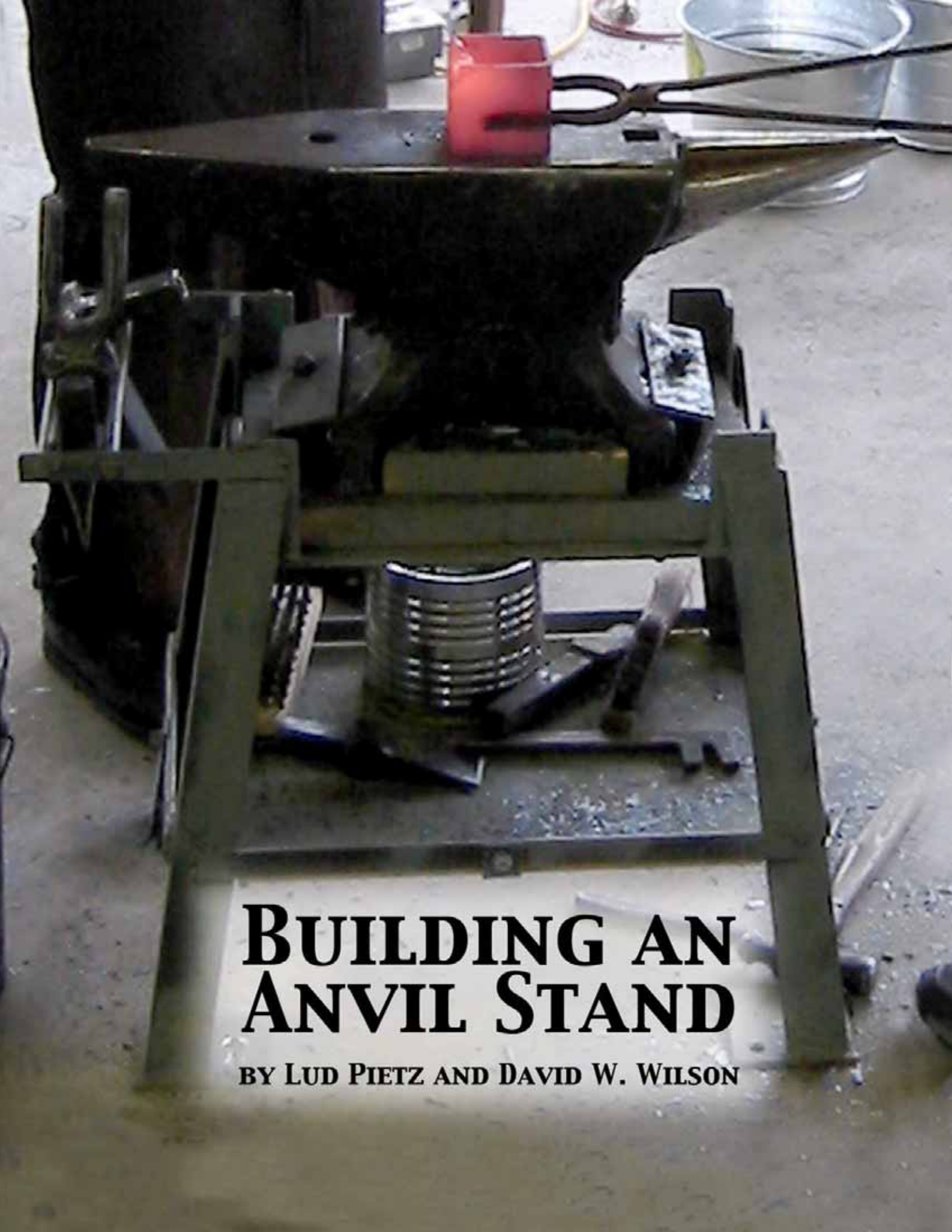

Building an Anvil Stand

by Lud Pietz and David W. Wilson

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There are many excellent stand designs available, but this stand was created to meet these requirements-

- Sturdy enough to withstand striking and heavy blows without much movement.
- Utilizing a bracket for secure bolting to concrete floors where available.
- Light enough to be quickly and easily moved by one or two people.
- Adjustable anvil height to accommodate various demonstrators preferences.

