

SaNDTaBlE'S

Twisted Armies

"6mm" ACW Armies

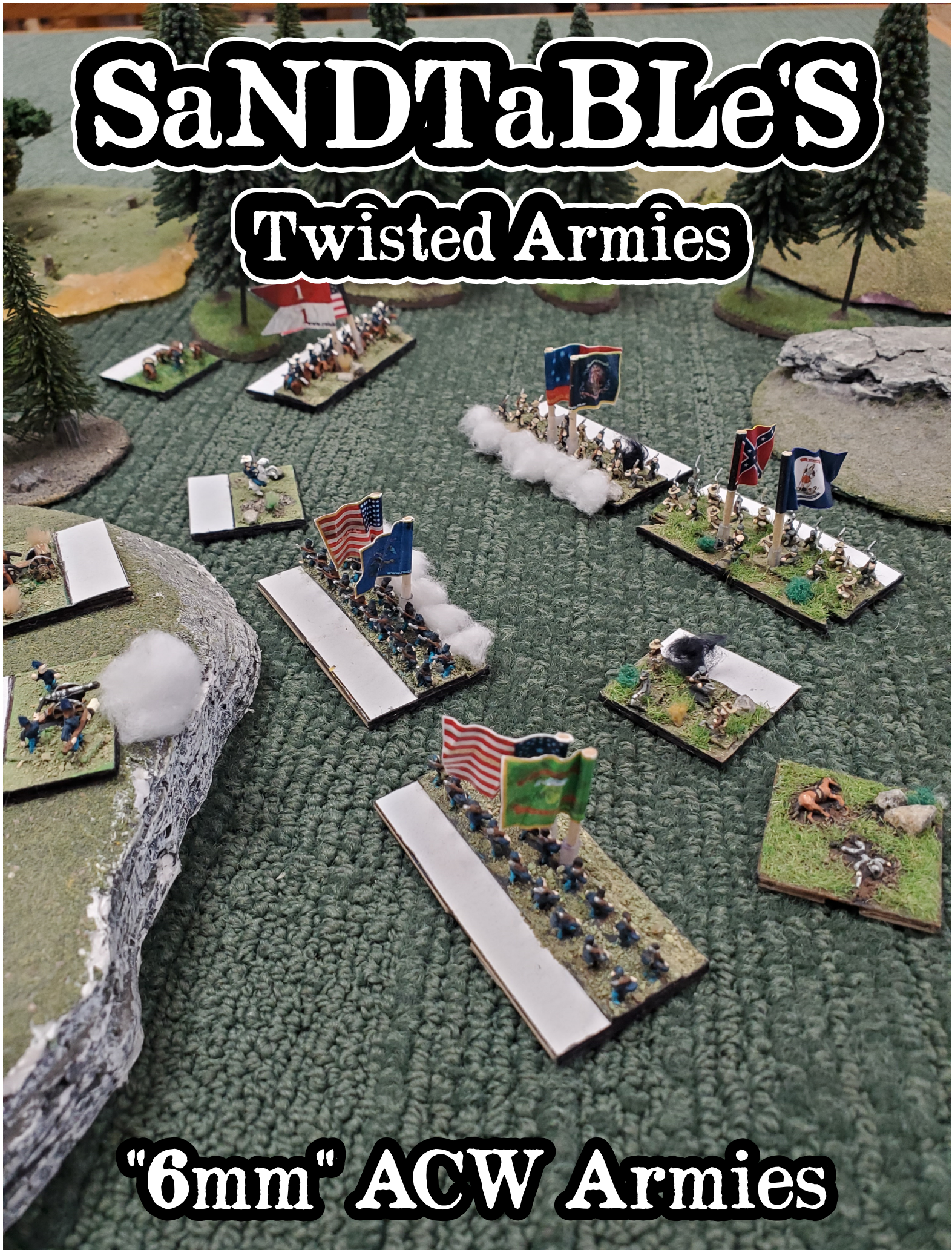


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Nothing beats a nice, well sculpted, well painted army on the tabletop but that can be pricey, and I, being frugal and of questionable parentage “a cheap bastard”, have been reluctant to put out the expense. This has led me to look into crafting my own armies. I have found some basic instructions for rice armies, hair curler armies, plastic mesh (granny grating) armies, and a whispered mention in dark corners of “zipper” armies. All these options are near the 2 to 3mm scale. I’ve found nothing but paper units for the 6mm scale and up, not that there’s anything wrong with that. There are also some amazing 3d printer models but I don’t own one of those, so I decided to craft my own.

These instructions were intended for new wargamers that may not have the funds to invest in a hobby, experienced gamers that would like to have some proxies until they invest in the models or just because you like to craft.

The models were designed to be made quickly and with the cheapest supplies possible (hopefully free,) from repurposed materials and to see how good of a silk purse I can make from this sow’s ear. I have tried to make each step uniform and repeatable, but these minis are handmade, so there will be some variance in size and proportion. They are best described as “Battle Gnomes”, not anatomically correct by any means, with exaggerative features and oversized details that suggest the correct shape and are best viewed on the table, but are roughly 6mm in scale. They have also been designed with removable flags for changing units and ease of storage and a pocket in the base for pertinent information or markers.

They were designed with American Civil War in mind, but with a little creativity, you can adapt them to work with any large formation, grand tactical rules.

I won’t be putting Baccus out of business any time soon but I’m content with the results.

Anthony

Tools

“To the man who only has a hammer, everything he encounters begins to look like a nail.”

—Abraham Maslow

There are a number of tools needed for this technique. Below are a few I would recommend.



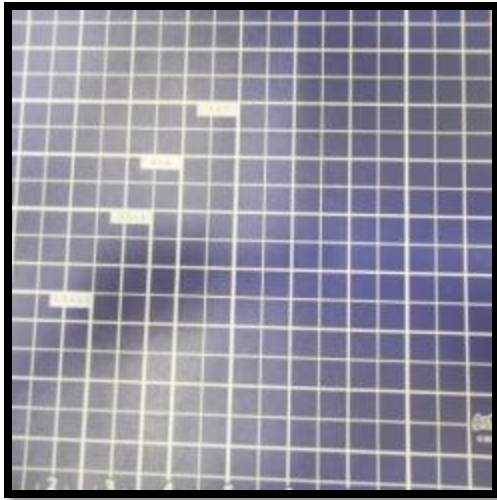
Alligator clips/clothespins- To use as clamps to hold pieces together as they dry or handles as they are being worked on.

Alligator clips/clothespins.



Awl/ice pick/thumbtack/nail- Poking holes through chipboard and paper.

Awl/ice pick/thumbtack/nail.



Cutting mat.



Flush cutters.



Mini Hole punch set.

Cutting mat- To prevent damaging your work surface. A piece of corrugated cardboard can be used in a pinch.

Flush cutters- To...cut flush (duh)

Mini Hole punch set- Used primarily for leatherworking. My set has replaceable tips for 2, 2.5, 2.8, 3.2, 4.0 and 4.8mm holes. .to make wagon wheels, slouch hats or kettle helms.



*Needle nose
pliers/hemostats/tweezers.*



Ruler.

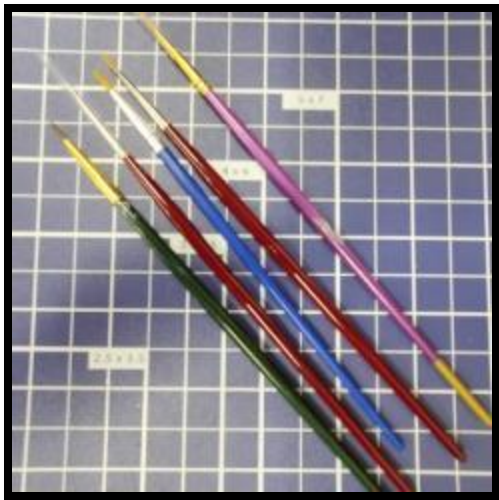


Scissors/craft knife.

Needle nose pliers/hemostats/tweezers- Used to bend and shape wire and to hold and manipulate small pieces. You'll want at least to 2 plyers. Due to the thinness of the wire, it's easy to accidentally cut the wire with the teeth. If possible, get a set of jeweler's pliers without teeth. I've filed down one of mine to give a smaller triangle point for detail work.

Ruler- For measuring length of wire and checking lengths of pieces. I recommend one with a metric side.

Scissors/craft knife- You'll want both for cutting out bases and for chipboard and paper pieces.



Small paint brushes- for painting up the units you create.

Small paint brushes.



A selection of Units. Cavalry ,infantry, cannon, limber and mounted officer.

Supplies

“You see what I have to work with here.”

— Jack Napier's plastic surgeon

Here is a list of supplies you'll need to make these minis. Some of these you may already own, and what you don't, are readily available in abundance. Not all of these are required, and you may find things work better for you leaving some items out or adding your own.



Acrylic Craft paints- You can get these for as low as 50¢ a bottle and, with the size we are working with, will last you forever.

Craft paint.



Cereal box- Cereal box/cracker box, are made of thin chipboard and are used to make cannon carriages, limbers, supply wagons, siege weapons, etc. Posterboard would also work.

You're not the Cap'n! Court martialed for impersonating an Officer.



Plastic shaft cotton swabs.



2mm Craft Foam.



Craft Glue.

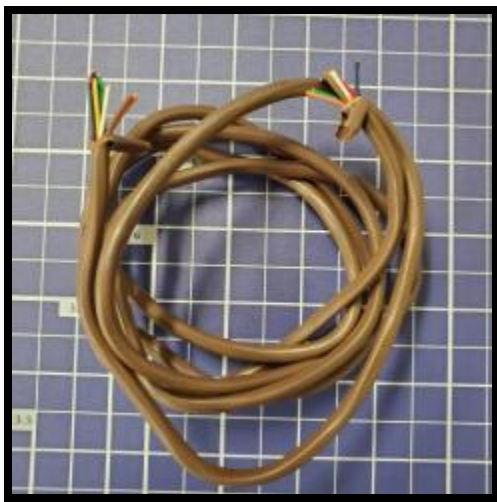
Cotton swabs- Cotton swabs made with a plastic shaft instead of rolled paper. These are needed for horse bodies. They also make good storage barrels.

Craft foam- 2mm thick craft foam can be cut into thin strips and cut down into small rectangles for backpacks, bed rolls etc.

Craft Glue- I use it primarily for paper/chipboard parts and to attach flocking.



Dry ink pen tube.



Electrical wire.



5 Minute Epoxy glue.

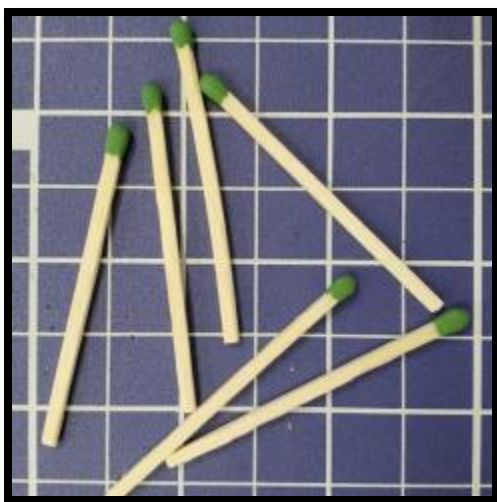
Dry ink pen tube- Used to hold the removable flags. The tube may need to be cleaned with a little rubbing alcohol.

Electrical wire- Off cuts can be found or it can be bought by the foot at most hardware stores. I use it for cannon and the insulation can be used for headwear (kepi, bummer, shakos etc.)

Epoxy glue(optional)- I've used 5 minute epoxy as a filler and to lock pieces into position, similar to super glue gel. It tends to be too runny when used as a filler and works best when thickener of some kind (baking soda, corn starch, etc.)



24 & 26 gauge Floral Wire.



Wooden matchsticks.

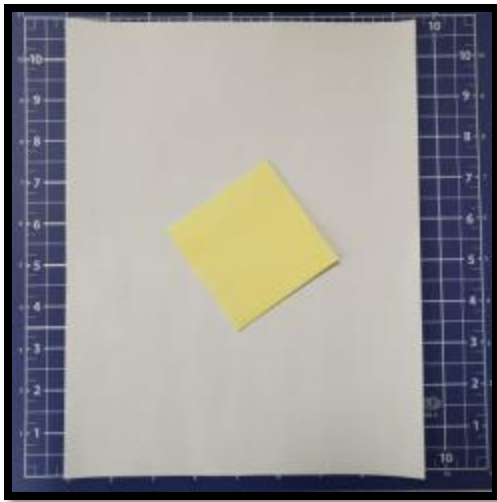


Matte black spray paint.

Floral wire- Usually with a green coating. Available in most craft sections, and occasionally at dollar stores. Usually between 16 and 32 gauge. Remember the larger the gauge, the thinner the wire, the thinner the wire, the easier to work with but the less ridged and prone to break. A \$2 spool will make 1000s of men and horses. I stay between 24 & 26 gauge.

Matchsticks-. Wooden matchsticks are used to make crates, Limber and caisson chests.

Matte black spray paint- Used for priming your minis. I try to make a lot and prime them all at once.



Printer Paper & Sticky Note Paper.



Puff Paint.

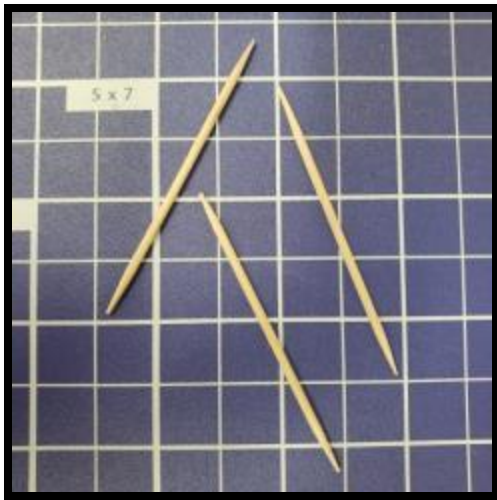


Super glue (regular and gel.)

Paper- Used for printing base layouts, flags, slouch hat brims, greatcoats, capes etc.

Puff paint- Used as a filler and to fill out shapes like heads, thickness to horse legs, etc.

Super glue (regular and gel)- Available in most dollar stores. The superglue is used to lock parts in position and as a filler. A drop of the regular superglue will saturate paper/chipboard and harden it.



Toothpicks- Used for flagpoles. You can get a few of these free at most restaurants or a box for a \$1

Toothpicks.



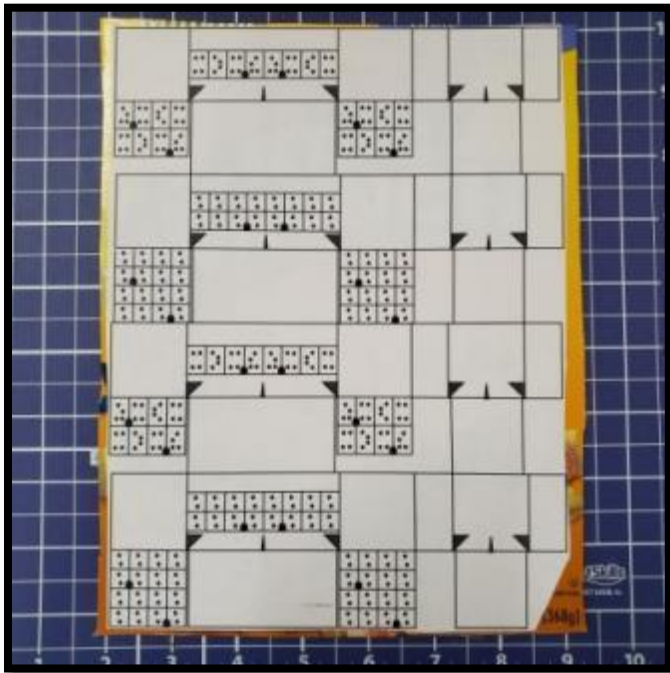
Infantry brigade, Casualty marker, dismounted cavalry and skirmishers.

Bases

"All your base are belong to us"

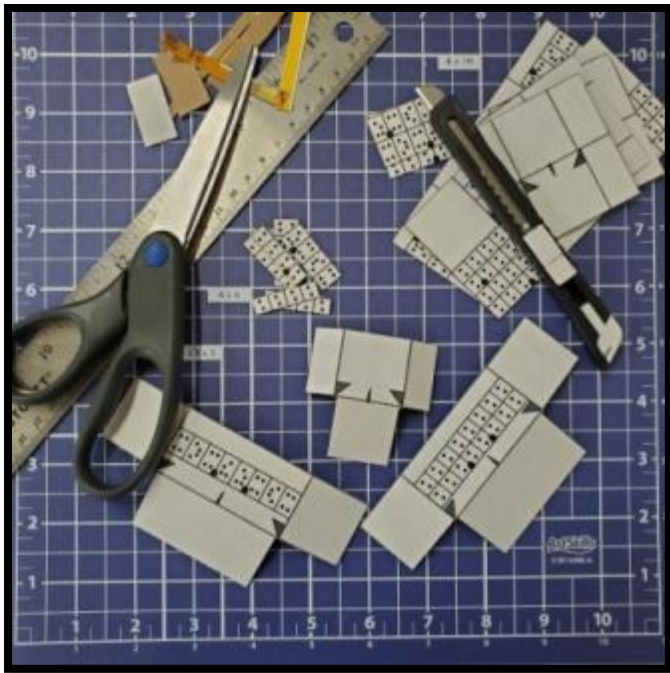
– CATS

The bases are made to be standard 60mmx30mm and 30mmx30mm but made with a small pocket for putting paper makers such as hit markers or hidden information i.e.: one unit has the McGuffin you need to capture but which one? The pocket also allows the cannon and limber to be joined to indicate limbered and unlimbered. I've also laid out a strip on the back for Blücher style unit stats, names, or hit boxes. You can also cut a notch for unit center and 45 degree notches on the corners for firing arcs, but, depending on your rule set, you can ignore any and all of this. You do you.



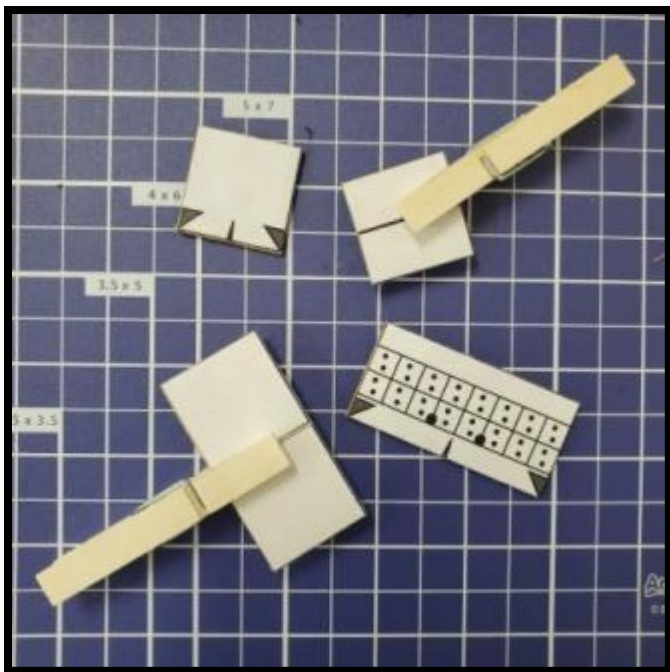
Template glued to chipboard.

