

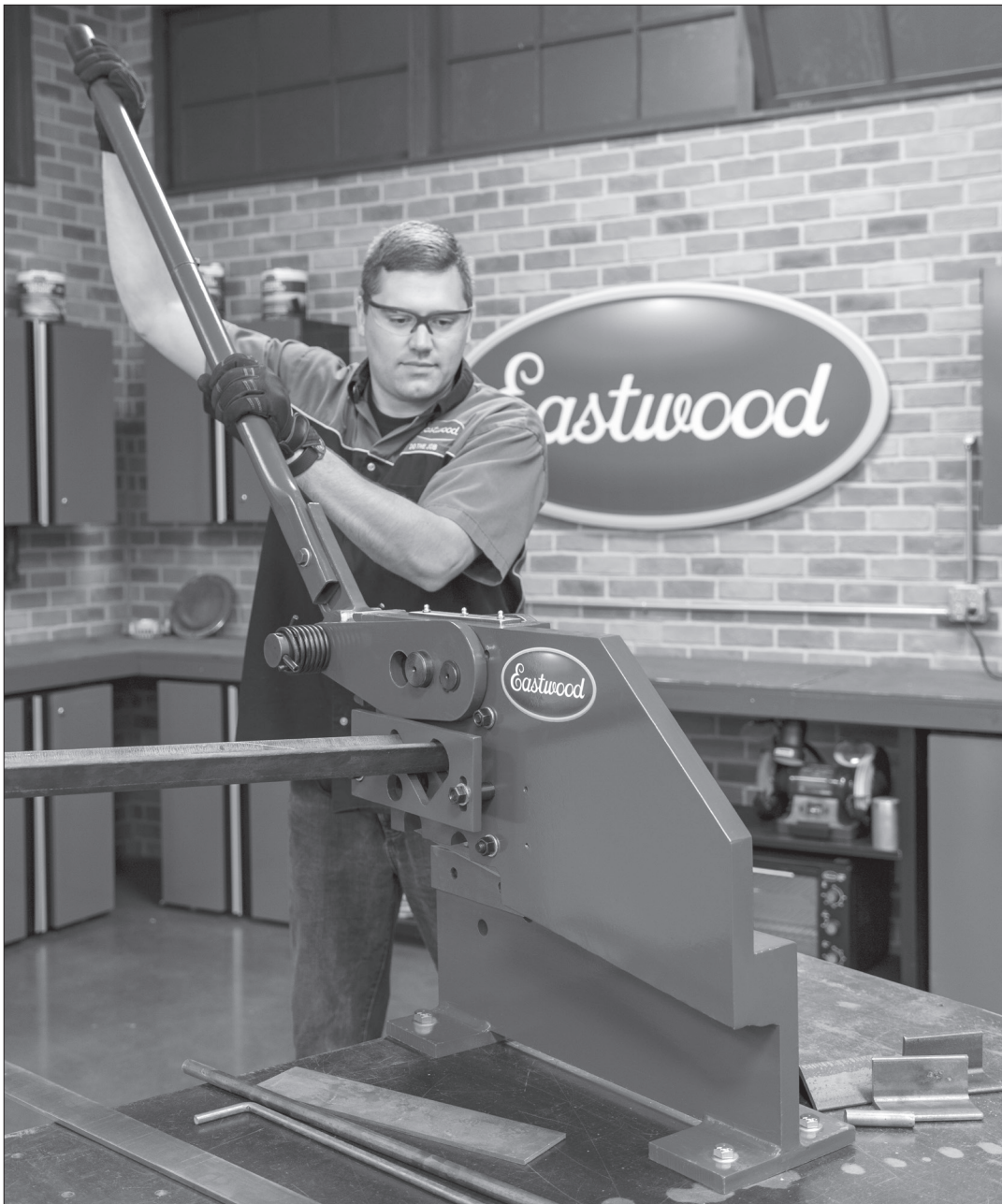
*Eastwood*<sup>®</sup>

**DO THE JOB RIGHT.<sup>®</sup>**

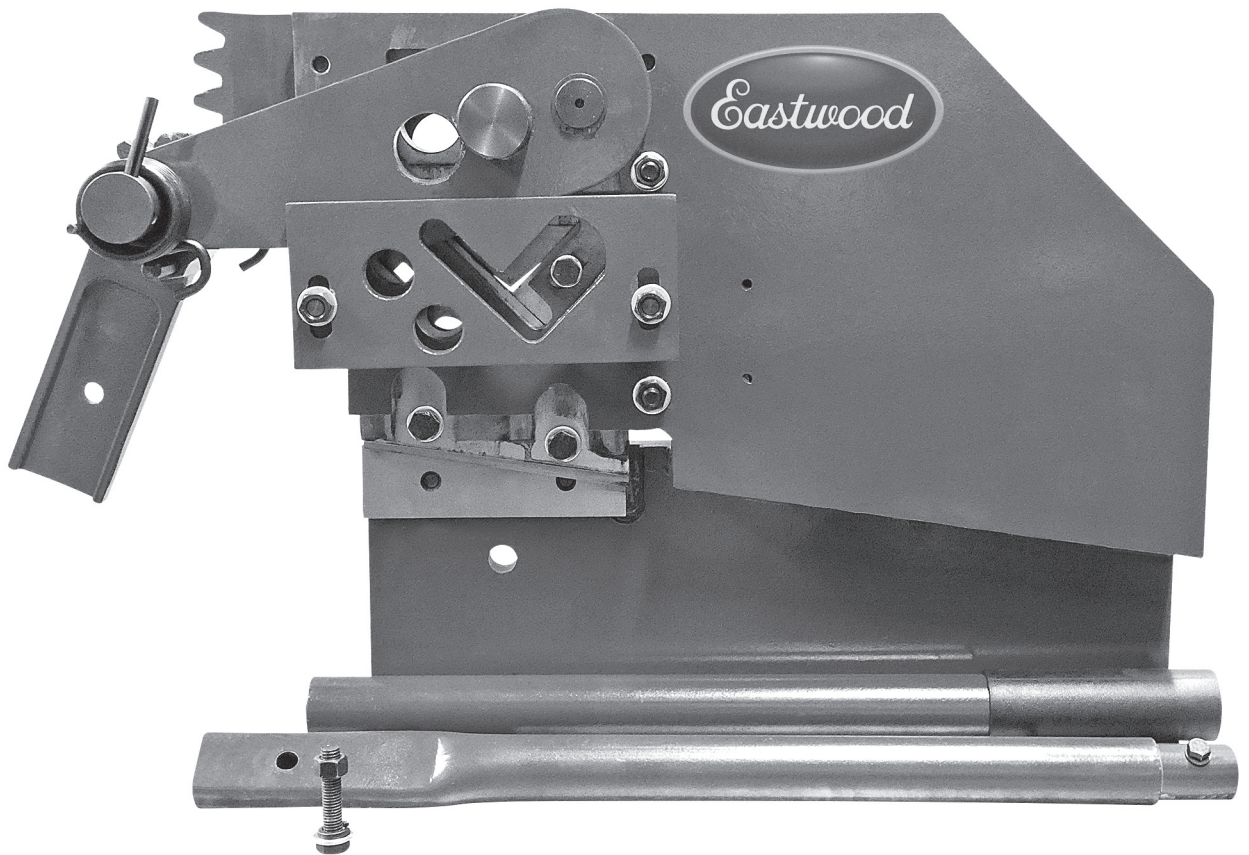
Item #21566

# **MANUAL IRONWORKER**

## **INSTRUCTIONS**



The **EASTWOOD MANUAL IRONWORKER** is a serious, industrial metal working machine designed for production environments and high-volume fabrication shops.