Introduction

The North Texas Blacksmiths Association required three anvil stands to accommodate demonstrators of different heights. NTBA owns three Old World Anvils with two horns, that weigh 167 pounds each. This article describes how the stands were fabricated. While the stands were built specifically for our anvils, small adjustments can accommodate many other anvils. Any such adjustments are left to the reader, based on his/her anvil dimensions. Included in these pages are a cover with photo, these directions, a parts list and a simple set of drawings to illustrate all major parts. If you plan to distribute this project, please include all seven pages. It's strongly suggested that the builder read the entire text and attachments prior to preparing parts and building the stand.

We are indebted to Jerry Cauble for cutting steel to size, to Lance Bussell for his professional welding (we didn't want 200 pounds crashing on demonstrators' feet), and other NTBA members for contributing to this effort. The stands have been used at the IronFest Conference and various NTBA meetings and have proven to be serviceable.

Part I
The Subassembly

On to building the stand. (See Drawing 1). Start with the subassembly that will be the base for the anvil. Parts with key B, C, and O will be used. Three boards (key O) should have each of the four corners rounded to a 1/4" radius. This is done so the boards will stack comfortably inside the 4 uprights (Key C). Also, those boards will need a 17/32" hole drilled 2 1/4" in from each end along the center line. It's recommended that all 3 boards be stacked neatly and bored at the same time to insure good alignment for the anvil rods (Key Q, not shown). Next, place one of the boards atop the plate (key B) and center it front to back and side to side. Clamp the perfectly centered board to the plate. Using a transfer punch, mark the spot each corresponding hole will be drilled on the plate. Drill the plate holes. Now, using drifts, realign the board atop the plate and re-clamp. Next, take the 4 uprights and stand them vertically against the board with the inside of the angle almost touching the board. If you place the uprights too tight, it will be hard to add or remove boards for anvil height adjustment. Also be sure the upright ends next to the plate are square so that the upright is perfectly perpendicular to the plate – same reason. Tack the uprights in place (outside of angle only!). Remove the board and finish welding the uprights in place. That finishes the base subassembly.

Part II
Legs, Feet and the Base

Legs are next. (See Drawing 2). They are made from 2 x 2 x 1/4" angle 21 1/2" long (measured at spine). The up end is cut square. The bottom end is cut to splay the legs out from the base to provide stability. Each leg should tilt 7 degrees toward the base and each outboard length should be equal. After the legs are cut,

weld them to the base assembly. The bottom of the base should be 19” above the deck. Make a sturdy platform that is a little smaller than the bottom of the base plate and parallel to the deck. The top of the platform should be 19 3/8” above the deck. Set the base assembly on the platform. Place each of the legs at a corner, angled end down. Each leg should touch the deck evenly. The top end of the leg should touch the base assembly in 2 places: the leg top touches the upright and just below, touches the plate corner. Care should be taken that all legs splay out so that they form a rectangular footprint. Then weld the legs firmly in place. The feet, (Key J) come after this. In these pieces, drill a 1/2” hole in one corner with the center 5/8" inch from the corner sides. Place the three 3 x 3" squares under three feet with the holes inward per Drawing 2.2. Place a piece of 1/4” scrap under the spine of the fourth leg. Weld the three 3" squares to the legs. The other leg will have a 2" square adjustable foot. The adjustable foot (Drawing 2.4) consists of parts of Key K, L, M, N. Drill and tap a hole (dead center) in K for a 1/2”-13 thread. Screw the allthread (M) so that a bottom plug weld will be flush with the bottom of the foot. Drill a 17/32" hole in a corner of the 2" square piece (L) so the center is 5/8" in from a side of that corner. Screw a nut (N) onto the thread about half way down. Place the top piece (L) over the thread and finger tighten the other nut (N). Align the top and bottom piece sides to be parallel. Now slide the adjustable foot assembly into the remaining leg corner. The hole in (L) should be inward, farthest from the spine. You may have to use the piece of scrap again to keep the legs even. When the adjustable leg has been set so that the base is parallel to the deck, weld part (L) to its inside corner of the leg. Be careful to not get any weld on the thread.

