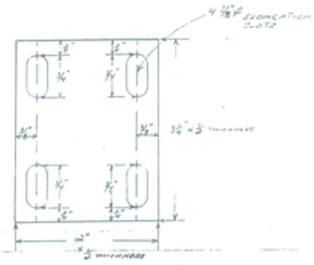


These series of drawings and pictures pay example to my orthographic and schematic drawing abilities to conceive an idea, commit it to paper or on a computer screen and then bring it to life through project management. This is pretty old, but back to manual...

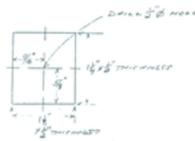
During my employment as a refrigeration technician I was asked come up with a complete electrical interlocked safely circuit for one of the equipment rooms which housed three ammonia piston compressors. This is my drawing, it was approved, I made a materials list and installed it. Nand, And, Or logic with 240 volt separate control.

My next continuous self improvement training will be to go to school to learn AutoCAD, this longhand drawing is getting old...

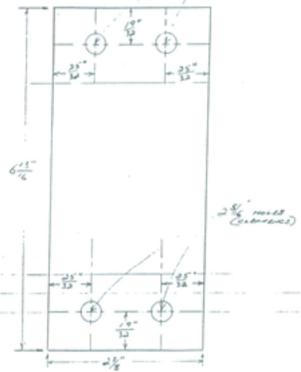
NOT TO SCALE  
PLEASE MAKE LP X 2 BRACKETS AS TO  
DRAWING USING 3/16" THICK CALL EGGS CUT  
AND MACHINED FINISHED REARD



