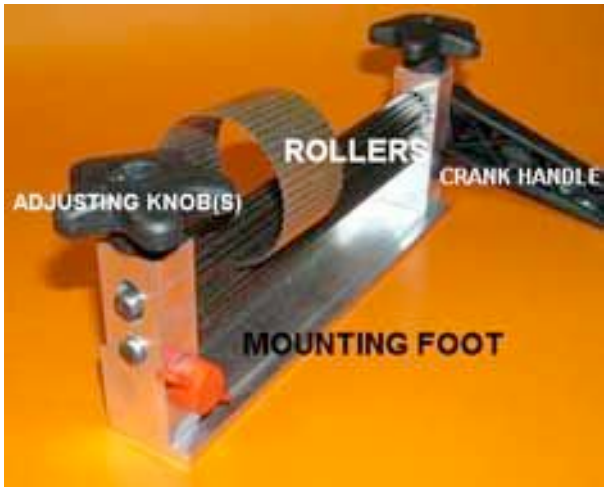
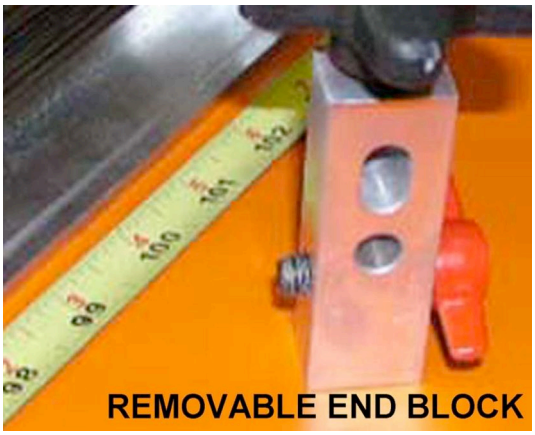
NEW CONCEPTS Microfold Brake

Notes By Cynthia Eid





FEATURES OF THE NEW CONCEPTS MICROFOLD BRAKE

MOUNTING TO THE BENCH:

This can now be done in three ways…

1. Screw to the corner of your bench, using the screws provided.
2. Clamp to the bench using 'C' clamps.
3. Grip the mounting foot in a vise.

HEAT TREATED ROLLERS.

Wire can now be corrugated without damage to the rollers.

REMOVABLE END BLOCK.

This is the most exciting feature of the new design. You can now make a complete cylinder, remove the end block, slide the cylinder between the rollers, re-install the end block, and corrugate the entire diameter of the piece.

The microfold brake corrugates sheet metal and wire. Corrugation is also called microfolding, because so many fold forming techniques can be used with corrugated metal. The word "brake" refers to the type of machinery that this tool is (commonly used in the engineering world, but less commonly heard in the jewelry world). This tool is designed to be mounted in a bench vise, screwed to a bench, or held in place with 'C' clamps.

The New Concepts Microfold Brake is both like and unlike a rolling mill. Like a rolling mill, it has two rollers that the metal is fed through by turning a crank with a handle; unlike a rolling mill, the rollers are not held in fixed position. The lower roller stays in one place as it rotates. Oval holes allow the upper roller to be adjusted closer or further from the lower roller, for tighter or looser microfolding.

The knobs are attached to the tops of bolts, which can be adjusted so that the bottom of the bolt (inside the side blocks) affects the distance between the two rollers. Turning both knobs clockwise until they can turn no further keeps the two rollers close together for tight microfolding and/or thin metal. Turning the knobs counter-clockwise loosens the bolts, and allows a larger gap between the rollers for thicker metal and/or more moderately wavy metal.

