

CENTRAL MACHINERY

®

SCROLL BENDING ATTACHMENT

Model 36621

ASSEMBLY AND PRECAUTIONS



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**SAVE THESE INSTRUCTIONS. READ ALL
PRECAUTIONS AND INSTRUCTIONS.**

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For technical questions or replacement parts, please call 1-800-444-3353.

SPECIFICATIONS

Item #	36621
Capacity:	3/16" x 1/2" to 3/16" x 1" Mild, Flat Steel
Dimensions:	6" x 16" x 7"
Weight:	5-1/2 lbs.

SAVE THIS MANUAL

You will need this manual for the safety instructions , operating instructions, and parts list. Put it in a safe, dry place for future reference. **Keep your invoice with this manual. Write the invoice number on the inside front cover.**

READ ALL INSTRUCTIONS BEFORE ASSEMBLING OR OPERATING THE TOOL.

SAFETY WARNINGS & CAUTIONS

WARNING: When using electric tools, machines or equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury.

READ ALL INSTRUCTIONS BEFORE USING THIS TOOL

1. **KEEP WORK AREA CLEAN.** Cluttered areas invite injuries.
2. **CONSIDER WORK AREA CONDITIONS.** Don't use in damp, wet, or poorly lit locations. Don't expose to rain. Keep work area well lit.
3. **KEEP CHILDREN AWAY.** All children should be kept away from the work area. Don't let them handle machine.
4. **STORE IDLE EQUIPMENT.** When not in use, tools should be locked up in a dry location to inhibit rust. If possible, store in an area out of reach of children.
5. **DON'T FORCE THE MACHINE OR TOOL.** It will do the job better and more safely at the rate for which it was intended.
6. **USE THE RIGHT TOOL.** Don't force a small tool or attachment to do the work of a larger industrial tool. Don't use a tool for a purpose for which it was not intended.
7. **DRESS PROPERLY.** Don't wear loose clothing or jewelry. They can be caught in moving parts. Protective gloves and non-skid footwear are recommended when working. Wear restrictive hair covering to contain long hair, preventing it from getting caught in machinery.
8. **USE EYE AND EAR PROTECTION.** Use a full face mask if the work you're doing produces metal filings, dust or wood chips. Goggles are acceptable in other situations. Wear a clean dust mask if the work creates a lot of fine or coarse dust. When operating for extended periods of time, use approved ear protection. Safety goggles and ear protectors are available from Harbor Freight Tools.

9. **SECURE WORK.** Use clamps or a vise to hold the work if possible. It's safer than using your hands and it frees both hands to operate the tool.
10. **DON'T OVERREACH.** Keep proper footing and balance at all times.
11. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Keep handles dry, clean, and free from oil and grease.
12. **STAY ALERT.** Watch what you are doing, use common sense. Don't operate any tool when you are tired.
13. **CHECK DAMAGED PARTS.** Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and other conditions that may affect its operation. Any part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in the instruction manual.
14. **REPLACEMENT PARTS AND ACCESSORIES.** When servicing, use only identical replacement parts. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.
15. **DO NOT OPERATE TOOL IF UNDER THE INFLUENCE OF ALCOHOL OR DRUGS.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate machine.

UNPACKING

If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual.

No.	Item Description	Quantity
S01	Handle/Inner Die Assembly	1
S02	Bushing Pin	1
S03	Bushing	1
S04	Scroll Die Pin	1
S05	Scroll Die	1

ASSEMBLY

Step 1: Insert HANDLE/INNER DIE ASSEMBLY (#S01) into the RING SPACER/DIE RECEIVER (#10) of the Compact Bender. See Figure 1.

