Building 25-28mm Barbed Wire Features

Introduction

Louis Jannin, a Frenchman, first conceived the concept of a “barbed” wire in 1865. A practical patent for the making of barbed wire was issued to Lucien Smith of Kent, Ohio in 1867 and who is usually considered to be the inventor of “barbed wire”. The modern “traditional” form of barbed wire was patented by Joseph Glidden of DeKalb, Illinois in 1874 after making modifications to the original design. Originally intended to be a cheap form of fencing for restraining cattle, barbed wire found multiple restraint uses in containing cattle, horses, sheep, and humans. Since its invention, barbed wire has been used across the world and continues to be used today.

Figure 1. Traditional Barbed Wire (Wikimedia Commons)

Types of barbed wire fences

The basic function of a barbed wire fence is to hinder or block movement. In agricultural applications, the cheapest, most minimal application is used, while in military or more serious uses a dense concentration of barbed wire is used.

In agricultural use, such as fencing for cattle or horses, barbed wire fences are created by installing posts (from 3-50 yards apart, depending on terrain and animals to be fenced) and stringing 3-7strands of wire between them (Figure 2). Battens (support rods), which are not anchored in the ground, may be placed between posts to assist in maintaining the spacing between the strands. Gates are installed at various points to allow easy crossing of the fence.

Figure 2. Barbed Wire Fence (Forest and Kim Starr, US Geological Survey)

Military use of the barbed wire has two primary forms; a fence line similar to agricultural use and concertina wire, which is large rolls of wire that form a tall and bulky obstacle. Concertina wire derives its name from the large coils of barbed wire that expand and contract like a concertina (small accordion). Concertina wire is made from two oppositely wound helices of barbed wire which provide tubular support, but allow the ends to be pulled and contracted easily. Concertina wire is installed with fence posts at various intervals to anchor the coils and coils may be stacked to provide a taller barrier (Figure 3).

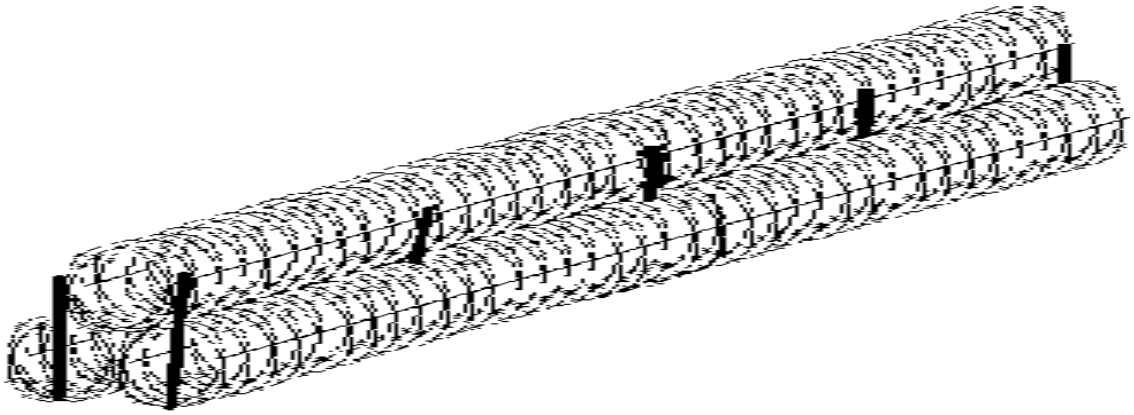

Figure 3 – Stacked coils of concertina wire (Wikimedia Commons)

Modeling Barbed Wire Fences

At small scales such as 12mm or15mm, it is unnecessary to model the actual barbs of the wire as they would be too small to see in scale, and in fact most materials used to model barbed wire are much larger in scale than they should be. In 25-28mm it is barely possible to see the barbs, but as with most items in this scale, oversized detail to provide a better “look” seems to be the norm.

The wire for barbed wire can be simulated in many ways. For wire that omits the barbs, almost any thin, semi-flexible (for fencing) or flexible (for concertina wire) material can be used – thread, string, wire, etc. In practice, for concertina wire, only materials that can hold their shape such as copper wire are useful. To simulate barbs, there are commercially available brass photo etched parts or you can use individual strips trimmed from nylon mesh. This tutorial will use the nylon mesh method to simulate barbs.

