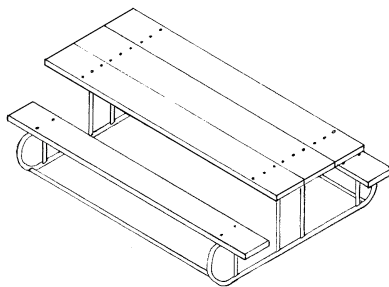


Agriculture Education Shop Project Plans

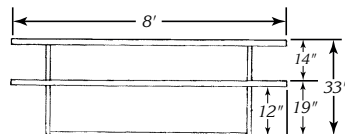
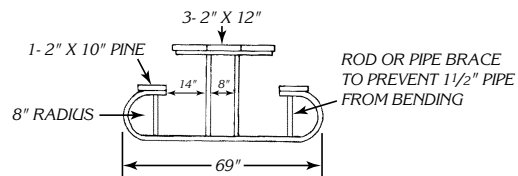
77 projects for the Ag Ed Shop

PICNIC TABLE
SCALE: 1/2" = 1'



BILL OF MATERIAL

4 PIECES OF 1 1/2" PIPE 30 1/4" LONG
2 PIECES OF 1 1/2" PIPE 5' 10 1/4" LONG
2 PIECES OF 1 1/4" PIPE 5' 9" LONG
2 PIECES OF 1 1/4" PIPE 2' 10" LONG
3 BOARDS 2" X 10" X 8'
2 BOARDS 2" X 10" X 6'
26 BOLTS AND NUTS 3/2" X 1/4"



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Tractor Tools and Equipment

Three-Point Hoist
Adjustable Tractor Holding Jack
Hose Reel
Land Leveler
Tractor Carry-All
Tractor Scraper Blade

Shop Tools and Equipment

Acetylene Welding Table
Angle Iron Saw Horse
Barrel Holder
Drawbar Pin
Fly Wheel Wrench/Fly Wheel Holder
Oxyacetylene Cart
Portable Engine Stand
Portable Extension Outlet
Round Stock Welding Jig
Shop Cart
Stack Scaffolding
Weld Tester and Breaker
Welding Positioner
Workbench

Livestock Feeding, Care, and Control

Barrel Feeder
Branding Iron Heater
Calf Cradle
Calf Puller
Car Ramp
Cattle Fan Cage
Cattle Grooming Chute
Cattle Guard
Farrowing Crate
Feed Lot Layout
Folding Sheep Blocking Stand
Folding Sorting Gate
Gates
Hay Feeder
Hay Ring
Headgate
Lambing Pen Panels Loading Chute
Mineral Feeders
Portable Alleyway
Post Driver
Salt and Mineral Feeder
Side Sow Breeding Support
Single Fan Stand
Slip-In Small Livestock Rack
Sow Feeder
Reversible Headgate and Squeeze Machine
Stile

Landscape and Yard Signs

Barrel Dog House
Dog-Proof Garbage Cans/Jig for Marking
Pipe
Picnic Table I
Picnic Table II
Picnic Table III
Rose Trellis
Steel Wheel Swing
Windmill
Wood Rack/Trash Can Rack

Crafts and Hobbies

Beef Sign Cutout
Charcoaler/Smoker
Disk Clock
Plow Yard Sign
Pork Sign Cutout
A-Frame

Truck and Trailer Related

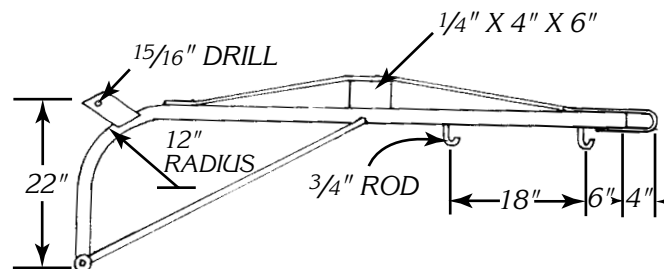
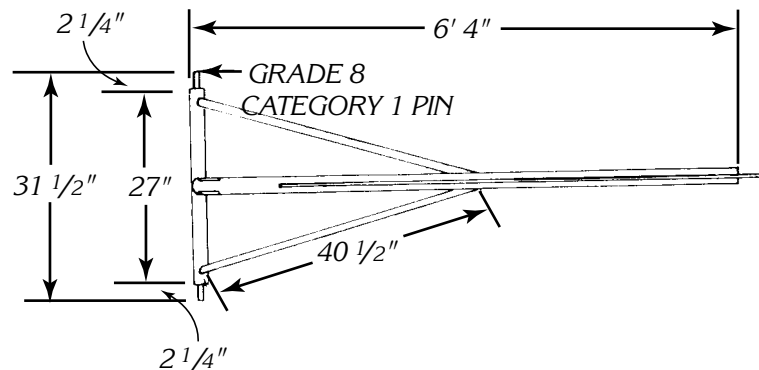
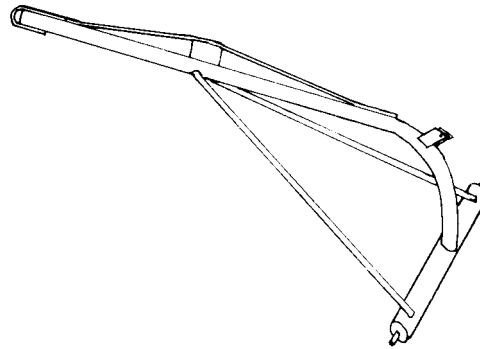
All-Purpose Trailer
8' Flat Truck Bed
Gooseneck Trailer and Slide-In Racks
Headache Rack
Livestock Rack for Utility Trailer
Pickup Stock Racks
Small Trailer
Stock Trailer
Tilting Golf Cart Trailer
Trailer Bow Bender
Trailer Jack Ramp
Wire Bender
Wire Splicer

3-POINT HOIST

SCALE: $\frac{3}{4}'' = 1'$

BILL OF MATERIAL

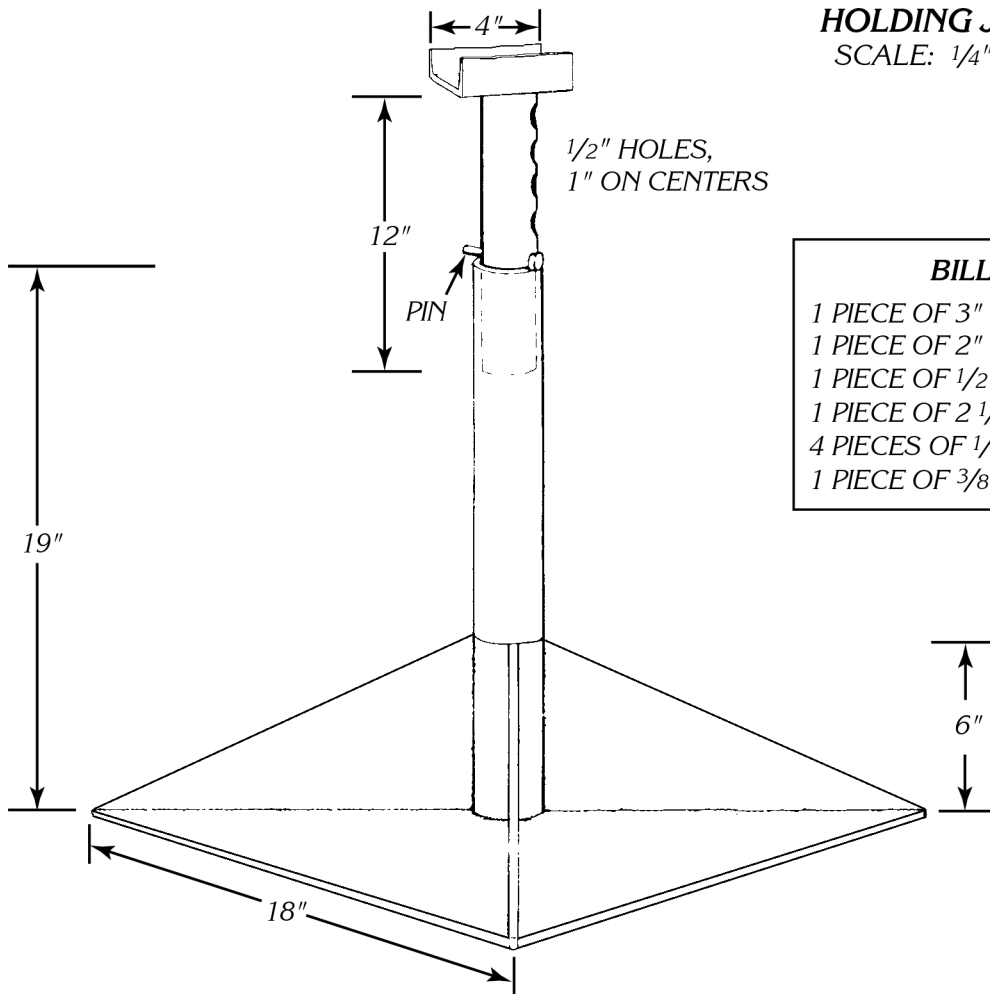
1 PIECE OF $2\frac{3}{8}''$ OR $2\frac{1}{2}''$ DOUBLE STRENGTH PIPE 98" LONG
1 PIECE OF $2\frac{3}{8}''$ OR $2\frac{1}{2}''$ DOUBLE STRENGTH PIPE 27" LONG
1 PIECE OF $2\frac{3}{8}''$ OR $2\frac{1}{2}''$ PIPE FOR BRACES $40\frac{1}{2}''$ LONG
1 PIECE OF $\frac{3}{4}''$ ROD FOR TOP BRACE $6' 7''$ LONG
1 PIECE OF STEEL PLATE $\frac{1}{4}'' \times 4' \times 6''$
2 PIECES OF STEEL PLATE $\frac{3}{4}'' \times 3'' \times 6''$
2 PIECES OF $\frac{3}{4}''$ ROD FOR BOTTOM HOOKS 7" LONG
1 PIECE OF $\frac{3}{4}''$ ROD $31\frac{1}{2}''$ LONG
2 GRADE 8 CATEGORY 1 PIN



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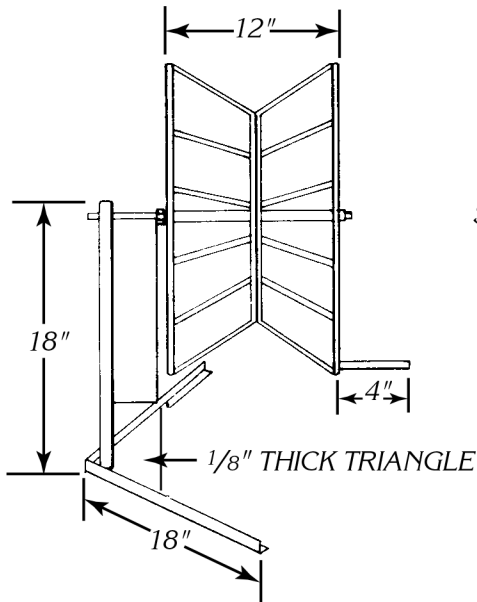
**ADJUSTABLE TRACTOR
HOLDING JACK**
SCALE: 1/4" = 1"



BILL OF MATERIAL	
1	PIECE OF 3" CHANNEL IRON 4" LONG
1	PIECE OF 2" PIPE 12" LONG
1	PIECE OF 1/2" PIN 5" LONG
1	PIECE OF 2 1/2" PIPE 19" LONG
4	PIECES OF 1/4" PLATE 6" X 6"
1	PIECE OF 3/8" PLATE 18" X 18"

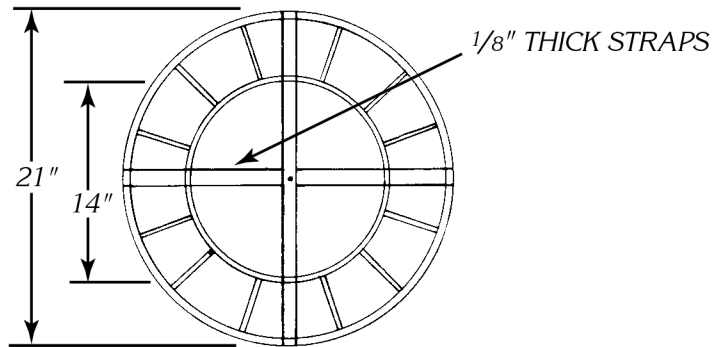
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HOSE REEL
SCALE: 1/8" = 1"

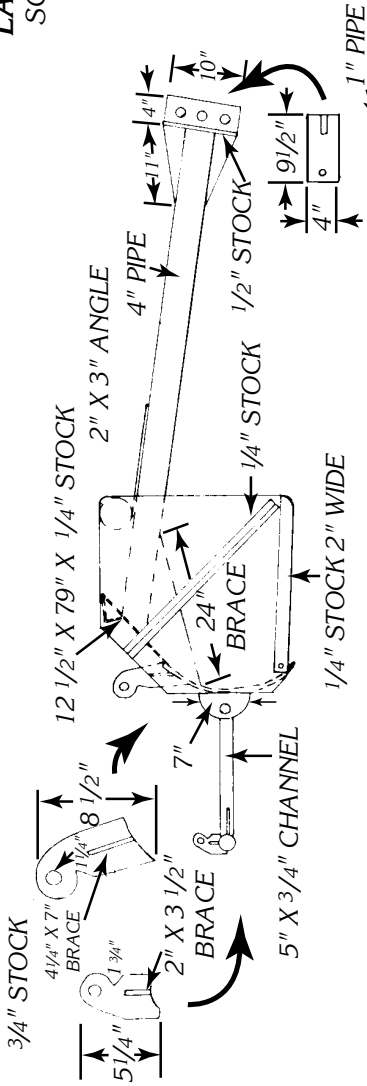
BILL OF MATERIAL	
2	PIECES OF 1" X 1/8" STRAP 21" LONG
1	PIECE OF 1/8" PLATE 3" X 13"
1	PIECE OF 3/4" PIPE 18" LONG
1	PIECE OF 3/8" ROD 18" LONG
2	PIECES OF 3/4" X 1/8" ANGLE IRON 18" LONG
1	PIECE OF 5/8" ROD 4" LONG
1	PIECE OF 1/2" PIPE 12" LONG
	1/4" ROD FOR RIMS
	3/16" ROD FOR SPOKES
2	NUTS



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LAND LEVELER
SCALE: 3/4" = 1'



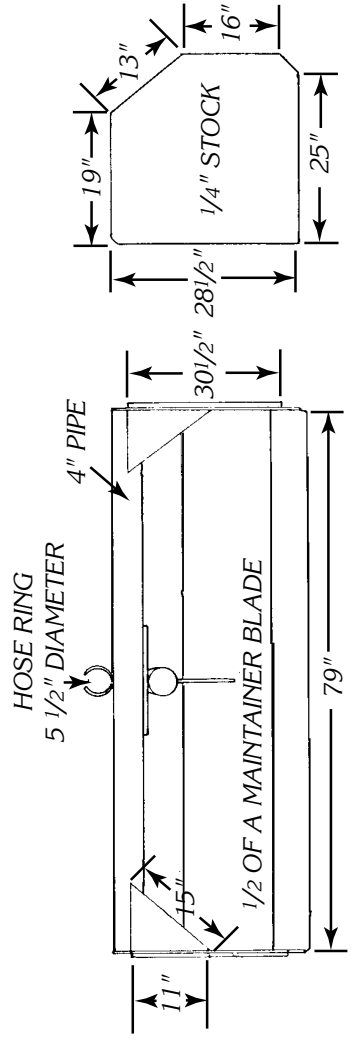
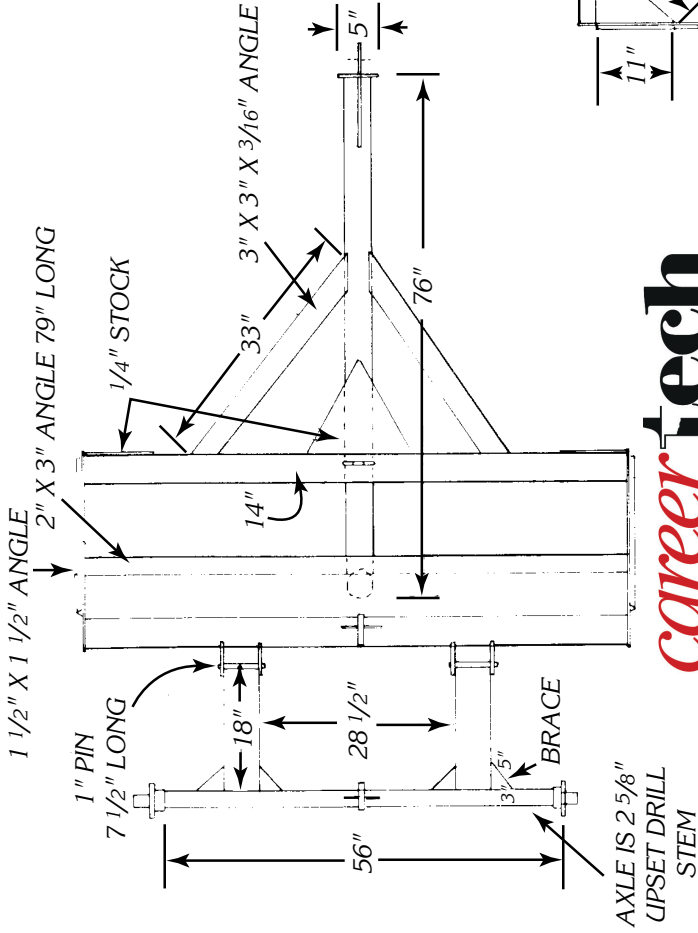
HYDRAULIC CYLINDER BRACKETS

NOTE: BRACKET HOLES MUST BE 20" APART WHEN WHEELS ARE UP

COUPLING

BILL OF MATERIAL

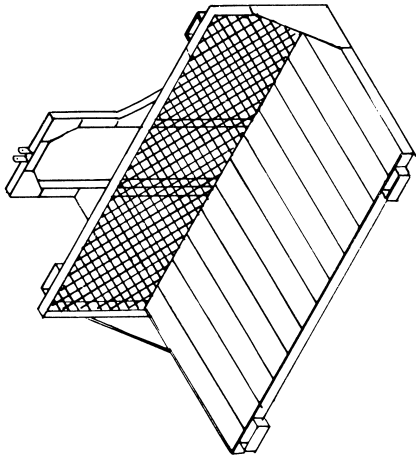
- 2 PIECES OF 1/4" METAL STOCK 28 1/2" SQUARE
- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 30 1/2" LONG
- 2 PIECES OF 1/4" STOCK 2" WIDE AND 25" LONG
- 1 PIECE OF 4" PIPE 79" LONG
- 1 PIECE OF 4" PIPE 76" LONG
- 2 PIECES OF 3" X 3" X 3/16" ANGLE IRON 33" LONG
- 1 PIECE OF 1/4" STOCK 14" X 15" X 15"
- 2 PIECES OF 1/4" STOCK 11" X 10" X 15"
- 1 PIECE OF 1/4" STOCK 6" WIDE AND 24" LONG
- 1 PIECE OF 2" X 3" ANGLE IRON 79" LONG
- 1 PIECE OF 1/4" STOCK 12 1/2" X 79" LONG
- 1 PIECE OF 1/2" STOCK 4" X 10"
- 1 PIECE OF 1/2" STOCK 5" X 10"
- 1 PIECE OF 1/2" STOCK 6" X 11"
- 1 PIECE OF 1/2" STOCK 4" X 19" LONG
- 1 PIECE OF 1" PIPE 4" LONG
- 1/2 OF A MAINTAINER BLADE 79" LONG
- 2 PIECES OF 1" PIPE 7 1/2" LONG
- 2 PIECES OF CHANNEL IRON 18" LONG
- 2 PIECES OF 5" X 3/4" CHANNEL IRON 18" LONG
- 1 - 2 5/8" UPSET DRILL STEM 56" LONG
- 2 WHEEL HUBS
- 1 PIECE OF 3/4" STOCK 56" SQUARE
- 1 PIECE OF 3/4" STOCK APPROX. 20" SQUARE
- 2 PIECES OF 1/4" STOCK 20" X 30"



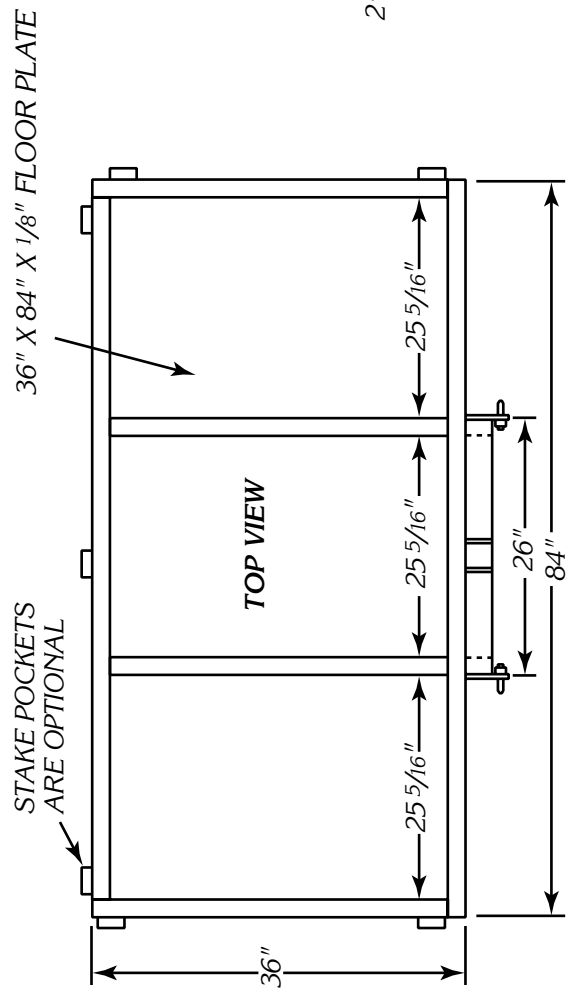
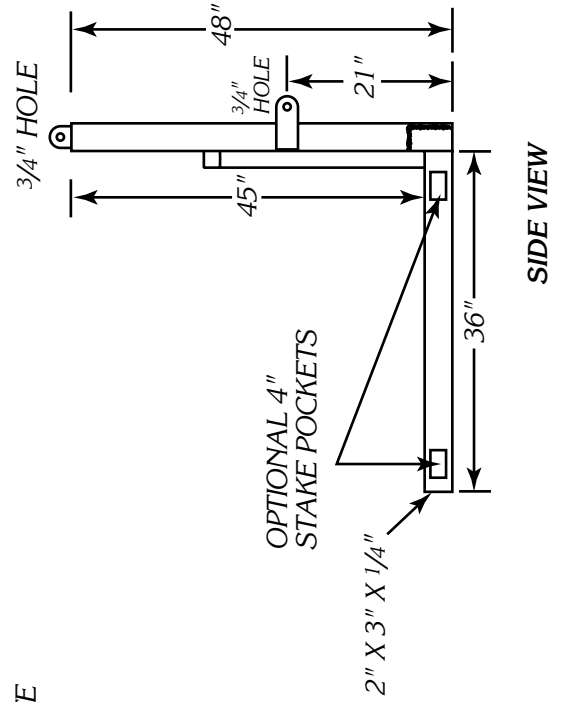
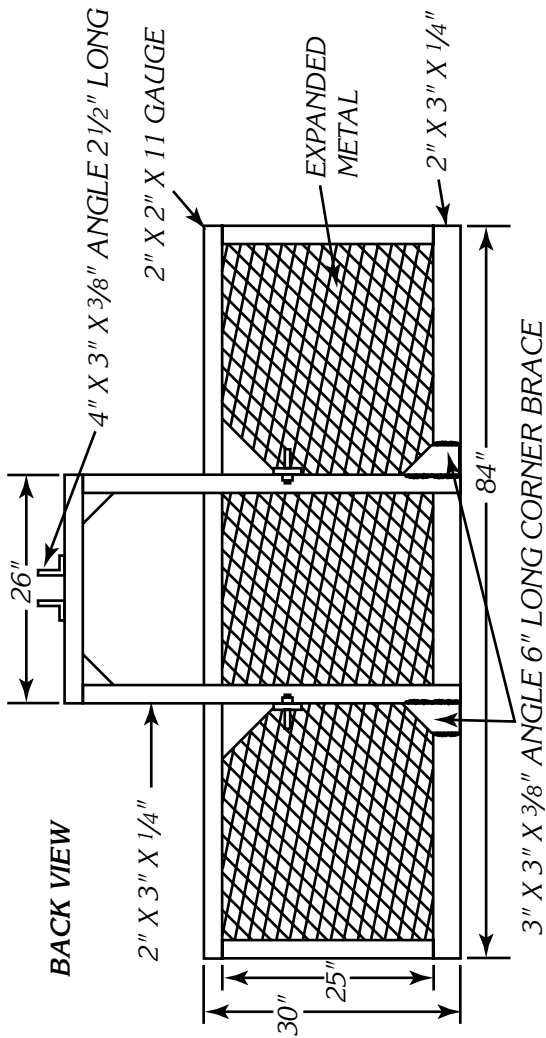
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TRACTOR CARRY-ALL
SCALE: 1" = 1'



- BILL OF MATERIALS**
- 2" X 3 1/4" ANGLE IRON - 24'
 - 2" X 2" 11 GAUGE ANGLE IRON - 10' 2"
 - 2" X 3" X 1/4" CHANNEL IRON - 10' 2"
 - 25" X 72" EXPANDED METAL
 - 2' X 2' PLATE FOR BRACES



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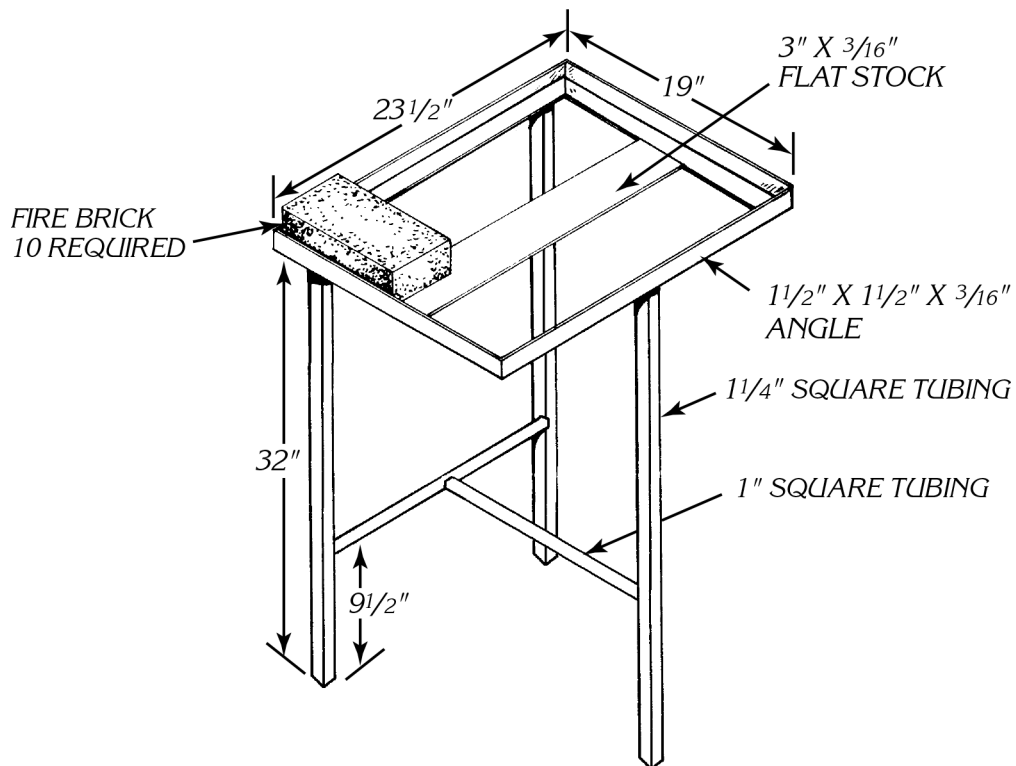
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ACETYLENE WELDING TABLE

