



# MODEL CX819 BENCHTOP ENGLISH WHEEL USER MANUAL



# GENERAL SAFETY INSTRUCTIONS

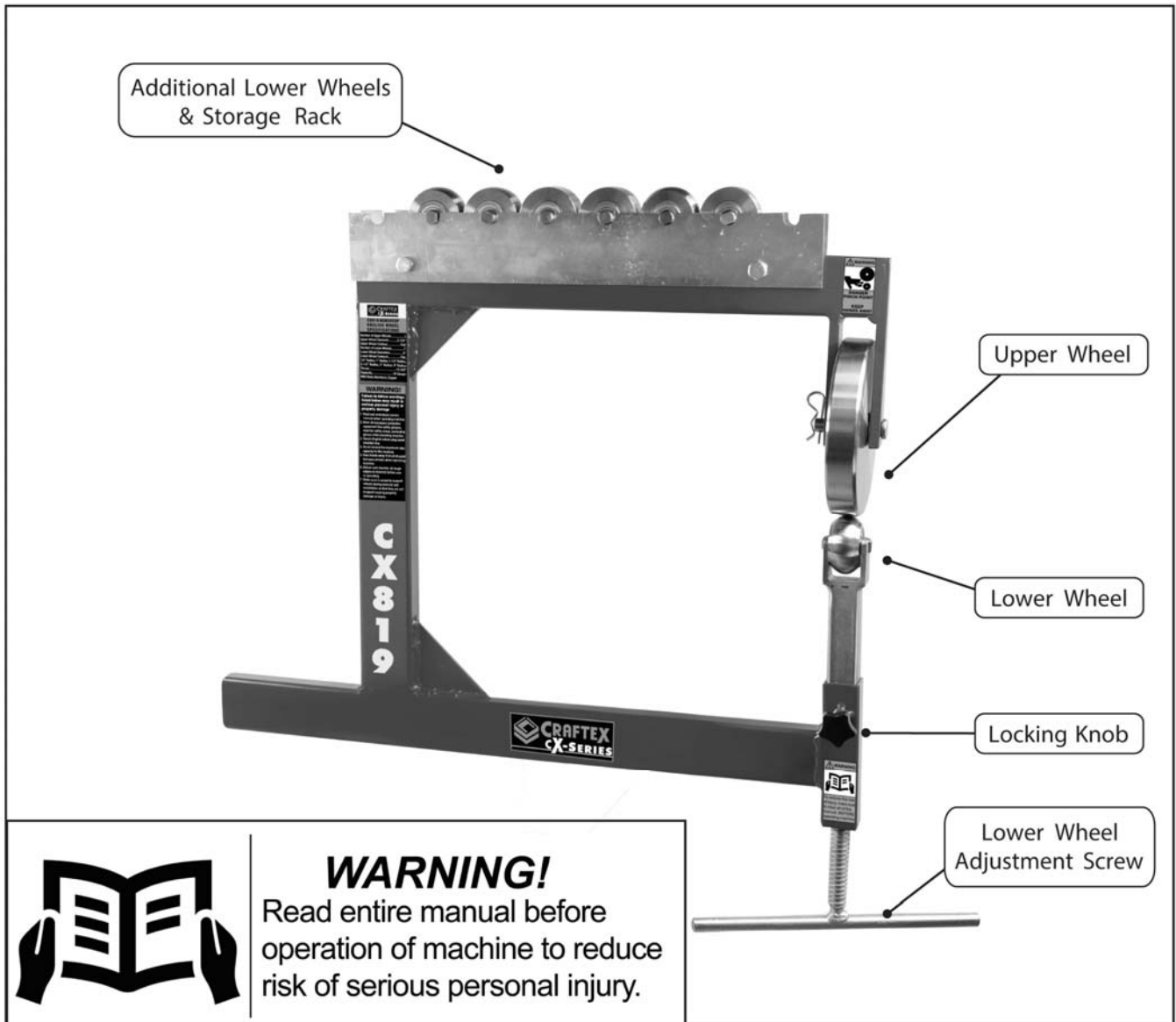
Failure to follow warnings listed below may result in serious personal injury or property damage.