## CONTENTS

- (1) Ironworker
- (1) Upper Handle
- (1) Lower Handle
- (1) M8 x 20mm Bolt, Lock Washer, and Nut

## TOOLS REQUIRED (not included)

- 13mm Wrench
- Two 18mm Wrenches
- 1/4" Drift or Punch
- Medium Hammer
- 6mm Wrench (Main Blade removal only)
- Medium Snap ring Pliers (Shear Blade removal only)

## SPECIFICATIONS

The following material shearing capacities are rated for low-carbon steel, aluminum or other materials not exceeding a maximum tensile strength of 64,000 PSI.

### **⚠ WARNING**

Exceeding rated material limitations can result in severe personal injury and/or damage to the unit.

**Main Blade Shear Capacity, Flat Stock:** 4" x 0.312" [100 x 8mm]

**Round Stock Capacity:** 0.625" [16mm]

**Square Stock Capacity:** 0.787" [20mm]

**Angle Stock Capacity:** 2.36" x 2.36" x 0.25" [60 x 60 x 6mm]

# 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.



### **⚠ READ INSTRUCTIONS**

- Thoroughly read and understand this manual before using.
- Save for future reference.



### **⚠ WARNING PINCH AND CRUSH HAZARD!**

- The Eastwood Manual Ironworker consists of heavy metal components which can present a hand/finger pinch hazard and cause potentially serious injuries if dropped. Avoid pinching hands while handling. The use of safety shoes is strongly recommended. Keep fingers and hands away from moving parts when operating.



### **⚠ WARNING CUT HAZARD!**

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

### **⚠ WARNING EYE INJURY HAZARD!**

- Metal particles can be ejected from the tool when bending and cutting. Sheet metal edges and corners are sharp and can injure eyes. Always wear ANSI approved eye protection when operating this tool.

### **⚠ WARNING**

- Before beginning ANY work with this tool, it is absolutely necessary that it be securely bolted to a sturdy workbench anchored to the floor or wall.
- Strenuous physical force may need to be applied to the Manual Ironworker 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 sizes of metal.

### **⚠ CAUTION**

- The Eastwood Manual Ironworker was specifically designed to be operated by one person only. Never have one person operate the Handle while another feeds the workpiece or serious injury could occur.

### **⚠ NOTICE**

- Excessive resistance while operating could indicate a defect with the workpiece material or broken or damaged Manual Ironworker 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 Manual Ironworker components for looseness or damage.

## SET-UP

- The Eastwood Manual Ironworker requires up to several hundred pounds of handle force to operate and must be securely mounted on a heavy, solid workbench, stand, floor etc., capable of holding the static weight of the unit plus the ability to counter the high force stresses from operation.
- Place the Manual Ironworker over the chosen location then mark mounting hole locations by tracing holes in the feet.

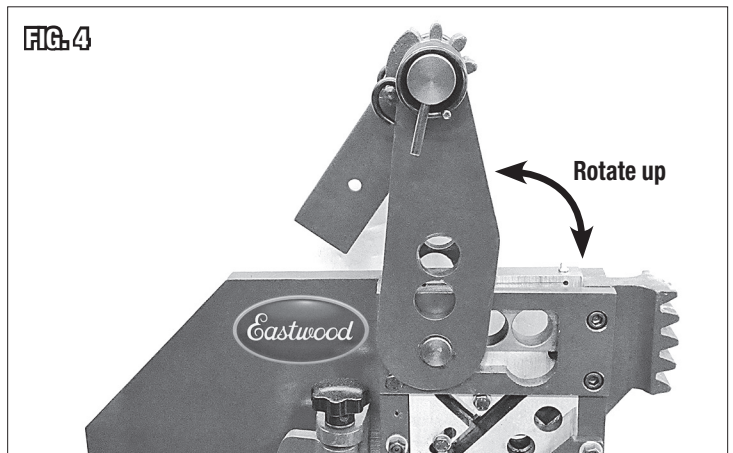
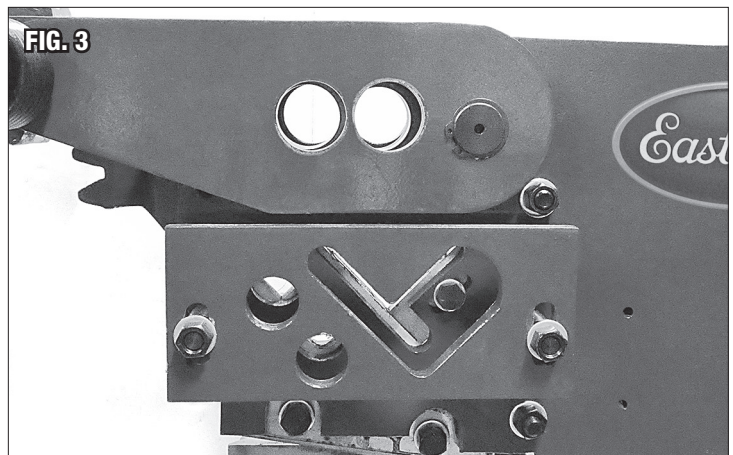
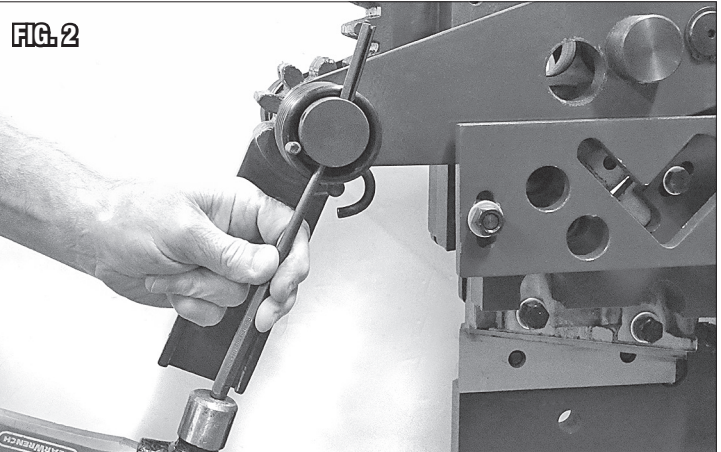
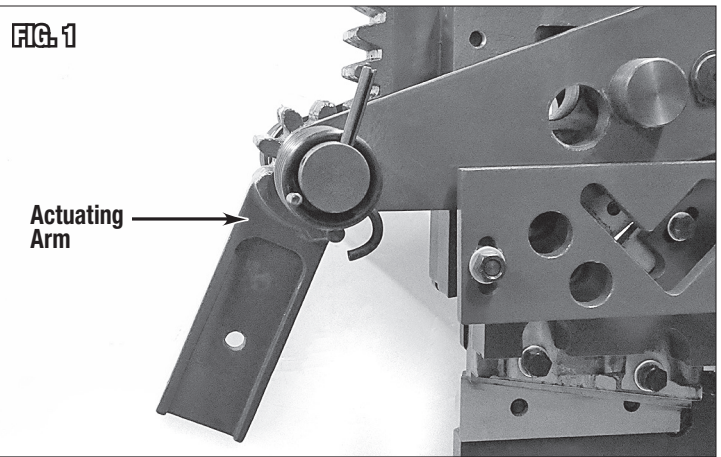
### ⚠ CAUTION

