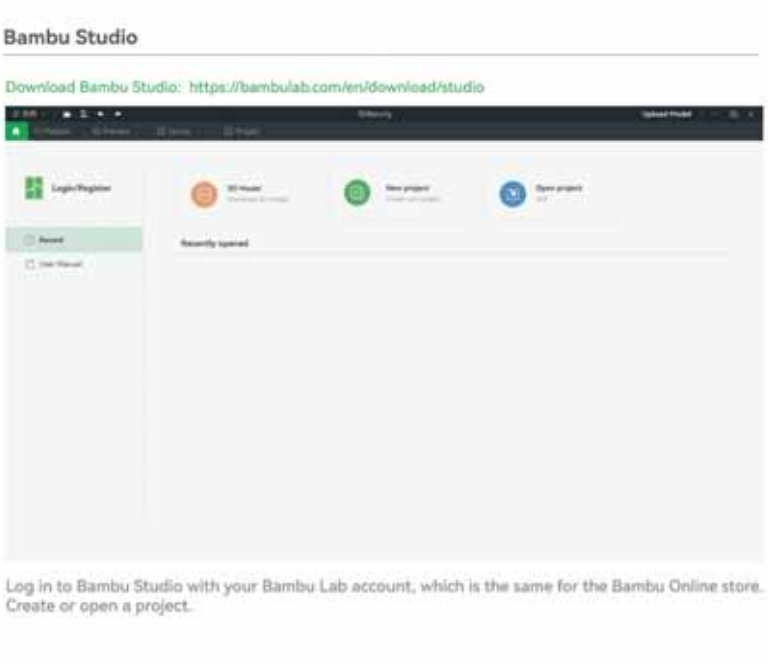
28

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Select the model you would like to print.  ” See also https://wiki.bambulab.com/en/a1/manual/first-print-with-ams-lite: **“1. Initiate a print job using Bambu Studio** **Install the Bambu Studio:** Click here to download Bambu Studio: https://bambulab.com/en/download/studio

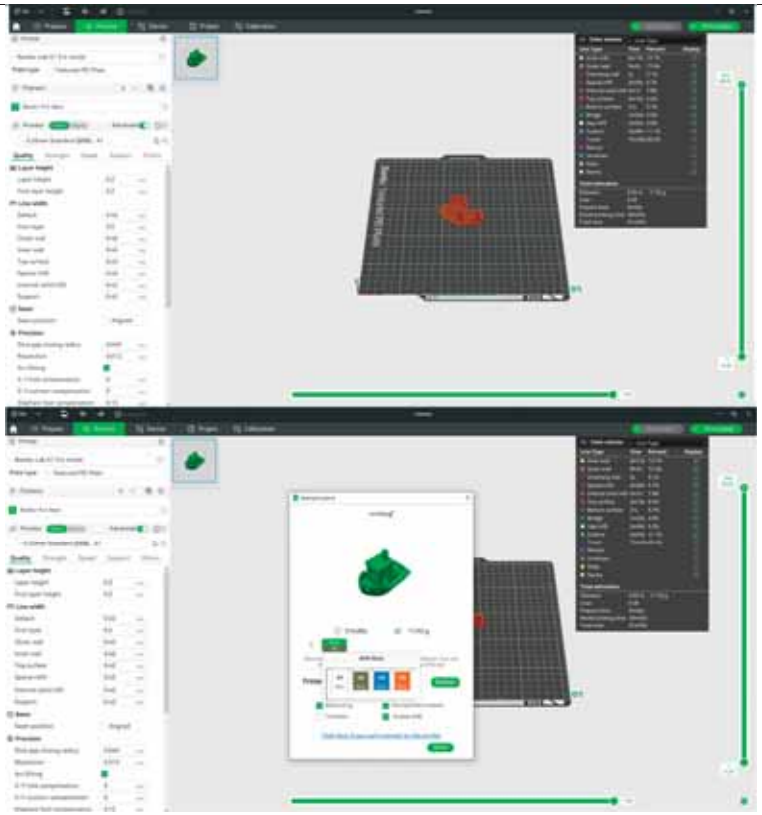
Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698



Slice and send the print
Select the model you want to print, click **Slice Plate** in the upper right corner, and then click **Print Plate** in the upper right corner.

31

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 **2. Initiate a print using the built-in file** **1. Click "Print files" on the home page to access the built-in files on the micro SD card.**

32

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 **2. Select the model you want to print.**

33

	 **3. Enable "Use AMS," and enabling the bed leveling and flow dynamics calibration functions is recommended.**

	 **4. AMS filament Mapping** Map the actual filament used in the AMS lite to the filament specified in the print file. If no filament matches the color specified in the file, you can either place the specified filament in the AMS lite or choose another filament with the same properties and a close color match.