- ❖ Read and understand owners manual before operating machine.
- ❖ Wear all necessary protective equipment like safety glasses, steel toe safety shoes, and leather gloves while operating machine.
- ❖ Secure English wheel using bench mounted vise.
- ❖ Do not exceed the maximum rated capacity for this machine.
- ❖ Keep hands away from pinch point between wheels when operating machine.
- ❖ Deburr and chamfer all rough edges on material before use in operations.
- ❖ Make sure to properly support wheels during removal and installation so that they are not dropped causing property damage or injury.

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# IDENTIFICATION



(figure 1)

## INTRODUCTION TO CX819

The English Wheel is a very unique metal forming tool that has grown out of the automotive industry dating back to the turn of the last century. Back then, the fledgling automotive industry began using steel and aluminum in the production of car bodies. Complex metal body panels were formed by highly skilled workers called "Panel Beaters". These workers pounded the metal with hammers on sand bags, or wooden forms to gradually create the curved body shapes. However, as cars became larger, the need to form larger parts free of hammer marks and other flaws became essential. It was this need for better tools to meet the quality required that the English Wheel was invented.

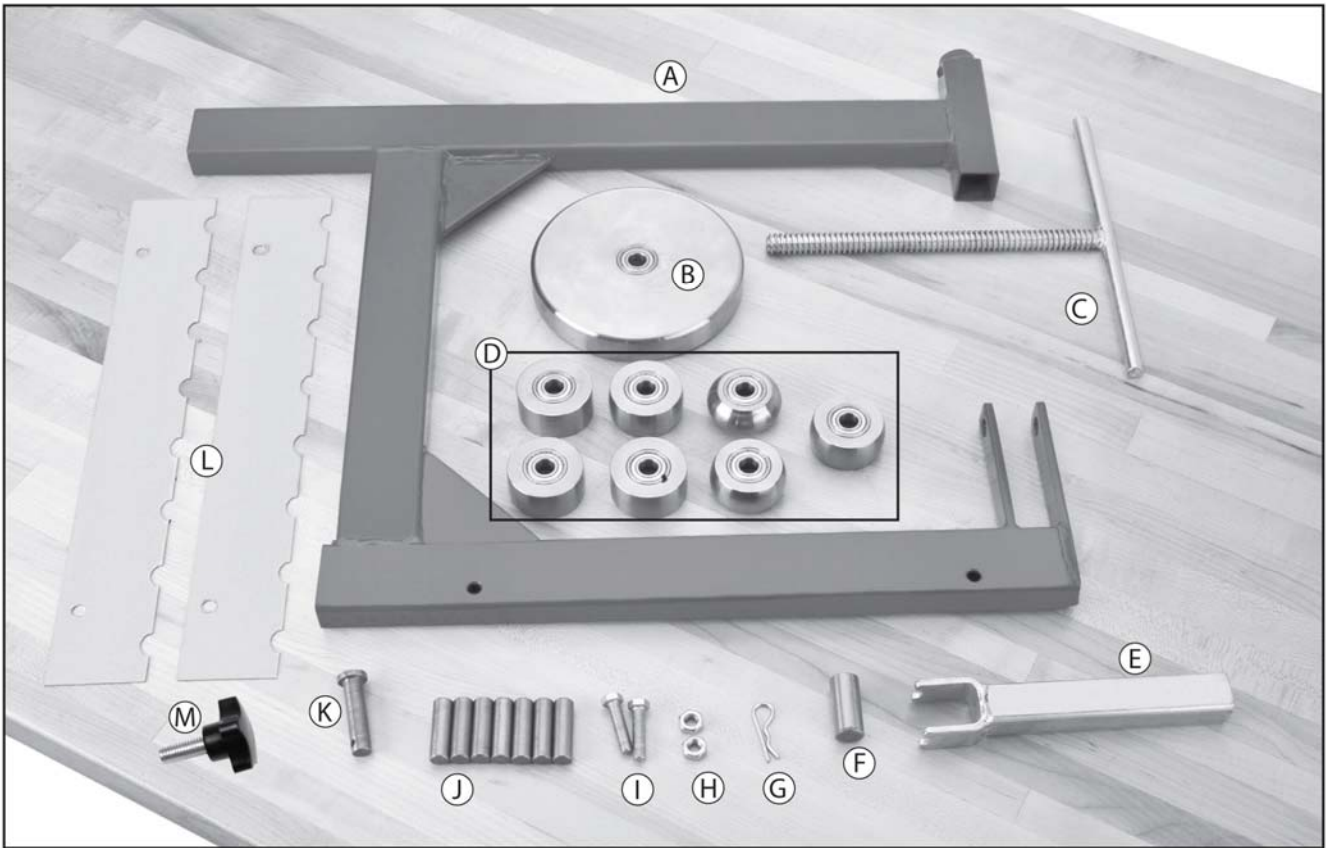
The Craftex Model (CX819) Benchtop English Wheel will give you the capability to craft small complex metal panels for your own creative metal working projects. The basic tool consists of the frame, shaped in the form of a closed letter 'C'. At one end of the frame are two wheels that are used to form the sheet metal. The top wheel is called the Rolling Wheel, while the bottom wheel is known as the Anvil Wheel. The lower jaw of the frame that holds the Anvil Wheel is adjustable to provide a range of forming capabilities as the metal thins. The Die Holder for the Anvil Wheel is controlled by a screw with a handle which adjusts the gap between the Anvil Wheel and the Rolling Wheel. *Refer to figure 2 for a complete parts listing for the (CX819)*