1. Print out the base template and paste down to a large piece of cereal box chipboard.



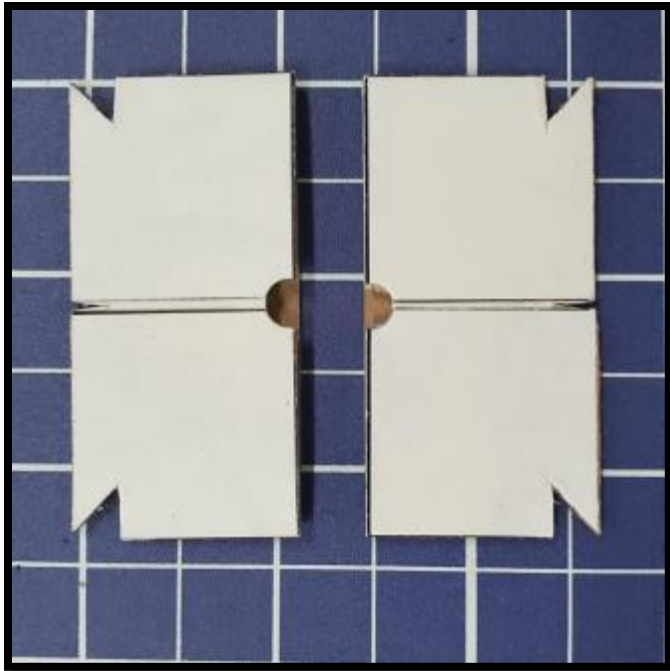
2. Cut out the individual base pieces including the mounting strips and lightly score along the fold lines.

Components cut out.



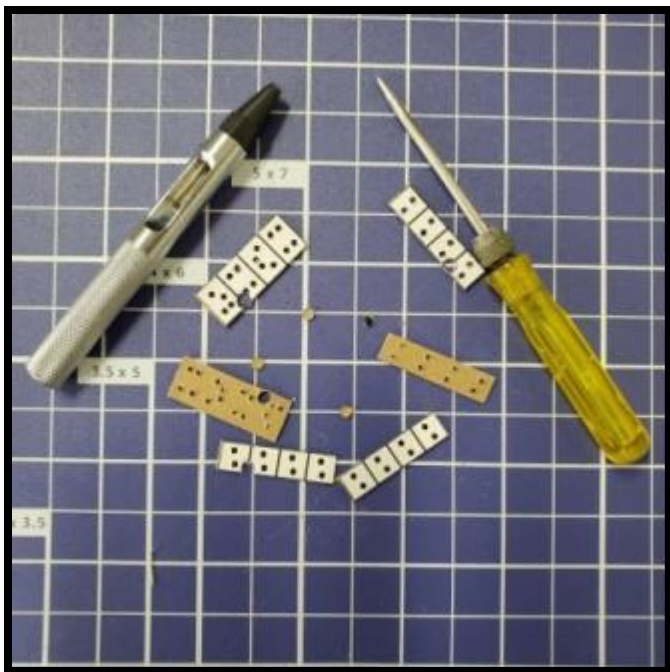
3. Glue bases closed to create pocket, clamp with alligator clips or clothespins and allow to dry.

Bottom and top glued.



4. I also use an office hole punch to punch a notch at the pocket opening to allow easier access to the pocket.

Notch to ease access to the pocket



5. Cut out the mounting strips and use an awl/ice pick/thumb tack to push holes for the legs and use the hole punch to cut holes for the flag holders then put to the side.

Holes punched and ready for troops.

Men

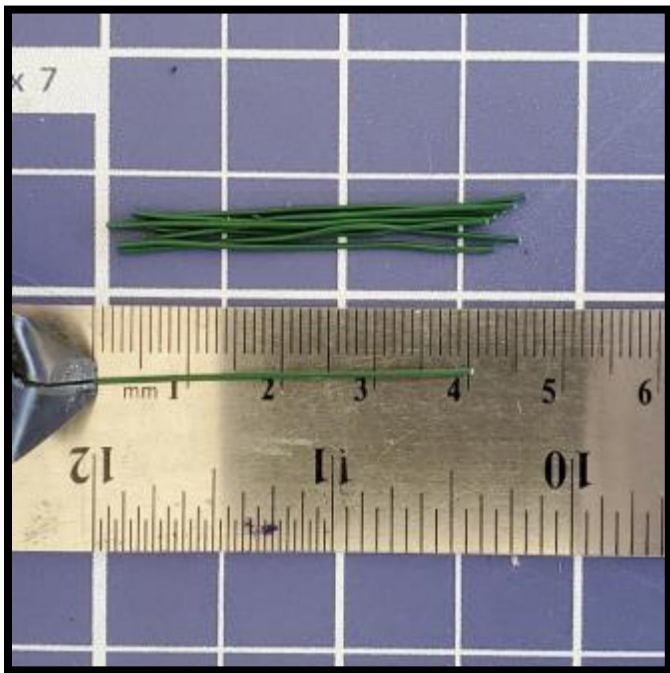
**Flops a plucked chicken on the floor* “Behold, a man!”*

— *Diogenes*

Each soldier is made from a pair of twisted floral wire pieces. One piece makes up the arms and weapon while the other piece forms the head, body and legs.

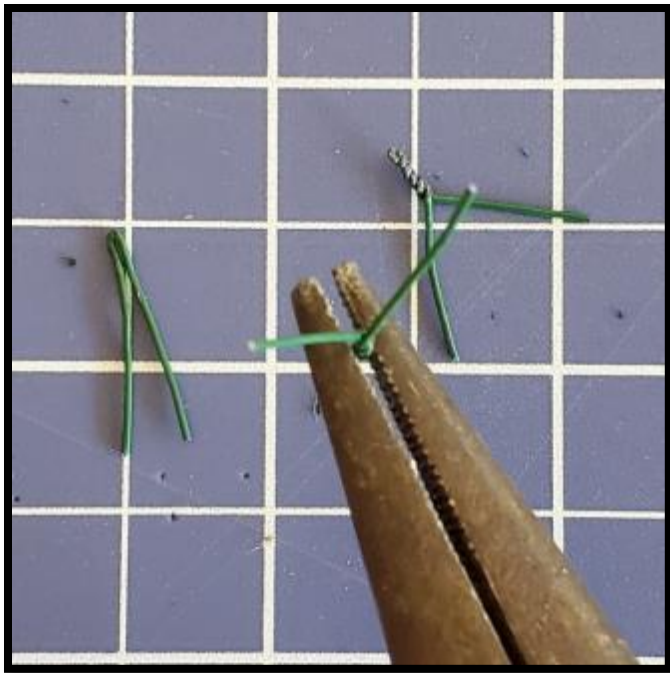
A note on bio mechanics. When I say a “natural position” in the following steps, note that with a left foot forward (as if marching), the left arm would naturally be in a backward swing position and the right arm forward to maintain balance. This is also why the figures are made with the left foot forward. The weapon is usually on the right side and stepping off from the encumbered side is awkward. This has become standard marching practice for militaries going back to the ancient Greeks.

Basic Figure

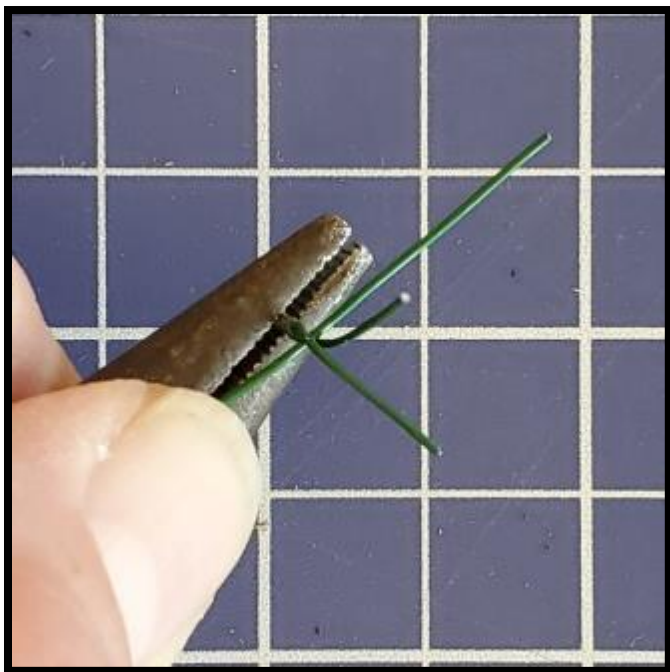


1. Cut a pile 4 cm (1.5") pieces of floral wire

You will need many pieces.



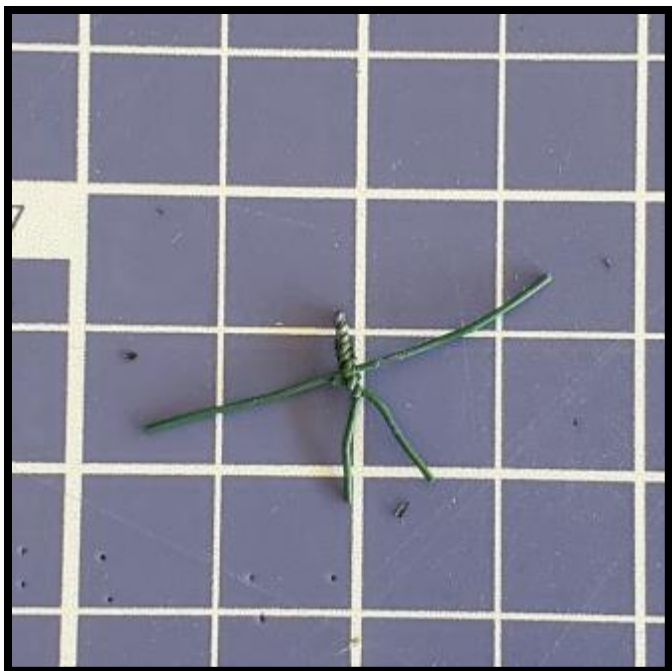
Creating the head.



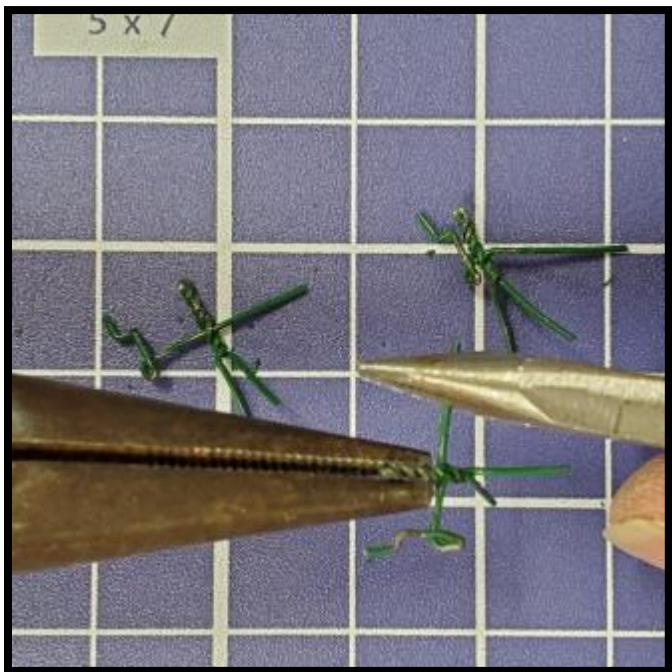
Twist gently but firmly.

2. Bend a 4 cm wire piece in half and, gripping the piece at the bend, with the “feet” facing up, tightly twist the wire counter clockwise to form the head area. Twist counter clockwise to insure that, when based, the left foot is forward. A little extra length of twisted area for the head is preferable for forming headwear and excess can always be trimmed off later. I’ve found that , once started, flip the piece and twist from the head side to get the twists nice and tight.

3. If the soldier is holding a weapon and you have pre-made the arm (see Posing below), place the arm piece into the twist and continue to “tightly” twist the leg wires counter clockwise. This requires a little finesse. You only want 2 to 3 twists after the arms to form the torso of the soldier, (unless you’re making an NBA team) but you want to make sure that the twists are snug against the arms piece to hold it steady. If needed, back off any extra twists to get the torso the right length. It’s easy to accidentally break the wire and snap off a leg at this point if you twist too tightly or squeeze too hard with the plyers. (I have a tiny graveyard full of amputees...Wow, that was kind of dark.)



Basic (unarmed) form. A large head area, 2-3 twists below the arms and the twist bringing the hip of the left leg forward.

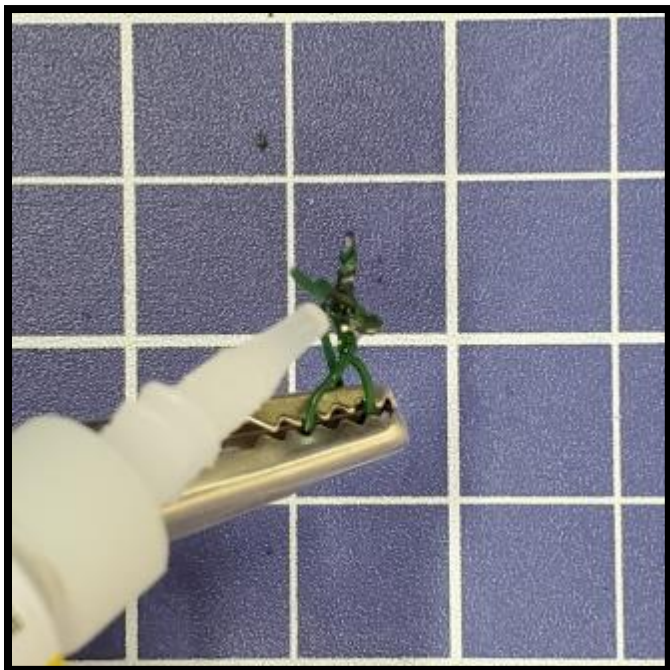


Pulling slack out of the right shoulder.

4. Adjust the right arm, as needed, by gently turning and pulling on the left arm to remove any gap that may have appeared at the right shoulder while putting the two pieces together.



Right Shoulder Shift Arms Marching and Standing.



Superglue fills in the twists and hardens the figure.

5. Adjust and straighten the legs until you have a natural, marching position with the left foot forward. If you would prefer the legs at a standing still position, adjust them to be even with each other.

6. Apply super glue to saturate the twists and prevent the arms from rotating, “locking” them into position. If you need to re-adjust the arm position later, do so and reapply some superglue to re-lock them into place as needed.

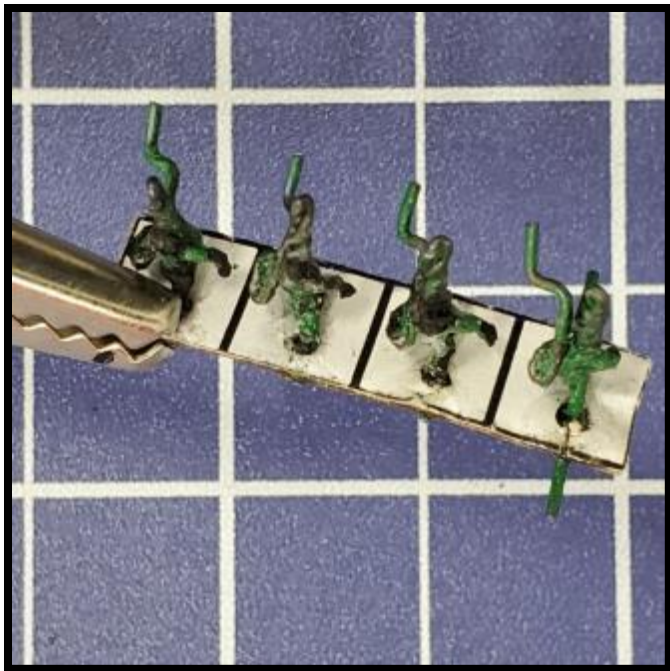


7. Use superglue gel, epoxy or puff paint to smooth out the obvious twists and build up the head, hands, thighs, rifle butt stock or any other area that needs enhancing. If needed, use a pin or toothpick to tease the paint into position. This step can be done after mounting the figures to the strip (step 8) depending on personal preference. It's easier to have full access to the figure before it's mounted but you are less likely to flatten out details if it is already on a strip.

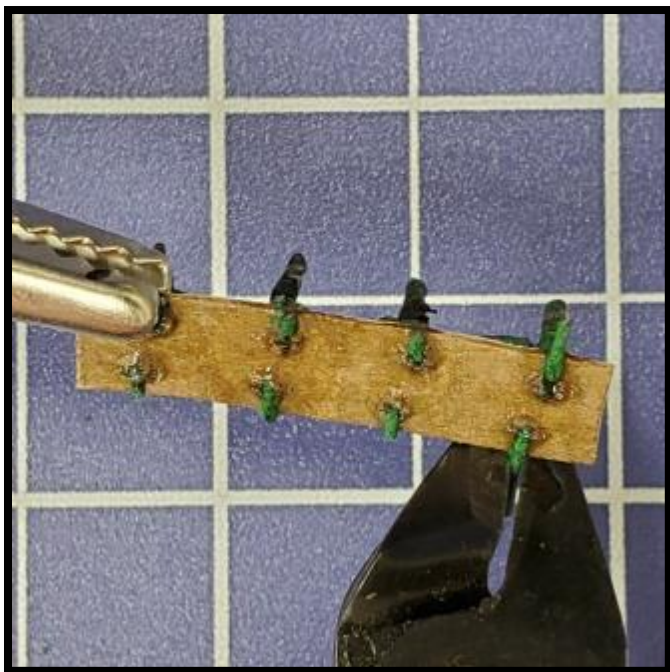
A drop of puff paint for a head.



Head, elbow, hand and thighs built up with puff paint.