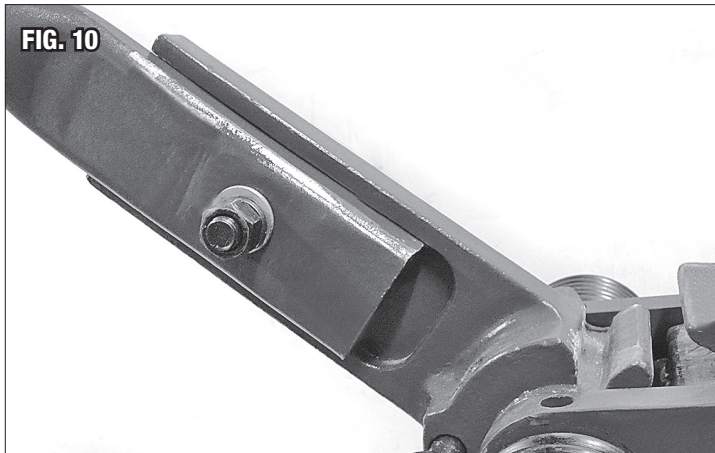
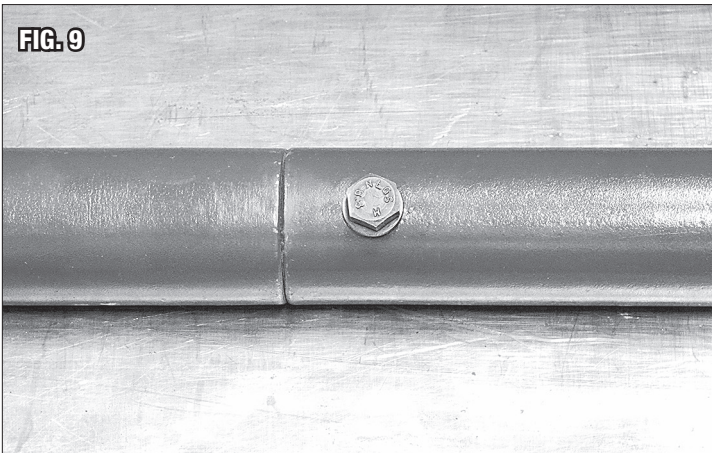
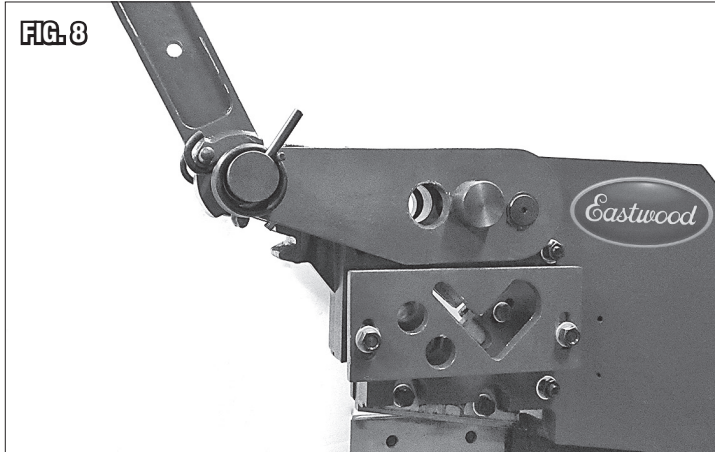
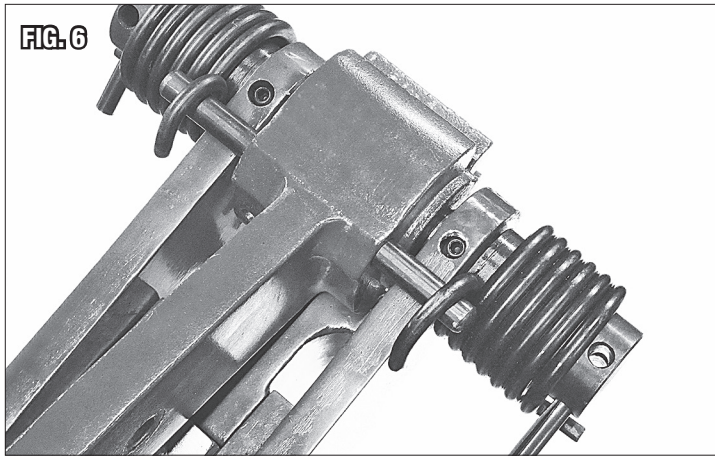
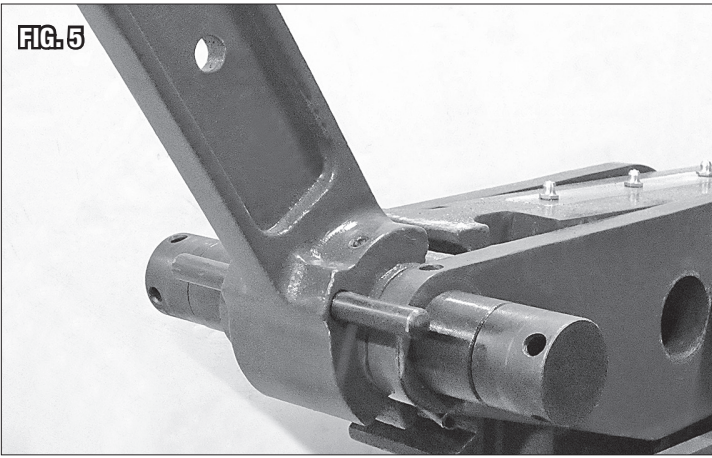
Check for the presence of electrical, air or other utility lines under the mounting surface before drilling mounting holes.

- The use of 1/2" x 4" [m13 x 100mm] through bolts & nuts or longer lag screws with substantial washers and attachment to a structural member is absolutely necessary.
- The Eastwood Manual Ironworker is shipped with the Actuating Arm in the downward position (**FIG 1**) requiring some partial disassembly and reassembly as follows:
  - Using a 1/4" Drift or Punch, drive out the partially inserted Roll Pins and set aside for reinstallation (**FIG 2**).
  - Remove the Pivot Pin (**FIG 3**) then pull the Actuating Arm stub all the way up and over center to relieve tension of the Handle Return Springs (**FIG 4**).
  - Pull off the two Handle Return Springs (**FIG 5**) and set aside for reinstallation noting which one is Left and which is Right.
  - Keep the Actuating Arm in the upward, over-center position (**FIG 6**).
  - Replace the Handle Return Springs making sure the hooked fingers are positioned properly just ahead of the Drive Posts with the open loops facing rearward (**FIG 6**).
  - Replace the Roll Pins allowing them to contact the straight fingers of the Handle Return Springs into a slight tension in the nearest locating holes (**FIG 6**).
  - Drive the Roll Pins into place with a Hammer (**FIG 7**).
  - Replace the Pivot Pin (Fig 8) then allow the Actuating Arm stub to move forward. At this point it should be under spring tension (**FIG 8**).

## ASSEMBLY

- Assemble the two Handle sections and bolt together with the M8 x 20mm Bolt (**FIG 9**).
- Install assembled Handle to the Actuating Arm with the M12 x 50mm Bolt, Washer, Lock washer and Nut (**FIG 10**).
- The Eastwood Manual Iron Worker is ready for use.