35

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 **5. Click "Print"**

36

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

		 ”

37

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Bambu Lab 3-D printers include a fabrication tool and one or more sensors mechanically coupled to the fabrication tool. For example, the Bambu Lab A1 and A1 mini 3D printers include an extrusion nozzle and an extrusion force sensor (e.g., eddy force sensor). See e.g., https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection (describes the "the extrusion force sensor (eddy current sensor) in the tool head" on the A1 Mini printer); https://wiki.bambulab.com/en/a1 (the "build plate detection" link on this page for the A1 printer links to the build plate detection article in the A1-mini manual at https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection): **"How to detect the build plate?** The principle of build plate position detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heatbed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed."** See also e.g., https://wiki.bambulab.com/en/a1-mini/troubleshooting/hmscode/0300_1A00_0002_0002:

38

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

39

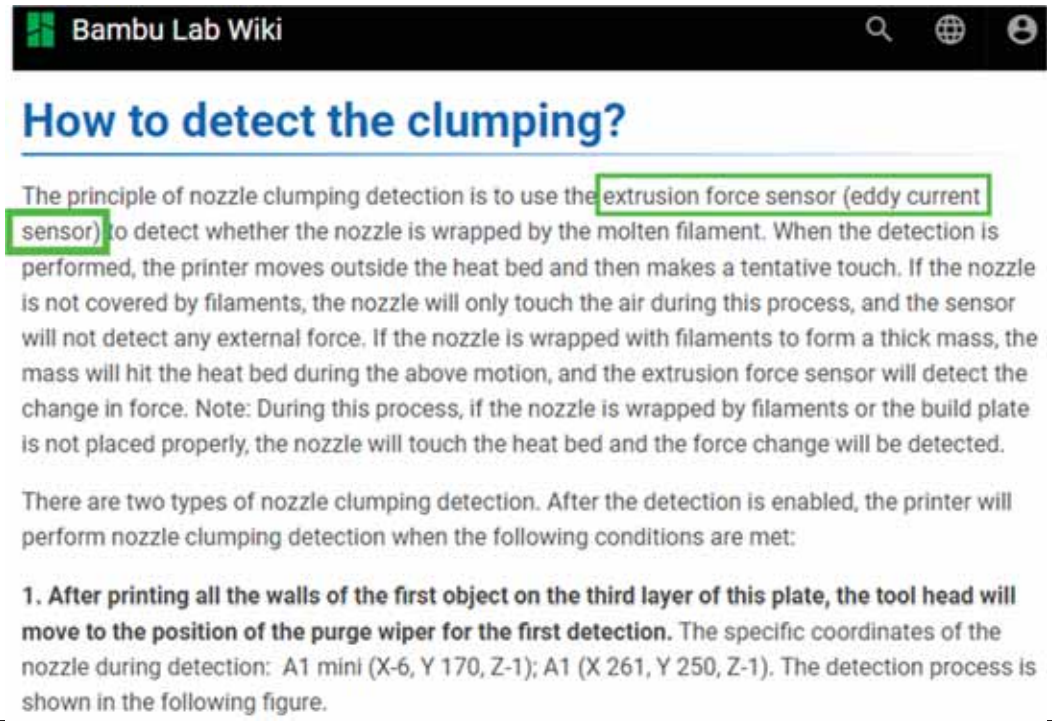
the one or more sensors configured to detect a current contact force between the fabrication tool and a separate structure;	The Accused Instrumentalities include one or more sensors configured to detect a current contact force between the fabrication tool and a separate structure. For example, in Bambu's clump detection in both the A1 and A1-mini printers, the nozzle making contact with the heat bed (during it's "tentative touch" discussed in the excerpt below) indicates a clumping. The tentative touch is in the z direction, the extrusion axis.  Bambu Lab Wiki **How to detect the clumping?** The principle of nozzle clumping detection is to use the extrusion force sensor (eddy current sensor) to detect whether the nozzle is wrapped by the molten filament. When the detection is performed, the printer moves outside the heat bed and then makes a tentative touch. If the nozzle is not covered by filaments, the nozzle will only touch the air during this process, and the sensor will not detect any external force. If the nozzle is wrapped with filaments to form a thick mass, the mass will hit the heat bed during the above motion, and the extrusion force sensor will detect the change in force. Note: During this process, if the nozzle is wrapped by filaments or the build plate is not placed properly, the nozzle will touch the heat bed and the force change will be detected. There are two types of nozzle clumping detection. After the detection is enabled, the printer will perform nozzle clumping detection when the following conditions are met: **1. After printing all the walls of the first object on the third layer of this plate, the tool head will move to the position of the purge wiper for the first detection.** The specific coordinates of the nozzle during detection: A1 mini (X-6, Y 170, Z-1); A1 (X 261, Y 250, Z-1). The detection process is shown in the following figure.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection; *see also* https://wiki.bambulab.com/en/a1 (the "nozzle clumping detection" link on the A1 page links to https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection). Further, in Bambu's build plate detection in both the A1 and A1-mini printers, the nozzle touches the heat bed to detect if the build plate is in place and detects a change in force. This touch is in the z direction, the extrusion axis. The principle of build plate detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heat bed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed.** https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection; https://wiki.bambulab.com/en/a1 (the "build plate detection" link on this page for the A1 printer links to the build plate detection article in the A1-mini manual at https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection). Further, in Bambu's homing process in both the A1 and A1-mini printers, the nozzle touches the heat bed, with the eddy current sensor detecting whether the nozzle has made contact with the heat bed. This touch is in the z direction, the extrusion axis.