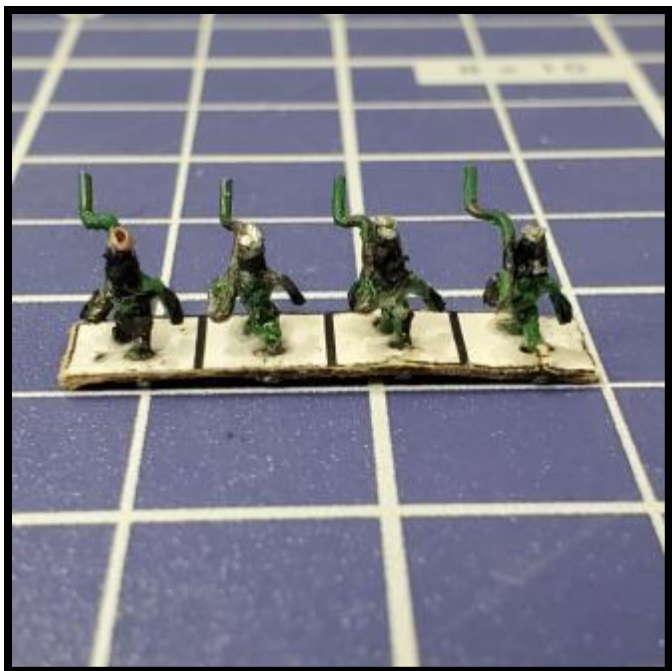


A strip of Right Shoulder Shift Arms.



Trimming away excess at the feet.

8. Feed the remainder of the feet through the holes on a mounting strip. Apply a small drop of superglue gel to the top of the holes and adjust the height and angle of the figure. Bend the wire flat against the strip to hold the figure in place, then saturate the bottom with superglue to harden the chipboard. The remaining wire can be sniped away with flush cutters. You don't have to flatten out the ends of the wire and can, in fact, cut them flush with the bottom of the strip. I have done both and had a few models come loose but most are fine and the strip sets flush when being glued to a base.



A completed strip of infantry.



Union infantry brigade.

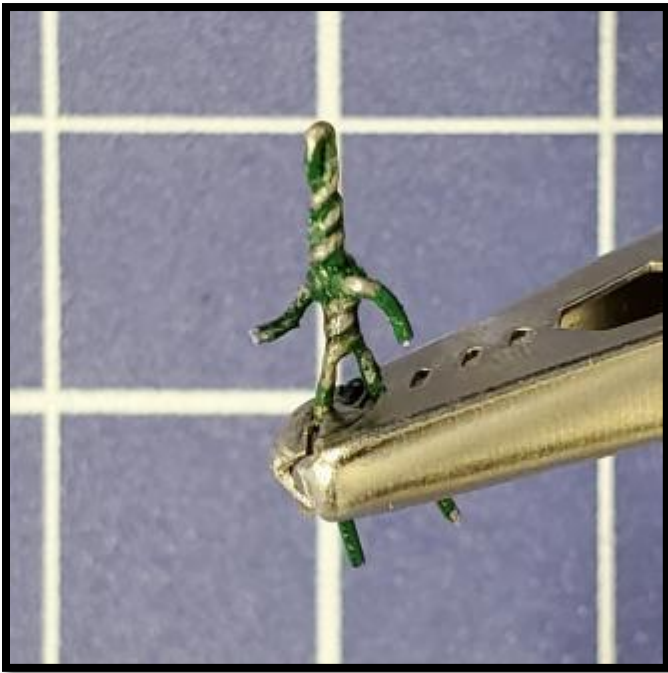
Posing

“Strike a pose”

— *Madonna*

Unarmed Soldiers or armed with swords and pistols are easier to make after the entire figure is assembled. Depending on the desired position of a rifle armed soldier, you will want to pre bend one arm (usually the right) before assembling the figure. It is much easier without the remainder of the body in the way. If you would prefer a left handed figure, simply reverse the direction of the process. There are a number of poses that are made from a few basic bends. For examples of what these positions look like in real life, examine [Civil War - 1862 U.S. Army Musket Drill HD](#) by LionHeart FilmWorks.

Unarmed



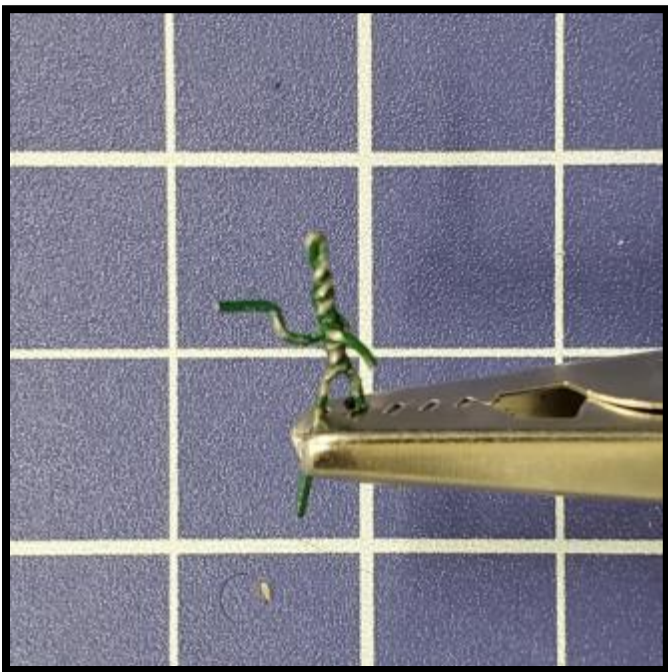
Unarmed walking figure.

1. After the soldier is assembled, bend both arms into a natural position approximately 3-4mm long and snip away the excess with flush cutters.

Sword or Pistol Armed Bend



Sword armed figure. 4mm saber.



Pistol armed figure. 3mm pistol.

1. After the soldier is assembled, bend the right arm into a natural angle approximately 4mm long and bend the wire upward to form the blade of a sword. Snip away any excess with flush cutters leaving 4mm and apply a slight curve to the tip to simulate a saber.

2. If making a pistol, bend the wire upward as if making a sword and make a sharp bend after the "hand" and snip off any excess, leaving 2-3mm to form the pistol barrel.

3. Bend the left arm into a natural position approximately 4mm long and snip away the excess with flush cutters.

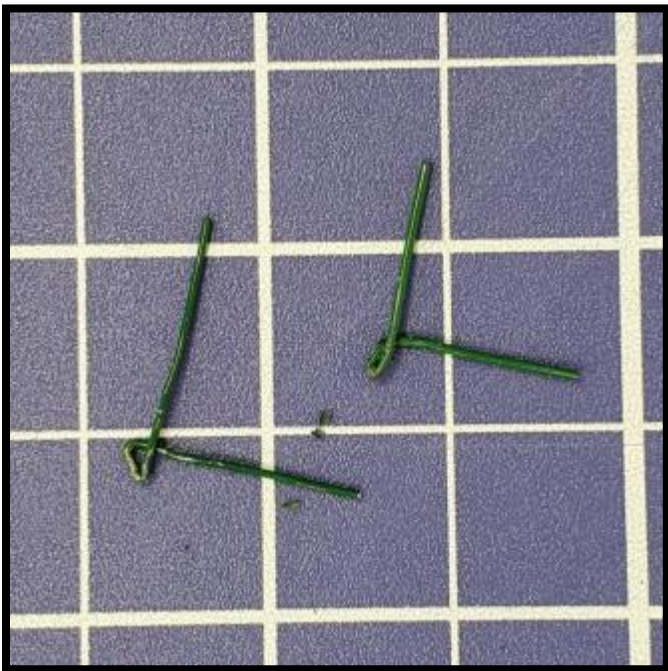
Right Shoulder Shift Arms Bend

Right shoulder shift arms is a simple bend that more closely resembles modern shoulder arms. Due to the location of the arm and hand in this position, we do not bother with a butt stock as it is hidden.



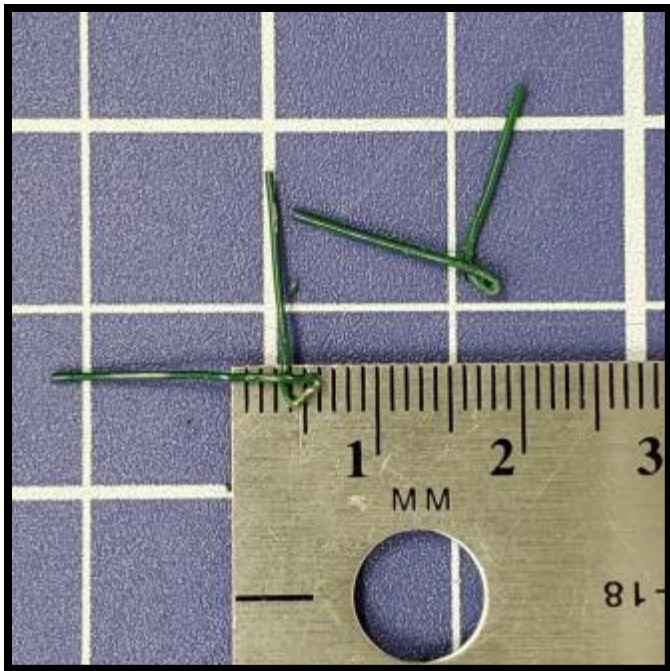
1. Take a straight piece of 4cm wire and bend it in half.

Bend 4cm wire in half.

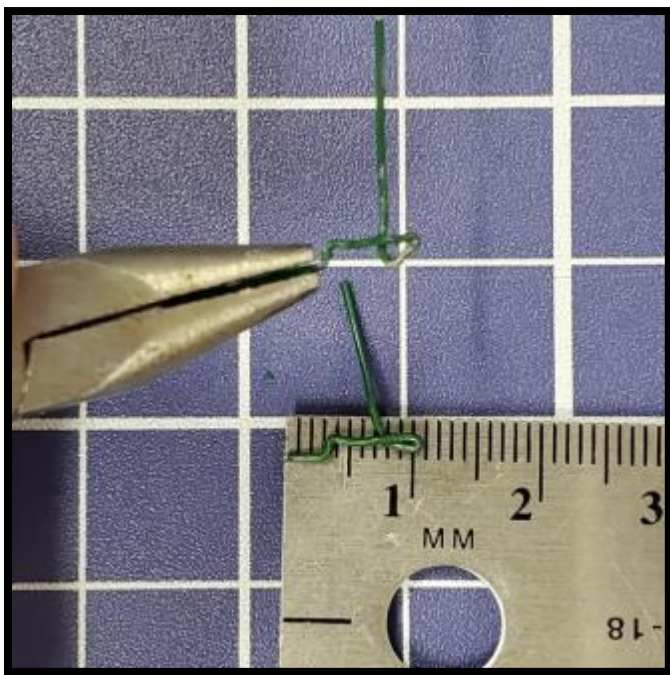


2. Bend an elbow after the first bend with 2 approximately 2mm long sections to form the right arm those folds under the rifle shaft. Depending on the gauge of the wire, this may turn out in more of a curve than a sharp elbow. Just do the best you can.

Either of these should work fine.



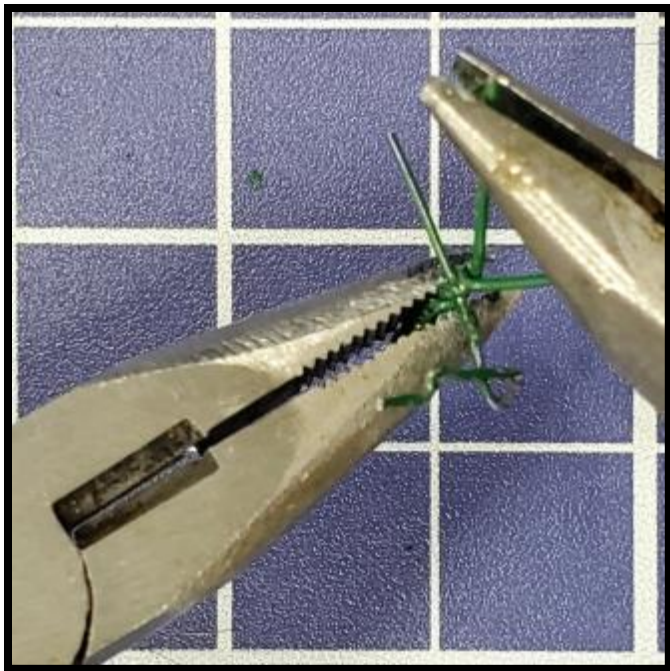
6mm Rifle. If making a bayonet, I hold the piece on the ruler and bend the wire over the edge.



3mm bayonet.

3. The overall length of the rifle should be about 6 mm. Trim off excess with flush cutters.

4. If a bayonet is desired, make a sharp bend at the 6mm mark and then a return bend, forming a “lightning bolt” to make the bayonet. Leave about 2-3mm and trim off the excess. This process is similar to making a pistol. The wire can be twisted to position the bayonet as needed.



Completing the torso with a rifle armed arm piece.



Front and side of the right shoulder shift arms

5. Once the arm and rifle are made, place the arm wire into the body wire and continue to create the basic figure as per the instructions, remembering to pull out any slack to place the weapon snug against the right side of the figure.

6. The right arm elbow should be out from the body and the rifle should be leaning back over the right shoulder.

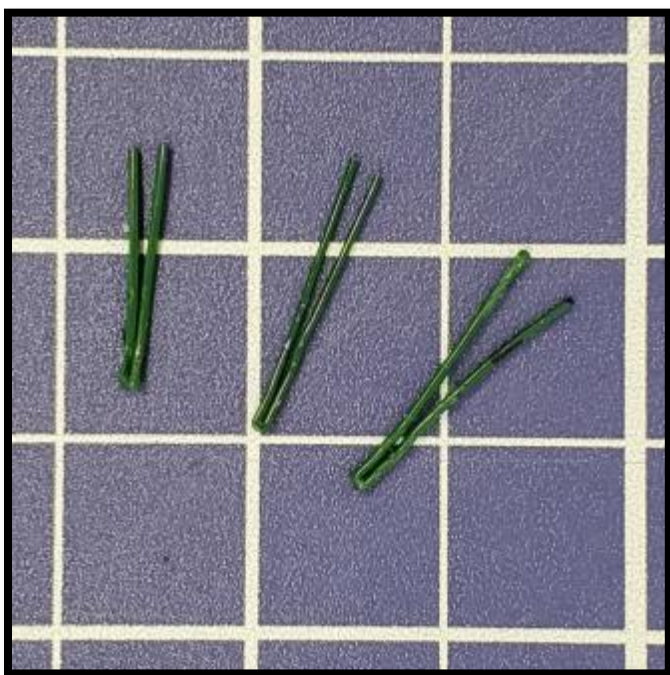


7. Bend the left arm into a natural position approximately 4mm long and snip away the excess with flush cutters.

Completed bends of a marching soldier.

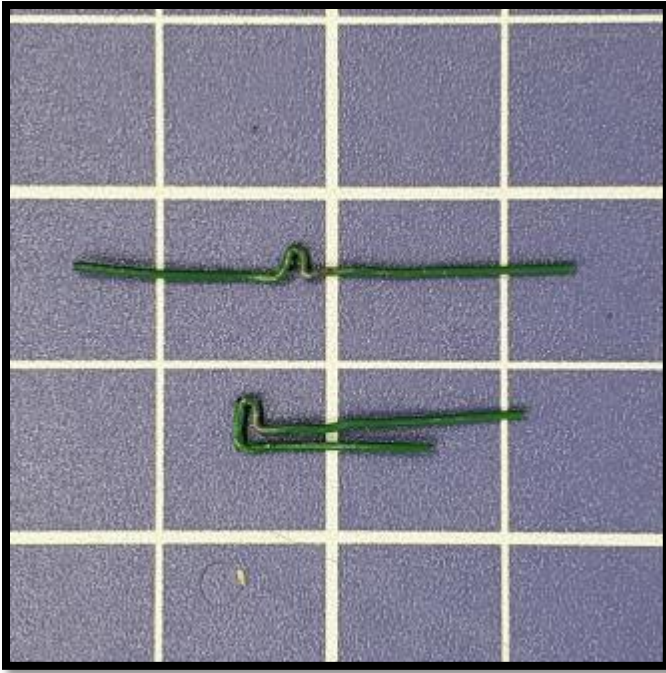
Aiming Bend

Aiming is a simple bend that simulates a soldier aiming in on a target. Due to the location of the arm and hand in this position, we do not bother with a butt stock as it is mostly hidden.

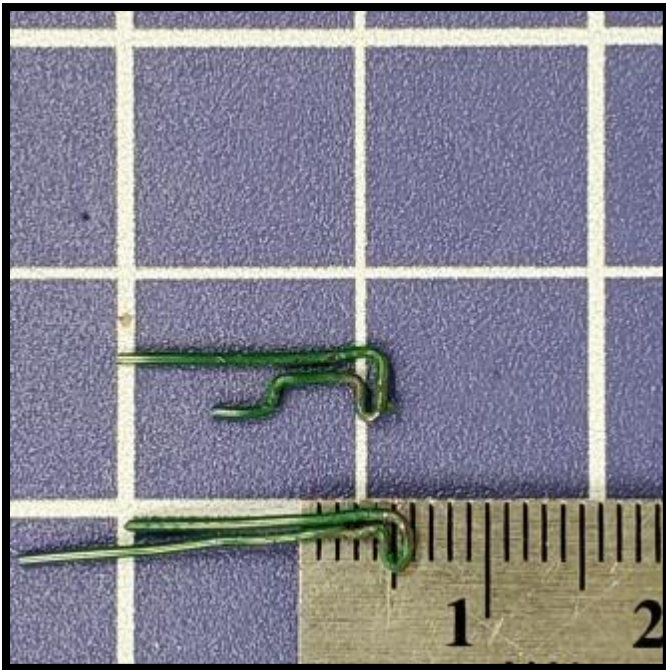


1. Take a straight piece of 4cm wire and bend it in half.

We've seen this before.



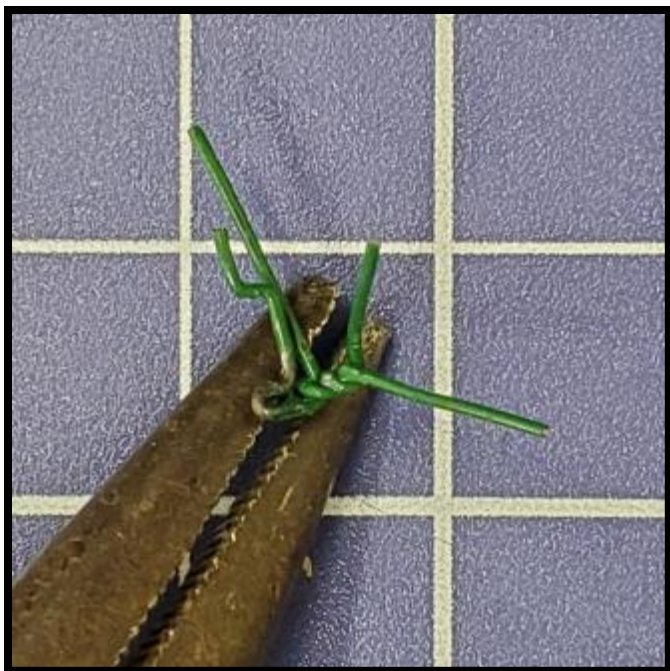
A "hairpin"



The butt stock would be under the bent arm.