SCALE: $\frac{1}{8}'' = 1''$

BILL OF MATERIAL

1 PIECE OF $\frac{3}{8}'' \times 1\frac{1}{2}'' \times 12''$ STRAP IRON
1 PIECE OF 3'' CHANNEL IRON 28'' LONG
1 PIECE OF 2'' SQUARE TUBING 58'' LONG
3 PIECES OF $1\frac{1}{4}''$ SQUARE TUBING 32'' LONG
2 PIECES OF 1'' SQUARE TUBING 19'' LONG
1 PIECE OF $3'' \times \frac{3}{16}''$ FLAT STOCK 20 $\frac{1}{2}''$ LONG



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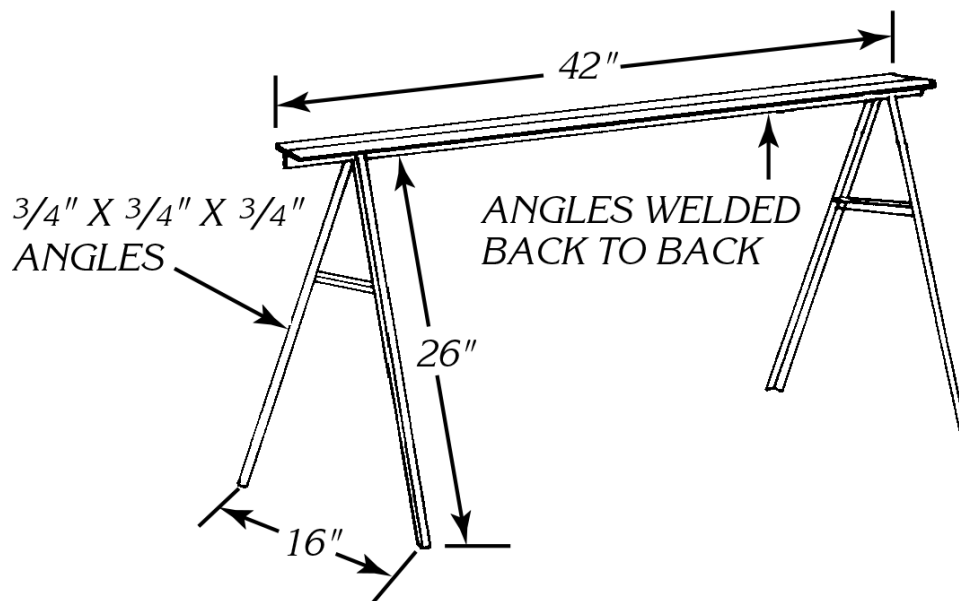
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ANGLE IRON SAW HORSE

SCALE: $\frac{3}{32}'' = 1''$

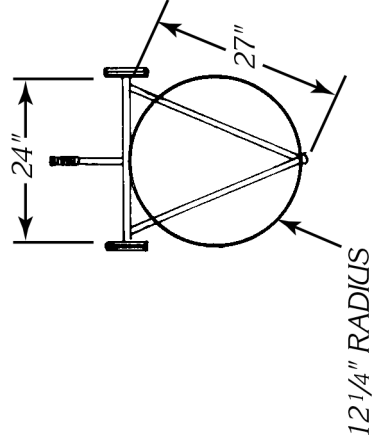
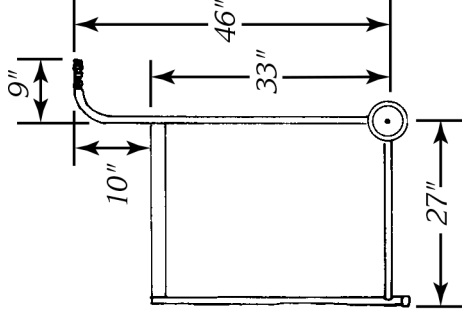
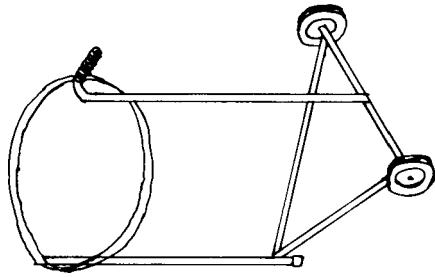
BILL OF MATERIAL

18' OF $\frac{3}{4}'' \times \frac{3}{4}'' \times \frac{3}{4}''$ ANGLE IRON



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BARREL HOLDER

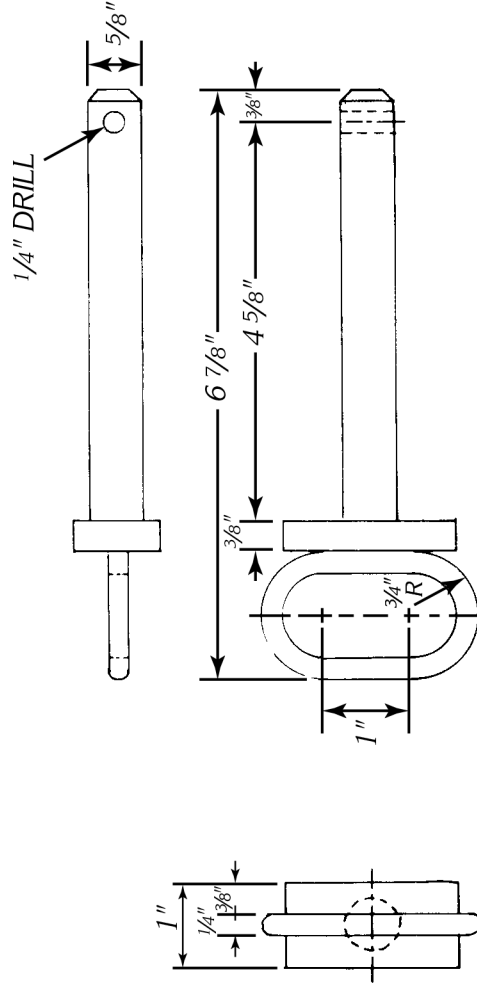
BILL OF MATERIAL

- 1 PIECE OF 1" PIPE 50" LONG
- 2 PIECES OF 1" PIPE 27" LONG
- 1 PIECE OF 1" PIPE 24" LONG
- 1 PIECE OF 1" PIPE 36" LONG
- 1 PIECE OF 1/4" X 2" STRAP METAL
- 2 - 6" WHEELS
- 1 - HANDLE GRIP

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DRAWBAR PIN
SCALE: $\frac{3}{4}'' = 1'$

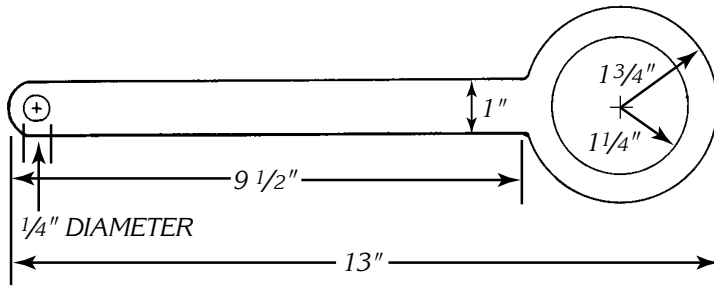
BILL OF MATERIAL

- 1 PIECE OF $\frac{3}{4}''$ ROD 5 $\frac{7}{8}''$ LONG
- 1 PIECE OF $\frac{3}{8}''$ X 1" X 2" FLAT METAL
- 1 PIECE OF $\frac{1}{4}''$ ROD 6" LONG

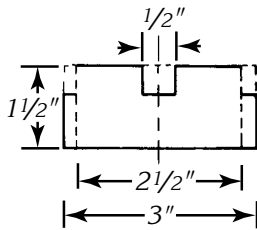
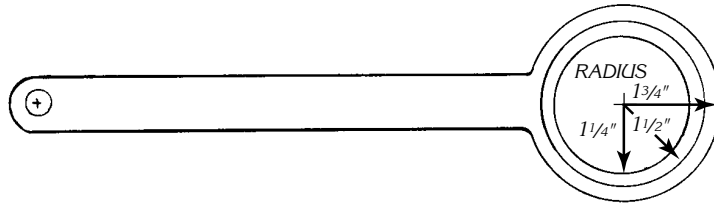
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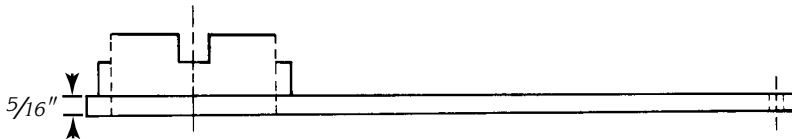
<https://www.okcareertech.org/educators/resource-center>



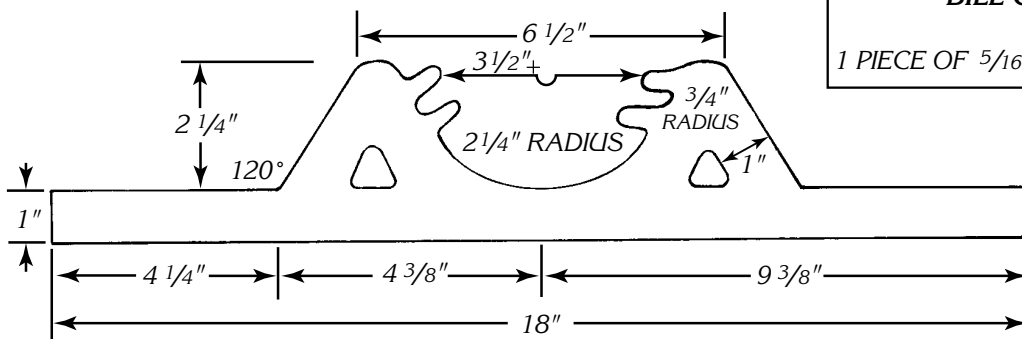
FLY WHEEL WRENCH
SCALE: 1" = 1"



BILL OF MATERIAL
1 PIECE OF 5/16" MILD STEEL 13" LONG
1 PIECE OF 3" PIPE SLEEVE



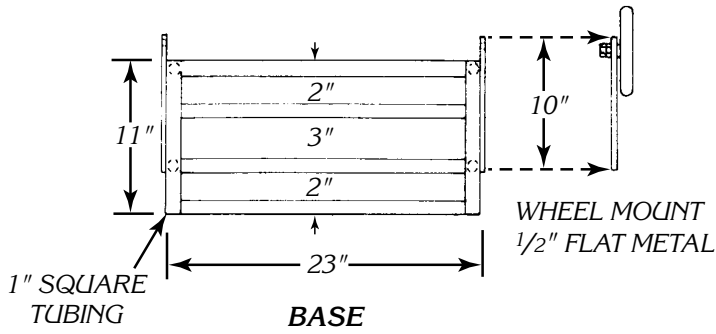
FLY WHEEL HOLDER
SCALE: 1/2" = 1"



BILL OF MATERIAL
1 PIECE OF 5/16" MILD STEEL 18" LONG

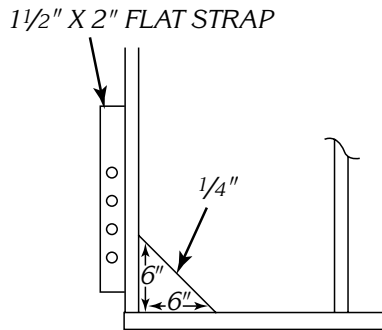
OXYACETYLENE CART

SCALE: 1/8" = 1'

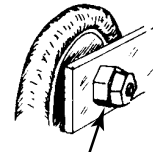
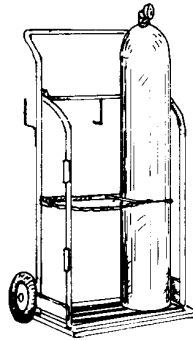


BILL OF MATERIAL

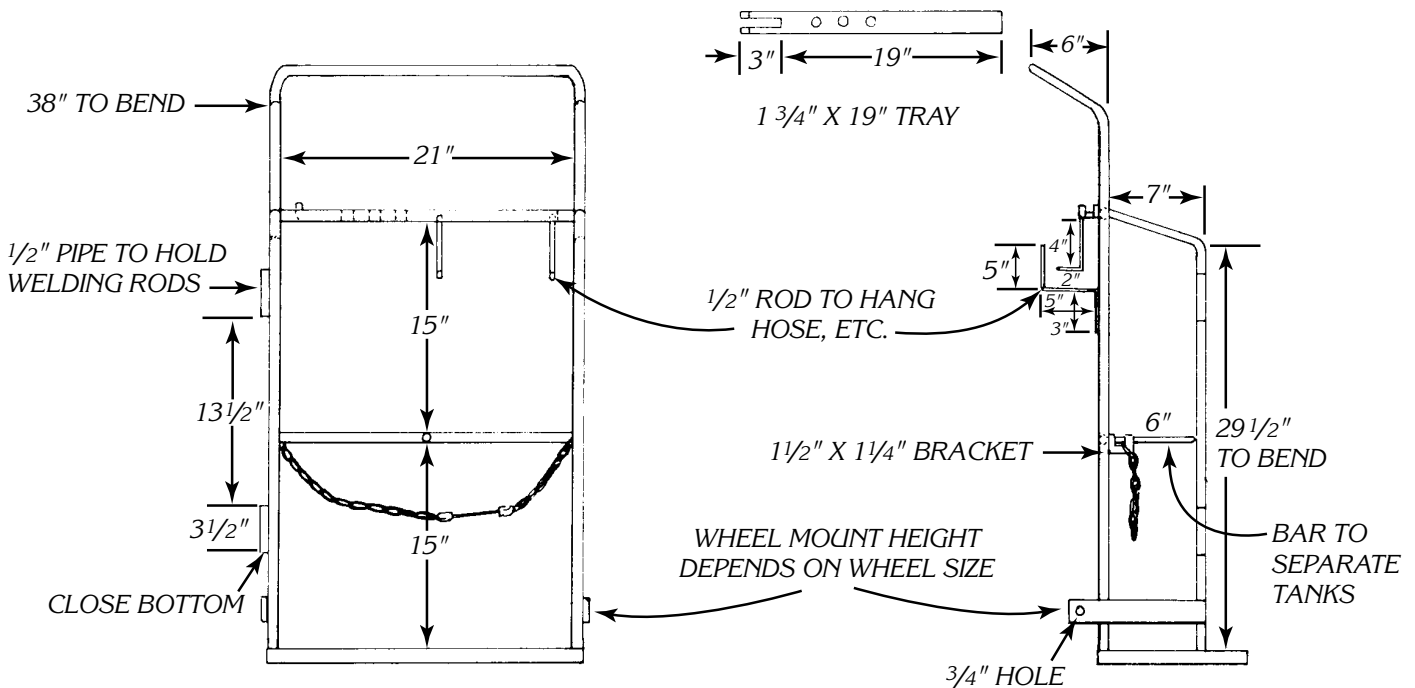
- 1 PIECE OF 1/2" PIPE 100" LONG
- 2 PIECES OF 1/2" PIPE 36" LONG
- 2 PIECES OF 1/2" PIPE 3 1/2" LONG
- 2 PIECES OF 1/2" FLAT STEEL 10" LONG
- 2 PIECES OF 1" SQUARE TUBING 23" LONG
- 3 PIECES OF 1" SQUARE TUBING 21" LONG
- 2 PIECES OF 1" SQUARE TUBING 11" LONG
- 2 PIECES OF 1/2" PIPE 21" LONG
- 1 PIECE OF 1 3/4" FLAT 19" LONG
- 1 PIECE OF 1/2" ROD 6" LONG
- 2 PIECES OF 1/2" ROD 6" LONG
- 1 PIECE OF 1/2" ROD 13" LONG
- CHAIN AND CLAMP
- 2 WHEELS, 2 RODS, AND 4 NUTS



THIS ALLOWS FOR LARGE OR SMALL WHEELS TO BE USED



1ST NUT WELDED TO FRAME
2ND NUT LOOSE

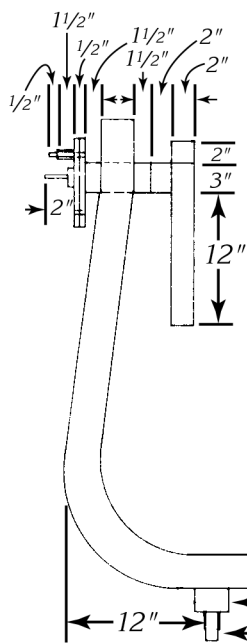


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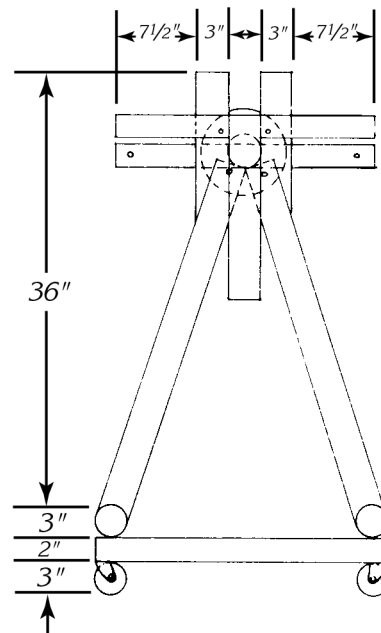
PORTABLE ENGINE STAND

SCALE: $\frac{3}{32}'' = 1'$



BILL OF MATERIAL

3" O.D. STEEL PIPE 96" LONG
 1/2" SUCKER ROD 10" LONG
 1/2" X 2" FLAT IRON 2' LONG
 1 16
 1 1/2" X 3" CHANNEL IRON 56" LONG
 1" SQUARE TUBING 2" LONG
 2 PIECES OF 1/2" STEEL PLATE IN 8" SQUARES
 2" X 3" BOX TUBING 16" LONG
 1" X 2" CHANNEL IRON 4' LONG
 1 PIECE OF 1/2" X 2" SPRING
 3" I.D. STEEL PIPE 2" LONG
 4 HEAVY DUTY CASTERS



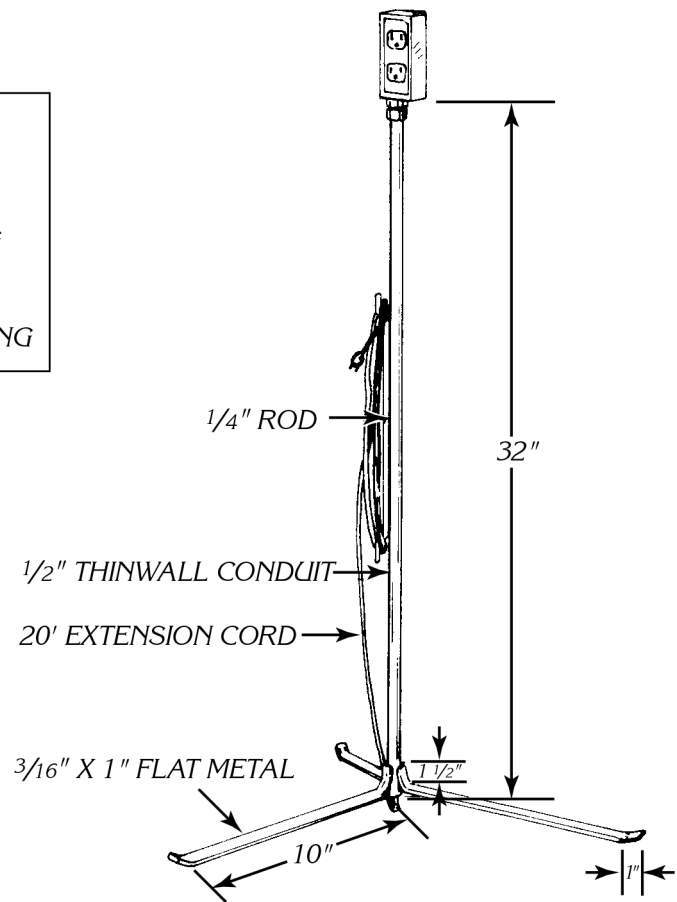
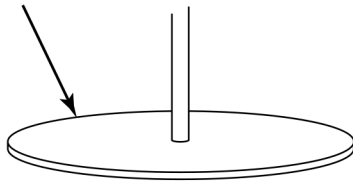
BILL OF MATERIAL

1 PIECE OF 1/2" THINWALL CONDUIT 32" LONG
1 PIECE OF 1/4" ROD 14" LONG
3 PIECES OF 3/16" X 1" FLAT METAL 12 1/2" LONG
1 PIECE OF 1/2" BOX CONNECTOR
1 HANDY BOX
1 - NO. 16 GROUNDED EXTENSION CORD 20' LONG

PORTABLE EXTENSION OUTLET

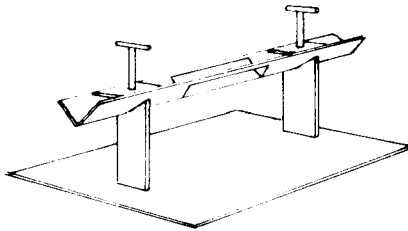
SCALE: 3/16" = 1"

AN OLD WORN OUT
DISC SECTION MAKES
A GOOD AND EASY BASE



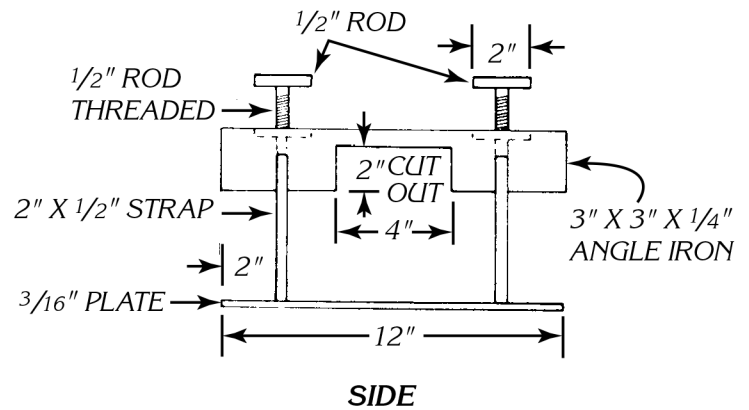
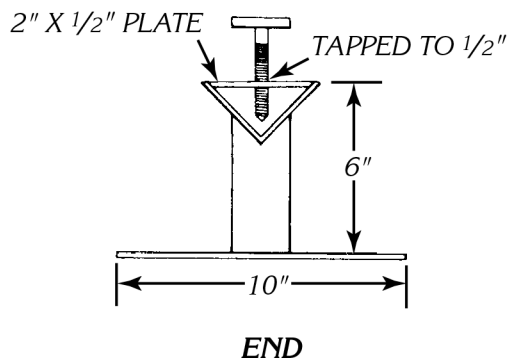
ROUND STOCK WELDING JIG

SCALE: $\frac{1}{4}'' = 1''$



BILL OF MATERIAL

- 1 PIECE OF $\frac{3}{16}''$ GAUGE METAL 10" X 12"
- 1 PIECE OF 3" X 3" X $\frac{1}{4}''$ ANGLE IRON 12" LONG
- 2 PIECES OF $\frac{1}{2}''$ STRAP 2" WIDE X 5 $\frac{1}{2}''$ LONG
- 2 PIECES OF $\frac{1}{4}''$ PLATE 2" WIDE X 3 $\frac{1}{2}''$ LONG
- 2 PIECES OF $\frac{1}{2}''$ ROD 3" LONG
- 2 PIECES OF $\frac{1}{2}''$ ROD 2" LONG

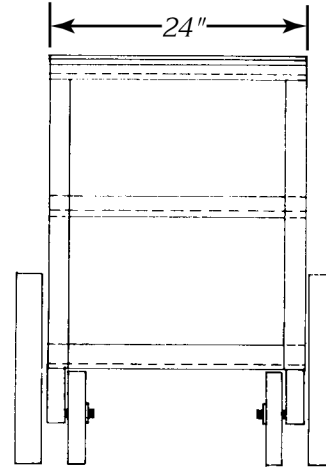
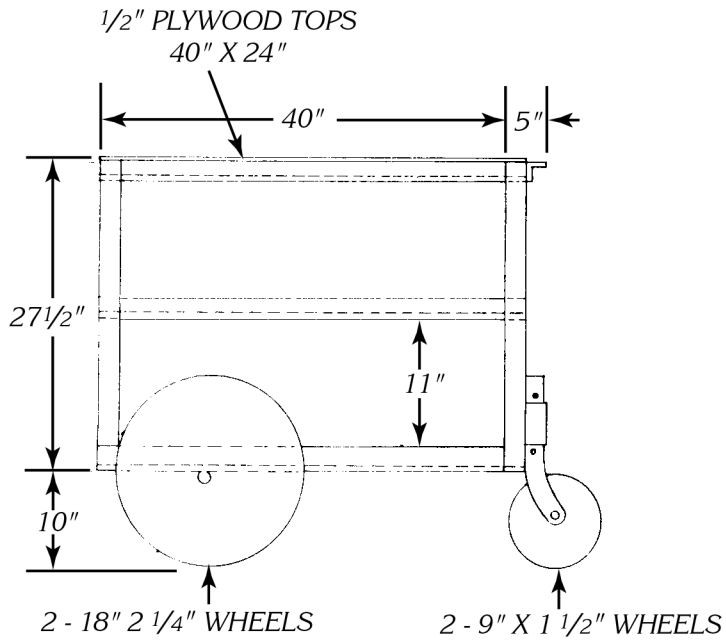


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SHOP CART
SCALE: $\frac{3}{8}'' = 1''$