Part III
Braces and Boards

Anvil boards not in use may be bolted beneath the anvil base. One or two boards might be stored below the plate. The anvil always sits on the top board. The top board is like the others: except it has the woodruff-key shaped Side Blocks (S in Drawing 1.3) that resist side to side movement of the anvil. Braces (D not shown) and (E) on Drawing 2.1 serve two purposes. They stiffen the legs. They also serve as anchors for the clips (F) that support the bottom shelf (I). So, drill the 9/32" holes in each of the four braces (D) and (E) centered from side to side and end to end The braces should then be welded parallel to the deck so their top edges are 8“ above the deck. Cut the bottom shelf (I) so that it fits just inside the bottom 1/4 of the braces. Measure inside width and length of the board from 1/4” above the bottom edge of the braces. (See Drawing 3.1) Notch the corners per the drawing so the board will clear the legs as it’s inserted. Inserting the shelf will be easier if the stand is inverted so the uprights are on the deck. Bolt Clips (F) to the holes in the braces with the clips outside of braces and aiming up (with anvil in inverted position). Mark the clips with a line at the same level as the bottom of the shelf. Then remove the clips without moving the stand or board. Bend the clips at that point so that the non-bolted end wraps closely around to support the shelf bottom.

Part IV
Final Assembly

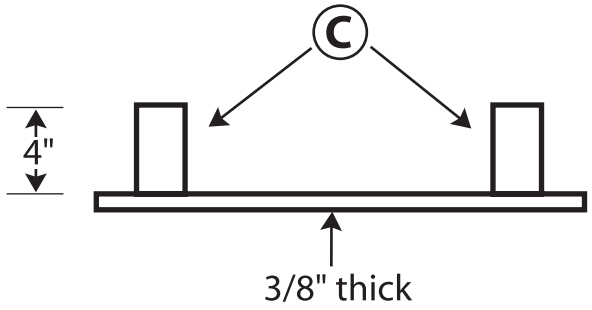
Set the stand top side up again. Place the three boards inside the uprights, being sure to align the board holes with the holes in the plate. Make the anvil clamps, Drawing 1.2 (P) by drilling a 17/32" hole along the top in each piece. The hole center should be centered along the length and 5/8" away from the spine. Next make the anvil rods (Q, not shown). Screw a nut onto one end of the rod until the screw is 1/8" below the top of the nut. Then plug weld into the depression to make a bolt with about 8" of thread. At each end of the anvil, insert the bolt through the clamp then through the three boards and out of the plate hole. A nut applied from under the plate completes the anvil clamps. Three boards above the plate places the anvil about the correct height for a person 6’2” to 6’4”. Remove one or two boards and store them on the rods extending below the plate for persons of lower height. Place the anvil on the uppermost board, centering it under the clamps and tighten. (Using wing nuts under the deck rather than nuts makes height adjusting a little faster). Based on the anvil you place on the stand, the side blocks (S) should be customized pieces cut from 2 x 4" wood to hold the sides firmly. Screw the side blocks to the top board to finish the construction.