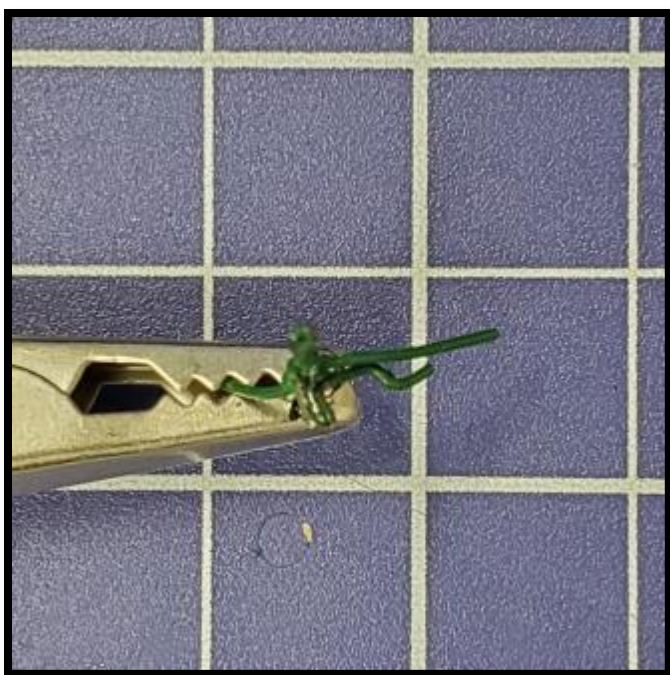
2. Bend an elbow after the first bend with 2 approximately 2mm long sections to form the right arm that sticks out from the rifle shaft in a zig zag shape (resembling a heartbeat monitor) then double back one of the arms under the first to make a "hairpin." Depending on the gauge of the wire, this may turn out in more of a curve than a sharp elbow. Just do the best you can.

3. The overall length of the rifle should be about 6 mm.(including the gap across bent arm.) Trim off excess with flush cutters. If a bayonet is desired, make a sharp bend at the 6mm mark and then a return bend to forming a "lightning bolt" to make the bayonet. Leave about 2-3mm and trim off the excess. The wire can be twisted to position the bayonet as needed.



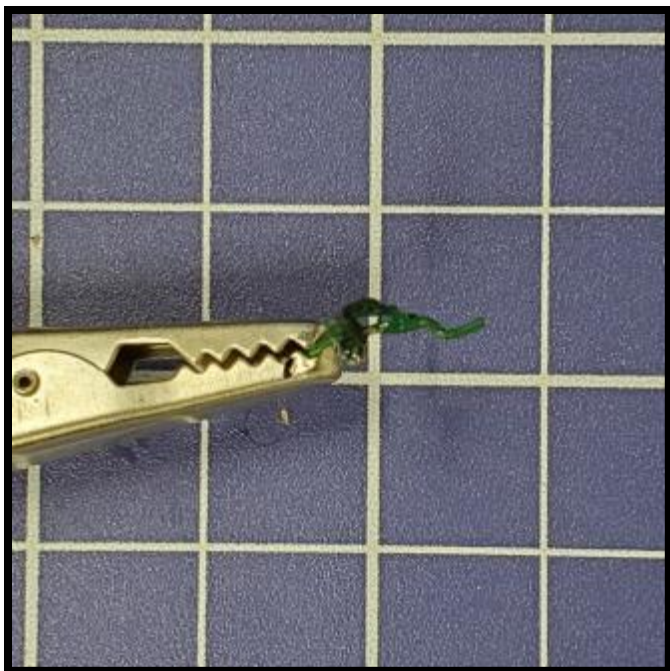
4. Once the arm and rifle are made, place the arm wire into the body wire and continue to create the basic figure as per the instructions.

The body is in the corner of the hairpin.

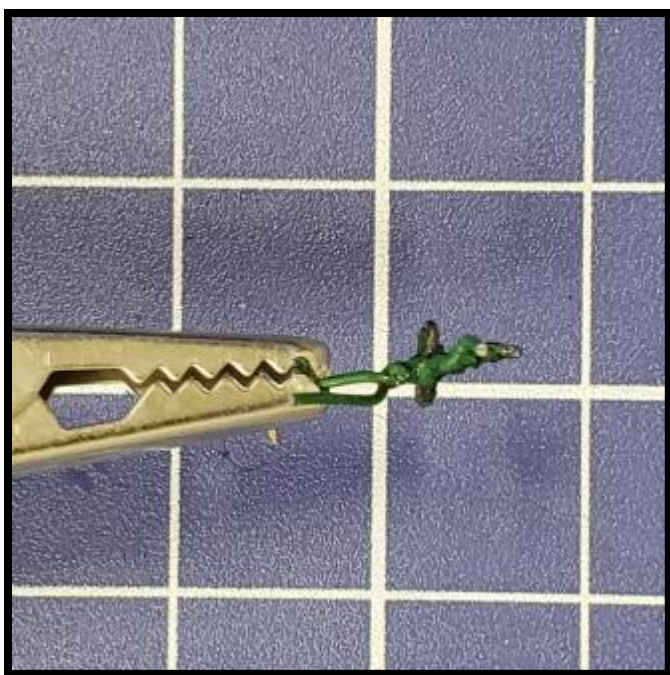


5. The right arm elbow should be out from the body, parallel to the deck with the rifle extending from the hand and crossing over the body to the left.

Positioning the firing arm.



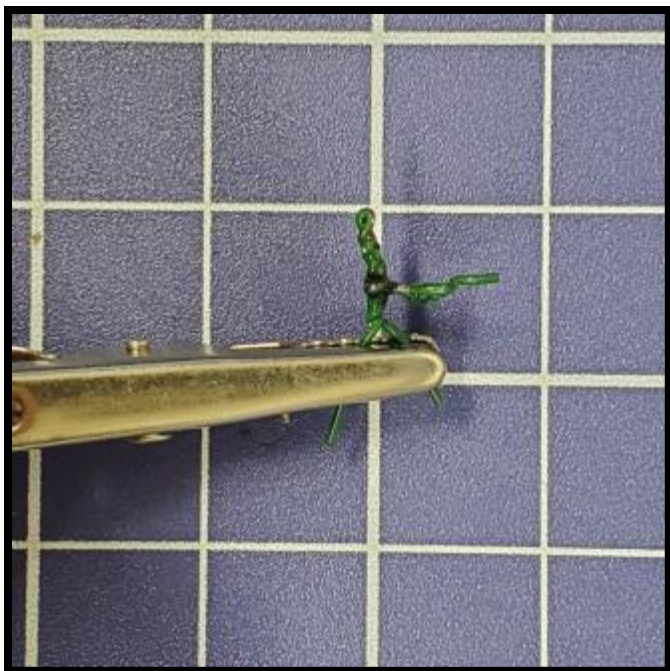
Top view of the left arm.



Legs aligned with the rifle.

6. Bend the left arm into a bent position with 2 approximately 2mm long sections forward to wrap the “hand” around the rifle barrel and snip away the excess with flush cutters.

7. Twist and bend the legs until they are in line with the rifle’s direction.

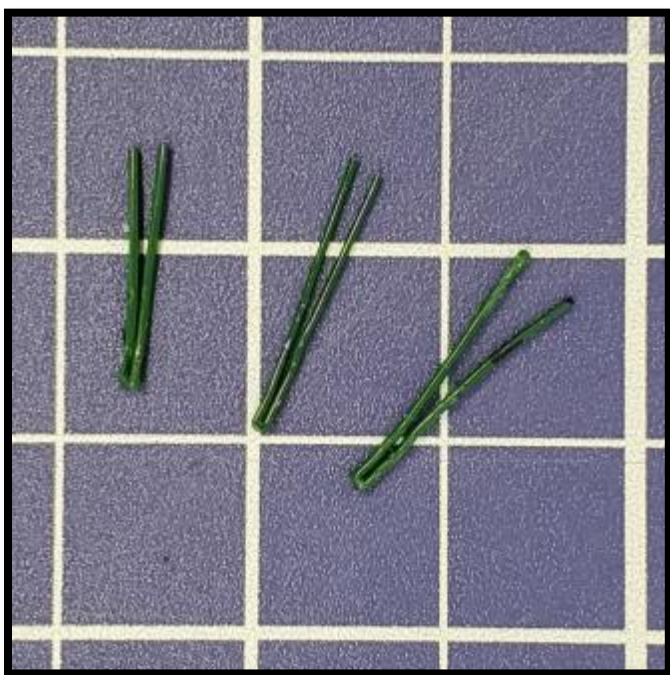


8. Tilt the rifle and arms to create the position desired and apply superglue gel to the left hand to secure it to the rifle barrel.

A completed firing bend.

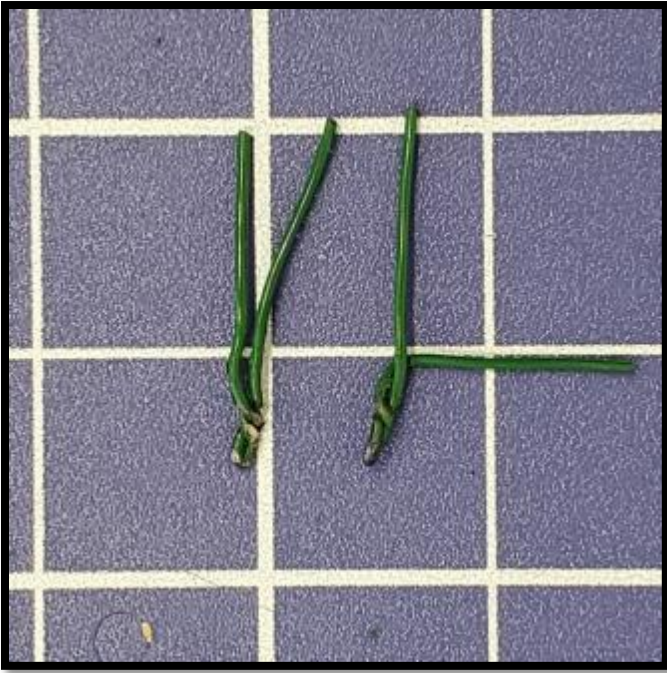
Shoulder Arms Bend

Shoulder arms is a standard position but is not as dynamic as others, however it is the base for several other positions like Port arms, Present arms, Charge Bayonet

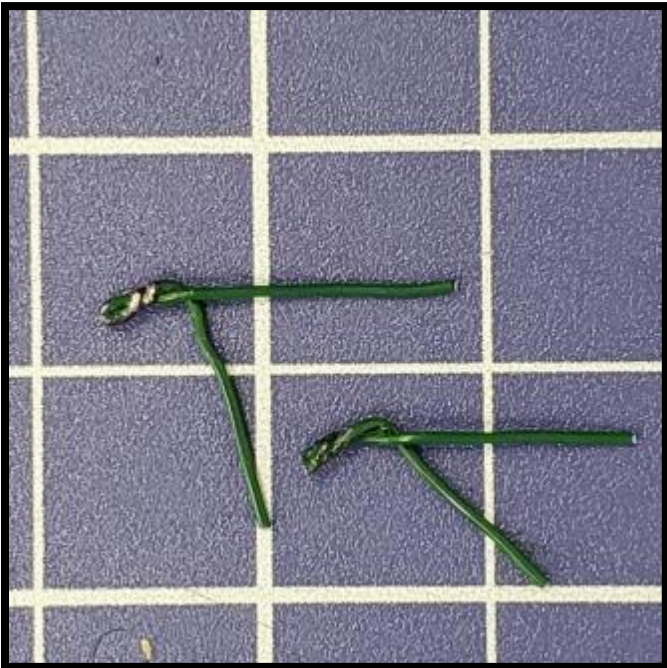


1. Take a straight piece of 4cm wire and bend it in half.

Whoa, Déjà Vu.



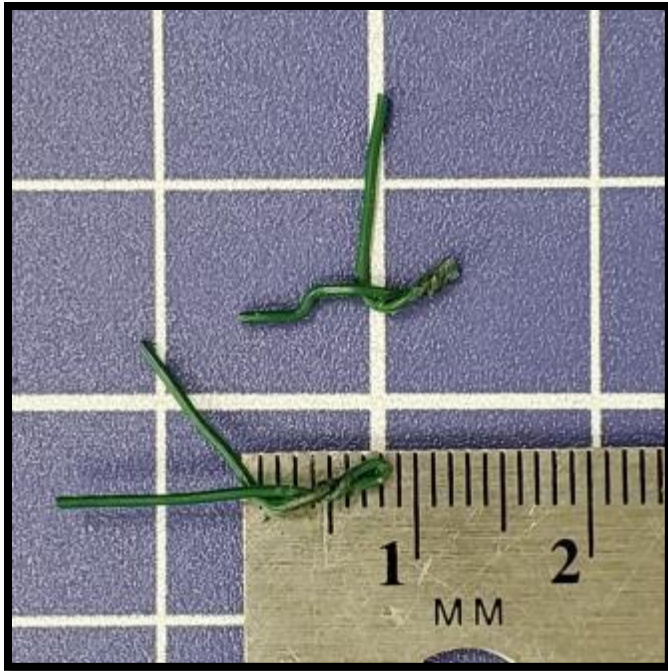
The twist makes the butt stock and the wire wrapping around forms the right arm gripping at the trigger.



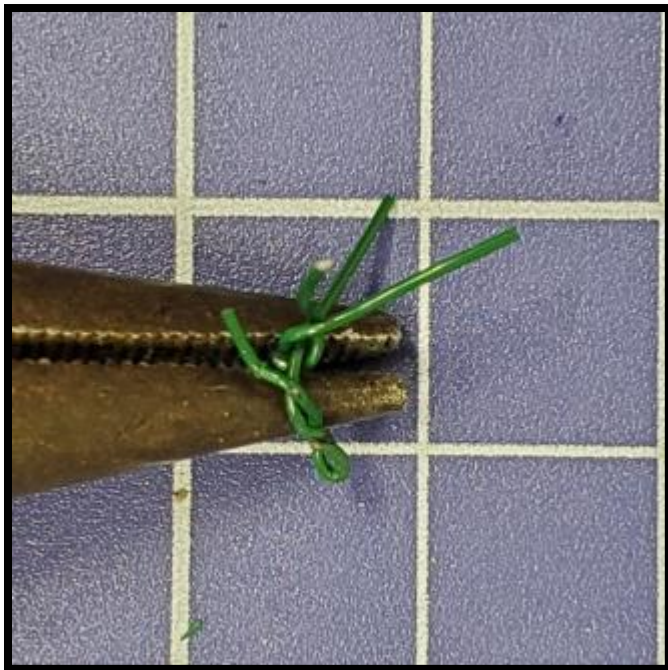
Flattened butt stock bottom.

2. Take your pliers and, looking down at the bend, make 2 twists clockwise to put the “hand” on the outside of the butt stock.

3. Tilt the butt stock twist outward slightly and bend the remainder of the wire to a 4mm long slight curve under and against the shaft of the rifle to make the right arm. You can leave as is or apply superglue to the butt and snip off excess to make a 2-3 mm butt with a flat bottom. The twist can come undone and I leave this step until finished.)



4mm Rifle +Butt for a 6mm Rifle.



Twisting the torso.

4. The overall length of the rifle should be about 4 mm (not including the butt stock twist.) Trim off excess with flush cutters. If a bayonet is desired, make a sharp bend at the 6mm mark and then a return bend to form a “lightning bolt” to form the bayonet. Leave about 2-3mm and trim off the excess.

5. Once the arm and rifle are made, place the arm wire into the body wire and continue to create the basic figure as per the instructions.



6. The right arm should be against the right side of the body and at a 90° to the deck.

Shoulder arms figure (front.)

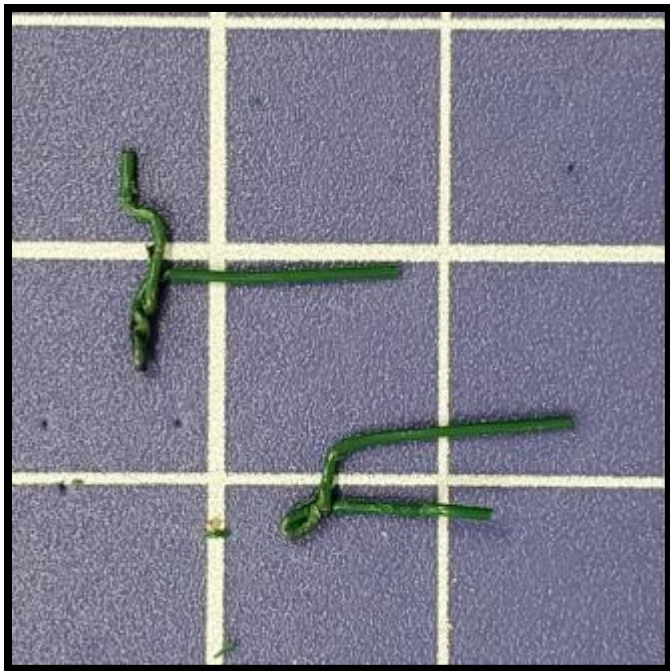


7 Bend the left arm into a natural position approximately 4mm long and snip away the excess with flush cutters. apply superglue to the butt and snip off excess to make a 2-3 mm butt. With a flat bottom.

Shoulder arms figure (side.)

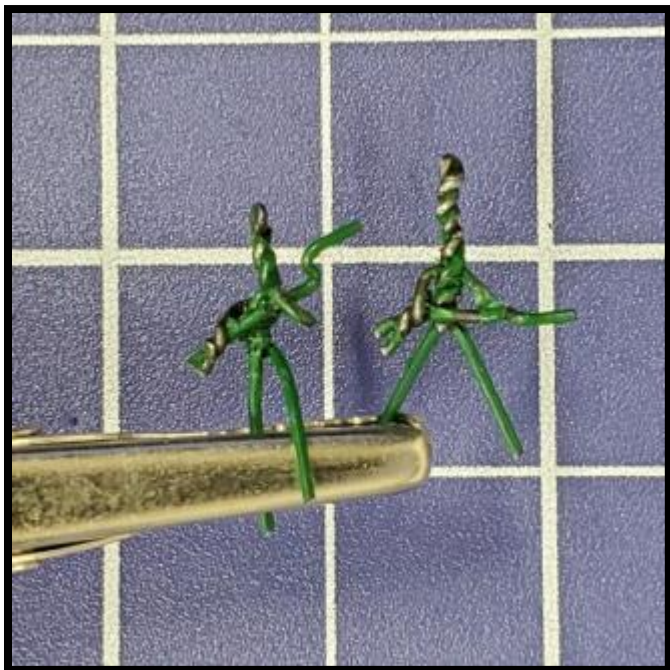
Port arms, Present arms, Charge Bayonets Bend

Port arms, present arms, and charge bayonets are all derived from Shoulder Arms bend. The only differences are the angle and bends to the right arm, and the left arm moved forward to grip the barrel of the rifle.



