

# Stemming Glass Flowers

*Creative Paradise Inc.*

This Tutorial and all images in it are taken and adapted from our **Fused Glass Flowers Book**, [available by clicking here](#).

There are several methods that can be used to attach fused glass flowers to decorative stems, though they fall into two general categories: stemming through a hole either pre-existing or drilled, or epoxying the hardware directly onto the glass.

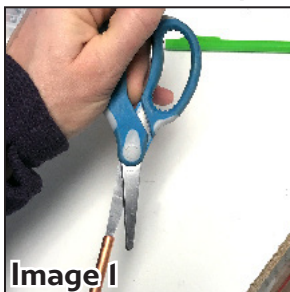
In this general tutorial, we will explain the steps and hardware needed for both methods as well as a few other touches you can add to bring more life to your glass garden.



Above flower made with [GMS1](#)

## Stemming Through Holes:

If your glass piece is constructed around a central hole, this is the method you'll use.



**Image 1:** Reaming the Copper Tube

### General Materials:

- Glass to be Stemmed
- Small Scissors
- Tube Cutter
- Pliers

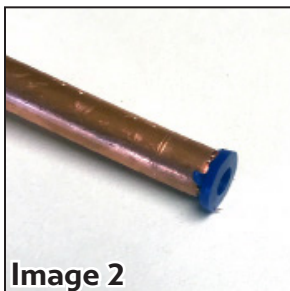
### Hardware\*:

- Copper Tube
- Plastic Wall Anchor
- Screw
- Washers

\* While the type of hardware is the same for all stems done this way the sizes required may differ depending on the size of the glass piece you're stemming. Refer to the table below for sizes and specifics.

| Stemming Hardware |  |  |  |
|-------------------|--|--|--|
| Tube I.D.         | Plastic Wall Anchor                            | Screw Size                                 | Washer   |
| 1/4"              | #4-#6 x 7/8"<br>(#6-#8 depending on brand)     | #6 x 7/8"-1"<br>(Tapping Screws are ideal) | #6-#8 Washer and<br>1/8" x 5/8" Fender Washer      |
| 3/8"              | #8-#10 x 1.25"<br>(#10-#12 depending on brand) | #10 x 1"-1.25"                             | #10 Flat Washer or<br>#10 x 1" O.D. Fender Washer  |
| 1/2"              | #10-#14  | #10 x 1.5"                                 | #10 Flat Washer and<br>#10 x 1" O.D. Fender Washer |

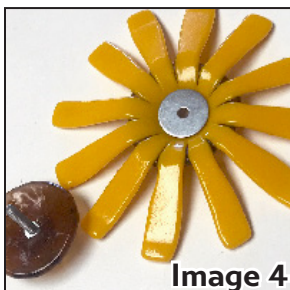
I.D. = Inner Diameter  
O.D. = Outer Diameter



**Image 2:** Wall Anchor seated in Copper Tube



**Image 3:** Assessing hole in Flower

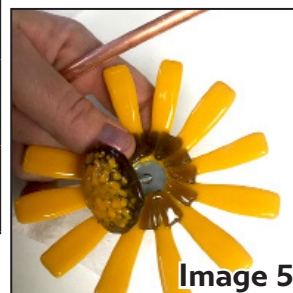


**Image 4:** Placing Washers if needed

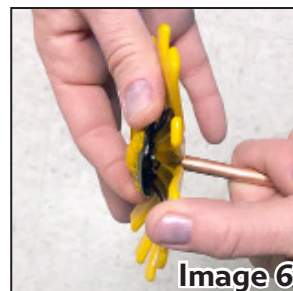
1/4" Copper Tubes are surprisingly strong and can hold most fused glass pieces, which is why they're the size we use most frequently. However, as glass pieces grow in size and weight, larger Copper Tubes may be advisable. The basics remain the same regardless of tube size. You may need to use a tool to clear the hole of the Copper Tube to allow the Wall Anchor to seat properly. An inexpensive pair of children's scissors are great for this task.

Begin by reaming your chosen Copper Tube as shown in **Image 1** then seating the appropriately sized Wall Anchor into the reamed end (**Image 2**). After the Wall Anchor is seated, assess the size of the hole in your flower (**Image 3**). If the hole is rather large and would allow the screw to move or wobble, place Washers on one or both sides of the hole (**Image 4**). Additional similarly sized Rubber Washers can be placed between the metal Washers and glass for added stability. Thread the screw through any Washers and through the hole in the flower and into the Wall Anchor (**Image 5**). Tighten the screw until the flower is held in place, but don't over-tighten (**Image 6**).

