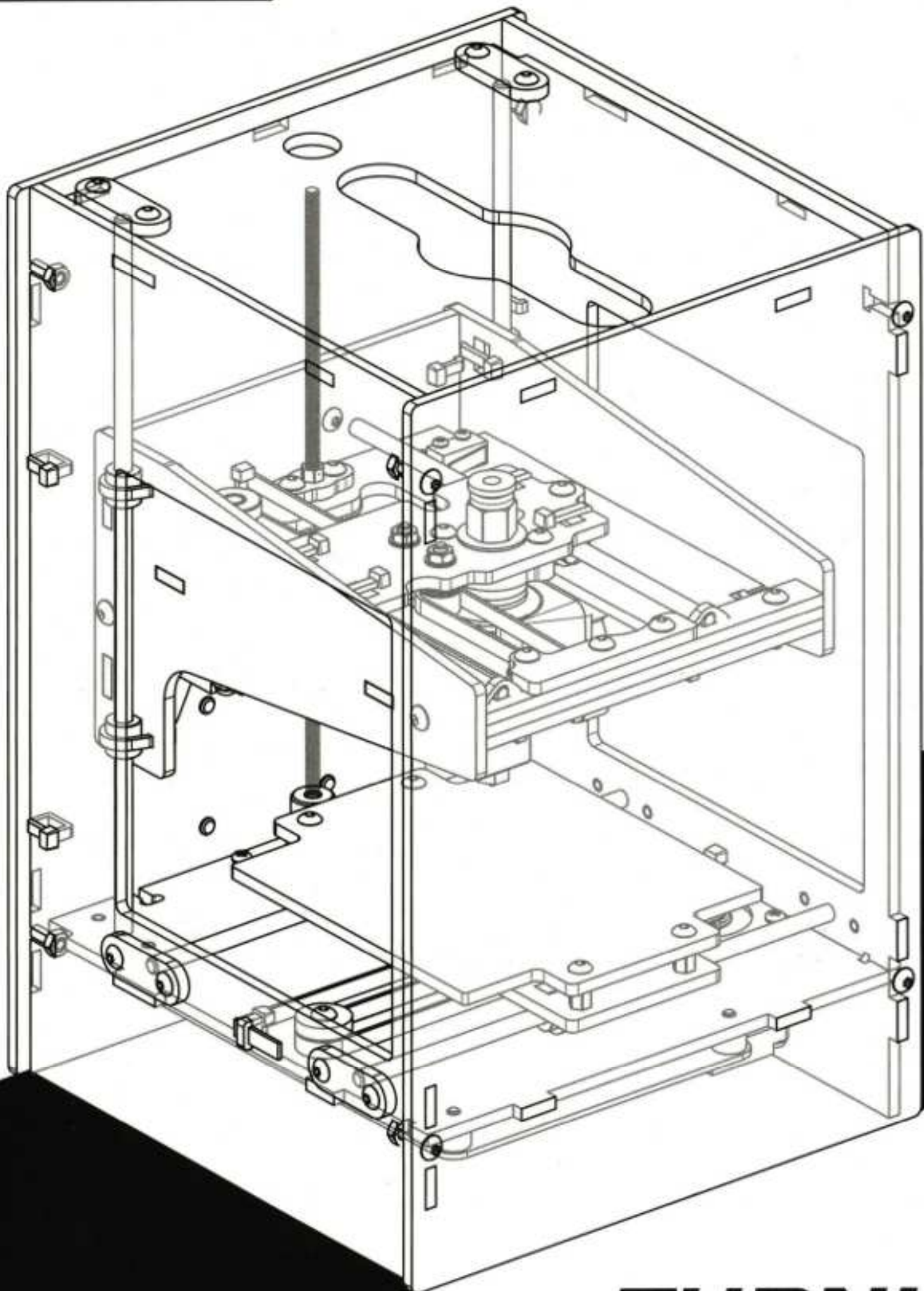


Fabrikator *mini* 3D PRINTER

USER GUIDE



TURNIGY®

Table of Contents:

1. Main parts identification	P.2~4
2. Printer set up	P.3~24
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In the box:

Fabrikator Mini 3D Printer x 1
Power adapter x 1
PLA filament sample x 1
Print platform paper (spare) x 2
User guide x 1

Specifications:

Printed Envelope (approx.): 80mm(X) x 80mm(Y) x 80mm(Z)
Filament: 1.75mm filament / 0.4mm
Filament type: PLA / ABS
Power: 230V, 50Hz (EU, UK, AUS)
120V, 60Hz (US)

The following safety precautions identifications may be used in this manual:



CAUTION: Potentially hazardous situation to be avoided.
Failure to avoid may result in minor or moderate injury.



WARNING: Potentially hazardous situation to be avoided.
Failure to avoid may result in serious injury.



Beware of Hot Surface: Some devices may radiate high temperature.
Be cautious and use safety gloves to avoid burns.



Turn off and lock-out system power before servicing.
Risk of electric shock or burn if failed to comply.



Wear safety glasses to avoid injury to your eyes.



Use standard electrostatic discharge precautions.

Congratulations on your new Fabricator Mini 3D printer!

Before we get started, there is also a video series available on YouTube that provides a visual reference to this manual as well as some tips and tricks to get started with 3D printing.

<https://www.youtube.com/user/HobbykingLive>

Let's get to know your new Fabricator mini 3D printer by going over the names of the parts and their location as well as some ideas about their function.

1 Printer Gantry

This platform moves in two directions Z (up and down) and Y front to back. This allows the extruder to move in 3d space to deposit plastic right where it's needed.

2 Print Platform

This is where the magic happens, the plastic is extruded onto this platform and built up. The print platform handles the X Axis motion left to right. Note the X, Y, Z directions and realize the print bed moves relative to the stationary print head so gives the illusion its moving the wrong direction. Trust us it's not ;)

3 Wiring harness

This delivers power to the extruder and other moving parts of the printer.

4 Filament feeder tube

Filament feeder tube, or better known as a "Bowden tube" this lets the filament curve up and around things without getting damaged or kinked.

5 Print Nozzle or extruder head

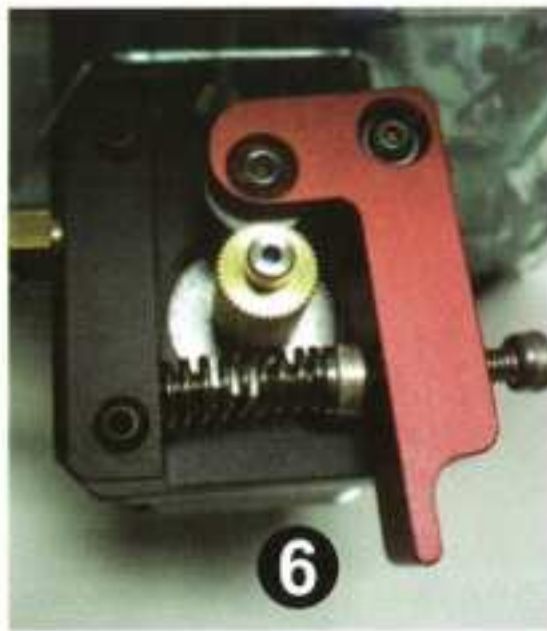
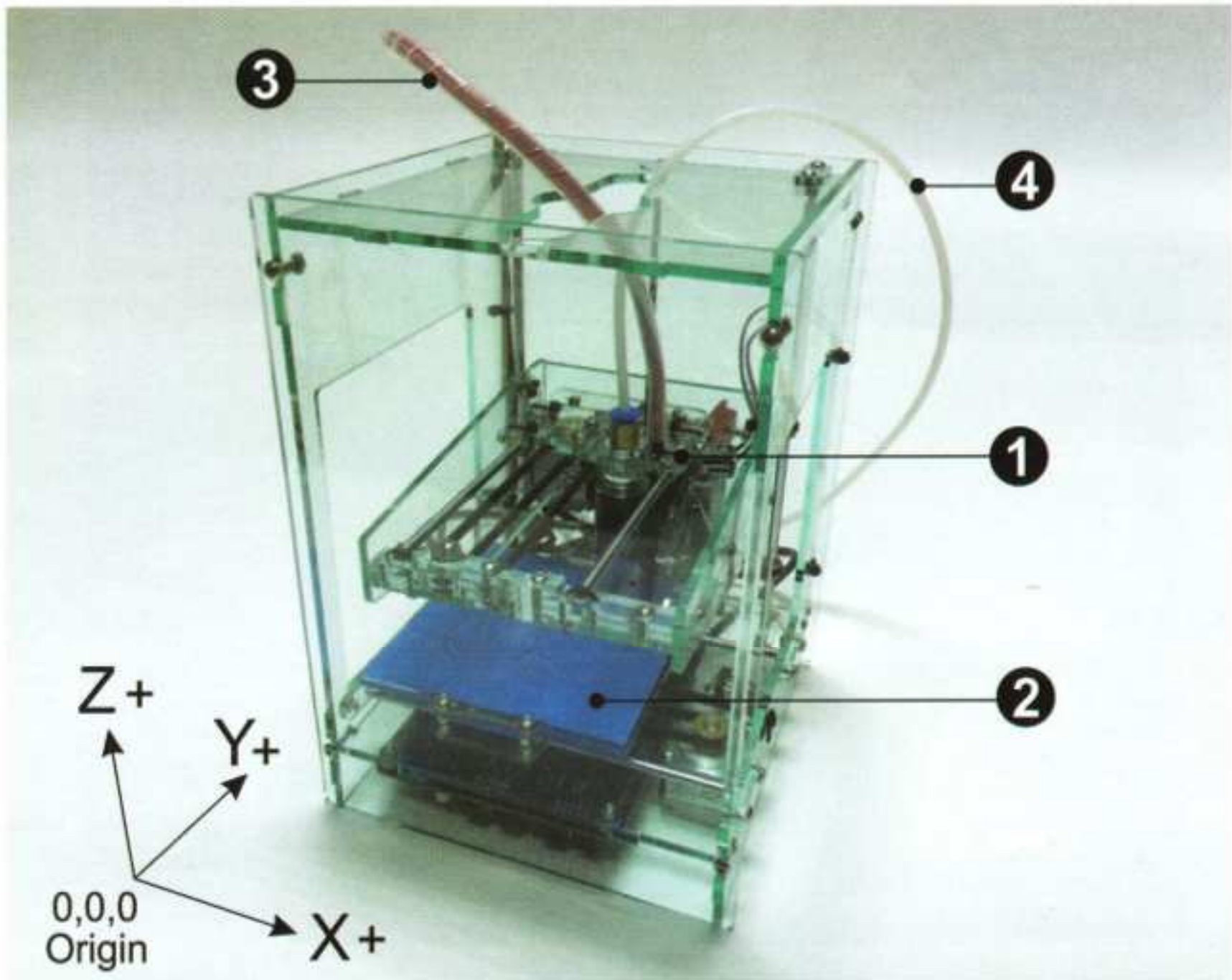
This heats up the incoming plastic and pushes it threw a tiny 0.4mm hole to create the layers that make up your model.

6 Bowden extruder

This is the very accurate motor that controls the flow of plastic. This is also where you load and unload the Filament.

1. Main parts identification

Please note the below X, Y, Z axis directions when operating :



- | | |
|-------------------------------|--------------------------|
| 1 Printer gantry | 5 Printer nozzle |
| 2 Print platform | 6 Bowden extruder |
| 3 Wire harness | 7 Power jack |
| 4 Filament feeder tube | |

Ok, let's get started, after unboxing the Mini we need to hook up a few things we disconnected to make sure the printer arrived safe and sound to you. The first thing is the Bowden tube to the extrusion motor (Fig 1 and 2) We need to screw the brass end of the Bowden tube into the extruder motor, this just needs to be hand tight to compress the O-ring.

