

Wire Work

Wire may form the foundation of a piece of jewelry, or it may be applied as a decoration. It is often twisted to add lightness to a design, and can easily be formed into coils or line units of decoration for flat or curved surfaces. Twists and coils of wire can be made of round, half round, or square wire.

Keep the 14 gauge or heavier wire in coils. Wire of a lighter gauge may be wound on spools. If kinks occur in the lighter gauge wire they can be removed by holding the wire ends firmly and the length taut while drawing it over the edge of a wooden bench, or block of wood.

THE JIG

Many of the wire units, coils, and twists shown in this book were made on jigs. The word "jig" is a mechanics' term given to a device which is used to guide a tool or a material. A jig makes the forming of an article easier during construction and makes the finished pieces mechanically more perfect. When a design requires duplication of parts, a jig is often used. The one shown here was made on a block of wood with nails spaced and hammered into the wood, the nail heads sawed off, and the ends made smooth so the wire units may be formed and removed easily.



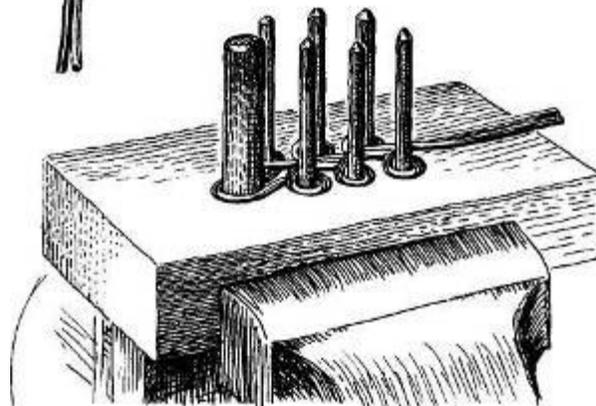
Ends turned under to make slides for belts



Drops for necklaces



Wire unit made on a jig and some of the ways it can be used



Wire twisting

Often a design calls for a twist of given length, sometimes a tight or loose twist. To determine the length to cut the wire is important. The gauge of the wire as well as the number of twists the wire is given will determine the length of the finished piece. When round wire is used, two or more lengths are necessary for the twist. A rope-like effect may be obtained by twisting a single length of flat or square wire. *All wire should be annealed.*

Twisting wire 18 gauge or lighter

Measure the amount needed for the twist.

Loop the wire length in the center, and insert the two loose ends through the hole in the spool. Hold the ends in the jaws of a table vise. Insert a small steel rod through the loop of wire, and pull the wire taut. Hold the spool firmly against the rod. Turn the rod to twist the wire.

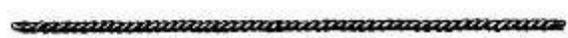
Twisting wire 16 gauge or heavier

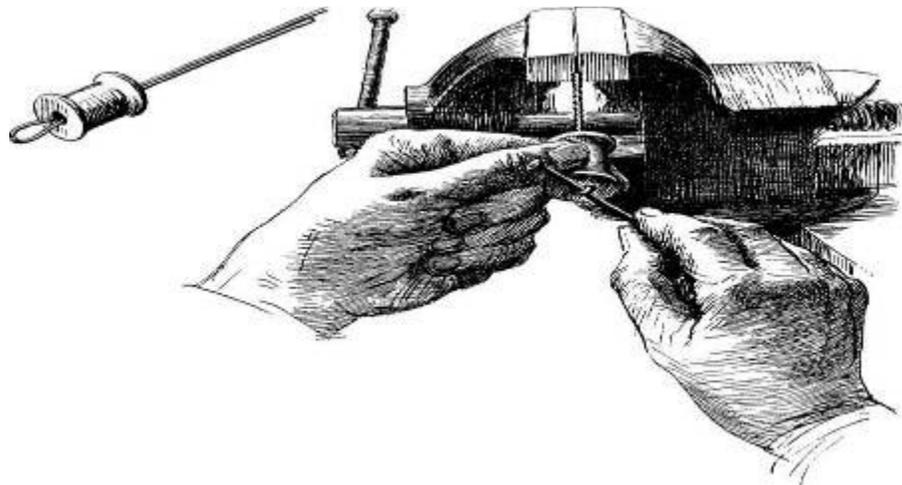
Hold the looped end of the wire in the jaws of the hand vise. Clamp the loose end in the jaws of the table vise. Turn the hand vise to twist the wire.

