

# *“In the Beekeeper’s Work Shop”*

## *10 Minute Projects: Pocket Queen Cage*

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### **Pocket Queen Cage**

When working with bees, you never know when you will need to cage a queen and move her to a new hive. Sometimes moving her is part of the plan, such as when you raise your own queens. Here we know that we will be carrying a new queen to a hive and introducing her.

Other times the situation just happens. For example, this spring I was inspecting a frame of bees that had queen cells along the bottom. Before my very eyes, out popped a queen. With the pocket queen cage described in this project, I was able to capture the queen and move her to a queenless colony.

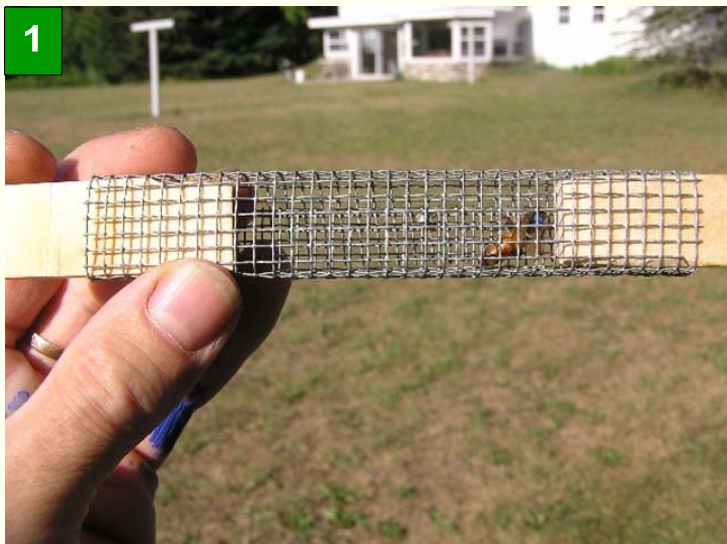
It pays to be prepared. I always carry a pocket queen cage or two (or three) with me whenever I visit the bee yard.

The pocket queen cage, also called a Butler cage, could not be much simpler. It is simply a small piece of #8 hardware cloth bent into a long rectangular tube (see Figure 1). One end of the cage is permanently plugged with a small wooden block. The other end has a similar plug but is removable because it has a tight tapered fit.

#### **Using A Pocket Queen Cage**

I have used a pocket queen cage to introduce a new queen into a hive. You just slide the pocket queen cage down between a couple of frames of brood. The nurse bees can and will feed the queen through the mesh. After a couple of days and the colony is used to the new queen, you simply pull the plug and let her out.

In the photo below (Figure 1), you may notice that the queen has been marked. She is on her way to a mating nuc.



The cage is small enough that I can easily slip her into my pocket (hence the name) and be on my way.

I have also introduced a queen with a pocket queen cage by plugging the end with candy and letting the workers release the queen by eating the candy plug (Figure 2). You can make a candy plug by mixing powdered sugar with a little bit of honey until it is the consistency of a very thick, stiff dough.

Curiously, when I put the candy plug in the cage, the queen almost always quits her frantic running around and begins to feed on the candy. You can see her little tongue at work! Kind of neat.