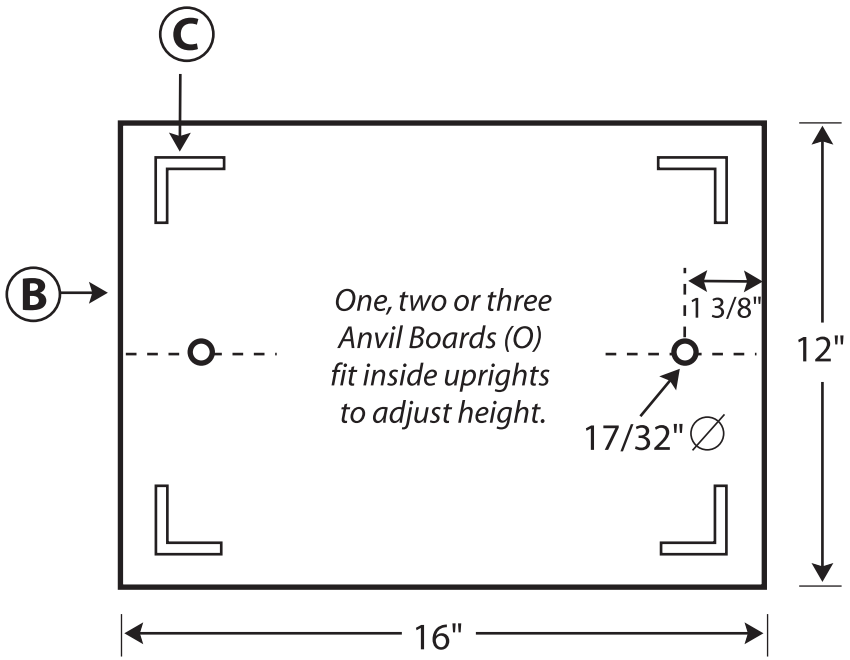
Anvil Stand
Parts List

Key	Item	Quantity	Material	Dimensions	Comments
A*	Legs	4	Angle iron	2 x 2 x 1/4" x 23 1/2"	Bottom 7° chop-see text
B*	Plate	1	Steel	12 x 17 x 3/8"	
C	Uprights	4	Angle iron	2 x 2 x 1/4 " x 4"	
D	Brace	2	Bar	1 x 1/4" x 13 1/2"	9/32" hole, centered
E	Brace	2	Bar	1x 1/4" x 19"	9/32" hole, centered
F	Clip	4	Bar	1 x 1/8" x 2 1/2"	9/32" hole 1/2" from top
G	Clip Bolts	4		1/4" - 20 x 3/4"	hold clip to brace
H	Clip Nuts	4		1/4 - 20 x 3/4"	
I	Bottom Shelf	1	Plywood	1/2" x 14 1/4" x 20 5/16"	adjust to fit
J	*Feet	3	Bar	4 x 1/4 x 4"	weld to leg bottom
K*	Adj. Foot	1	Bar	2 x 2 x 1/4 "	weld to threaded rod center
L *	Adj. Top	1	Bar	2 x 2 x 1/4 "	17/32" hole
M*	Adj. Rod	1	All-thread	1/2"-13 x 4"	for adj. foot
N*	Adj. Nuts	2		1/2"-13	for adj. Foot
O*	Anvil Board	3	Wood	2 x 12 x 16"	To adjust anvil height
P*	Anvil Clamp	2	Angle iron	2 x 2 x 1/4 " x 6"	17/32 " hole
Q*	Anvil Rods	2	All-thread	1/2" - 13 x 10"	Tighten clamps
R*	Rod Nuts	4		1/2" - 13"	
S*	Side blocks	2	Wood	See text	Hold anvil sides
T	Tool Rack	2	Bar		Hold tools
U	Rack Rods	2	Rods		

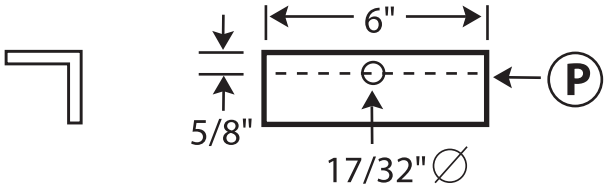
* See Text
** Nominal size - actual is less