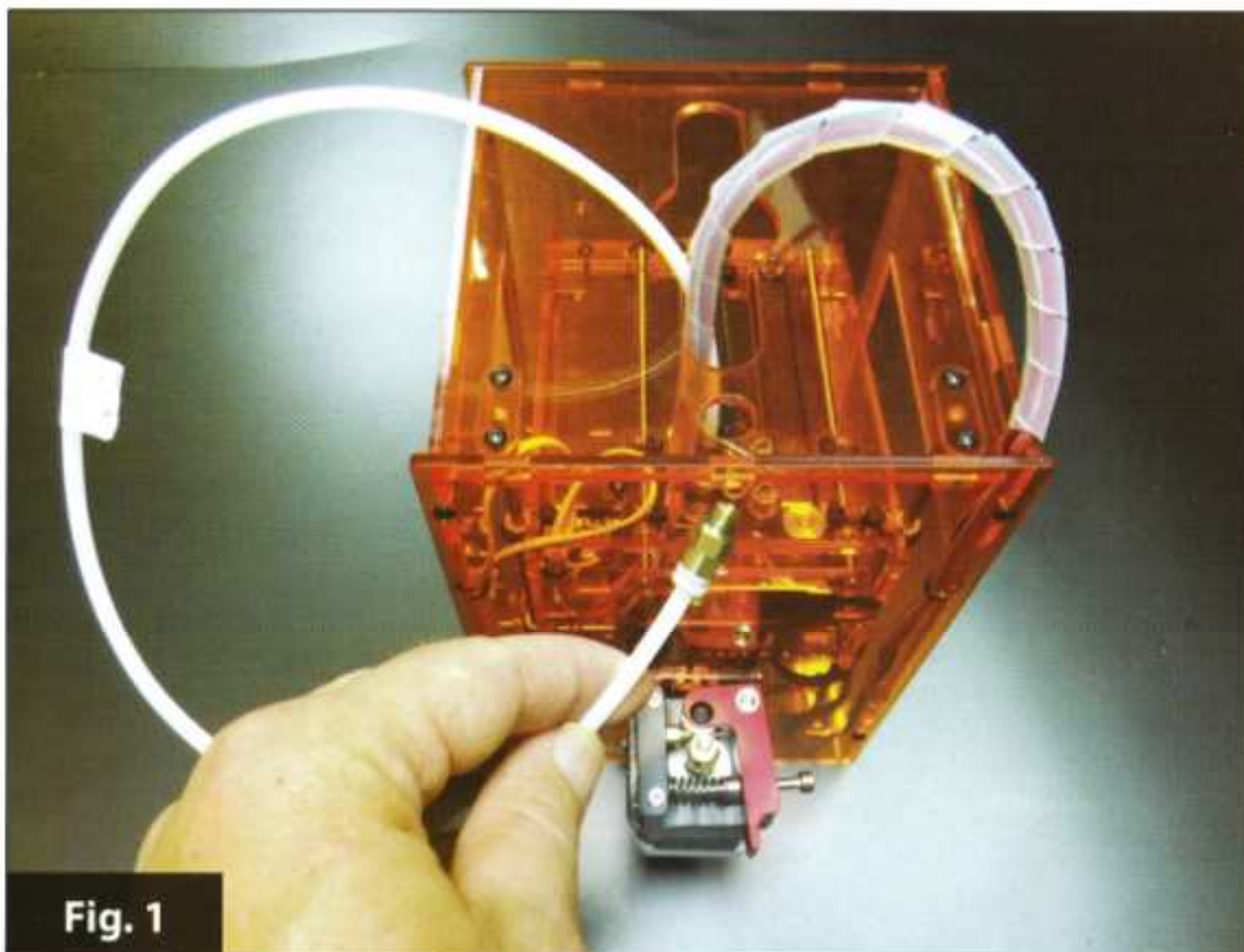


Fig. 1

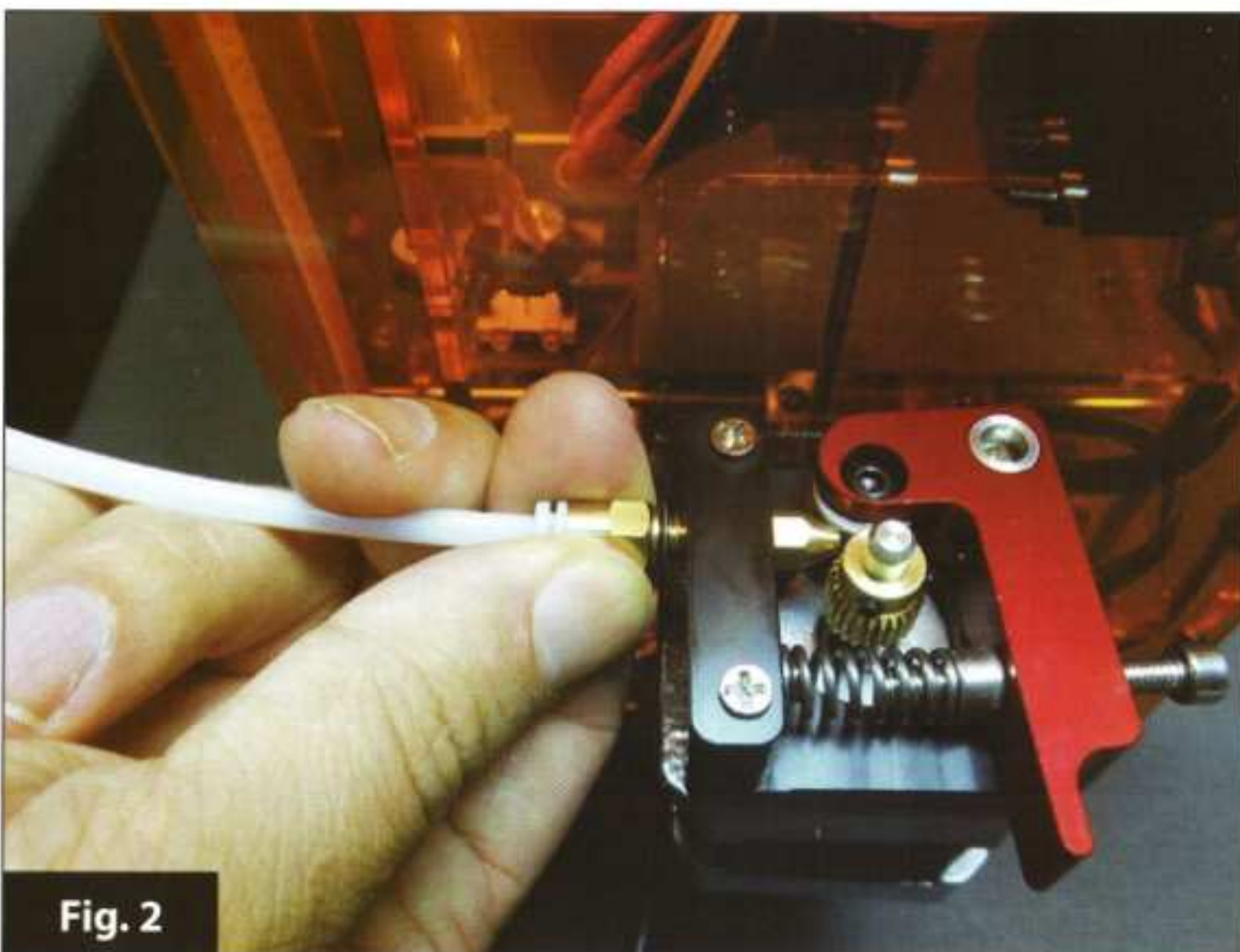


Fig. 2

Now connect the USB cable and power supply to the printer, but don't plug it into the computer or wall outlet just yet (Fig 3 and 4).

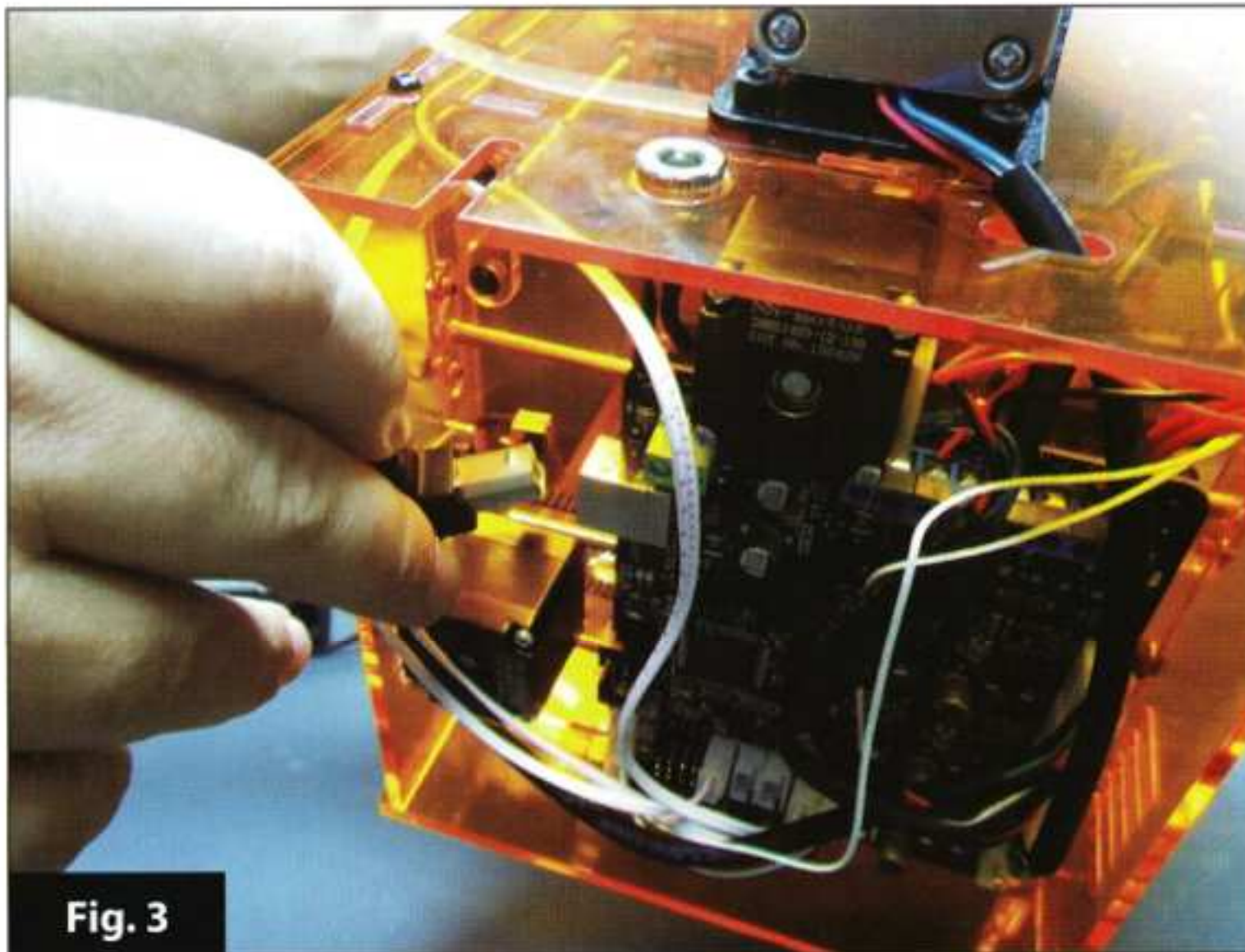


Fig. 3

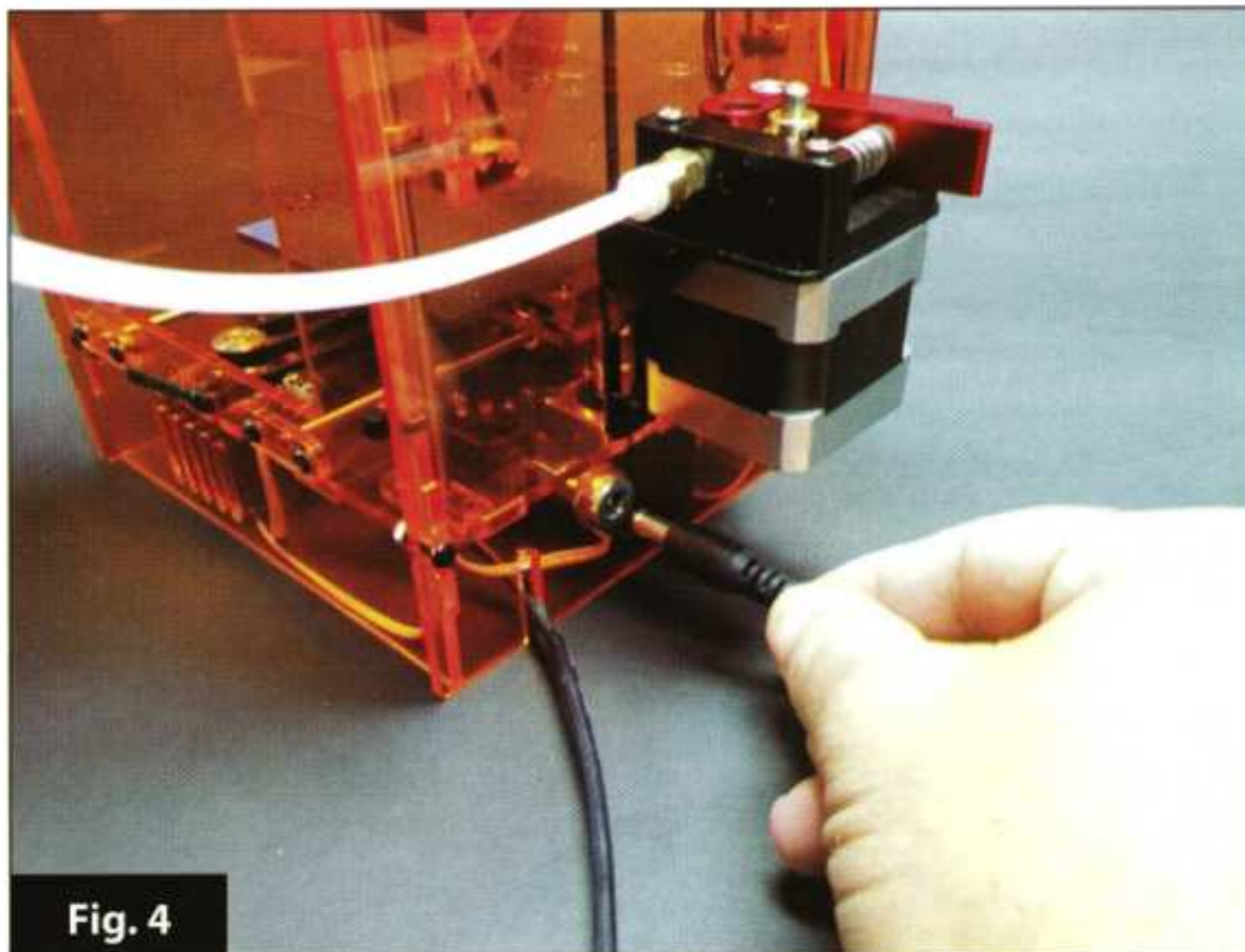


Fig. 4

Now it's time to install the software on your computer and configure it to work with the Fabricator mini. There are many programs that can run your new printer, but we recommend Repetier Host. Get in front of your computer and head to this site.

<http://www.repetier.com/download-now/>

Select the version that matches your computer operating system and click on download (Fig. 5 and 6).



Open up the downloaded file and follow the easy installation steps on your screen.



After installation your software is ready to use. Click finish and launch the program.



Fig. 7

Now we need to configure Repetier-host for the Fabricator Mini, click the printer settings icon over on the top right