PLEASE MAKE LP X 2 BRACKETS AS TO  
DRAWING USING 3/16" THICK CALL EGGS CUT  
AND MACHINED FINISHED REARD



1" THICKNESS  
SPRINGED STEEL  
PLATE CUT AND MACHINED  
FINISHED



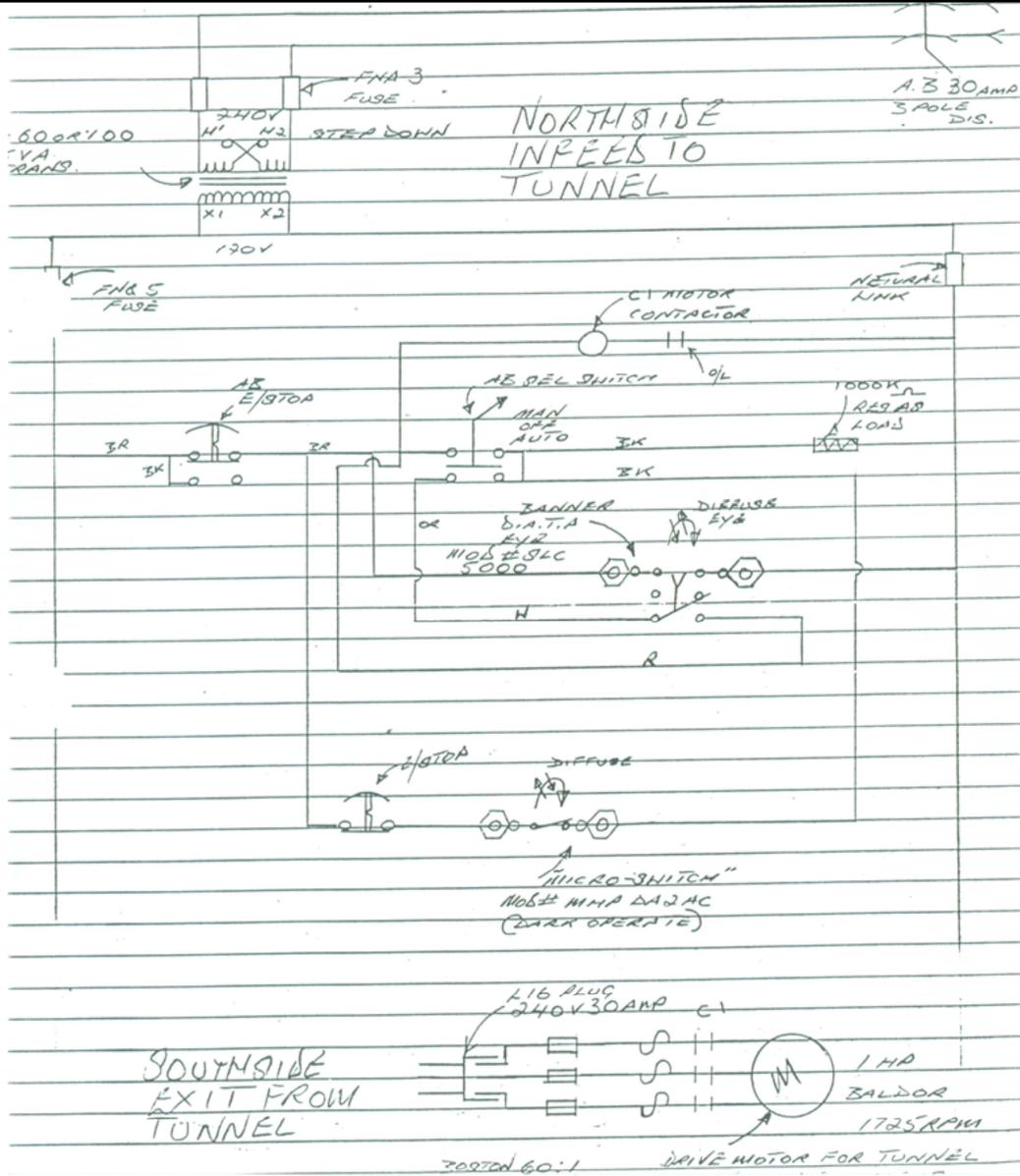
MAKE TWO PAGES

This drawing illustrates three diagrams that I drew up for an improvement on an existing snow cone forming head mounting bracket. The original brackets had little adjustment - elongation - in the X and Z axis and no adjustment in the Y axis.

I ended up making these brackets myself in the company machine shop.