## INVENTORY

- A. Frame (Qty 1)
- B. Rolling Wheel (Qty 1)
- C. Anvil Wheel Adjustment Screw (Qty1)
- D. Anvil wheels
  - ½" Radius (Qty 1)
  - 1" Radius (Qty 1)
  - 1 ½ Radius (Qty 1)
  - 2 ½" Radius (Qty 1)
  - 5" radius (Qty 1)
  - 9" Radius (Qty 1)
  - Flat (Qty 1)
- E. Die Holder (Qty 1)
- F. Bracket Spacer Rod (Qty 1)
- G. Hairpin Cotter Pin 3/8" x 1 7/8" (Qty1)
- H. Hex Nuts ¼"-20 (Qty 2)
- I. Hex Head Cap Screws ¼"20 x 1 ¼" (Qty 2)
- J. Anvil Wheel Axle Rods (Qty 7)
- K. Rolling Wheel Clevis Pin (Qty 1)
- L. Wheel Storage Racks (Qty 2)
- M. Locking Knob (Qty 1)

### **NOTICE**

**If you are not able to find an item on this list, carefully check all of the packaging materials. Often items can be misplaced and covered by packaging materials while unpacking or they could have been pre installed at the factory.**



(figure 2)

## **MOUNTING YOUR (CX819) ENGLISH WHEEL**

During the operation of your English Wheel, the forces exerted on it are substantial. In order to support the weight and dynamic pressures on the English Wheel, it must be firmly and secured in a vise (as in Fig. 3 for example) that is solidly attached to a work bench and will support the weight, and pressures exerted during the operation of the tool.

It is recommended that you have a workbench and vise set up prior to assembly. This will facilitate a much easier process of assembly and it is also advisable to use cardboard or wood shims between

the vise jaws and the frame to prevent any possible frame damage.



(figure 3)

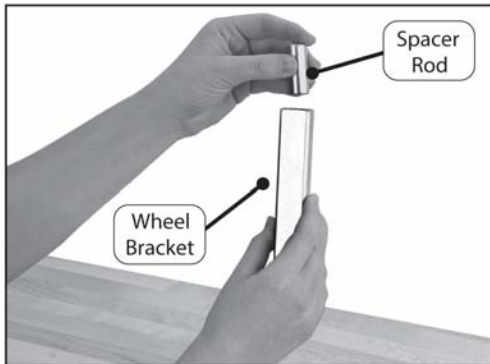
## CAUTION

Make sure the workbench that the English Wheel is mounted on, is stable and can support the weight of the tool, the workpiece, and the forces exerted during operation.