To determine the length

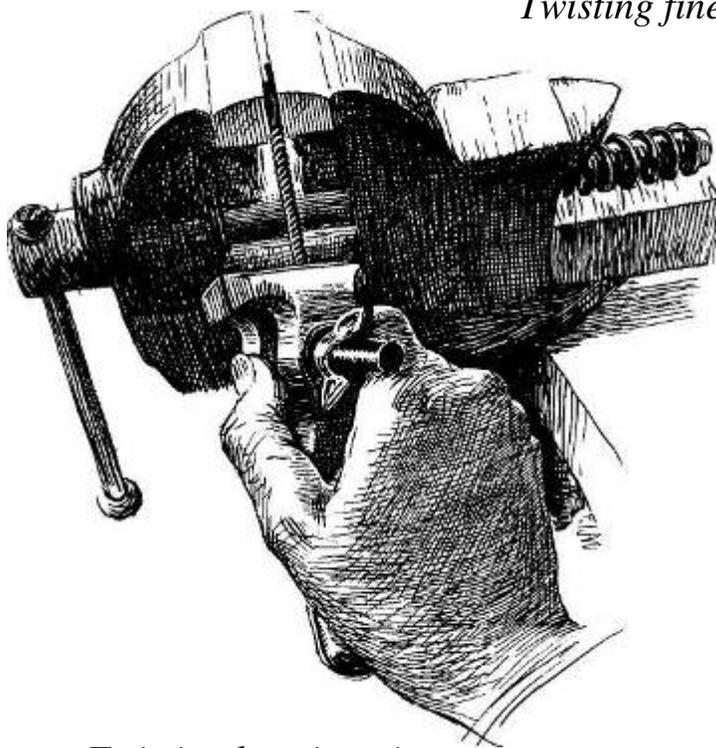
In cutting the wire for a definite length of finished twist, the following examples have been given of two round wires of different gauges and lengths.

18 gauge, 26 inches, twisted 50 times, gives 11 1/8, inches
18 gauge, 26 inches, twisted 75 times, gives 9 5/8 inches
18 gauge, 14 inches, twisted 50 times, gives 5 1/4 inches
20 gauge, 14 inches, twisted 50 times, gives 4.7/8^ inches

-  *twisted 14 gauge wire*
-  *loosely twisted 18 gauge wire*
-  *tightly twisted 18 gauge wire*
-  *tightly twisted 20 gauge wire*



Twisting fine wire



*The wire is annealed.
It is held taut while
being twisted but will
break if it is twisted
too tightly.*

Twisting heavier wire

Making a round wire coil

Coils of wire can be made on mandrels of various sizes and shapes. The simplest is the coil of round rings made of round wire. There are many uses for the coil. When sawed into rings it may be made into a chain. By pulling the wire on both ends to stretch the coil, an open wavy coil results, which may be curved or bent to follow a line for decoration. The open coil may also be flattened into a decorative band of overlapping rings. A cone shaped coil can be made on a round pointed mandrel (knitting needle). These may be used for pendants to give movement and interest to a design and are sometimes used as a fringe for an edge.

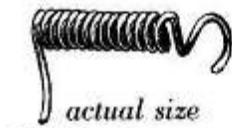
The jig

Select a round steel mandrel the diameter of the coil desired. Place between two blocks of soft wood parallel with the grain of the wood.

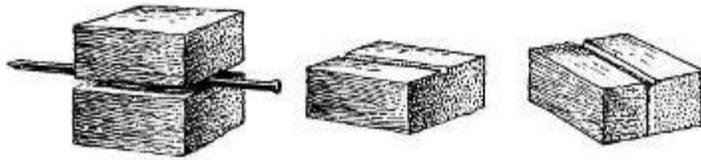
Press the blocks between the jaws of the table vise to form a groove in each block. Remove the mandrel from the blocks, and file a groove at a right angle to the groove made by the mandrel.

