

Eastwood[®]

DO THE JOB RIGHT.[®]

Item #28135

HEAVY DUTY METAL BENDER

INSTRUCTIONS



The **Eastwood Heavy Duty Metal Bender** is a high quality, industrial style tool capable of generating a powerful leveraged force to create 180° or greater repeatable bends in mild steel and aluminum up to 2" wide.

CONTENTS

COMPONENTS

- (1) Base/Stand **[A]**
- (1) Ring Assembly/Die Receiver **[B]**
- (3) Mounting Spacers **[C]**
- (1) Ring Assembly Spacer **[D]**
- (1) Handle/Die Receiver **[E]**
- (1) Handle Extension **[F]**
- (2) Long 15mm x 120mm Hitch Pins **[G]**
- (1) Short 15mm x 95mm Hitch Pin **[H]**
- (1) 6mm x 40mm Handle Hitch Pin **[J]**
- (1) Pin Clip **[K]**
- (1) Stop Support Pin **[L]**
- (1) Square Stop Block **[M]**
- (1) Right Angle Bending Attachment **[N]**
- (1) Stationary Stop **[P]**
- (1) Adjustable Stop Loop **[Q]**
- (1) 1" Die **[R]**
- (1) 1-1/4" Die **[S]**
- (2) 1-1/2" Dies **[T]**
- (1) 1-3/4" Die **[U]**
- (1) 2" Die **[V]**
- (1) 2-1/2" Die **[W]**
- (1) 3" Die **[X]**

HARDWARE

- (2) M10 x 35mm Countersunk Phillips Head Screws
- (1) M10 x 120mm Hex Bolt
- (1) M10 x 30mm Hex Bolt
- (4) M10 Nuts
- (4) M10 Washers
- (3) M10 Lock Washers

SPECIFICATIONS

Maximum Material Width:	2"
Maximum Material Thickness:	5/16" for 1-1/4" wide mild steel or 1/4" for 2" wide mild steel
Maximum Round Stock Diameter:	5/8"
Maximum Square Stock:	5/8"
Maximum Handle Length:	44"

SAFETY INFORMATION

The following explanations are displayed in this manual, on the labeling, and on all other information provided with this product:

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

CAUTION used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

⚠ NOTICE

NOTICE is used to address practices not related to personal injury.

SAFETY INFORMATION



⚠ WARNING PINCH AND CRUSH HAZARD!

- This tool has leveraged rotating components that generate greatly amplified crushing and bending forces which can quickly cause severe injury! Keep fingers and hands away from moving parts when operating.



⚠ WARNING INJURY HAZARD!

- Tremendous external torque loads are placed on this Metal Bender during operation. This tool cannot be operated without adequate support or severe personal injury or property damage can occur if it should suddenly become dislodged or moves while in use. Before beginning ANY work with this tool, it is absolutely necessary that it be securely bolted to a solid, level floor surface.



⚠ WARNING FALL HAZARD!

- Strenuous physical force may need to be applied to the Metal Bender during use. Failure to ensure proper footing can quickly result in a fall which could inflict serious personal injury or property damage. Always work in a clean, uncluttered environment.
- Be sure there is sufficient working room around the tool to allow for safe handling of various lengths of tubing.



⚠ WARNING INJURY HAZARD!

- The Eastwood Metal Bender is equipped with an Extension Handle for added bending force. DO NOT add pipe, bars or any other devices which would add additional length to the Handle to increase bending force. This will exceed the design limits of the tool and can result in serious injury and/or component failure.



⚠ CAUTION CUT HAZARD!

- Handling sharp metal can cause serious cuts. Wear thick, well-fitting work gloves to prevent cuts from handling sharp metal.



⚠ CAUTION EYE INJURY HAZARD!

- Pieces of mill scale, rust and other debris may be ejected from the workpiece during operation. Wear ANSI approved eye protection while operating.

⚠ NOTICE

Excessive resistance while operating could indicate a defect with the workpiece material or broken or damaged Metal Bender components. To avoid injury, stop work immediately and inspect workpiece material for nicks, dents, welds, excessive scale or remaining coatings. Clean or repair as necessary or discard and begin with a new piece. Also inspect Metal Bender components for looseness or damage.

SETUP

⚠ CAUTION The Eastwood Metal Bender consists of moderately heavy metal components which can present a hand/finger pinch hazard and cause potentially serious injuries if dropped on feet. Avoid pinching hands while handling parts during assembly and wear thick, well-fitting work gloves to prevent cuts from handling sharp metal. The use of safety shoes is strongly recommended.