1.1 Base sub-assembly

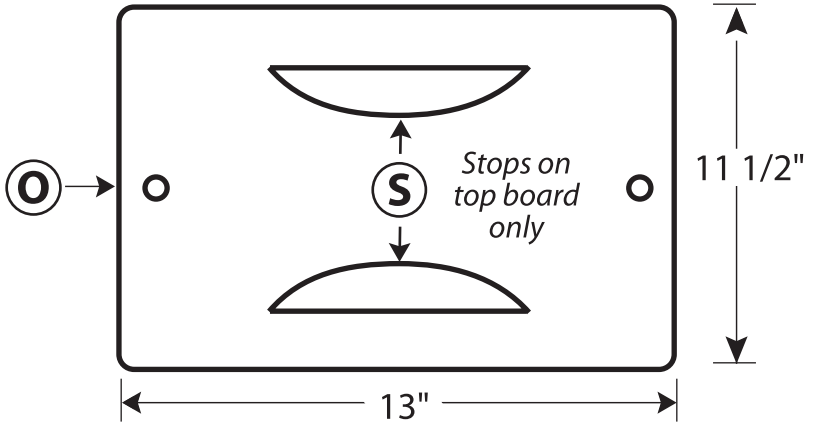




1.2 Anvil Clamp



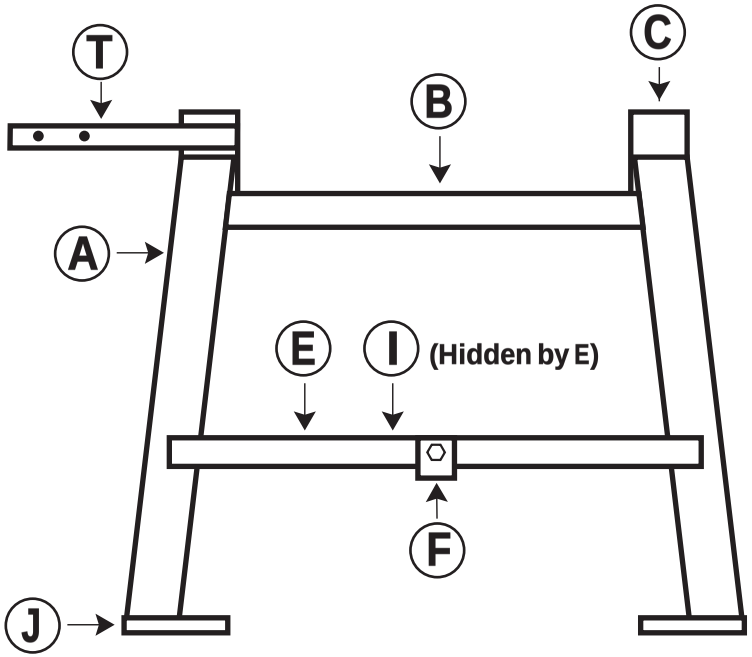
1.3 Top Anvil Board



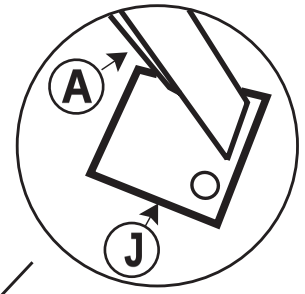
Drawing 1

2.1 Stand Side View

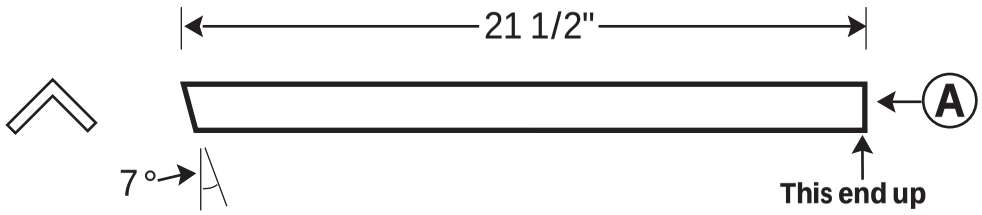
The end view is the same, but with shorter braces (D) not shown.