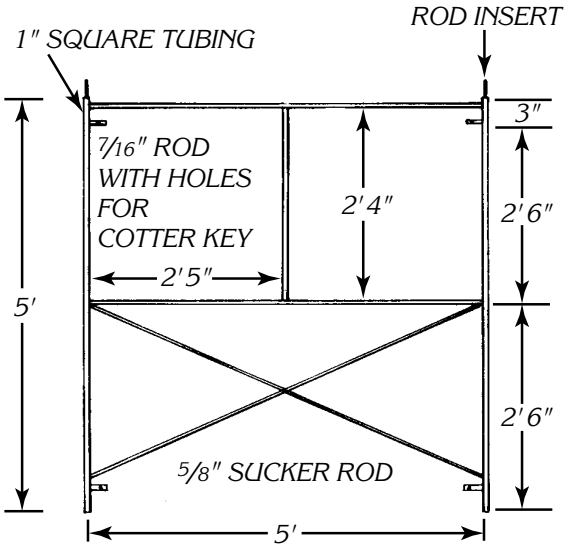
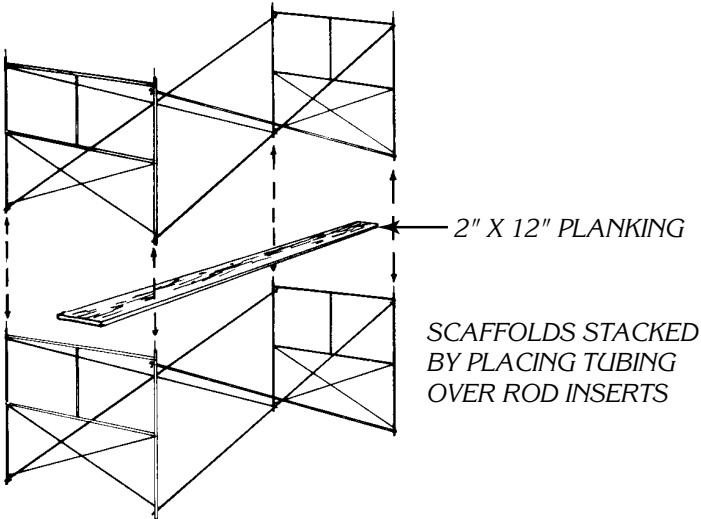


BILL OF MATERIAL

2" X 2" ANGLE IRON 41' LONG
1/2" SUCKER ROD 4' LONG
1/2" PLYWOOD 30 SQUARE FEET
4 METAL WHEELS

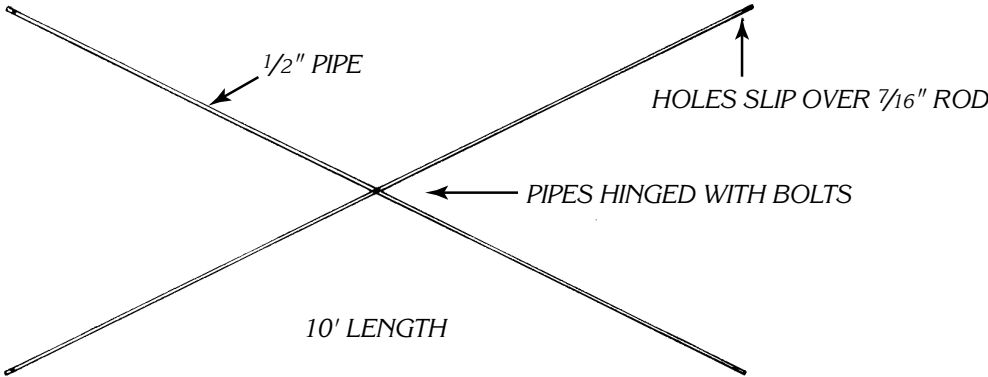
STACK SCAFFOLDING

SCALE: 3/4" = 1'



END

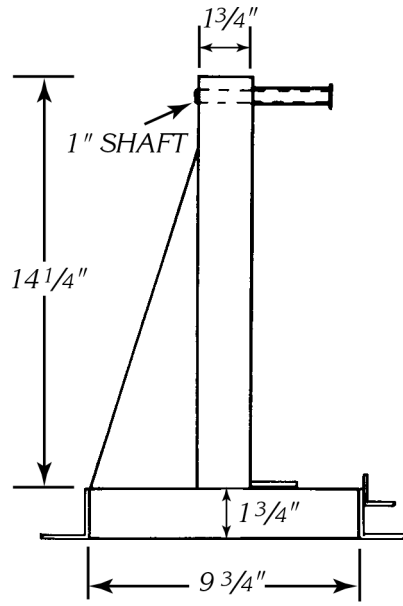
BILL OF MATERIAL	
4	PIECES OF 1" SQUARE TUBING 5' LONG
4	PIECES OF 7/16" ROD 6" LONG
4	PIECES OF 1" SQUARE TUBING 4' 11" LONG
2	PIECES OF 1" SQUARE TUBING 2' 2"
4	PIECES OF 5/8" SUCKER ROD 5' 3"
4	PIECES OF 1/2" PIPE 10' LONG
4	PIECES OF 5/8" ROD 1' LONG



SIDE

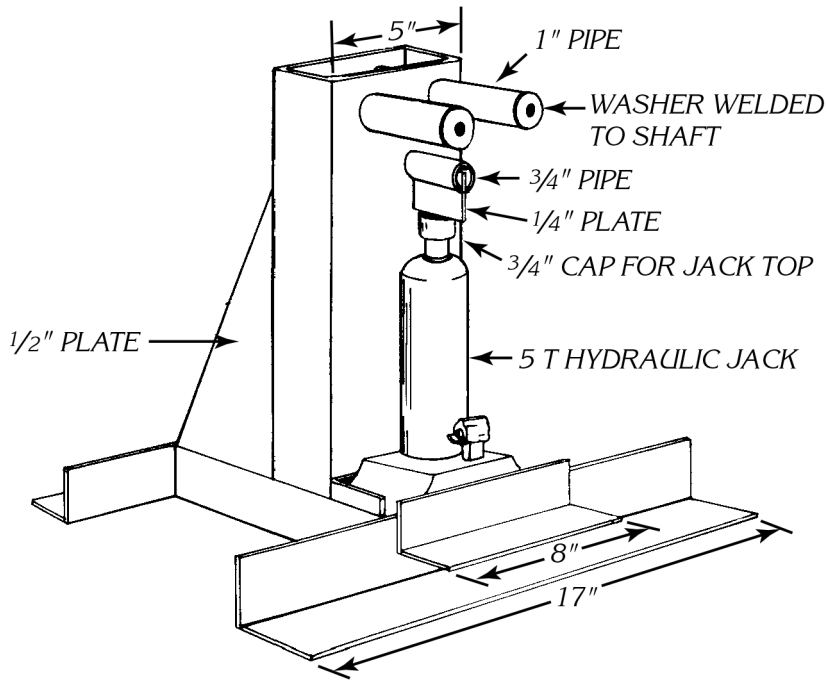
WELD TESTER AND BREAKER

SCALE: $\frac{1}{4}'' = 1''$



BILL OF MATERIAL

- 1 5T HYDRAULIC JACK
- 2 PIECES OF 1" PIPE 5" LONG
- 2 WASHERS
- 1 PIECE OF 1 3/4" X 3/4" CAP
- 2 PIECES OF 1" SOLID SHAFT 7" LONG
- 2 PIECES OF 1/2" PLATE 12" X 2 1/2"
- 1 PIECE OF 3/4" PIPE 4" LONG
- 1 PIECE OF 1/4" PLATE 4" X 2"
- 2 PIECES OF 1 1/2" X 1/3" ANGLE IRON 17" LONG
- 1 PIECE OF 1 1/4" X 3/16" ANGLE IRON 8" LONG
- 1 PIECE OF 5" X 1 3/4" CHANNEL IRON 9 3/4" LONG
- 1 PIECE OF 5" X 1 3/4" CHANNEL IRON 14 1/4" LONG
- 1 PIECE OF 1/4" BACK PLATE 4" X 5"



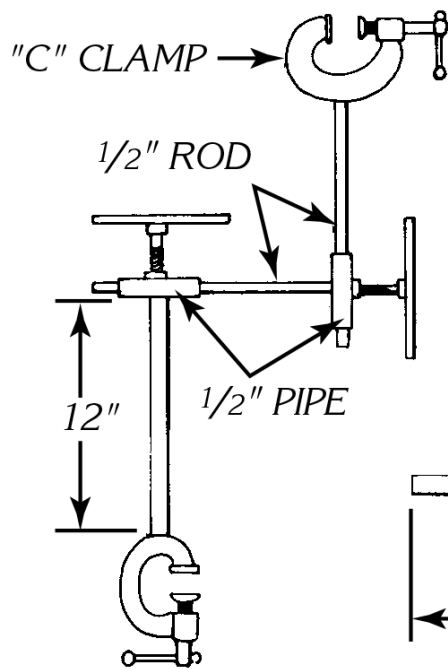
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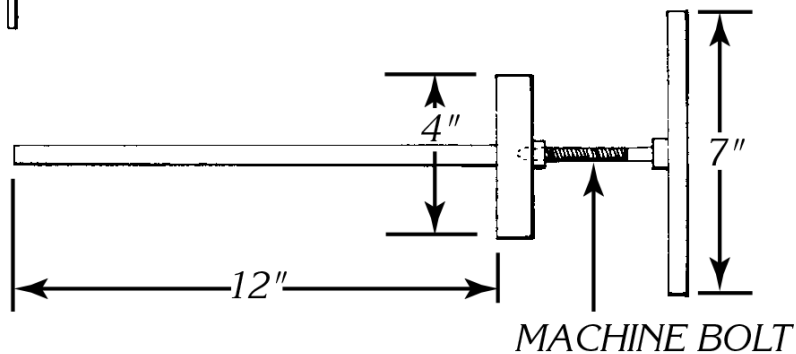
WELDING POSITIONER

SCALE: $1/8" = 1"$



BILL OF MATERIAL

- 2 - 3" "C" CLAMPS
- 2 PIECES OF $1/2"$ ROD 12" LONG
- 2 PIECES OF $1/2"$ ROD 4" LONG
- 2 PIECES OF $3/8"$ ROD 7" LONG
- 2 - $3/8"$ MACHINE BOLTS 3" LONG
- 2 - $3/8"$ NUT

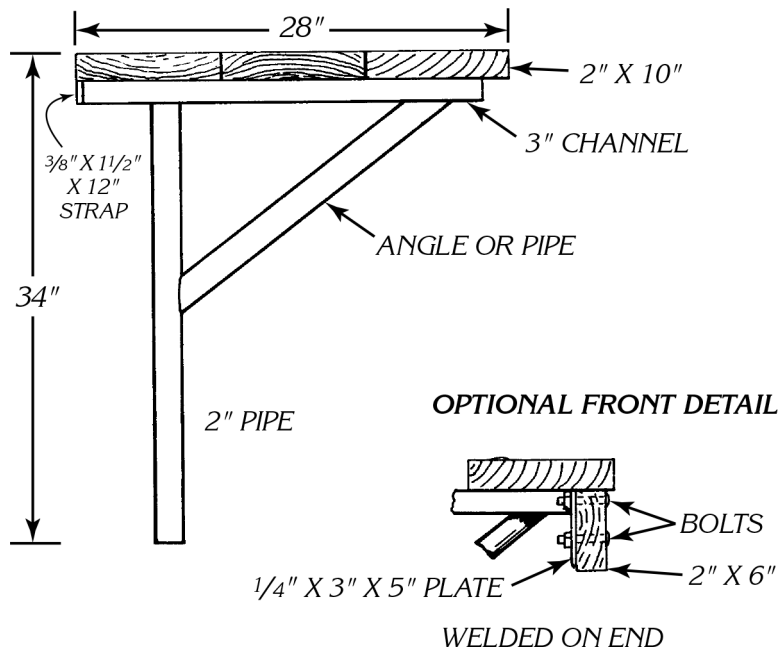
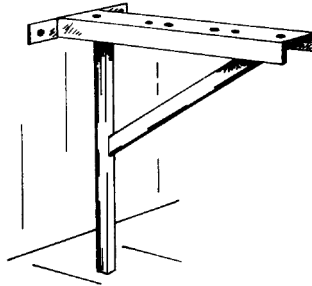


WORKBENCH

SCALE: $\frac{1}{8}'' = 1''$

BILL OF MATERIAL

2 PIECES OF $1\frac{1}{2}'' \times \frac{3}{16}''$ ANGLE 19'' LONG
2 PIECES OF $1\frac{1}{2}'' \times \frac{3}{16}''$ ANGLE $\times 23\frac{1}{2}''$ LONG
10 FIRE BRICKS

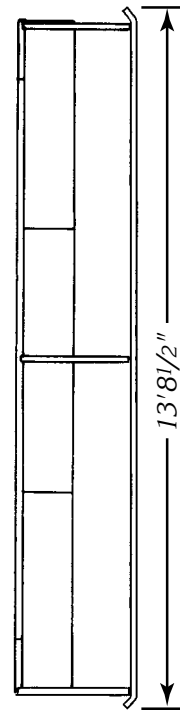
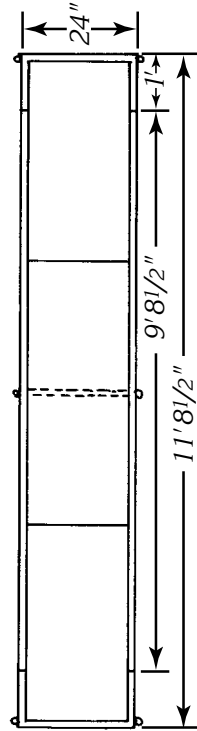
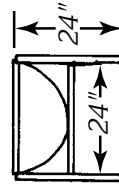
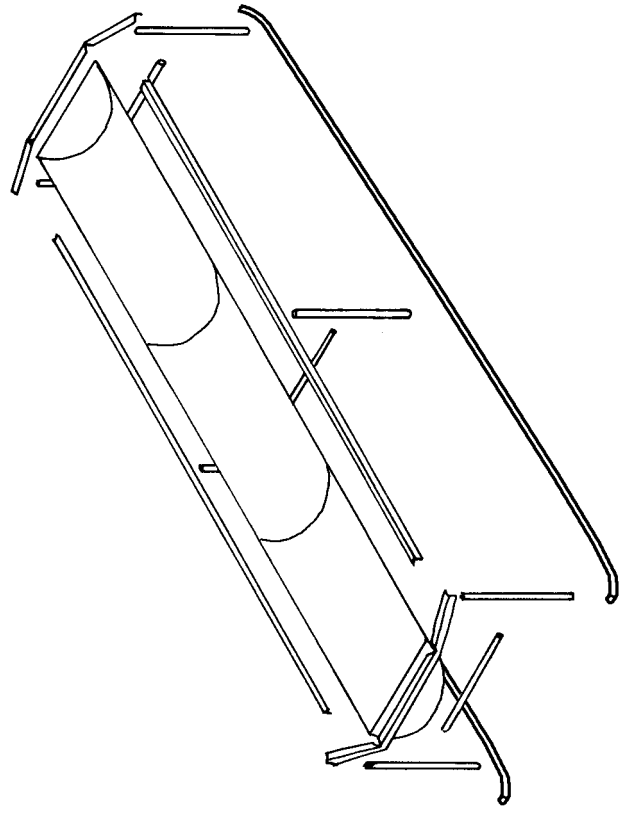


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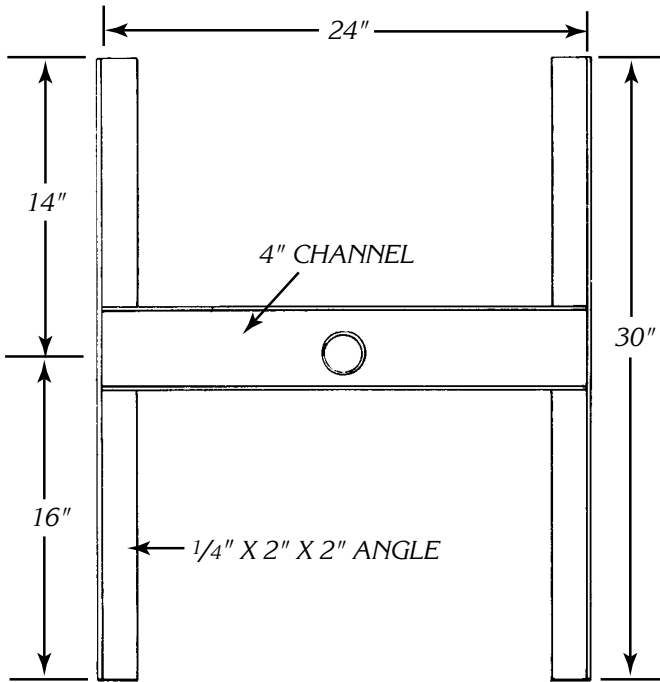
BARREL FEEDER
SCALE: 1/2" = 1'

- BILL OF MATERIALS**
- 2 PIECES OF 1 1/2" ANGLEIRON 9'8 1/2" LONG
 - 2 PIECES OF 1 1/2" ANGLEIRON 4' LONG
 - 9 PIECES OF 1 1/2" PIPE 24" LONG
 - 3 - 55 GALLON BARREL HALVES
 - 2 PIECES OF 1 1/2" PIPE 13'8 1/2" LONG



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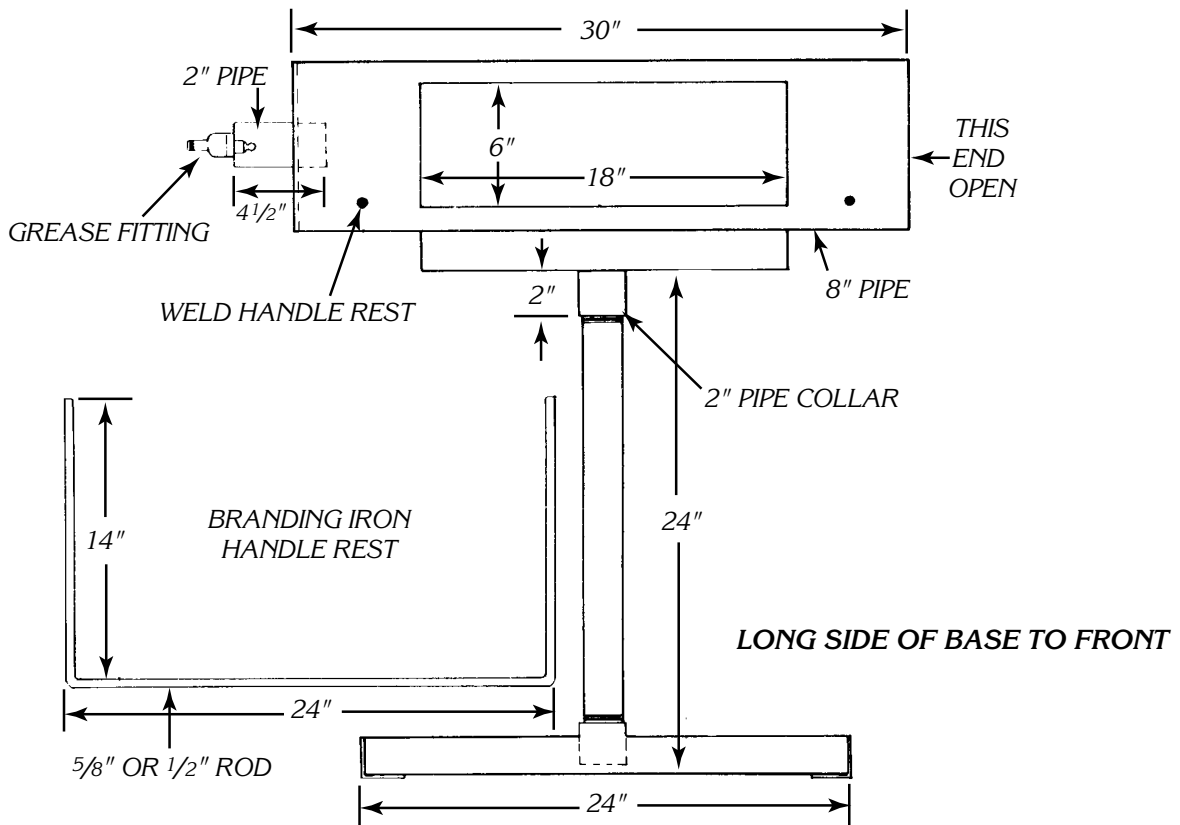
BASE

BRANDING IRON HEATER

SCALE: $\frac{3}{16}'' = 1''$

BILL OF MATERIAL

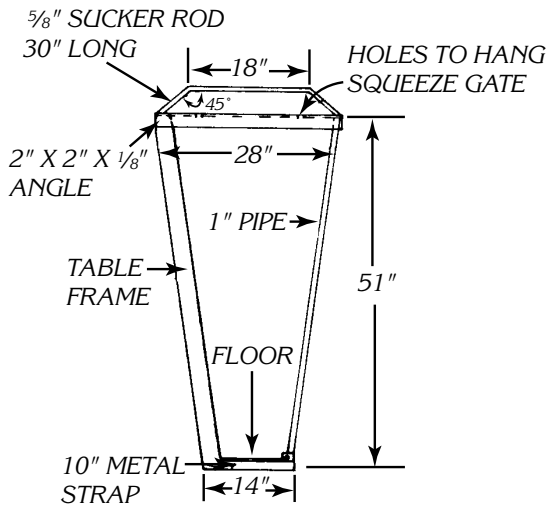
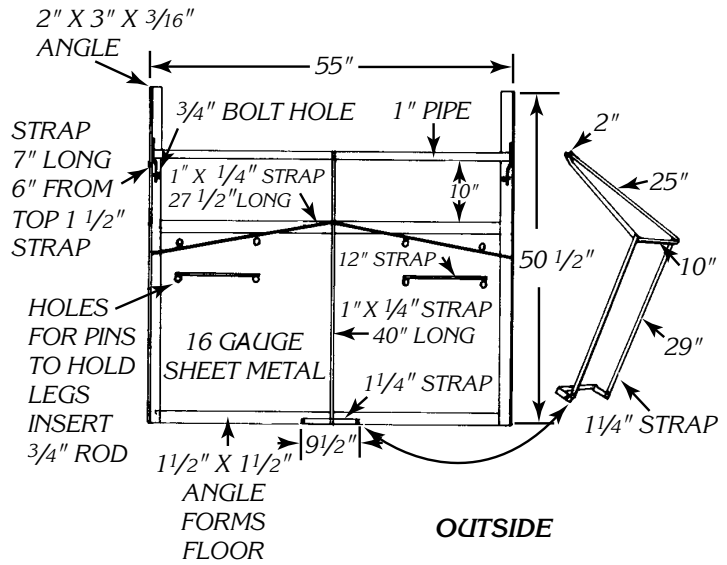
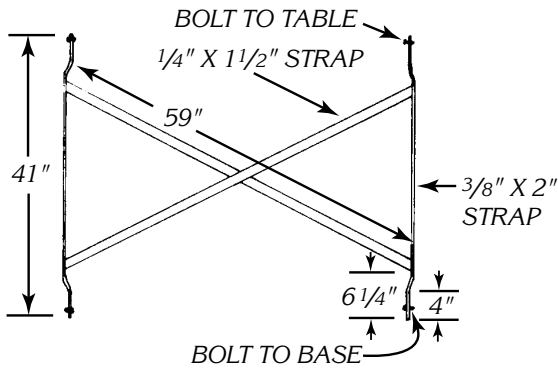
- 2 PIECES OF 2" PIPE COLLAR 2" LONG
- 1 PIECE OF 2" THREADED PIPE 23" LONG
- 1 PIECE OF 2" PIPE 4 1/2" LONG
- 1 PIECE OF 8" PIPE 30" LONG
- 1 PIECE OF 1/8" FLAT METAL 8" DIAMETER
- 1 PIECE OF 4" CHANNEL 18" LONG
- 1 PIECE OF 4" CHANNEL 24" LONG
- 2 PIECES OF 1/4" X 2" X 2" ANGLE 30" LONG
- 1 PIECE OF 1/2" OR 5/8" ROD 52" LONG
- 1 PIECE OF 1/2" PIPE TO HOSE GAS CONNECTER
- 1 PIECE OF 1/2" X 1/4" REDUCER
- 1 PIECE OF 1/4" X 1/8" REDUCER
- 1 GREASE ZERK WITH SPRING & BALL REMOVER



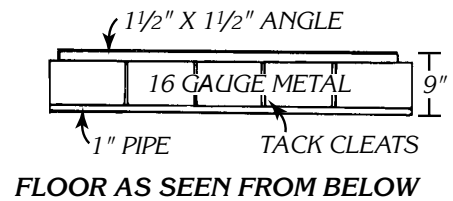
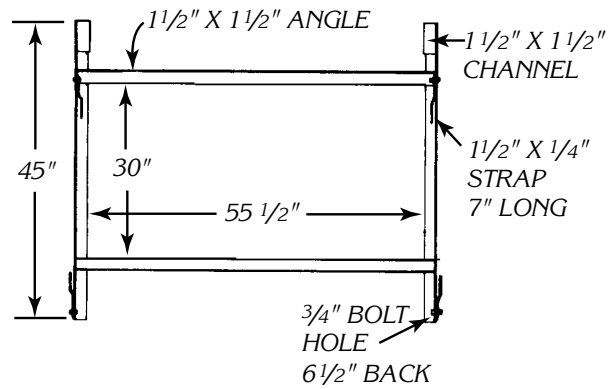
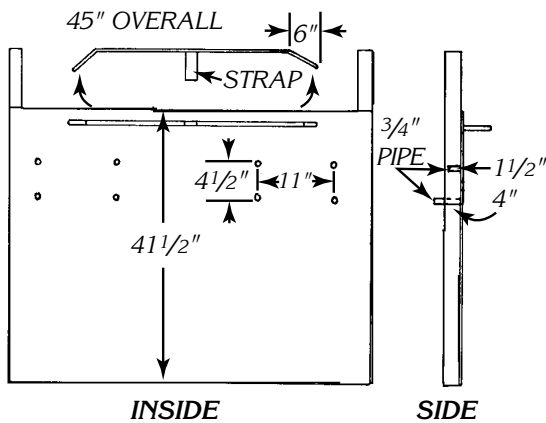
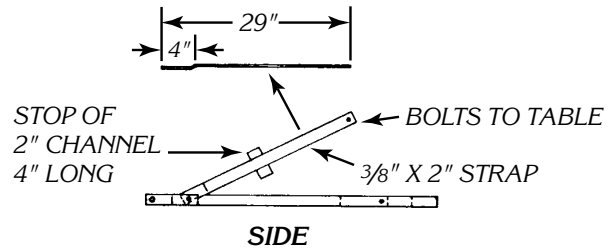
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CALF CRADLE
SCALE $\frac{3}{4}'' = 1'$



HEADGATE FRAME FOR BOTH ENDS

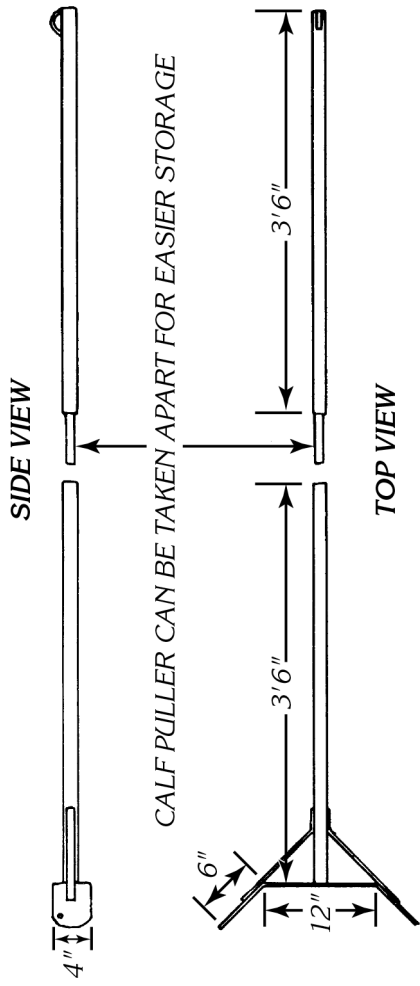


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CALF PULLER
SCALE: 1" = 1'

- BILL OF MATERIAL**
- 2 PIECES OF 1 1/2" SQUARE TUBING 3'6" LONG
 - 2 PIECES OF 1 1/4" SQUARE TUBING 12" LONG
 - 1 PIECE OF FLAT METAL 24" X 4" X 3/8"
 - 2 PIECES OF 1" OR 3/4" STRAP IRON 12" LONG
 - 1 PIECE OF 3/8" ROD 5" LONG

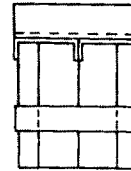
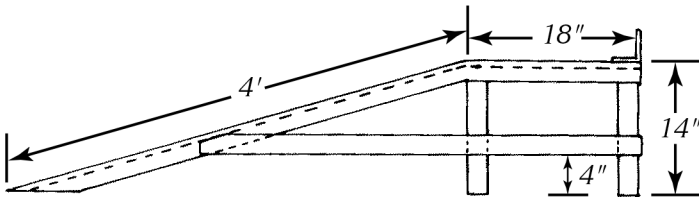


CAR RAMP

SCALE: 1" = 1'

BILL OF MATERIAL

2 PIECES OF 6" CHANNEL IRON 18" LONG
2 PIECES OF 6" CHANNEL IRON 48" LONG
4 PIECES OF 2" PIPE 14" LONG
2 PIECES OF 1 1/2" STRAP IRON 3' LONG
1 PIECE OF 1 1/2" STRAP IRON 3' LONG
EXPAND METAL COVERING

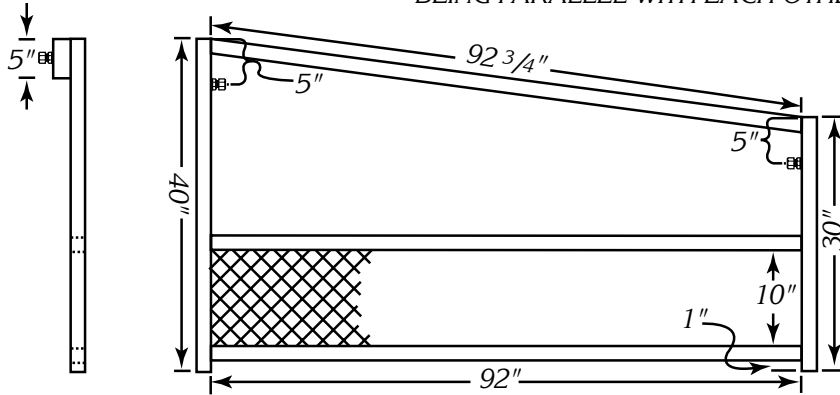


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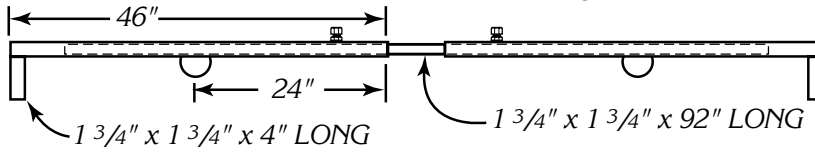
CATTLE FAN CAGE

NOTE: TOP RAIL IS CUT 8 WITH ENDS BEING PARALLEL WITH EACH OTHER.