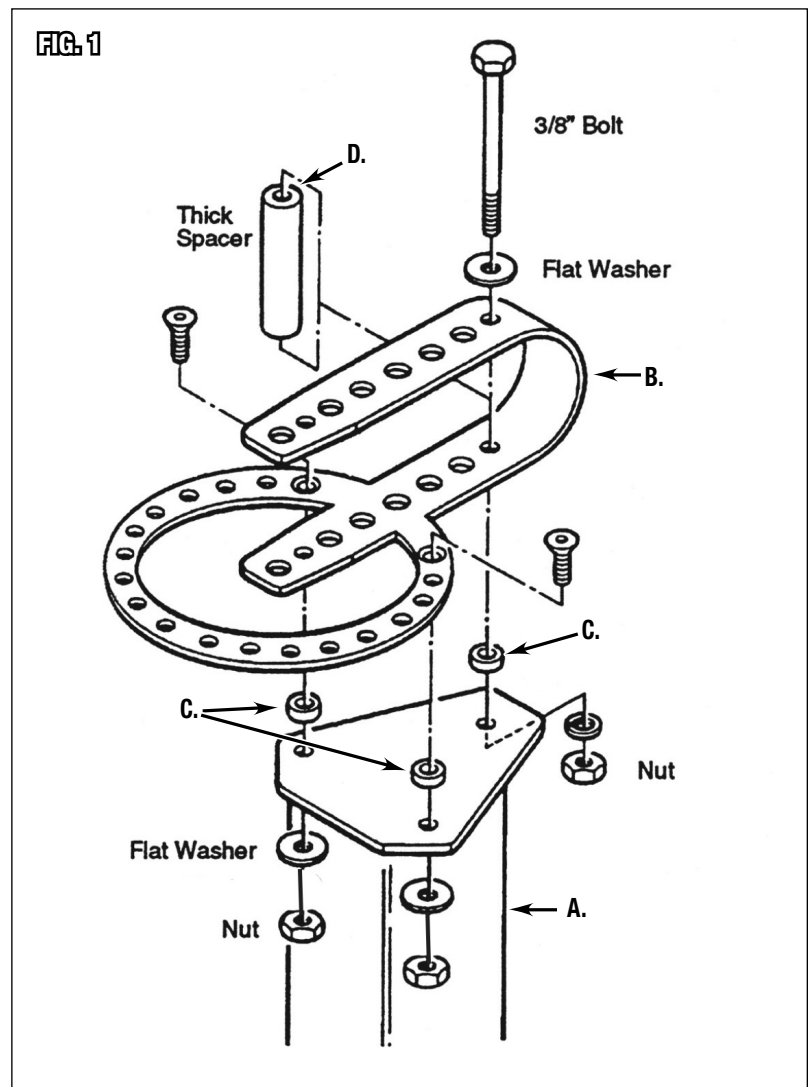
⚠ WARNING Tremendous external torque loads are placed on this Metal Bender during operation. This tool cannot be operated without adequate support or severe personal injury or property damage can occur if it should suddenly become dislodged or moves while in use. Before beginning ANY work with this tool, it is absolutely necessary that it be securely bolted to a solid, level, well supported floor surface capable of withstanding the tremendous torque and side loads this tool is subjected to during use.

⚠ NOTICE
A minimum thickness of 2" concrete or 1" of a wood-based surface is strongly recommended.

- Select an area for permanent location of the Eastwood Metal Bender. Allow a minimum of 4' of working area around the tool to allow for proper handle swing and operator space.
- With the four 9/16" (14 mm) holes in the Baseplate of the Base/Stand [A], as a guide, mark the locations and centers with a pencil.
- Select appropriate concrete anchors (Not Included) or lag bolts (Not Included) and drill four proper sized mounting holes in work surface.
- Using appropriate hardware, mount the baseplate to work surface.