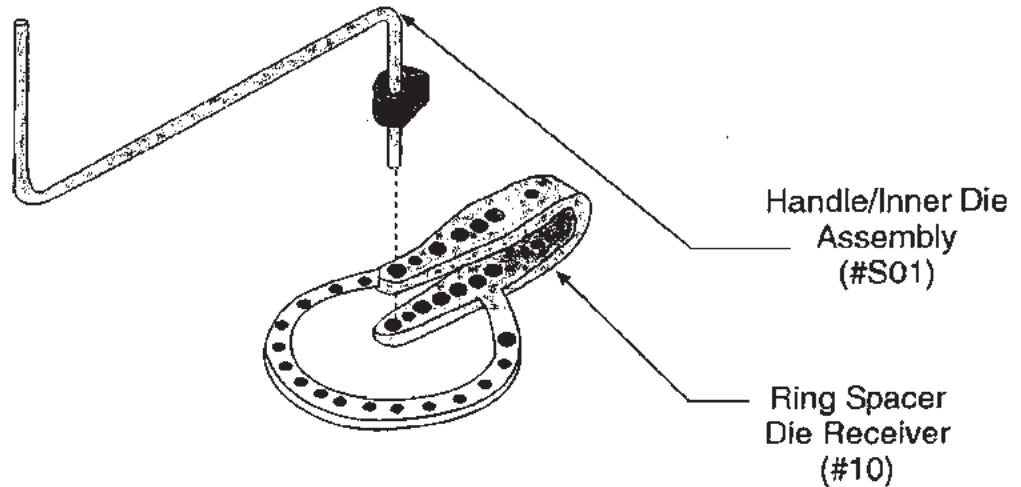


Figure 1 -- Handle/Inner Die Assembly

Step 2: Attach the SCROLL DIE (#S05) to the HANDLE/INNER DIE ASSEMBLY using the SCROLL DIE PIN (#S04) as shown in Figure 2.

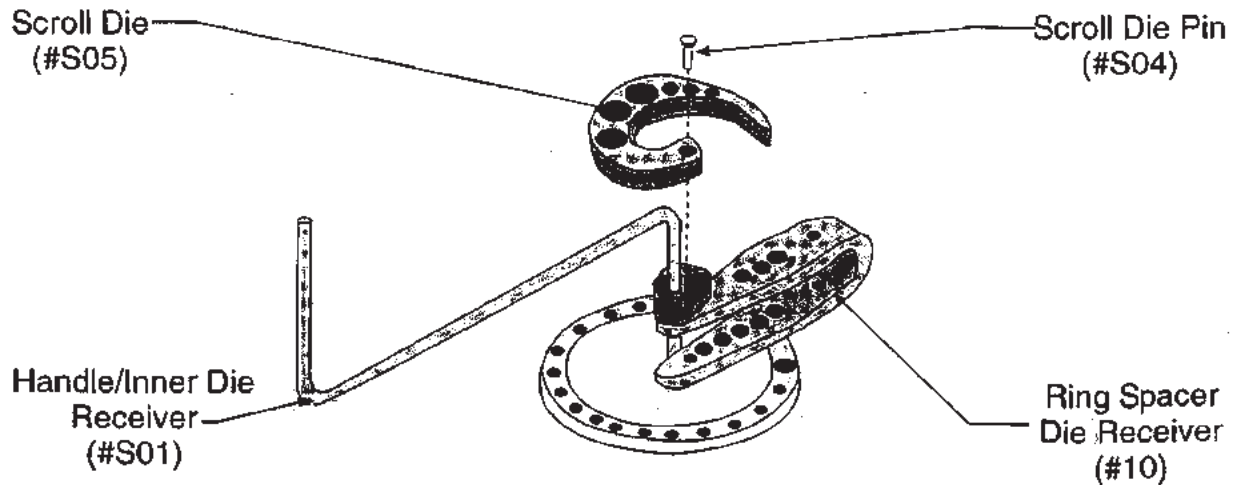


Figure 2 -- Scroll Die Assembly

Step 3: Attach the BUSHING (#S03) to the RING SPACER/DIE RECEIVER using the BUSHING PIN (#S02) as shown in Figure 3. Note the position of the BUSHING PIN C-RING (#S02-1).