Pictures showing the new designed brackets painted and installed on the machine.



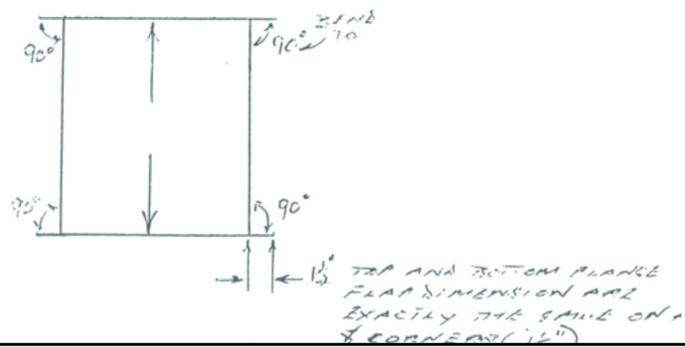
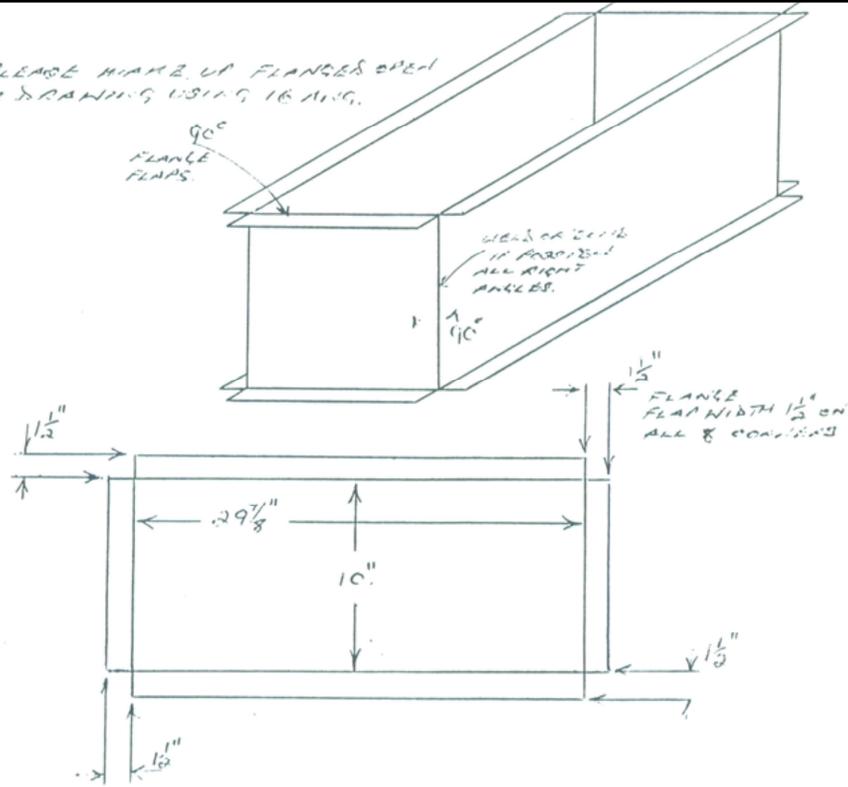
This is an electrical schematic that I devised as a proposal to automate the feeding of molds into a ice cream producing freezing tunnel. Basically, there are two PECs, the out-feed being dark operate - diffuse scan – and the in-feed was light operate. I employed NAND logic to perform on/off, hand/auto and jog functions in the circuit method. This allowed for semiautomatic indexing.