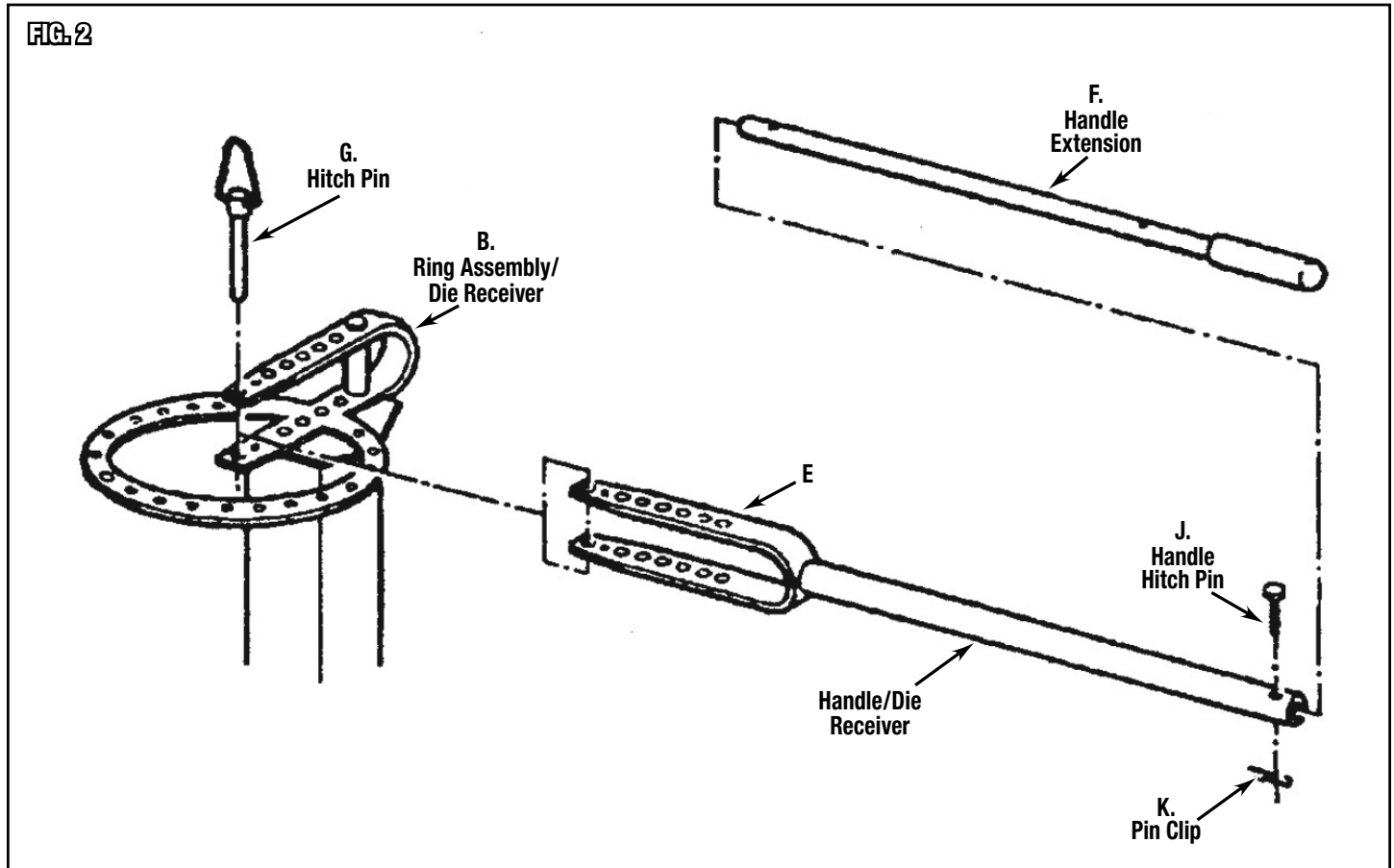
MOUNTING BENDER TO STAND

- Place the three Mounting Spacers [C] over the three holes in the Triangular Flange at the top of the Base/Stand [A].
- Set the Ring Assembly/Die Receiver [B] over the three Mounting Spacers [C] so that two of the holes of the Ring Assembly/Die Receiver align with two of the Mounting Spacers [C].
- Insert two M10 x 35mm Countersunk Phillips Head Screws through the Ring Assembly/Die Receiver [B], Mounting Spacers [C], and Triangular Base, then secure with 2 M10 Nuts and Washers (Fig 1).
- Set the Ring Assembly Spacer [D] in the "U" of and aligned with the rearmost holes of the Ring Assembly/Die Receiver (Fig 1).
- Insert the M10 x 120mm Hex Bolt through the Ring Assembly/Die Receiver [B], Ring Assembly Spacer [D], Mounting Spacer [C], and Triangular Base, then secure with an M10 Nut and Washer (Fig 1).



BENDER ASSEMBLY

- Place the Handle/Die Receiver [E] “U” inside the larger “U” of the Ring Assembly/Die Receiver [B] and secure it in place by inserting a Long 15mm x 120mm Hitch Pin [G].
- Slide the tubular Handle Extension with rubber grip [F] into the larger diameter tubular section of the Handle/Die Receiver [E]. NOTE that there are two sets of holes. For normal use, align the outermost hole of the Handle Extension [F] with the holes in the Handle/Die Receiver [E] then place the 6mm x 40mm Hitch Pin [J] through the holes and secure with the Pin Clip [K]. For projects requiring more leverage, remove the Pin Clip and Hitch Pin, extend the Handle, re-align the holes and reinstall the Pin Clip and Hitch Pin.
- The Eastwood Metal Bender is now ready for use.



OPERATION

The Eastwood Metal Bender is capable of producing a virtually endless configuration of bends and shapes. The purpose of this Instruction Booklet is intended to provide a full understanding of the functions of this tool and to assist the user in creating basic bends and shapes. More complex projects will require planning and some degree of “trial and error”.

⚠ WARNING Tremendous external torque loads are placed on this Eastwood Metal Bender during operation. This tool cannot be operated without adequate support or severe personal injury or property damage can occur if it should suddenly become dislodged or moves while in use. Before beginning ANY work with this tool, it is absolutely necessary that it be securely bolted to a properly anchored heavy, sturdy, anchored workbench.

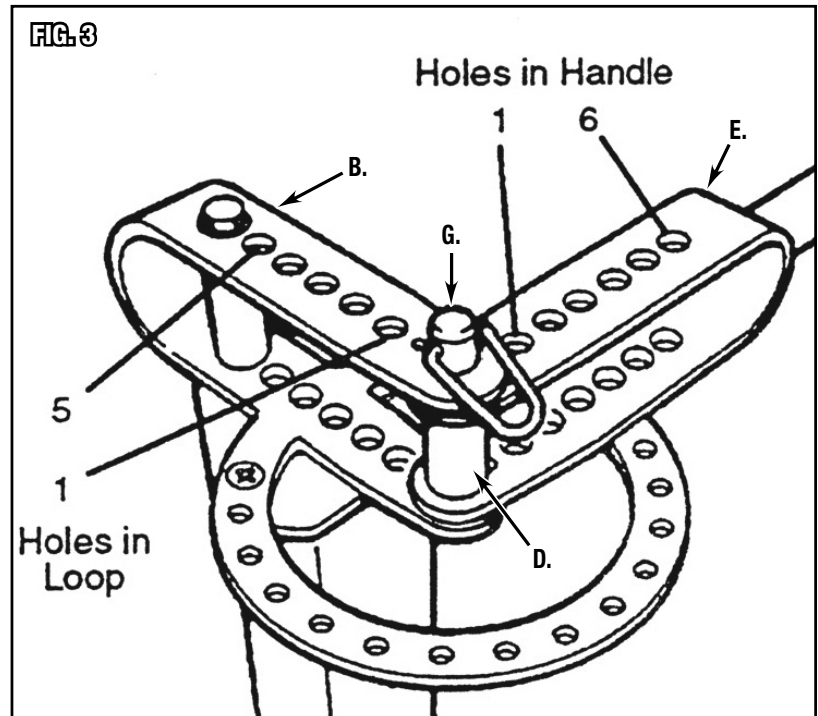
⚠ CAUTION The Eastwood Metal Bender exerts tremendous bending and crushing forces in operation which can present a hand/finger pinch hazard and cause potentially serious injuries. Avoid moving parts while operating and wear thick, well-fitting work gloves to prevent cuts from handling sharp metal. The use of safety shoes is strongly recommended.