41

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Homing A homing proces refers to the printer detecting the stoppers for XYZ axes to determine the toolhead's zero coordinates in three-dimensional space. During the homing process, the printer uses the motors for X-axis (toolhead moving) and Y-axis (heatbed moving) to detect load to determine if they have reached their boundaries. For the Z-axis, homing will cause the toolhead to descend until the nozzle touches the heatbed. The eddy current sensor above the hotend will detect whether the nozzle has made contact with the heatbed. https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure; *see also* https://wiki.bambulab.com/en/a1-mini (the "homing and leveling failure troubleshooting guide for A1 series" link on the A1-mini page links to https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure).

42

detecting the current contact force based on a sensor signal from the one or more sensors; and	The Accused Instrumentalities are used for detecting the current contact force based on a sensor signal from the one or more sensors. For example, the force sensor in the A1 and A1-mini detects a change in the current force to detect clumping. See https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection: Bambu Lab Wiki **How to detect the clumping?** The principle of nozzle clumping detection is to use the extrusion force sensor (eddy current sensor) to detect whether the nozzle is wrapped by the molten filament. When the detection is performed, the printer moves outside the heat bed and then makes a tentative touch. If the nozzle is not covered by filaments, the nozzle will only touch the air during this process, and the sensor will not detect any external force. If the nozzle is wrapped with filaments to form a thick mass, the mass will hit the heat bed during the above motion, and the extrusion force sensor will detect the change in force. Note: During this process, if the nozzle is wrapped by filaments or the build plate is not placed properly, the nozzle will touch the heat bed and the force change will be detected. There are two types of nozzle clumping detection. After the detection is enabled, the printer will perform nozzle clumping detection when the following conditions are met: **1. After printing all the walls of the first object on the third layer of this plate, the tool head will move to the position of the purge wiper for the first detection.** The specific coordinates of the nozzle during detection: A1 mini (X-6, Y 170, Z-1); A1 (X 261, Y 250, Z-1). The detection process is shown in the following figure.

	See also https://wiki.bambulab.com/en/a1-mini/troubleshooting/hmscode/0300_1A00_0002_0001: HMS_0300-1A00-0002-0001: The nozzle is wrapped in the filament or the build plate is placed incorrectly 0300-1A00-0002-0001 Edit **What it is** A1 series printers are equipped with the nozzle clumping detection function, you can refer to the wiki for details: Nozzle clumping detection | Bambu Lab Wiki The extrusion force sensor is used to detect whether the nozzle is covered by filament, if the nozzle is covered by filament, or if the build plate is placed incorrectly, the force on the nozzle will change. When the nozzle clumping detection is enabled, the nozzle will move outside the heat bed and then continue to move down. If the nozzle is covered by the filament, forming a thick material mass, the process of the above movement will cause the material mass to hit the heat bed and cause the force change. The change in force will be detected by the extrusion force sensor (eddy current sensor coil). Further, for build plate detection in the A1 and A1-mini, the extrusion force sensor detects the current contact force.

44

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	How to detect the build plate? The principle of build plate detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heat bed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed.** https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection Further, for the homing process in the A1 and A1-mini, the extrusion force sensor (eddy current sensor) will detect whether the nozzle has made contact (force) with the heat bed. **Homing** A homing proces refers to the printer detecting the stoppers for XYZ axes to determine the toolhead's zero coordinates in three-dimensional space. During the homing process, the printer uses the motors for X-axis (toolhead moving) and Y-axis (heatbed moving) to detect load to determine if they have reached their boundaries. For the Z-axis, homing will cause the toolhead to descend until the nozzle touches the heatbed. The eddy current sensor above the hotend will detect whether the nozzle has made contact with the heatbed. https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure

45

creating a control signal to control at least one component of the three-dimensional printer in response to the current contact force while depositing material during the build.	The Accused Instrumentalities are each used for creating a control signal to control at least one component of the three-dimensional printer in response to the current contact force while depositing material during the build. For example, when the A1 or A1-mini printer detects nozzle clumping (in response to the current contact force while depositing material during the build), the printer automatically stops printing by creating a control signal to stop operation of the printer (e.g., including but not limited to the extruder). See e.g., https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection:

46

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Nozzle clumping detection This guide describes the nozzle clumping detection feature for A1 series printers Edit **What is the nozzle clumping detection?** Nozzle clumping usually refers to the phenomenon that the nozzle is wrapped by the filament during printing because the filament is not stuck on the build plate or some other reasons, resulting in printing failure or even damage to the hot end, extruder, and other parts, as shown in the following figure. Because of the possibility of damage to the printer, the Bambu A1 series is equipped with a nozzle clumping detection feature to deal with this situation, when the printer detects that the nozzle is wrapped in molten filament, it automatically stops printing and alerts it to avoid further damage to the printer after the wrapping. 

47

	Further, for build plate detection, the printing will start (control signal) when the build plate is properly placed (the extrusion forces sensor detects a change in force). The build plate needs to be properly placed on the heat bed before starting the printing task, **How to detect the build plate?** The principle of build plate detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heat bed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed.** https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection Further, for the homing process, the printer will need to perform a successful homing (control signal) to perform the heat bed leveling, where the heat bed will need to be leveled before printing. Before heatbed leveling, the printer will first perform homing. Therefore, the issues above will also cause the leveling to fail. If homing succeeds but leveling fails, common reasons are as follows: Before printing on Bambu Studio or on the screen of the printer, select **Bed leveling** so that the printer will level the heatbed before starting printing. https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure

48

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

2. The method of claim 1, wherein the fabrication tool includes an extruder.	For each of the Accused Instrumentalities, the fabrication tool includes an extruder, as shown below: **Extruder unit** The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer. **"Extruder unit** The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer.