Pictures showing the in-feed and out-feed PECs installed.

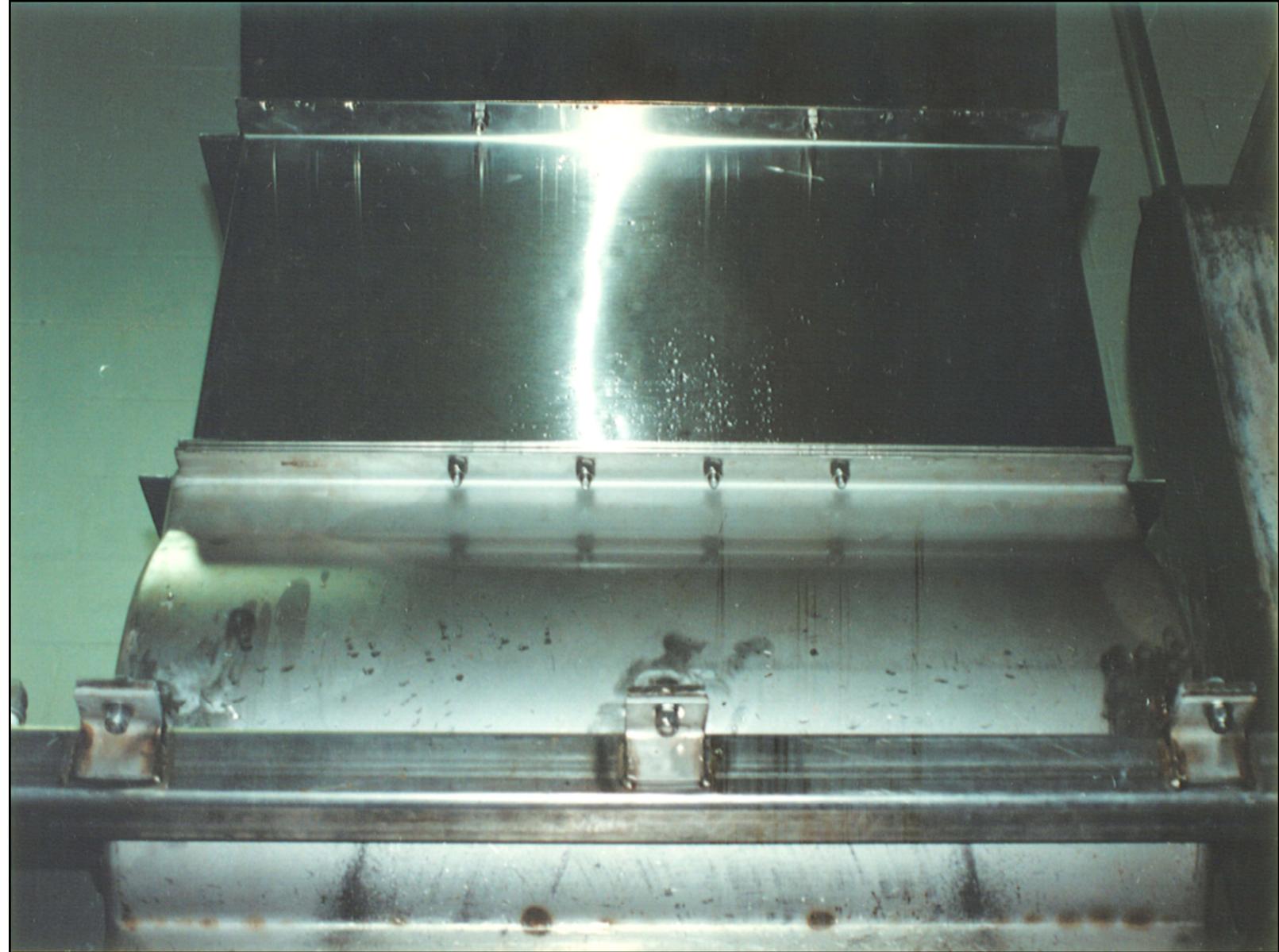


CLAYTON: PLEASE MAKE UP FLANGED OPEN BOX AS PER DRAWING USING 16 AWG. STAINLESS.



This is a drawing I drafted of an extension section to an ice hammer mill chute again to a snow cone making machine. We were having problems with ice falling from the hammer mill in which much of it was falling off the sides of the conveyor belt and accumulating on the floor which reduced capacity and was wasteful.

I rectified this problem by lowering the hammer mill to 2" inches of the conveyor belt which necessitated my having to have an extension section made - see picture on following slide.



Picture showing the extension section installed.

Further to our last minutes of meeting on Wednesday April 5, 1995, we spoke of up-grading the snowcone machine with the implementation of a P.L.C to control its operation. I herein provide the results of my research with these handouts as to my proposals with I hope meets your discretion. From the last meeting we have decided to forgo with the pneumatic drive and leave the existing method of mechanical prime mover.

*HOW TO O.K.*

I have decided to use the Allen Bradley SLC-150 sequencer logic controller (\$568.00 plus hardware - Schotte Electric -) list of Materials breakdown as follows:-

- |                                |                               |
|--------------------------------|-------------------------------|
|                                | (1) P.L.C \$568.00 *          |
| (*) Misc. \$80.00              | (1) 500' wire(red) \$22.00    |
| (5) Hub fittings @ \$2.99 each | (1) 500' wire(black) \$22.00  |
| (2) 1/2" E.M.T \$14.00         | (1) 500' wire(white) \$22.00  |
| (1) Nema 12 enclosure \$48.00  | (8) Ind. proxs @ \$18.99 each |
|                                | (*) Est. labor \$441.00       |

As mentioned we will use the east side main conveyor driver sprocket to mount the necessary 8 equally spaced bolt heads for the detection of position for the P.L.C input/reset. Please review my drawings of timing diagram and I/O assignment table and attached software listing.

I/O Address	1	8	1	7	1	6	1	5	1	4	1	3	1	2	1	1	9	0	1
Hex Mask																	(S	Q	I)
Binary Mask	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
<i>RUNG #003</i>	Step	Hexi															Pre-set		<i>GRP</i>
	====	Data															value		<i>00</i>
	0 0 0 0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 0 1	P	
	0 1 0 1	-	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0 0 2 3	P	
<i>SEE *</i>	0 2 0 2	-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0 0 3 8	P	
<i>ATTACHES</i>	0 3 0 4	-	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0 0 0 4	P	
<i>TEAR SHEET</i>	0 4 0 8	-	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0 0 1 8	P	
<i>FOR A. B.</i>	0 5 1 0	-	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0 0 0 2	P	
<i>SLC 150.</i>	0 6 2 0	-	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0 0 3 5	P	
	0 7 4 0	-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 0 5	P	

PLCs for me were a continuous process of developing expertise. This is my first attempt of research into the implementation of a PLC sequencer to control the operational logic of a machine process. This was to be an upgrade improvement on the original mechanical means of cams. Shown is my proposal with i/o table and software listing.