⚠ WARNING INJURY HAZARD!
The Eastwood Metal Bender is equipped with an Extension Handle for added bending force. **DO NOT** add pipe, bars or any other devices which would add additional length to the Handle to increase bending force. This will exceed the design limits of the tool and can result in serious injury and/or component failure.

⚠ NOTICE
Workpiece material should be clean of any rust, burrs, nicks, welds or coatings before attempting to bend or interference and binding may occur.

⚠ NOTICE
Apply a minimal amount of a light lubricant to material and die surfaces to ease bending process. Do not over lubricate.

- Fully read and understand these instructions before beginning.
- Through the instructions, become familiar with all attachments and their purpose
- Select the type and size of material for the planned project.
- Determine the best Die for the planned shape.
- Choose the Stop Block or Right Angle Attachment as required. Install the Block Support. If using a Stop Block, position it correctly. (This is addressed further along in instructions).
- Place material in the Metal Bender and make sure to position it properly.
- Make the desired bend. Use a protractor (Not Included) to measure the planned angle.
- As the desired bend is achieved, check shape and angle and adjust if needed.
- Re-position or remove and switch position of workpiece to make additional bends.



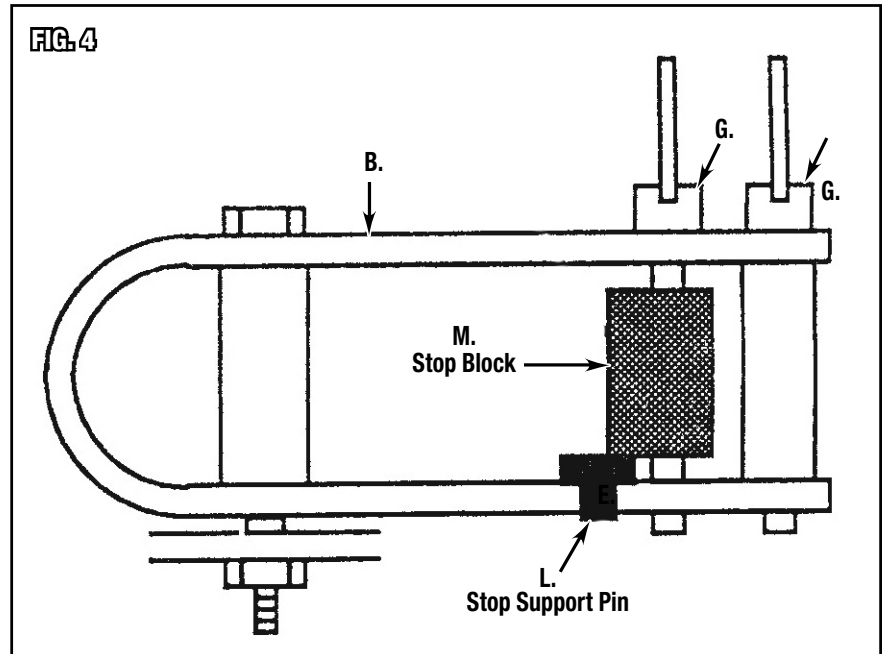
⚠ NOTICE
For ease of description and clarification in these instructions, the holes in the “U” and Ring of the Ring Assembly/Die Receiver [B] and the Handle/Die Receiver [E] are referred to by numbers. No numbers are actually displayed on the components (Fig 3).

USE OF THE SUPPORT PIN WITH THE SQUARE STOP BLOCK

- Insert the Support Pin [L] in the hole so that it is located under the Square Stop Block [M] but does not block a 15mm x 120mm Long Hitch Pin [G] from passing through the hole in the Square Stop Block [M] and into the lower hole of the “U” of the Ring Assembly/Die Receiver [B] (Fig. 4).

⚠ NOTICE

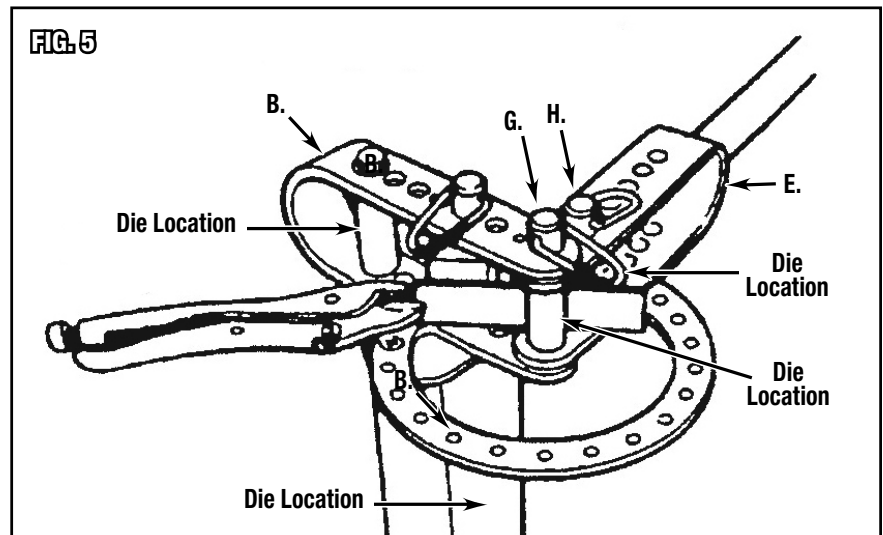
If the Stop Block [M] is correctly placed, it should not be necessary to clamp the workpiece into place. If high precision is required however, it may be helpful to clamp the workpiece into place with Vice-Grip type clamping pliers (Not Included).



PLACEMENT OF DIE

Dies are placed at one or two different locations depending on the bend to be made.