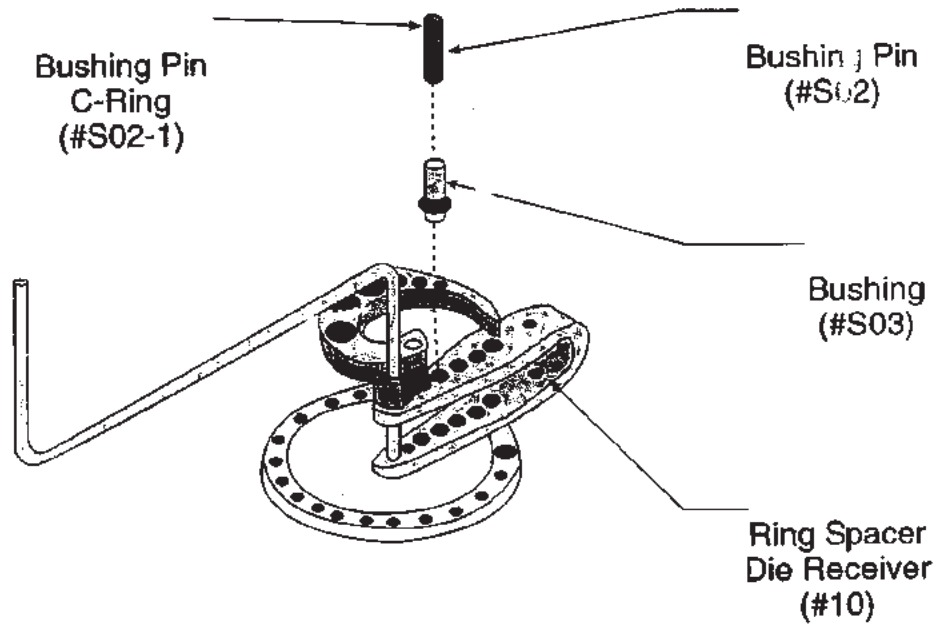


Figure 3 -- Bushing Assembly

OPERATION

Scrolling

Step 1: Mark your stock with chalk at the point where you wish to stop scrolling.

Step 2: Make sure the HANDLE/INNER DIE ASSEMBLY (#S01) is in Hole #1 (the innermost) of the RING SPACER/DIE RECEIVER as shown in Figure 4.

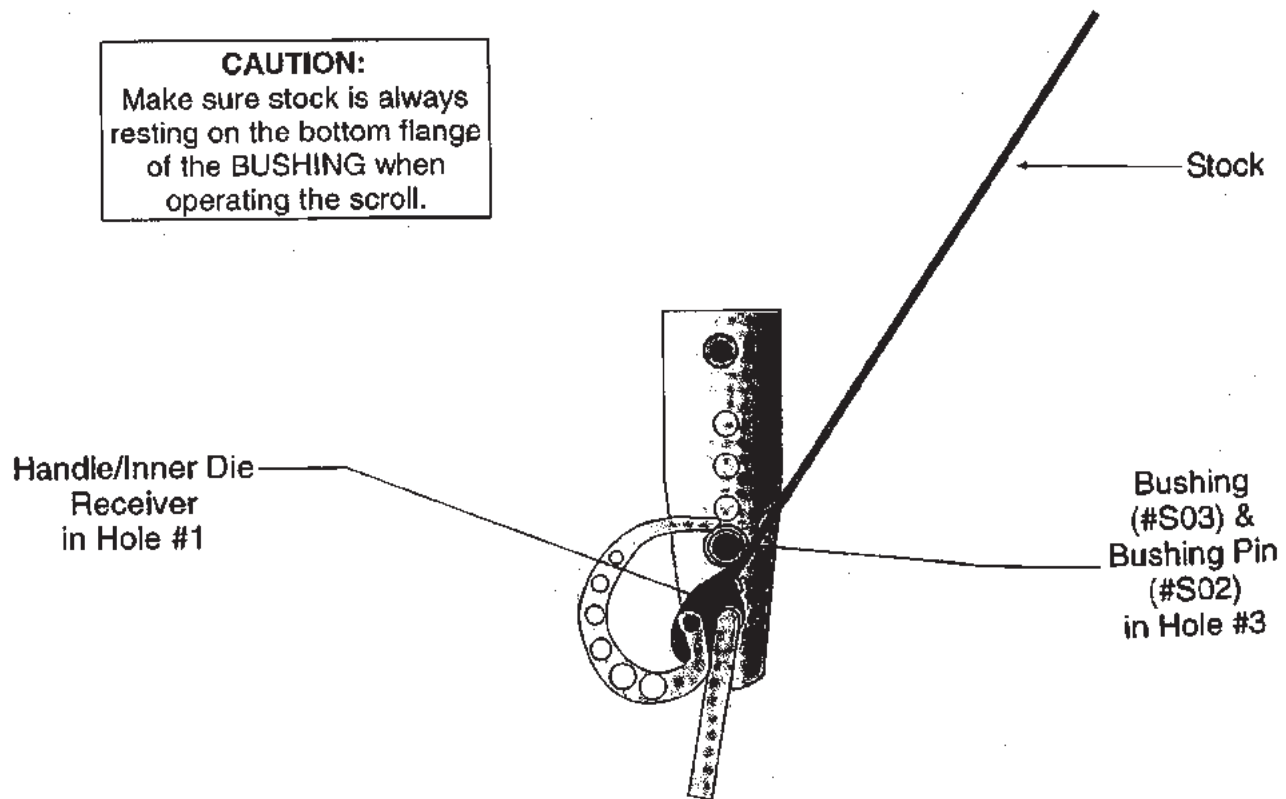


Figure 4 -- Starting the Scroll

Step 3: Make sure the BUSHING (#S03) is in Hole #3.