1 3/4" x 1 3/4" x 4" LONG

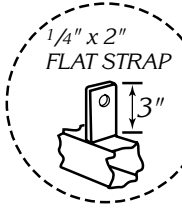
FRONT TIE RAIL



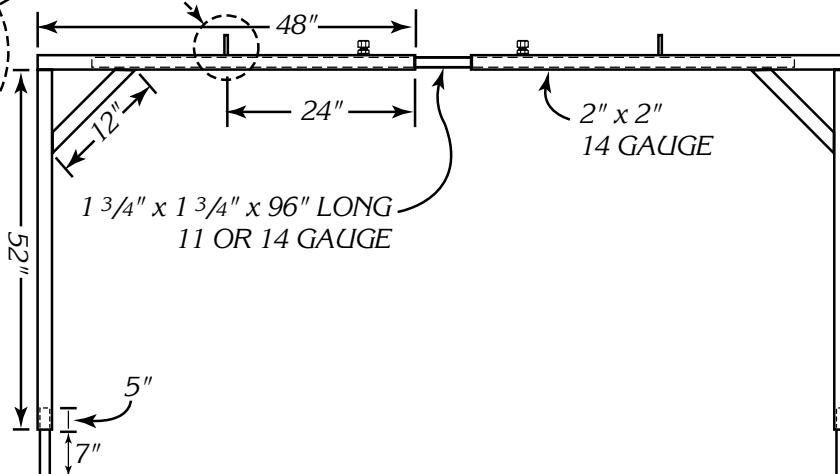
BILL OF MATERIAL

- 4 - 2" X 2" 14 GAUGE - 92" LONG
- 2 - 2" X 2" 14 GAUGE - 92 3/4" LONG
- 2 - 2" X 2" 14 GAUGE - 40" LONG
- 2 - 2" X 2" 14 GAUGE - 30" LONG
- 4 - 2" X 2" - 48"
- 2 - 2" X 2" - 52"
- 2 - 2" X 2" - 42"
- 2 - 1 3/4" X 1 3/4" - 96"
- 2 - 1 3/4" X 1 3/4" - 12"
- 2 - 1 1/4" X 2" FLAT STRAP - 12"
- 4 - 1 3/4" X 1 3/4" EXTRA - 4"
- 2 - 1/4" ROD FOR TIE LOOP
- 14 - BOLTS

FAN HOLDER BRACKET



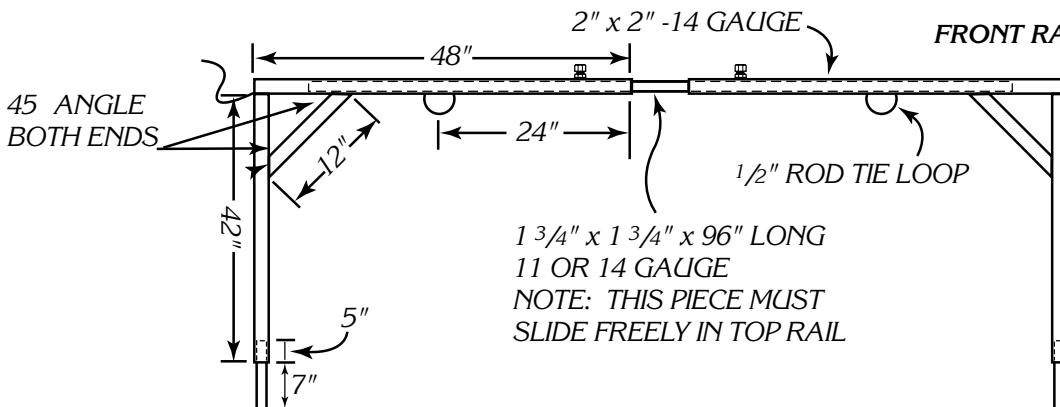
BACK RAIL



1 3/4" x 1 3/4" x 96" LONG
11 OR 14 GAUGE

2" x 2"
14 GAUGE

FRONT RAIL



1 3/4" x 1 3/4" x 96" LONG
11 OR 14 GAUGE

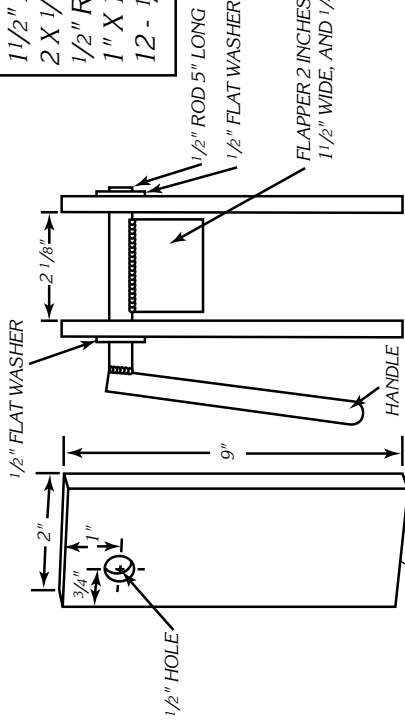
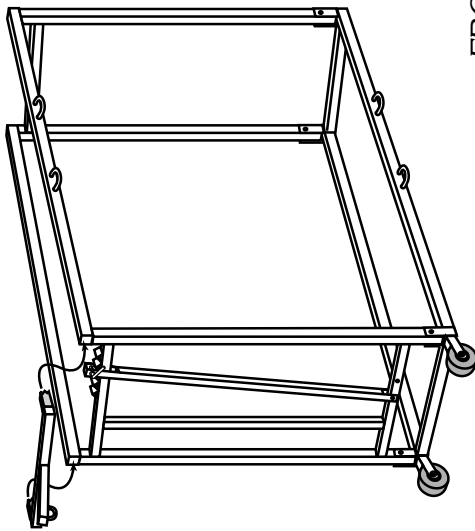
NOTE: THIS PIECE MUST
SLIDE FREELY IN TOP RAIL

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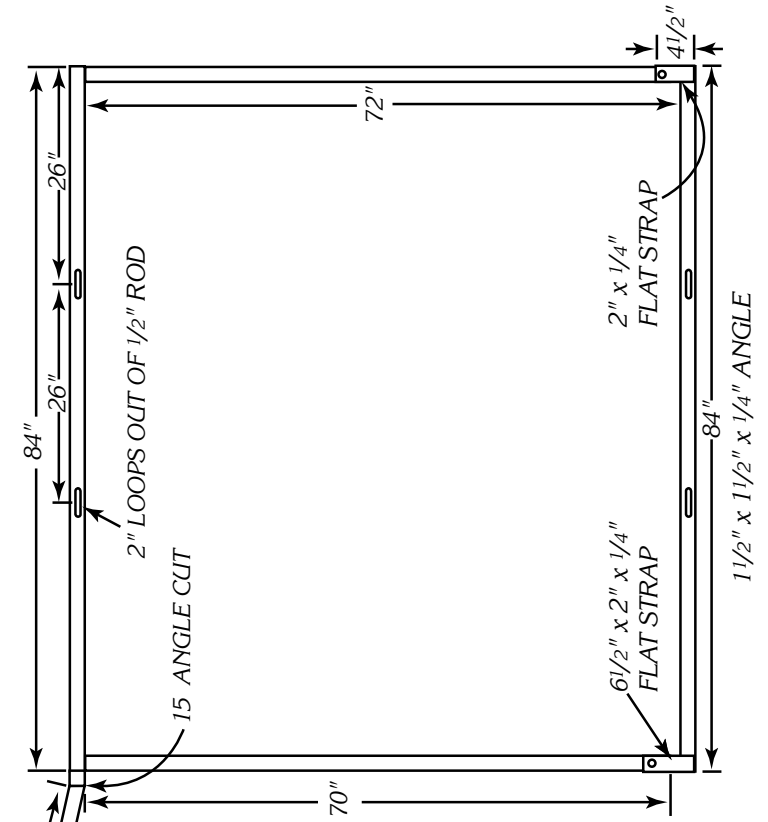
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Cattle Grooming Chute

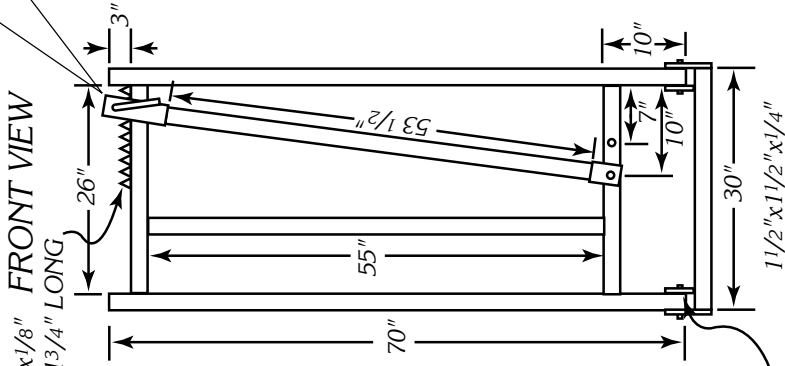
BILL OF MATERIALS
 1 1/2" X 1 1/2" X 1/4" ANGLE IRON - 228"
 2" X 2" X 1/4" SQUARE TUBING - 568 1/2"
 1 1/2" X 1 1/2" X 1/4" SQUARE TUBING - 18"
 2 X 1/4" FLAT STRAP - 86 1/2"
 1/2" ROD - 59" FOR HANDLES
 1" X 1" 1/8" ANGLE IRON - 17 1/2"
 12 - 1/2" FLAT WASHERS



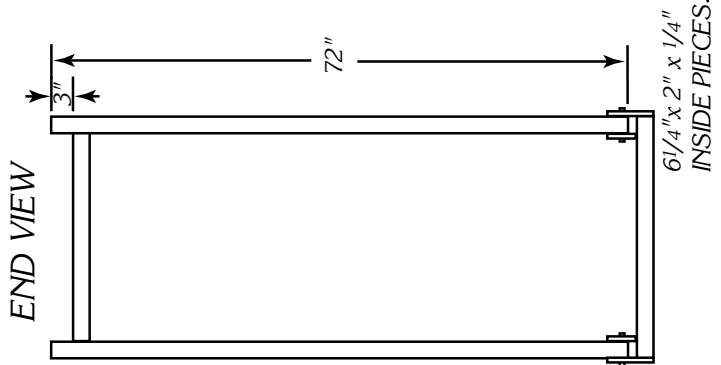
SIDE VIEW



FRONT VIEW



END VIEW

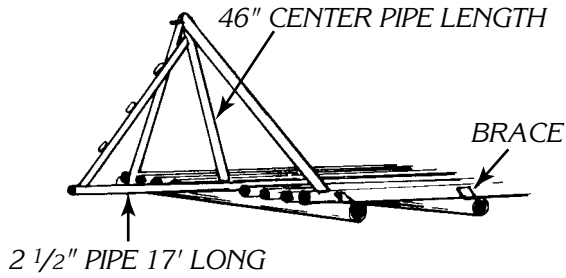


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CATTLE GUARD

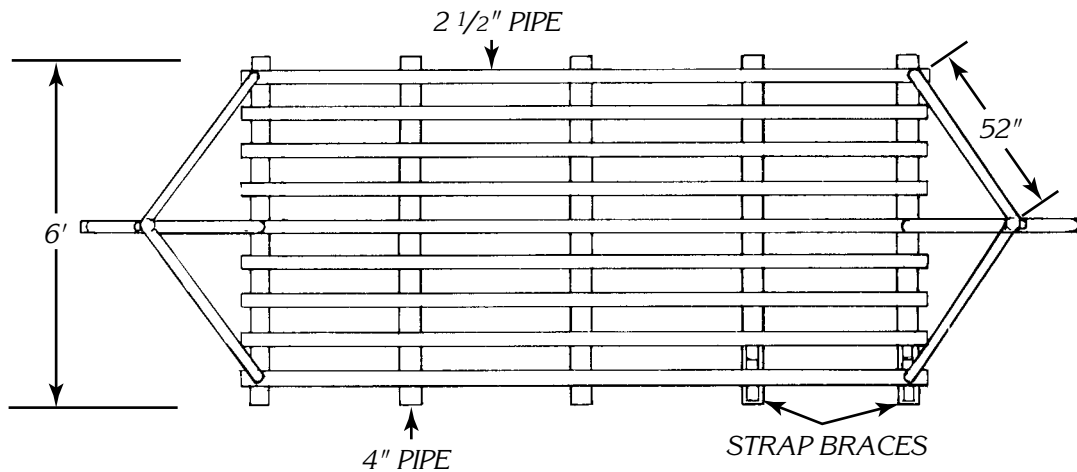
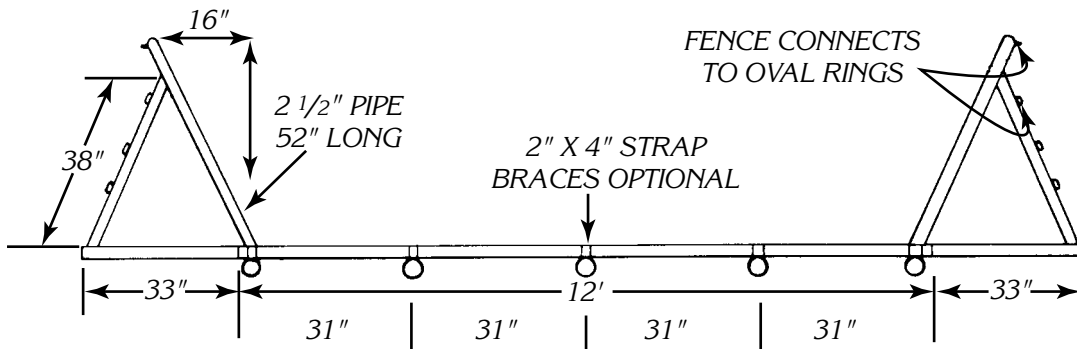
SCALE: 1/2" = 1'



PICTORIAL VIEW OF ONE END

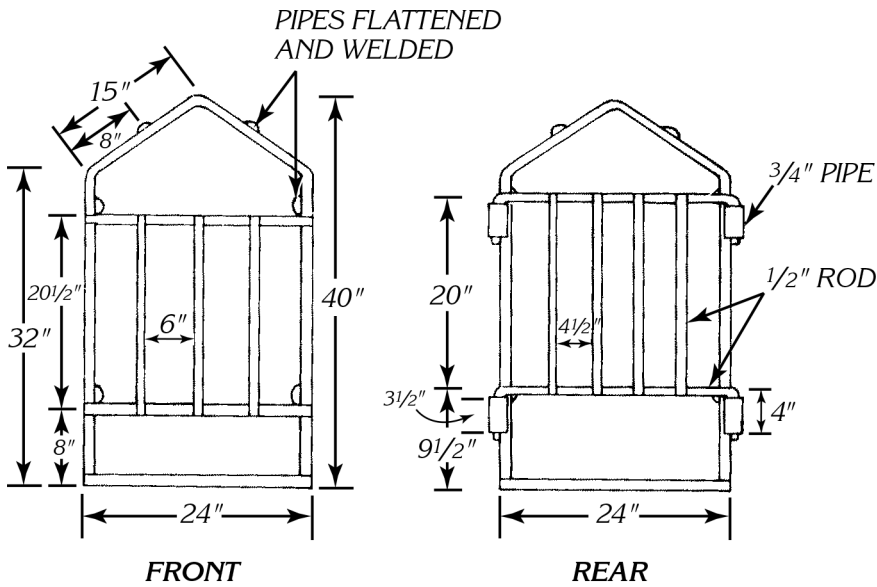
BILL OF MATERIAL

- 5 PIECES OF 4" PIPE 72" LONG
- 8 PIECES OF 2 1/2" PIPE 12' LONG
- 1 PIECE OF 2 1/2" PIPE 17' LONG
- 4 PIECES OF 2 1/2" PIPE 52" LONG
- 2 PIECES OF 2 1/2" PIPE 47" LONG
- 2 PIECES OF 2 1/2" PIPE 38" LONG
- 20 PIECES OF 2" X 4" STRAP METAL
- 70 PIECES OF 1 1/2" X 3" STRAP METAL
- 8 PIECES OF OVAL SHAPED RINGS



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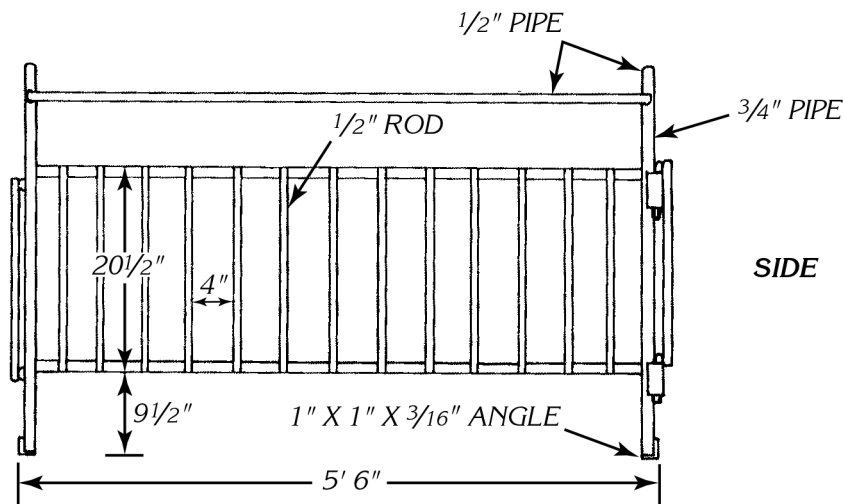


FARROWING CRATE

SCALE: 1" = 1'

BILL OF MATERIAL

29 PIECES OF 1/2" ROD 20 1/2" LONG
 4 PIECES OF 1/2" ROD 20" LONG
 4 PIECES OF 1" X 1" X 3/16" ANGLE IRON
 4 PIECES OF 3/4" PIPE 3 1/2" LONG
 4 PIECES OF 3/4" PIPE 5'6" LONG
 2 PIECES OF 1/2" PIPE 5'6" LONG
 2 PIECES OF 1/2" PIPE 24" LONG
 2 PIECES OF 1/2" PIPE 32" LONG
 4 PIECES OF 1/2" PIPE 47" LONG

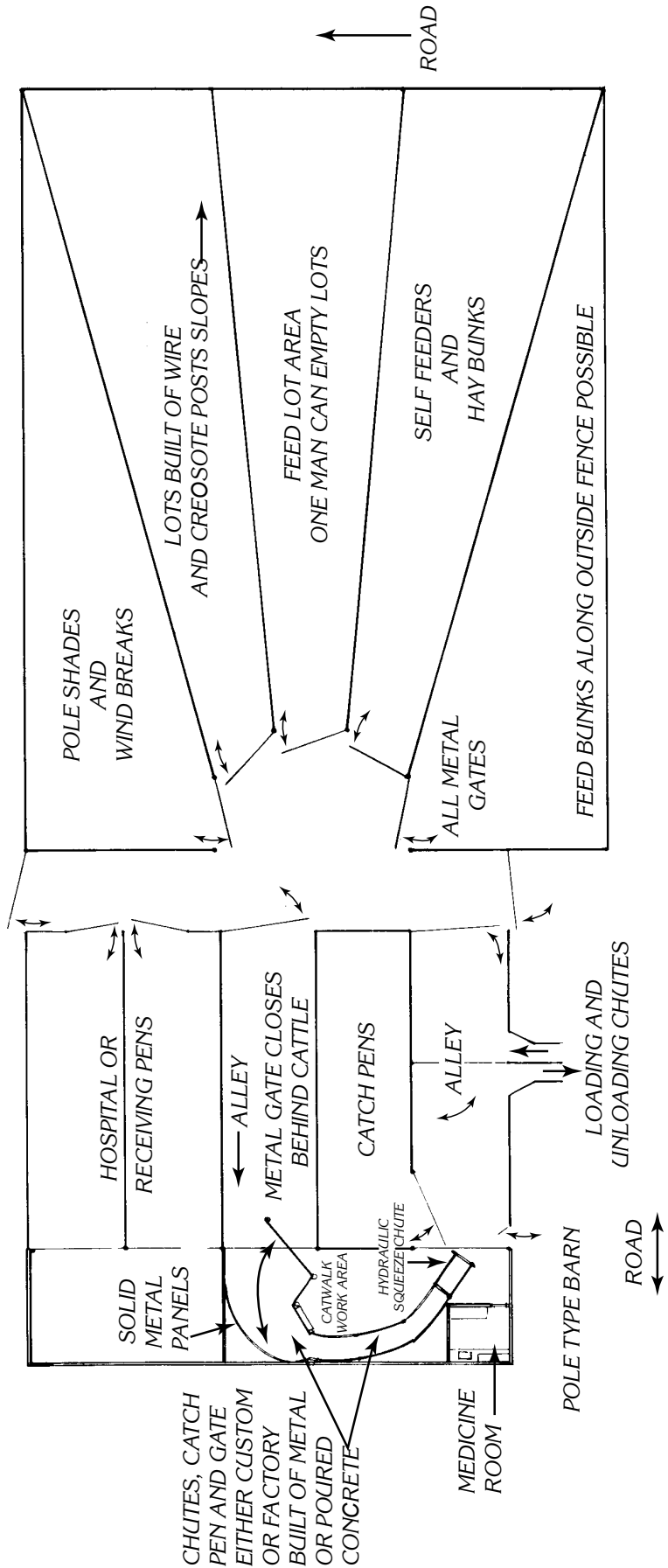


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FEED LOT LAYOUT

LAYOUT DESIGNED FOR MAXIMUM USE OF SPACE AND MINIMUM LABOR DEMANDS ALL-WEATHER WORK AREA AND EASY HANDLING PENS

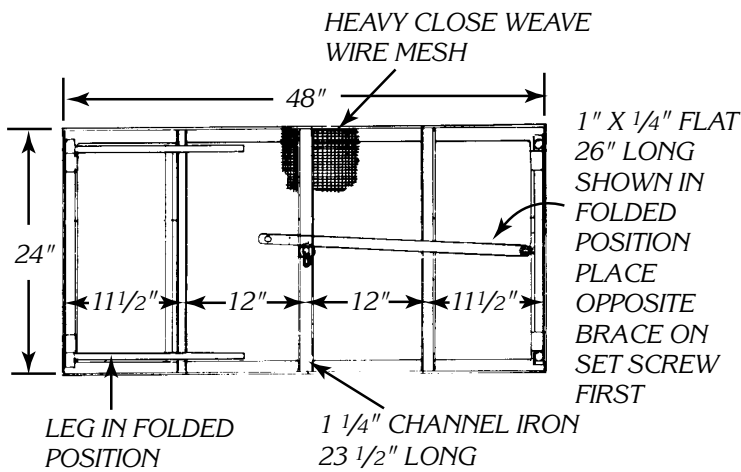


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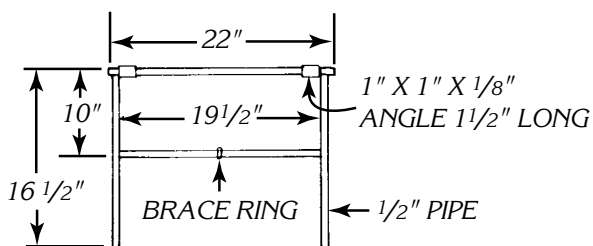
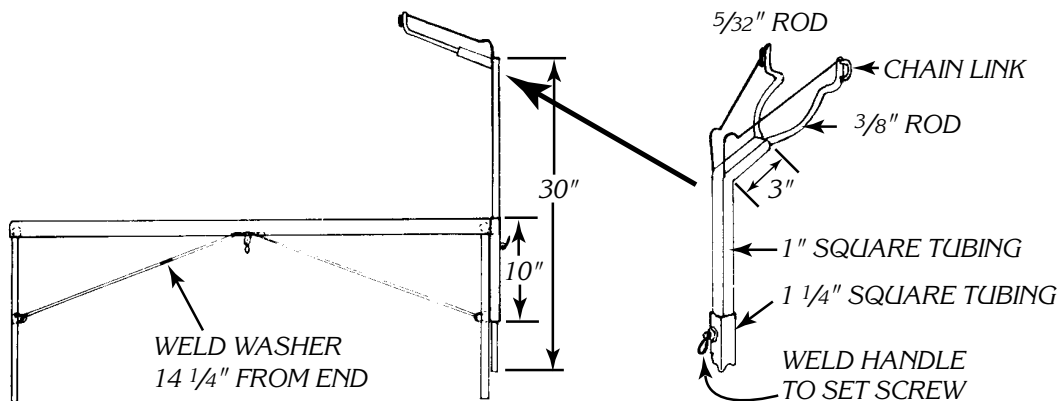
FOLDING SHEEP BLOCKING STAND