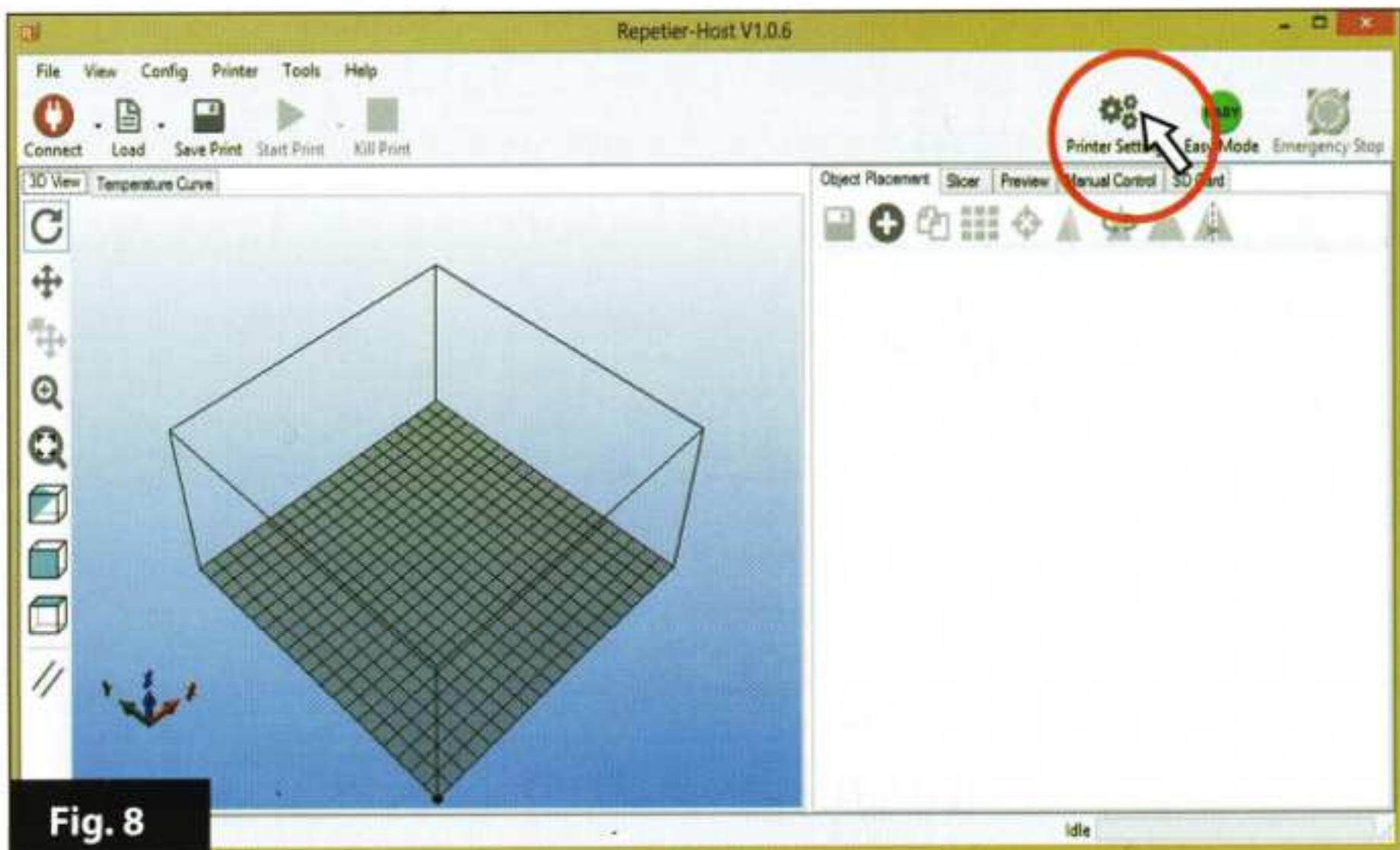
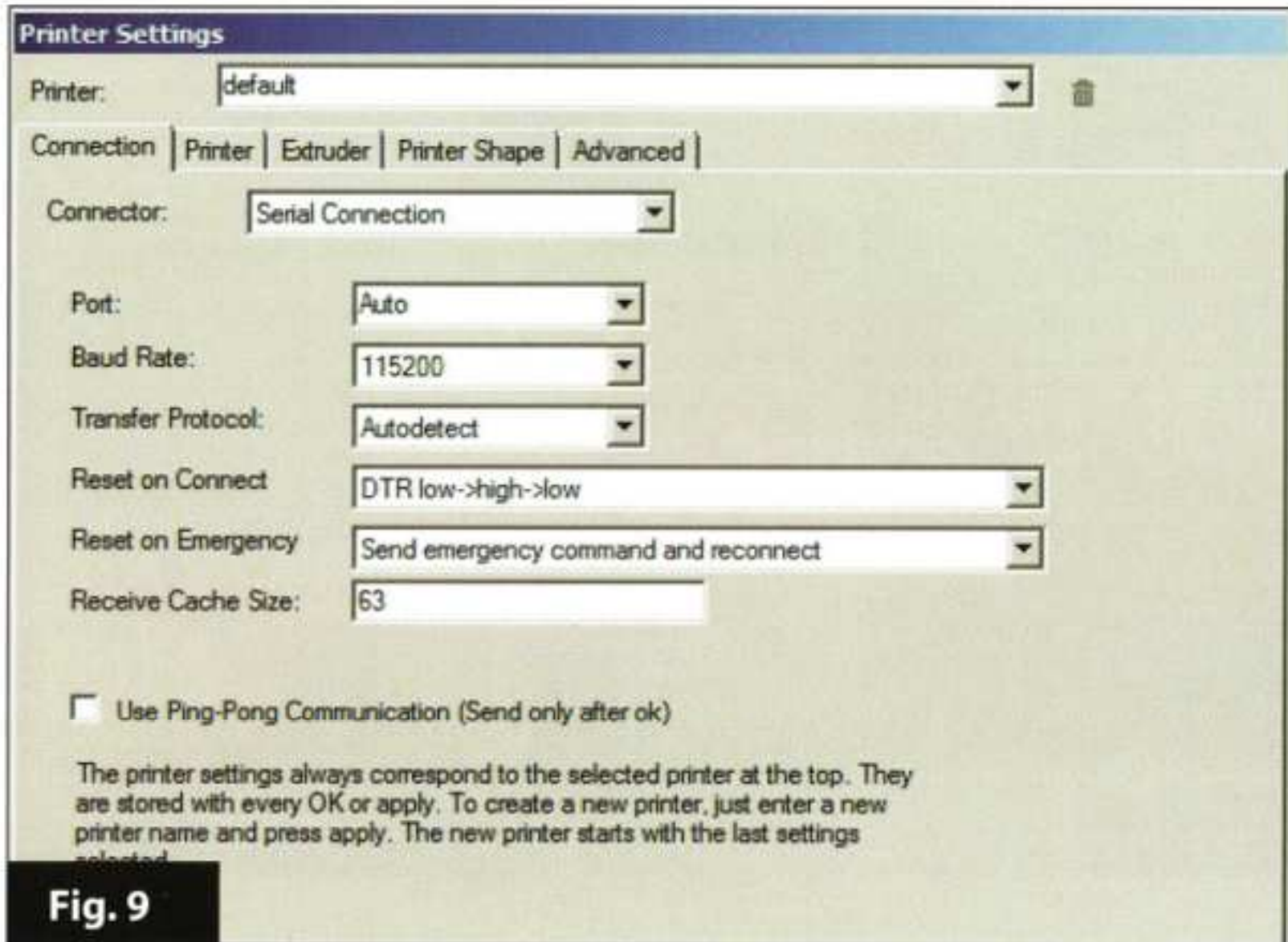


Fig. 8

A printer settings box will open up and we need to fill in the settings for each tab, let's start with the first tab "connection", fill in the data for each box according to the pictures below (Fig 9).



Next is the "Printer" and "extruder", tab fill in each tab to match Fig. 10 and 11 paying close attention to the values.

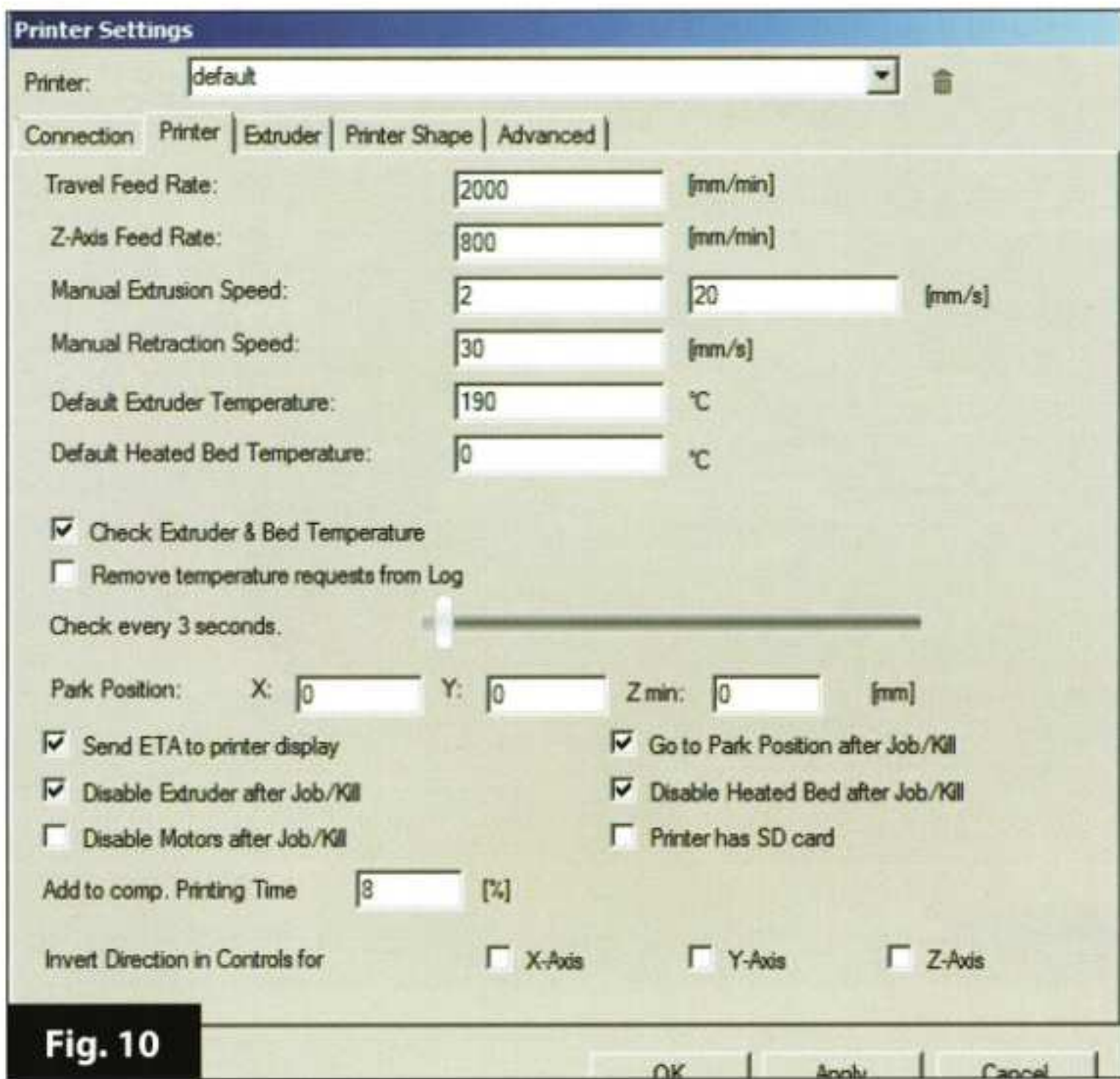


Fig. 10

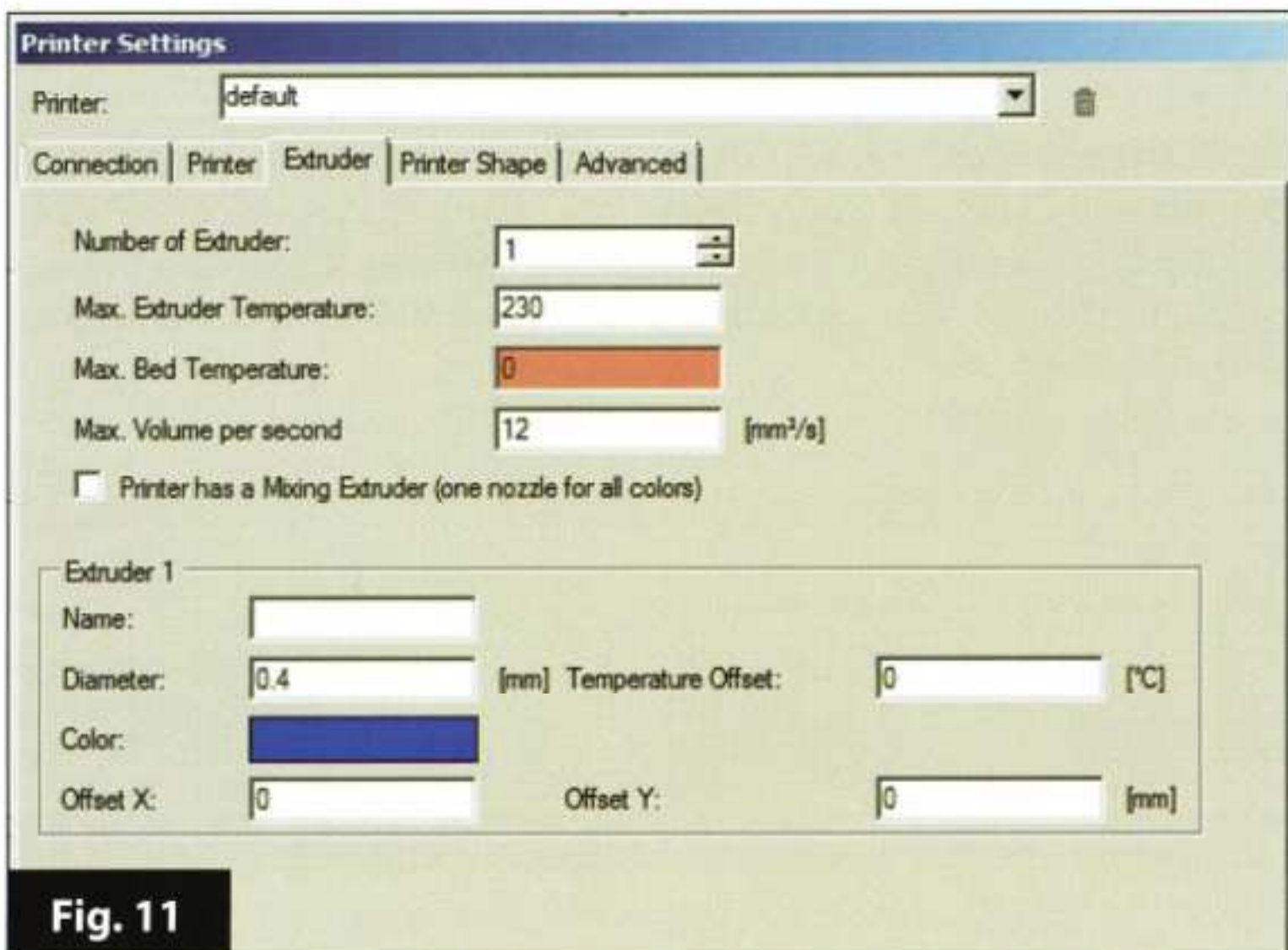
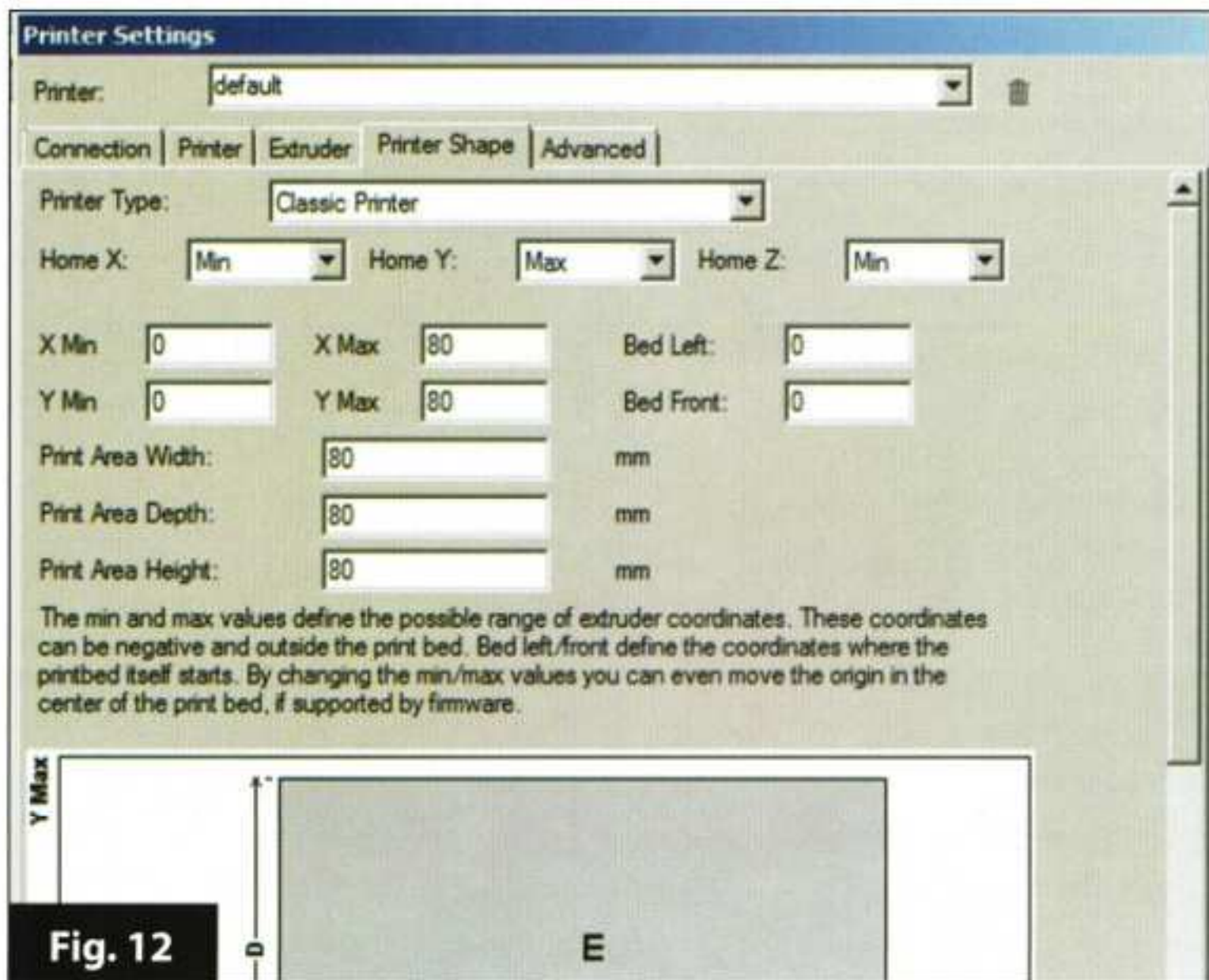


Fig. 11

Last is the "Printer Shape" tab (Fig12)



**Now that the Printer Settings are completed.
Next we need to complete the CuraEngine settings.**

Repetier-host has a few slicer engines to choose from we recommend CURA. To make things easy we made a pre-configured Fabricator mini file set that can just be imported, if you don't have access to this file you can quickly configure the Cura Slicer in the following steps.