49

Internal Gear Structure of the Extruder

Extruder motor

In the extruder unit, this small cover can be removed to observe the situation of filament clogging in the extruder gear.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	  The extruder gear can also be observed from the side by releasing the cutter lever. When filament powder accumulates in the extruder gear, this position can be used to clean the residue.

51

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	  The filament hub can be carefully removed from the top (please be cautious when pulling the cable of the filament sensor), allowing observation from the top to check if the extruder gear is clogged.



"

https://wiki.bambulab.com/en/a1/manual/intro-a1

See also https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini:

"Extruder unit
The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer.

	 Internal Gear Structure of the Extruder  Extruder motor In the extruder unit, this small cover can be removed to observe the situation of filament clogging in the extruder gear.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

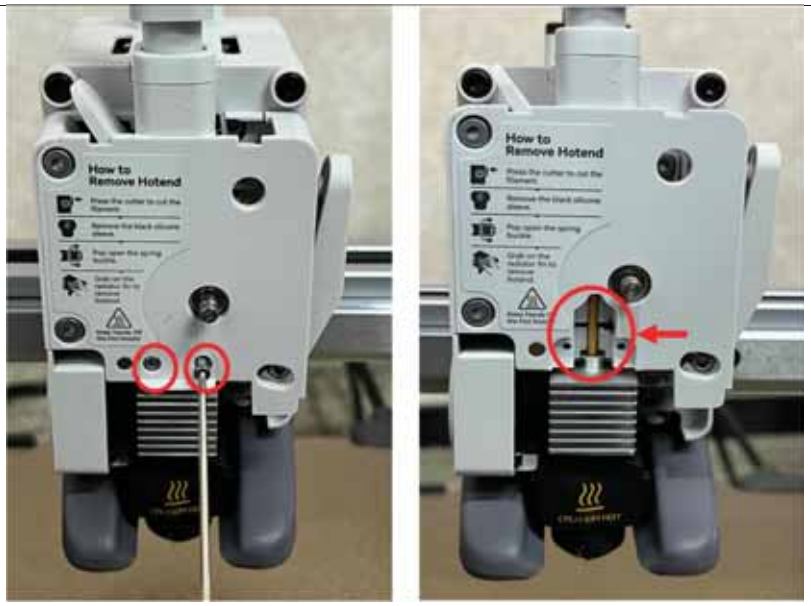
	 The extruder gear can also be observed from the side by releasing the cutter lever. When filament powder accumulates in the extruder gear, this position can be used to clean the residue.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	  The filament hub can be carefully removed from the top (please be cautious when pulling the cable of the filament sensor), allowing observation from the top to check if the extruder gear is clogged.

	  ”

3. The method of claim 2, wherein the at least one component of the three-dimensional printer controls a feed rate for a build material used in the build.	For each of the Accused Instrumentalities, the at least one component of the three-dimensional printer controls a feed rate for a build material used in the build. For example, the A1 printer includes extruder control that operates using flow calibration. **"Extruder unit** The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer." https://wiki.bambulab.com/en/a1/manual/intro-a1 The A1 mini additionally includes an extruder: "**Extruder unit**

	The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer." https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini The extruder unit of the A1 (as described at https://wiki.bambulab.com/en/a1/manual/intro-a1) and the A1 mini (as described at https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini) pulls the filament from the spool and feeds it to the hot end assembly of the tool head module at a feed rate. The extruder unit of the A1 and A1-mini printers supports flow dynamics calibration. *See* https://wiki.bambulab.com/en/software/bambu-studio/calibration_pa: **"Flow Dynamics Calibration** **What is Flow Dynamics Calibration ?** From fluid mechanics, when a newtonian fluid flow through a hole, it needs pressure, and the pressure is proportional to the flow rate. As the filament is not rigid body, when the extruder starts to extrude, the filament will be compressed to generate the pressure. The compression process will delay the response of the real flow, as the extruder only provides the amount of the filament that needs to extrude, no extra. So we implemented the flow dynamic control to solve the problem, similar to the "Pressure advance" in Klipper or the "Linear advance" in Marlin, with some non-linear effect compensation added. When executing a flow rate cmd, the printer will do a fast extra extrusion to generate the pressure as fast as possible, to make the response of the flow can catch the response of the toolhead movement. But how much "extra" extrusion is needed for a specific filament? As different filament has different stiffness and viscosity, under a certain flow rate, different filaments will need different amount. That's why flow dynamics calibration is needed. ….