1. Make a Shoulder Arms bend, but instead of wrapping the arm around the rifle, bend the rifle outward from the arm.

The difference between a Shoulder Arms bend and a Port Arms bend.

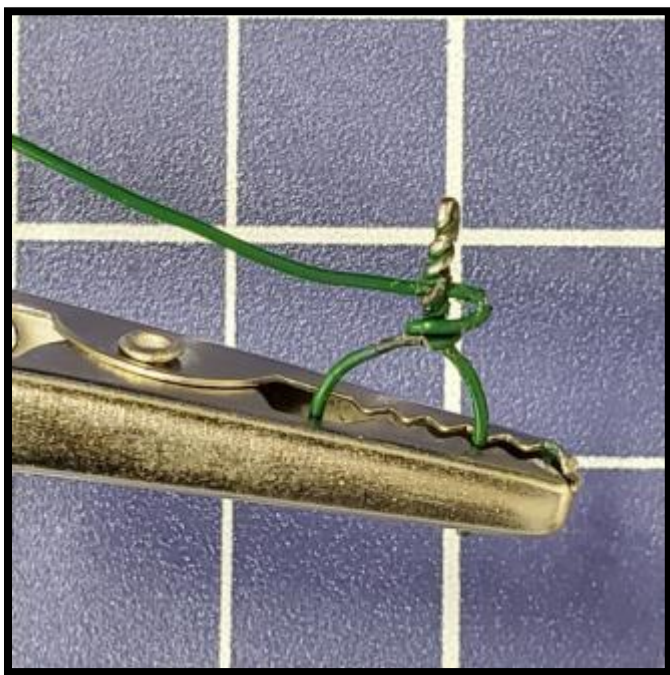


2. Bend the right arm into an elbow and bend the left arm forward to wrap the “hand” around the rifle barrel. Tilt the rifle and arms to create the position desired and apply superglue gel to the left hand to secure it to the rifle barrel.

Port Arms & Charge Bayonets. Note that Port Arms is facing forwards and Charge Bayonets is facing right.

Riders

A rider is made by making a basic soldier, splaying the legs out from the body and twisting them around the body of a horse and snipping off the excess, leaving enough to maintain a tight grip on the horses' body. The most common positions for a rider would be unarmed, sword, pistol, holding a carbine (a modified shoulder arms bend) or aiming.



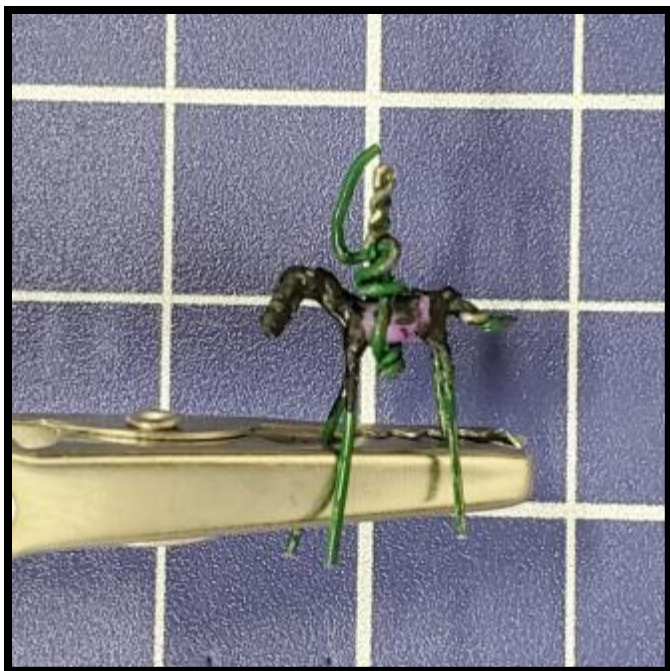
The long arm of the law.



En garde!

1. with a basic soldier, bend an elbow with 2 approximately 2mm long sections to form the left arm and tightly wind the remainder of the wire around the front of the body at the hips all the way around and snip off the excess to form the left hand on the reins.

2. Form the right arm as normal according to unarmed, sword or pistol position. If your pose is aiming with a carbine, ignore the left arm positioning in step 1. If your position is holding a carbine, Form the right arm as if doing a shoulder arms bend, but leave it loose and slightly out from the body with a 4mm arm and the barrel facing forward and slightly up. Trim off the excess leaving the carbine 4mm long (including the butt stock twist).



3. Place the rider onto the back of a horse and twist the legs until you have a tight seat to the horse. Apply super glue to secure the figure to the mount and snip off excess twists, leaving enough to maintain stability (usually 1-2 mm.)

Completed sword armed figure.



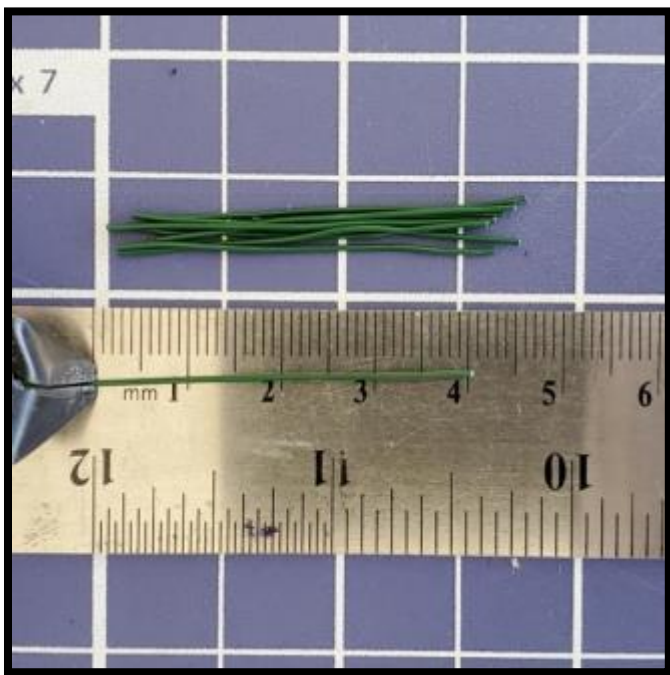
A cavalry brigade armed with swords and pistols.

Horses

"You've got two empty halves of coconut and you're banging 'em together."

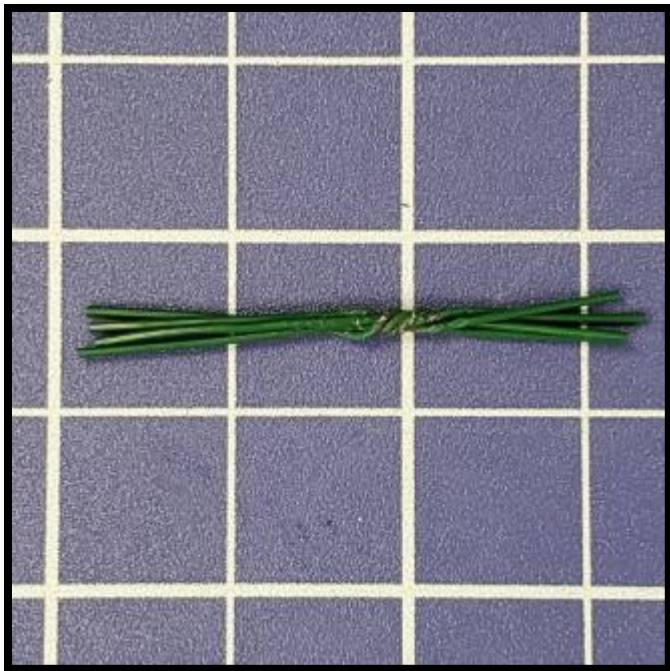
— *Unnamed Mercian guard*

Horses are an integral part of any period army and are used for cavalry, limber/wagon pulling or as supply carriers.



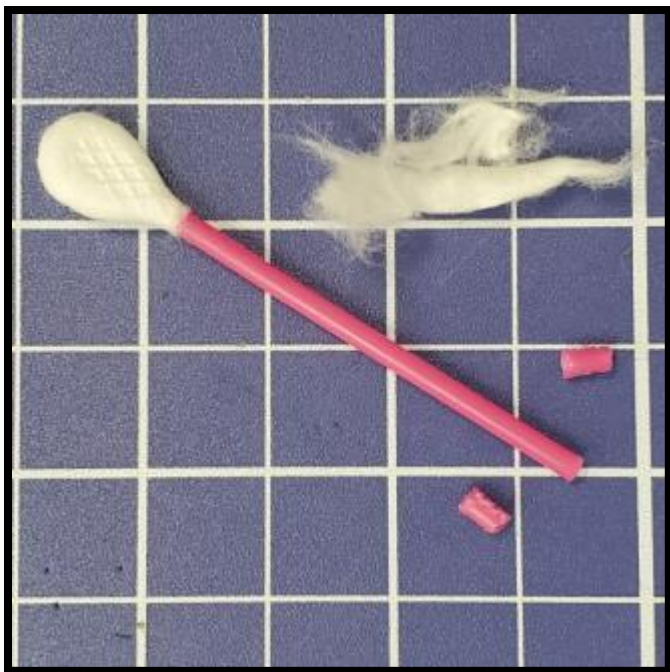
1. Cut a pile 4 cm (1.5") pieces of floral wire

Many, many more of these.



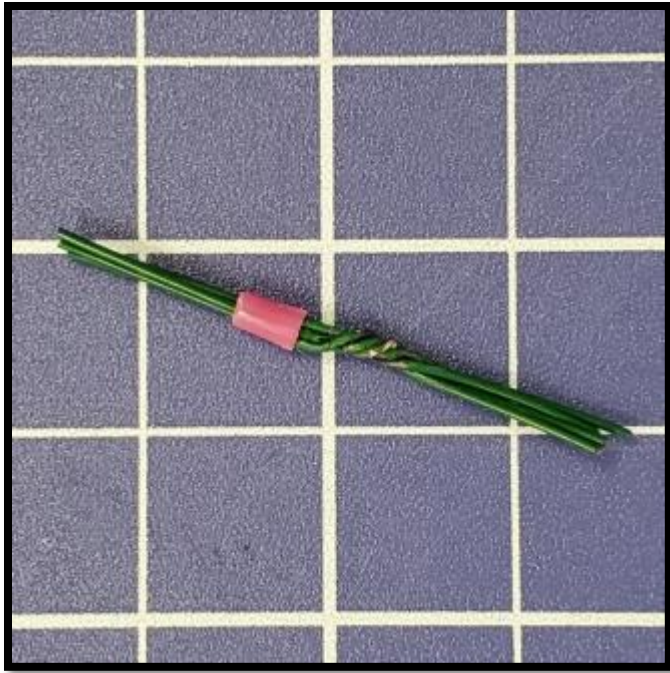
2. Line up the 4 pieces of wire and, using your pliers, twist them tightly together at the center.

4, 4cm wires with a central twist.



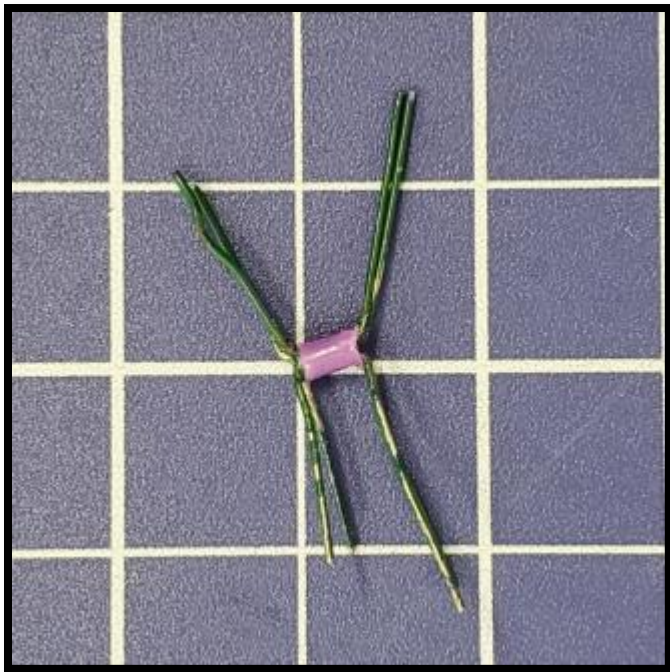
3. Strip away the pads from a plastic shaft cotton swab, leaving only the shaft, and clip the shaft into 4mm sections.

4mm sections of swab shaft.



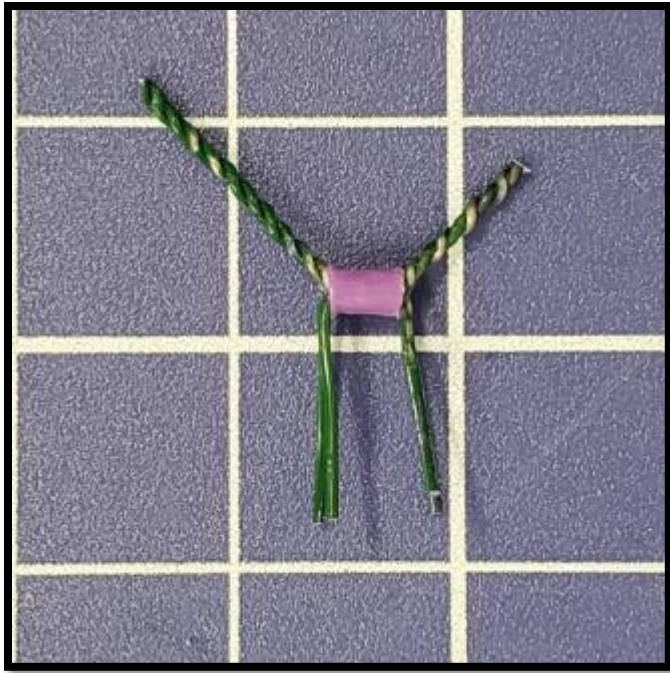
4. Slide a section of the swab shaft onto one side of the wire mass, apply superglue gel to the twist and slide the swab section over the twist, hiding it.

Slide the shaft over the twist.



5. Splay out the wire ends on both sides for the swab section, locating the 4 that most naturally form the horse's legs and bend them into place.

Separate the wires to form legs, head and tail.



Look a giraffe.



Basic horse shape.

6. Twist the 2 remaining wires on each end tightly to form the neck, head and tail of the horse.

7. Bend a 3-4mm curve followed by a 3mm straight and clip off the excess to form the neck and head then bend the tail and clip off the excess at a bevel and fill in the back and chest with super glue gel to lock the horse together.



8. Use puff paint to fill in the head, neck, chest, upper front legs and rump.

Completed horse with filler.



A limber with 1 horse team.

Headwear and accessories

"The only thing that separates us from the animals is our ability to accessorize."

— Clairee Belcher

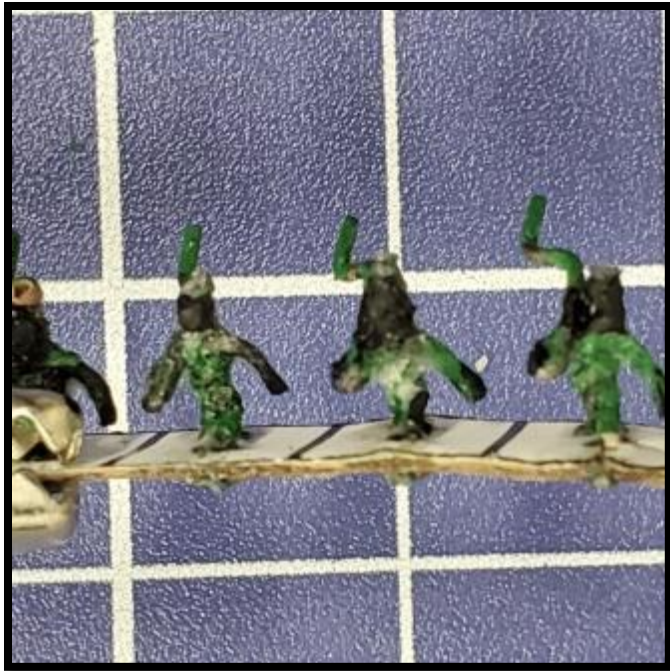
Now that your little soldier is made, it's time to apply accoutrements to flesh out their appearance and make them identifiable on the table...well, as identifiable as a 6mm figure can be. This is by far not an exhaustive list of what can be done to trim out your miniatures, just a selection of things I've tried so far.

Simple Kepi, Bummer, or Shakos

If no headwear is required, Leftover twists above the head can be clipped off and left as is or can be trimmed off at a bevel. This is the simplest way to make a kepi, bummer cover or shakos.

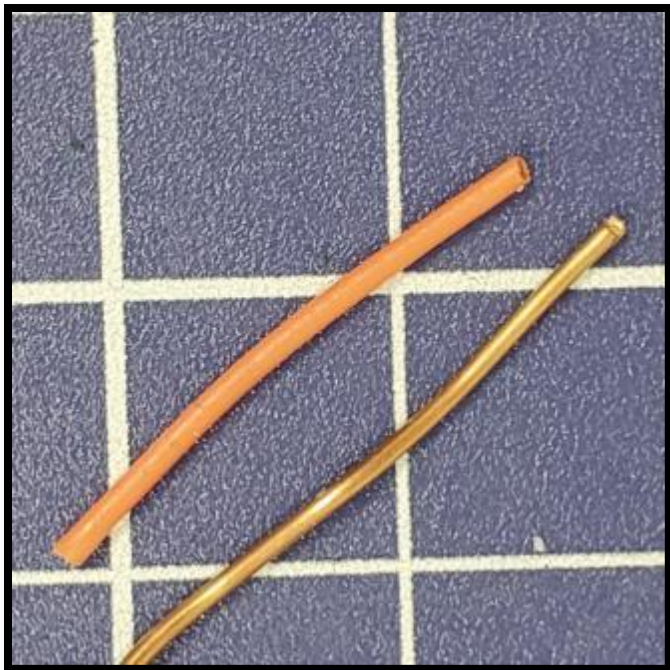
Wire Insulation Kepi, Bummer, or Shakos

From A small piece of wire insulation, a more detailed kepi, bummer, shakos or great helm can be crafted.



