Water Gardening:

Disappearing Fountains

K-STATE Research and Extension

Disappearing fountains may be the solution for landscapes needing a water feature without the size or expense of a garden pond. They are simple to assemble and provide the relaxing sound of moving water to accent a small area. Fountains can be used as a focal point and built above or below ground (*Figure 1*).

How it Works

Water is pumped from a basin, up through a piece of glazed pottery or stone. It gently overflows, then seems to disappear into the ground. Water features attract birds and wildlife. Pets can drink from them, and they are safe for homes with small children because there is not an exposed pool of water.

Supplies

To build one, you will need the following supplies, which are available in the garden, plumbing, and lighting sections of hardware stores.

- ⅜-inch plastic flexible tubing
- ¾-inch PVC pipe (to extend the flexible plastic tubing to the top of the decorative container)
- ¾-inch slip adapter
- 45-mil rubber liner (if burying the basin)
- Barbed irrigation adapter (male)
- ⅜-inch inner diameter rubber washer
- Basin
- Black spray paint (to paint the PVC extender pipe)
- Bricks (for supporting the weight of the pottery)
- Decorative stones
- Glazed pottery, stone or other decorative garden container
- Hose clamp
- Metal floor flange or tank fitting
- Plastic grate (like an egg crate)
- Plastic mesh or hardware cloth with ¼-inch openings or smaller
- Pump
- Sanding block with coarse grit sanding paper or a handheld sander
- Shovel (if burying the basin)
- Waterproof epoxy or silicone
- Fountain head (optional)
- Pond filter (optional)

Figure 1. A disappearing fountain enhances the landscape.

Basin

The water-retention basin can be made of plastic, fiberglass, concrete, or flexible rubber liner (if burying). There are many sizes of preformed basins available to accommodate different sized fountains. Additionally, many unconventional items can be repurposed or purchased for use as basins, including trash cans, feed troughs, storage units, and reclaimed

industrial containers. Note basin depth. You will need to be able to reach the fountain pump for maintenance.

A basin with a ledge will support the plastic grate that forms a false floor (*Figures 4 and 5*). If there is no ledge, extra bricks may be placed around the inside edge to prop the plastic grate.

Figure 4. Large basin with ledge.

Figure 5. Grate cut to fit basin.

The basin must be large enough to accommodate the width, height, and splash of the fountain. As a rule, the radius of the basin should equal the fountain height. Prepare the basin by making sure it is watertight. Seal leaking areas with waterproof epoxy.

Basins can be buried or remain partially above ground. For a natural look, bury the basin. Keep the top edge about 1 inch above the surrounding grade to prevent runoff from seeping in. The basin should be level to hold an adequate amount of water and so the fountain remains level.

A large-capacity basin will not need to be refilled as often. Larger fountains require a larger hole in the ground. Line the hole with protective underlayment fabric and a 45-mil rubber liner to catch fountain overflow. This prevents the ground underneath the fountain from becoming waterlogged and causing the fountain to sink. Extend liner edges beyond the hole to ensure adequate coverage. Trim excess. Backfill the hole with soil or rocks, preferably soil.

Grate

Cover the basin with a grate. This creates a false floor through which the water will disappear. The grate should be noncorrosive with holes big enough for water to pass through easily.

Support the grate with heavy plastic matrix boxes, open on the inside so they do not displace water in the basin. They look similar to egg crates but are much stronger.

Install a trap door, so the pump can be removed for cleaning and winter storage. Cut the grate with a jigsaw or a hacksaw. Round the edge to prevent the door from falling into the basin while allowing it to sit securely in the grate during use (*Figure 6*).

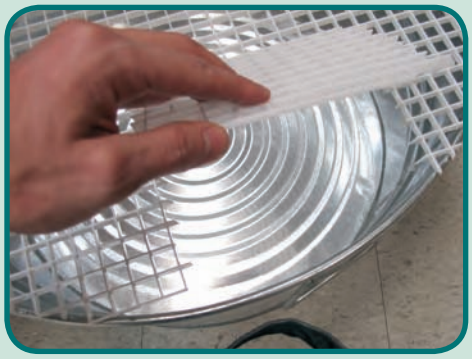

Figure 6. Cutting a trap door.

Figure 7. Bricks bear the weight of the decorative container.

Place concrete blocks or bricks under the grate to support the fountain (*Figure 7*) without taking up too much space and reducing water volume.

Fine plastic mesh or hardware cloth should be placed on top of the grate to keep decorative stones from falling through to the basin below (*Figures 8 and 9*). Cut a hole in the center of the grate and the mesh to accommodate the flexible tubing (*Figure 10*).

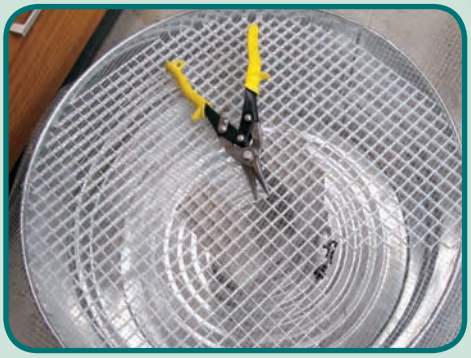

Figure 8. Hardware cloth or fine mesh will keep stones from falling in the basin.