## ASSEMBLY

To assemble the English Wheel:

1. Insert the bracket spacer rod into the bottom of the lower wheel bracket, as shown in figure 4.



(figure 4) Insert the spacer rod into the anvil bracket

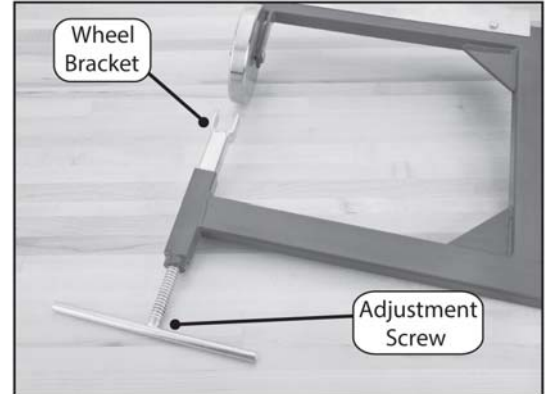
2. Turn the frame upside down and insert the anvil wheel bracket into the frame, as shown in figure 5.

Note: Inserting the anvil wheel bracket into the frame when it is upside down will keep the spacer rod inside the bracket.



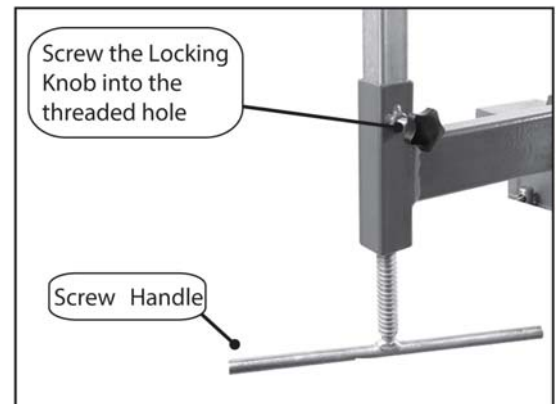
(figure 5) Insert the anvil bracket into the frame

3. Lay the frame flat and thread the anvil adjustment screw into the bottom of the frame opposite to the anvil bracket as in Figure 6.



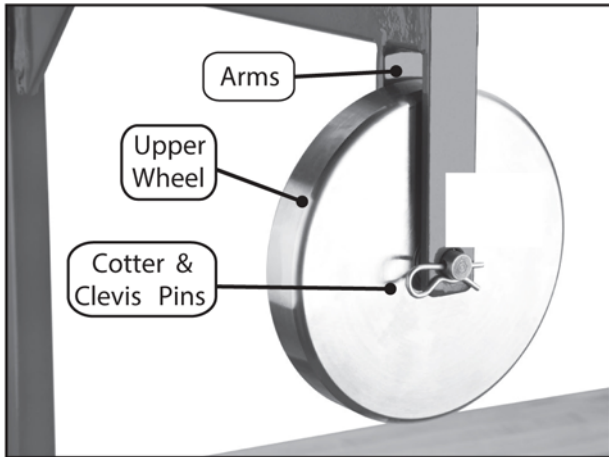
(figure 6) Anvil adjustment screw installed

4. Secure the assembly into your bench vise as described previously. Make sure to leave sufficient clearance from your bench so you are able to rotate the adjustment screw handle freely. See figure 7.



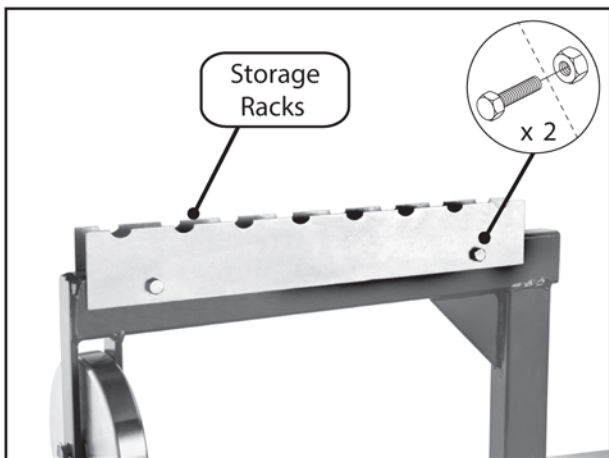
(figure 7) Adequate clearance to enable full rotation of the adjustment screw handle

5. Install the Rolling Wheel by inserting the wheel between the upper frame arms, insert the supplied clevis pin through the frame arms and wheel, insert the hairpin cotter pin through the clevis pin to secure the Rolling Wheel. (Figure 8.)