SCALE: $\frac{3}{32}'' = 1'$



BILL OF MATERIAL

2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 48" LONG
 1 PIECE OF HEAVY MESH WIRE 24" X 48"
 1 PIECE OF 1 1/4" SQUARE TUBING 10" LONG
 1 PIECE OF 1" SQUARE TUBING 33" LONG
 2 PIECES OF 3/8" ROD 8" LONG
 4 PIECES OF 1" X 1" X 1/8" ANGLE IRON 1 1/2" LONG
 4 PIECES OF 1/2" PIPE 16 1/2" LONG
 2 PIECES OF 1/2" PIPE 19 1/2" LONG
 2 PIECES OF 1/2" PIPE 22" LONG
 3 PIECES OF 1 1/4" CHANNEL IRON 23 1/2" LONG
 2 PIECES OF 1/4" X 1" FLAT METAL 26" LONG
 2 PIECES OF 5/32" ROD 10" LONG
 1 WASHER, 2 SET OF SCREWS, & 2 BRACE SCREWS



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FOLDING SORTING GATE

SCALE: 1" = 1'

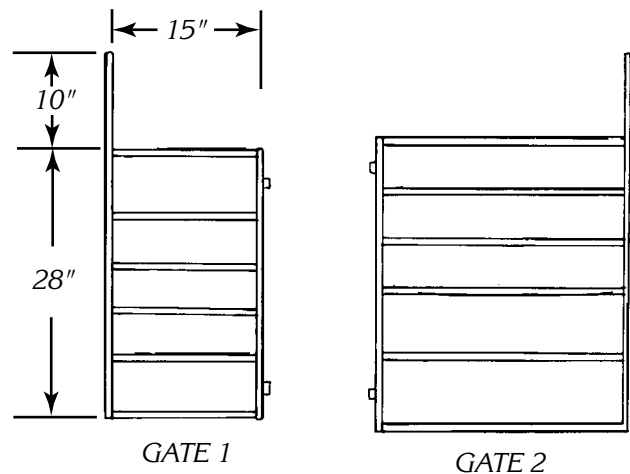


<https://www.okcareertech.org/educators/resource-center>

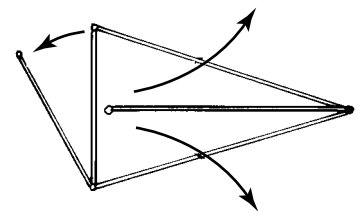
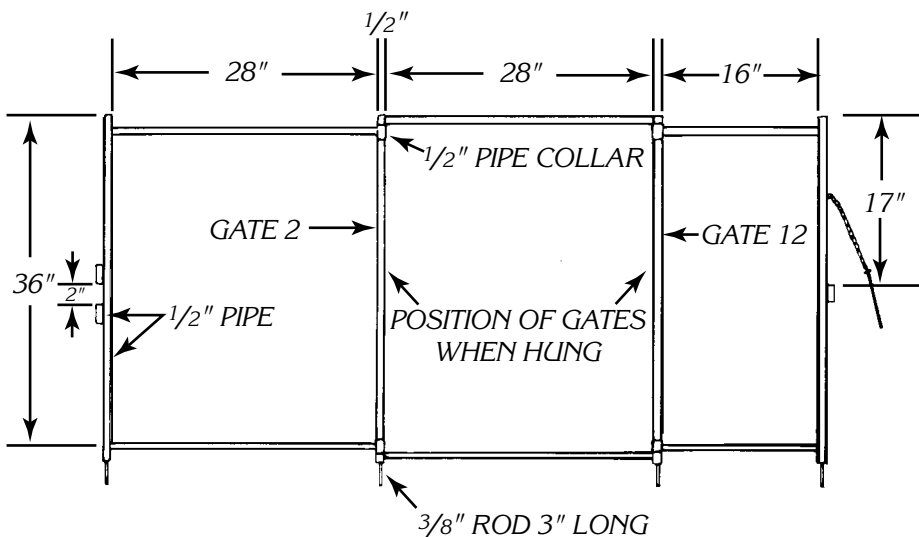
BILL OF MATERIAL

4 PIECES OF 1/2" PIPE 36" LONG
 4 PIECES OF 1/2" PIPE 28" LONG
 2 PIECES OF 1/2" PIPE 16" LONG
 3 PIECES OF 1/2" PIPE 2" LONG
 4 PIECES OF 1/2" PIPE COLLAR 2" LONG
 12 PIECES OF 1/2" PIPE 15" LONG
 1 PIECE OF 1/2" PIPE 38" LONG
 1 PIECE OF 1/2" PIPE 40" LONG
 1 PIECE OF 1/2" PIPE 28" LONG
 1 PIECE OF 1/2" PIPE 30" LONG
 4 PIECES OF 3/8" ROD 6" LONG

GATES



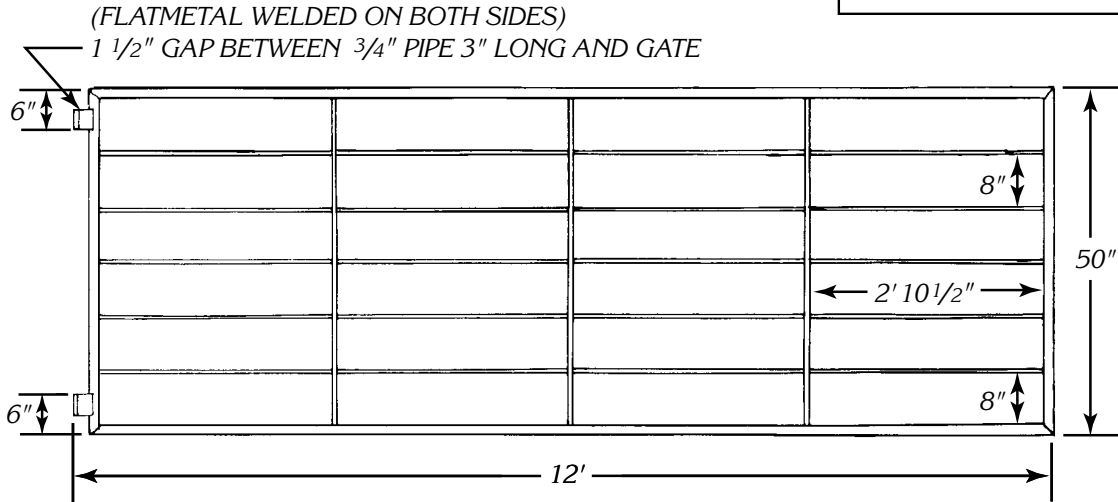
FRAME FOLDED OUT



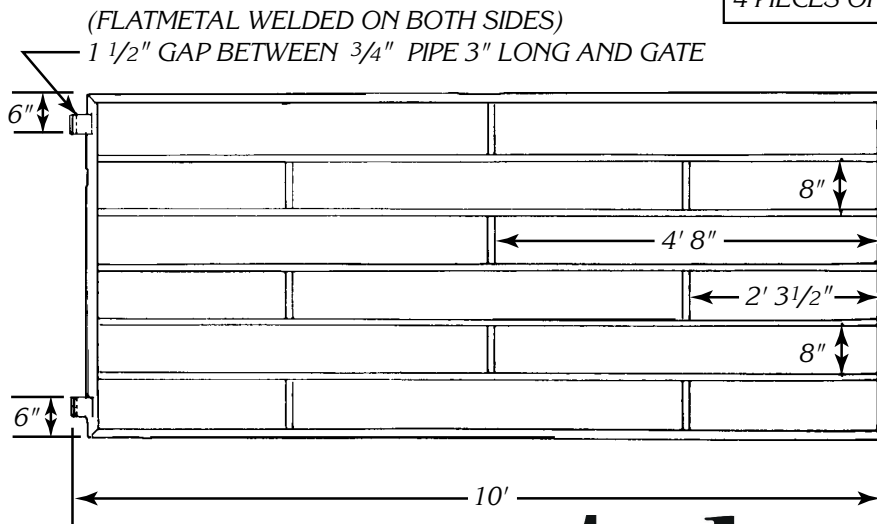
PLACE GATE AT HEAD OF
CHUTE OR ON FENCE ROW
BETWEEN PENS

GATES
SCALE: $\frac{3}{4}'' - 1'$

BILL OF MATERIAL	
2 PIECES OF	1 1/2" PIPE 11' 9 1/2" LONG
2 PIECES OF	1 1/2" PIPE 50" LONG
5 PIECES OF	5/8" ROD 11' 6" LONG
3 PIECES OF	5/8" ROD 47" LONG
2 PIECES OF	3/4" PIPE 3" LONG
4 PIECES OF	FLATMETAL 1/4" X 2 1/2" X 3"



BILL OF MATERIAL	
2 PIECES OF	1 1/2" SQ. TUBING 9' 9 1/2" LONG
2 PIECES OF	1 1/2" SQ. TUBING 50" LONG
5 PIECES OF	1" SQ. TUBING 9' 6 1/2" LONG
9 PIECES OF	1" SQ. TUBING 7 1/4" LONG
2 PIECES OF	3/4" PIPE 3" LONG
4 PIECES OF	FLATMETAL 1/4" X 3" X 3"

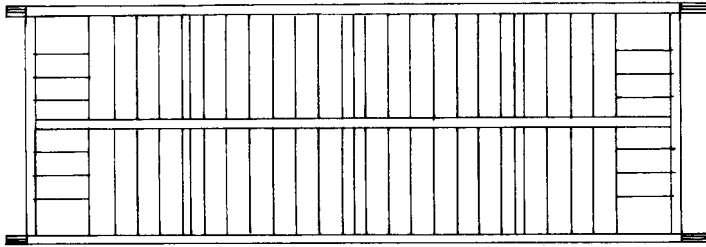


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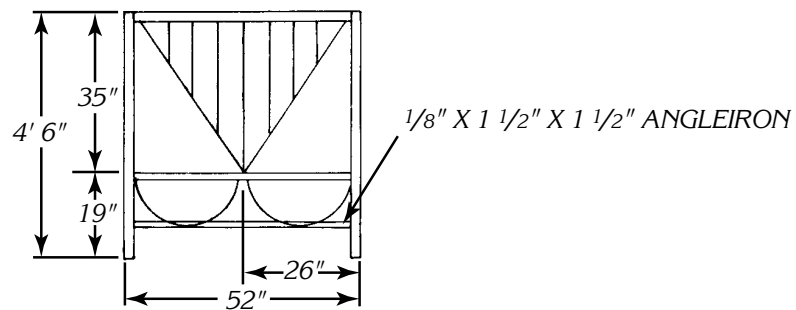
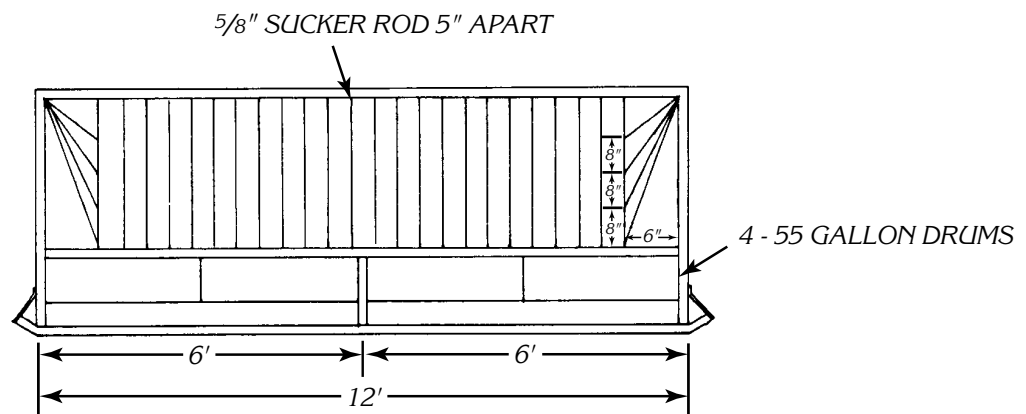
HAY FEEDER

SCALE: 1/2" = 1'



BILL OF MATERIAL

- 2 PIECES OF 2" PIPE 13' LONG
- 3 PIECES OF 2" PIPE 12' LONG
- 2 PIECES OF 2" PIPE 11' 8" LONG
- 3 PIECES OF 2" PIPE 4' LONG
- 2 PIECES OF 2" PIPE 15" LONG
- 4 PIECES OF 1 1/2" ANGLEIRON 4' LONG
- 48 PIECES 5/8" ROD 3'6" LONG
- 4 PIECES 5/8" ROD 9" LONG
- 2 PIECES 5/8" ROD 2' 10" LONG
- 4 PIECES 5/8" ROD 2' 1" LONG
- 4 PIECES 5/8" ROD 1' 5" LONG
- 4 PIECES 5/8" ROD 10" LONG
- 4 - 55 GALLON DRUMS

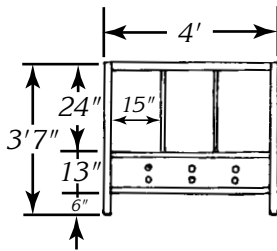
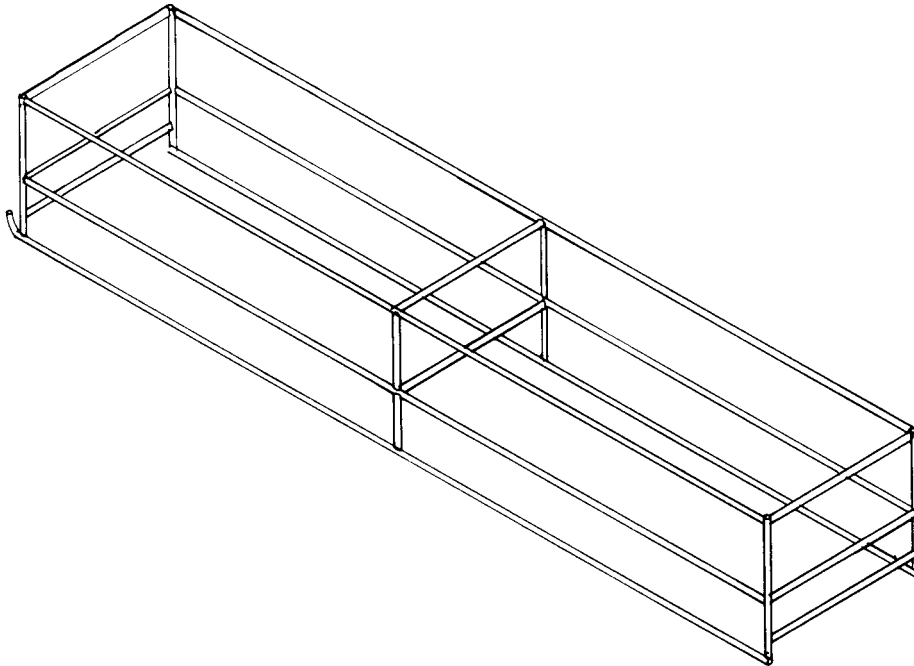


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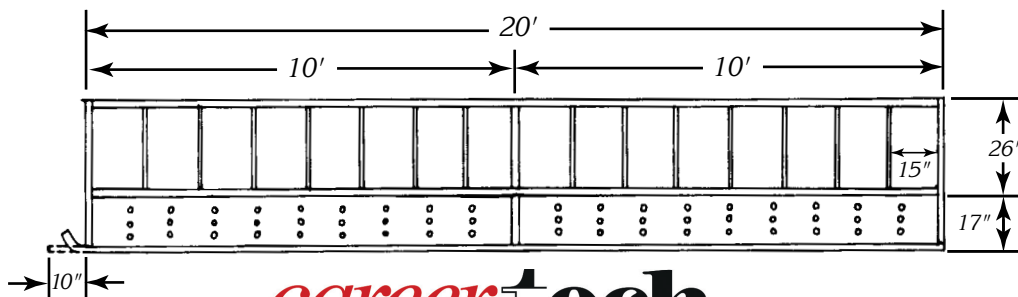
HAY FEEDER

SCALE: $\frac{3}{8}'' = 1'$



BILL OF MATERIAL

- 4 PIECES OF 2" PIPE 19' 8" LONG
- 2 PIECES OF 2" PIPE 20' 10" LONG
- 4 PIECES OF 2" PIPE 3' 5" LONG
- 2 PIECES OF 2" PIPE 22 1/4" LONG
- 2 PIECES OF 2" PIPE 15 1/4" LONG
- 8 PIECES OF 2" PIPE 3' 8" LONG
- 4 LANDING MATS 10' X 16"
- 2 LANDING MATS 3' 8" LONG
- 32 PIECES OF 5/8" OR 3/4" SUCKER ROD 22" LONG

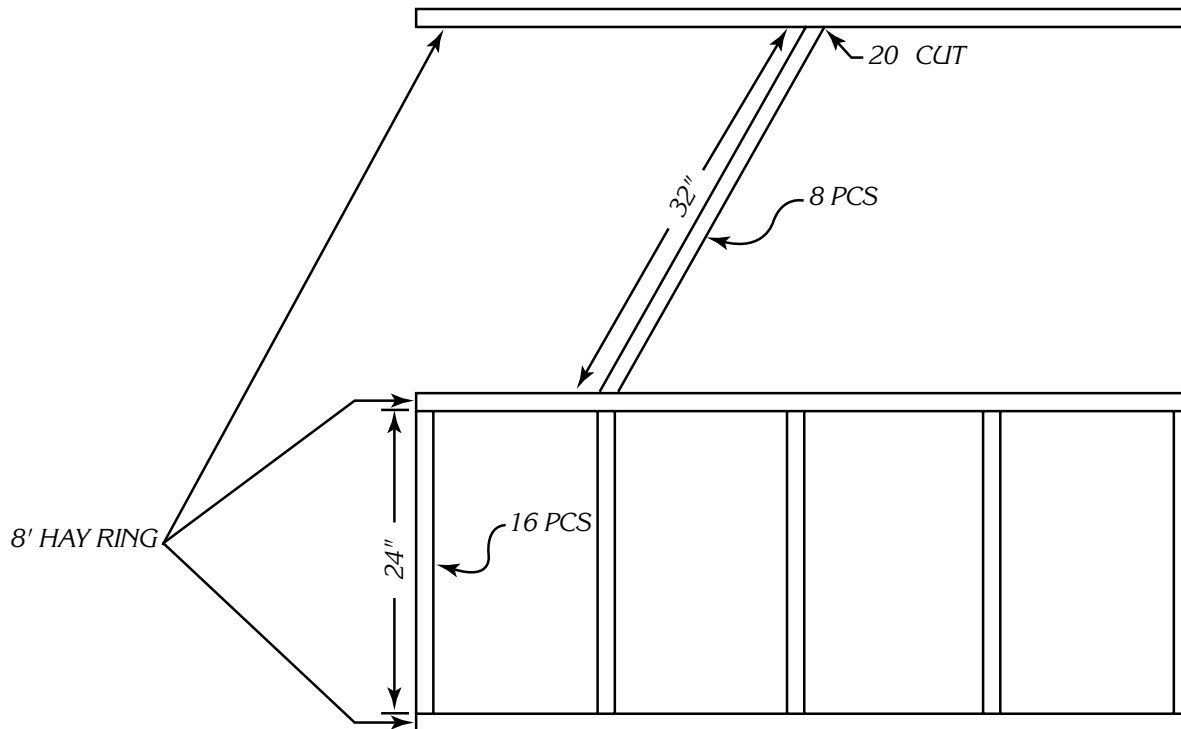


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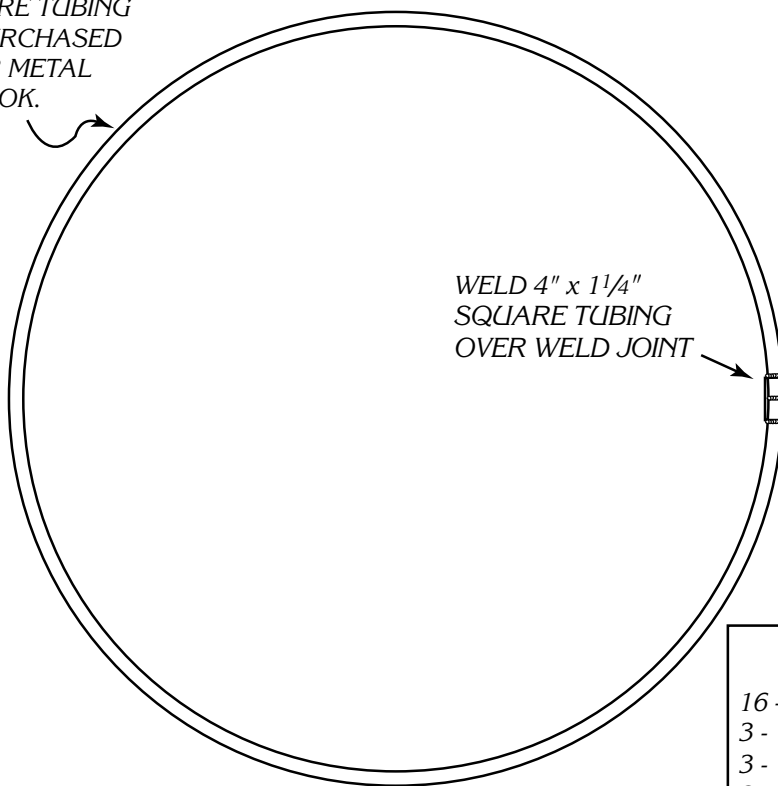
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HAY RING



8' x 1" SQUARE TUBING
HAY RING PURCHASED
AT WHEELER METAL
MUSKOGEE, OK.



WELD 4" x 1 1/4"
SQUARE TUBING
OVER WELD JOINT

BILL OF MATERIALS

- 16 - 24" X 1" SQUARE TUBING
- 3 - 8' X 1" SQUARE TUBING RINGS
- 3 - 4" X 1 1/4" SQUARE TUBING
- 8 - 1" SQUARE TUBING - 32" TALL

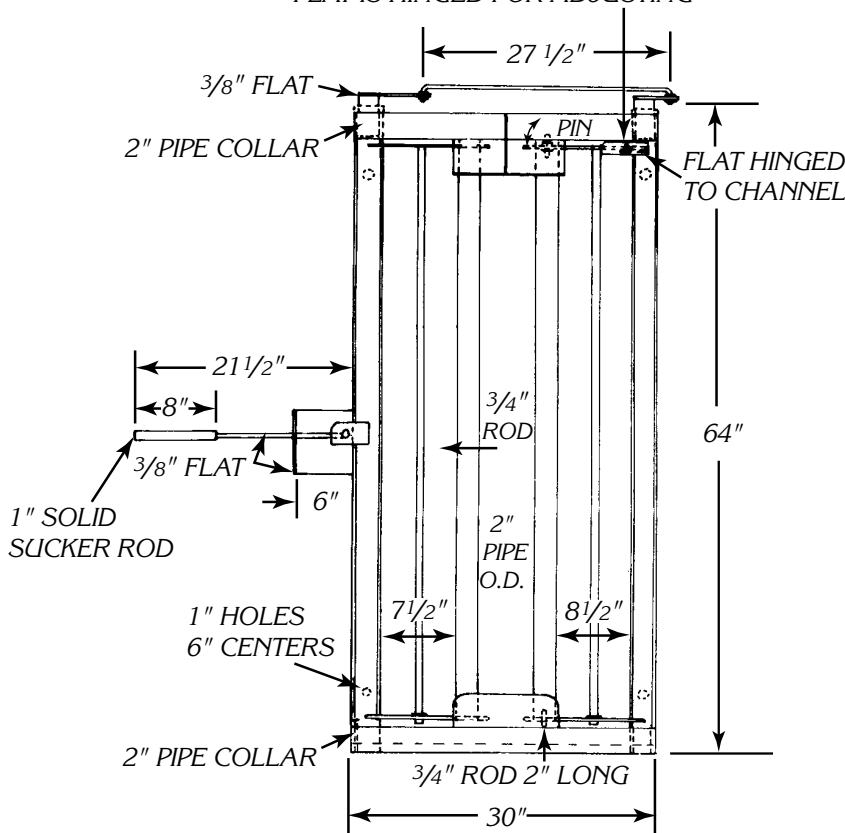
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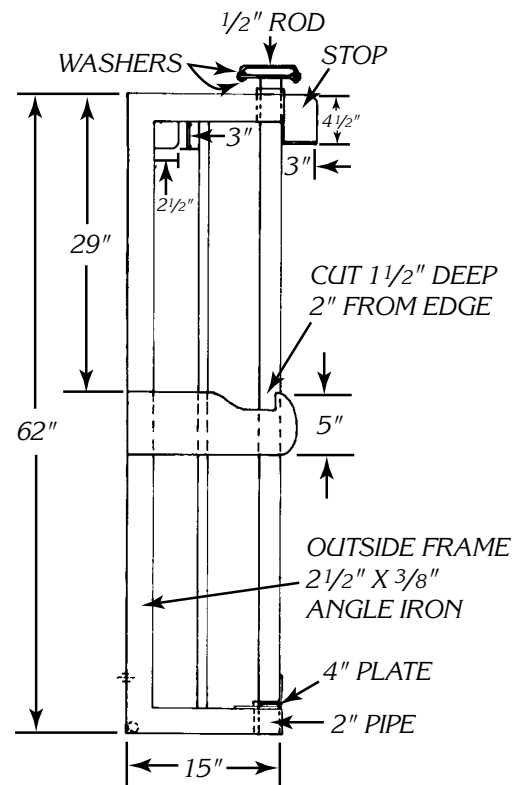
HEADGATE

SCALE $\frac{3}{32}'' = 1''$

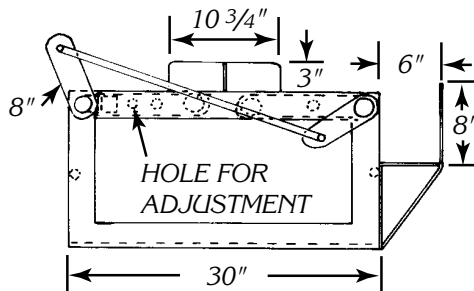
ONE SIDE OF GATE IS ADJUSTABLE,
FLAT IS HINGED FOR ADJUSTING