- A Die can be used in conjunction with the 15mm x 120mm Long Hitch Pin [G] at the intersection of the Handle/Die Receiver [E] and the Ring Assembly/Die Receiver [B].
- The Die can also be placed on the Handle/Die Receiver [E] using a 15mm x 95mm Short Hitch Pin [H].
- Two Dies can be placed so that one is on the Handle/Die Receiver [E] and one at the center point where the Handle/Die Receiver [E] and Ring Assembly/Die Receiver [B] intersect (Fig 5).



ORIENTATION OF HANDLE

The Handle is always oriented *Up* and on the *Right* side. The Handle is always moved clockwise when a bend is being made.

USE OF THE SQUARE STOP BLOCK

The Square Stop Block **[M]** is identified as such because it is designed to stop the workpiece from turning while it is being bent and “stopping” any movement of the workpiece (Fig 6).

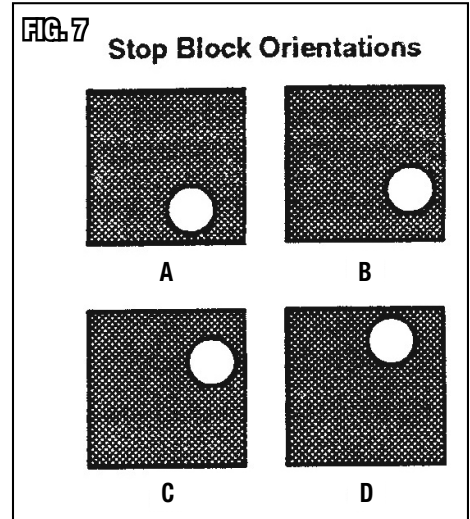
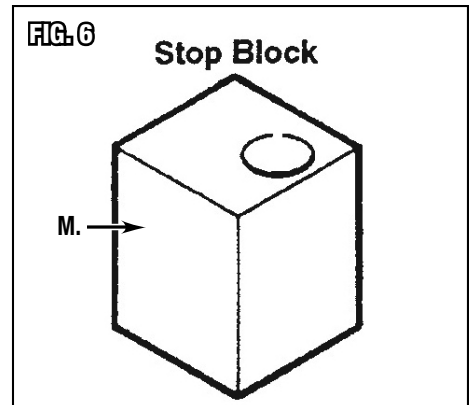
When bending the workpiece, place the Square Stop Block **[M]** over one of the holes the Ring/Die Receiver **[B]**. Some testing will need to be done to determine the best placement of the Square Stop Block **[M]**. It will need to be placed over the appropriate hole that works with the desired bend and Die in use.

- There are four key positions to place the Square Stop Block **[M]** in while bending. The four positions (as seen from looking down on the top of the Square Stop Block **[M]**) are identified in these instructions by a letter; A, B, C or D (Fig 7).

NOTE: Always position the Square Stop Block **[M]** so that it’s hole is oriented to the right side. Even though another side of the Square Stop Block may actually face the work piece. If the hole is oriented left instead of right, this will result in the Square Stop Block turning which will cause the workpiece to move.

- Set the appropriate Die into place on the Handle/Die Receiver **[E]** between the upper and lower blades of the “U”. Secure the Die in place by inserting the shorter, 15mm x 95mm Short Hitch Pin **[H]** through the Handle/Die Receiver **[E]** and the Square Stop Block **[M]**. The Square Stop Block is held in place against the workpiece (Fig 9).
- Set the workpiece into position. With the Handle **[E]** in the starting position, set the Square Stop Block **[M]** as close to the longer 15mm x 120mm Hitch Pin **[G]** at the center pivot position, as possible.

NOTE: To avoid large spaces between the Square Stop Block, the 15mm x 120mm Long Hitch Pin acting as center pivot pin and the selected Die, orient the Square Stop Block differently, or if possible, move it one hole closer to the center pivot point.



USE OF THE RIGHT ANGLE BENDING ATTACHMENT

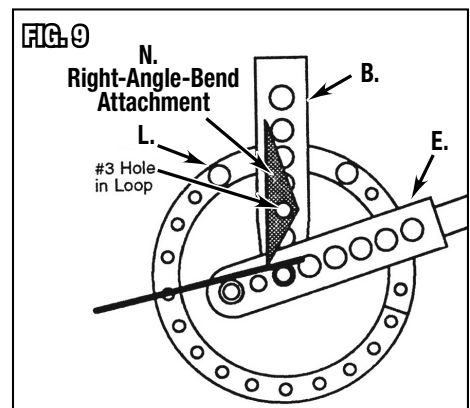
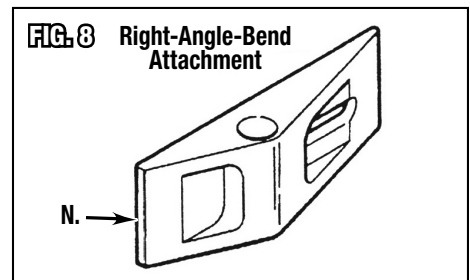
It is best to use the Right Angle Bending Attachment **[N]** instead of the Square Stop Block **[M]** when making a right angle or sharp bend in the workpiece (Fig 8).

The Right Angle Bending Attachment **[N]** fits on the Metal Bender only one way.

- Install the Support Pin **[L]** under the Right Angle Bending Attachment. This will raise it up so that it sits above the Ring Assembly/Die Receiver **[B]** (Fig 9).
- Set the Support Pin **[L]** into the 3rd hole on the Ring Assembly/Die Receiver **[B]**. Line up the hole in the top of the Right Angle Bending Attachment **[N]** with the hole in the Ring Assembly/Die Receiver **[B]** (Fig 9). Insert a longer, 15mm x 120mm Long Hitch Pin **[G]** in the 2nd hole of the Ring Assembly/Die Receiver **[B]** to secure the Right Angle Bending Attachment **[N]** in place.