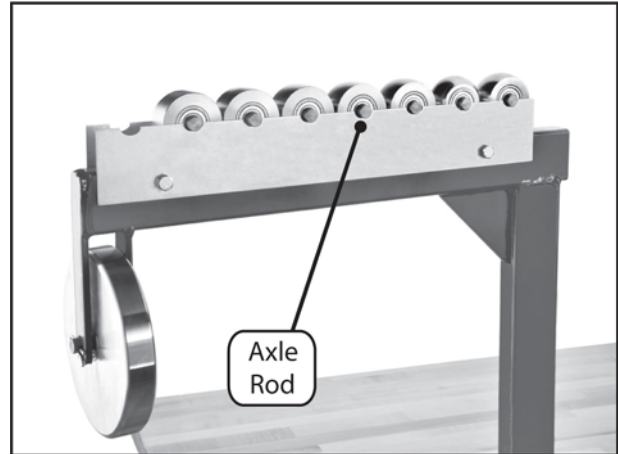
(figure 8) Rolling wheel installed on the upper frame

6. Attach the Anvil Wheels storage rack to the top of the frame using the 1/4-20 x 1 1/4" hex cap screws and 1/4-20 Hex nuts supplied/ (Figure 9)



(figure 9) Storage racks installed on upper frame

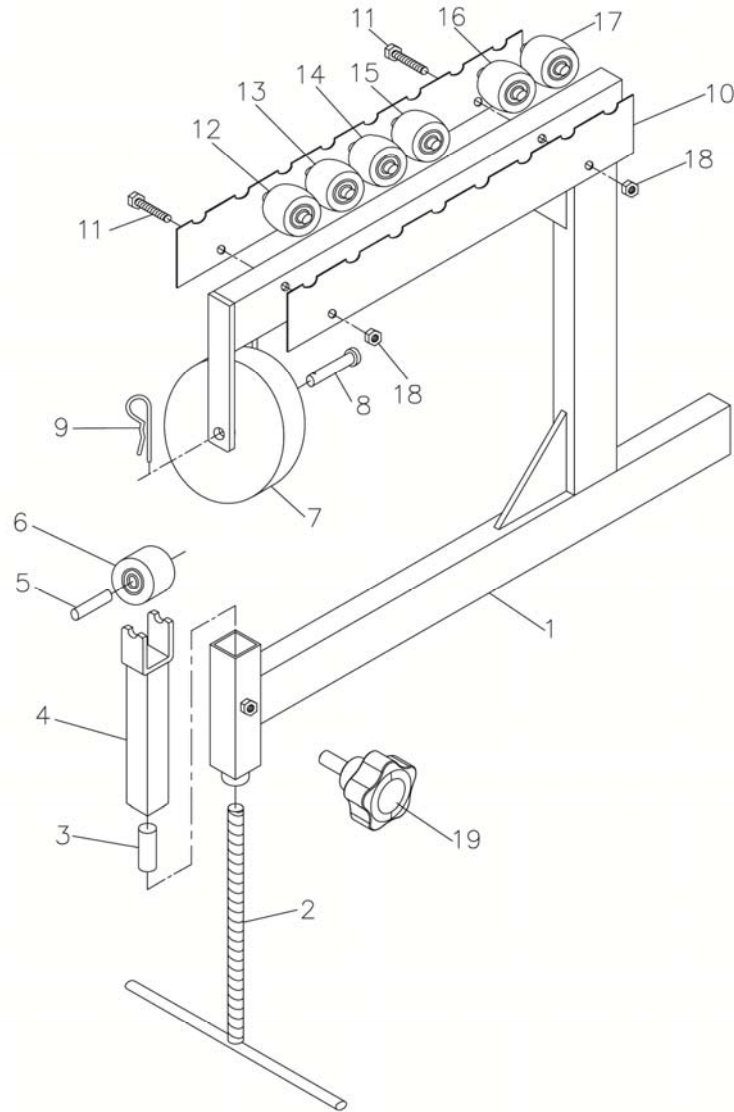
7. Insert an Anvil Wheel axle rod into each of the anvil wheels, then place the assemblies onto the storage rack on the upper frame. (Figure 10)