Step 4: Insert stock so that it is between the INNER DIE and the BUSHING and on the bottom flange of the BUSHING.

Step 5: Turn HANDLE counterclockwise to begin scrolling.

Step 6: Keep turning until your chalk line just touches the SCROLL DIE as shown in Figure 5. Stop bending when your stock reaches the edge of the INNER DIE. If your scroll is not finished, then proceed with Step 7.

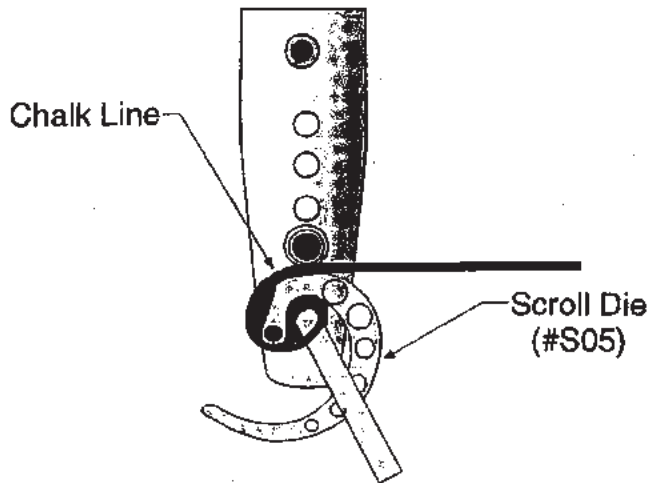


Figure 5 -- Finishing the Scroll

Step 7: For large size scrolls, move the BUSHING and BUSHING PIN (#S02) to Hole #6 as shown in Figure 6.