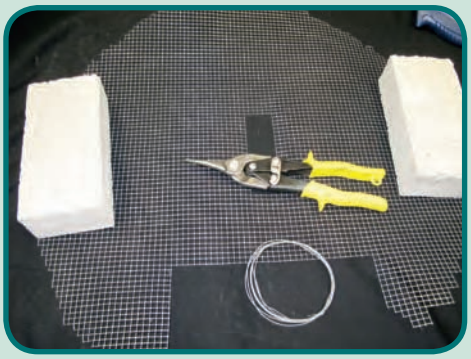

Figure 9. Cut hardware cloth or plastic mesh to fit the grate and use ties to secure the pieces together.

Figure 10. Cut a hole in the grate and mesh for the flexible tubing.

Plumbing

There are two options for plumbing the pot. Both connect to the pump in the same manner. The submersible pump will be placed in the basin below the trap door. Size depends on the size and height of the fountain. Pumps with the capacity of 170 to 1,200 gallons per hour are commonly used for most small fountains. It is possible to adjust the valve to decrease pump flow, but not to increase flow capacity. The pump cord should be long enough to reach the electrical source. A standard ground fault circuit interrupt (GFCI) protected outlet should be located 5 to 20 feet from the basin.

Slide a ⅜-inch female-threaded slip adapter over the pump fitting to extend the height of the connection (*Figure 11*). Use parts sized to your pump and decorative fountain container. Screw in ⅜-inch barbed male-threaded fitting into the adapter. Push the ⅜-inch flexible plastic tubing onto the barbed end and secure with a hose clamp (*Figure 12*).

Figure 11. Pump and slip adapter.

Figure 12. Pump plumbing attachment.

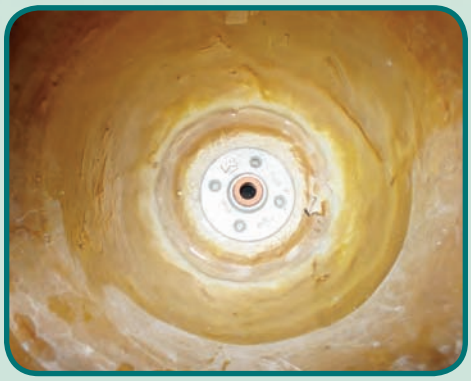

Figure 13. Install floor flange with epoxy.

The other end of the flexible tubing will be plumbed into the bottom of the decorative pot. There are two options for this connection. First drill a hole in the bottom of the pot if there is not one already. Sand it to create a flat surface for the floor flange. Use a coarse grit sanding block or a handheld sander. If using pottery, drill a ⅜-inch diameter hole in the center of the pot using a masonry bit.

Place a ⅜-inch diameter rubber washer over the hole on the inside of the pot before placing the ¾-inch floor flange over the hole. Seal the fitting with waterproof epoxy or silicone and allow it to dry (*Figure 13*).

Option 1

Place a barbed fitting into the hole so the male-threaded end is inside the pot. Attach a PVC female adapter onto the end of the barb. Apply epoxy putty around the base on the outside to make the container watertight. Allow time for the epoxy to dry according to product instructions.

Cut a length of PVC pipe the height of the container and paint the top 6 to 10 inches black so it will not show. Copper pipe can be used and does not have to be painted, but it is more expensive. Slip the pipe into the adapter inside the pot. This does not have to be glued and should be easy to remove for draining the pot at the end of the season.

Place the pot on the grate and twist the flexible tubing onto the adapter sticking out of the bottom of the container (*Figure 14*). Clamp securely, and slowly raise the pot. Run the tubing down through the hole in the center of the pot. Attach the other end of the tubing to the pump and clamp in place. Make sure the pot is level, using small shims of stone or furniture shims. Not all pots have perfectly level bottoms. For better water pressure and a more attractive bubble to the top of the