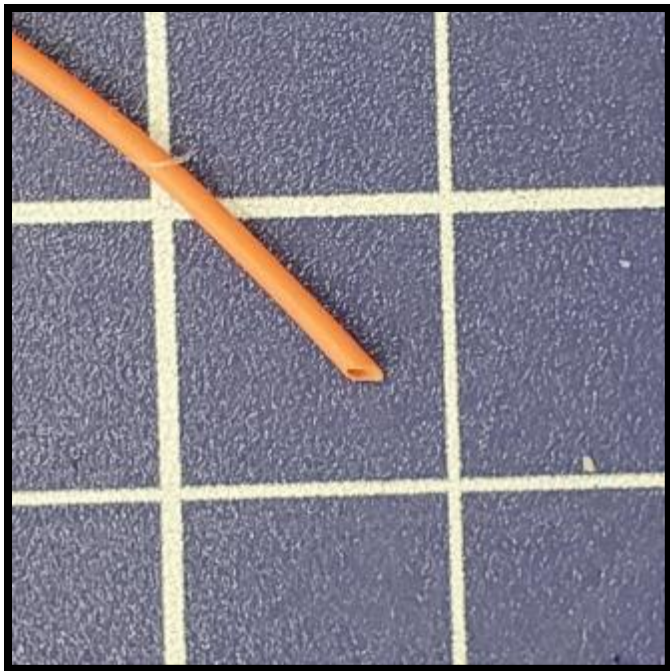
1. Trim off the excess twisted wire on top of the head, leaving a small nub.

Trimmed head twist.



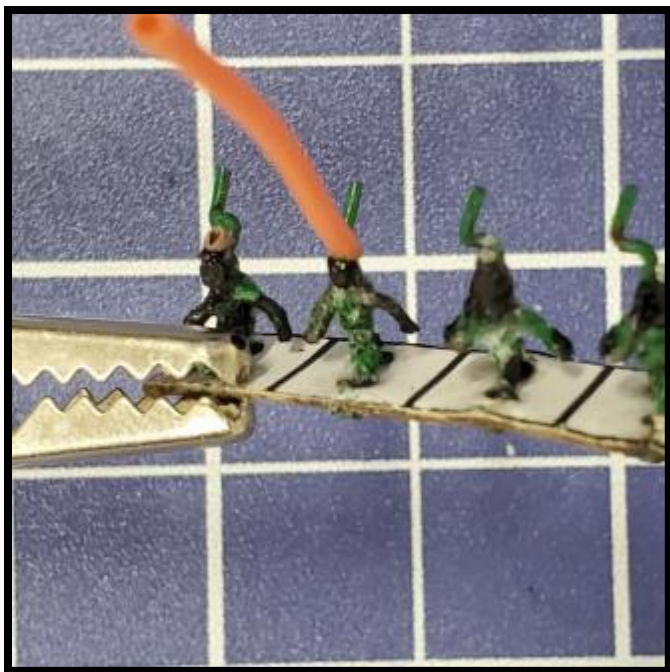
2. Pull a small piece for wire insulation, stripped from a piece of electrical wire.

Stripped wire insulation

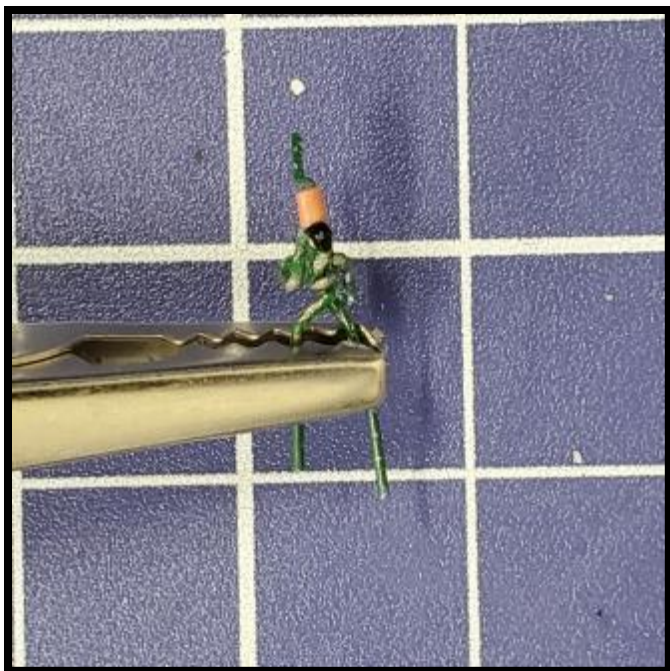


3. If making a kepi or bumper, cut one end at a bevel with flush cutters and superglue it over the nub hanging forward over the head and trim off at a bevel

Insulation cut at a bevel.



Insulation glued over the nub.



4. If making a shakos, cut straight, glue over the nub and cut off flat at about 2mm.

A simple shakos.



5. If making a great helm, instead of fleshing out the head with super glue gel or puff paint, apply super glue, slide a piece of wire insulation over the head twist and snip off at about 3mm.

Sir Not Appearing in this Tutorial.



6. Fill in the gap at the top of the insulation with puff paint or super glue gel.

The top of the kepi filled with puff paint.



There are a few that I missed filling but you get the idea.

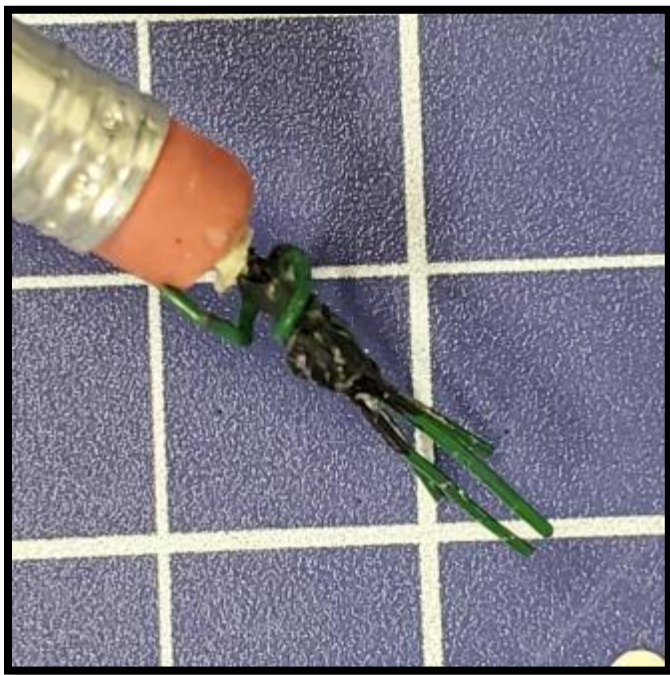
Paper Circle Slouch Hat, Bicornes, Tricornes, or Kettle Helm.

A small paper circle. Can be used to make a slouch hat, bicorne, tricorne or kettle helm.



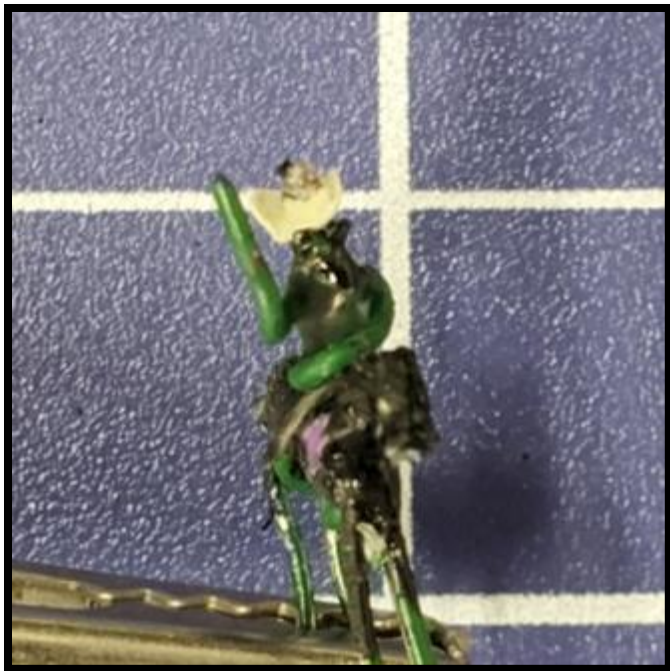
Paper circles made from a punch with central holes.

1. Use the mini hole punch to cut a 2.5 or 2.8mm paper circle. The larger the circle, the easier it is to work with but too large will look odd. Use an awl, ice pick, thumb tack or whatever you have to put a small hole in the center of the paper circle.

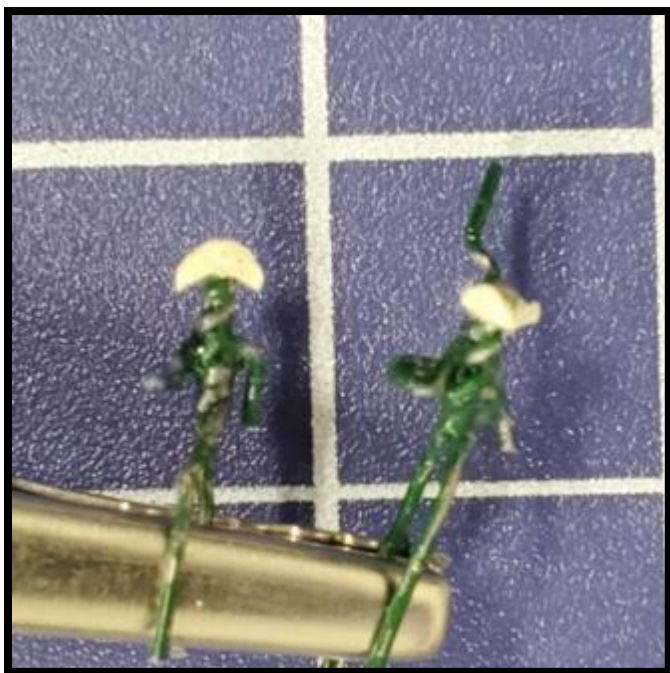


Press the circle onto the head.

3. Place the circle over the twist and, using a pencil with an eraser, gently twist and push the twisted wire into the eraser to force the circle down to the top of the head.



Trim the twist to make the crown.



A bicorne and tricorne.

4. Remove the pencil and trim off any twist as needed to create the crown of the hat.

5. If making a slouch hat or a kettle helm, adjust as needed.

6. If making a bicorne or tricorne, pinch the edges of the paper circle into the desired shape: Front and back Napoleon style or side to side Admiral Nelson style for the bicorne and in threes, front and sides for the tricorne.

7. Apply super glue liquid to saturate and harden the paper into position.



A mounted commander wearing a slouch hat.

Paper Rectangle Greatcoats, Capes or Tabards

Small pieces of paper rectangles can be used to form greatcoats, capes or tabards. Remember to saturate them with super glue to harden them once they are in place.

Craft Foam & Chipboard Backpacks or Pack Animals

Very small rectangles for craft foam or cereal box chipboard can be used to make backpacks or loads for pack animals. If making a load for a horse, build up a mound of super glue gel, hot glue or puff paint first and super glue on a few squares as bundles.

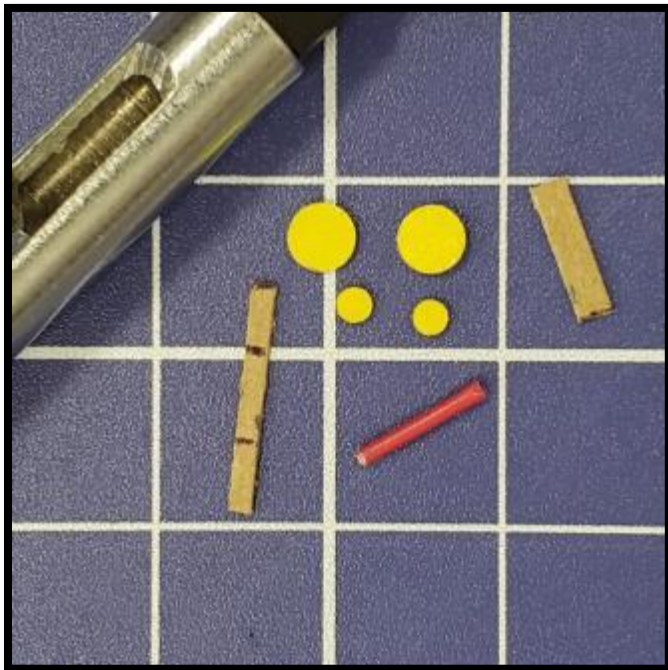
Cannon, Limber & Caissons

"I hate small towns because once you've seen the cannon in the park there's nothing else to do."

— Lenny Bruce

Cannon

Cannon, for our purposes, includes mobile field artillery used in conjunction with infantry or cavalry units and is typically assigned a support role for such. Field artillery is rated by the weight of the projectile it fires, and range from 6, 10, or 12 pounds i.e. a "6 pounder." There are larger artillery pieces such as siege guns and coastal batteries that I have not presented at this time.

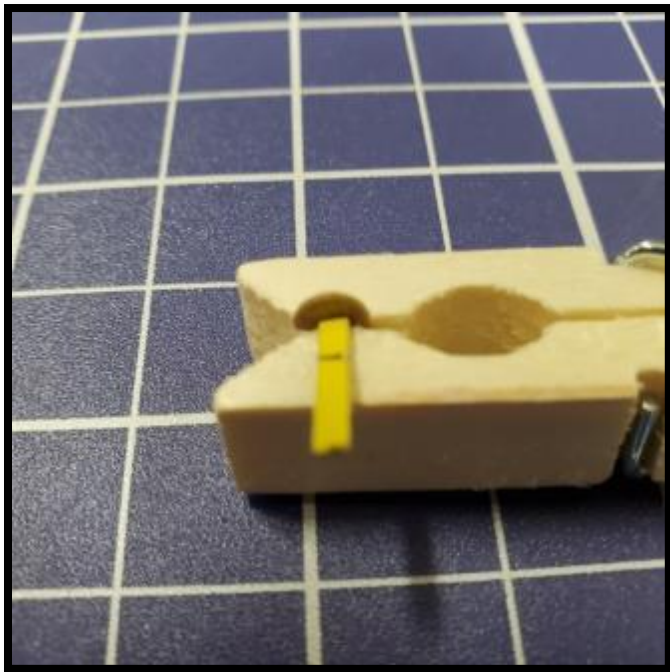


1. Use the mini hole punch to cut 2, 4.8mm, 2 2mm circles, 1 2mm x 10mm and 1 1mm x 17mm long strips of cereal box chipboard, and a 10mm piece of insulated electrical wire.

Cannon components.



A staple.



One wheel attached.

2. Mark a 17mm strip in 5mm/7mm/5mm sections and fold at the marks making a “staple.”

3. Locate the center of a 4.8mm circle and glue 1 leg of the “staple” with the crown ending at the center (clamp with an alligator clip or clothespin as needed), then repeat the process with the other circle on the other leg. Clip off the excess of the legs flush with the wheels.

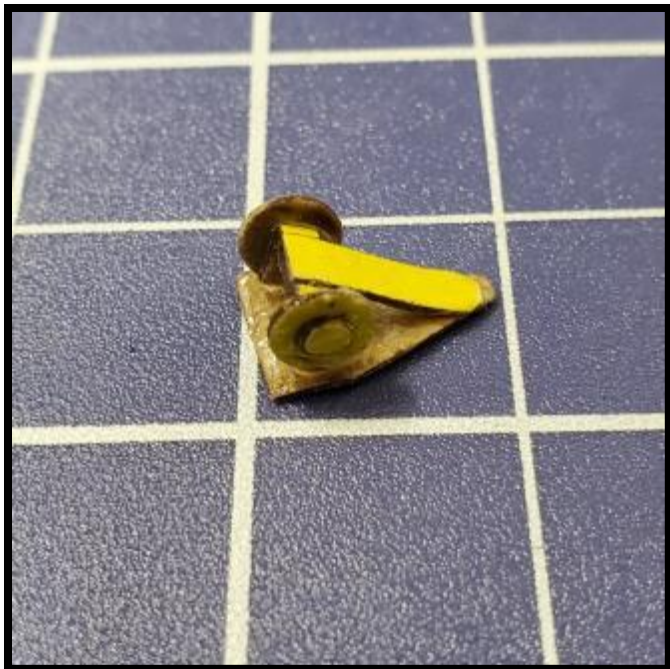


*The basic Carriage for a Cannon,
Limber or . caisson.*



Carriage with Trail attached.

4. Glue the remaining strip of chipboard to the crown of the staple to make the trail of the cannon and glue the two small circles in the center of the wheels for the axles.



Cannon Carriage glued to a base.



The barrel propped in position to dry.

5. Glue the wheels and trail down to a piece of scrap chipboard and trim away the excess. Saturate the chipboard with superglue to harden it.

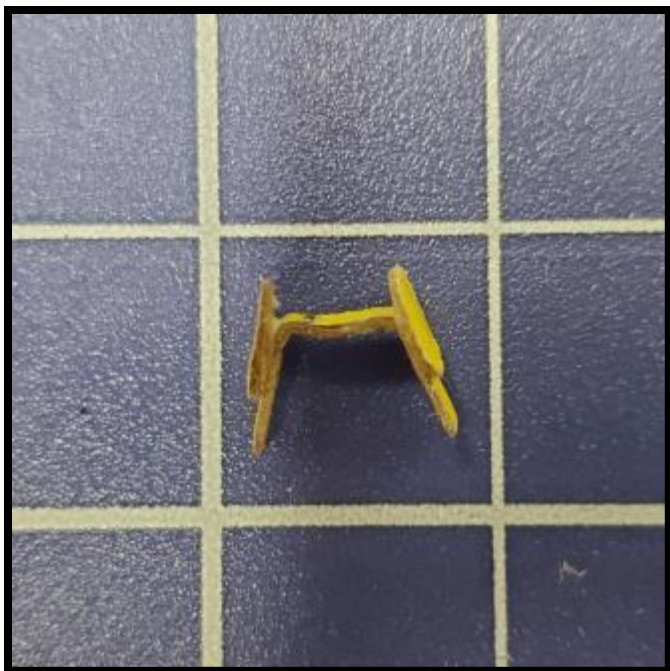
6. Glue the piece of electrical wire into the carriage with 1/3rd extended out the back and apply superglue gel or puff paint to round the back and form the breech.



The figures are an unarmed figure with the arm elevated to give the order, the lintstock is a sword armed but painted black and the plunger is a modified left side port arms(the butt stock makes the plunger head.)