Import option: To download the preconfigured Cura file go to HobbyKing.com and then the Fabricators Mini's listing page, under the listing there is a files Tab. Click the files tab and download the Cura File and save it to your computer.



Fig. 13

Let's head back to Repetier_host program. Look along the top right and find the "Slicer" tab. Select the "CuraEngine" from the drop down. The screen should look like the diagram below. Click on the "Configuration" button so we can import the file we just downloaded.(Fig14)

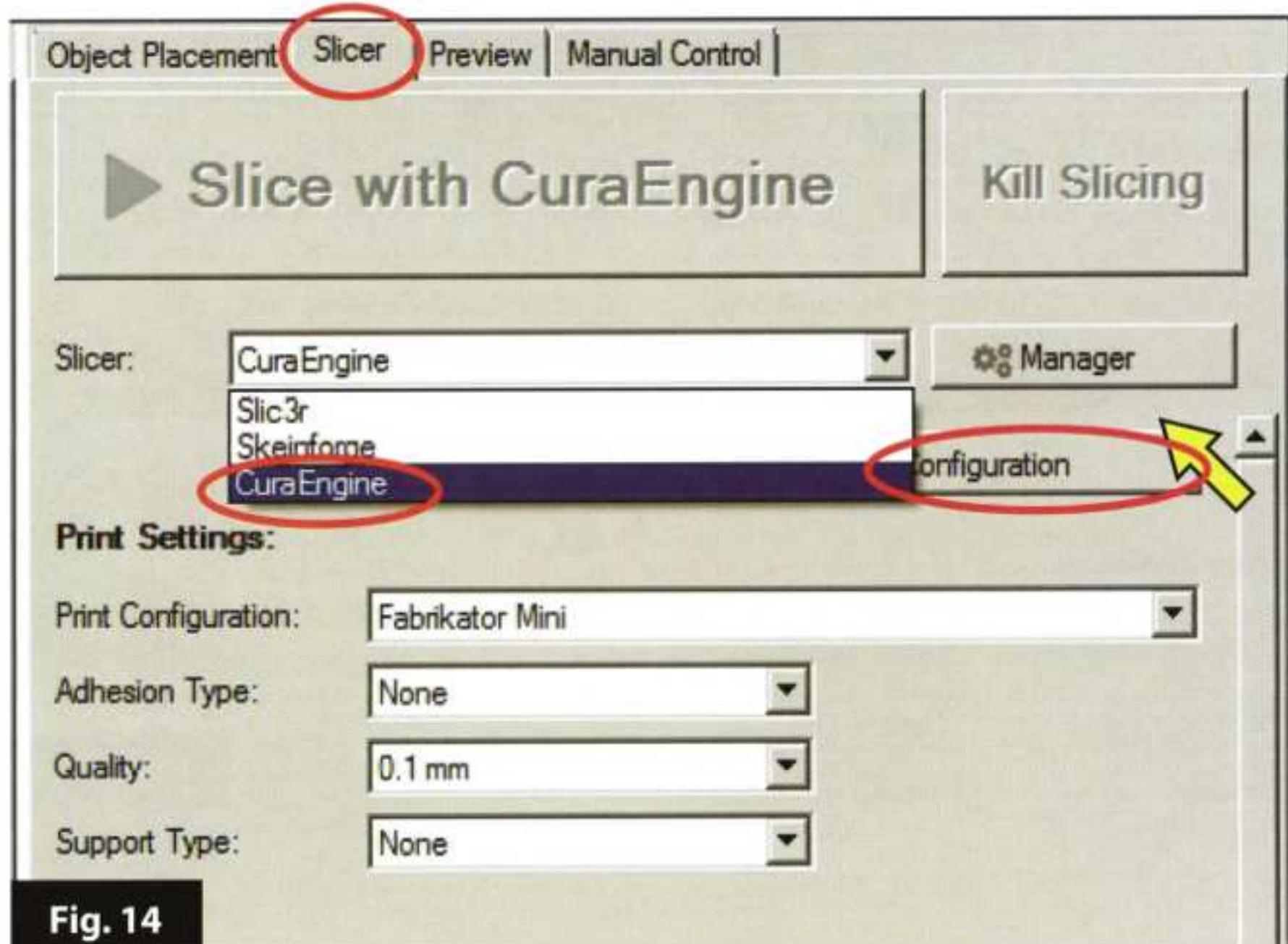


Fig. 14

In this new window in the middle near the top is an “Import” button **1**, select this and select the file you just downloaded. Fabricator Mini should fill the box to the left **2**. Now just click save **3** from the same window and you’re done. And ready to move on to testing and loading the filament.

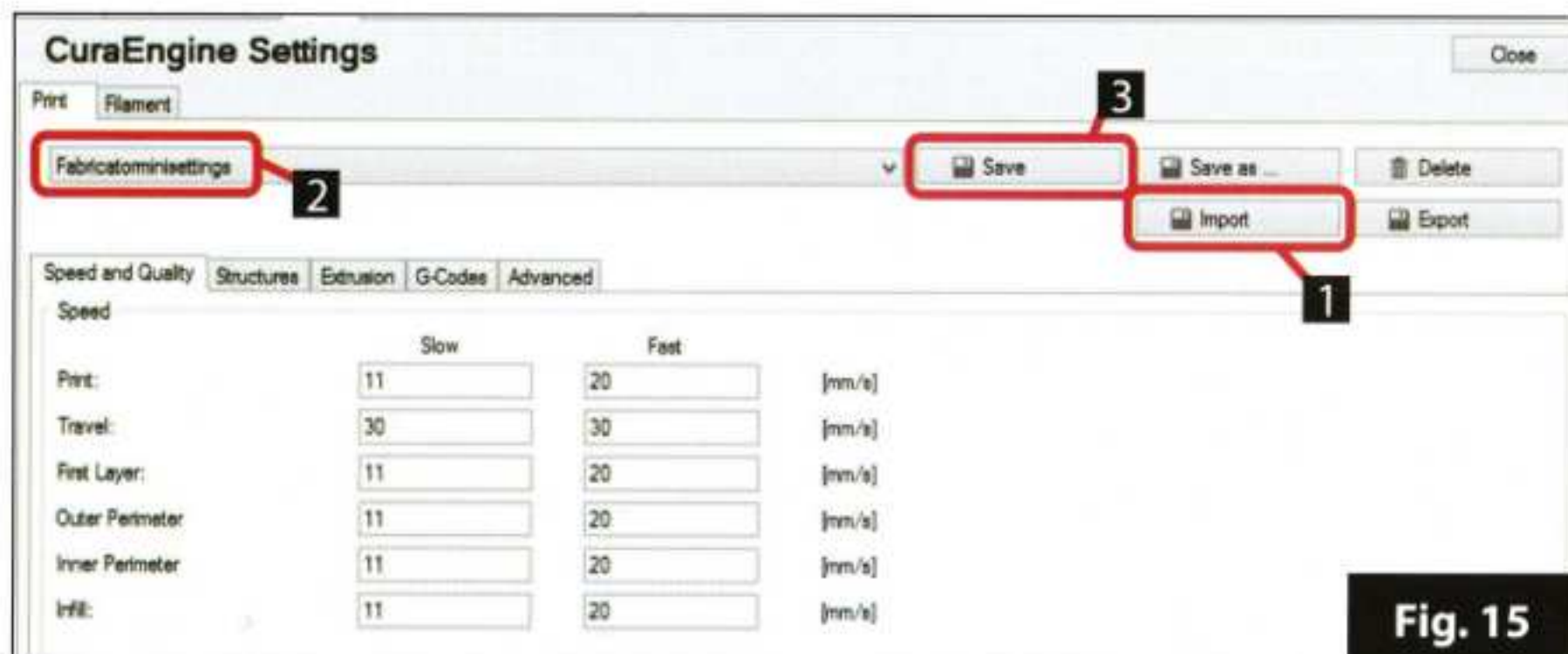


Fig. 15

Manual Setup option: Look along the top right and find the “Slicer” tab **1**. Select the “CuraEngine” from the drop down **2**. The screen should look like the diagram below. Click on the “Configuration” button **3** so we can start putting in some settings.