Coiling the wire

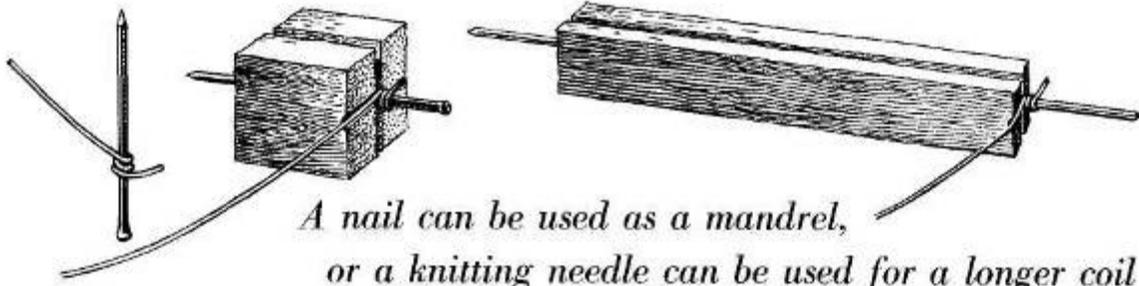
Place the mandrel between the blocks in the groove letting the end extend beyond the blocks about 1/2 inch. Hold the blocks in the jaws of the table vise tight enough to hold the blocks but loose enough so the mandrel will turn and move out of the groove as the wire is coiled. Make a few coils on the end of the mandrel. Clamp the mandrel and coils in the jaws of the hand vise. Hold the loose end of the wire in the filed groove during the coiling process to guide the wire and to keep the coil even. Use the hand vise as a handle to turn the mandrel to form the coil.



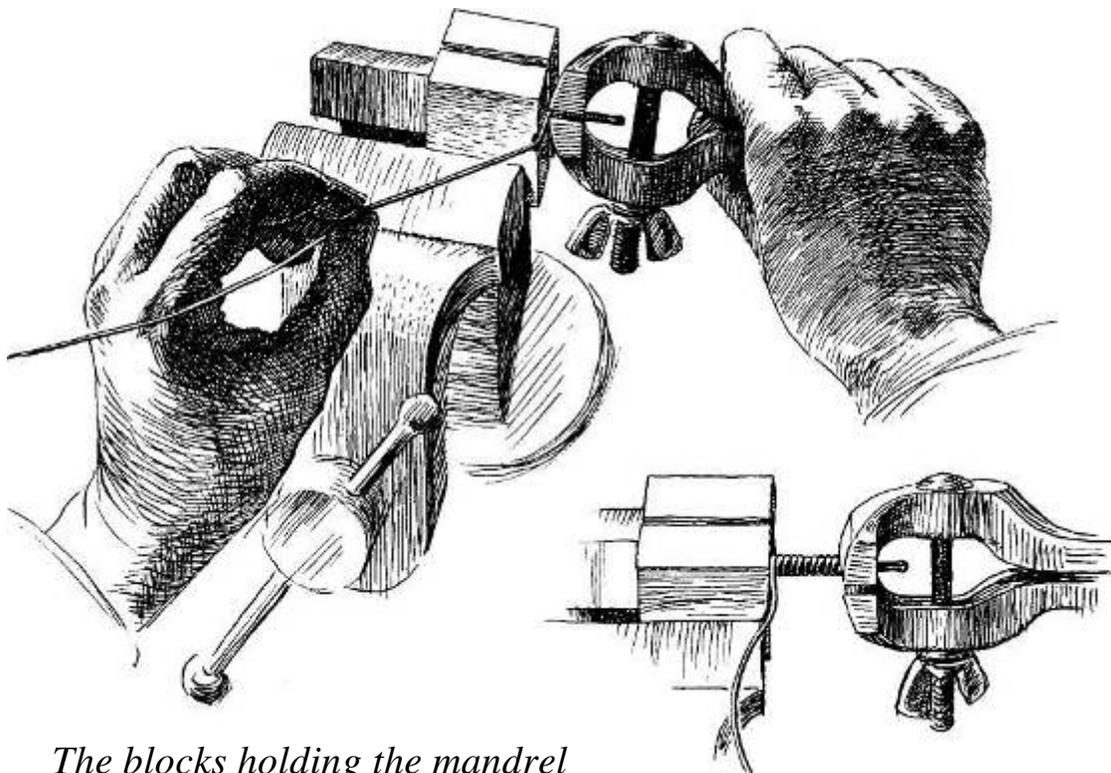
actual size
Coil of 18 gauge wire



The jig to hold the mandrel



*A nail can be used as a mandrel,
or a knitting needle can be used for a longer coil*



*The blocks holding the mandrel
are held in the bench vise.*

*The protruding end of the mandrel is held in the hand
vise, and the coil is formed by turning the hand vise.*

The wire is held taut and is guided by the left hand.