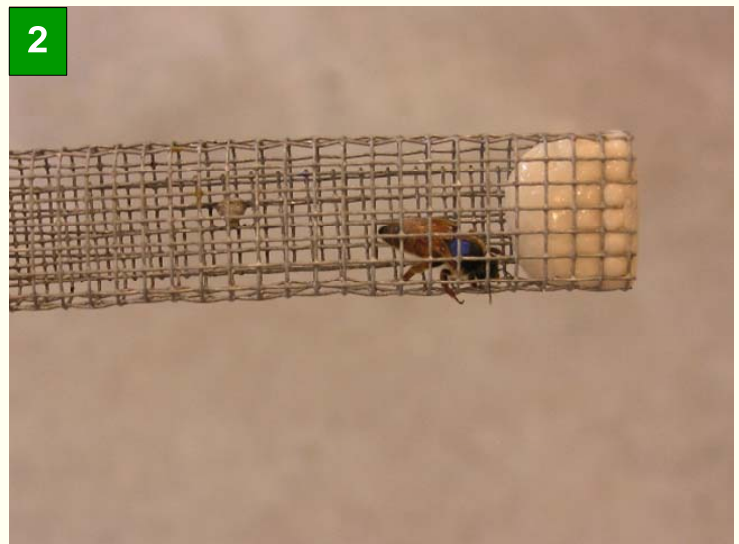
If I have to bank the queen for several days, I have also inserted a candy plug and then the wood plug. The idea is to provide the queen with food even though the workers are supposed to feed the queen themselves. It doesn't seem to hurt anything and it may even help the queen.

#### **Basic Construction**

The pocket queen cage is a good use of a scrap piece of #8 hardware cloth (a wire mesh with 8 holes per inch). I find that a 2-1/2 inch by 6 inch piece of mesh to be about right. The end plugs are 3/8 inch wide and cut from a scrap piece of 1x4 board (or something similar).

When cutting the plugs, I like to also cut a longer piece of wood (about 8 inches long or so) and use that as a form around which I can bend the wire mesh.

After bending the hardware cloth, a couple short pieces of wire twisted through the mesh holds things together long enough so that you can use a couple drops of solder to perma-



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nently hold the cage together.

Like other projects in the "10 Minute Projects" series, making a pocket queen cage goes quickly. You will probably want to make a couple of these handy little gadgets. And you still will come in under 10 minutes on the clock!

### Acknowledgment

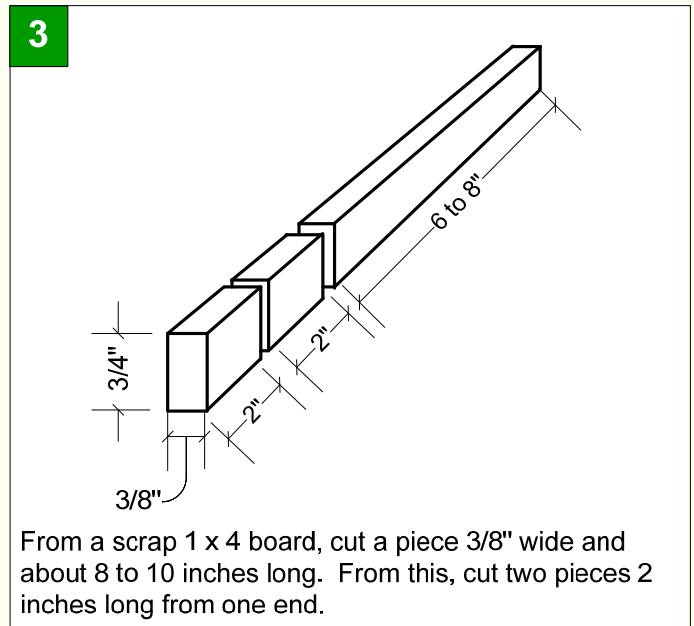
I would like to thank Dr. Roger Hoopingarner, professor emeritus from Michigan State University, for showing me this handy gadget during a queen rearing class I attended. Roger's class was the impetus I needed to take my beekeeping journey to the next level and begin raising my own queens.