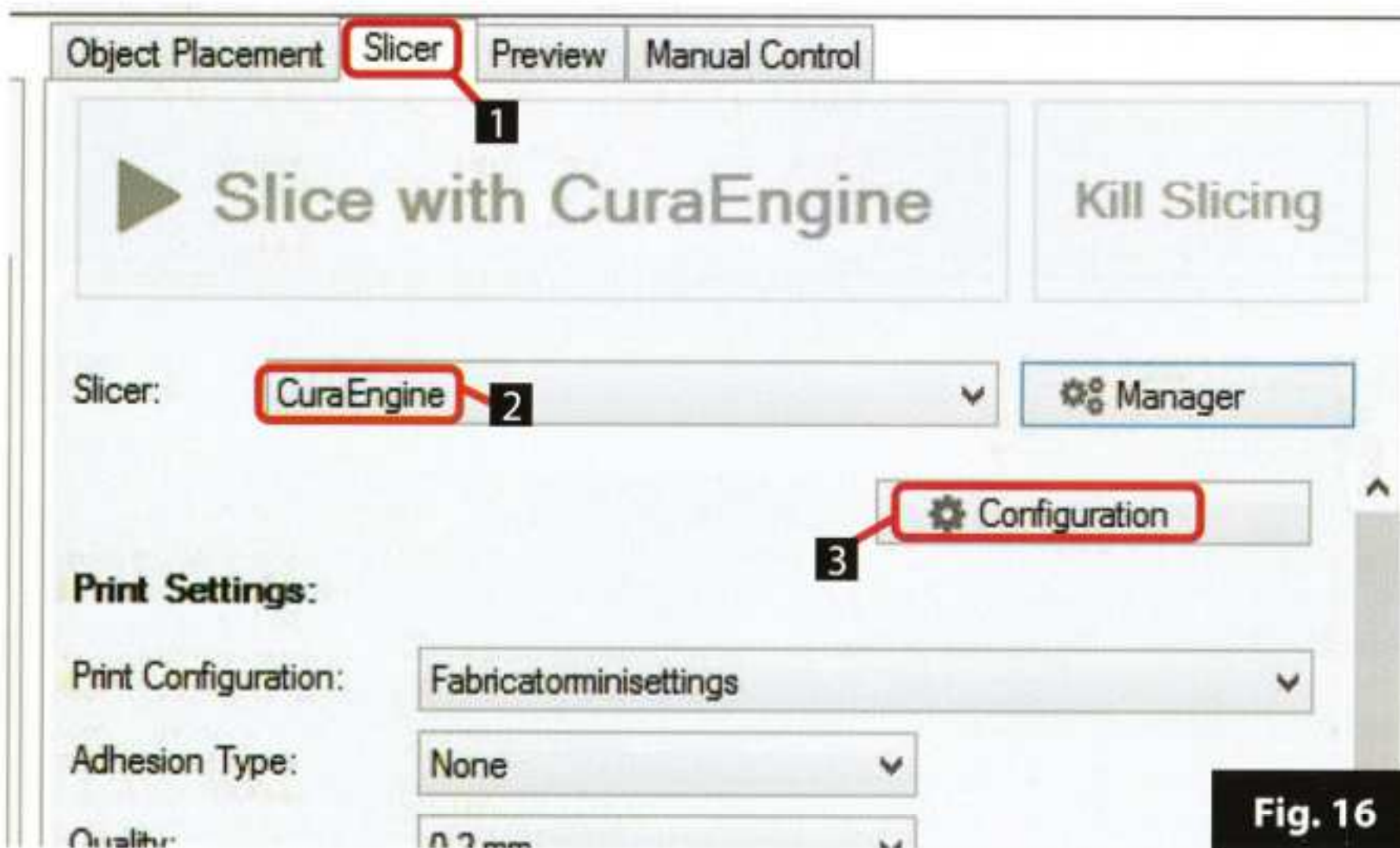
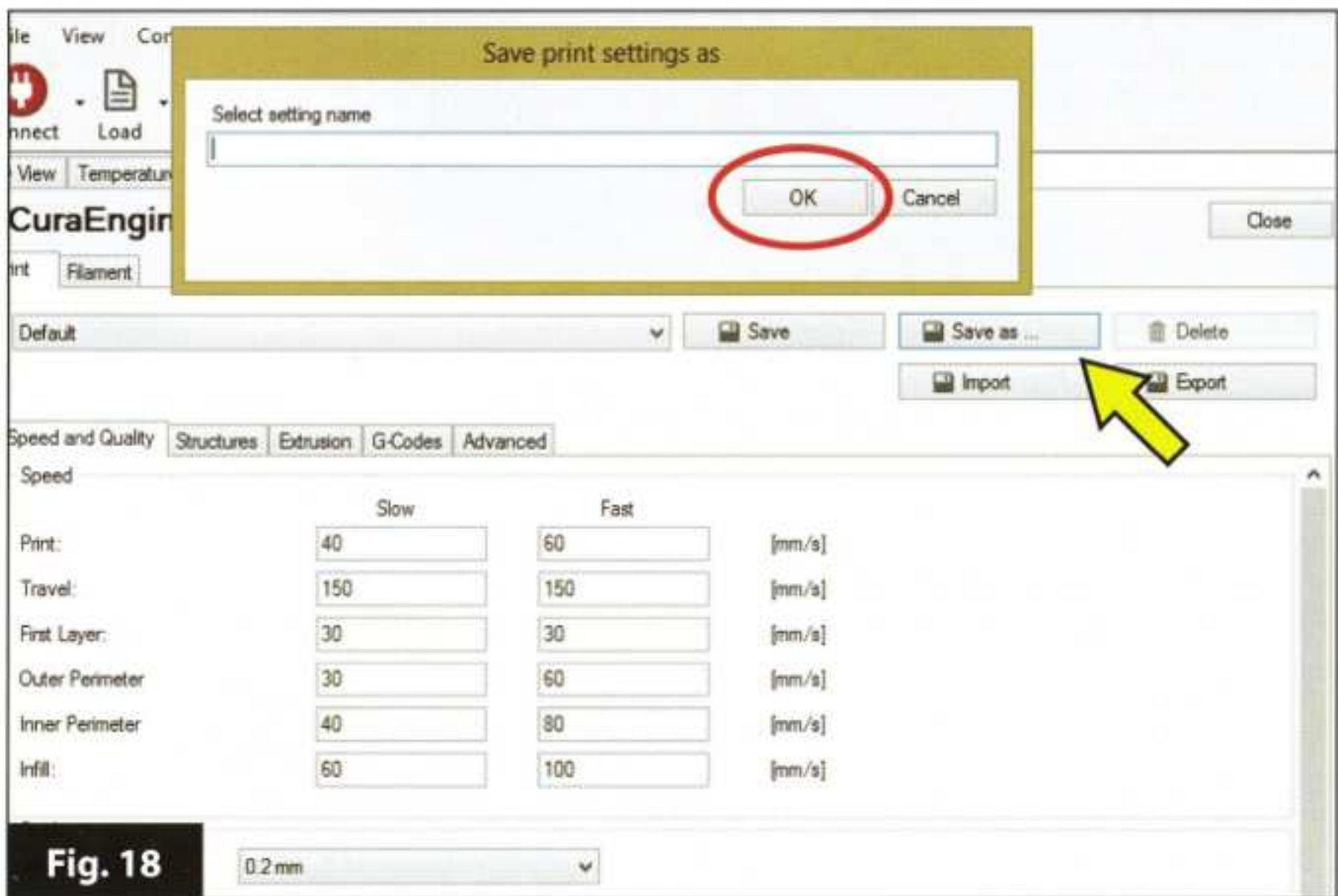
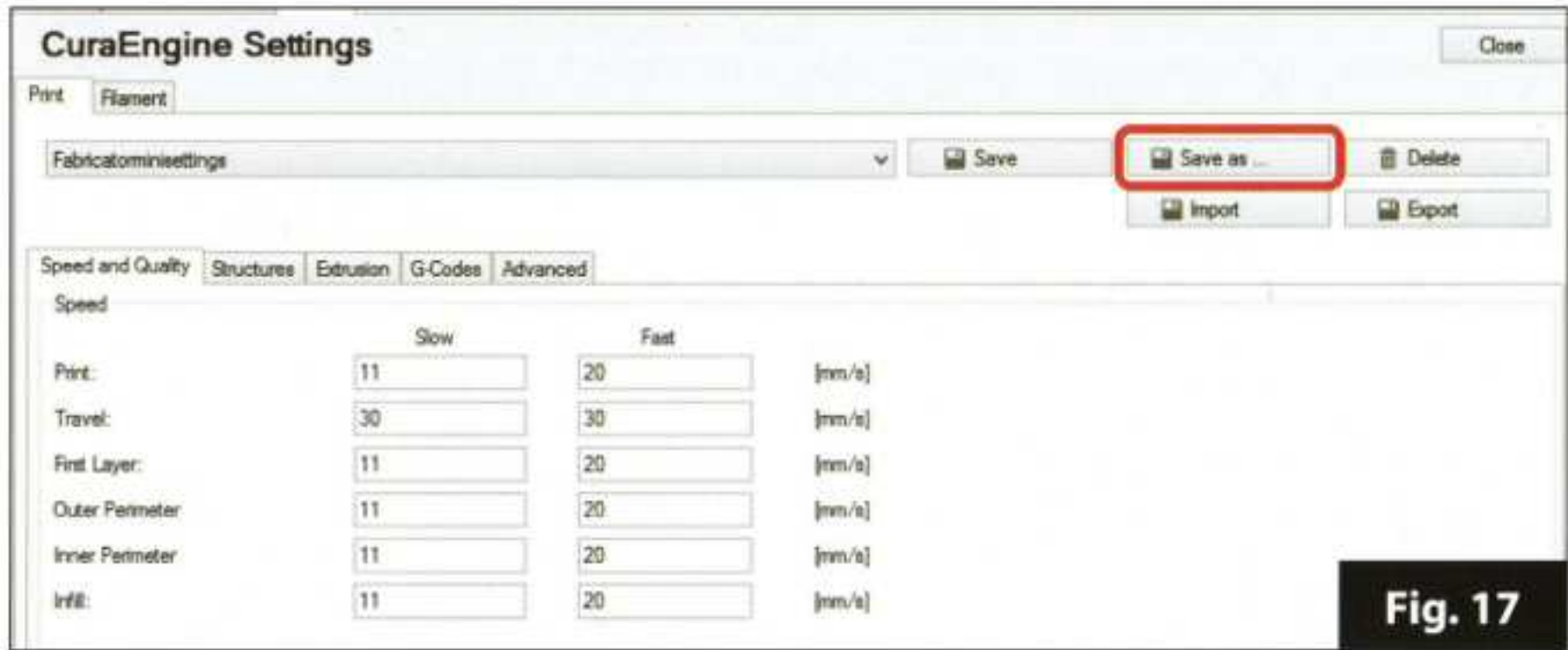
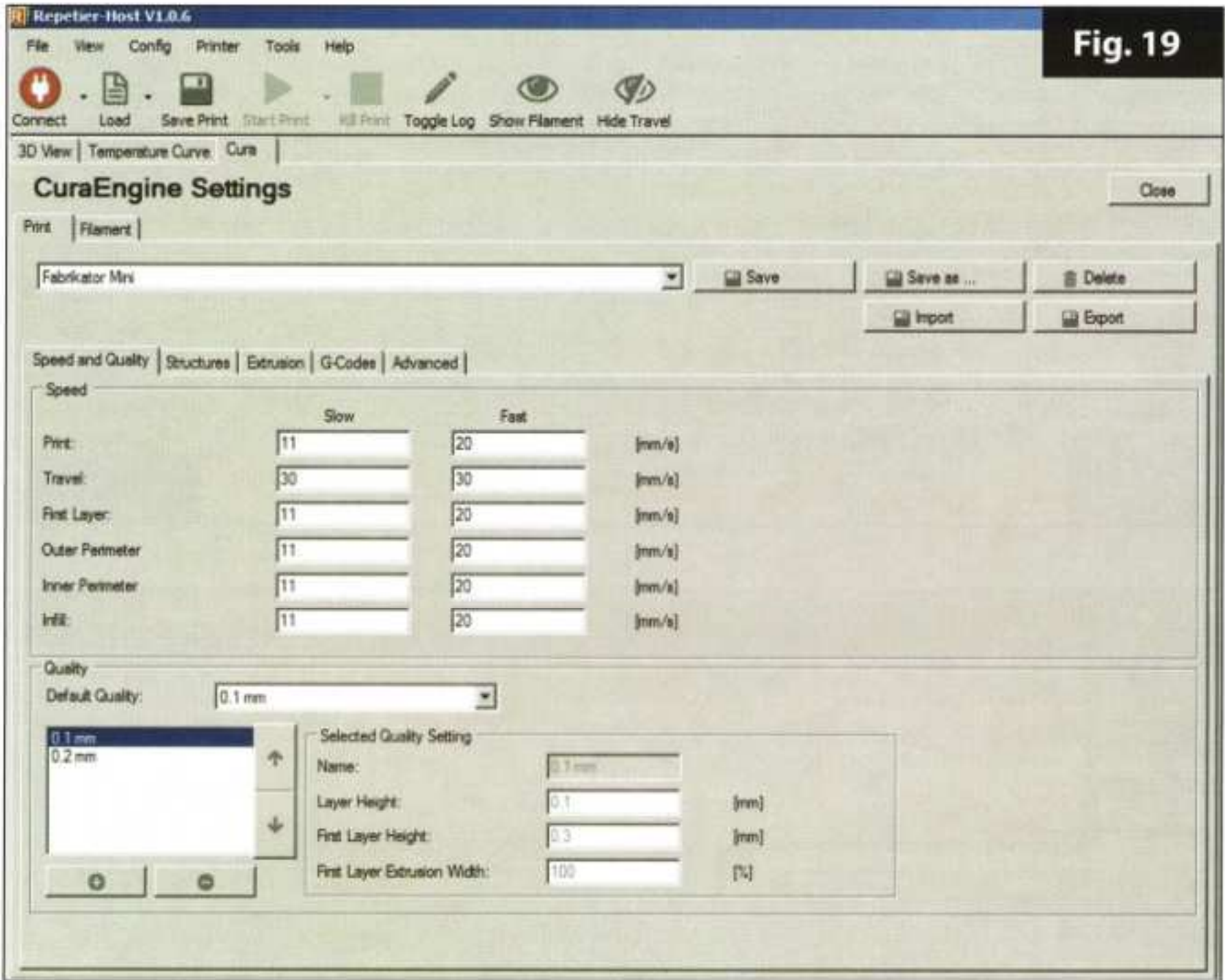


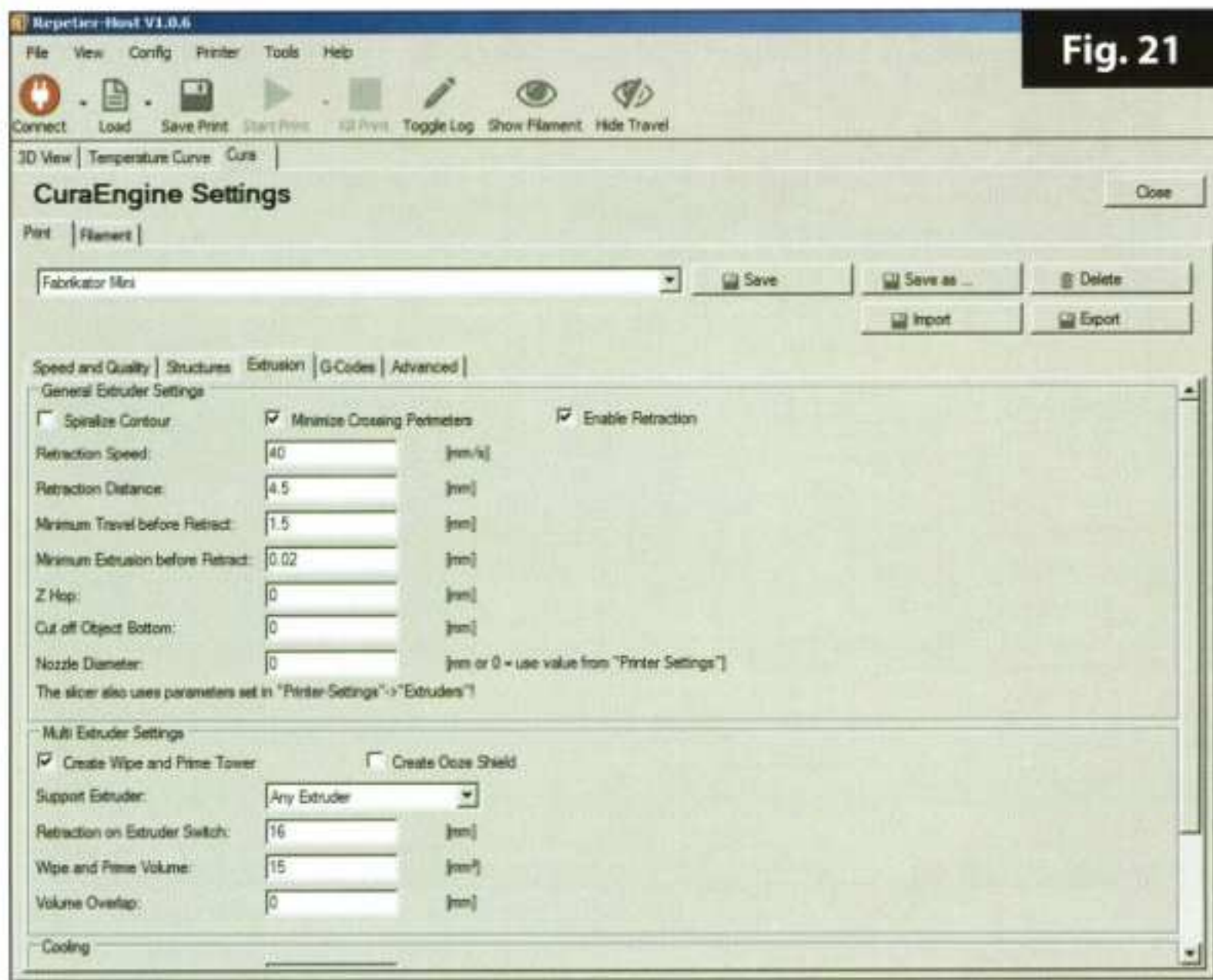
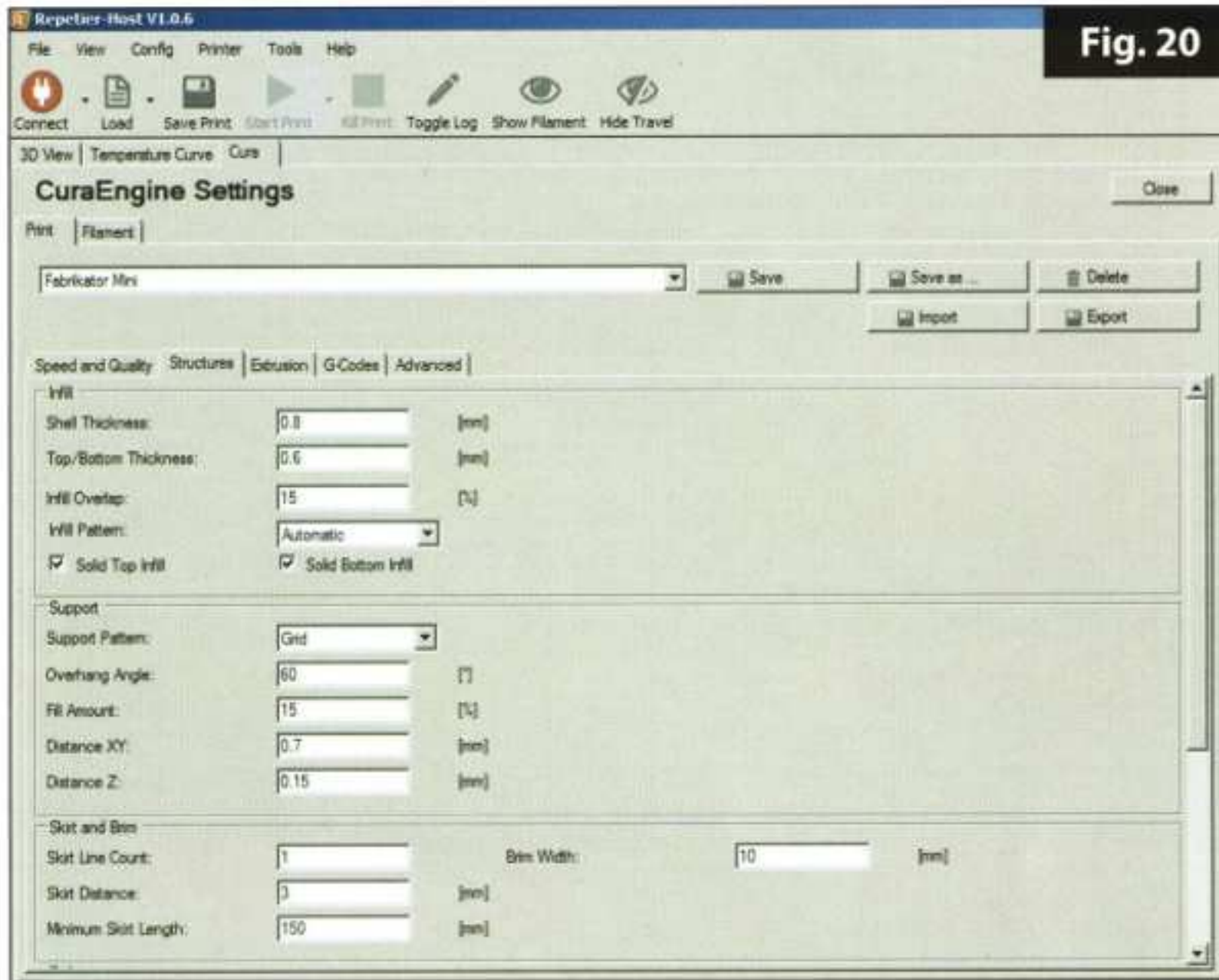
Fig. 16

Let's start by adding a name, click on "save as" and then enter a name for your printer, and select OK.