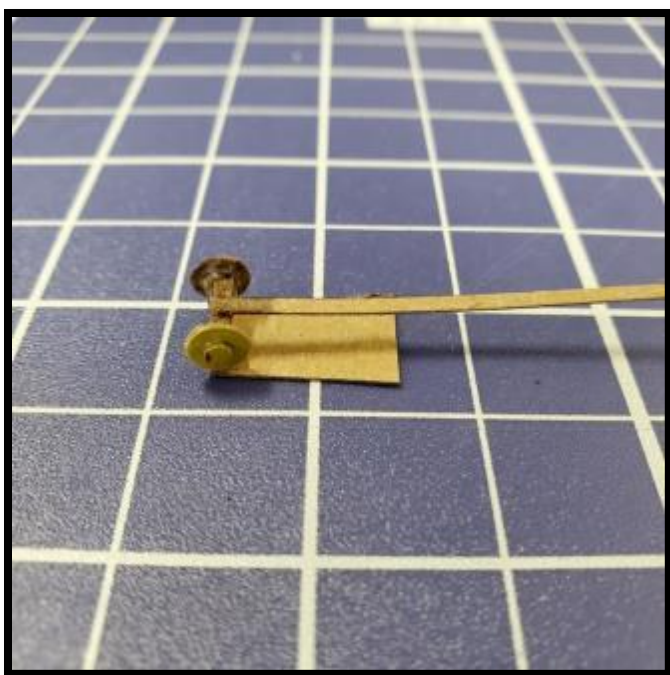
Limbers & Caissons

A Limber is a small cart used for towing cannon by their trail. A caisson is a cannon ammunition cart of similar design. For modeling purposes, they are virtually identical and often a caisson will be hitched to a limber for transport.



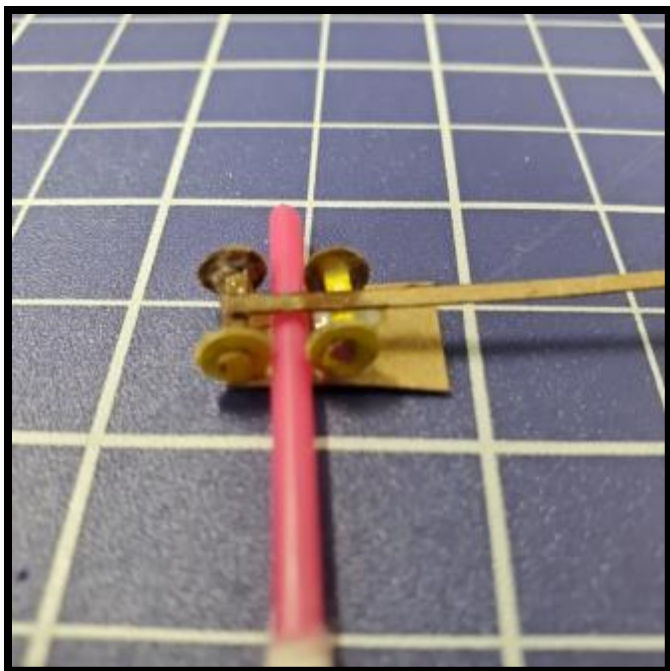
1. Follow steps 1-4 of making a cannon carriage.

Basic carriage.



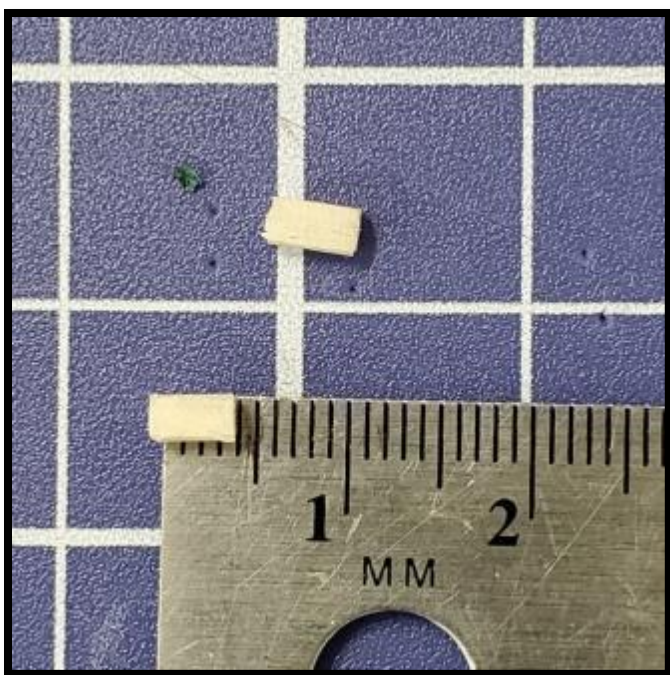
3. Glue the wheels down to a piece of scrap chipboard, leaving the pole sticking out horizontal to make the pole and trim away the excess. Saturate the chipboard with superglue to harden it.

Limber and pole glued to base.



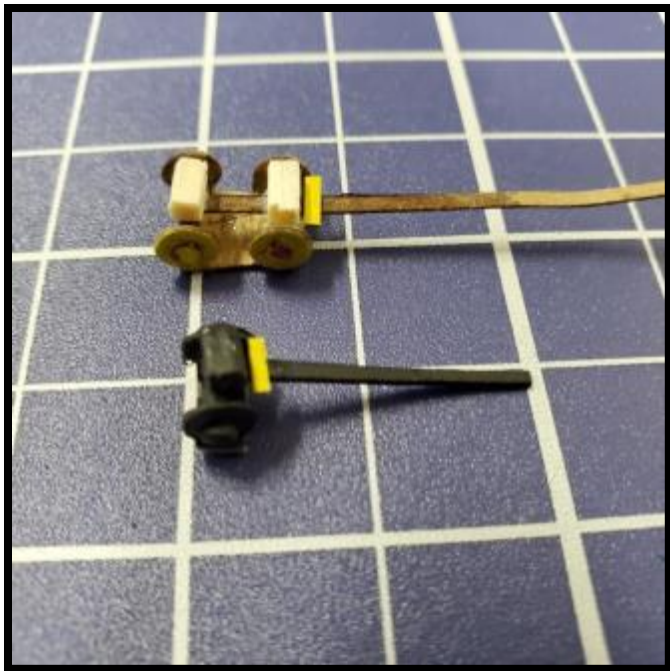
2. If making a limber & caisson, glue a 2nd carriage to the 1st by the pole with a 2-3mm gap.

I used a swab shaft to space the gap.



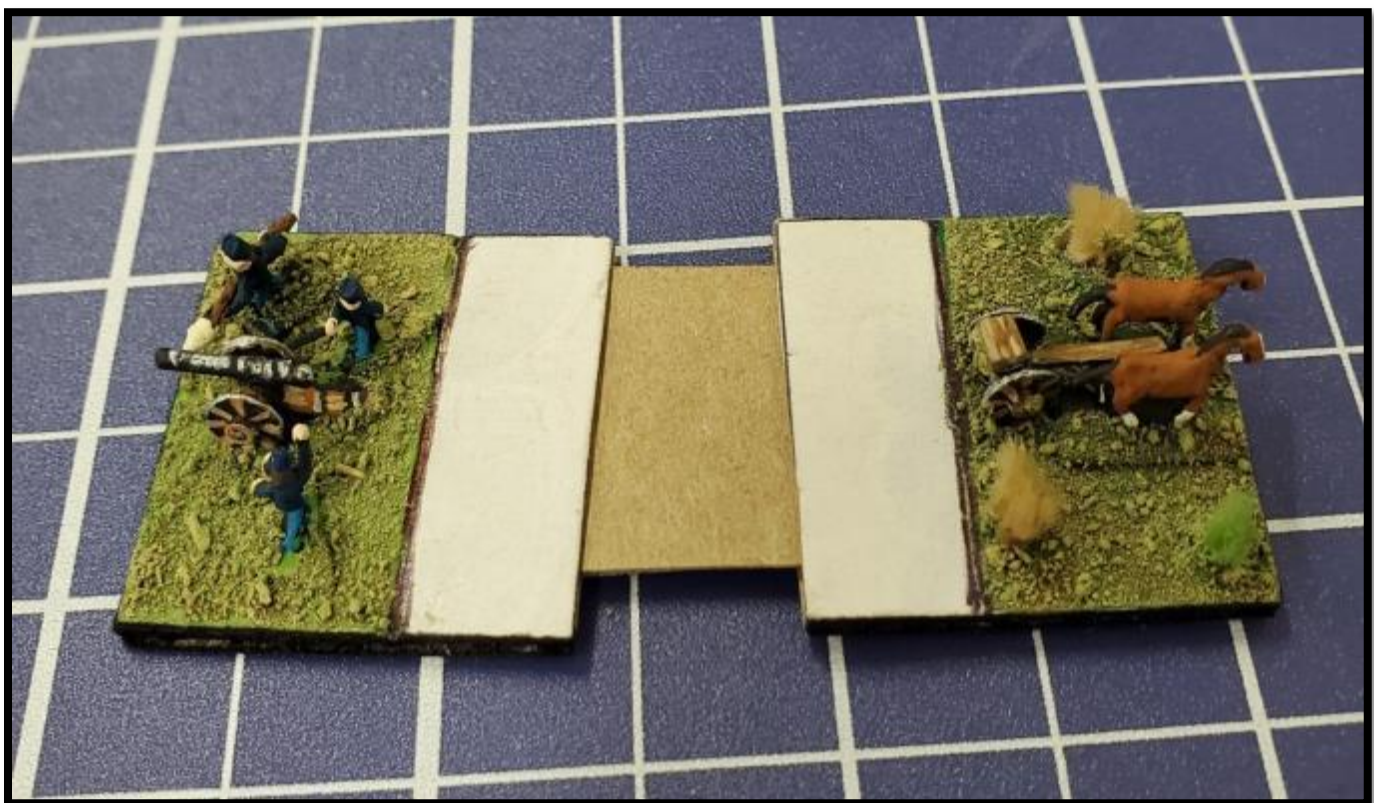
4. Cut 4mm sections of a square matchstick and glue them onto the carriages to form the storage chests.

4mm matchstick storage boxes.



5. Glue the storage chests onto the carriage. Glue a 1mm x 4-5mm strip onto the pole for the footboard. When mounting to a base, place horse teams around the pole and trim off any excess.

A Limber & Caisson and a limber.



Showing the process of attaching a cannon to a limber via the pocket in the base. The two pieces touch when fully attached.

Formations

“Oh, it's real tough stuff. Especially that marching-in-a-straight-line business.”

— Pvt John Winger

Now that you've patiently and lovingly created your tiny warrior...do it again about 1000 times. You'll need many soldiers to flesh out your army and “all that wire ain't gonna bend itself.” With practice and confidence this process gets much faster and in no time, you'll have divisions of troops. Stick with it.

As stated earlier, the bases are made to 30mmx60mm and 30mmx30mm standards and have been laid out with suggested positions for men, horse and equipment but these are just suggestions. If you don't want the firing arc notches, don't cut them. If you don't want to use the “Blücher bar” at the back, shift the mounting strips back and flock the entire stand. This is entirely up to you and the requirements of your preferred rule set.

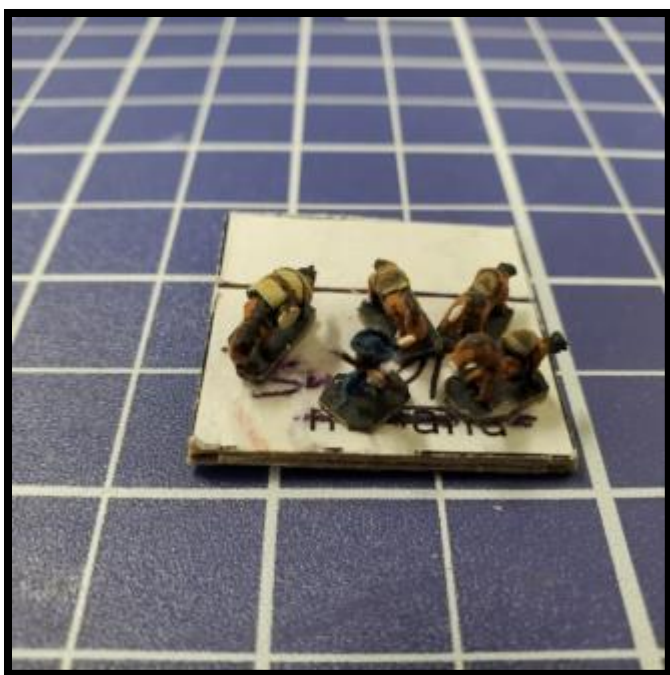
Depending on your basing needs, the squares of the mounting strips can be cut to produce individual men, mounted riders and horse teams.

Assembly

Now that the basic components are created, the stand can be assembled.



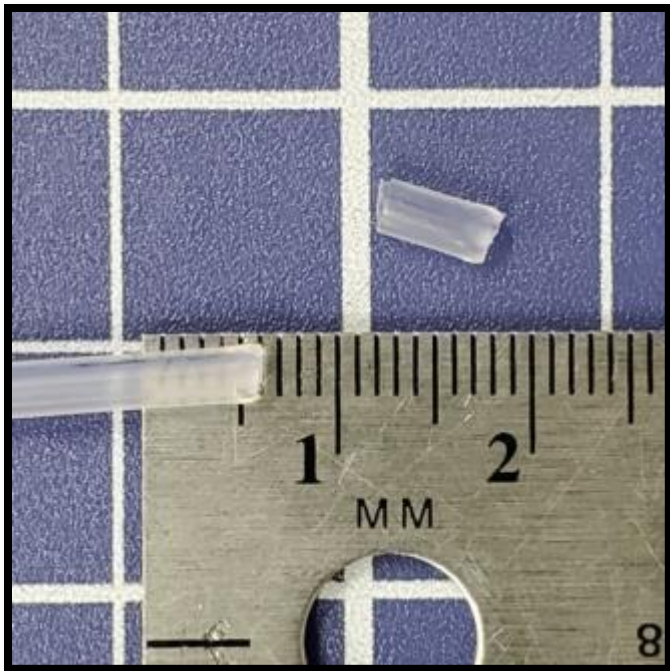
An Infantry brigade being assembled.



Dismounted cavalry marker.

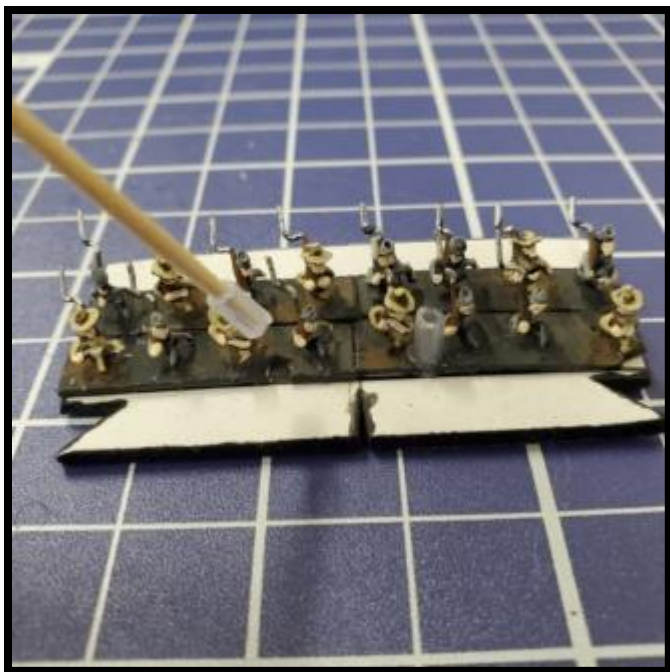
1. Determine where the strips of figures will go and glue them down to the base. Use clips to clamp the components into place until the glue dries.

2. If the figures are to be in a disorganized arrangement, cut the basing strip to make individual miniatures and glue down to the base as required.



3. Using the empty ink tube from a disposable pen, cut 2, 6mm sections.

2, 6mm flag stands.



4. Glue the 6mm ink tube sections into the holes punched to receive them.

Glue the flag stands into place.

Cavalry brigade

2 cavalry mounting strips of 5 mounted riders each form a cavalry brigade stand consisting of 10 riders. The rank is arranged with a hole for the flags on the inner most end of the strips to hold the removable unit identifier

flags. If you don't desire to use of flags, ignore this step. A sword armed commanding officer can be cut from a strip and placed leading from the front. Should your play require 2, 30mmx30mm stands per unit, arrange 1 strip per base and dress as desired.



General Buford's 1st brigade.

Cannon

A 30mmx30mm base mounted with 1 Piece(gun) and 3 to 4 men representing the 8 men crew is recommended. The crew consists of 1 Gunner (sergeant or Lieutenant) commanding (unarmed or sword armed with the

right arm raised to issue fire order), 1 cannoneer with lintstock (straight sword painted black and hovered over the gun), and 1 cannoneer with rammer or sponge.

Casualty Markers

For various situations, you may want to display the location where a unit was destroyed or mark that a unit has taken casualties. A few men or horse laying on the ground or a destroyed and burning cannon mounted on a 30mmx30mm base would work well for these purposes.



A fallen Confederate Cavalryman.

Dismounted Cavalry & Dragoons

Although cavalry usually fights from horse, there are occasions when they will fight dismounted. This would be represented by an infantry brigade. The dismounted horses would be represented by a 30mmx30mm base with a 3 or 4 horse being maintained and guarded by a cavalrymen.



Dismounted cavalry marker. These have 3 different saddles, from craft foam, chip board, and painted on.

Infantry brigade

4 infantry mounting strips of 5 men each form a brigade stand consisting of 20 soldiers. The front rank is arranged with holes for the flags on the inner most ends of the strips. A 5-6mm section of an empty disposable ink pen tube is superglued in place to hold the removable unit identifier flags. A sword armed commanding officer can be cut from a strip and placed leading from the front. A few skirmishers (probably aiming, port arms, or charge bayonets) can

be scattered on either side. Should your play require 2, 30mmx30mm stands per unit, arrange 2 strips per base and dress as desired.



Armistead's Brigade, Complete with a "Lothario", with his hat on his sword, leading his troops (and marking center of the unit) to certain destruction. The butternut uniformed troops have a blanket roll made from craft foam.

Limbers & Caissons

A limber or Limber & Caisson should be mounted on a 30mmx30mm base with at least 1 team of horses (2 horses cut from a cavalry mounting strip.) with the pole in between the team.

Skirmishers

Depending on the rules you play with, skirmishers may or may not be an individual formation on the table. For a 30mmx60mm skirmisher line, cut 8 to 10 individual soldiers with an assortment of poses (aiming, port arms, or charge bayonets) from a couple of mounting strips and place in a rough zig zag formation across the base. Should your play require 30mmx30mm stands, arrange 3 to 5 assorted poses randomly on the base.



Confederate skirmishers, 1 aiming, 1 charge bayonets and 2 at port arms.