(figure 10) Anvil Wheel assemblies on the storage rack



# Parts list



REF	DESCRIPTION
1	FRAME
2	LOWER WHEEL ADJ SCREW
3	BRACKET SPACER ROD
4	LOWER WHEEL BRACKET
5	LOWER WHEEL AXLE ROD
6	FLAT LOWER WHEEL
7	UPPER WHEEL
8	UPPER WHEEL CAPTIVE PIN
9	HAIRPIN COTTER PIN 3/8 X 1-7/8
10	WHEEL STORAGE RACK

REF	DESCRIPTION
11	HEX BOLT 1/4-20 X 1-1/4
12	LOWER WHEEL 1/2" RADIUS
13	LOWER WHEEL 1" RADIUS
14	LOWER WHEEL 1-1/2" RADIUS
15	LOWER WHEEL 2-1/2" RADIUS
16	LOWER WHEEL 5" RADIUS
17	LOWER WHEEL 9" RADIUS
18	HEX NUT 1/4-20
19	LOCKING KNOB

## **BASIC OPERATION**

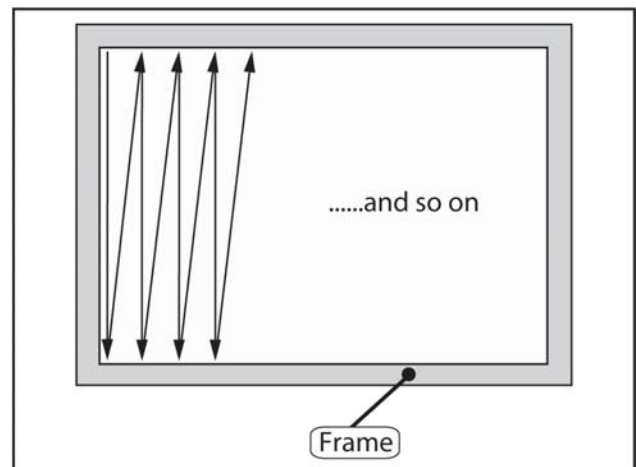
When using the English wheel you are simply stretching the metal into a desired shape and there are infinite possibilities to the shapes that one can produce. It takes a lot of practice to master this process and we encourage you to seek advice from experienced users, from books and to search the internet for tutorials that will guide you to gain the knowledge to produce good results.

### **Below we have outlined a very basic example of using the English Wheel:**

1. Be certain the frame is mounted securely in your bench vise which in turn is solidly attached to a bench or work table. When using the tool you may be applying a lot of pressure at times and ensuring your bench is sturdy is vital to the safe operation of the English wheel.
2. Wear applicable safety gear, such as safety glasses, leather gloves and steel toed boots.
3. Deburr the sharp edges of your workpiece (Available through Busy Bee Tools Model B254 at nominal cost)
4. With a semi permanent marker or scribe mark a frame around the workpiece area of approximately 1" (Figure 11)
5. Clean the Rolling and Anvil wheels to remove any abrasive material that may mar the surfaces of your work piece and the wheels themselves.

6. Install the Anvil Wheel with the least radius (crown) in the anvil bracket.
7. Use the adjustment screw to raise the Anvil wheel, leaving enough room to insert the workpiece between the wheels.
8. Insert the workpiece between the wheels and adjust the anvil wheel so that the pressure is just enough to prevent your workpiece from skipping or slipping through the wheels.
9. Move your workpiece back and forth through the wheels in an overlapping pattern as shown in Figure 11.