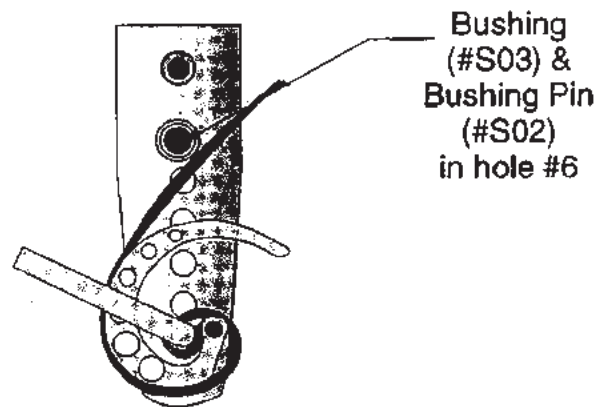


Figure 6 -- Large Scrolls

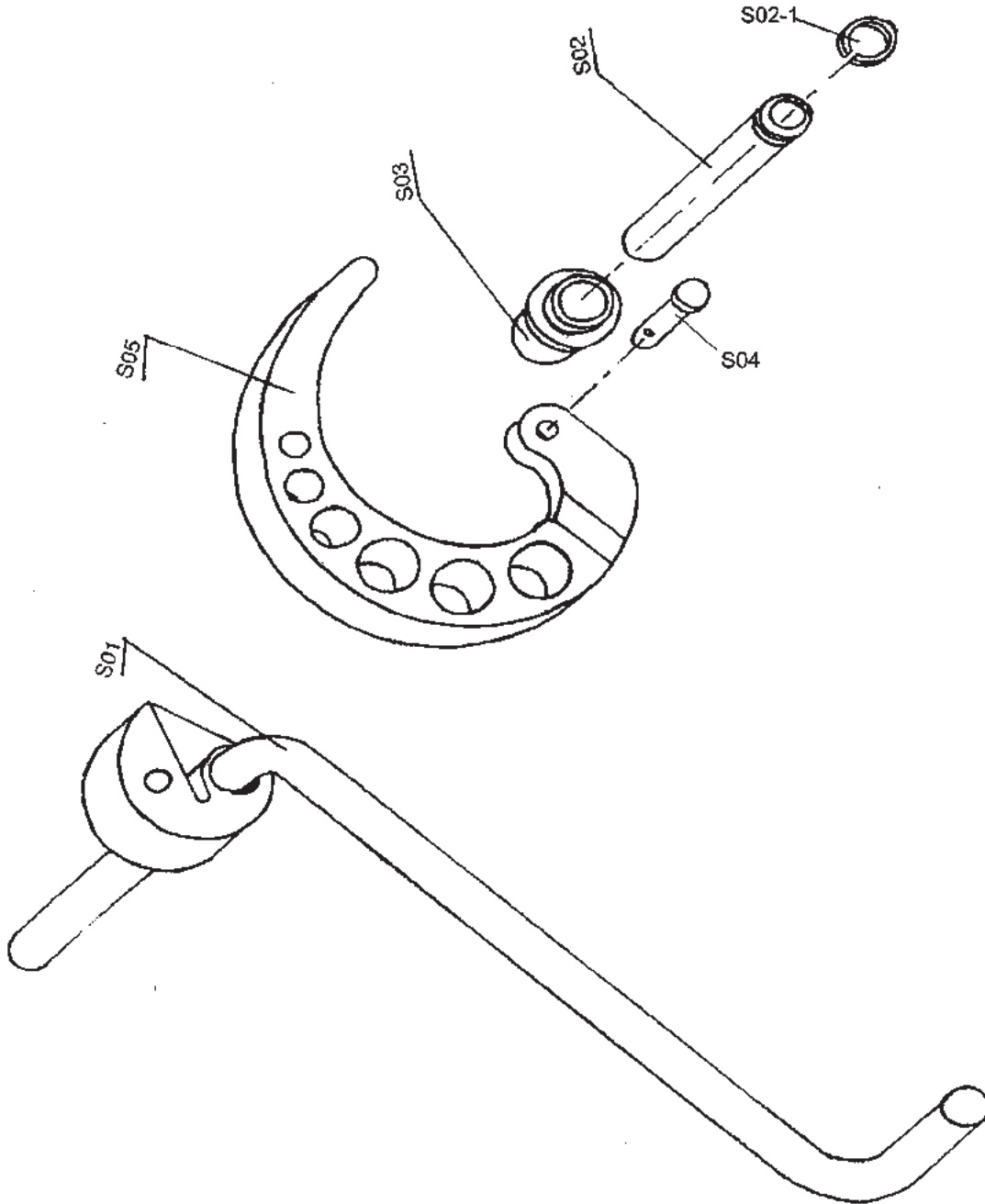
PARTS LIST

No.	Item Description	Quantity
S01	Handle/Inner Die Assembly	1
S02	Bushing Pin	1
S02-1	Bushing Pin C-Ring	1
S03	Bushing	1
S04	Scroll Die Pin	1
S05	Scroll Die	1

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

ASSEMBLY DIAGRAM



LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

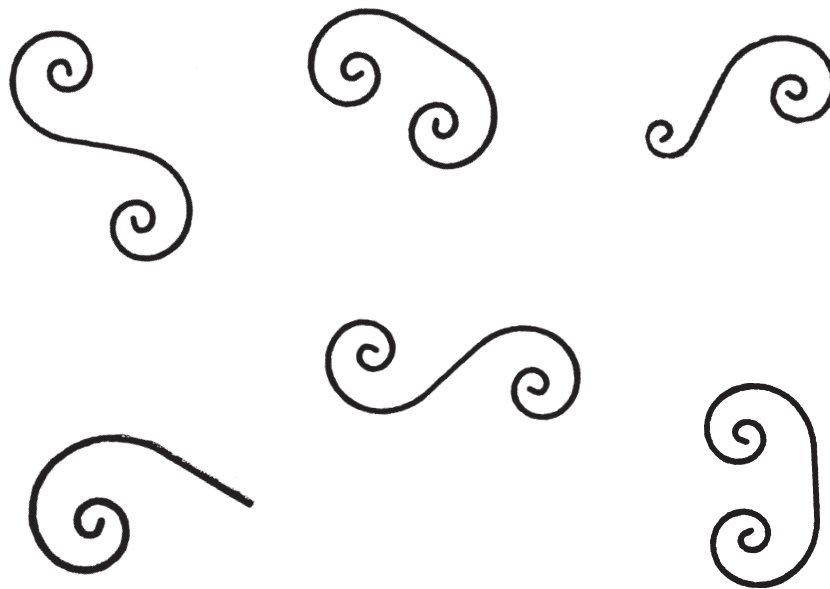
To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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ORNAMENTAL WROUGHT IRON