Following the data shown in Fig 19~23 fill in the data for each of the first 4 tabs then click Save. Double check these settings match those below and don't forget to click save (Fig.19~23)





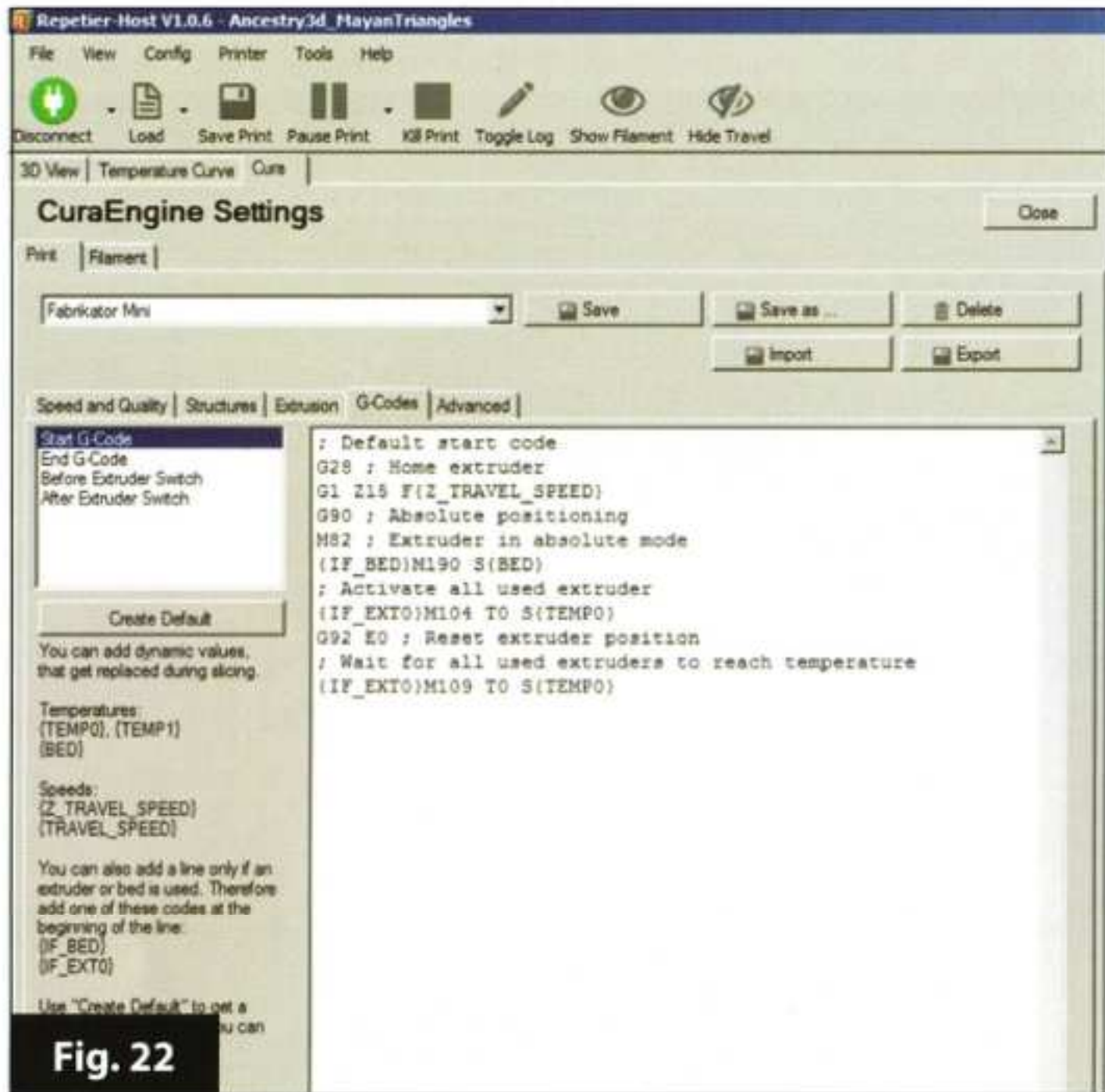


Fig. 22

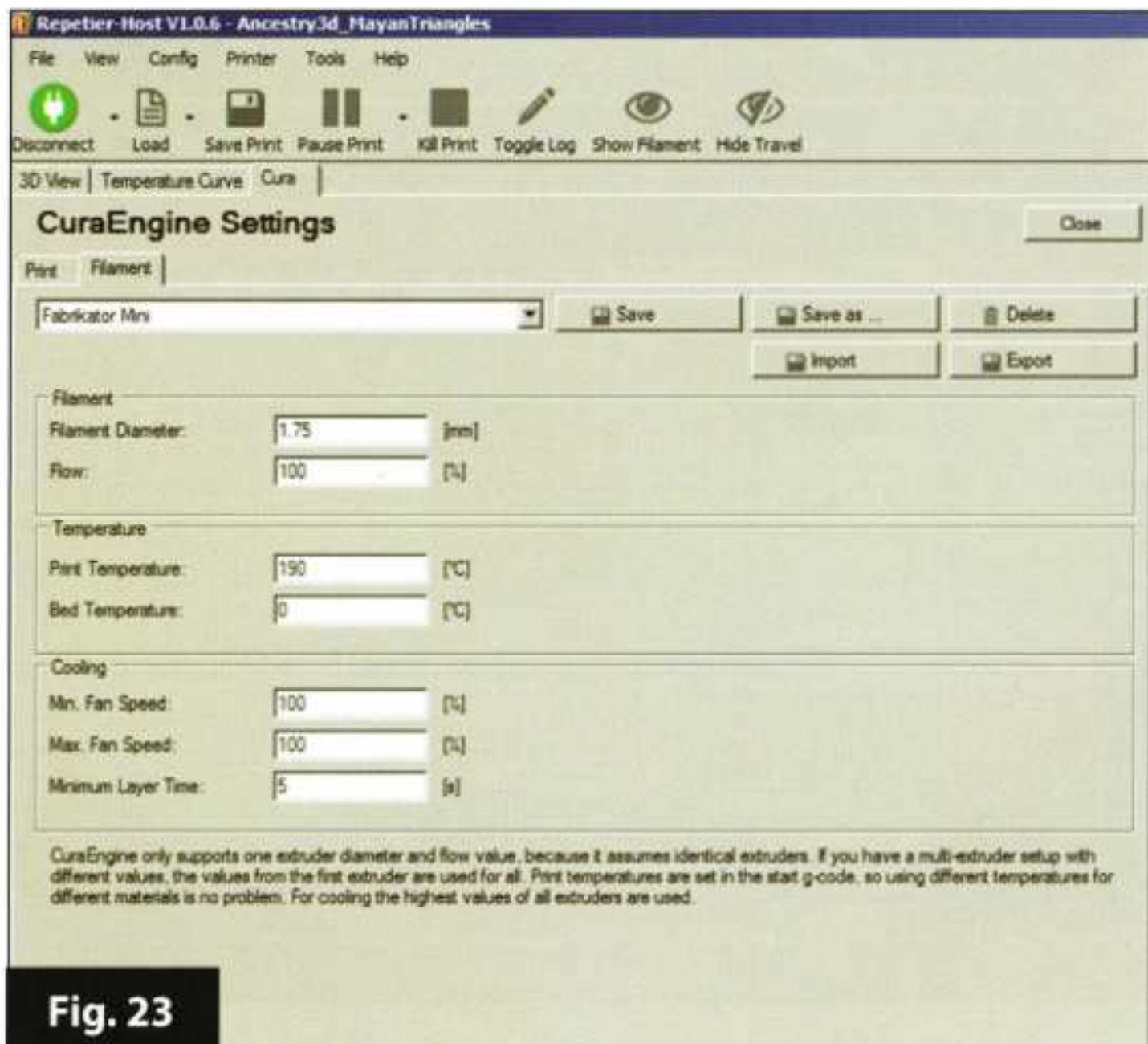


Fig. 23

Ok, great your printer software is all set up and we are ready to get familiar with the software and load some filament.
Now plug in the USB cable into your computer and to the mains power. Give your computer about a minute to find and load the required drivers. Once this is done, click on the "connect" icon on the top left, if the connection is successful, the icon will turn green in a few seconds. (Fig.24)

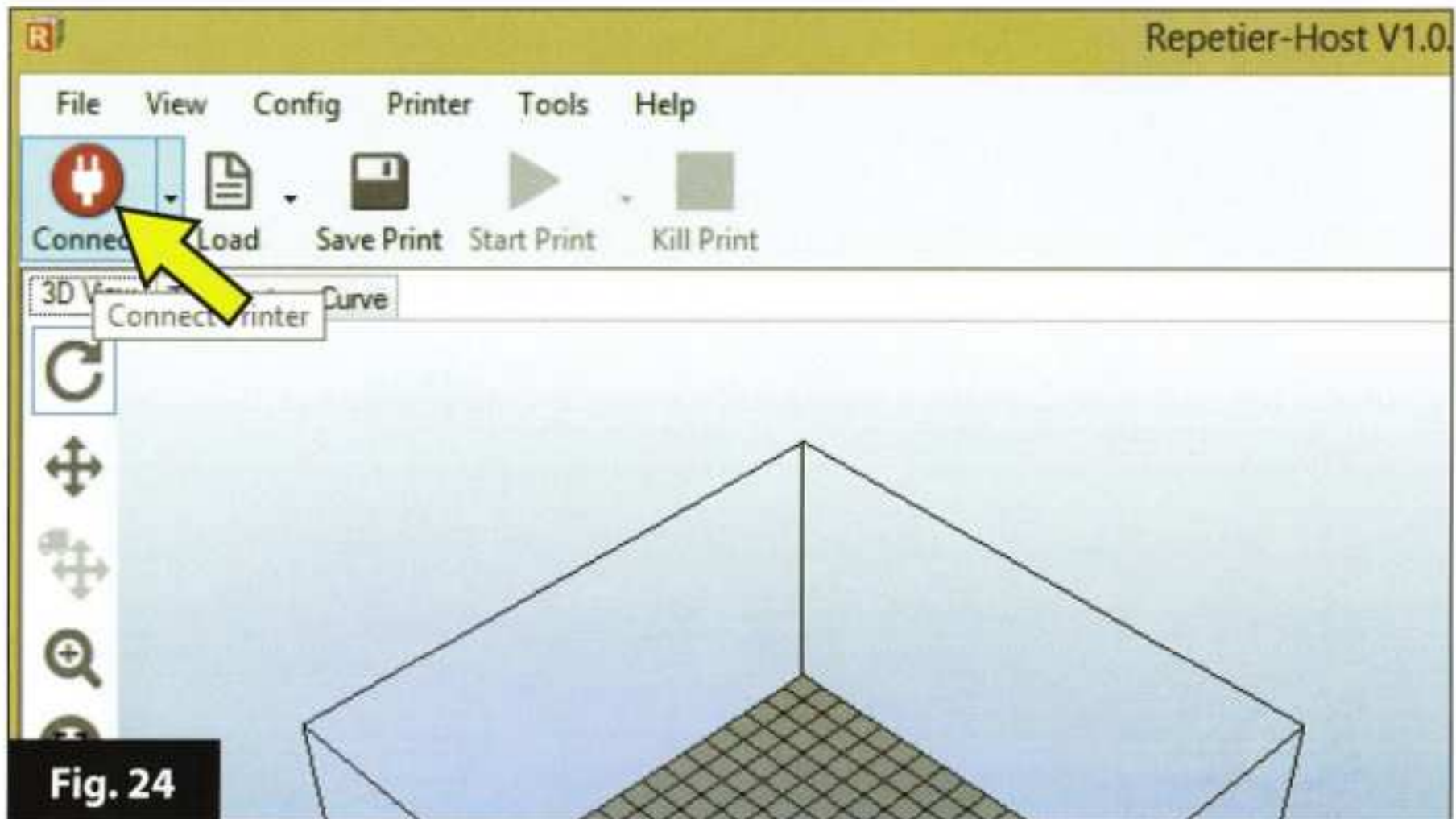


Fig. 24

Now let's Auto home the printer this must be done every time it is connected, this is so the printer can learn its position relative to the print platform. Make sure objects and fingers are clear from the printer, as this function will make the printer move its platform. Click the AutoHome button as shown in Fig 25.

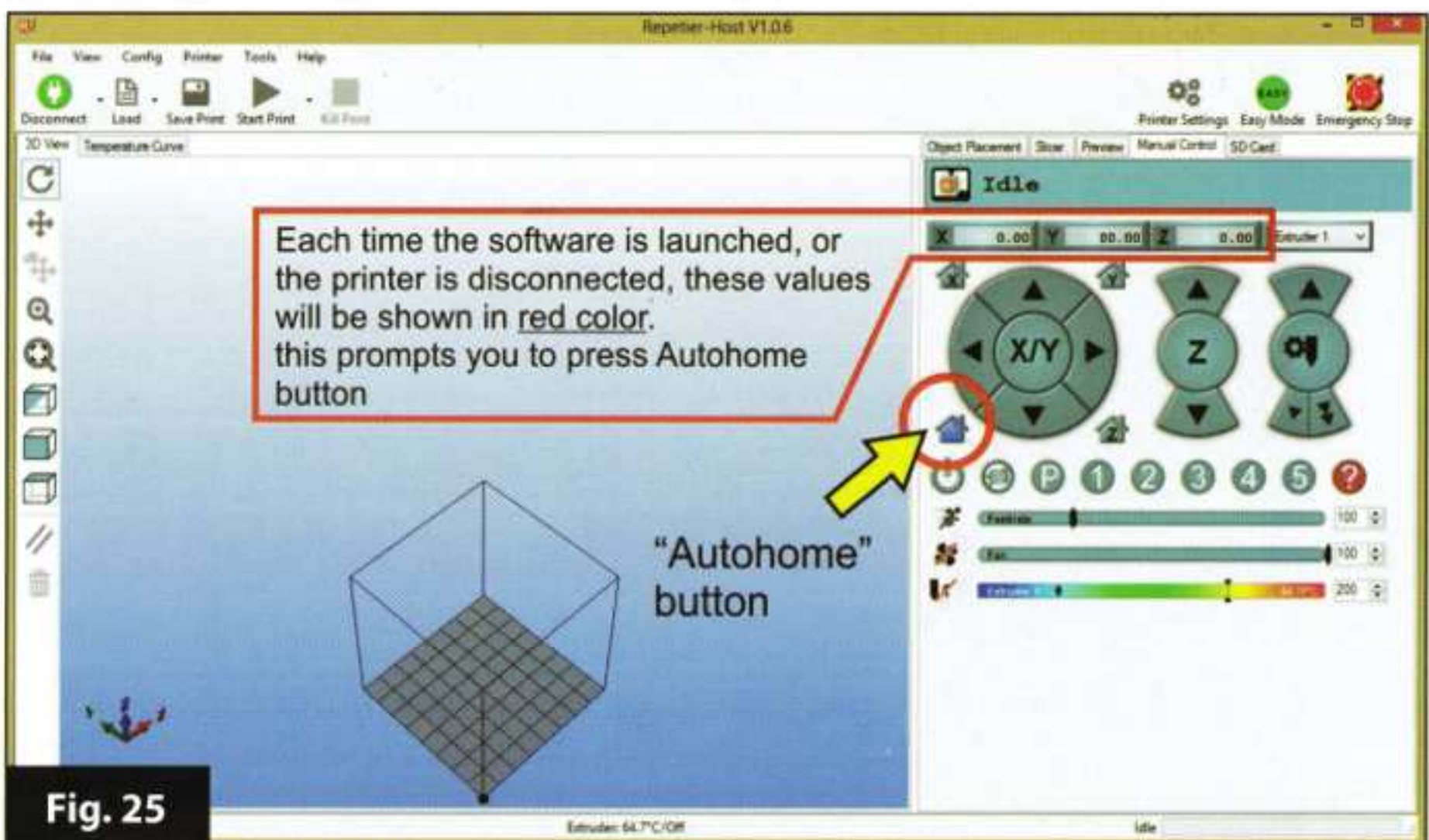


Fig. 25

Now that the printer is “parked” after the homing procedure, let’s talk about the coordinate system. When looking at the printer from the front, the front left corner is “Origin” or 0. This is useful to know so when placing a model in the software you will know its direction and placement relative to the platform. The home position is the back left corner and is only used for machine homing.