FRONT



SIDE



TOP

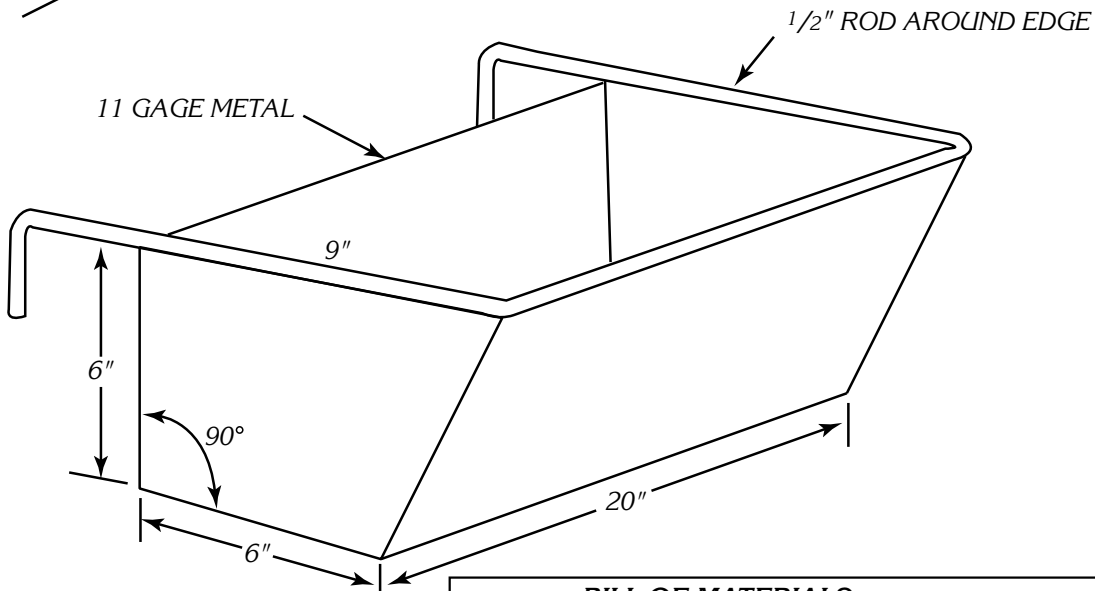
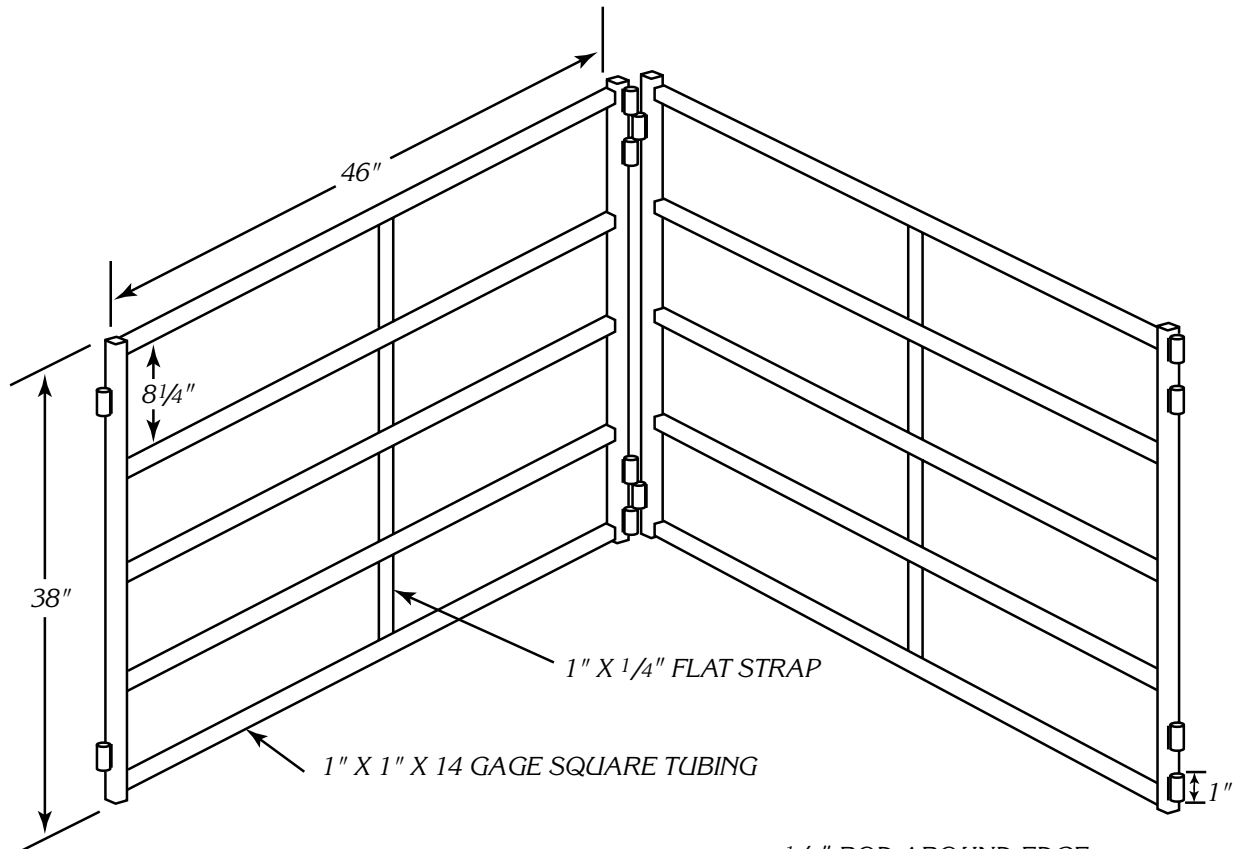
BILL OF MATERIAL

- 2 PIECES OF 2" O.D. PIPE 54" LONG
- 2 PIECES OF 2" O.D. PIPE 62" LONG
- 4 PIECES OF 2" PIPE COLLAR 2 1/2" LONG
- 2 PIECES OF 3/4" ROD 56" LONG
- 4 PIECES OF 3/8" FLAT 3 1/2" X 12"
- 2 PIECES OF 3/4" ROD 57" LONG
- 1 PIECE OF 1/2" ROD 27 1/2" LONG
- 2 PIECES OF 3/8" X 2 1/2" ANGLE IRON 62" LONG
- 2 PIECES OF 3/8" X 2 1/2" ANGLE IRON 30" LONG
- 4 PIECES OF 3/8" X 2 1/2" ANGLE IRON 10" LONG
- 2 PIECES OF 3/8" X 3 1/2" FLAT 8" IRON
- 1 PIECE OF 3/8" X 3" FLAT 30" LONG
- 1 PIECE OF SUCKER ROD END 8" LONG
- 1 PIECE OF 3/8" X 2" FLAT 13 1/2" LONG
- 1 PIECE OF 2" CHANNEL 5" LONG
- 1 PIECE OF 1" CHANNEL 5" LONG
- 2 PIECES OF 3/8" FLAT 2 1/2" X 3"

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LAMBING PEN PANELS



BILL OF MATERIALS

1 PIECE 1" X 1/4" FLAT STRAP 38" LONG
 5 PIECES OF 1" X 1" 14 GAUGE SQUARE TUBING 46" LONG
 2 PIECES OF 1" X 1" 14 GAUGE SQUARE TUBING 38" LONG
 6 PIECES 3/4" ROUND TUBING 1" LONG (HINGES)
 1 PIECE 1/4" ROD 38" LONG
 11 GAUGE SHEET METAL TO FIT LENGTH IN DIAGRAM

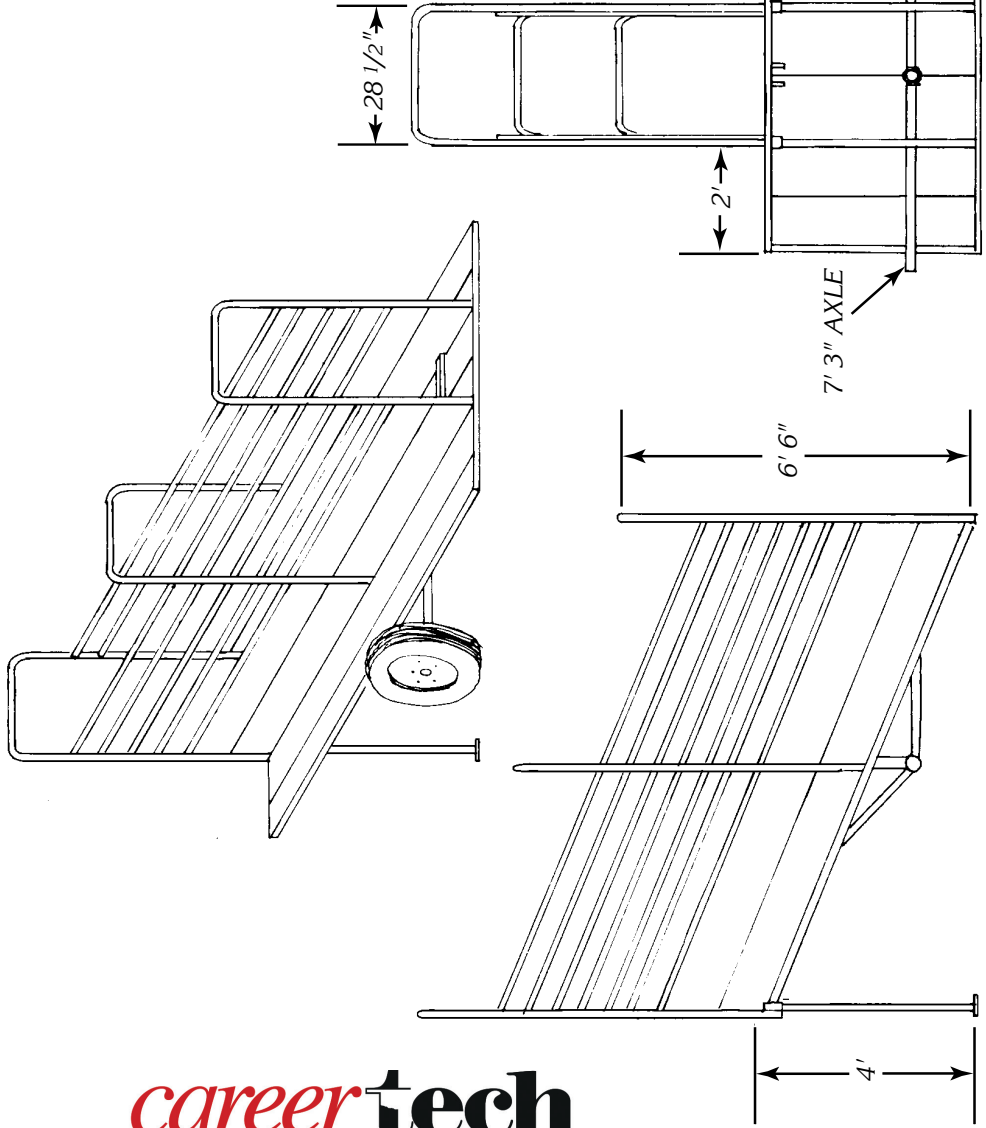
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LOADING CHUTE

SCALE: 1/2" = 1'

- BILL OF MATERIAL**
- 10 PIECES OF 1" SQ. TUBING 10' LONG
 - 6 PIECES OF 1 1/4" SQ. TUBING 5' LONG
 - 8 PIECES OF 1" SQ. TUBING 26" LONG
 - 1 PIECE OF 2 1/2" PIPE 7' 3" LONG
 - 5 PIECES OF 2 7/8" PIPE 4" LONG
 - 2 PIECES OF 2 3/8" PIPE 4" LONG
 - 1 PIECE OF 2 1/2" PIPE 9' LONG
 - 4 PIECES OF 2" X 1 1/2" ANGLEIRON 10' LONG
 - 2 PIECES OF 2" X 1 1/2" ANGLEIRON 6' 7" LONG
 - 4 PIECES OF 2" X 1 1/2" ANGLEIRON 2' LONG
 - 2 PIECES OF 2" X 1/2" ANGLEIRON 8" LONG
 - 4 PIECES OF FLAT IRON 4" X 3" X 1/2"
 - 4 PIECES OF FLAT IRON 4" X 4" X 1/2"
 - 4 BOARDS 2" X 10" - 10' LONG
 - 24 - 1/4" CARRIAGE BOLTS 2 1/2" LONG
 - 2 - 1/4" MACHINE BOLTS 2 1/2" LONG
 - 1 - 1/2" MACHINE BOLTS 3 1/2" LONG

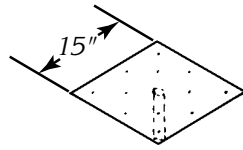
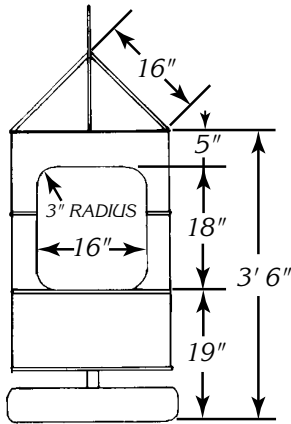


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MINERAL FEEDERS

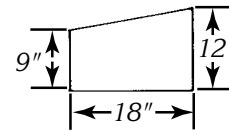
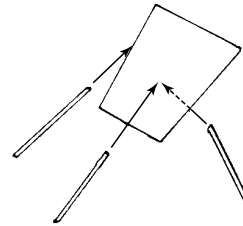
SCALE: $\frac{3}{4}'' = 1'$



$\frac{1}{4}''$ X 15'' X 15'' FLATMETAL BOLTED TO BARREL WITH $1\frac{3}{4}''$ PIPE WELDED TO FLATMETAL TO FIT OVER $1\frac{1}{2}''$ ROD FOR SWIVEL

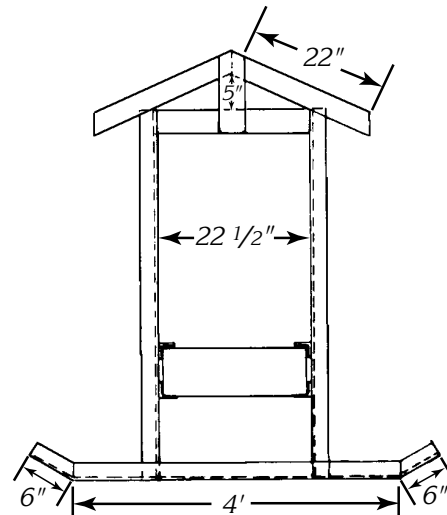
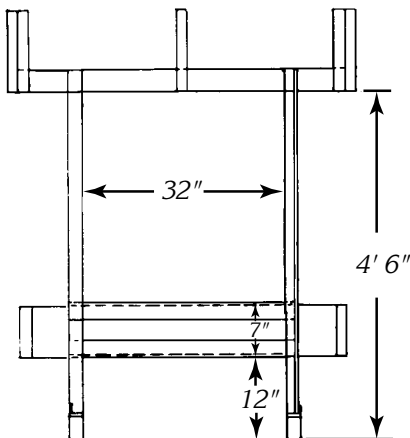
BILL OF MATERIAL

- 1 - 55 GALLON BARREL
- 1 PIECE OF $1\frac{1}{2}''$ ROD APPROX. 5" LONG
- 1 PIECE OF $1\frac{3}{4}''$ ROD APPROX. 4" LONG
- 1 WHEEL AND TIRE CEMENTED
- 1 PIECE OF SHEETMETAL 18" X 12"
- 3 WEATHER VAIN BRACES 16" LONG
- 1 PIECE OF $\frac{1}{4}''$ X 15" X 15" FLATMETAL



BILL OF MATERIAL

- 2 PIECES OF $2\frac{1}{2}''$ ANGLE IRON 5' LONG
- 4 PIECES OF $2\frac{1}{2}''$ ANGLE IRON 4' 6" LONG
- 4 PIECES OF $2\frac{1}{2}''$ ANGLE IRON 32" LONG
- 4 - 2" X 6" BOARDS 3' 9" LONG
- 2 - 2" X 6" BOARDS APPROX. 22" LONG
- 2 - 2" X 4" BOARDS 4' LONG
- 2 - 2" X 4" BOARDS 19 $\frac{1}{2}''$ LONG
- 6 - 2" X 4" BOARDS 22" LONG
- 2 - 2" X 4" BOARDS 12" LONG



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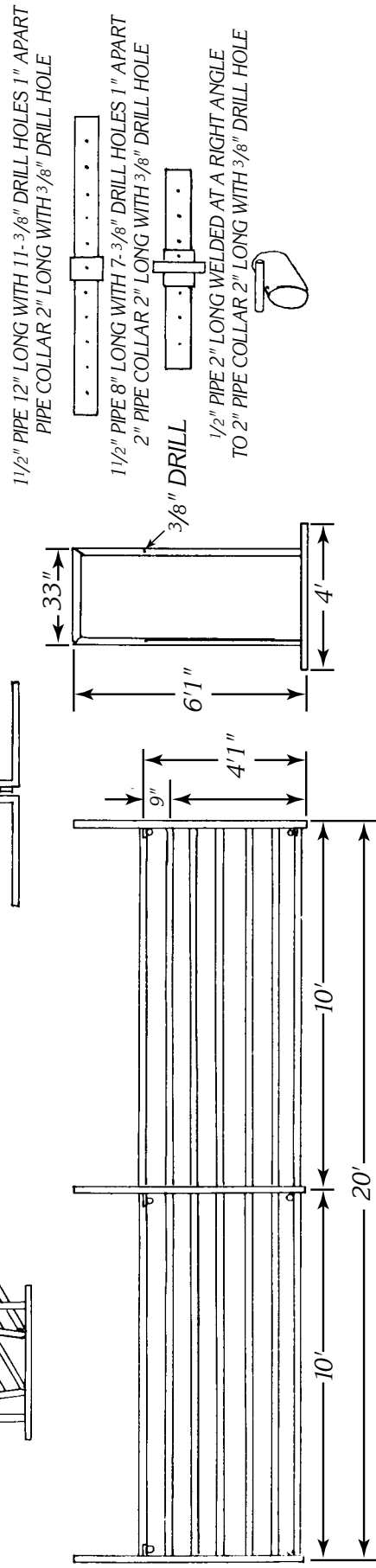
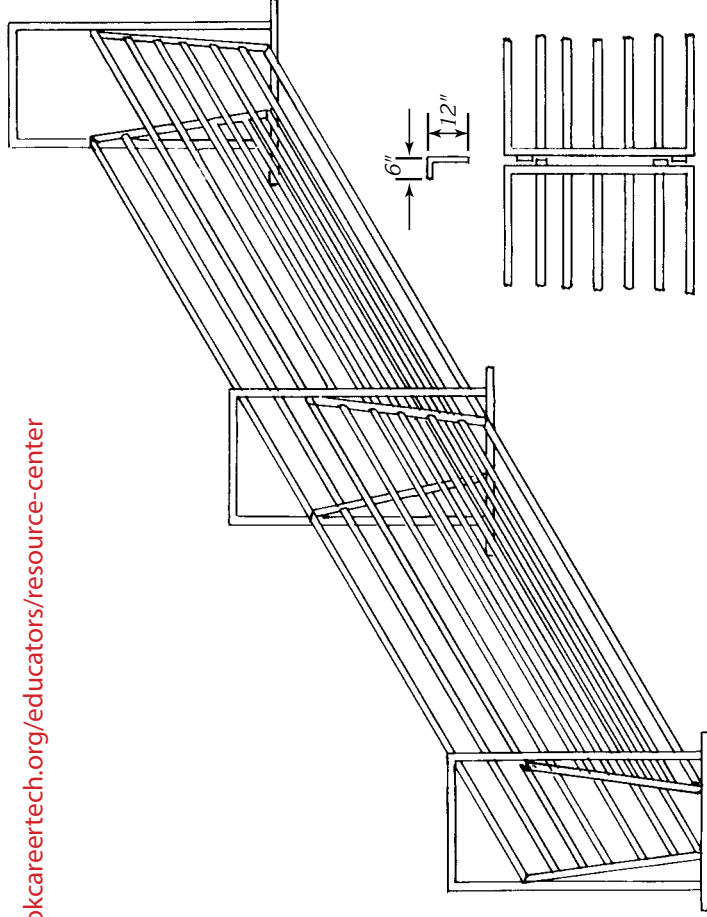
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PORTABLE ALLEYWAY

SCALE: 3/8" = 1'

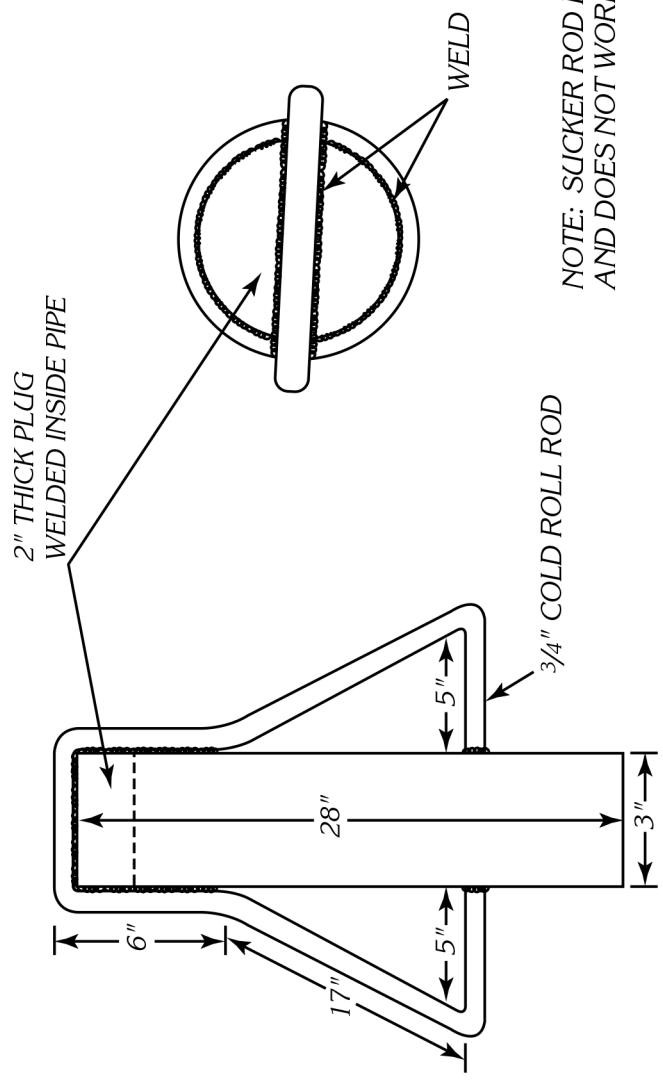
BILL OF MATERIALS

- 12 PIECES OF 1 1/2" SQUARE TUBING 10' LONG
- 16 PIECES OF 1 1/4" SQUARE TUBING 10' LONG
- 6 PIECES OF 1 1/2" SQUARE TUBING 4' LONG
- 6 PIECES OF 1 1/2" SQUARE TUBING 6' LONG
- 3 PIECES OF 1 1/2" SQUARE TUBING 4' LONG
- 3 PIECES OF 1 1/2" SQUARE TUBING 33" LONG
- 6 PIECES OF 1 1/2" PIPE 12" LONG
WITH 11-3/8" DRILL HOLES
- 6 PIECES OF 1 1/2" PIPE 8" LONG
WITH 11-3/8" DRILL HOLES 1" APART
- 6- 2" PIPE COLLARS 2" LONG
WITH 3/8" DRILL HOLE
- 6- 2" PIPE COLLARS 2" LONG WITH 1 1/2" PIPE
2" LONG WELDED AT RIGHT ANGLE
WITH 3/8" DRILL HOLE
- 6- 3/8" BOLTS 4 1/2" LONG WITH NUTS
- 8 PIECES 3/4" PIPE 3" LONG
- 4- 1/2" PINS



POST DRIVER
SCALE: 3/16" = 1"

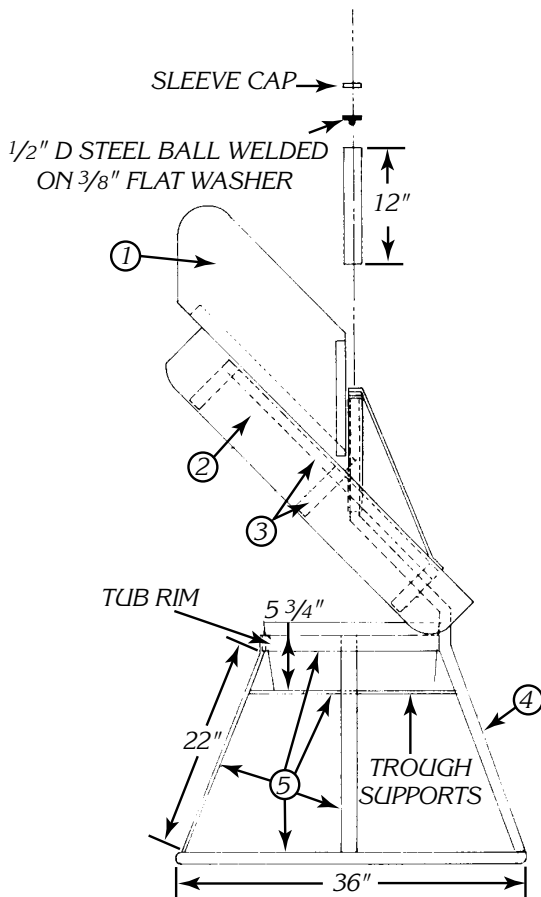
BILL OF MATERIAL
28" - 3" PIPE
60" - 3/4" COLD ROLL ROD



NOTE: SUCKER ROD HAS BEEN HARDENED
AND DOES NOT WORK WELL FOR THE HANDLES

SALT AND MINERAL FEEDER

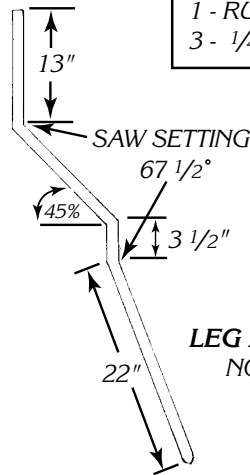
SCALE: $\frac{3}{32}'' = 1''$



NO. 5 (SIDE VIEW)

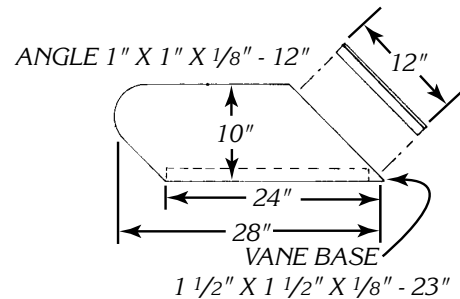
PIPE, $\frac{1}{2}''$ STRUCTURAL - 115" LONG - BEND TO 36" I.D. -
 TUB RIM, FLAT METAL $\frac{1}{4}'' \times 1\frac{1}{2}''$ - 58 $\frac{1}{2}''$ LONG, BEND COLD
 18 $\frac{1}{2}''$ I.D. - LEGS 3 FLAT $\frac{1}{4}'' \times 1\frac{1}{2}''$ - 22" LONG,
 WELD LEG AND ROOF SUPPORT AND TROUGH SUPPORTS
 (2) $\frac{1}{4}'' \times 1\frac{1}{2}''$, MEASURE TO FIT.