Objective Markers

Some scenarios may require you to capture specific locations or objects on the battlefield for victory conditions. A 30mm x30mm base with a supply cache (Crates and barrels made from matchsticks and cotton swab shafts or an encampment with a few tents and a campfire) would work well for this purpose.

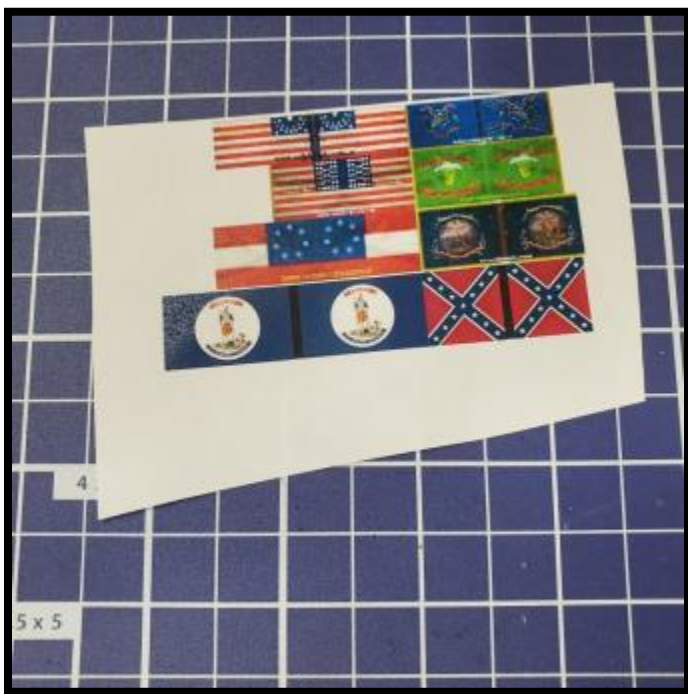
Flags

"...Go let your freak flag fly, brother."

— *Anthony Kiedis*

Unit flags are used to rapidly identify a unit on the table. These flags are made to be removable so the same unit may be used to simulate any units needed and for ease of storage.

Search the web for pictures of the flags you need and import them into whatever graphics software you have available (Paint will work nicely, but I prefer Inkscape.) or design your own. For consistency, I made all the flags 15mm high and let the length match the original proportions. Reverse the image so you have a mirror image of your flag and place a 3 to 4mm strip between them to accommodate the toothpick flagpole. To not waste paper, I try to print multiple flags at once.



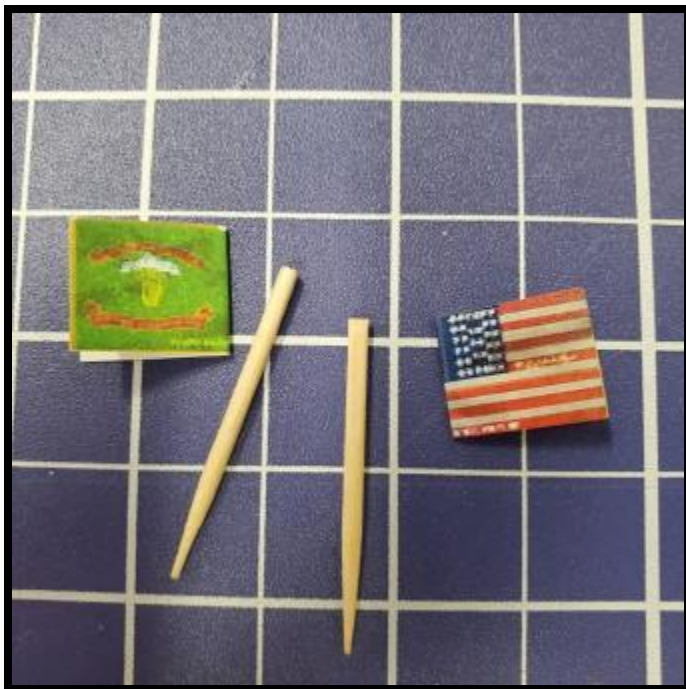
1. Roughly cut out the flags from the printed sheet.

Multiple flags to be cut out.



2. Cut a toothpick in half to create 2 flagpoles

2 even flagpoles



3. Fold the flags in half to align the outside edge and paste both sides together around the flagpole.

Irish Brigade flags ready to assemble.



4. Trim the flags as needed or line the edges with a black or similar colored marker to hide the white edges and crumple the flags in a zig-zag pattern to simulate waiving in the breeze. Battle damage can be added by cutting notches in the edge and cutting holes in the flag field.

Flags ready for their stand.

Painting

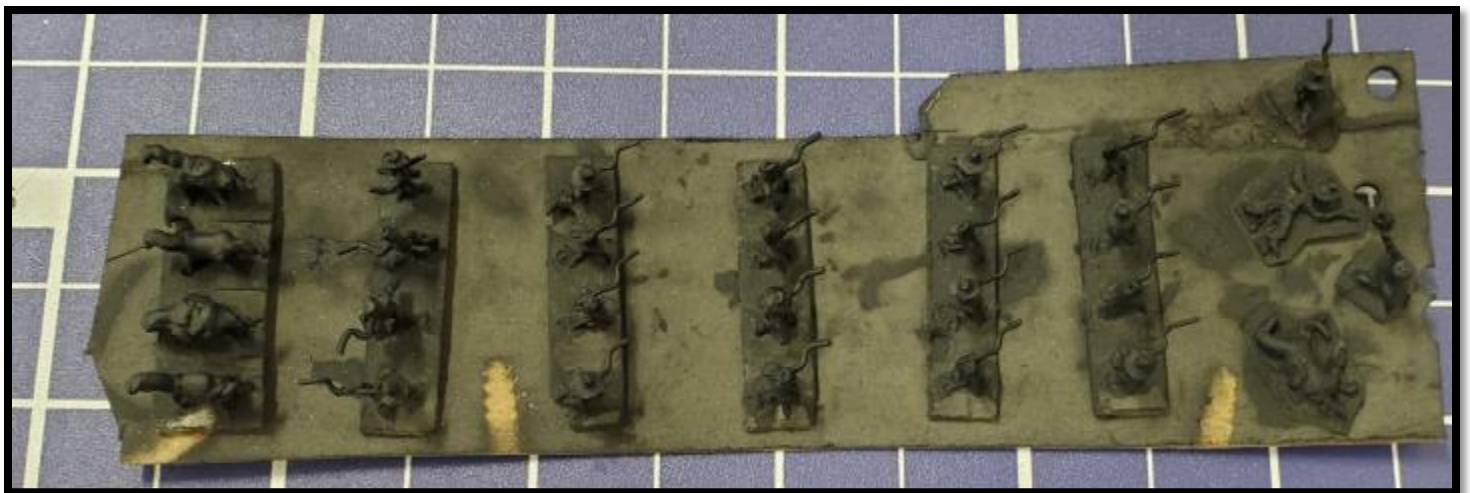
“We want happy paintings. Happy paintings. If you want sad things, watch the news.”

— *Bob Ross*

There is little I can add here that hasn't already been done (and better) by others. Steve at Little Wars TV gives an excellent tutorial demonstrating how to paint up a 6mm army employing a “dots and lines” method. The only things I can say I did different is I used a matt black spray paint to prime, used the cheapest craft paints instead of quality mini paints, and left out the wash for fear of the paper loosing it's shape but I may have been over cautious.

[How to Speed Paint \(& Base\) 6mm Zulus](#)

To facilitate painting, I attach the soldiers and cavalry to the mounting strips from the basing section before priming and painting so the strip are painted also. The strips can then be lightly glued down to a piece of cardboard or Blue Tacked for mass priming.



A good coat of primer covers a multitude of sins.

Flocking

“What did one shepherd say to the other shepherd? Let’s get the flock out of here.”

— Martin Riggs

Once more, I can only stand on the shoulders of others. This is not an exhaustive list (do a search for “DIY flocking” and you will see that I’ve barely scratched the surface,) just some techniques I’ve tried that yield some great results. I’ve listed several below along with links to instructions on how to make them.

Sand

Fine grain sand can be used to simulate ground, or painted to simulate grass and ground covering. I got my sand free by going to the local river and scooping some up from a sand bar, passing it through a sieve, washing out contaminants and sterilizing it to prevent fungal growth.

Gravel

Gravel is treated basically the same as sand. I’ve used gravel to make small boulders. Process it the same as sand. Mine came from an old gravel parking lot.

Sawdust flock

Flocking can be made from sawdust. The process is to color it with watered down paint and apply it to the base of the miniature. I was able to get

a free bucket of sawdust by going to a local custom cabinet and carpentry store and asking for some from their dust collection bin. This works very well and is easy to make.

[How to make perfect flocking from sawdust!](#)

You can also, use pencil shavings for a similar technique that looks more like grass.

[Make Your Own Game Terrain Flocking \(The DM's Craft, Short Tip #52\)](#)

Static Grass

Static grass is , in my opinion, the most realistic flocking available. It is made by cutting small fibers from hemp rope , coloring it with watered paints, dyes or inks, and mixing multiple colors of strands to produce a realistic ground cover. I made mine from jute twine that I happen to have laying around.

[How to Make HIGH-QUALITY Grass Flocking \(Not Sawdust\)](#)

Static grass can be used as is or applied with a static applicator to make the blades stand on end like actual grass. You can also use an applicator to make individual tufts that can be applied as needed. They can be purchased or built from available supplies.

[60. DIY static grass applicator for under \\$10](#)

Clump Foliage

Clump foliage is a staple for diorama makers and model train enthusiasts alike. It can be used for ground cover, shrubbery, tree foliage or in sheets to simulate wide forested areas. It turns out that it's easy to make from cushion foam or synthetic sponges, glue and paint.

[Easy Clump Foliage](#)

Conclusion

"Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning."

— Sir Winston Churchill

Thanks for reading through this tutorial on my methods for making your own miniatures. I'm happy to give to the community, at least in some small part, for a hobby I've enjoyed so much over the years. I hope you've found it useful and, hopefully, this won't be the end and others will fill in gaps I have left.

If you have any constructive criticism or suggestions, I can be emailed at sandtable@yahoo.com or on my discord server as sandtable#1499.

Errata, Scribblings, musings & Ramblings

4 or 5 man strips?

As you may have noticed, I've mentioned mounting strips as 5 men (or horse) long but some of the units shown in the pics are 4 man long strips. The reason for this is that I originally envisioned 5 man strips, making an infantry brigade 4 strips of 5 for 20 figures total. As I was looking for reference material, I noticed that most purchased miniatures come on 4 man strips, making a unit 16 men. The pros and cons are that a 5 man strip makes for a denser paced unit but are more work and the 4 man strips are 4 men less work and don't look too sparse but are a little thinner. I've included base templates for both arrangements

“Eyeball” it “by Ear”

I’ve mentioned several measurements in these instructions, in particular, the lengths of rifles and arms as a matter of best practices but consider that a shoulder arms miniature with a 4mm arm and a 2 to 3mm buttstock on the rifle would put the rifle touching the ground and that a port arms mini with the correct measurements for the rifle would be oversized. Esthetics should take president over accuracy in my opinion and you may have to “fudge” a little for a pleasing model. The important factors are uniformity in a unit and appearance. In short, you may have to “eyeball” your proportions and “play it by ear” when creating your pieces.

Wire gauge differences

There is a definite difference when using 24 and 26 gauge floral wire to make your models. The 24 gauge wire is more robust but much stiffer and harder to work with. You can get it to work but I’ve tried to stay with simpler patterns and use the 26 gauge wire for more detail work. It may not be a bad idea to mix the two and use the 24 gauge for the body and the 26 gauge for the arms and weapon. This is entirely up to you.

Puff Paint, Epoxy, UV Resin, Superglue Gel & JB weld

I’ve never been completely satisfied forming bulkier parts of a figure. Superglue Gel tends to shrink and multiple coats have to be applied, allowed to dry and then applied again to get the desired thickness. The puff paints work well but they can be easily crushed or smeared when still working on the model and are best left until it is fully assembled and on the mounting strip before applying. It seems that a little superglue liquid helps to stabilize the puff paint but I don’t know how stable that will be in the long run. I’ve tried 5

minute epoxy and, as stated earlier, it stays liquid longer than I'd like and sometimes I've had faces run down onto the torso making for a strange looking soldier. If you use epoxy, you'll need to thicken it by adding baking soda or baby powder to reduce its viscosity. I've tried using a UV pen to apply bulk but had little luck in that it would break off. I plan on testing JB weld in the future but as of now, I haven't had the opportunity to try it out. For best practices, I've taken to passing the wire with some steel wool or light sandpaper to roughen the surface and allow glues and paint to better adhere to the surface and a good coat of matt primer helps to hold everything together.

The Pumpkin Head Incident

You may have noticed that the general Armistead figure has a HUGE Melon on his shoulders. I was experimenting with using seed beads for the head. It has a good shape but is oversized for the mini. That may fit with your esthetics and may not find that to be a problem. It brings focus onto personality pieces and makes them easier to spot and it does make painting details easier but I just keep looking at it and thinking, "That's one BIG head."

Achievement Unlocked: Sculpting

The wire forms of these miniatures are not dissimilar to the armatures that a sculptor would use in making miniatures in the first place. Some epoxy putty or super sculpt applied in small layers to build up details, wrinkles in clothing, faces etc. and you have bridged the gap between crafting and sculpting. Congratulations, you're an sculptor.

Adapting to Other Historical Settings

As I've eluded to in earlier sections, I think these patterns could be adapted for other wargaming setting. Some lend themselves easily while others will take some modifications but I think it could be done.

Ancients, medieval & Fantasy – The sword bend would be the standard pattern for most units. A small seed bead on the end of the sword would become a mace. Various armor pieces could be made with superglued bits of paper to create breastplates, shields etc. Coffee stir straws split in two would make excellent scutum (roman shields.) Short of the sword bend and a modified charge bayonets for pole arms, this would require more patterns. The gaps to fill would be bows, slings, and patterns for various siege equipment: ballista, trebuchets, catapults, battering rams, siege towers and the like. If there is any interest in the subject, perhaps a supplement to this document would be in order.

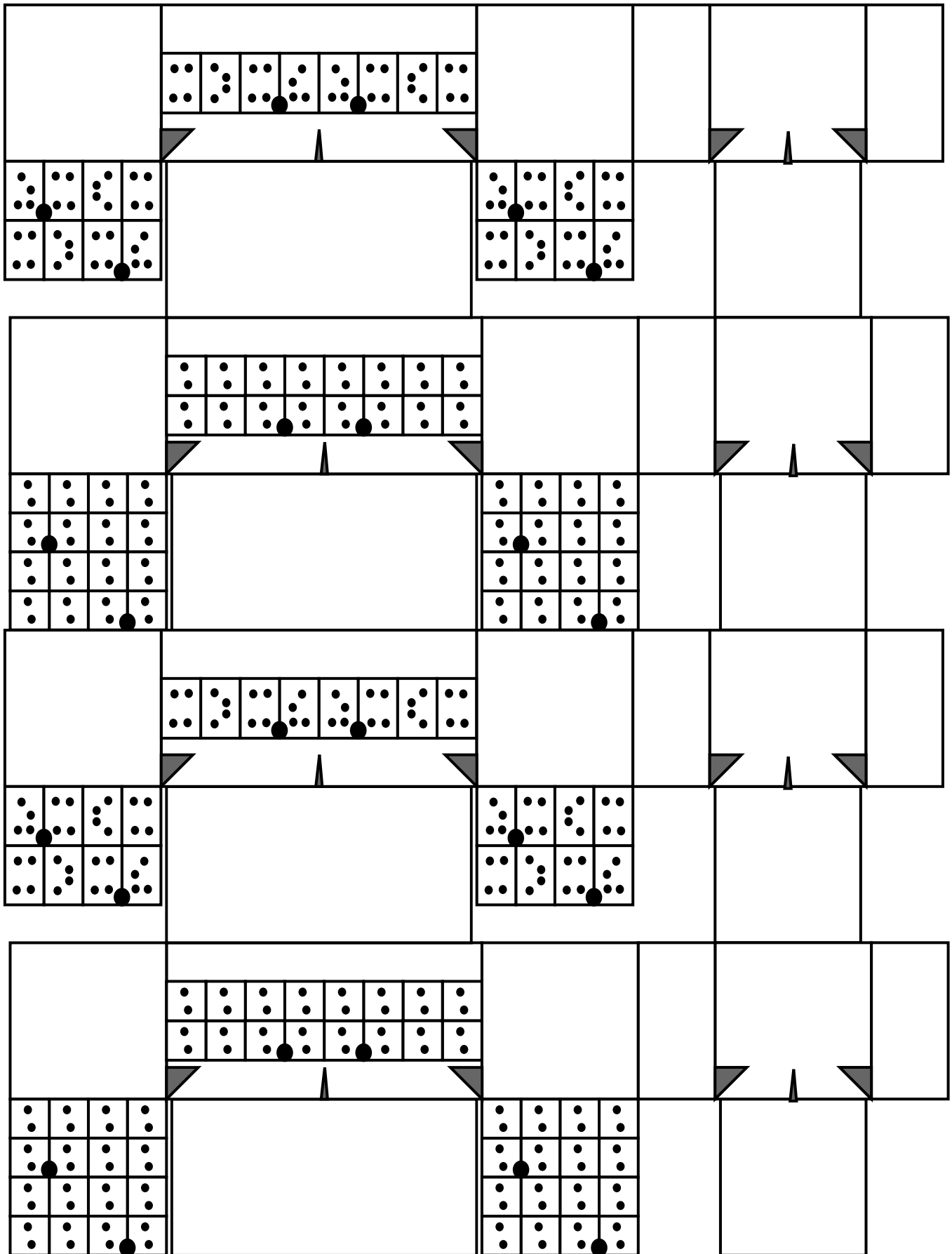
Napoleonic & revolutionary – Most everything you would need for Napoleonic or American Revolution pieces are already in this document. I think I would make use of shoulder arms for most formations. The only items lacking (that I can think of) would be coat tails and miter caps. Coat tails could be done with a small piece of paper split mostly up the middle and glued to the back while the grenadier's miter cap could be done by snipping the head twist off at a point or a small drop of hot glue teased up to a point.

WWI, WWII, modern & Sci Fi – Port arms, aiming bend and charge bayonets could be modified for smaller weapons. You would almost exclusively use the skirmisher units. A prone figure, like the casualty marker with an aiming bend would make a sniper. Pair it with another prone figure with two pieces of wire insulation for binoculars would work for a spotter. Vehicles would be the most difficult to model but, if all you need are the men, I think these will work well.

Dance a jig

I've been rolling around in my head a way to make a jig to more precisely bend the wire and produce figures quicker and more uniform. If anyone has any ideas, please let me know.

4 man strips



5 man strips