Making a flat wire coil

A flat coiled unit is usually made of round wire. It may be the foundation of an article and is often used for decoration, either as a single unit or several combined to make a pattern.

The wire ends of the unit may be turned under at right angles to form staples so that it can be used as a decorative stud on leather or fabric. The unit may hang as a pendant or several may be linked together to form a chain.

The jig

14 gauge or heavier metal sheet. Saw a 1 inch disk or larger.

Drill a hole in the center of the disk the size of the mandrel which determines the size hole in the center of the coil.

File a notch in the edge of the hole the size of the wire to be used for the coil.

Coiling wire 18 gauge or lighter

Cut a wire length, and insert the end and mandrel 1/2 inch

through the hole in the disk, and the wire in the notch.

Bend the annealed wire around the mandrel, and hold both the wire and the mandrel in the jaws of the hand vise.

Wind the wire to make the coil by turning the vise.

Keep the coil flat with the thumb of the left hand while coiling. Each ring must touch the ring just made and lie flat on the disk. Place the hand vise in the jaws of the table vise. Insert the

end of the mandrel in the hole of the setting tool. Tap the end of the setting tool to flatten the coil. Repeat this operation often to keep the coil flat.

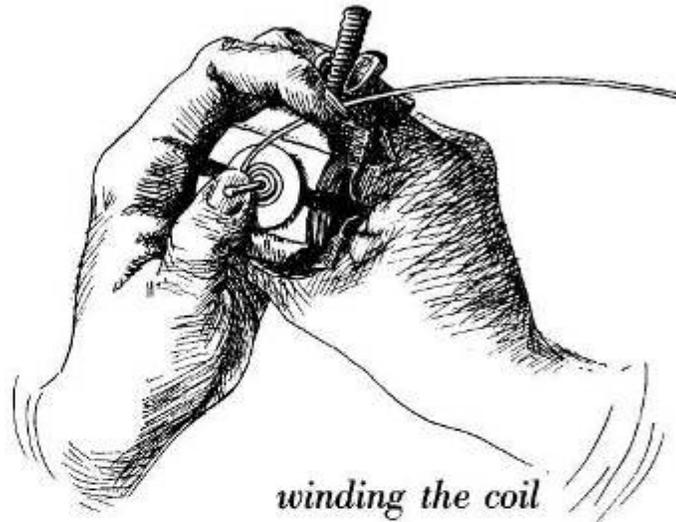
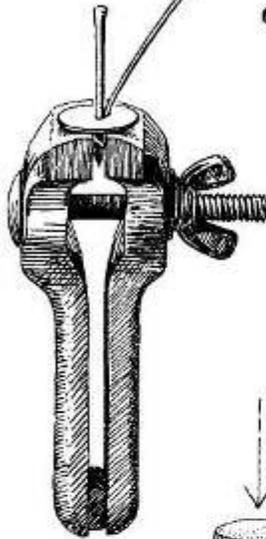
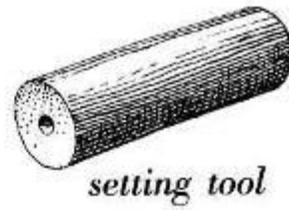
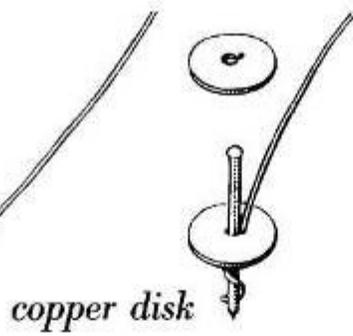
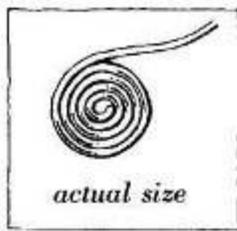
Coiling wire 16 gauge or heavier

Insert the wire end and mandrel through the hole in the disk. Hold as described above. Place a hand vise in the jaws of the table vise. Hold the loose end of the wire in the right hand, and wind on the disk.