	Especially for A1 Series printer, Flow Dynamics Calibration uses the eddy current sensor to detect the extrusion pressure, and if a third-party hotend is used, the calibration results may be inaccurate;" …. **A1 Series Printer** For A1 series printer, the flow dynamics calibration process is to discharge material at the position of the discharge assembly during the printing preparation stage, and calculate the suitable K value for the material based on the pressure changes detected by the eddy current sensor above the hotend. **If "Flow Dynamics Calibration" is checked before printing, a flow calibration will be performed when each filament of this printing task is replaced for the first time, so all materials used in this printing task will be calibrated by flow (supported since version 01.03.00.00).** **This calibration method is greatly affected by the hotend. Please ensure that you are using the official Bambu hot end. If you use a third-party hotend, the calibration value may be inaccurate.** **In addition, due to the limitation of the maximum extrusion flow rate, when using a 0.2mm nozzle for calibration, it usually takes a long time to extrude, so please be patient."**

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

4. The method of claim 2, wherein the at least one component of the three-dimensional printer controls a z-distance between the extruder and a build platform of the three-dimensional printer	For each of the Accused Instrumentalities, the at least one component of the three-dimensional printer controls a z-distance between the extruder and a build platform of the three-dimensional printer. For example, the A1 printer controls the z-distance between the extruder and the heat bed. **Z-axis motion** The Z-axis motion system controls the vertical position of the print head relative to the print bed. It consists of dual optical shaft-linear bearing guide components, dual lead screws with nuts, stepper motors, and synchronous belt drive components. The dual lead screws are connected in series with the stepper motor through a synchronous belt, enabling synchronized motion of the two lead screws. Additionally, the synchronous belt is equipped with a quick tensioner and combined with a tension detection algorithm to ensure optimal tension range, ensuring precise and stable motion of the print head in the Z-axis direction. By simultaneously controlling the movement of the X-axis, Y-axis, and Z-axis, the A1 can achieve precise motion of the print head in all three directions. Typically, these movements are controlled by motors and their corresponding drive circuits, with the machine controller reading the print file and sending instructions to control the motion path and speed of the print head. https://wiki.bambulab.com/en/a1/manual/intro-a1 The A1 mini also controls the z-distance between the extruder and the heat bed.

61

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Z-axis motion The Z-axis motion is used to control the vertical position of the printhead relative to the print platform. It comprises a lead screw, nut, coupling, and stepper motor. The stepper motor drives the lead screw to rotate through the coupling, thereby controlling the Z-axis motion of the tool head. The A1 mini can precisely position the printhead in all three directions by controlling the X-axis, Y-axis, and Z-axis motion. Typically, these motions are controlled by motors and corresponding driver circuits. The print head's motion path and speed can be controlled by reading the print file through the machine controller and sending instructions. https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini

62

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

5. The method of claim 2 further comprising comparing the current contact force to an expected contact force.	The Accused Instrumentalities are each used for comparing the current contact force to an expected contact force. For example, the Bambu A1 and A1 mini use the extrusion force sensor (of the fabrication tool) to make a tentative touch with the heat bed. If there is no filament on the nozzle, the nozzle will only touch air (expected contact force). If there is filament on the nozzle to form a mass, the mass will contact the heat bed, and the extrusion force sensor will detect a change in force (current contact force): > The principle of nozzle clumping detection is to use the extrusion force sensor (eddy current sensor) to detect whether the nozzle is wrapped by the molten filament. When the detection is performed, the printer moves outside the heat bed and then makes a tentative touch. If the nozzle is not covered by filaments, the nozzle will only touch the air during this process, and the sensor will not detect any external force. If the nozzle is wrapped with filaments to form a thick mass, the mass will hit the heat bed during the above motion, and the extrusion force sensor will detect the change in force. Note: During this process, if the nozzle is wrapped by filaments or the build plate is not placed properly, the nozzle will touch the heat bed and the force change will be detected. https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection Further, the Bambu A1 and A1 mini use the extrusion force sensor (of the fabrication tool) to touch the heat bed during build plate detection. If the build plate is placed, the nozzle will touch the build plate (expected contact force). If the build plate is not placed, the nozzle will only touch air, and the extrusion force sensor will not detect a change in force (current contact force).

63

	The principle of build plate detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heat bed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed.** https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection Further, the Bambu A1 and A1 mini use the extrusion force sensor (of the fabrication tool) to touch the heat bed during the homing process. The force sensor can detect if the nozzle touches the build plate (expected contact force). If the force sensor does not detect contact with the build plate by the nozzle (current contact force), an error has occurred such as the force sensor having an open circuit. **Homing** A homing proces refers to the printer detecting the stoppers for XYZ axes to determine the toolhead's zero coordinates in three-dimensional space. During the homing process, the printer uses the motors for X-axis (toolhead moving) and Y-axis (heatbed moving) to detect load to determine if they have reached their boundaries. For the Z-axis, homing will cause the toolhead to descend until the nozzle touches the heatbed. The eddy current sensor above the hotend will detect whether the nozzle has made contact with the heatbed. https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure

64

7. The method of claim 5 further comprising terminating the build when a difference between the current contact force and the expected contact force indicates a fabrication error.	The Accused Instrumentalities are each used for terminating the build when a difference between the current contact force and the expected contact force indicates a fabrication error. For example, the Bambu A1 and A1 mini stop printing (terminate the build) when nozzle clumping is detected (difference between current non-zero contact force and expected zero contact force is detected). **What is the nozzle clumping detection?** Nozzle clumping usually refers to the phenomenon that the nozzle is wrapped by the filament during printing because the filament is not stuck on the build plate or some other reasons, resulting in printing failure or even damage to the hot end, extruder, and other parts, as shown in the following figure. Because of the possibility of damage to the printer, the Bambu A1 series is equipped with a nozzle clumping detection feature to deal with this situation, when the printer detects that the nozzle is wrapped in molten filament, it automatically stops printing and alerts it to avoid further damage to the printer after the wrapping. https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection Further, the Bambu A1 and A1 mini will not start printing (terminate the build) when the build plate is not detected (difference between current contact force and expected contact force is detected). The principle of build plate detection is to use the extrusion force sensor (eddy current sensor) in the tool head to detect the build plate. **When it starts the detection, the printer first lowers the tool head so that the nozzle touches the heat bed to confirm the zero coordinates in the Z direction. Then move to a specific position and move the tool head downwards to allow the nozzle to make a probing touch. If the build plate is placed, the nozzle will touch the part of the build plate to detect the change in force. If the build board is not placed, during the movement, it will only touch the air and no change in force will be detected, and the printer will determine that the build plate is not placed.**

65

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	As we all know, in the 3D printing process, the nozzle extrudes the molten filament on the build plate to build a 3D model, so the build plate needs to be placed on the heat bed before printing. The A1 series printers are equipped with the build plate detection function, the printer can detect whether the user has placed the build plate properly before the printing starts, avoiding direct printing on the heat bed and causing printing failure or even damage to the heat bed. The following image is an error demonstration of a printer printing directly on the heat bed: https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

8. The method of claim 1 wherein the control signal includes a signal to the three-dimensional printer to change a distance between the fabrication tool and the separate structure.	For each of the Accused Instrumentalities, the control signal includes a signal to the three-dimensional printer to change a distance between the fabrication tool and the separate structure. For example, the A1/A1 mini can change the distance between the extruder (fabrication tool) and the heat bed (separate structure), as shown at https://bambulab.com/en/a1 and the images below. A1 handles various calibrations all by itself. It meticulously calibrates the Z-offset, bed-level, vibration resonance and nozzle pressure for EVERY print job, automatically. A1 probes the bed with the nozzle to measure the absolute Z-offset. No need to stick a paper as reference.

67

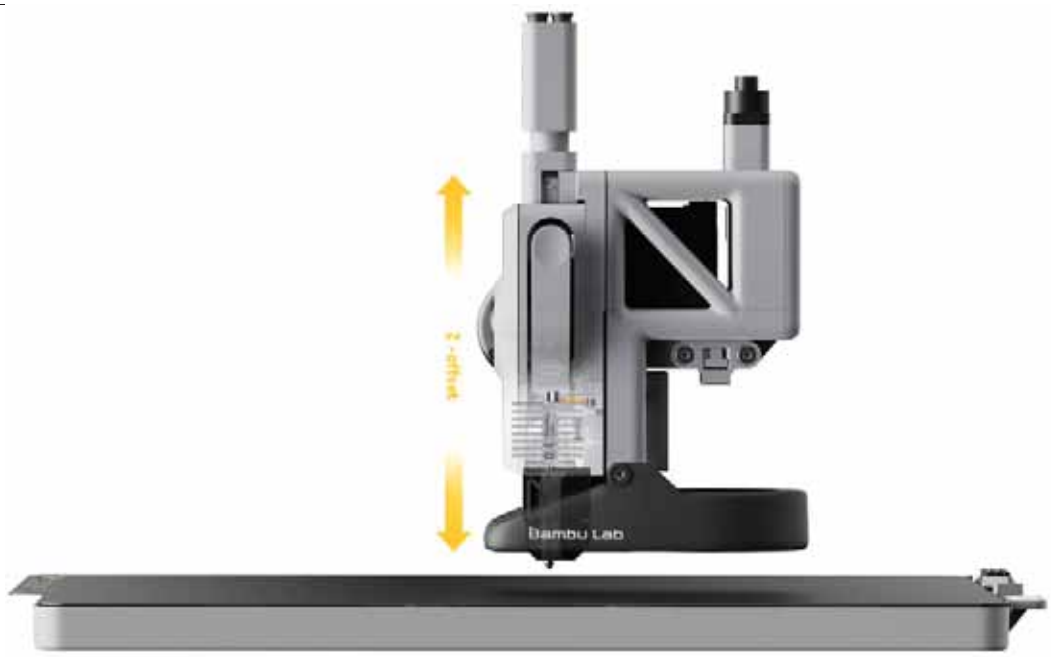
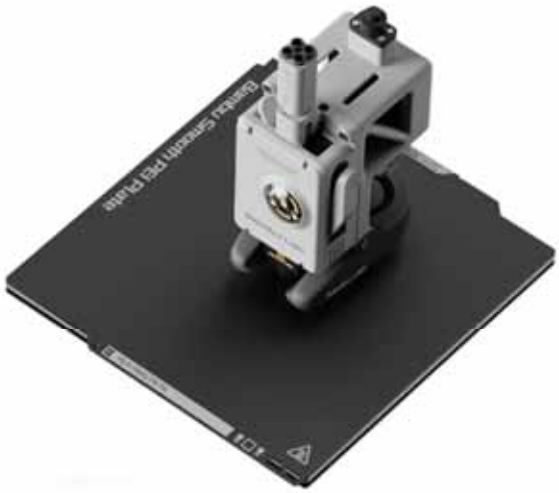
	 Similar A1 mini features are described at https://bambulab.com/en/a1-mini:

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	Auto Filament Loading Full-Auto Calibration Auto Bed-Level **Goodbye to Tedious Manual Calibration And Tuning** A1 mini handles various calibrations all by itself. It meticulously calibrates the Z-offset, bed-level, vibration resonance and nozzle pressure for EVERY print job, automatically. 