IDEA AND DESIGN BOOKLET



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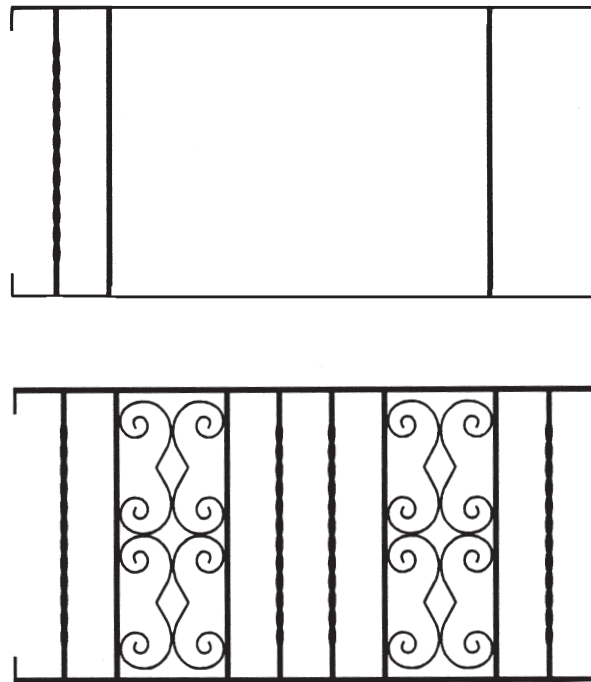
Rev 08/00

INTRODUCTION

This booklet was designed to complement the assembly and operating instruction manuals for Harbor Freight Tools' Compact Benders (Models #31980, #38470 and #38471), the Scroll Bending Attachment (Model #36621), and the Twisting Attachment (Model #36620). You should become completely familiar with the assembly and operation manuals before moving into the ornamental wrought iron design phase. Particular care should be given to the safety warnings and cautions contained in those manuals.

GETTING STARTED

The first step in designing a work of ornamental wrought iron is to draw the framework in which the ornamental designs will be fitted. You can add straight or twisted pickets to give more stability to the piece you are creating. (Please refer to the Twisting Attachment Assembly and Operations Manual #36620 to create twisted pickets). It is interesting to note that when twisting pickets, the length of the original stock does not decrease even though it is being bent. Once the framework has been laid out, you are ready to insert scrolls or other designs.



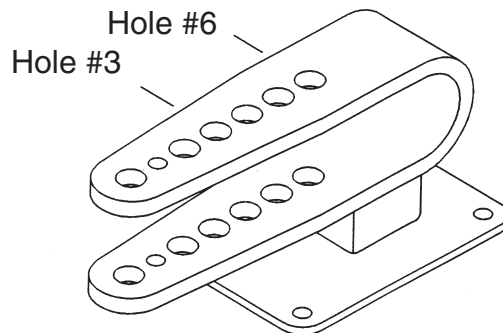
The tables on pages 5 and 6 are included to give you ideas and measurements for scrolls that you might want to select to fit into your framework. Depending on the accuracy of your measurements, the scrolls may not fit perfectly into your framework. You can use your hands to expand or compact the scrolls. If major adjustments are needed, you may want to consider recalculating the chalk mark settings contained within the sample tables.

SCROLL BENDING

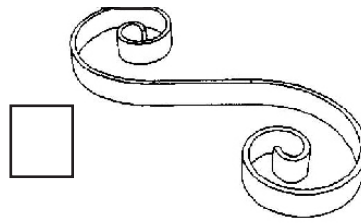
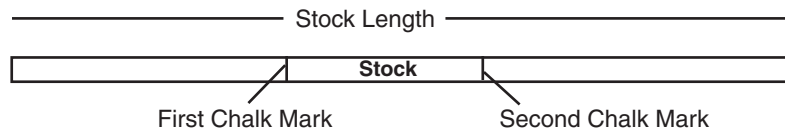
Once you have become completely familiar with the assembly and operations manuals, you will be able to assemble your Compact Bender. If you wish to proceed to bending wrought iron stock into various scrolls, you will need to assemble the Compact Bender and the Scroll Bending Attachment that is intended to be used with the Compact Bender.