The first step is to prepare the “wire”. Fine nylon mesh (the screen found in windows and doors) is trimmed so that a single strand is cut off with the cross strands being cut down the center so that they remain as the “barbs” (Figure 4)

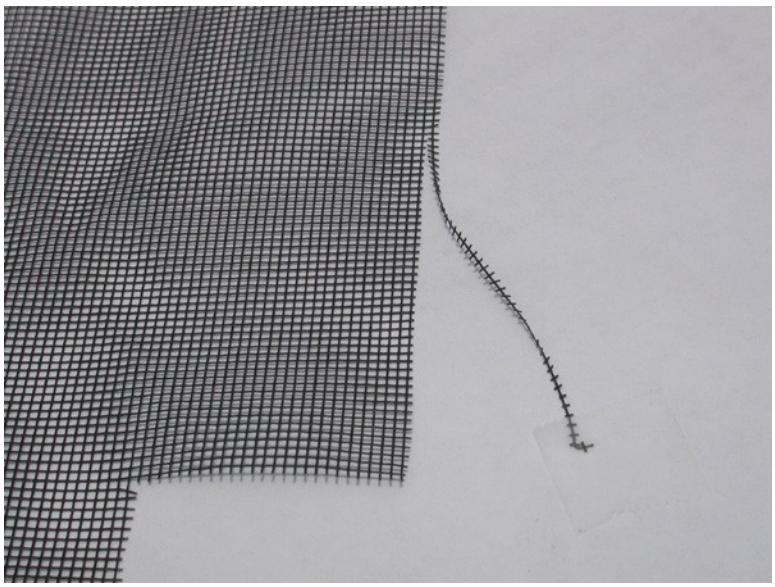

Figure 4. Nylon mesh and one strand partially cut.

The strands should be at least three inches longer than the length of your fence section (i.e. if you are making 6” sections, the strands should be about 9” long). This is to provide enough extra length to wrap around the fence posts. Cut enough strands for all your sections (i.e. if you are doing 10 sections and each uses 5 strands, you will need to cut 50 strands).

The second step is to prepare the bases for mounting fence posts. MDF or hardboard is cut into 3” wide strips and in this case, 6” lengths for each fence

section. Using a ruler, the position of the fence posts are marked on the board with pencil (Figure 5A) and then using a Dremel or small drill, the postholes are drilled through (Figure 5B). To determine the size of the hole to make, compare the size of your fence posts and if you are using matchsticks or hobby sticks, make the holes slightly smaller, especially of the stick are square. By making the hole a little smaller, you can compress the stick into the hole and get a tighter fit.

After drilling the holes, the fence posts are inserted and glued in (Figure 5C). After drying the ground is textured with some spackling paste, plaster or putty (Figure 5D).

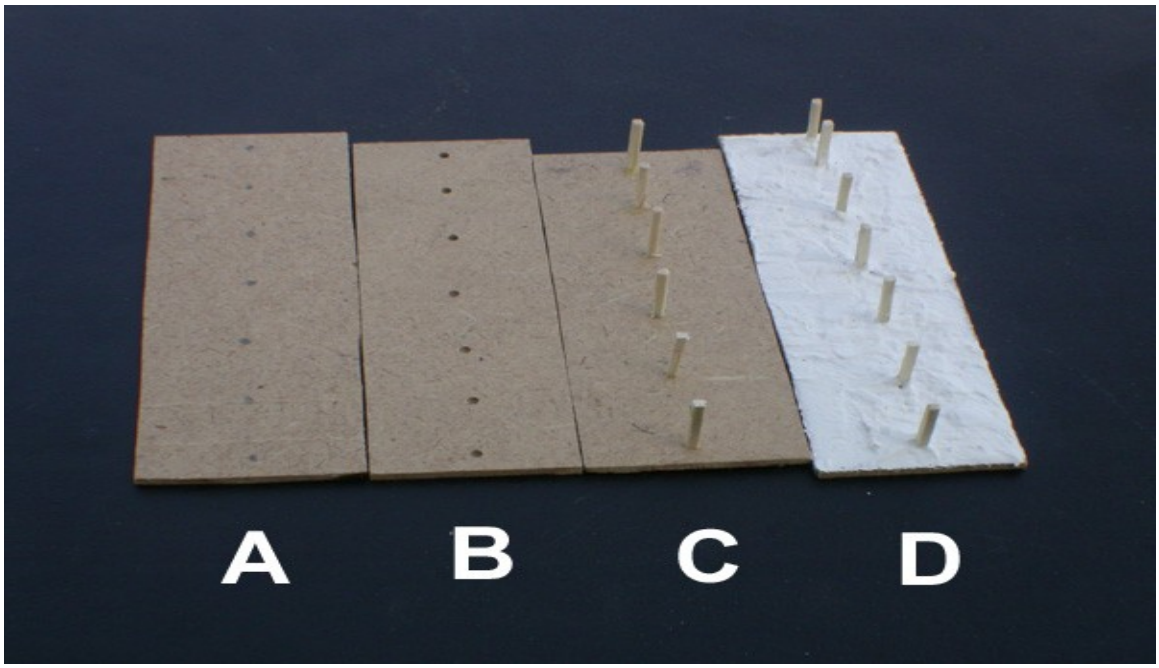

Figure 5 – Steps 1-4 of creating a barbed wire base

After the spackle has dried, a dark brown base coat is painted on, covering all the visible surfaces including the sides of the base (Figure 6E). Terrain features such as grass and rocks are then glued on (Figure 6F). The posts and terrain features can be finished with a little dry brushing with a lighter brown or tan.