# ADJUSTMENTS

- Pivot Pin

The Eastwood Manual Ironworker design incorporates a moveable Pivot Pin which modifies the cutting pivot point.

The factory installed position (rearward hole location) offers the greatest leverage with the lowest Handle force required while causing greater lever travel (**FIG 11**). This is best when shearing thicker materials.

The alternate position (forward hole location) provides shorter lever travel however it requires significantly greater lever force (**FIG 12**). This may be used on shearing lighter, thinner materials.

## TO SWITCH PIVOT PIN POSITION:

- Remove Pivot Pin by gripping the head firmly and rotating side to side while pulling firmly. Carefully withdraw Pivot Pin and immediately place it through the alternate pivot position (**FIG 12**). Rotate Pivot Pin side to side while pushing in.

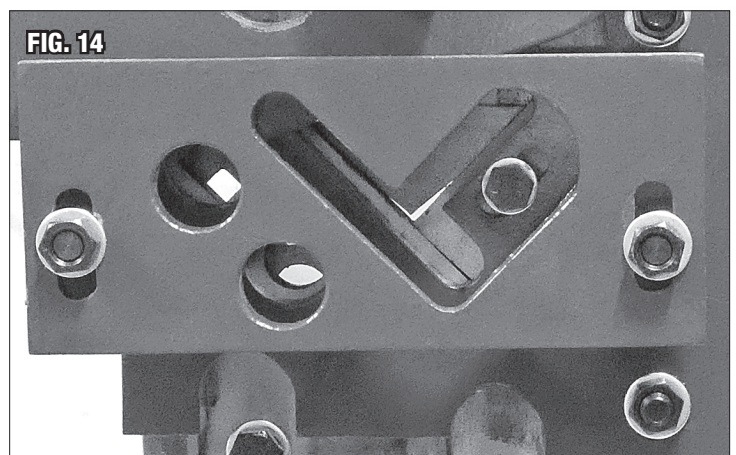
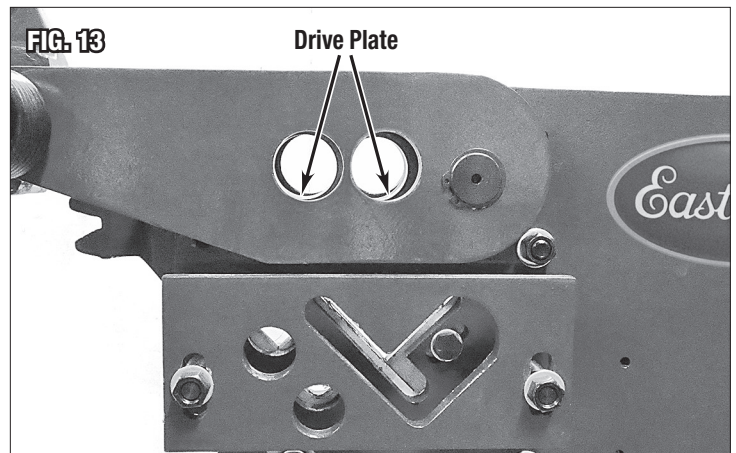
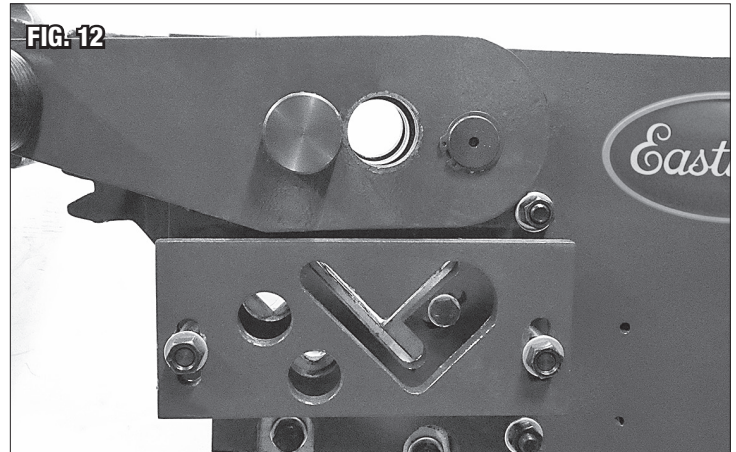
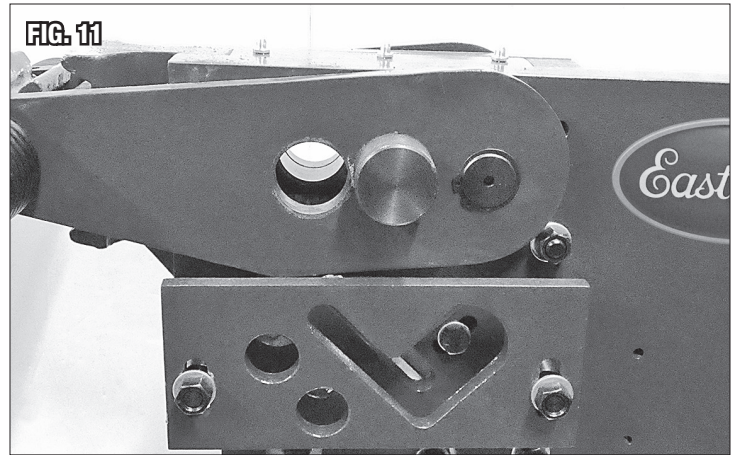
### **⚠ NOTICE**

**Do Not allow any components to move when withdrawing Pivot Pin or Blade Drive Plate misalignment can occur (Fig 13). Should this occur, use of a screwdriver or magnet is advisable to move the Blade Drive Plate back into alignment. DO NOT use fingers!**

- Right-Side, Round, Square and Angle Support Plate

The Right-Side Support Plate may be adjusted up or down to accommodate various sizes of material. To Do So:

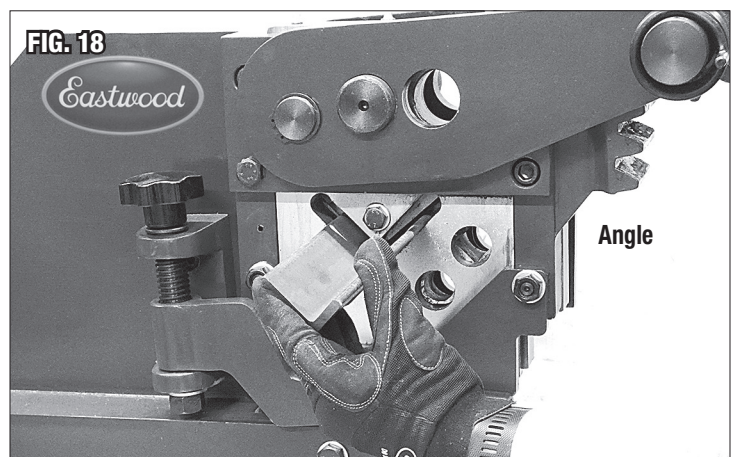
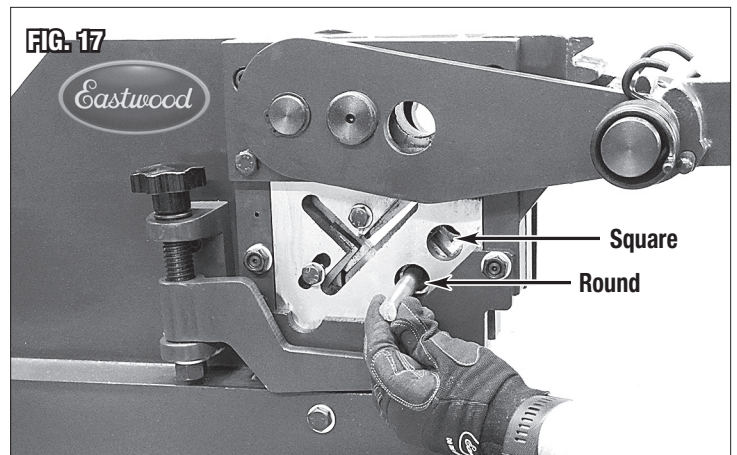
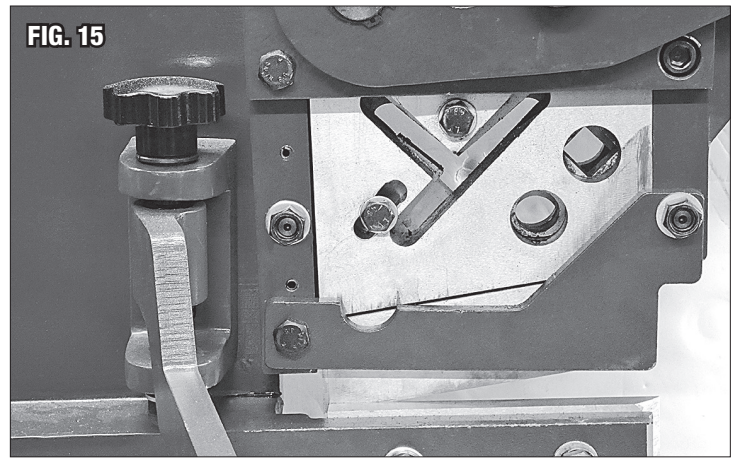
- Loosen the 18mm Nuts (**FIG 14**).
- Insert material to be sheared into the appropriate left side opening.
- Slide the Support Plate up or down as required to provide support for the protruding material.
- Tighten the 18mm Nuts.



# OPERATION

The Eastwood Manual Ironworker features multiple metal shearing options based on the shape, thickness and type of metal to be sheared (FIG 15).

- Main Shear (FIG 16) - The Main Shear is intended for most common shearing operations of flat stock and sheet metal up to 4" x 0.312" [100 x 8mm].
- Round Shear (FIG 17) - The Round Shear is for round bar stock up to 0.625" [16mm] in diameter.
- Square Shear (FIG 17) - The Square Shear is for square bar stock up to 0.787" [20mm].
- Angle & "T" Shear (FIG 18) - The Angle & "T" Shear is designed to accept most angle and T profile stock up to 2.36" x 2.36" x 0.25" [60 x 60 x 6mm].



### SHEARING OPERATION – MAIN SHEAR

- Measure and mark a cut line on the material to be cut.
- Raise the Actuating Arm to the highest position, opening the blades.
- With the Clamping Foot in place, slip the material to be cut under it and through the blades allowing it to hold the piece to be cut in place (FIG 19).

**⚠ WARNING**

**Do Not Use Hands or Fingers to hold piece to be cut in place while cutting.**

- Rotate the Actuating Lever downward firmly in one smooth motion to shear the metal.
- Raise Actuating Lever fully then retrieve cut piece from unit.

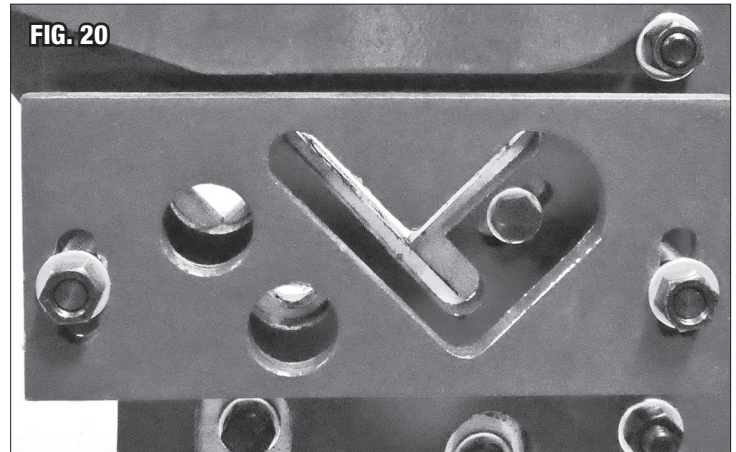
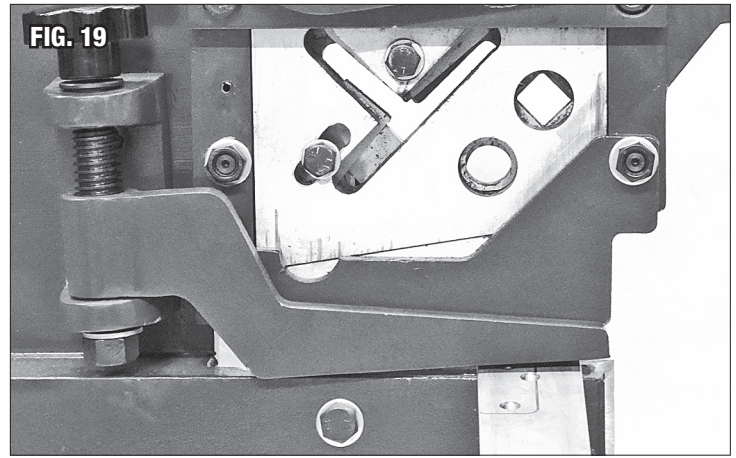
### SHEARING OPERATION – ROUND, SQUARE AND ANGLE SHEARS

- Measure and mark a cut line on the material to be cut.
- Raise the Actuating Arm to the highest position, opening the blades.
- Insert the material to be cut into the left side of the unit at the proper configured opening and through the blades allowing the right-side Support Plate to support the material (FIG 20).

**⚠ WARNING**

**Do Not Use Hands or Fingers to hold piece to be cut in place while cutting.**

- Rotate the Actuating Lever downward firmly in one smooth motion to shear the metal.
- Raise Actuating Lever fully then retrieve cut piece from unit.





# BLADE REPLACEMENT

The Eastwood Manual Ironworker is designed with hardened steel blades that should last the life of the Iron Worker. Should damage occur and require Blade replacement, the following procedure describes the process. NOTICE: The following steps require precise adjustments, alignment and high attention to detail. This procedure should only be attempted by users with advanced mechanical skills.