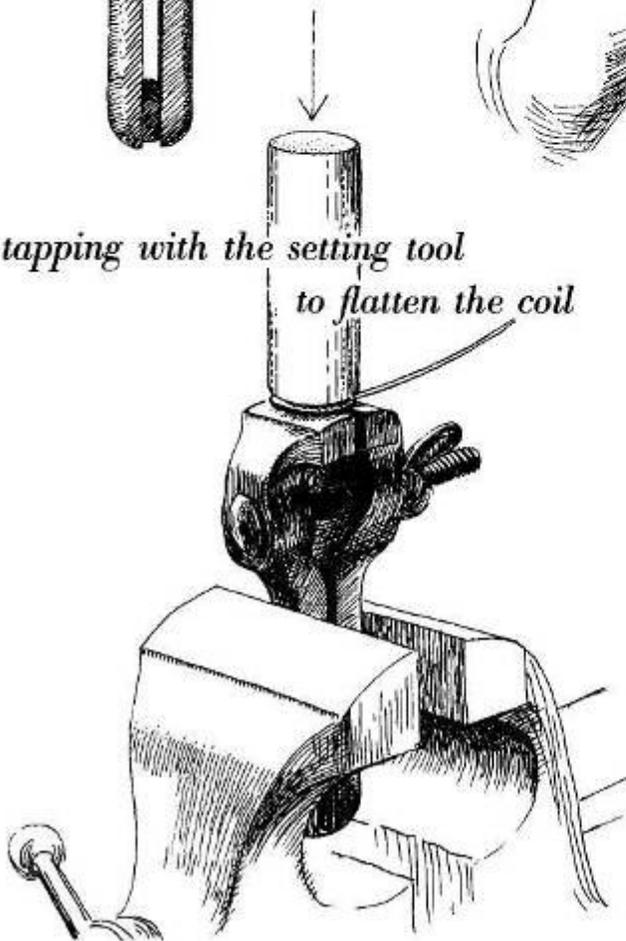
The setting tool

Saw a short length of hard wood rod (a broom handle). File one end smooth and flat and finish with sandpaper. Drill a hole in the center larger in diameter than the mandrel and deeper than the length of the mandrel.

The jig, p. 17. *Sawing*, p. 8. *Drilling*, p. 10. *Filing*, p. 12.