NOTE: The workpiece will not need to be clamped when using the Right Angle Bending Attachment.

- Mark the workpiece at the desired points to make a bend. Align the workpiece so that the Right Angle Bending Attachment **[N]** hits directly at the midpoint of your mark.



THE STATIONARY STOP AND ADJUSTABLE STOP LOOP

- Many projects on the Metal Bender will require repeated bends of the same type and angle. In these instances, using the Adjustable Stop Loop [Q] or the Stationary Stop [P] will save time and provide precisely the same bends (Fig. 10).
- Adjust the Stationary Stop [P] or Adjustable Stop Loop [Q] with a piece of scrap material prior to using your actual workpiece. This will assure accuracy and aid in obtaining ideal placement of the selected Stop [P or Q].

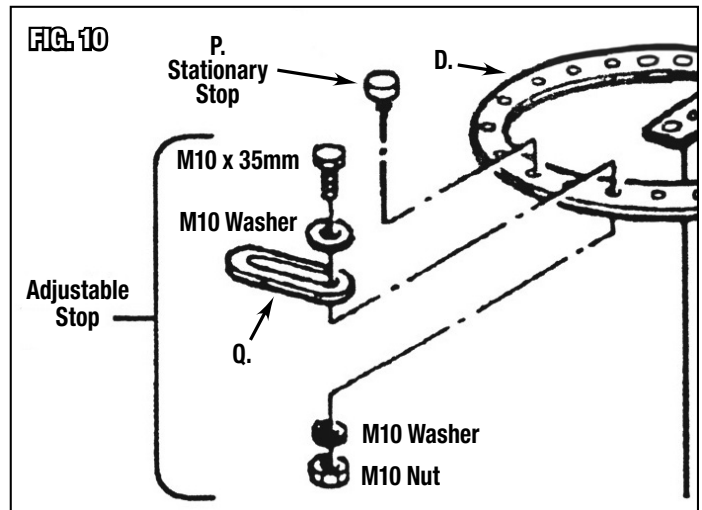
STATIONARY STOP

- Test and decide the degree and distance of Handle rotation required to make the desired bend.
- Remove and place the Stationary Stop [P] into the next hole (Clockwise) after the initial rotation is completed (Fig 10).

ADJUSTABLE STOP LOOP

The Adjustable Stop Loop [Q] is used where a finer adjustment is needed. The Adjustable Stop Loop allows for more precise stops as it can be adjusted whereas the Stationary Stop [P] is simply placed into a hole on the Ring (Fig 10).

- Test and decide the degree and distance of Handle rotation required to make the desired bend.
- Place the Adjustable Stop Loop [Q] directly at the point where rotation of the Handle is to end. Insert the M10 x 30mm Hex Bolt through an M10 Washer to hold the Adjustable Stop Loop [Q] in place. Add additional M10 Washer and M10 Nut then tighten securely (Fig 10).
- Try a test bend and adjust the Adjustable Stop Loop [Q] as necessary to obtain a precise bend.



NOTE: At this point, the basic operating instructions have been described and practice using the Eastwood Metal Bender on scrap material is highly recommended. As with many metal working tools, a period of “trial and error” is needed to achieve a degree of proficiency in their use. Remember, a little time and material used at this step will avoid disappointing results on an actual project.

After becoming familiar with the Eastwood Metal Bender, a number of sample projects are presented on the following pages to increase proficiency and provide project ideas.

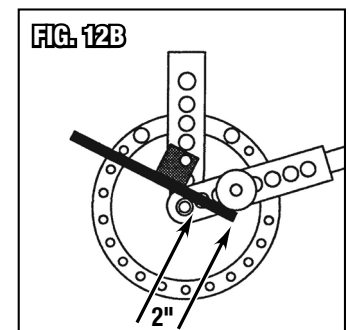
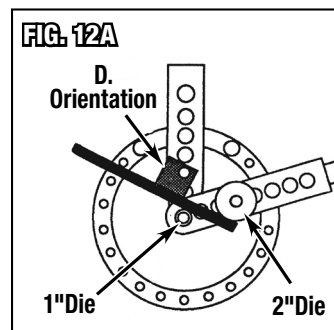
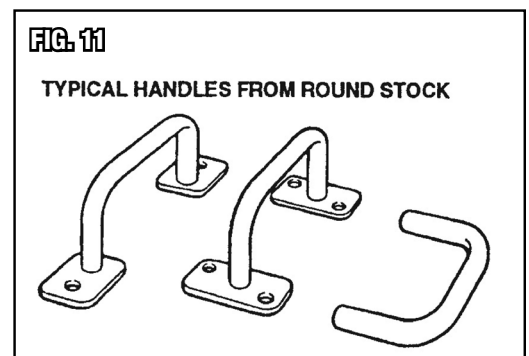
SAMPLE PROJECTS

MAKE HANDLES FROM ROUND STOCK

To make handles using round stock, the Square Stop Block [M] is used (Fig 11).

Use a 10" section of 5/8" round stock and two pieces of flat stock for the flanges. The measurements provided are general guides only. Actual measurements should be adjusted per individual preferences & requirements. If using another stock size, some experimentation is required to find the best points for each bend.

1. Set the Square Stop Block [M] in orientation “D”, into the Ring Assembly/Die Receiver [B].
2. With the Handle in the normal position, place the 1" Die on the Center Pin. Place the 2" Die in the Handle/Die Receiver 2nd hole (Fig 12a). Insert the round stock so that the end extends 2" down past the 1" Die (Fig 12b). Make the first bend at 90°.
3. Remove the round stock from its original position. Place the opposite end into the Metal Bender in the same way as the 1st bend. Both ends must be bent in the same direction. Make the 2nd bend at 90°. Remove piece from the Bender (Fig 12b).
4. Determine how the round stock should mate with the flat stock flanges. Drill 5/8" holes into the flanges at the desired position. Insert the bent ends of the round stock into the holes.
5. Weld the round stock handles into the flat stock flanges. Grind away any excess material to allow the handle flanges to lay flat.