SOFTWARE LISTING FOR SNOWCONE P.L.C SEQUENCER:

Rung	start index	stop index	auto	index motor	blade motor	comment
Rung:001	[001]	[002]	[005]	(111)		stop/start for conveyor.
	[111]			index motor		
Rung:002	[003]	[004]	[005]	(112)		stop/start for beater blades motor.
	[112]			blade motor		
Rung:003	[111]	[112]	[008]	[005]	T 901 (SQ1*)	time driven of SQ0.
	com bit	PX 8 flag			GRP 00	
Rung:004 (reset)	[951]	[008]			(RST*)	reset.
	[901]				RE 0000	
	reset					
	[006]					
	inter					
Rung:005	[017]	[005]			packer output (113)	internal output for packers.

ASSIGNMENT TABLE:

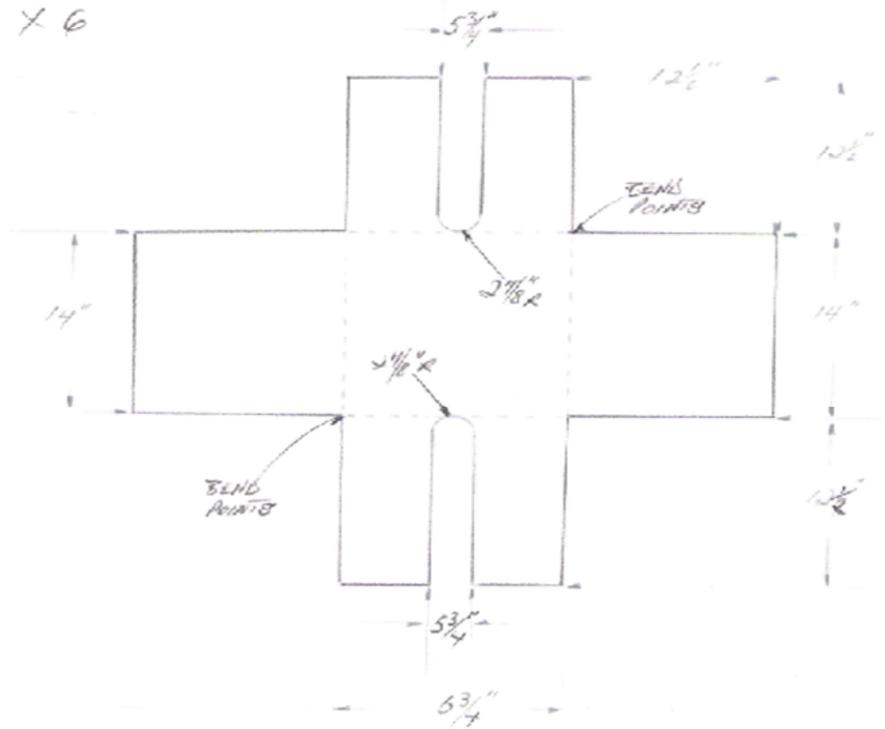
address	element	rung number/s	instruction	comment		
0 0 1	-[ ]-	0 0 1		start index		
0 0 2	-[ ]-	0 0 1		stop index		
0 0 3	-[ ]-	0 0 2		start blade		
0 0 4	-[ ]-	0 0 2		stop blade		
0 0 5	-[ ]-	0 0 1	0 0 2	0 0 3	0 0 5	auto
0 0 6	-[ ]-	0 0 4		reset		
0 0 8	-[ ]-	0 0 3	0 0 4		PX 8 flag	
0 1 7	-[ ]-	0 0 5			inter SQ0	
1 1 1	-[ ]-	0 0 1	0 0 3		index motor	
1 1 1	-( )-	0 0 1			index motor	
1 1 2	-[ ]-	0 0 2	0 0 3		blade motor	
1 1 2	-( )-	0 0 2			blade motor	
1 1 3	-( )-	0 0 5			pack outpt	
9 0 1	-(RST)-	0 0 4				

TOTAL WORDS USED 00049

PLC continued...