*tapping with the setting tool
to flatten the coil*



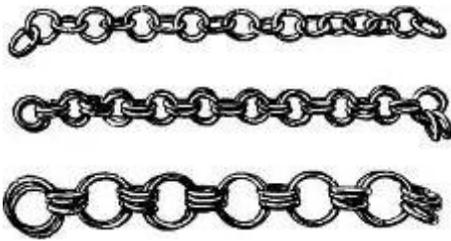
Finishing



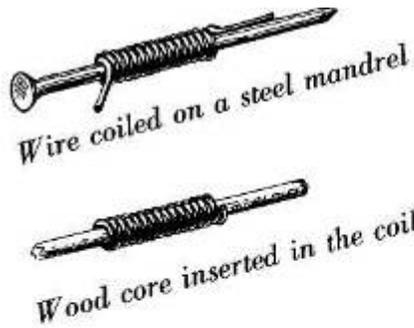
both ends looped



double coil



Round links combined in various ways for chains



Wire coiled on a steel mandrel

Wood core inserted in the coil

Sawing a coil into links for a chain

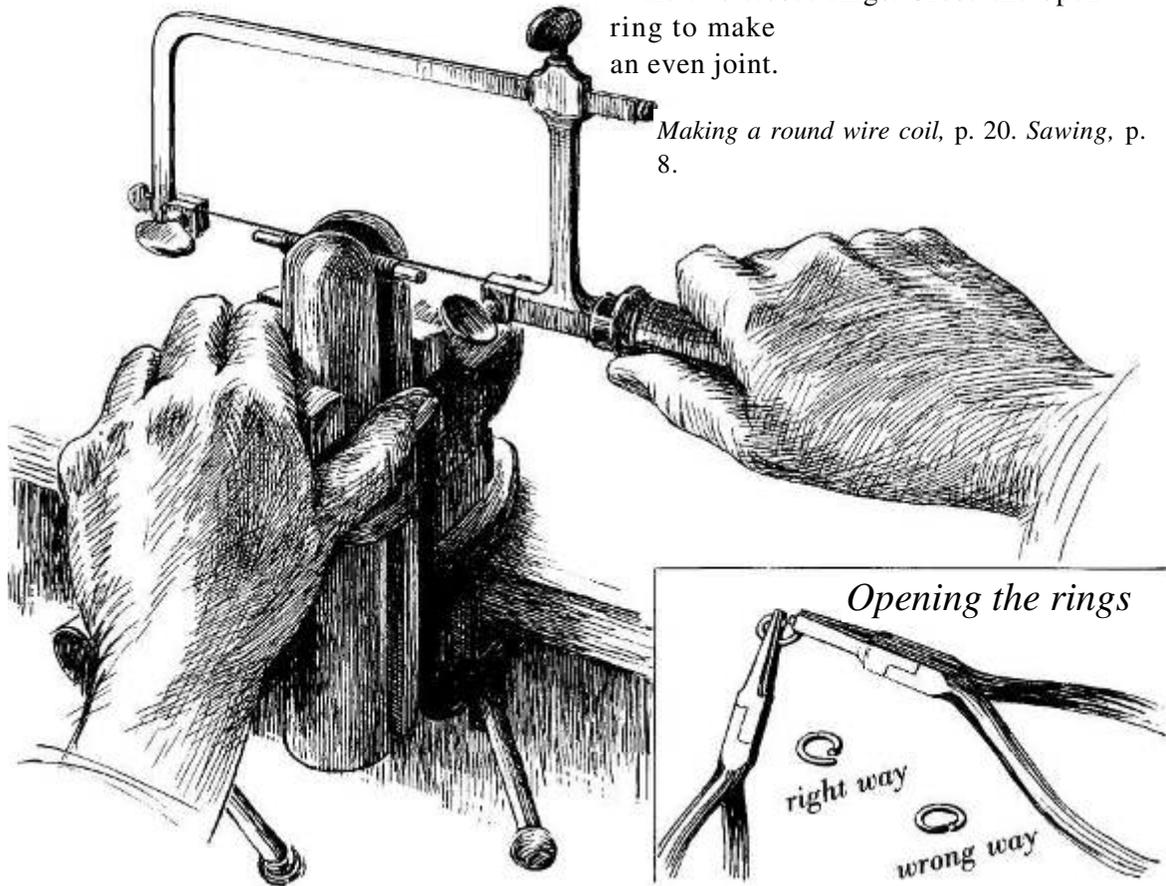
Chain of round rings

Make a round coil of wire.
 Insert a wooden core in the coil.
 Place the coil in the ring clamp.
 Hold the clamp in the jaws of the table vise.
 Place a # 1 blade in the saw frame and saw the coil into rings. Hold a ring on each side of the opening with the pliers. Push the ends beyond each other, then together.

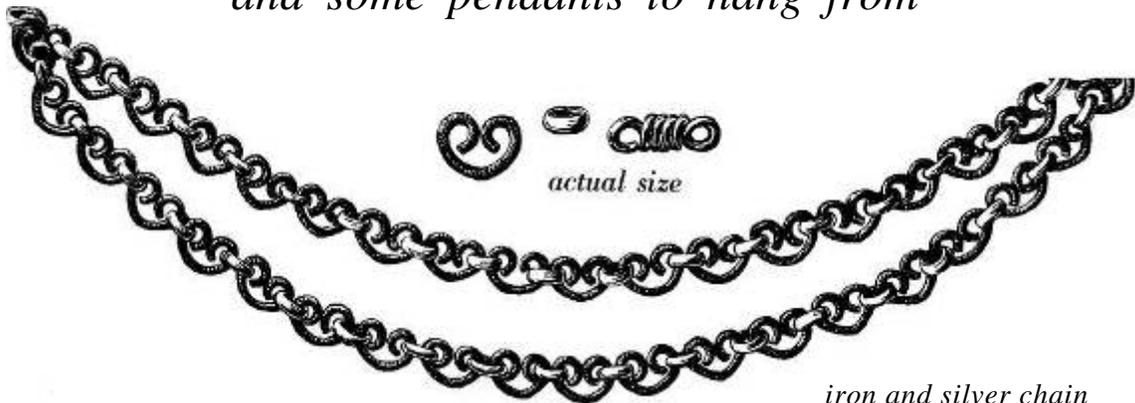
Single chain

Close $\frac{2}{3}$, the number required. Open $\frac{1}{3}$ the width of the wire. Hook the open ring through the two closed rings. Close the open ring to make an even joint.

Making a round wire coil, p. 20. Sawing, p. 8.