MAKE HANDLES FROM FLAT STOCK

To make handles using flat stock, the Right Angle Bending Attachment [N] is used (Fig 13).

Use a 10" section of 3/16" thick x 1" wide, hot rolled flat stock.

1. Install the Right Angle Bending Attachment [N] into the Ring Assembly/Die Receiver [B].
2. Mark the material where the bends will be (Fig 14). Place the workpiece into the bender to the 1st mark. Bend to 90°.
3. It may be helpful to set up the Bender with the Adjustable Stop to make accurate repeated bends (Fig 15).
4. Remove and place the opposite end of the workpiece in the Bender. Insert to the 2nd mark and make a 90° bend (Fig 15).
5. Reverse the workpiece and make the 3rd bend at the 3rd mark. Repeat for opposite end and make the 4th bend at the 4th mark (Fig 15).
6. Remove any sharp edges or rough areas by grinding or sanding.

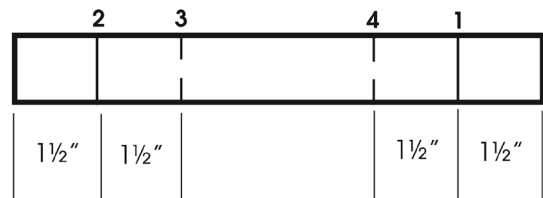
FIG. 13

TYPICAL HANDLE FROM FLAT STOCK



FIG. 14

Bend Sequence



MAKING TUBE CLAMPS

The following steps will allow the creation of a 1" inner diameter tube clamp using hot rolled flat stock 4-1/2" long x 3/16" thick x 1" wide (Fig 16).

1. Install the 1" Die at the Center Pivot Point around the 15mm x 120mm Long Hitch Pin [G].
2. Using the 15mm x 95mm Short Hitch Pin [H], place the 1-1/2" Die in the Handle/Die Receiver 2nd hole.
3. Set the Square Stop Block [M] into the 1st hole on the Ring Assembly/Die Receiver. Orient it in position "B" as in (Fig 17).
4. Insert the workpiece in the Bender so that it extends 1-3/4" beyond the center point. Secure the workpiece into position against the Square Stop Block with a clamp or Vice Grip type locking pliers (Fig 17).
5. Bend the workpiece past 180° until the Die on the Handle/Die Receiver slides off the end (Fig 17).
6. Remove the Square Stop Block and the Die. Install the Right Angle Bend Attachment (Fig 17).
7. With the workpiece tight against the Long Hitch Pin as close to center as possible, make a right angle bend (Fig 17).

FIG. 15

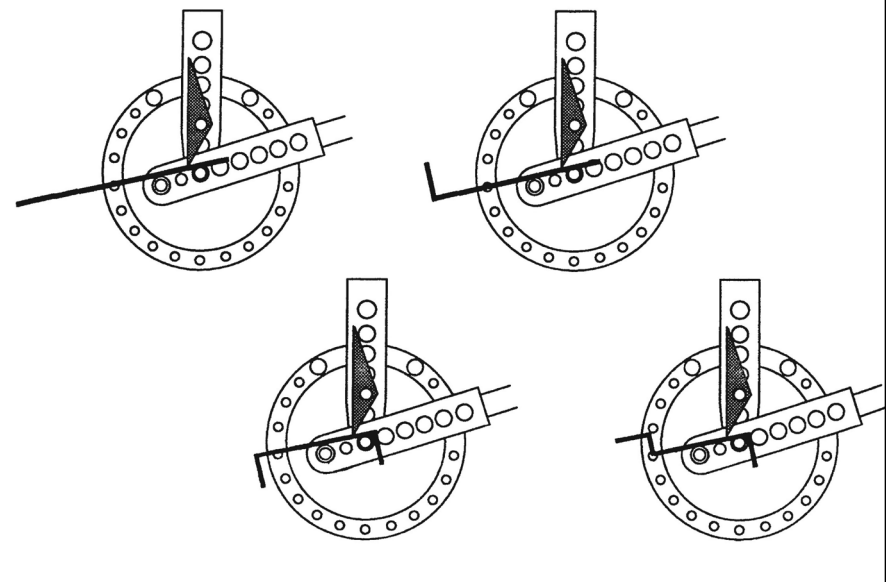


FIG. 16

TYPICAL TUBE CLAMPS

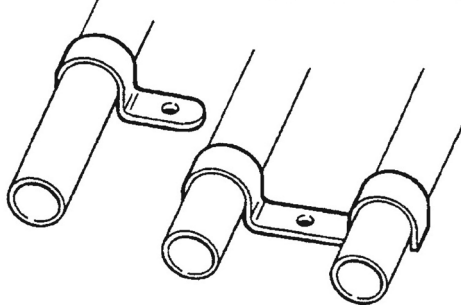
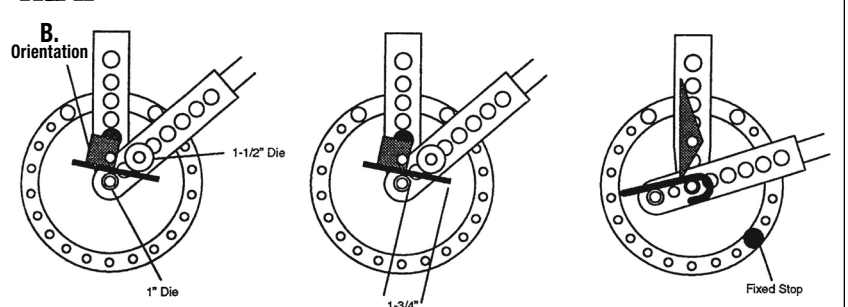