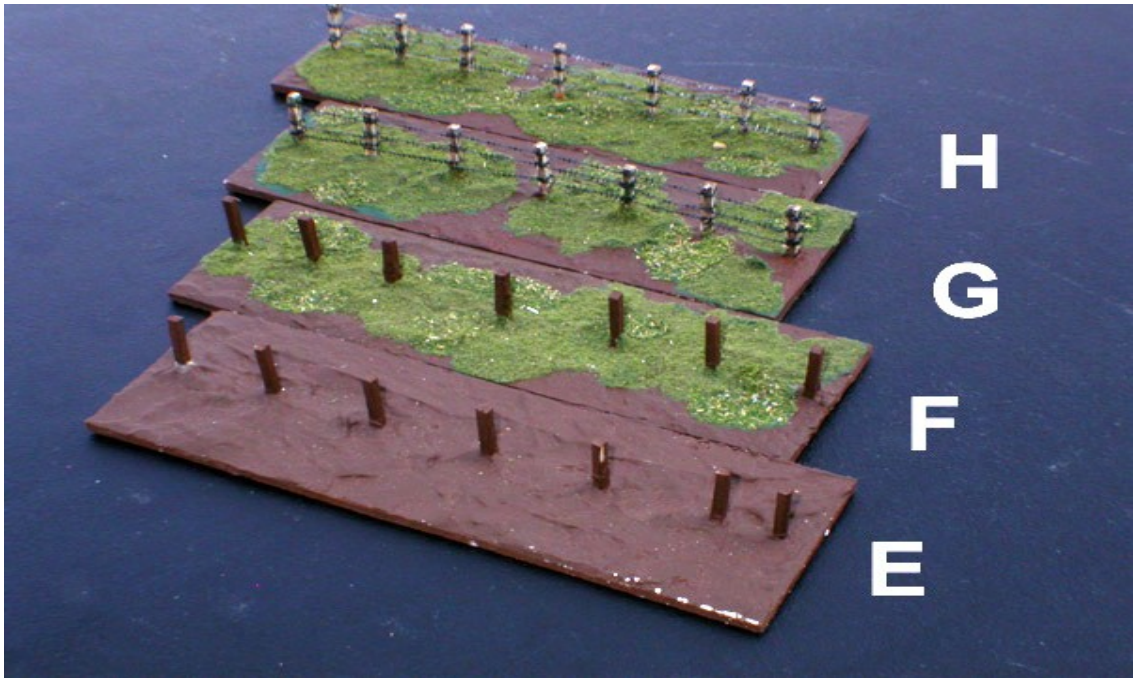

Figure 6. Steps 5-8 of creating a barbed wire base.

The next step is to attach the wire. Starting from the lowest wire, use a small dab of superglue and wrap the end of one of the wires around an end fence post (Figure 7).


Figure 7. Tying the wire to the first post.

It is useful to have a set of small clamps that can hold the other end of the wire to make it easier to handle (Figure 8).

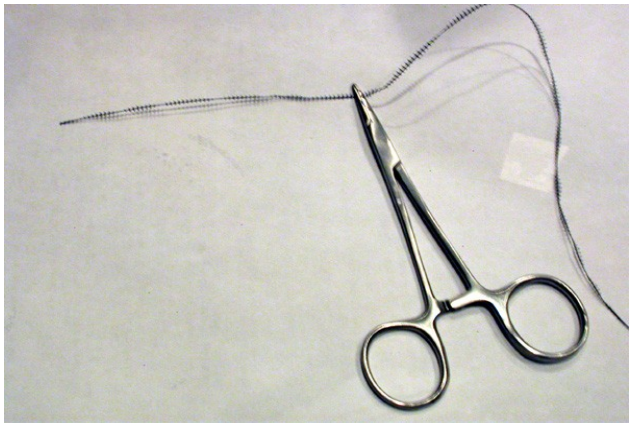
Figure 8. Barbed wire strand and a clamp (hemostat).

After the initial start point has dried, string the wire to the next fence post and twist the wire a couple of time to give it a spiral look (Figure 7). Wrap the wire around the next fence post once or twice and use a small drop of superglue to attach and repeat until the end is reached. At the end, wrap the wire a couple of times around the post, then add a drop of superglue to attach it to the post (Figure 9). It is useful the have a clamp as a weight on the end of the wire to keep it in place while it dries.


Figure 9. Tying off the wire on the last post.

After the glue has dried, trim any excess wire and if needed, add drops of glue to where the wire wraps around any fence posts in the middle of the strip. Repeat as many times as you have strands for each section of fence (Figure 6G). Finish off the look of the wire by dry brushing the strands, either with a silver/steel color for shiny wire or a rust color for a more worn look (Figure 6H and Figure 10)

Figure 10. Completed and dry brushed wire feature

More complex fences (such as a double row and cross wired (Figure 10)) can be created using this technique.

For comparison, some 28mm Wild Figures are shown with a completed piece.

Figure 11. Scale comparison of wire feature and 28mm Wild West figures.