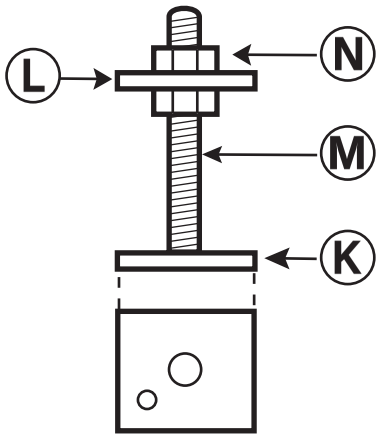
2.2 Top View of Fixed Feet



2.3 Legs

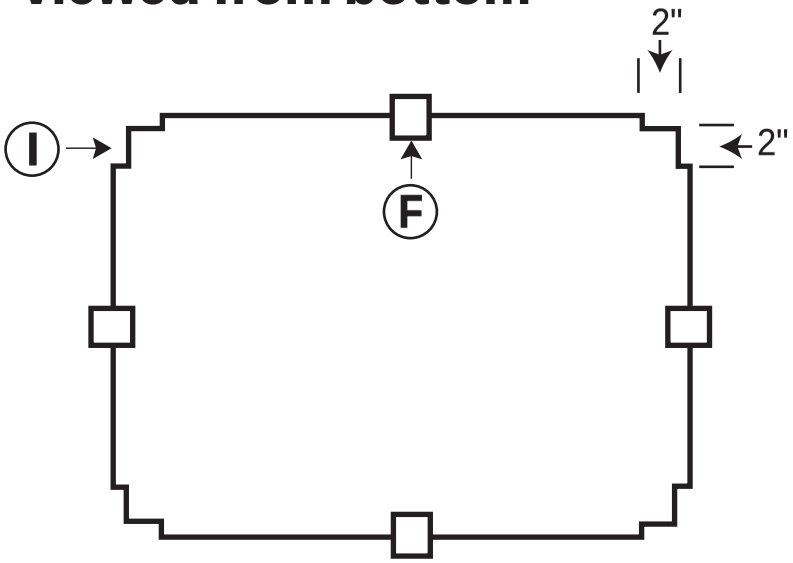


2.4 Adjustable Foot Detail

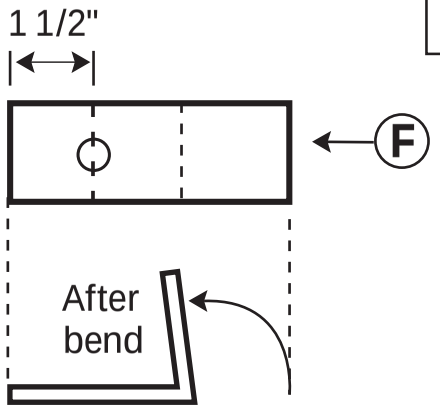


Drawing 2

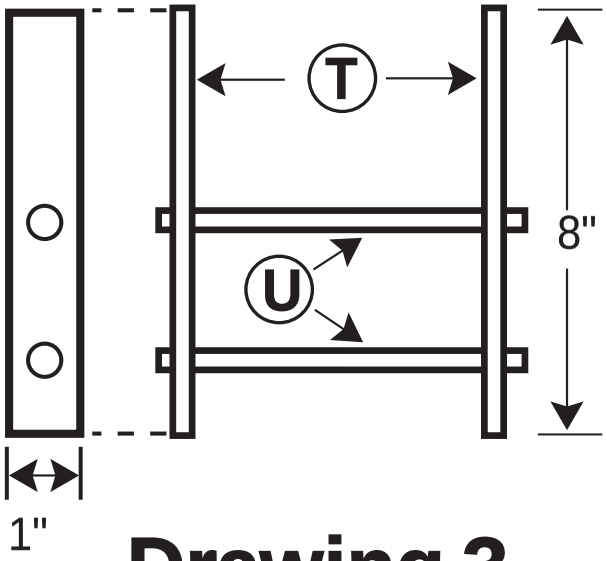
3.1 Bottom Shelf, viewed from bottom



3.2 Clip



3.3 Tool Rack



Drawing 3