A decorative glass center can be placed over the screw head to obscure it (**Image 5**). You can attach this center with hot glue or, for a more permanent joining, a two-part epoxy. A variety of other techniques can be used to obscure the screw as well such as placing a glass pebble or sheet of copper on top of it and securing with adhesive or placing a bit of glue or epoxy on it and covering that with frit complimentary to your flower (**Image 7**). Leaving the screw exposed is a viable option as well.



**Image 5:** Inserting Screw



**Image 6:** Tightening Screw



**Image 7:** Close-up on Screw covered with frit.

## Stemming Through Holes Continued:

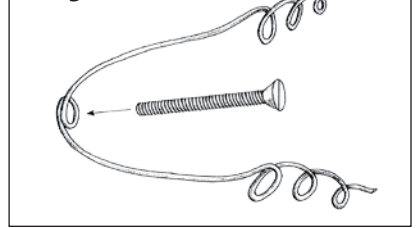
**Image 8**



**Image 8:** Glass Flower made with [GM60](#) with attached Tube Stem

For a smaller stem for smaller flowers, a 1/8" Copper Tube and either a 7/16" x 1/2" Upholstery Nail or a #17 x 3/4" Copper Weather Strip Tack can be used. Simply insert the Nail or Tack through the hole in the flower and into the center of the small Copper Tube. Then use a set of pliers to crimp the top of the Copper Tube around the Nail or Tack to help hold everything in place. In some cases you may need to add a small washer between the flower and the tube to prevent the flower from sliding down the tube.

**Diagram 1**



To create stamens and other decorations for the centers of your flowers, cut a length of 16 to 20-gauge Copper Wire and bend and twist it as shown in **Diagram 1** above. Thread the screw through the circle in the wire before threading it through the flower, washers, and stem. To add another design element, you can wrap the tops of the wire around small glass decorations (**Image 9**) or dip them in glue or epoxy and cover them with frit for a more natural, pollen-filled look (**Image 10**).



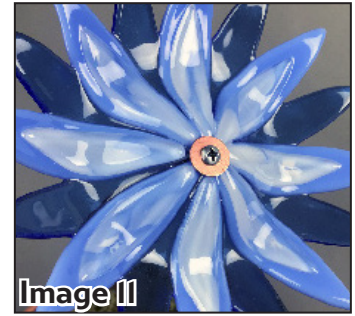
**Image 9**

**Image 9:** Flower made with [GMI96](#) with [LF43 Dragonfly](#)



**Image 10**

**Image 10:** Flower made with [GMI39](#)



**Image 11**

**Image 11:** Underside of flower made with [GM51](#) showing hardware

## Drilling Holes in Glass:

### Additional Materials:

- 1/4" Diameter Diamond-Crusted Core Bit
- Handheld Drill or Drill Press
- Water
- Appropriately Sized Container for Water

Some patterns and molds are difficult to fuse with a center hole. In cases like these you can drill a hole in the center yourself with a 1/4" diameter Diamond-Crusted Core Bit and either a Handheld Drill or a Drill Press.

When drilling holes in glass you must use water lubrication. In many cases the center area of the glass can be filled with water as seen in **Image 12** to the right. Strips of clay can also be used to create a watertight dam around a center area, or the glass can be fully submerged in a suitably sized vessel of water.

Safety glasses are advisable when drilling, even with the glass submerged. Be careful not to drill too fast- keep the RPM of the drill at 800 or slower. Approximating the speed of the drill will do if you continuously think "slow and steady." Don't apply too much downward pressure; allow the bit to do the work and occasionally back it out a bit to allow optimal water lubrication in the working area. Replace the drill bit frequently and do not attempt to drill holes with worn or dull bits.

After the 1/4" diameter hole has been created in the center of the glass, refer to the instructions on **Page 1** to stem. A 1/4" hole works well with 1/4" Copper Tube stems, and #6 - #10 screws will fit through it as well. Generally the head of the screw will not eliminate the need for washers (though washers can always be added for stability or decoration).



**Image 12**

**Image 12:** Water lubrication via filling the flower's center with water



**Image 13:** 1/4" Copper Tube shown under 1/4" hole drilled in glass

## Multi-Part Flowers:

Some flower patterns such as the Iris (**Image 14**), have multiple glass parts that assemble together to create the entire flower. To assemble these flowers, simply thread them in order onto the screw. For added security or if the parts lack center holes, you can also use two-part epoxy in small bits where the glass parts will touch one another. For a more detailed example on a multi-part flower, [please click here for our tutorial](#) on this Iris.

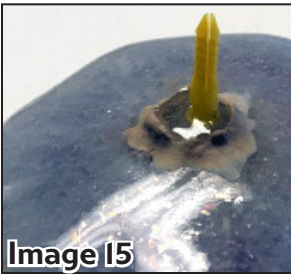


**Image 14**

**Image 14:** Flower made with [GM57](#) and [GM58](#)

## No-Drill, No-Hole Stemming:

If your glass piece lacks a central hole and you don't want to drill one, this is the method you'll use.