The Scroll Bending Attachment is designed for bending 3/16" x 1/2" up to 3/16" x 1" hot rolled mild flat wrought iron stock. You can purchase this stock at most home improvement centers. **Please note:** The Scroll Bending Attachment is not recommended for bending 1/8" thick material.

The Bushing, (#S03) described on page 5 of the Scroll Bending Attachment manual, keeps the scroll flat as it is formed. If you wish to make several scrolls of the same size, you will need to draw a chalk mark on the stock to indicate how far you should bend before stopping. Stop bending the stock at the point where the stock just touches the attachment. If each successive scroll is bent until the pre-measured chalk mark on the stock just touches the attachment, the scrolls will be of similar size. To keep the scrolls as uniform as possible, be sure the stock remains rested on the bottom flange of the roller bushing during all scroll bending operations. **Please note:** Always begin the scroll by placing the pin and bushing into hole #3. When making larger scrolls you will need to move the pin and the roller bushing out to accommodate the length of the stock.



When making scrolls, the STOCK LENGTH refers to the length to cut the stock. The CHALK MARK refers to the distance from one end of the material to a chalk mark which you draw on the stock. When bending scrolls, insert the end farthest from the chalk mark into the Scroll Bending Attachment. When two scrolls are to be bent from the same piece of material, two chalk mark distances are indicated in the sample tables. One chalk mark should be measured from one end of the stock, and the other chalk mark should be measured from the other end as illustrated on the following page.



If you plan to bend two scrolls into a "C" shape, one chalk mark should be drawn on one side on one side of the stock and the other chalk mark should be drawn on the other side of the stock. After bending one scroll, you will need to turn the material over.



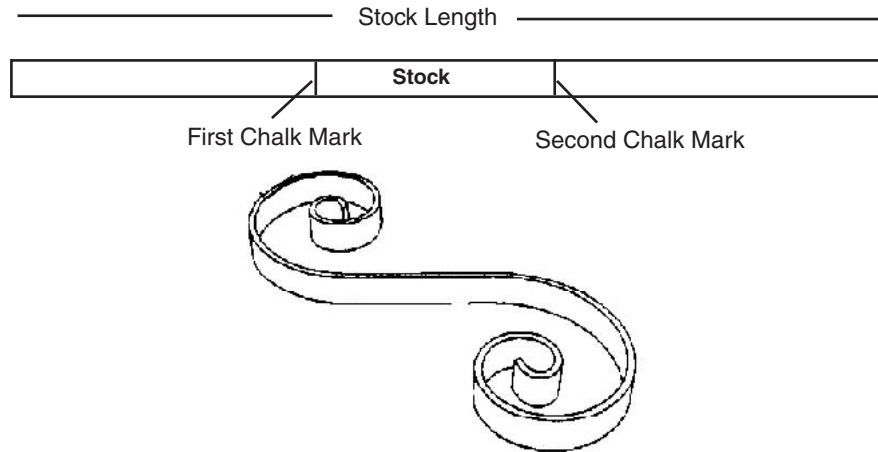
Example of a "C" Scroll


If you plan to bend two scrolls into a single "S" shape, both chalk marks should be drawn on the same edge of the stock. You will not need to turn the stock over before creating the second bend.

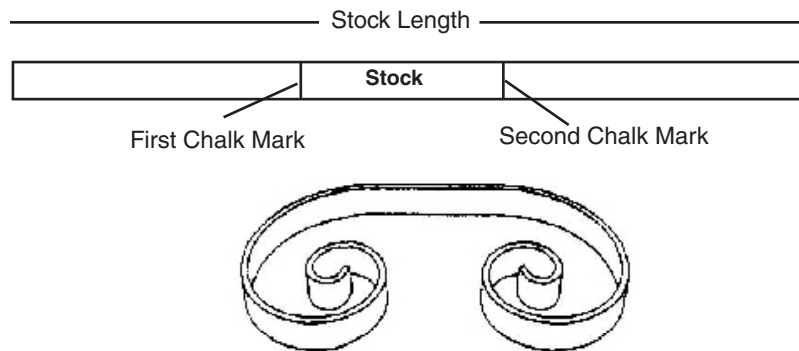



Example of an "S" Scroll

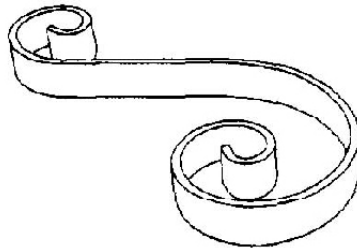
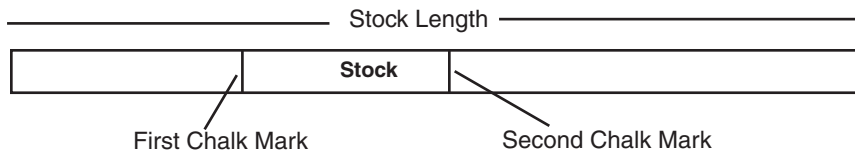
SAMPLE SCROLLS