## MAIN SHEAR BLADES

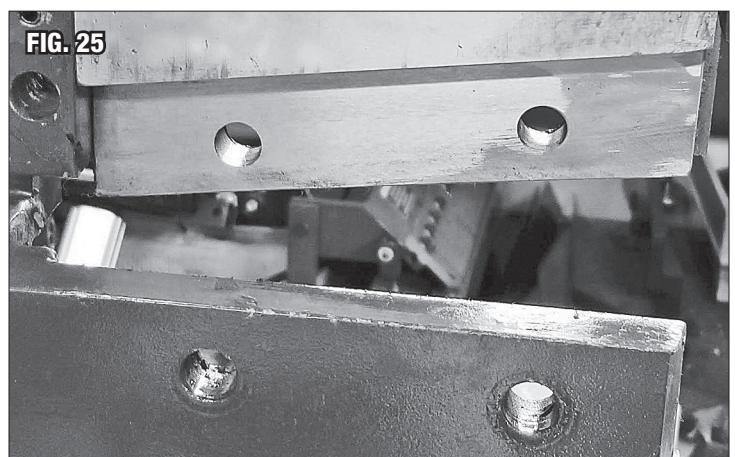
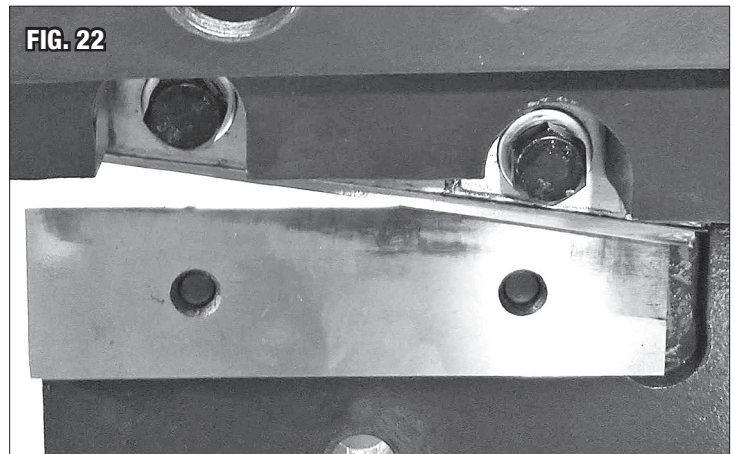
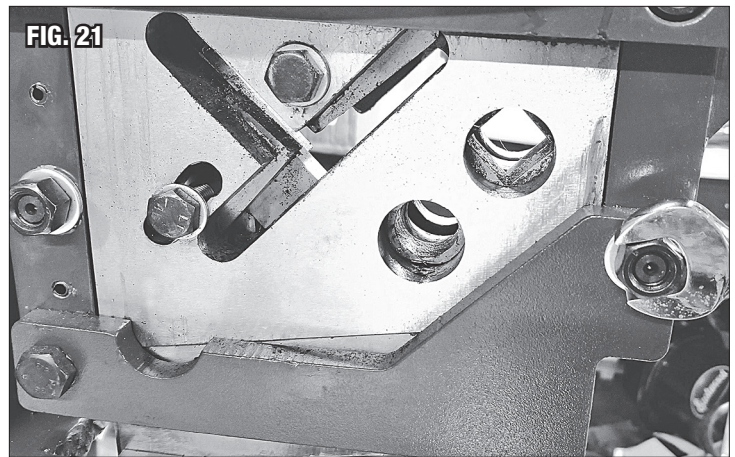
### Removal

- Unbolt and remove the entire Handle Assembly.
- With (2) 18mm wrenches Remove the Outer Blade Retaining Plate bolts (FIG 21).
- Using the same 18mm wrenches, remove the 2 bolts securing the Main Moving Blade to the Blade Frame.  
**NOTE:** The Main Moving Blade has 2 finished surfaces and may be reversed if one side is worn or damaged (FIGS 22 & 23).
- With an 18mm wrench, remove the bolts on the left side attaching the Main Fixed Blade to the Main Frame (FIGS 24 & 25).

### Installation

**NOTE:** The Main Moving Blade Must be installed before the Main Fixed Blade as there is a preload designed into the Main Moving Blade Frame.

- Hold Main Moving Blade in place, reinstall bolts and nuts then secure with (2) 18mm wrenches.
- Insert the 2 bolts from the left side of the Main Frame, thread into the Main Fixed Blade and tighten in place.
- Replace Handle.



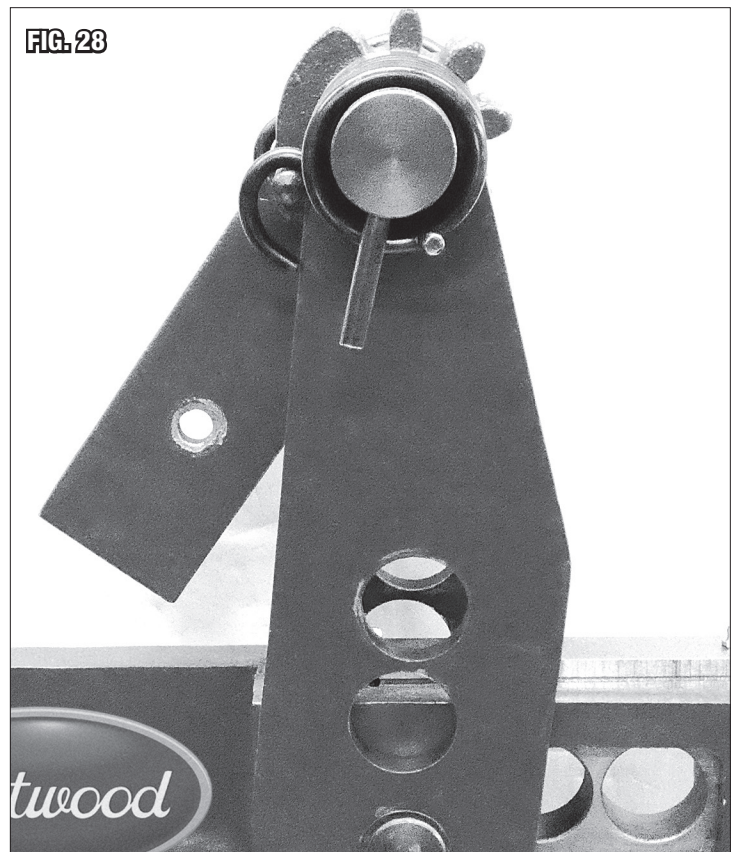
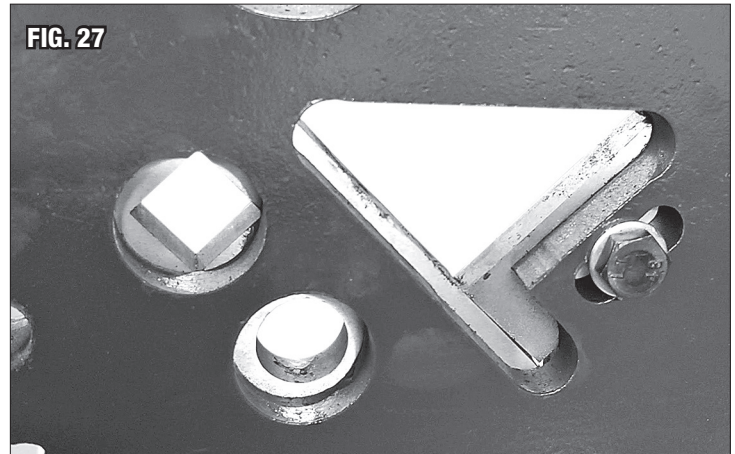
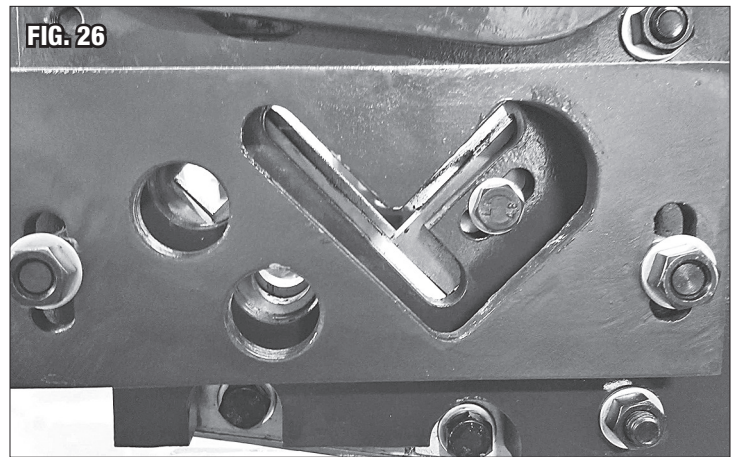
## ROUND, SQUARE AND ANGLE SHEAR BLADES

### Removal

- Unbolt and remove the entire Handle Assembly.
- Remove the Material Support Plate from the right side of the unit with an 18mm wrench (FIGS 26 & 27).
- Remove the Pivot Pin then pull the Actuating Arm stub all the way up and over center to relieve tension of the Handle Return Springs (FIG 28).