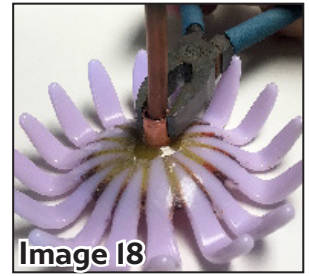


**Image 15:** Clay dam made to help set Wall Anchor

### Additional Materials:

- Two-Part Epoxy or Strong Adhesive
- Hardware (End Cap, Butt Splice, Crimp Sleeve, Wall Anchor, Screw, or Larger Copper Tube)
- Grozers (if using Crimp Sleeve)

This method uses two-part epoxy or a similar adhesive and a piece of hardware that will work to hold the stem (see Materials Box for list of possible hardware).



**Image 18:** Grozers used to crimp the sleeve to fit Tube

Before applying a two-part epoxy to a nonporous surface such as glass, it's helpful to use a grinder or diamond pad to rough up the area of application to create a better surface for it to adhere to. Take care using two-part epoxy and always use it in a well-ventilated area, following any instructions on the manufacturer's packaging. To keep the epoxy tidy during application, especially if working on glass with a convex back, you can use bits and strips of clay to create a dam around the hardware to keep it in place (**Image 15**).



**Image 16:** End Cap set in epoxy on back of glass

**END CAP OR BUTT SPLICE:** Simply place a bit of the epoxy on the center of the underside of your flower, mushroom, or other glass piece and center the End Cap or Butt Splice on it (**Image 16**). Allow the epoxy plenty of time to dry before continuing. For more permanent stemming, some epoxy can be added inside the hardware as well.



**Image 19:** Screw set in epoxy on back of glass

**CRIMP SLEEVES:** Many 1/4" Copper Tube End Caps can fit a bit loosely, so instead of an End Cap you can use a Crimp Sleeve (**Image 17**). Crimp Sleeves aren't designed to fit any specific type of tubing, but sleeves of size 14-8 fit well to 1/4" Copper Tubing with a bit of crimping (**Image 18**). Just epoxy the Crimp Sleeve in the same way as the End Cap above.



**Image 17:** Crimp Sleeve set in epoxy on back of glass

**SCREWS OR WALL ANCHORS:** You can also epoxy the head of a screw corresponding to the Wall Anchor inside your Copper Tube stem directly to the glass then in turn seat the screw into the Wall Anchor once the epoxy sets (**Image 19**). Or you can epoxy the Wall Anchor directly to the glass instead, then seat it into the Copper Tube (**Image 15**). If using a Wall Anchor like this, use the smallest Anchor that will fit comfortably into the Tube to avoid having to apply too much pressure on the glass to seat the Anchor.

**LARGER COPPER TUBE:** For other sizes of Copper Tube stem, or if other hardware is unavailable, you can also cut a small segment of Copper Tubing that's slightly larger than your stem size, flange the ends, and epoxy to the underside of the glass. The stem should then slide right in.

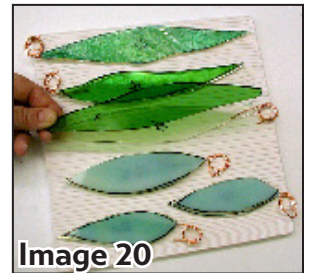
## Making Leaves:

### Additional Materials:

- 16-Gauge Bare Copper Wire
- [GX08](#) or [GX09](#) Leaf Texture (Optional)
- [GM59 Leaf Drape](#) (Optional)

A great way to accent your glass garden is to add fused glass leaves to stems. Leaves can be any size, shape, or color to accent your flowers.

To create leaves with Copper Wire inclusions to allow them to wrap around a copper stem, cut two identical leaf-shaped pieces from your desired sheet glass and sandwich a bit of 16-Gauge Bare Copper Wire between them. Move the leaves onto a sheet of Kiln Shelf Paper on a level kiln shelf and fire to a Full Fuse. To give the leaves texture you can instead fire on top of a texture such as the [GX08](#) or [GX09](#) (making sure to treat the texture well with glass separator before firing) (**Image 20**).



**Image 20:** Copper Wire fused between leaf-shaped glass pieces

To shape the leaves after fusing you can place them onto a Drape or Slump mold such as the [GM59 Leaf Drape](#) and then fire accordingly.

If the wire oxidizes at all during the firing(s), use an abrasive pad or wire brush to remove the oxidation before wrapping the wire around the stem to display.