## Construction Details

### Step 1. Make Cage End Plugs

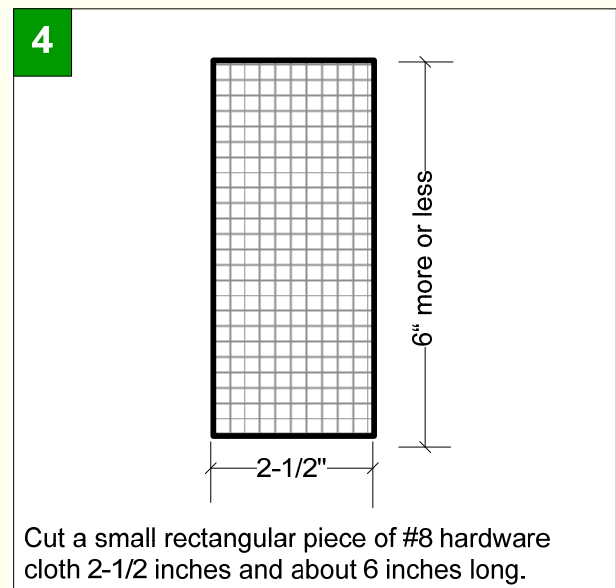
From scrap 1x4 or similar lumber, rip a 3/8 inch piece from one edge (Figure 3). We like to end up with a piece that is about 10 or 12 inches long. That way, we can cut two end plugs (each about 2 inches long) and still have a short piece left over which we can use as a form when bending the hardware cloth (in step 3).

As long as you have the saw setup, you might as well go ahead and cut several blanks. You probably will end up making several pocket queen cages and will surely use the blanks.



### Step 2. Cut Wire Mesh to Size

From #8 hardware cloth, cut a piece about 2-1/2 inches wide and 6 inches long (Figure 4). #8 hardware cloth is available at your hardware store (they might have to special order it). It is a welded wire mesh with 8 openings per inch (ie., each opening is 1/8-inch square).



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### Construction Details

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#### **Step 3. Bend Wire Mesh**

Using the long piece of wood left over from Step 1, bend the wire mesh around the wood to form a rectangular tube (Figure 5). Try to get a good crease on the corners.

The cage will tend to unroll when you are done. To temporarily hold it together, thread a small piece of light wire through the overlapping edges and twist the wire together - like a twist-tie on a bread bag



#### **Step 4. Solder Cage**

Although the wire clips may hold the cage together, a couple of spots of solder does a much better job. I usually put a drop of solder over each wire twist tie and a couple in the middle. The idea is to solder the overlapping wires of the mesh together so you might have to squeeze the mesh together when soldering.

Also, you want the end that will have the removable plug to be a snug fit. So you might need to squeeze the sides of the cage together a bit before soldering. Narrowing the width of the opening even an 1/8 inch is not too much.

Use leadless solder (available in any hardware store). Before soldering, put a dab of flux on the spot to be soldered (Figure 6a). The flux will draw the solder into the mesh and bind the layers together. Without flux, the solder will bead up on the top and not bind the mesh. Some solder has a flux core so you don't have to apply flux separately.

The trick with soldering is to allow your soldering iron to get good and hot. Touch the coil of solder to the iron to pick up a small drop of solder - it doesn't take much - and then touch the cage mesh where you have the flux (Figure 6b). The solder should flow into the wires of the mesh. Check the inside of the cage to make sure that you have soldered both sides of the mesh together.



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### **Step 5. Install Permanent Plug**

Slide one of the wood plugs into an end of the cage and staple it together (Figure 7). Leave about an inch of the plug sticking out.



### **Step 6. Make Removable Plug**

With the remaining plug, check for fit on the open end of the cage. If you did things right, you will need to carve a slight taper on one end of the plug to make a snug fit (Figure 8). Leave about 1 inch of the plug sticking out of the cage.



## **Resources**

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A video of this project can be found on Youtube at...  
[www.youtube.com/user/beekeepersworkshop](http://www.youtube.com/user/beekeepersworkshop)

Dadant & Sons (1997). *The Hive and the Honey Bee*. Chapter 12.

“Building a Bee Hive” series. Published on-line at [www.michiganbees.org/beekeeping/in-the-beekeeper’s-workshop](http://www.michiganbees.org/beekeeping/in-the-beekeeper’s-workshop). For other beekeeper’s workshop project plans, search for “workshop”.

Other plans in the “10 Minute Projects” series include...