#### **CAUTION**

The following steps involve components and assemblies that are heavy and will suddenly fall away! Use extreme care and hold these components securely when withdrawing fasteners!



- Pull the Actuating Lever/Sector Gear from the assembly.

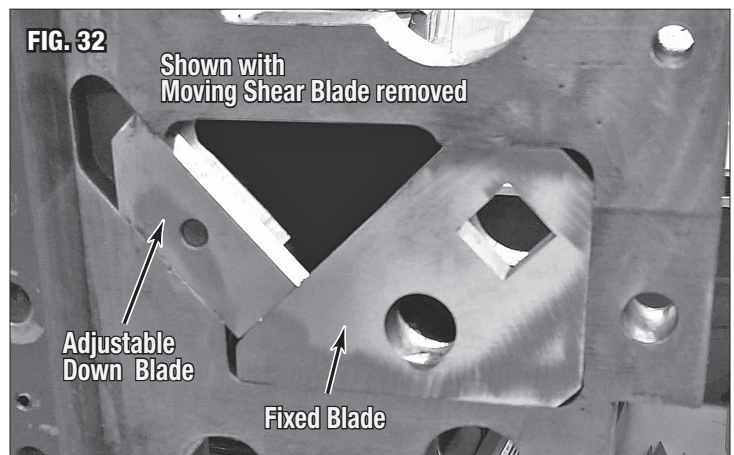
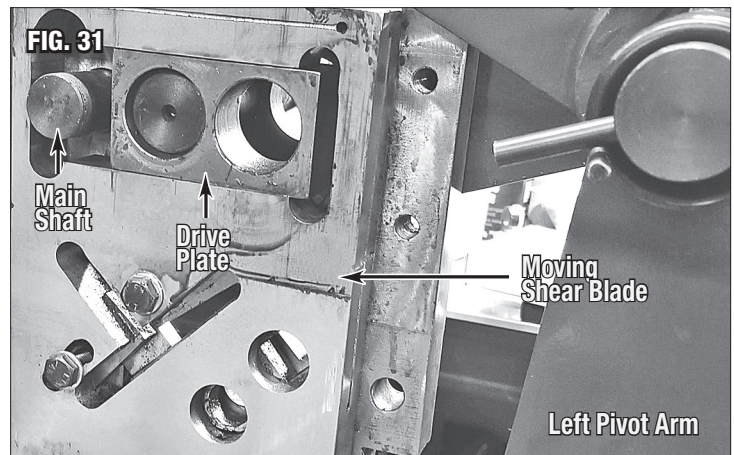
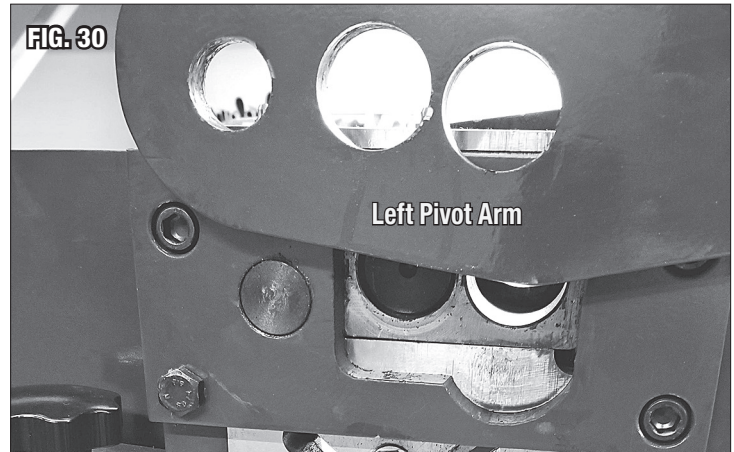
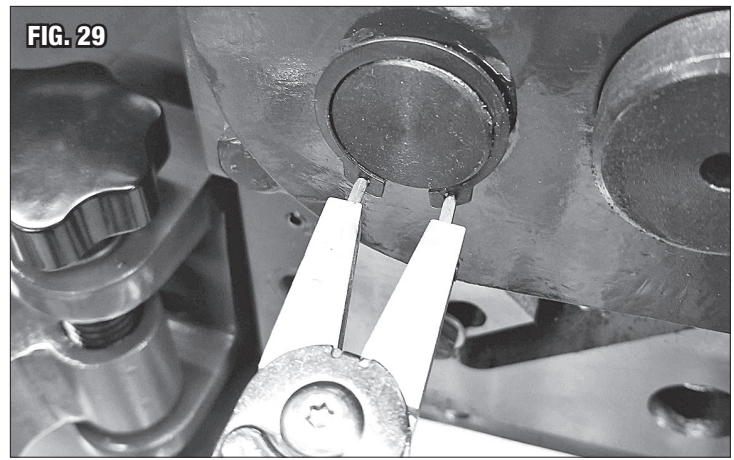
**▲ NOTICE**

Take note of the position of the Actuating Lever/Sector Gear position and relation to the teeth with those of the Rack for re-assembly.

- Remove the left side Snap Ring securing the left Pivot Arm to the Main Shaft (**FIG 29**), then move the Main Shaft back slightly then Very Carefully lower the left Pivot Arm (**FIG 30**).
- Pull the Main Shaft from the right side of the Main Frame all together with the right Pivot Arm and the Actuating Lever/Sector Gear still attached.
- Remove the Fixed Plate and Rack Assembly using an 18mm wrench and 10mm hex key.
- Remove the Moving Shear Blade with an 18mm wrench (**FIG 31**).
- The V-Upper Blade can now be removed from the back side of the Moving Shear Blade, using a 16mm wrench.
- The Fixed Blades are now fully exposed and may be removed with a 16mm wrench (**FIG 32**).

**▲ CAUTION**

Blades have sharp edges. Use extreme caution and wear heavy gloves when handling.