BILL OF MATERIALS	
1 -	$\frac{1}{2}''$ PIPE 10' LONG
1 -	1" PIPE 5' LONG
1 -	$1\frac{1}{4}''$ PIPE 1' LONG
24'	FLAT METAL $\frac{1}{4}'' \times 1\frac{1}{2}''$
3'	ANGLE $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times \frac{3}{16}''$
2'	ANGLE $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times \frac{1}{8}''$
1'	ANGLE $1'' \times 1'' \times \frac{1}{8}''$
1 PC.	FLAT METAL $\frac{1}{4}'' \times 1''$ - 2' LONG
1 PC.	22 GA. GALVANIZED SHEET METAL 36" X 40"
1 PC.	22 GA. GALVANIZED SHEET METAL 20" X 28"
1 -	$\frac{3}{8}''$ FLAT WASHER
1 -	$\frac{1}{2}''$ BALL BEARING
12 -	$\frac{1}{4}'' \times \frac{1}{2}''$ SHEET METAL BOLTS
12 -	POP RIVETS, $\frac{1}{8}'' \times \frac{3}{8}''$
1 -	RUBBER TUB, 50 LB. CAPACITY
3 -	$\frac{1}{4}'' \times 1''$ SHEET METAL BOLTS

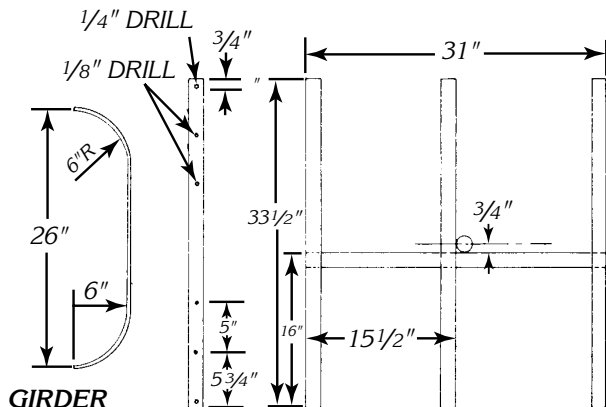


LEG AND ROOF SUPPORT NO. 4

NOTE: USE LEVEL TO INSURE
 CENTERPOST PLUMB

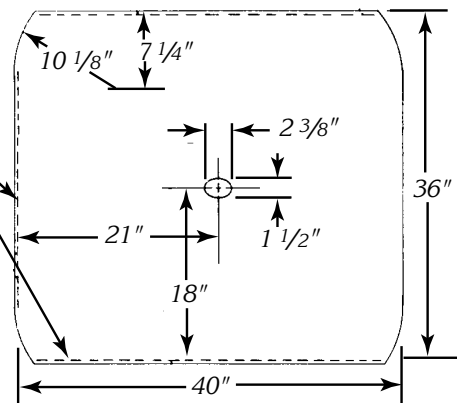


VASE AND BASE NO. 1



**ROOF SUPPORT & GIRDER
 ASSEMBLY NO. 3**

$\frac{1}{4}''$ AND $\frac{1}{2}''$ 180°
 BEND-WELD
 TO TOP OF
 SLEEVE

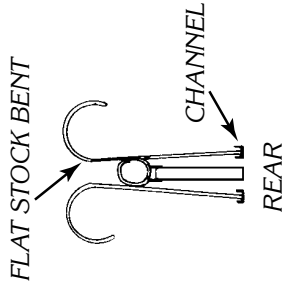
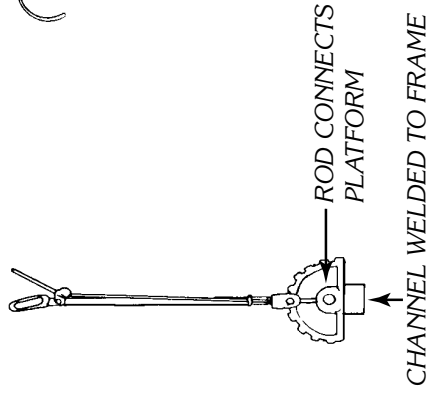


ROOF DETAIL NO. 2
 BEND TO FIT GIRDER BEND

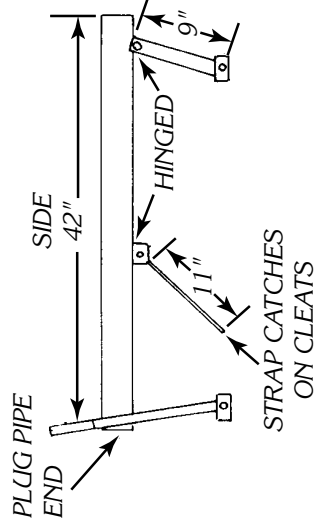
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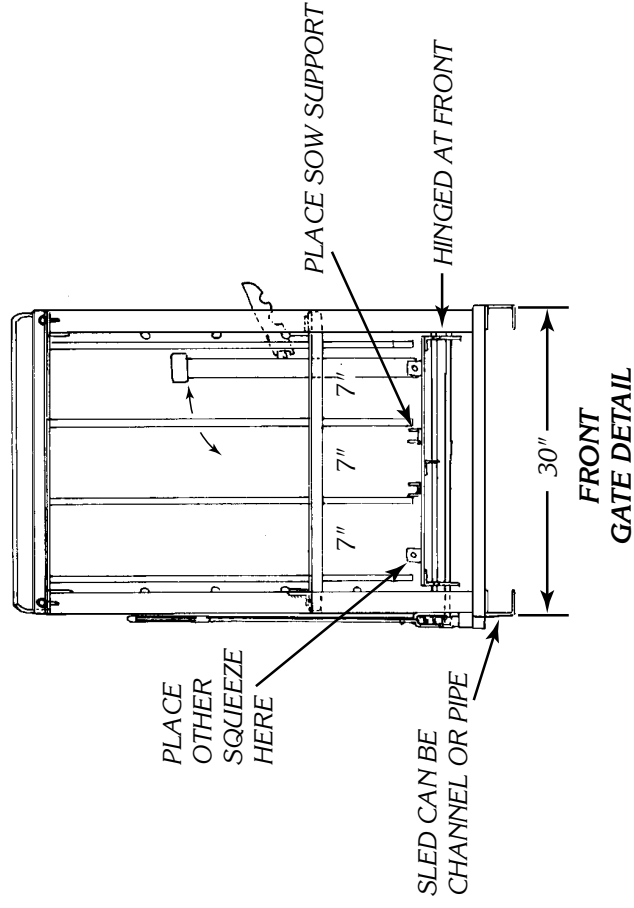
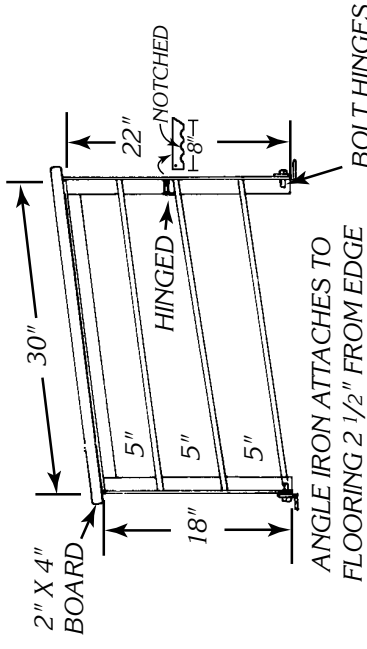
**IMPLEMENT LEVER
FROM OLD
CULTIVATOR**



**SIDE
SOW BREEDING SUPPORT**



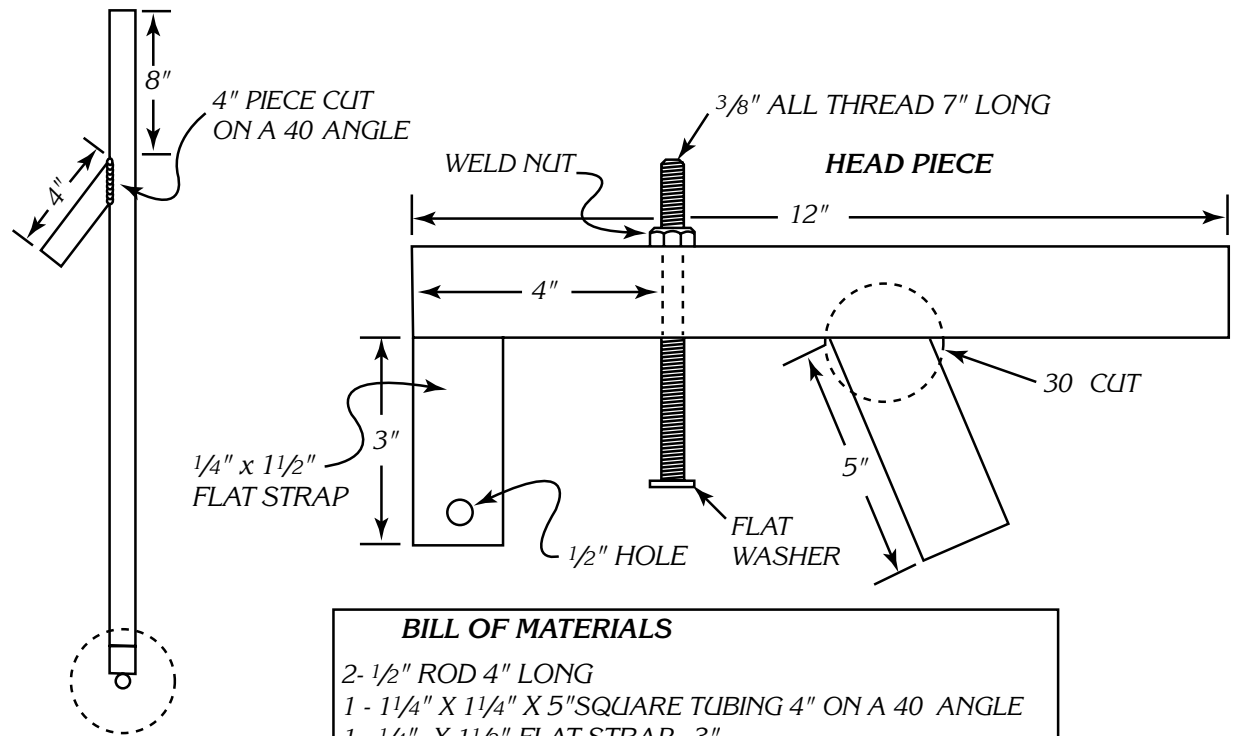
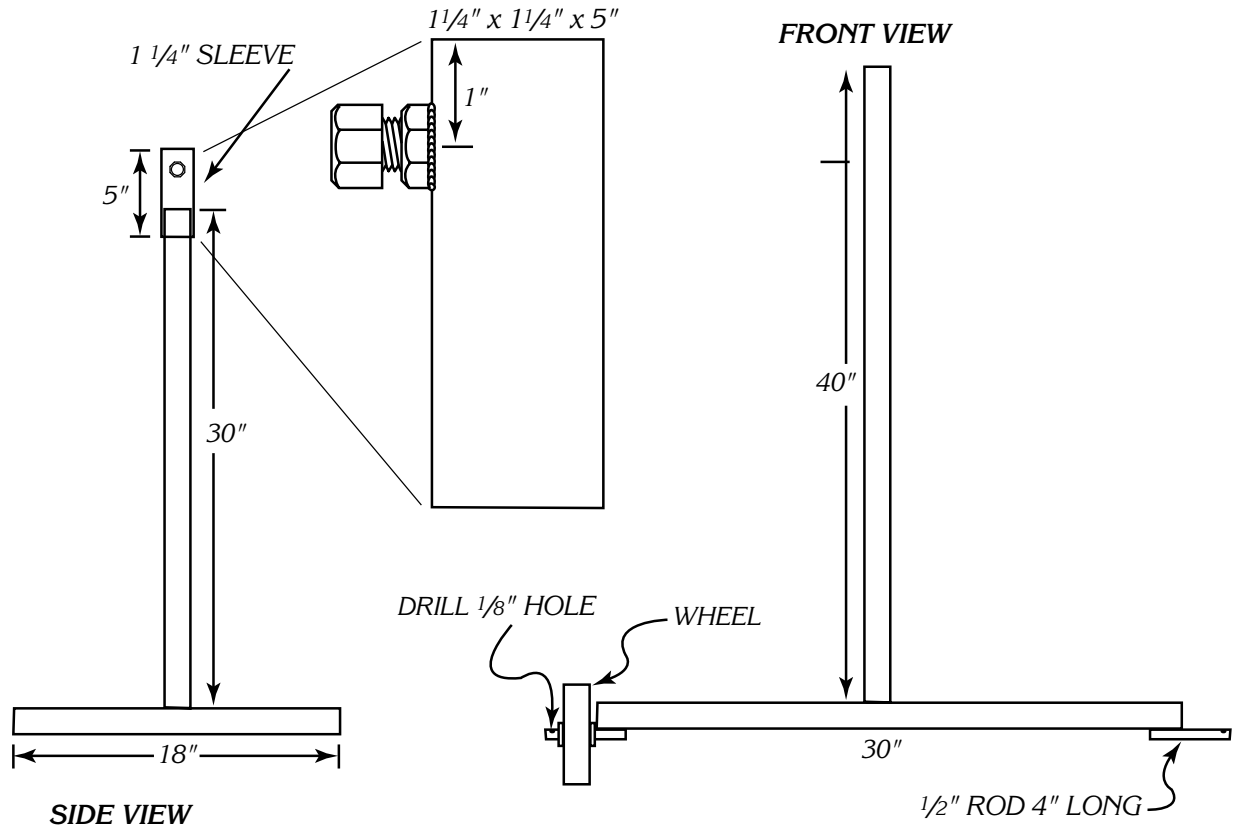
SQUEEZE SLIDING



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SINGLE FAN STAND



BILL OF MATERIALS

- 2- 1/2" ROD 4" LONG
- 1- 1 1/4" X 1 1/4" X 5" SQUARE TUBING 4" ON A 40° ANGLE
- 1- 1/4" X 1 1/2" FLAT STRAP - 3"
- 2- 1/8" COTTERKEY
- 1- SQUARE TUBING - 12"
- 1- 3/8" ALL THREAD BOLT - 7"
- 1- WELD NUT
- 1- FLAT WASHER
- 2- WHEELS

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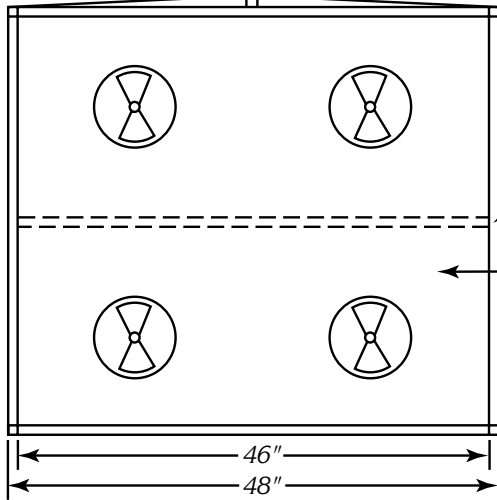
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SLIP-IN SMALL LIVESTOCK RACK

SCALE: 1/2" = 1'

TOP 18-22 GAUGE
FLAT METAL

1" X 1" X 84" TUBING
RISER GIVES ROOF PITCH
FOR DRAINAGE



FRONT

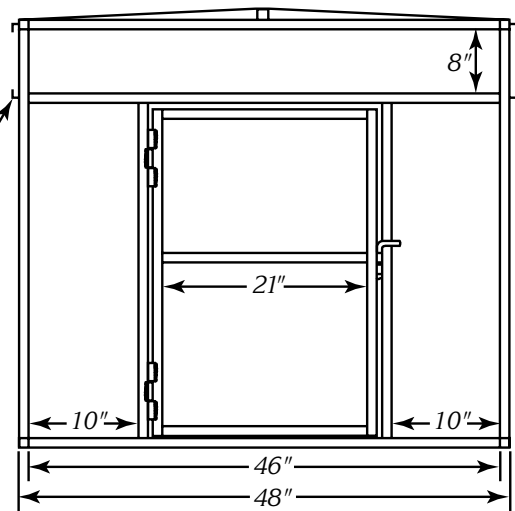
SIDE PIECES

1" X 1" SQUARE
TUBING BRACE

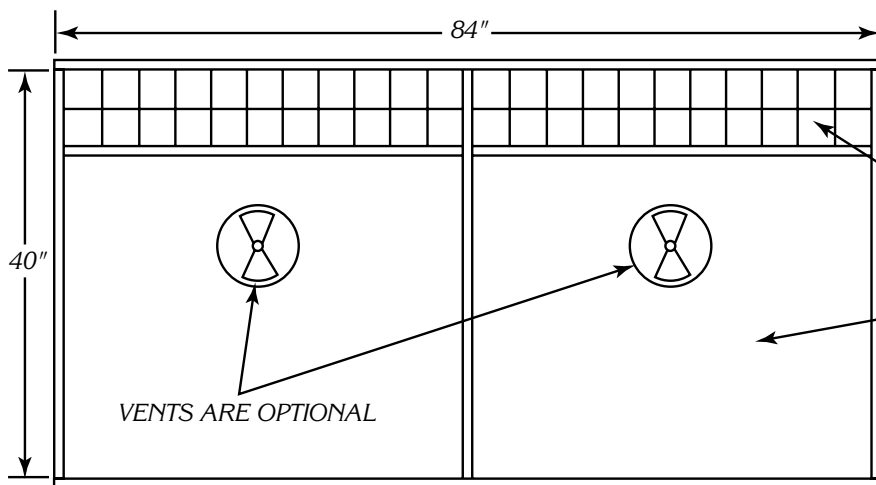
FRONT COVERED WITH
18-22 GAUGE FLAT METAL

1/2" X 1/2" X 1/8" ANGLE IRON
84" LONG USED TO MAKE
TRACK FOR 1/4" PLYWOOD
OR PLEXIGLAS

BILL OF MATERIALS	
1" X 1" SQUARE TUBING	100 1/6'
1/2" X 1/2" X 1/8" ANGLE IRON	28'
2 PIECES - 4 X 4 WELDED WIRE	82" X 8"
18-22 GAUGE FLAT METAL	2 - 33" X 84"
18-22 GAUGE FLAT METAL	1 - 42" X 48"
18-22 GAUGE FLAT METAL	2 - 12" X 33"
18-22 GAUGE FLAT METAL	1 - 10" X 48"
18-22 GAUGE FLAT METAL	1 - 29" X 21"
18-22 GAUGE FLAT METAL	1 - 48" X 84"
2 PIECES 4X4 WELDED WIRE	82" X 8"



REAR VIEW



SIDES

4 X 4 WELDED WIRE

18-22 GAUGE METAL
33" X 84"

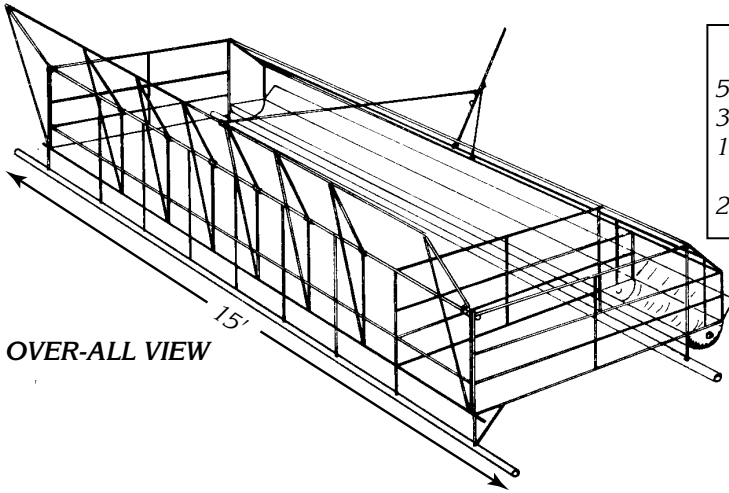
VENTS ARE OPTIONAL

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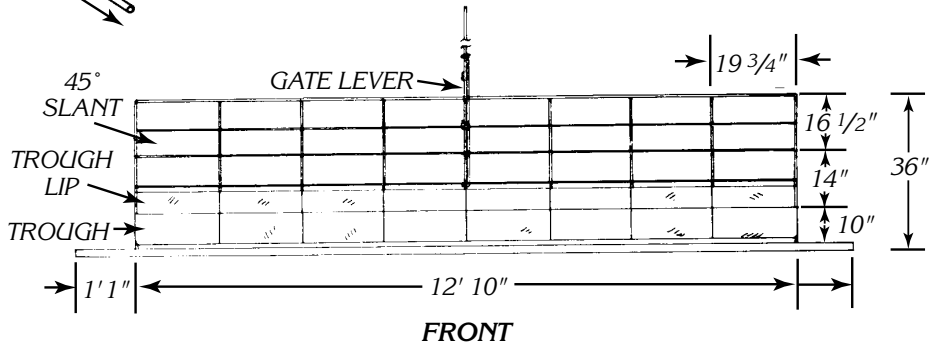
SOW FEEDER

SCALE: 1/2" = 1'

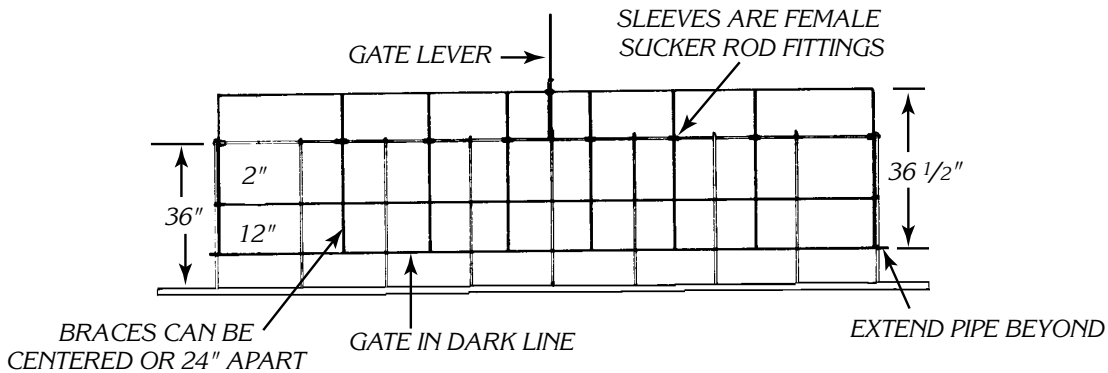


OVER-ALL VIEW

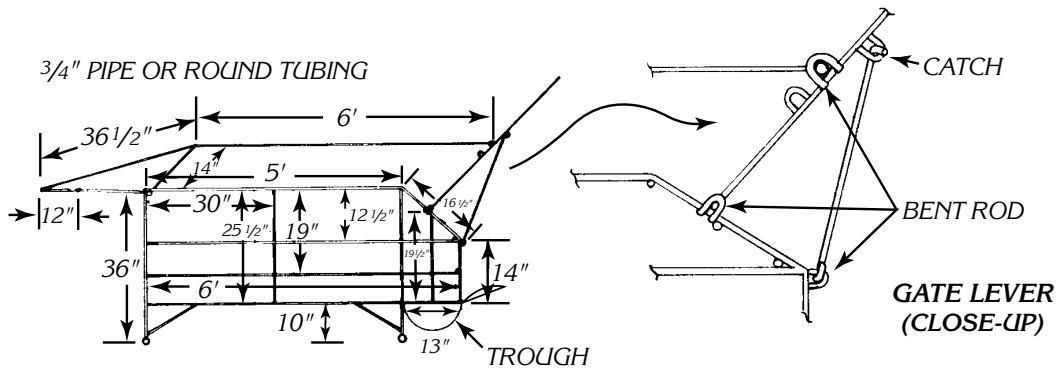
BILL OF MATERIAL
 550 FT. OF 3/4" ROUND TUBING OR 1" SQUARE TUBING
 30 FT. OF 2" PIPE
 12 FT. 10 IN. OF 13" TROUGHS
 (EITHER PIPE OR HOT WATER HEATER LINERS)
 20 FT. OF 1/2" SUCKER ROD - GATE LEVER



FRONT



BACK WITH GATE CLOSED



SIDE

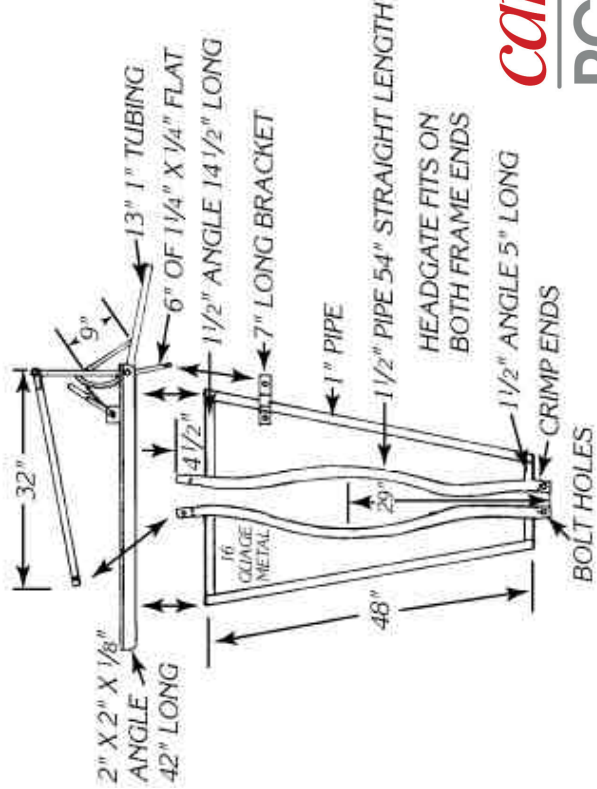
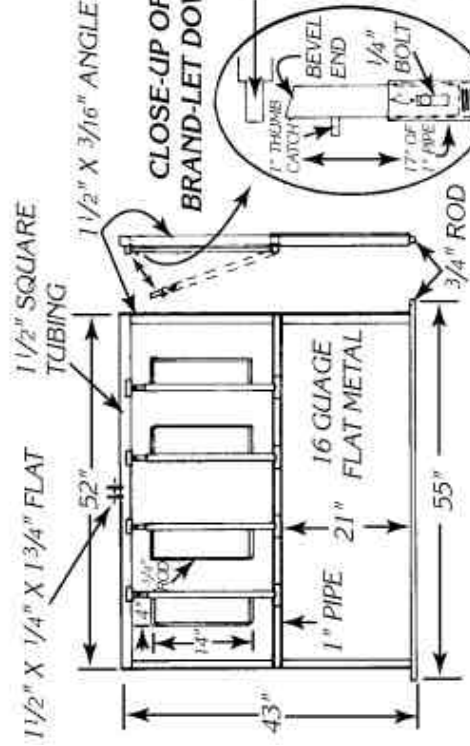
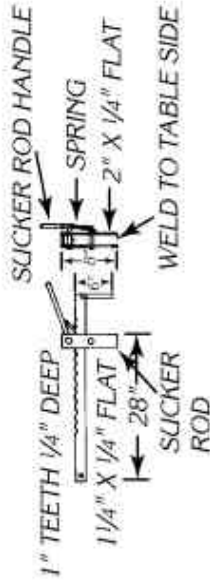
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BOTH HOLES TO MATCH THOSE IN FRAME ENDS