- \* Queen Protector Cage
- \* Queen Introduction Cage
- \* Queen Marking Cup
- \* Hive Ventilation Screen

These plans can be found on the [michiganbees.org](http://michiganbees.org) web site referenced above.

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### List of Materials: Pocket Queen Cage

#### **HARDWARE**

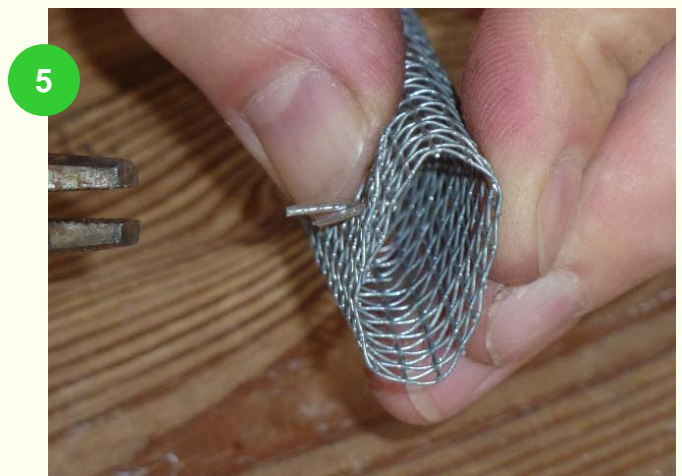
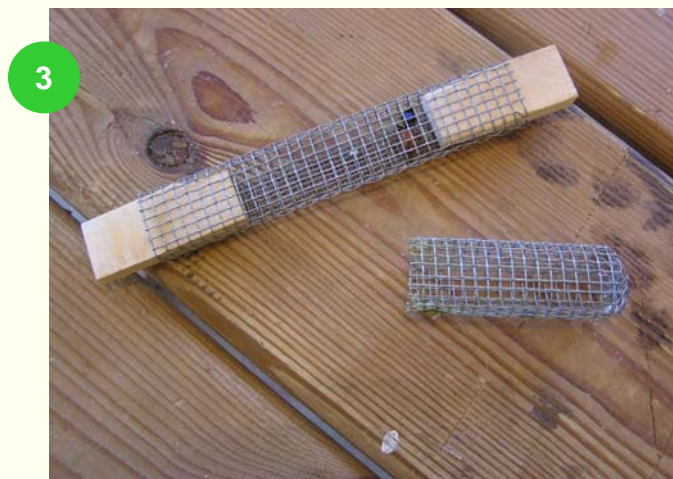
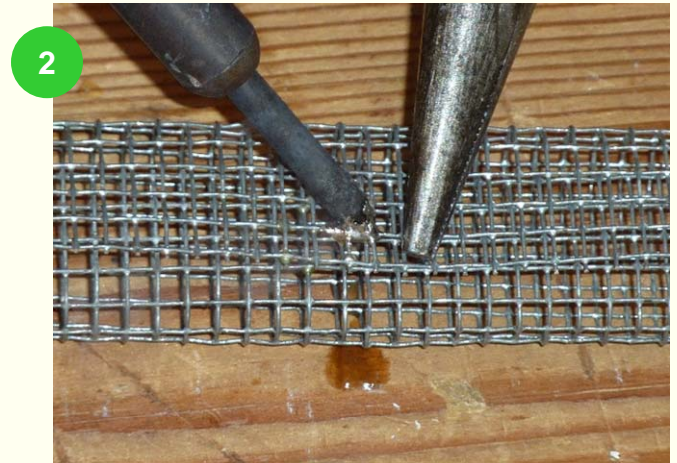
#8 hardware cloth (at least a 2-1/2" x 6" piece)  
fine wire (18 gauge aluminum)  
solder and soldering flux

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### Photo Gallery...



#### Photo Captions:

1. Marked queen inside packet queen cage.
2. When soldering edge, hold both sides together.
3. Pocket queen cage (top) and queen cell protector cage (bottom) go hand-in-hand.
4. Cutting wire mesh
5. Securing cage with wire twist tie.