Basic Instructions

- Before beginning, use an old toothbrush to clean any grit out of the rollers.
- Secure the unit to the bench using your preferred method.
- Turn both knobs to their tightest positions by turning each clockwise until it stops. You may wish to put a little piece of masking tape on the front of each knob, to be used as a reference point.
- Loosen each knob by turning counter-clockwise the same amount, before feeding a piece of metal between the rollers. For very thin metals, such as 32 gauge, a quarter turn is usually enough. The thicker the metal, and the wider it is, the more you will need to loosen the knobs, which widens the space between the rollers. For thicker metals, or wide pieces, you may need to loosen the knobs a full 360 degree turn.
- It is better to feed the metal through loosely, and then tighten the knobs and re-corrugate it, than to damage the tool by trying to make it do too much. If you find yourself working very hard, then the setting is too tight.
- It is usually easy to re-microfold more tightly without losing the alignment. Simply "hook" the first fold over a ridge of a roller, and then turn the handle.
- It is generally advisable to anneal, pickle, and dry the metal before cross-corrugating.
- It can be helpful to turn handle in reverse, and run the metal through back and forth if it is very wide, in order to get the middle to be corrugated.
- Wide metal, or thick metal may need to be annealed and run through the rollers more than one time to get the effect desired.
- If you are planning to cross-corrugate a long narrow strip, it works best to corrugate the widest direction first, (then anneal, pickle, and dry) and then microfold across the narrower direction.

Metal recommendations

Sterling silver, fine silver, copper, bronze, nugold, and red brass, gold alloys, are the types of metal that work best with the microfold brake. Be careful with stiff alloys such as yellow brass and nickel silver; use thin metal and anneal frequently. Titanium and ferrous alloys may damage the rollers, and are not recommended.

It is generally advisable to anneal and clean the metal before using the microfold brake---soft metal corrugates easily without damaging the brake. Metal oxides may get the rollers dirty and be transferred to a different piece of metal in subsequent use.

Corrugated metal is structurally stronger than flat metal. This allows us to use thinner metals, which can save money, resources, and weight. 34 to 24 gauge metal are most recommended for use with the microfold brake.

In general, 24 gauge is the maximum thickness recommended for use with the microfold brake. However, if the metal is annealed, then *usually*:

22 gauge sheet metal can be microfolded if it is 1" wide or less than 1" wide.
20 gauge sheet metal can be microfolded if it is ½" wide or narrower than ½" wide.
18 gauge sheet metal can be microfolded if it is ¼" wide or less than ¼" wide.

Wire: always corrugate wire on the side, so as not to mar the rollers in the middle.

Common problems and solutions:

Problem: The metal is corrugated more tightly on one side than the other.
Possible solutions:

1- flip the metal over, and run it through again to even it out.
2 - Tighten the knob on the side that is corrugating loosely, or loosen the knob on the side that is corrugating tightly.

Problem: The metal is crooked at the end, despite starting evenly.
Possible solutions:

1 – Be sure that the leading edge is trimmed squarely.
2 – While turning the crank, guide the metal into the rollers with the other hand, so that it runs straight and true.
3 - Some people find that it helps to keep a bit of tension on the metal, "pulling" slightly as it is fed into the rollers.

Problem: The metal is not corrugating in the middle of a wide sheet.
Possible solutions:

1 – roll the metal back and forth before removing it.
2 – anneal the metal and re-corrugate.
3 – If possible, use a thinner or narrower piece of metal.

Problem: there is a little mark on the edge of the roller that is undesirably transferring to the metal.
Probable cause: someone rolled iron, yellow brass, or steel wire, or metal that was too thick, or tool was not stored or handled carefully.
Possible solution: smooth the edge of the roller where the nick is. My favorite tool for this is a gray 3M unitized wheel, or a scotch-brite wheel.

For further instruction and ideas for use of your microfold brake, please refer to the books by Patricia McAleer, Metal Corrugation: Surface Embellishment and Element Formation for the Metalsmith and Jack Berry, Repetititve Micro-Fold Forms. The books are available for purchase from Rio Grande Tool & Equipment, as well as directly from the authors.

Images of metalwork made using microfolded metal can also be seen in the Gallery and posted on the Discussion Group on the website www.bonnydoonengineering.com. Please join the discussions and learn with other users of the microfold brake. You can post images of work you make with the microfold brake and the hydraulic press, as well as posting questions and problems you may have. Digital image(s) can be attached to your questions and comments.

Disclaimer: *Working with metal and tools is potentially hazardous. It is the metalsmith's responsibility to* ***use common sense, and appropriate safety precautions****. The author and manufacturer specifically disclaim any responsibility or liability for damages or injury as a result of any activity undertaken in conjunction with the information presented in these notes.*

Above all, HAVE FUN, BE CREATIVE, and BE SAFE!

Cynthia Eid www.cynthiaeid.com
Lee Marshall, Knew Concepts www.knewconcepts.com