HEEL PAD DISPENSER TOTE  
16 ANG STAINLESS.

X 6

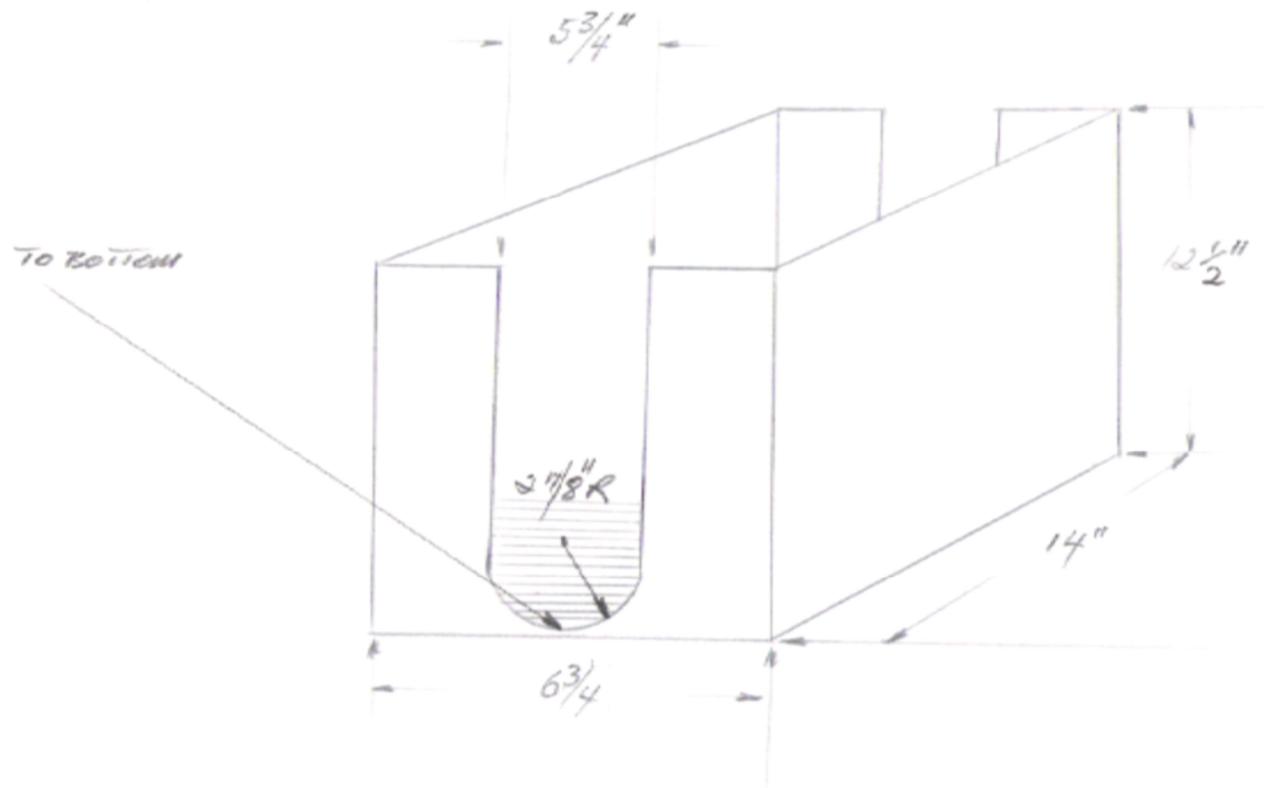


Drawing that I drafted to make metal heel pad dispenser totes from - expanded view.

HEEL PAD DISPENSER TOTE

16 AWG,

X 6



Heel pad dispenser tote - folded and welded view.