69

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 Further, in response to build plate detection (control signal), the printer changes a distance between the tool and the separate structure (heat bed), as shown in the two images below. Specifically, the distance between the extruder (fabrication tool) and the heat bed (separate structure) is increased from the first image to the second image in response to a build plate not being detected (control signal), as shown by the display on the printer.

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

71

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	 https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection

72

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

9. The method of claim 2 wherein the control signal includes a signal to the three-dimensional printer to change a feed rate of build material extruded by the extruder.	For each of the Accused Instrumentalities, the control signal includes a signal to the three-dimensional printer to change a feed rate of build material extruded by the extruder. The A1 includes an extruder, as shown below: **Extruder unit** The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer. https://wiki.bambulab.com/en/a1/manual/intro-a1 The A1 mini additionally includes an extruder, as shown at https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini: **Extruder unit** The extruder motor and extruder gears are essential components of the extruder unit. The extruder motor pulls the filament from the spool and feeds it into the hotend. Once heated and melted, the filament is extruded through the nozzle to create the printed model. The extruder motor is critical in accurately controlling the length of filament extruded through the hotend and is a core component of a 3D printer. The extruder unit of the A1 (as described at https://wiki.bambulab.com/en/a1/manual/intro-a1) and the A1 mini (as described at https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini) pulls the filament from the spool and feeds it to the hot end assembly of the tool head module at a feed rate. Further, when the Bambu A1 and A1 mini stop printing when nozzle clumping is detected (control signal), the feed rate of the build material is changed (from non-zero feed rate to zero feed rate).

73

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	What is the nozzle clumping detection? Nozzle clumping usually refers to the phenomenon that the nozzle is wrapped by the filament during printing because the filament is not stuck on the build plate or some other reasons, resulting in printing failure or even damage to the hot end, extruder, and other parts, as shown in the following figure. Because of the possibility of damage to the printer, the Bambu A1 series is equipped with a nozzle clumping detection feature to deal with this situation, when the printer detects that the nozzle is wrapped in molten filament, it automatically stops printing and alerts it to avoid further damage to the printer after the wrapping. https://wiki.bambulab.com/en/a1-mini/manual/nozzle-warp-detection

74

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

10. The method of claim 2 further comprising detecting a planarity of the separate structure based upon a number of contact force measurements across a surface of the separate structure.	The Accused Instrumentalities are each used for detecting a planarity of the separate structure based upon a number of contact force measurements across a surface of the separate structure. For example, the A1 series includes Auto Bed Leveling to detect a planarity of the heat bed, including performing a number of height measurements: **A1 Auto Bed Leveling** The auto bed leveling process for the A1 printer involves the following steps: **Touch Probe Detection** The hot end of the A1 printer is equipped with extruder head force sensing capability, which allows for detecting the contact between the extruder nozzle and the heated bed. When combined with the Z-axis movement, it enables direct measurement of the relative height of a specific point on the heated bed with respect to the center of the bed. **Height Mapping** By probing the hotbed through nozzle contact, A1 performs height measurements on 49 points arranged in a 7x7 grid on the hotbed, thus obtaining a height map of the hotbed. This height map records the height of each point on the 7x7 XY coordinate grid. https://wiki.bambulab.com/en/a1/manual/intro-a1

75

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

	A1 mini Auto Bed Leveling The A1 mini's auto bed leveling involves the following steps: **Touch Probe Detection** A1 mini has a feature to measure the force exerted on the hotend, which can be used to detect contact between the toolhead and the heatbed. Combining this with the up-and-down movement of the Z-axis, the A1 mini can directly measure the height of a specific point on the heated bed relative to the center of the bed. **Height Mapping** By touching the heatbed with the extruder head, the A1 mini performs height measurements at 36 points (6x6 grid) on the bed, creating a height map of the bed. This height map records the height of each point on the 6x6 grid in relation to the bed. https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini If you are using Bambu Studio version 1.8 or earlier, the printer will perform a **fast leveling on 5 locations**, and compare it the previous data. If the difference is too great, the printer will perform a complete heatbed leveling. If not, it will start printing without performing a complete heatbed leveling. **For the number of locations in a complete heatbed leveling, it is 6*6 for A1 mini, and 7*7 for A1.** https://wiki.bambulab.com/en/a1/troubleshooting/homing-leveling-failure Videos showing such auto bed leveling for the A1 series are available at: https://www.youtube.com/shorts/Z4bMcA1mATw and https://www.youtube.com/shorts/XS6TcwA1qBg