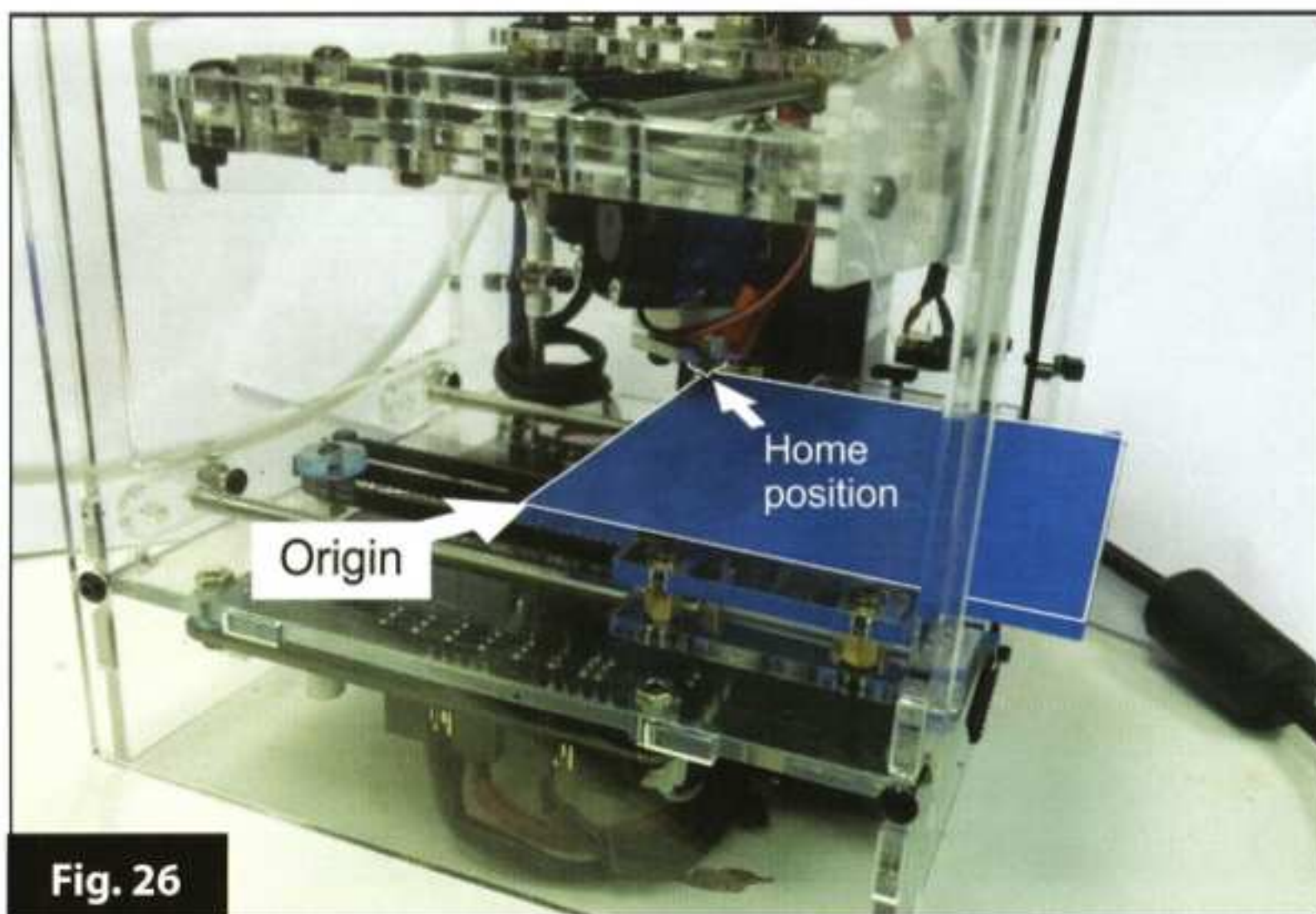


Fig. 26

We need to double check the Z axis position and make a fine adjustment if necessary. After the auto-homing, the printer head will be very close to the printer platform, use a piece of paper and slip it between the print head nozzle and the platform. It should just slip though, not too tight, and not too loose (Fig 27)

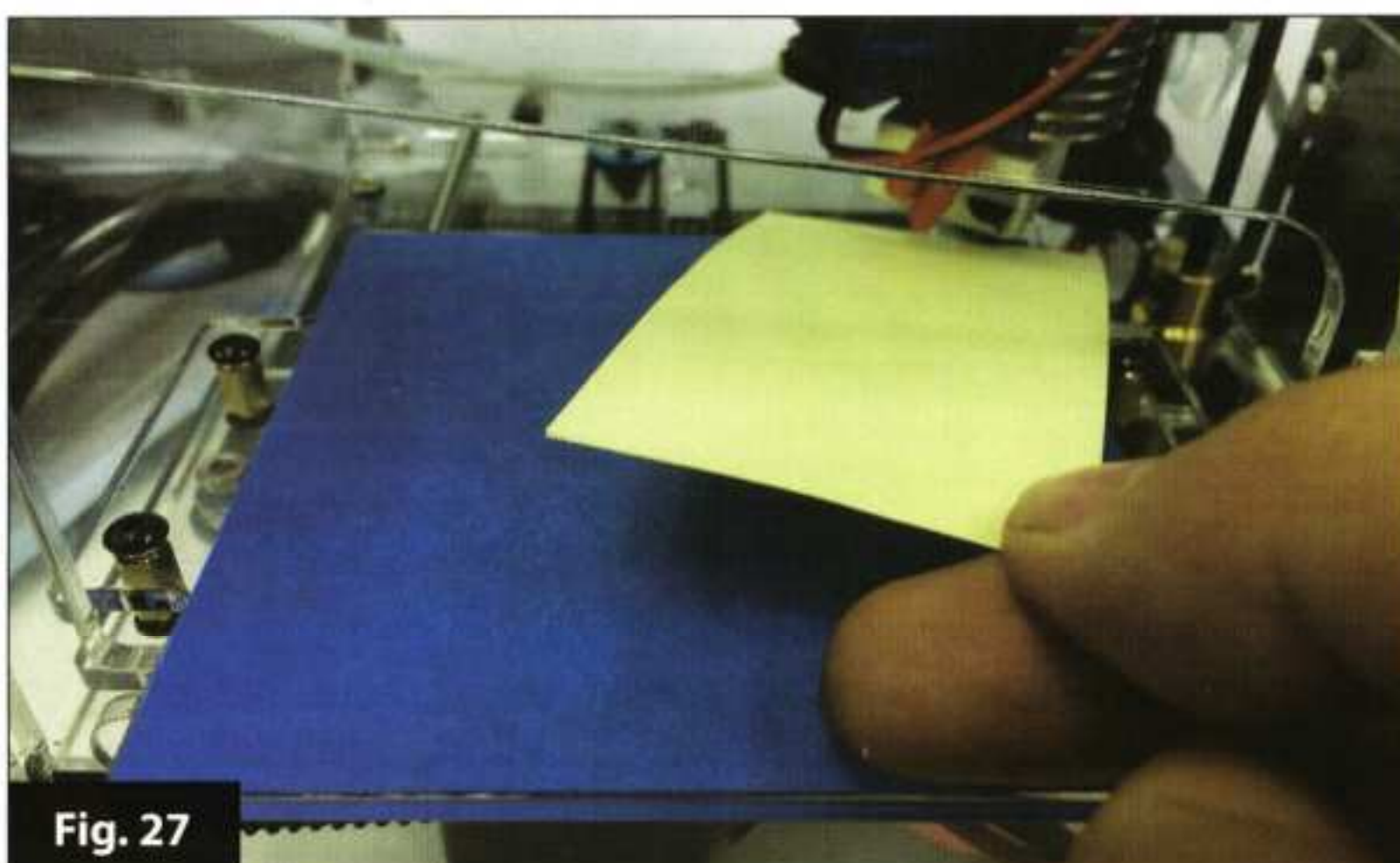


Fig. 27

If the paper is too loose or too tight, follow the next steps to fine tune the distance between nozzle tip and print platform. Otherwise, the printer is ready to use.



Hot surface: Do not touch the nozzle with your hand.



Fig. 28

In case the nozzle and platform distance is incorrect, simply turn the Z-positioning screw (Fig. 29) bit by bit clockwise or counter-clockwise (Fig. 30) and then press "Autohome" button (Fig. 31). Insert the sheet of paper between the nozzle and the print platform for recheck. Repeat this process if needed.

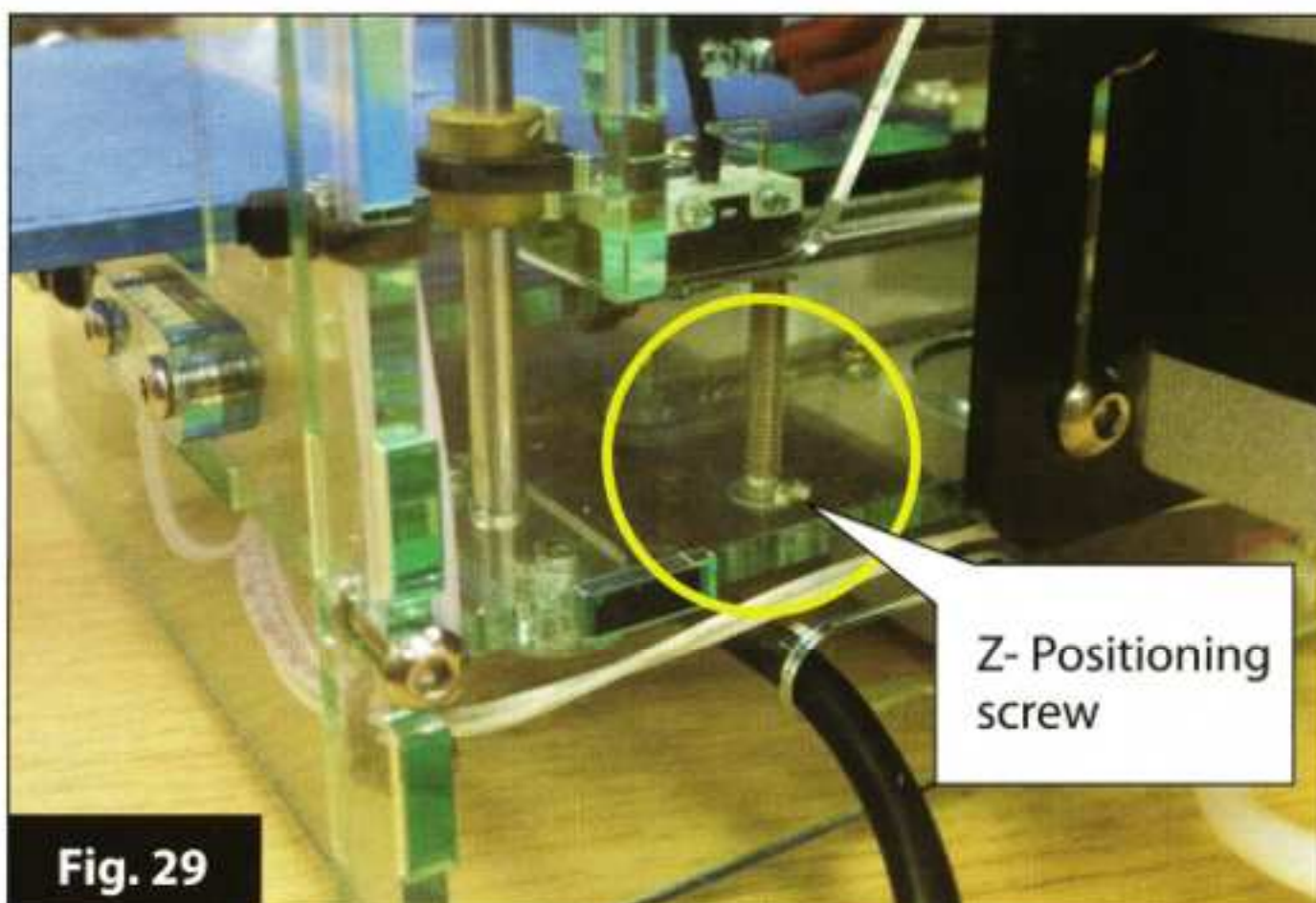


Fig. 29



Beware of Hot Surface:

Do not touch the MOTORS at the bottom to avoid injury

To fine tune print platform Z-position Slightly turn this screw bit by bit, clockwise (if nozzle is too close to platform) or counter-clockwise (if nozzle is too far).



Fig. 30

After making small adjustments to the Z position screw click the auto home button again to check the new updated position, repeat the procedure till the perfect height is achieved between the nozzle and printer bed.