Note: this is a simple and basic pattern and only one of many tracking patterns that you may use.



(figure 11) Basic back and forth pattern

10. When your workpiece is no longer stretching rotate the anvil adjustment screw clockwise to slightly increase the pressure.

11. When maximum wheel pressure is reached and your workpiece no longer moves through the wheels, change the anvil wheel to the next highest radius. Then repeat steps 5 to 9 until your desired curve is attained.

### **TRACKING TIPS**

☞ Stretching metal into a curve is a gradual process. Always start with just enough pressure to prevent your workpiece from tipping or slipping through the wheels. After your initial curve is formed, increase the pressure slightly and continue stretching the metal. Repeat this process until you have reached your desired curve. Too much pressure will damage your workpiece surface producing poor results. Patience is a must with this tool.

☞ Start with the anvil wheel with the least radius (crown) and increase the wheel radius one step at a time until your desired curve is attained.

☞ Practice with scrap pieces similar in thickness to your actual workpiece.

☞ Leave a frame around your workpiece of approximately 1" that you do not put through the wheels. As the center of the workpiece stretches and the frame does not, the metal is forced to bend.

☞ Take your time. It takes many passes through the wheels and gradual increases of in pressure with lower wheel radii changes to produce good curves and reduce the risk of a damaged workpiece.

☞ Overlap each pass with the previous one in a smooth back and forth movement through the wheels. There are many patterns of tracking that will produce different results. Choosing the pattern that fits your profile requires some research and most of all experience.

### **MAINTENANCE**

Your English wheel requires no special maintenance or lubrication. Wipe down your machine before and after use. This will prevent any damage to your English Wheel or your workpiece.



## WARRANTY

### **CRAFTEX 3 YEARS LIMITED WARRANTY**

Craftex warrants every product to be free from defects in materials and agrees to correct such defects where applicable. This warranty covers **three years** for parts and 90 days for labour (unless specified otherwise), to the original purchaser from the date of purchase but does not apply to malfunctions arising directly or indirectly from misuse, abuse, improper installation or assembly, negligence, accidents, repairs or alterations or lack of maintenance.

*Proof of purchase is necessary.*

All warranty claims are subject to inspection of such products or part thereof and Craftex reserves the right to inspect any returned item before a refund or replacement may be issued.

This warranty shall not apply to consumable products such as blades, bits, belts, cutters, chisels, punches etceteras.

Craftex shall in no event be liable for injuries, accidental or otherwise, death to persons or damage to property or for incidental contingent, special or consequential damages arising from the use of our products.

### **RETURNS, REPAIRS AND REPLACEMENTS**

To return, repair, or replace a Craftex product, you must visit the appropriate Busy Bee Tools showroom or call 1-800-461-BUSY. Craftex is a brand of equipment that is exclusive to Busy Bee Tools.

For replacement parts directly from Busy Bee Tools, for this machine, please call 1-800-461-BUSY (2879), and have your credit card and part number handy.

- All returned merchandise will be subject to a minimum charge of 15% for re-stocking and handling with the following qualifications.
- Returns must be pre-authorized by us in writing.
- We do not accept *collect* shipments.
- Items returned for warranty purposes must be insured and shipped pre-paid to the nearest warehouse
- Returns must be accompanied with a copy of your original invoice as proof of purchase. Returns must be in an un-used condition and shipped in their original packaging a letter explaining your reason for the return. Incurred shipping and handling charges are not refundable.
- Busy Bee will repair or replace the item at our discretion and subject to our inspection.
- Repaired or replaced items will be returned to you pre-paid by our choice of carriers.
- Busy Bee reserves the right to refuse reimbursement or repairs or replacement if a third party without our prior authorization has carried out repairs to the item.
- Repairs made by Busy Bee are warranted for 30 days on parts and labour.
- Any unforeseen repair charges will be reported to you for acceptance prior to making the repairs.
- The Busy Bee Parts & Service Departments are fully equipped to do repairs on all products purchased from us with the exception of some products that require the return to their authorized repair depots. A Busy Bee representative will provide you with the necessary information to have this done.