*Two chains made from wire units,
and some pendants to hang from*



iron and silver chain

them for necklaces and bracelets



*copper and silver
bracelet with
identification tag*



with turquoise matrix drops

silver bracelet

*brass and copper
good luck charm*



*silver pendant
with rose quartz*



*silver or copper drop
holding a green stone*



*onyx drop
bound with
silver wire*

*The construction of these pieces will
be found on the following pages.*

Chain of round rings

18 gauge wire

Determine the number of units required for the chain.

Cut a 2 1/2 inch length of wire for each unit.

Coil the wire once around the end of the mandrel.

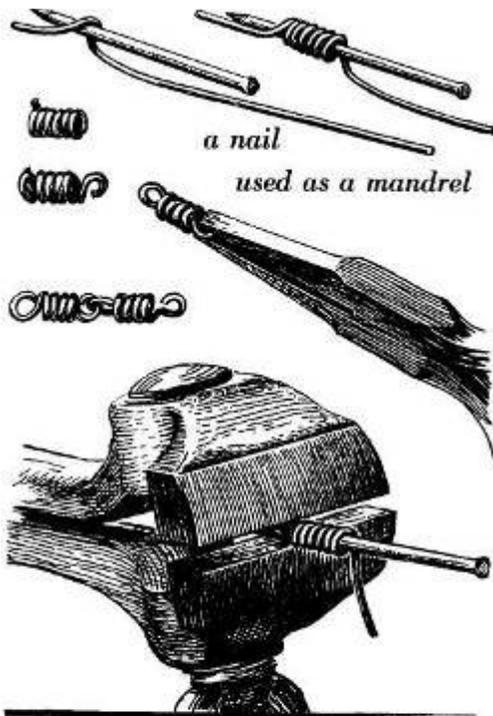
Hold in the jaws of the table vise. Coil the wire length around the mandrel by hand.

Remove the coil from the mandrel. Insert a flat steel tool between the last ring on

each end of the coil to make a space. Turn the rings at right angles to the coil with square nose pliers.

Link the units together to form the chain.

Bring the wire ends to the center of the coil with round nose pliers.



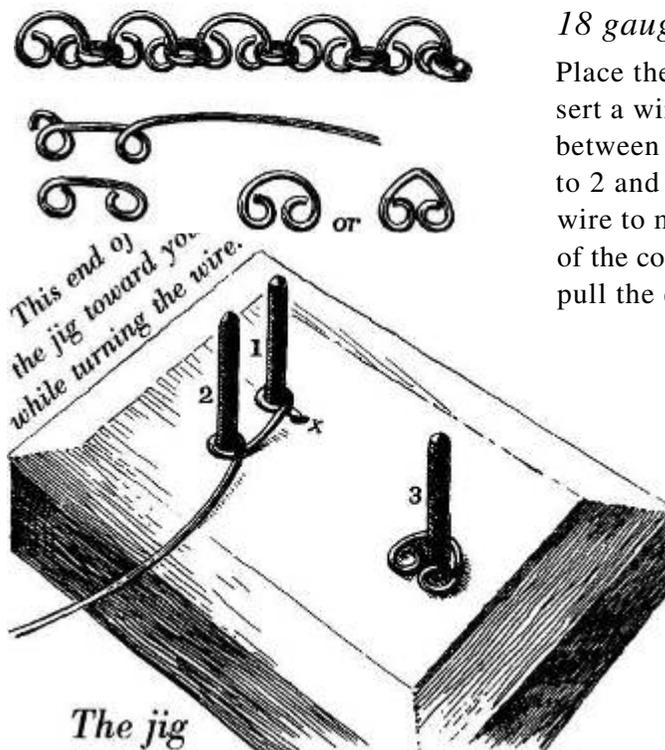
Chain of shaped units

18 gauge wire

Place the jig in the jaws of the table vise. Insert a wire end in the hole X. Bring the wire between 1 and 2. Coil around 1. Carry the wire to 2 and make a coil. Pull the wire to make the coil tight. Reverse the position of the coil so the wire in X is pointing up and pull the end to tighten the coil.

Remove the unit from the pegs.

Cut the wire ends where they meet the center wire. Press between the jaws of the square nose pliers, so they lie flat. Place the unit on 3. Draw rings together with the tips of the round nose pliers.



Making a round wire coil, p. 20. Linking, p. 24. The jig, p. 17.