FIG. 17

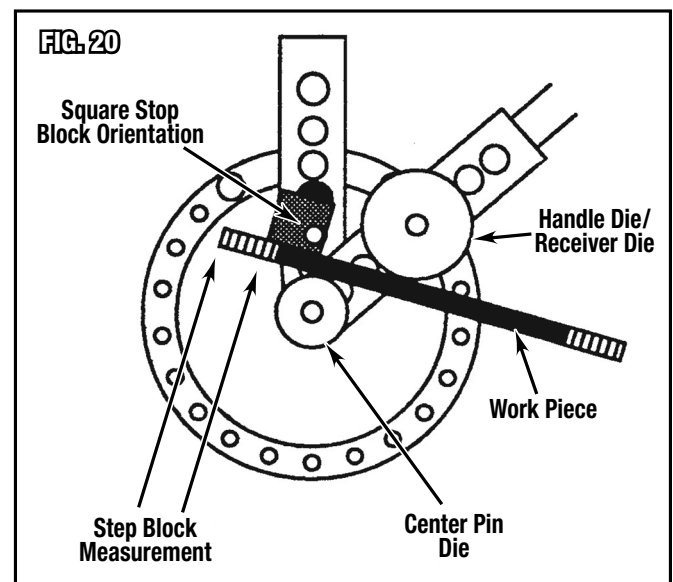
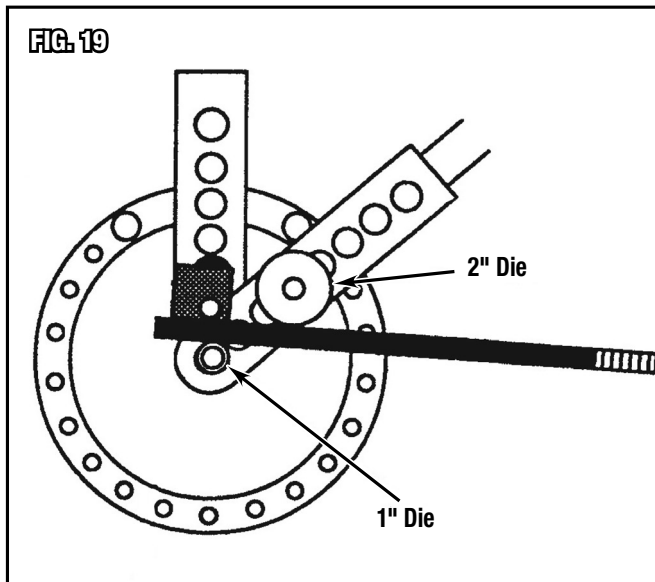
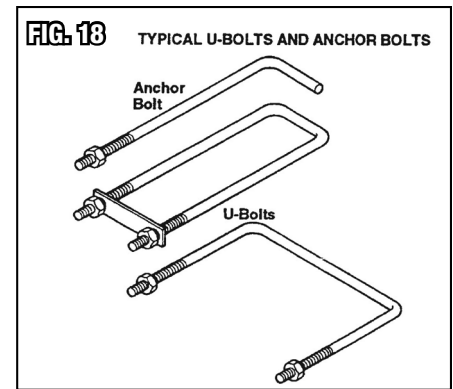


MAKING "U" BOLTS AND ANCHOR BOLTS

Following the next steps will allow a 12" Anchor Bolt from a 14-1/4" blank (Fig 18).

As with all bending, shorter or longer Anchor Bolts can be made by varying the length of the blank. Use a scrap piece to experiment with length and placement of bends. First determine if you are creating an Anchor Bolt or a "U" Bolt then plan material length and positioning accordingly.

1. Install the 1" Die at the Center Pivot Point around the 15mm x 120mm Long Hitch Pin [G].
2. Using the 15mm x 95mm Short Hitch Pin [H], place the 2" Die in the Handle/Die Receiver 2nd hole.
3. Using a Long Hitch Pin, set the Square Stop Block into place in either position "B" or "D" (Fig 19).
NOTE: Position "B" for 3/8" or 1/2" bolts or "D" for 5/8" bolts.
4. Place the workpiece into the Bender so that the unthreaded end extends sufficiently beyond the Square Stop Block – 1/2" for 3/8" bolts, 5/8" for 1/2" bolts and 1/4" for 5/8" bolts.
5. Rotate the Handle/Die Receiver until a 90° bend is achieved.
6. Remove and re-position workpiece then reposition and follow above steps for creating a "U" Bolt (Fig 20).



STORAGE

- Apply a thin film of light oil or rust-preventive to all bare steel areas.
- Store in a clean, dust-free, dry, dampness free area preferably covered with plastic sheeting.

MAINTENANCE

NOTE: Maintenance should be performed before each use

- Clean dirt and debris from all pivot points.
- Check tightness of all hardware.
- Check operation for binding. Lubricate moving parts periodically with medium bodied chassis grease.

OPTIONAL METALWORKING ITEMS:

51088 - Shrinker/Stretcher Set

13475 - Eastwood Electric Metal Shears

11797 - Throatless Shear

14042 - Versa Bend Sheet Metal Brake

20254 – Eastwood 24" Slip Roll

If you have any questions about the use of this product, please contact

The Eastwood Technical Assistance Service Department: 800.343.9353 >> email: techelp@eastwood.com

PDF version of this manual is available online >> eastwood.com/28135manual

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