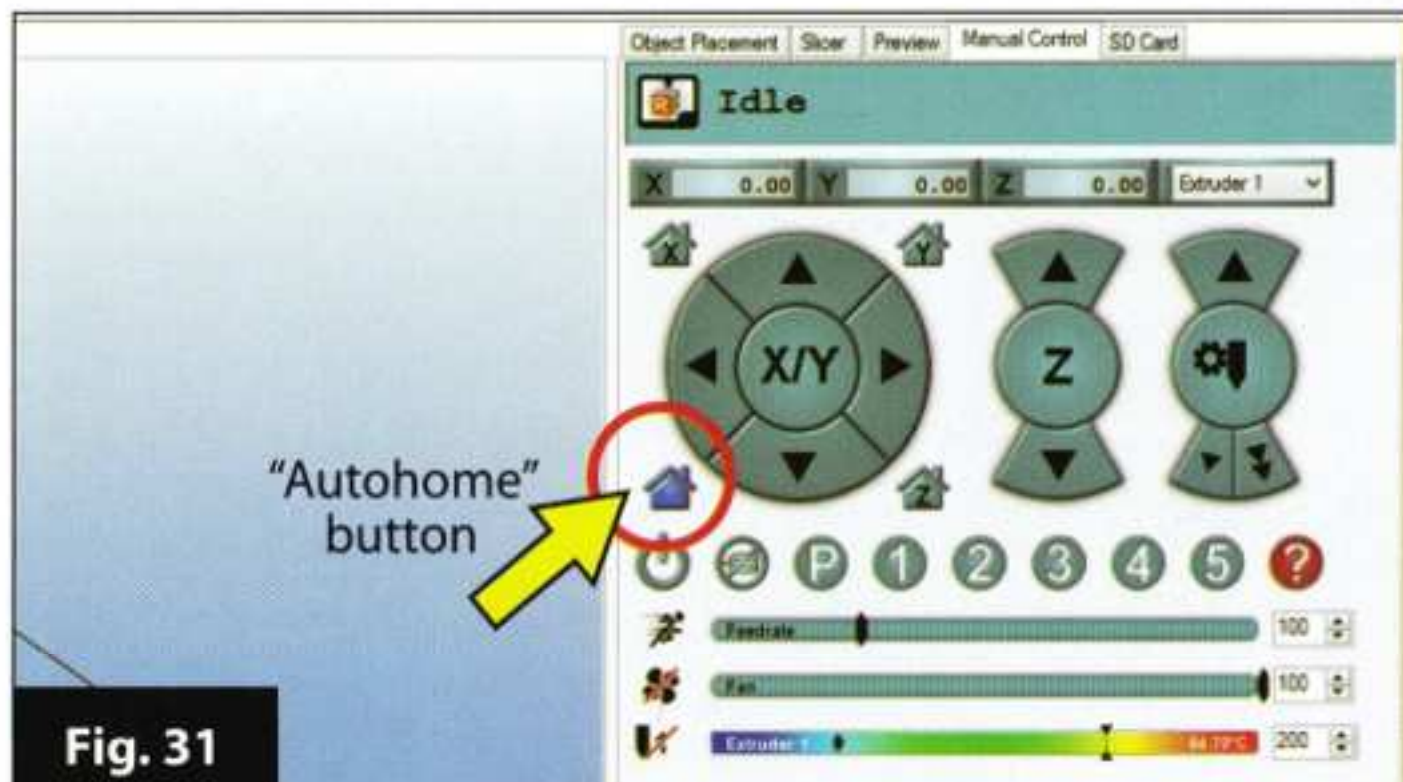
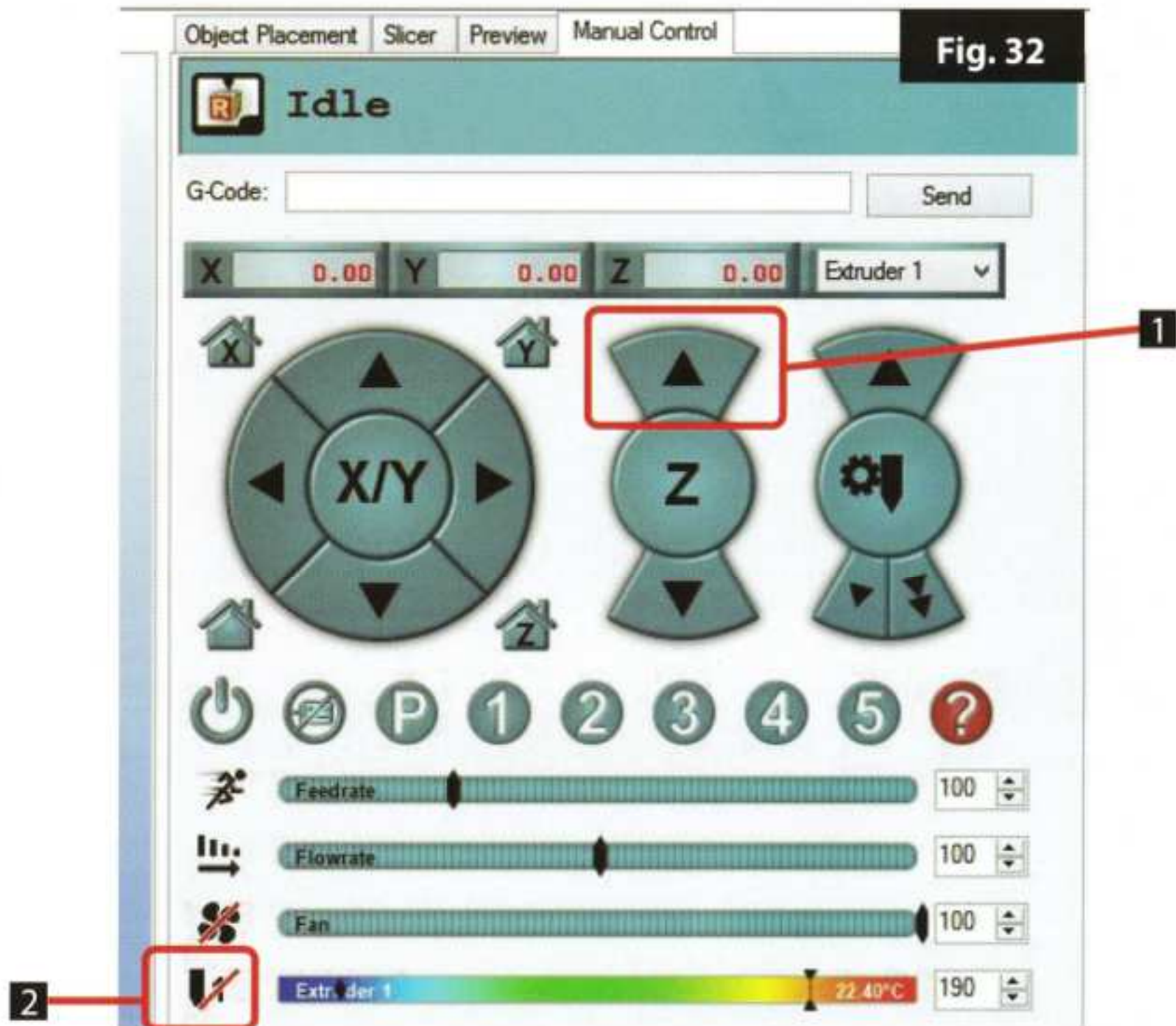


Fig. 31

Great, it's now time to load some filament, in order to load or unload Filament the extruder head needs to be pre-heated. Let's first start by moving the extrusion head up to let some plastic flow out. Click the Z up arrow **1** and this will move the extruder head up. Move the extruder head up approximately 20~30mm.



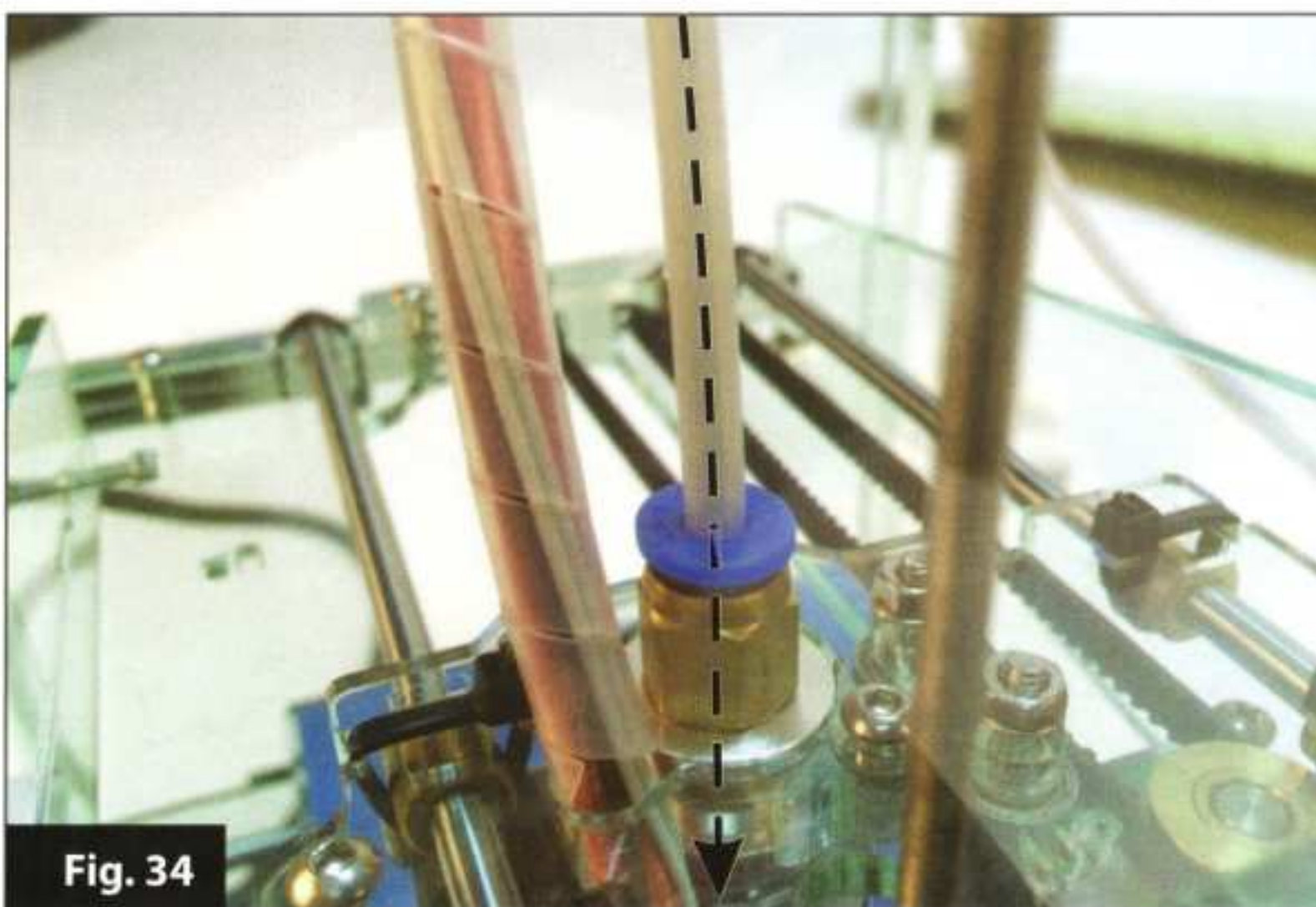
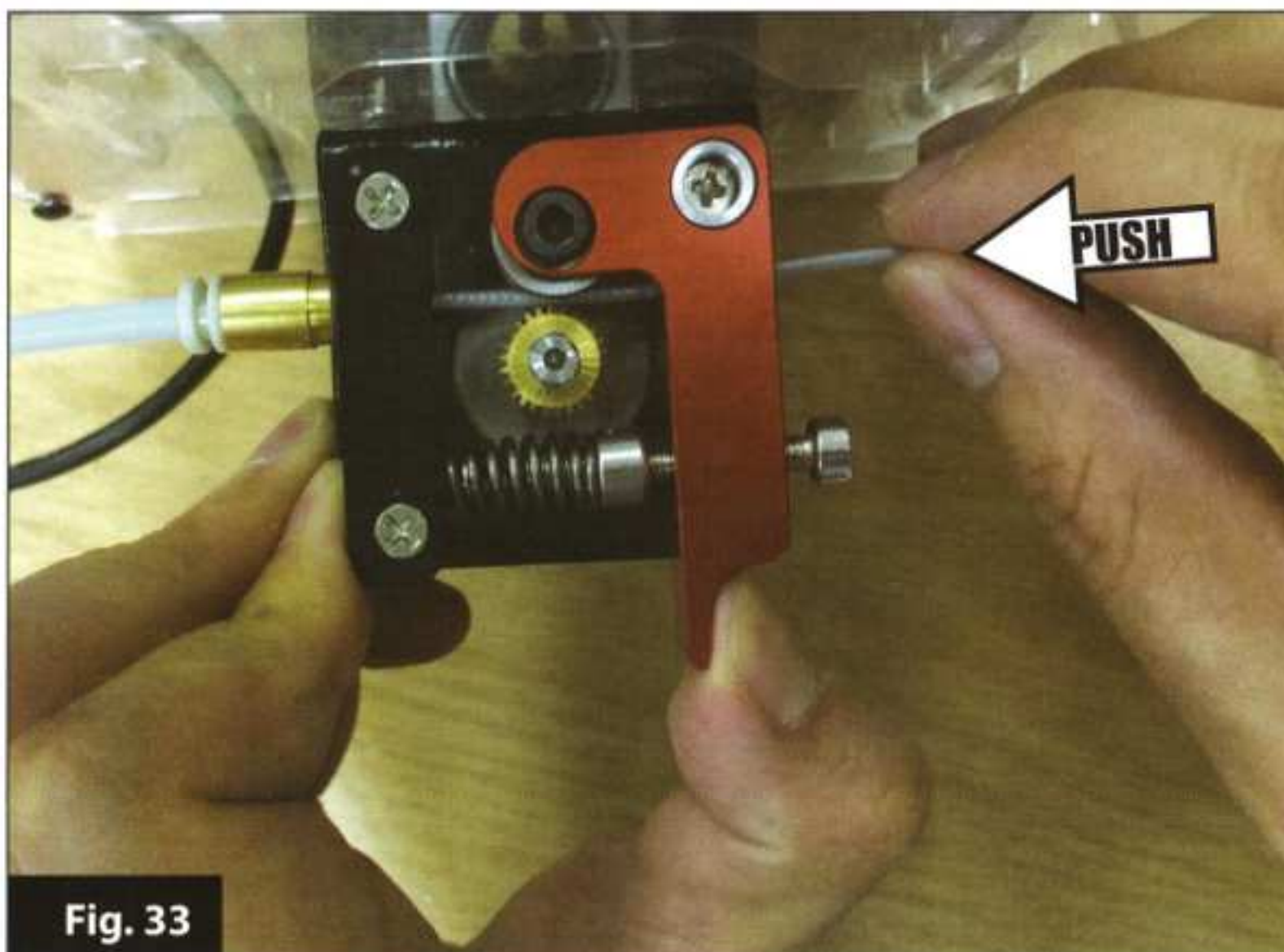
Next we will pre-heat the printer head so we can feed the plastic through the nozzle. Click the extruder heat ON button **2** The Extruder will start heating and get very hot do not attempt to touch the nozzle by hand if you need to clean the nozzle or remove extra plastic use a pair of metal tweezers.



Beware of Hot Surface:
Do not touch the MOTORS at the bottom to avoid injury

****Note:** the extruder cooling fan will come on anytime the extruder is above 50deg and will turn of automatically when the extruder cools below 50deg, it is very important you let the fan cool the extruder before removing power or this could cause the extruder to jam or clog next time you use it.

Once the extruder reaches the preset temperature, press and hold the extruder clamp, push the plastic filament all the way through the feeder tube and through the top of the printer gantry till it starts to flow through the nozzle.



Release the extruder clamp and clean the extra plastic off the nozzle with a pair of metal tweezers. Next turn off the heater by clicking the same button we used to turn the heater on, it should show a line through it indicating it is off.



Congratulations! Your Mini Fabrikator is now ready to use!

(Remark: a filament sample of PLA is included. Please go to Hobbyking.com to purchase PLA or ABS filaments)

3. Trouble Shooting

Tips and tricks, trouble shooting video series are also available on YouTube under the HobbyKingLive channel. And there will soon be a variety of tools and forums available on <http://www.rchouse.com/>

NOTE:

FABRIKATOR mini 3D PRINTER

Designed by



Tiny Boy

EMPRM000333