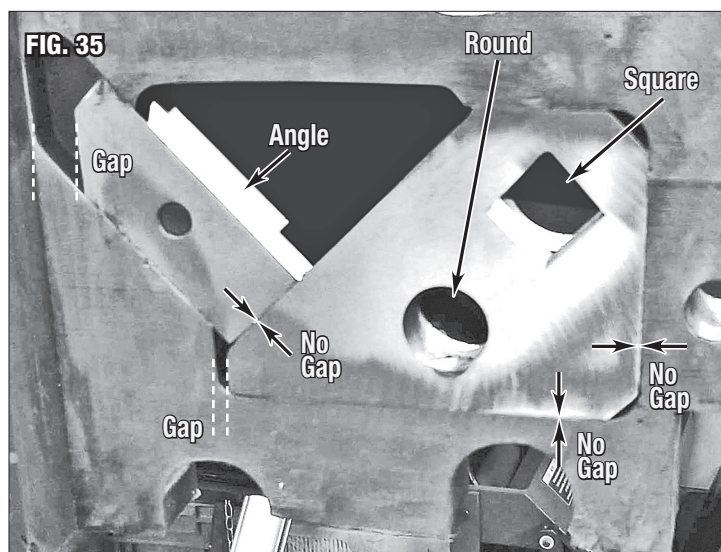
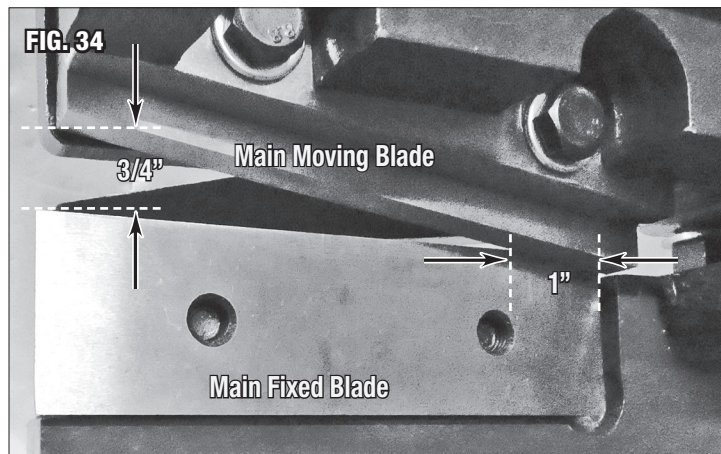
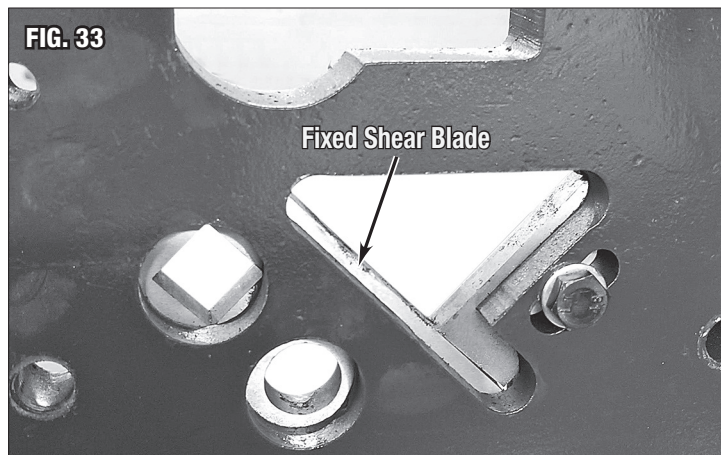
## Installation

- Set replacement blades into the blade cradle of the Main Frame and secure with fasteners. Tighten with a 16mm wrench (**FIGS 32 & 33**).
- Set the Fixed Plate and Rack Assembly in place, thread in fasteners and tighten with 18mm wrench and 10mm hex key.
- Replace the Main Moving Shear Blade and secure with two previously removed bolts.
- Raise the right-side Pivot Arm up into place and insert the Main Shaft into the bore in the Main Frame.
- Engage the Actuating Lever/Sector Gear teeth with those of the Rack and swing the left side Pivot Arm up placing the bore over the Main Shaft.
- Replace the Snap Ring onto the Main Shaft.
- Reattach the Material Support Plate to the right side of the unit with and secure with an 18mm wrench.
- Reinstall the Handle Assembly.

## BLADE ADJUSTMENT

For proper shearing action, the blades are making contact under tension and maintain an even relationship across their entire surface. As the Eastwood Manual Iron Worker is constructed to a high degree of precision and accuracy, virtually no adjustment is required when replacing blades. Below are several reference points for proper operation.

- **Main Blade Alignment:**
  - The Main Blades should be overlapping at the inboard end by approx. 1" [25mm] when open (**FIG 34**).
  - At the open end, there should be a gap of approx. 0.75" [19mm] with 15° of separation when viewed from the side (**FIG 34**).
- **Round, Square and Angle Blades Alignment:**
  - When properly installed and viewed from the left side; the triangular shaped Round/Square Shearing Blade is nested within the aperture of the Main Frame with the long sides tight against the front and bottom edges of the opening (**FIG 35**).
  - The smaller Angle Shearing Blade is positioned within the 45° opening with the lower, squared edge solid against the angled edge of the triangular Round/Square Shearing Blade. The upper beveled edge is positioned in the angled end of the slot (**FIG 35**).



## MAINTENANCE

- Provide several drops of a good quality motor oil to all pivot points and rotating parts periodically to prevent binding.
- Add a good quality automotive chassis grease to the three Zerk Fittings located at the top of the Moving Shear Blade.
- Apply a good quality automotive chassis grease to the mating gear teeth.
- Keep all areas of the tool clean particularly those surfaces that contact metal workpieces. Dirt and metal chips can cause uneven shearing and blade damage.
- Store in a clean & dry environment when not in use. Coat all machined surfaces with a light lubricant film of oil or suitable protectant to prevent rust formation.



# TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
<b>Upper Blade Stops at Lower Blade</b>	Blades Out of Alignment	Stop all action to avoid serious damage and check Blade Alignment in instructions.
	Metal Workpiece Too Thick or Too Hard	Stop all action to avoid serious damage. Do not exceed material limitations described in the "SPECIFICATIONS" section.
	Metal Chips Particles in Blades	Stop all action to avoid serious damage. Remove chips or particles from blades.
<b>Upper Blade Binding at Release with Lower Blade</b>	Blades Out of Alignment	Stop all action to avoid serious damage and check Blade Alignment in instructions.
	Metal Workpiece Too Thick or Too Hard	Stop all action to avoid serious damage. Do not exceed Do not exceed material limitations described in the "SPECIFICATIONS" section.
	Metal Chips Particles in Blades	Stop all action to avoid serious damage. Remove chips or particles from blades.
<b>Blades will not Shear Metal</b>	Blades Worn or Damaged	Follow Blade Replacement instructions.
	Metal Workpiece Too Thick or Too Hard	Stop all action to avoid serious damage. Do not exceed material limitations described in the "SPECIFICATIONS" section.

## ADDITIONAL ITEMS

- #21952 Ironworker Main Moving Blade
- #21953 Ironworker Main Fixed Blade
- #21954 Ironworker V-Upper Blade
- #21955 Ironworker Adjustable Down Blade
- #21956 Ironworker Fixed Blade
- #28038 Sheet Metal Gauge
- #13475 Electric Metal Cutting Shears
- #32044 Bead Roller Kit
- #21489 Shrinker/Stretch Set
- #21491 Shrinker/Stretch Stand

---

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

The Eastwood Technical Assistance Service Department: 800.343.9353 >> email: [techhelp@eastwood.com](mailto:techhelp@eastwood.com)

PDF version of this manual is available at [eastwood.com](http://eastwood.com)

The Eastwood Company 263 Shoemaker Road, Pottstown, PA 19464, USA 800.343.9353 [eastwood.com](http://eastwood.com)

© Copyright 2018 Easthill Group, Inc. 7/18 Instruction item #21566Q Rev 1