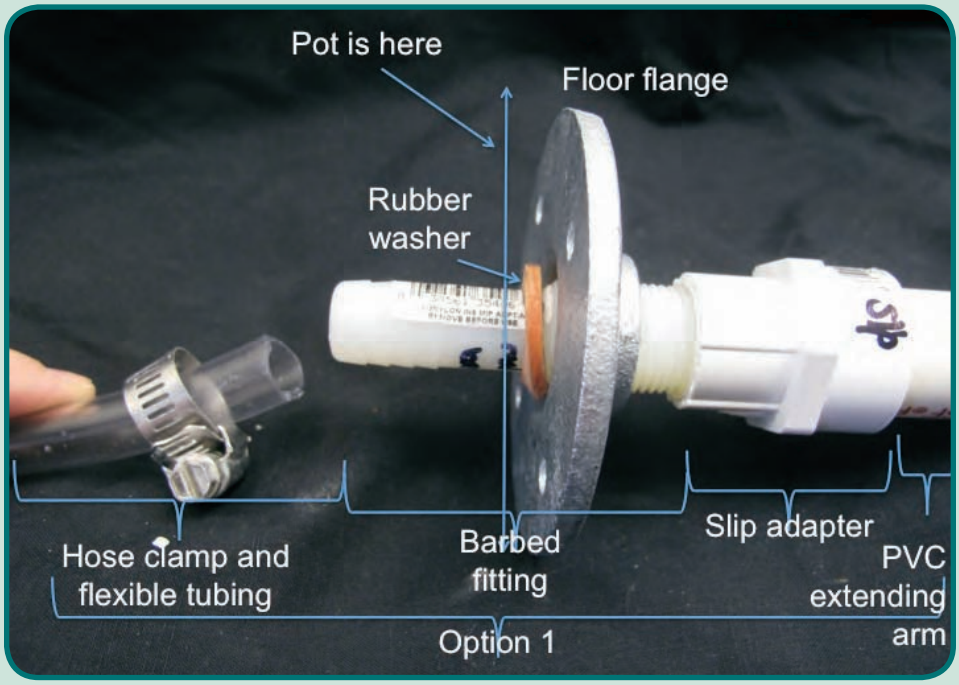

Figure 14. Option 1 plumbing full assembly. Floor flange should already be installed in the pot.

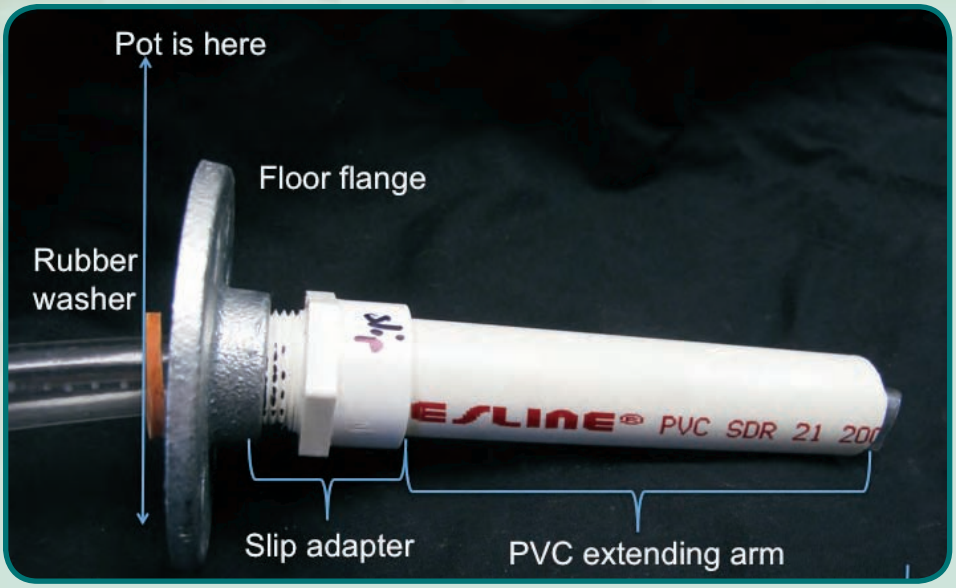

Figure 15. Option 2 plumbing connection. Floor flange should already be installed in the pot.

pot, a scrap piece of flexible tubing cut the length of the extension arm can be placed into the PVC extension. A fountain head also can be installed if desired.

Option 2

This is simpler than Option 1. Run the flexible tubing all the way through the pot. The rubber washer and floor flange should already be installed (*Figure 15*). Screw the threaded end of a slip adapter into the flange and attach a cut piece of PVC pipe to support the flexible tubing (*Figure 16*). A pond filter box is optional, but easy to install following package directions

Finishing

Cover the basin with the grate. Fill the basin with water and start the pump.

Figure 16. Assembled plumbing in pot.

Figure 17. Working fountain. Bury basin with decorative rocks at soil level.

Make sure everything is watertight. Add washed stones, pebbles or decorative rocks at least 1 inch above the basin to hide the mechanics (*Figure 17*). The same principles can be applied if using a stone fountain or simply gurgling water through a number of stones placed together.

Maintenance

Algae may grow on the fountain but can be easily scrubbed off. Some people enjoy the natural patina produced by the interaction of water and sunlight. Darker containers make algae less visible and give way to a naturally enhanced look. Pet-safe algaecides are available and easy to use if algae growth becomes a problem.

Top off the basin with water occasionally because the water level is not visible. Automatic filling devices are available and handy for this purpose. In cold areas, be sure to drain pottery before winter to prevent ceramic pots from cracking and breaking.

Safety

Make sure the fountain is near a GFIC outlet to avoid using an extension cord. To keep from tipping the fountain over, do not place electrical cord under carpets or mats. Use a three-prong electrical plug connected to a GFIC outlet. Hang the cord so fountain leak does not run into the outlet. Place the cord where children or pets cannot reach or chew on it. It is best to call a licensed electrical contractor before installing a fountain to ensure local and national code requirements are met.

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