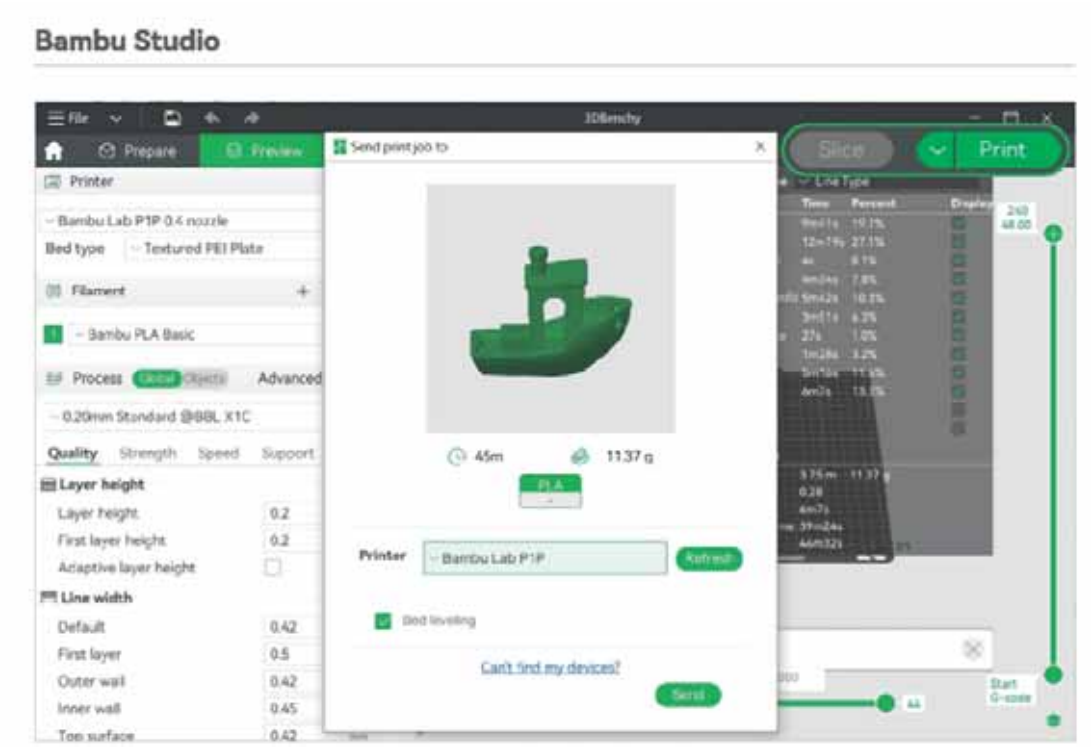
76

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

12. The method of claim 1, wherein the build instructions include at least one instruction for achieving a specified contact force between the fabrication tool and a separate structure, and wherein the control signal controls the at least one component of the three-dimensional printer to achieve the specified contact force.	For each of the Accused Instrumentalities, the build instructions include at least one instruction for achieving a specified contact force between the fabrication tool and a separate structure, and the control signal controls the at least one component of the three-dimensional printer to achieve the specified contact force. For example, the A1 printer can probe the heat bed with the nozzle (contact force) to obtain a height map of the heat bed. The A1 printer can detect and adjust the height of the heat bed to improve print quality – a specified contact force between the extruder and the heat bed and controlling the height of the heat bed to achieve such contact force. By probing the hotbed through nozzle contact, A1 performs height measurements on 49 points arranged in a 7x7 grid on the hotbed, thus obtaining a height map of the hotbed. This height map records the height of each point on the 7x7 XY coordinate grid. With the auto-leveling function, A1 can automatically detect and adjust the height of the print bed before printing and during the printing process. This improves print quality and accuracy by avoiding adhesion issues caused by an uneven print bed surface. It enhances the success rate and consistency of prints. https://wiki.bambulab.com/en/a1/manual/intro-a1 By touching the heatbed with the extruder head, the A1 mini performs height measurements at 36 points (6x6 grid) on the bed, creating a height map of the bed. This height map records the height of each point on the 6x6 grid in relation to the bed. Through the auto bed leveling function, the A1 mini can automatically detect and adjust the height of the print bed before printing and during the printing process. This improves print quality and accuracy by addressing issues caused by an uneven print bed surface, enhancing print success rates and consistency. https://wiki.bambulab.com/en/a1-mini/manual/intro-a1-mini Bambu Studio can provide the build instructions to the printer that includes instructions for adjusting the height of the heat bed (specific contact force between the extruder and the heat bed) by selecting the bed leveling

77

option, as shown below:



https://wiki.bambulab.com/en/p1/manual/print-from-bambu-studio

78

Exhibit D - Exemplary Infringement Evidence for U.S. Patent No. 9,168,698

15. The method of claim 1 wherein the one or more sensors include at least one of a capacitive sensor, and optical sensor, an electromechanical sensor, an electromagnetic sensor, and an acoustical sensor.	For each of the Accused Instrumentalities, the one or more sensors include at least one of a capacitive sensor, and optical sensor, an electromechanical sensor, an electromagnetic sensor, and an acoustical sensor. The Bambu Labs A1 and A1 mini 3D printers include an extrusion nozzle with an extrusion force sensor (e.g., eddy force sensor) that is a type of electromagnetic sensor. For example, https://wiki.bambulab.com/en/a1-mini/manual/build-plate-detection describes the "the extrusion force sensor (eddy current sensor) in the tool head" on the A1 Mini printer. See also e.g., https://wiki.bambulab.com/en/a1-mini/troubleshooting/hmscode/0300_1A00_0002_0002: 

79