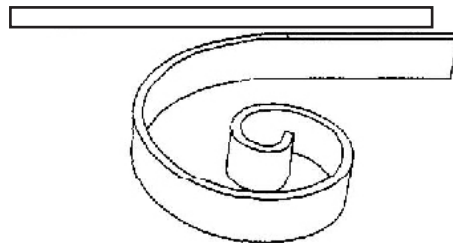
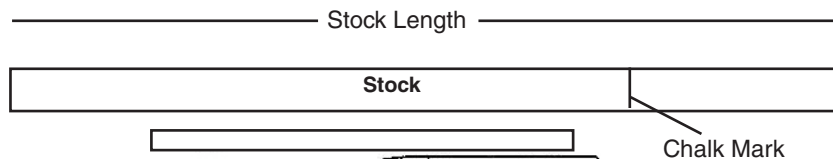
Type of Scroll	Stock Length (inches)	First Chalk Mark (inches)	Second Chalk Mark (inches)	Finished Size of Three Frequently Used Scrolls
	14 11/16	6 3/8	6 3/8	6" long x 2 1/2" wide
	17 5/16	7 5/8	7 5/8	
	20	8 13/16	8 13/16	11" long x 3 1/2" wide
	23 5/16	10 3/8	10 3/8	
	26 13/16	11 7/8	11 7/8	
	31 1/16	13 15/16	13 15/16	15 1/4" long x 5 1/4" wide
	35 7/8	16 1/8	16 1/8	
	41 7/16	18 11/16	18 11/16	




Type of Scroll	Stock Length (inches)	First Chalk Mark (inches)	Second Chalk Mark (inches)	Finished Size of Three Frequently Used Scrolls
	14 11/16	6 3/8	6 3/8	6" long x 2 1/2" wide
	17 5/16	7 5/8	7 5/8	
	20	8 13/16	8 13/16	11" long x 3 1/2" wide
	23 5/16	10 3/8	10 3/8	
	26 13/16	11 7/8	11 7/8	
	31 1/16	13 15/16	13 15/16	15 1/4" long x 5 1/4" wide
	35 7/8	16 1/8	16 1/8	
	41 7/16	18 11/16	18 11/16	



Type of Scroll	Stock Length (inches)	First Chalk Mark (inches)	Second Chalk Mark (inches)	Finished Size of Three Frequently Used Scrolls
	14 11/16	6 3/8	6 3/8	6" long x 2 1/2" wide
	16 1/16	6 3/8	7 5/8	
	17 9/16	6 3/8	8 13/16	
	19 5/16	6 3/8	10 3/8	8 1/2" long x 3 1/2" wide
	21 5/16	6 3/8	11 7/8	
	23 1/2	6 3/8	13 15/16	
	26 1/8	6 3/8	16 1/8	11 1/8" long x 5 1/4" wide
	29 1/8	6 3/8	18 11/16	



Type of Scroll	Stock Length (inches)	Chalk Mark (inches)	Finished Size of Three Frequently Used Scrolls
	8 5/16	6 3/8	3 1/2" long x 2 1/2" wide
	9 11/16	7 5/8	
	11 3/16	8 13/16	
	12 15/16	10 3/8	6 " long x 3 1/2" wide
	14 15/16	11 7/8	
	17 1/8	13 15/16	
	19 3/4	16 1/8	8 1/2" long x 5 1/4" wide
	22 3/4	18 11/16	

Once you have mastered the scrolling included within the sample tables provided on the previous pages, you are ready to tackle some of the more complicated designs which are suggested on the following pages. A helpful hint to remember when creating ornamental wrought iron designs — it is not an exact science. As you progress, you will think of more and more creative uses for ornamental wrought iron. Once you become familiar with ornamental wrought iron you will begin to notice more of this creative artwork right in your own neighborhood and community.