TOP VIEW



REVERSIBLE HEADGATE AND SQUEEZE MACHINE

SQUEEZE MECHANISM

BILL OF MATERIALS

- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 55 1/2" LONG
- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 45" LONG
- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 4" LONG
- 4 PIECES OF 1 1/2" X 1/4" STRAP 7" LONG
- 2 PIECES OF 3/8" X 2" STRAP 29" LONG
- 2 PIECES OF 2" CHANNEL 4" LONG
- 2 PIECES OF 1 1/2" X 1/4" STRAP 59" LONG
- 2 PIECES OF 3/8" X 2" STRAP 45 1/2" LONG
- 2 PIECES OF 2" X 2" X 1/8" ANGLE IRON 28" LONG
- 2 PIECES OF 1" PIPE 51" LONG
- 2 PIECES OF 5/8" SUCKER ROD 30" LONG
- 1 PIECE OF 1 1/2" X 1 1/2" ANGLE IRON 52" LONG
- 1 PIECE OF 1" PIPE 55" LONG
- 1 PIECE OF 16 GAUGE METAL 7" X 55"
- 2 PIECES OF METAL STRAP 10" LONG
- 2 PIECES OF 2" X 3" X 3/16" ANGLE IRON 50 1/2" LONG
- 1 PIECE OF 16 GAUGE SHEET METAL 55" X 41 1/2"
- 1 PIECE OF 5/8" SUCKER ROD 45" LONG
- 2 PIECES OF 1 1/2" X 1/4" STRAP 7" LONG
- 1 PIECE OF 1 1/2" STRAP 52" LONG
- 2 PIECES OF 1" X 1/4" STRAP 27 1/2" LONG
- 1 PIECE OF 1" PIPE 55" LONG
- 1 PIECES OF 1" X 1/4" STRAP 40" LONG
- 1 PIECES OF 1 1/4" STRAP 14" LONG
- 1 PIECES OF 1 1/4" STRAP 20" LONG
- 1 PIECE OF 16 GAUGE SHEET METAL 21" X 52"
- 1 PIECE OF 1 1/2" SQUARE TUBING 52" LONG
- 1 PIECE OF 3/4" ROD 55" LONG
- 1 PIECE OF 1" PIPE 52" LONG
- 4 PIECES OF 1" PIPE 17" LONG
- 4 PIECES OF 1" O.D. HEAVY WALL TUBING 5" LONG
- 4 PIECES OF 1" PIPE COLLAR 1" LONG
- 4 PIECES OF 1/4" BOLT & 1/4" PIN
- 4 PIECES OF 2" PUSH SPRING
- 4 PIECES OF 3/4" ROD 22" LONG
- 2 PIECES OF 1" PIPE 48" LONG
- 2 PIECES OF 1 1/2" PIPE 54" LONG
- 2 PIECES OF 1 1/2" ANGLE IRON 14 1/2" LONG
- 2 PIECES OF 1 1/2" ANGLE IRON 5" LONG
- 1 PIECE OF 16 GAUGE METAL 28" X 48" LONG
- 1 PIECE OF 1 1/4" X 1/4" FLAT 7" LONG
- 2 PIECES OF 2" X 2" X 1/8" ANGLE IRON 42" LONG
- 1 PIECE OF 3/4" TUBING 13" LONG
- 1 PIECE OF 1/4" X 1/4" FLAT 55" LONG
- 1 PIECE OF 5/8" ROD 20" LONG
- 1 PIECE OF 1 1/4" X 1/4" FLAT 28" LONG
- 1 PIECE OF 5/8" ROD 16" LONG
- 2 PIECES OF 2" X 1/4" FLAT 8" LONG
- 1 PIECE OF OLD FLYWHEEL WITH TEETH



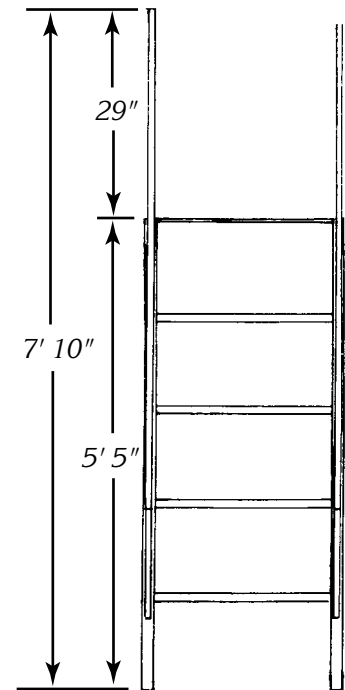
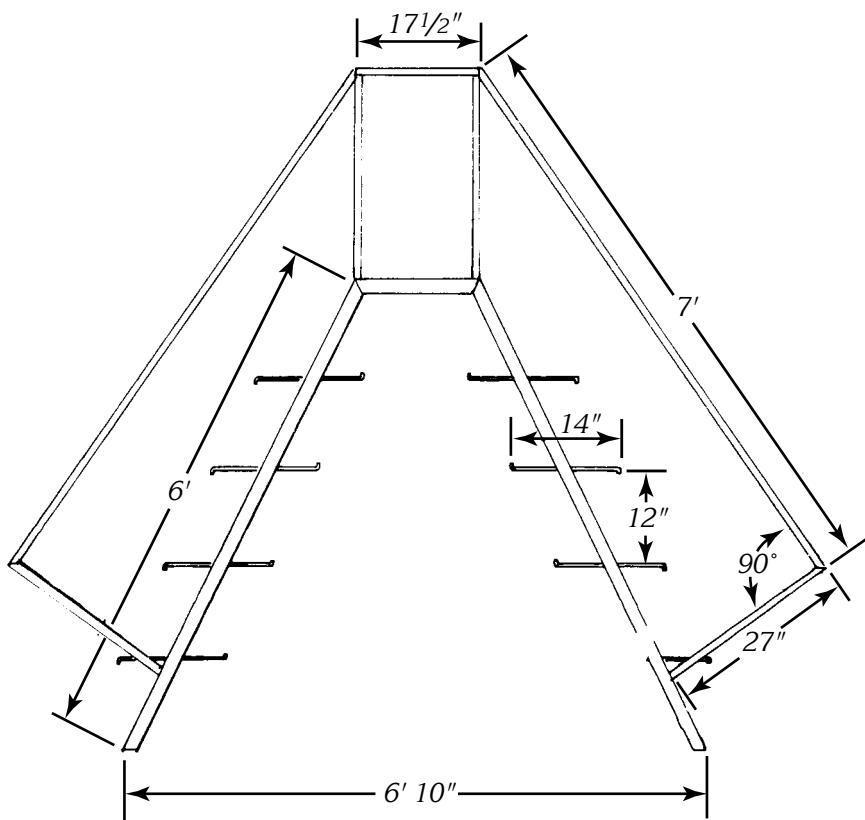
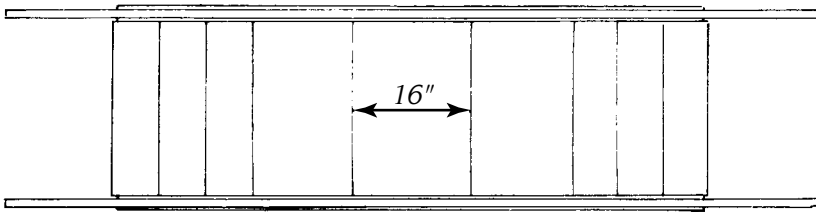
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STILE
SCALE: $\frac{3}{4}'' = 1'$

BILL OF MATERIAL

4 PIECES OF 2" PIPE 6' LONG
2 PIECES OF 2" PIPE 17½" LONG
4 PIECES OF 1" PIPE 7' LONG
8 PIECES OF 1" PIPE 27" LONG
2 PIECES OF 1" PIPE 17½" LONG
9 PIECES OF 24" X 16" X ¼" FLAT METAL

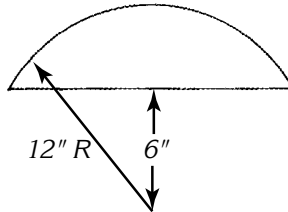


BARREL DOG HOUSE

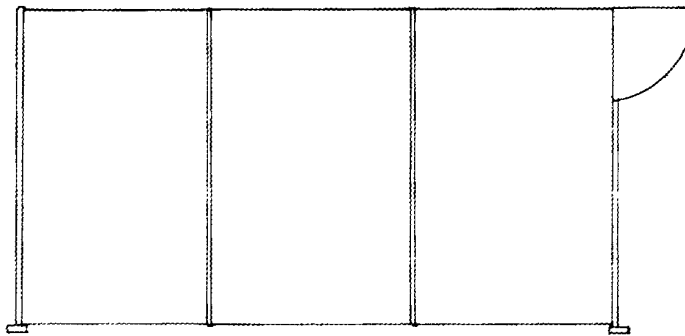
SCALE: 1 1/2" = 1'

BILL OF MATERIAL

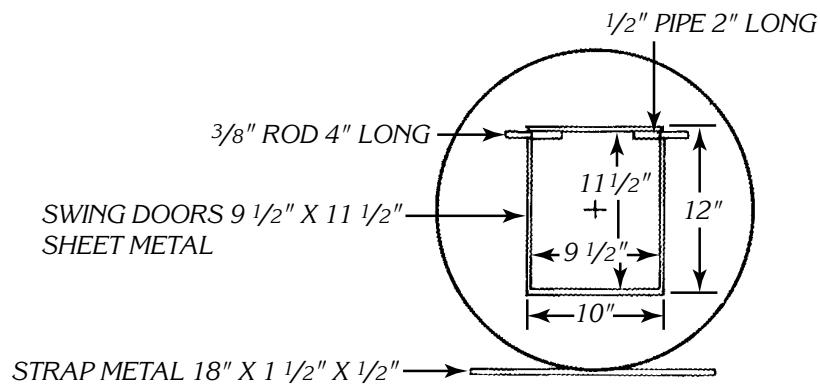
1- 55 GALLON BARREL
1 PIECE OF SHEET METAL 9 1/2" X 11 1/2"
1 PIECE OF 1/2" PIPE 2" LONG
1 PIECE OF 3/8" ROD 4" LONG
1 PIECE OF STRAP METAL 18" X 1 1/2" X 1/2"



NOTE: LIP MADE OF LIGHT GAUGE SHEET METAL OR HALF TOP OF BARREL



NOTE: ROLL A PIECE OF CARDBOARD 30" X 48" AND PLACE INSIDE BARREL. ADD COTTON SEED HULLS FOR BEDDING



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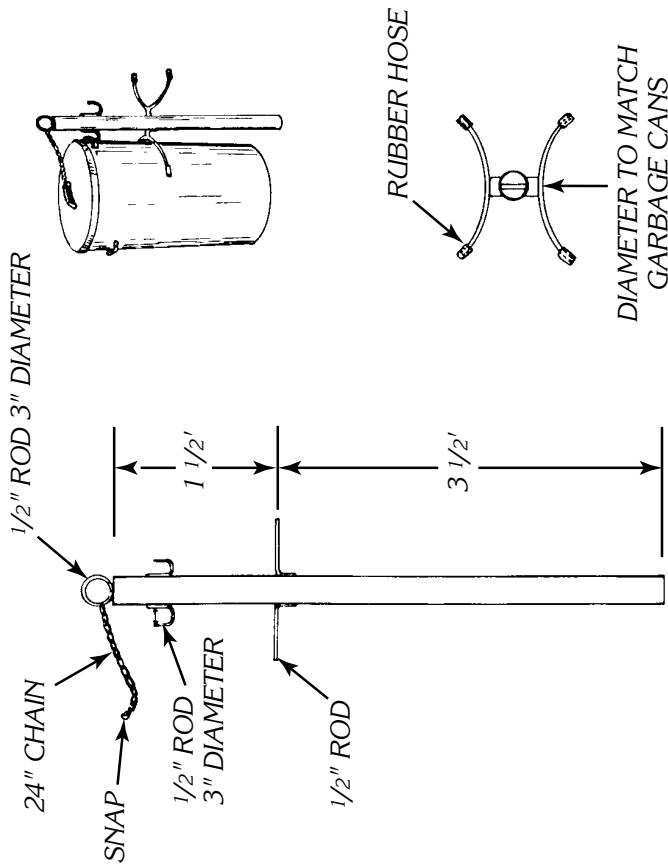
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DOG-PROOF GARBAGE CANS

SCALE: 1" = 1'

BILL OF MATERIAL

- 1 PIECE OF 3" PIPE 5' LONG
- 2 PIECES OF CHAIN WITH SNAPS 24" LONG
- 2 PIECES OF 1/2" ROUND STOCK 6" LONG
- 1 PIECE OF 1/2" ROUND STOCK 6" LONG
- 2 PIECES OF 1/2" ROUND STOCK 36" LONG
- 4 PIECES OF 1/2" GARDEN HOSE 3" LONG

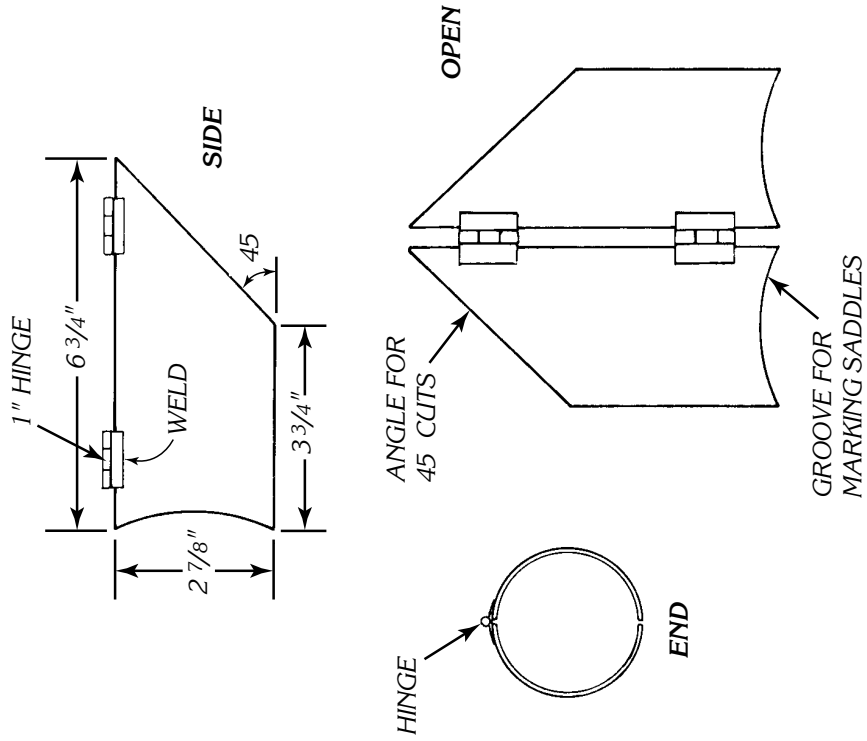


JIG FOR MARKING PIPE

SCALE: 1/2" = 1"

BILL OF MATERIAL

- 1 PIECE OF 3" PIPE 6 3/4" LONG
- 2 PIECES OF 1" LONG HINGES

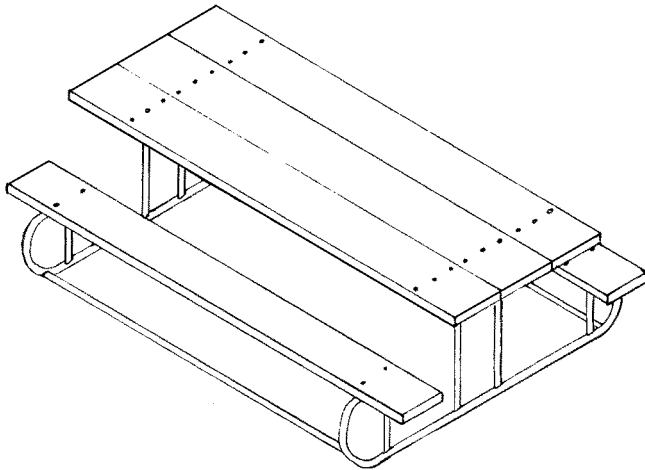


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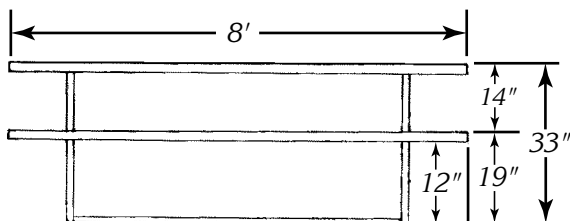
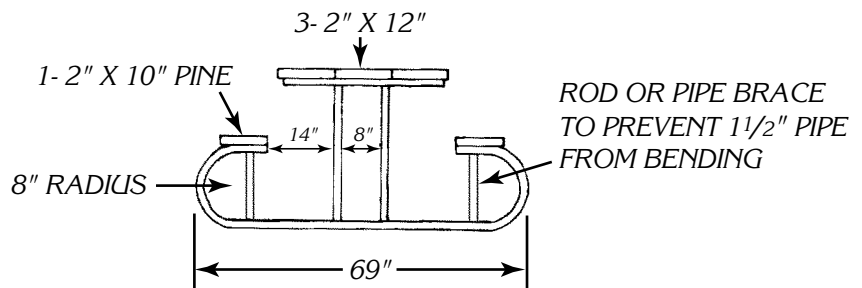
PICNIC TABLE

SCALE: $\frac{1}{2}'' = 1'$



BILL OF MATERIAL

4 PIECES OF $1\frac{1}{2}''$ PIPE $30\frac{1}{4}''$ LONG
2 PIECES OF $1\frac{1}{2}''$ PIPE $5' 10\frac{1}{4}''$ LONG
2 PIECES OF $1\frac{1}{4}''$ PIPE $5' 9''$ LONG
2 PIECES OF $1\frac{1}{4}''$ PIPE $2' 10''$ LONG
3 BOARDS $2'' \times 10'' \times 8'$
2 BOARDS $2'' \times 10'' \times 6'$
26 BOLTS AND NUTS $3\frac{1}{2}'' \times \frac{1}{4}''$



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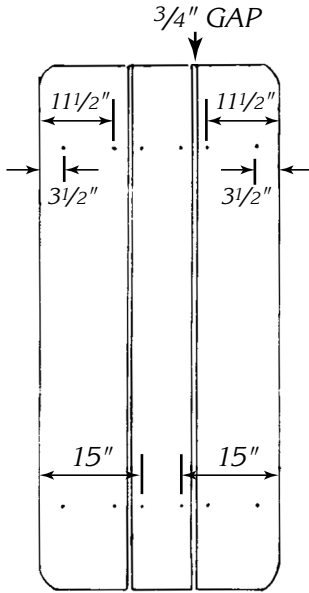
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<https://www.okcareertech.org/educators/resource-center>

PICNIC TABLE

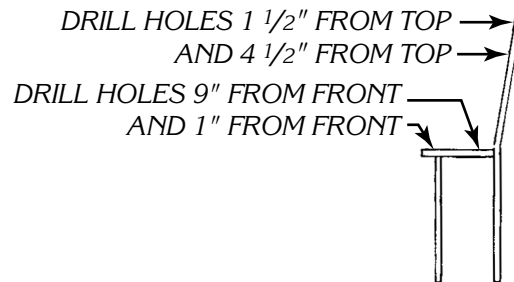
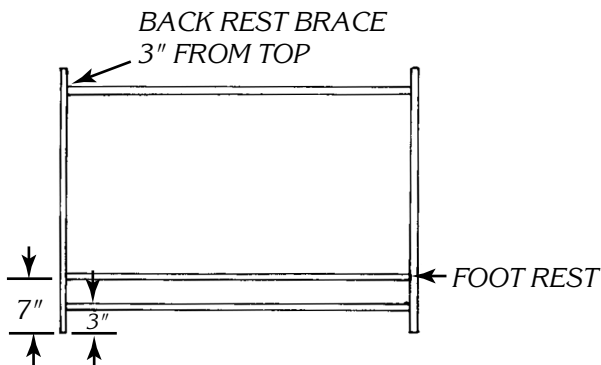
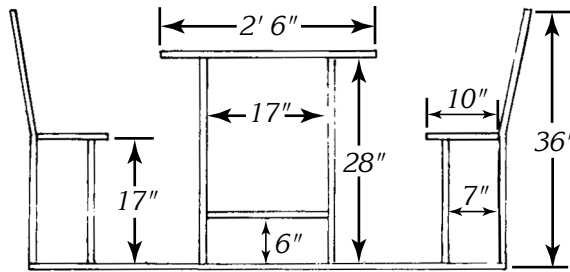
SCALE: $\frac{3}{4}'' = 1''$

LOCATION OF DRILL HOLES



BILL OF MATERIAL

2 PIECES OF 1" SQ. TUBING 66" LONG
 4 PIECES OF 1" SQ. TUBING 28" LONG
 6 PIECES OF 1" SQ. TUBING 17" LONG
 4 PIECES OF 1" SQ. TUBING 36" LONG
 2 PIECES OF 1" SQ. TUBING 30" LONG
 6 PIECES OF 1" SQ. TUBING 4' LONG
 4 - 2" X 12" BOARDS 6' LONG
 1 - 2" X 8" BOARD 6' LONG
 2 - 1" X 8" BOARDS 6' LONG

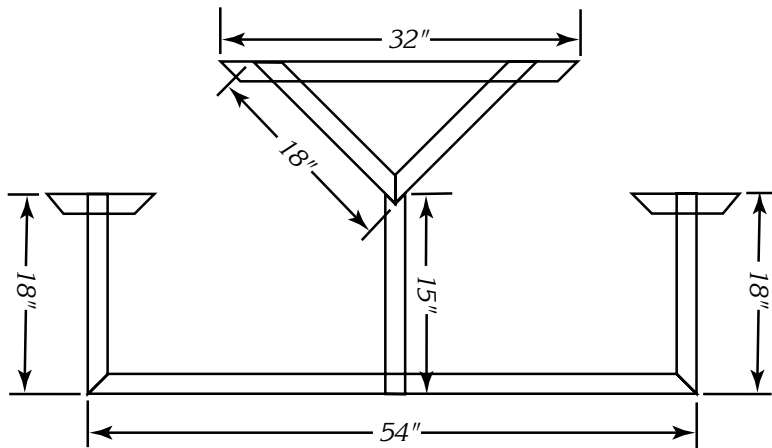


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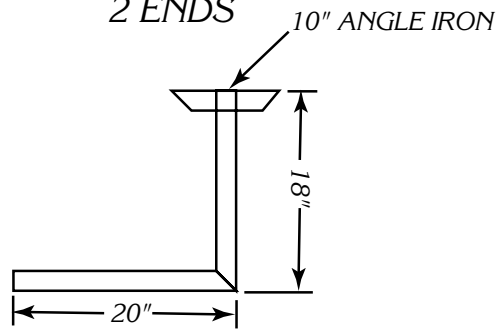
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PICNIC TABLE



2 ENDS



4 PIECES

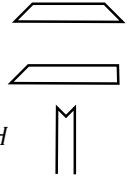
WELD 2 PIECES 1' FROM CENTER ON EACH END

BILL OF MATERIALS

40' - 2"x2"x14 GAUGE SQ. TUBING
 15' - 2"x2"x 1/8" ANGLE IRON
 2 - 2"x12"x12' #2 YELLOW PINE
 28 - 2 1/2" TRAILER FLOOR SCREWS

CUT LIST - 2" SQ. TUBING

1 - 24" - 90 CUT—BOTH ENDS
 2 - 54" - 45 CUT—BOTH ENDS
 4 - 18" - 45 CUT—BOTH ENDS
 8 - 18" - 45 CUT—ONE END
 2 - 15" - 90 CUT—BOTH ENDS,
 THEN CUT 90 BIRDS MOUTH
 OUT OF ONE END.
 4 - 20" - 45 CUT—ONE END

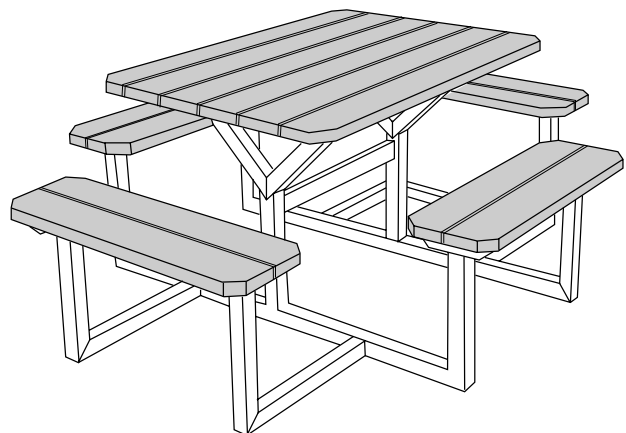
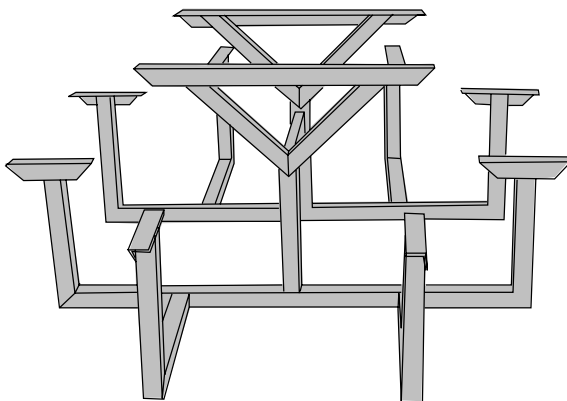


CUT LIST - 2" ANGLE IRON

2 - 32" 45 BOTH ENDS
 8 - 10" 45 BOTH ENDS

CUT LIST - WOOD

3 - 2"x12"x4' LONG
 4 - 2"x12"x3' LONG

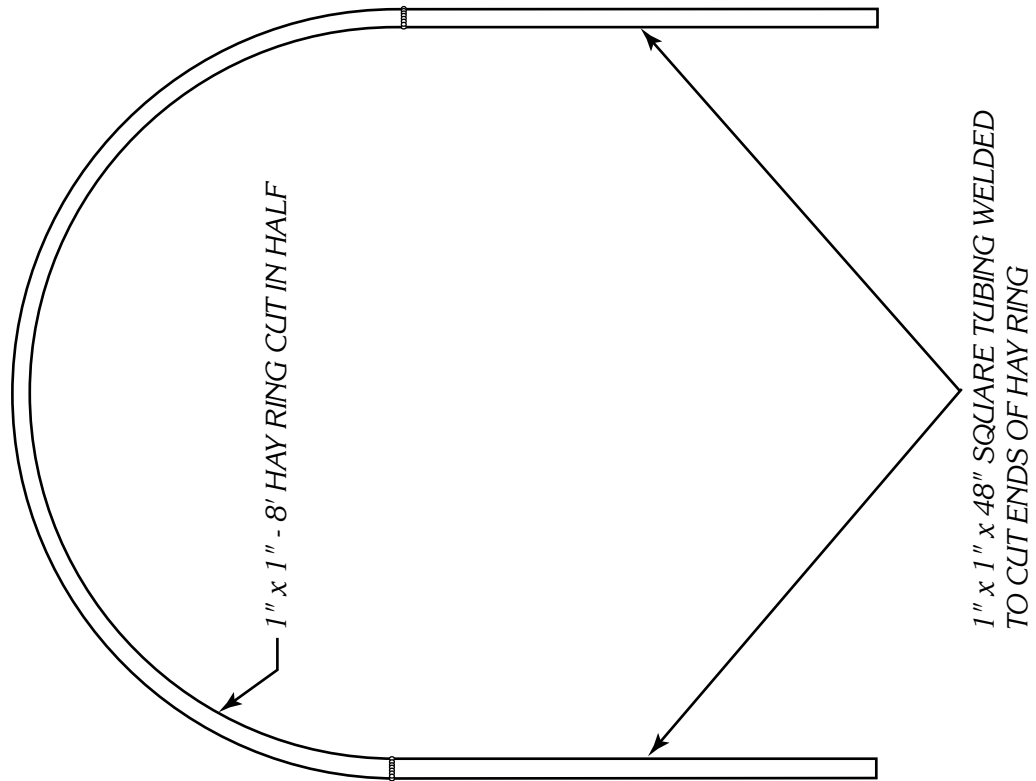
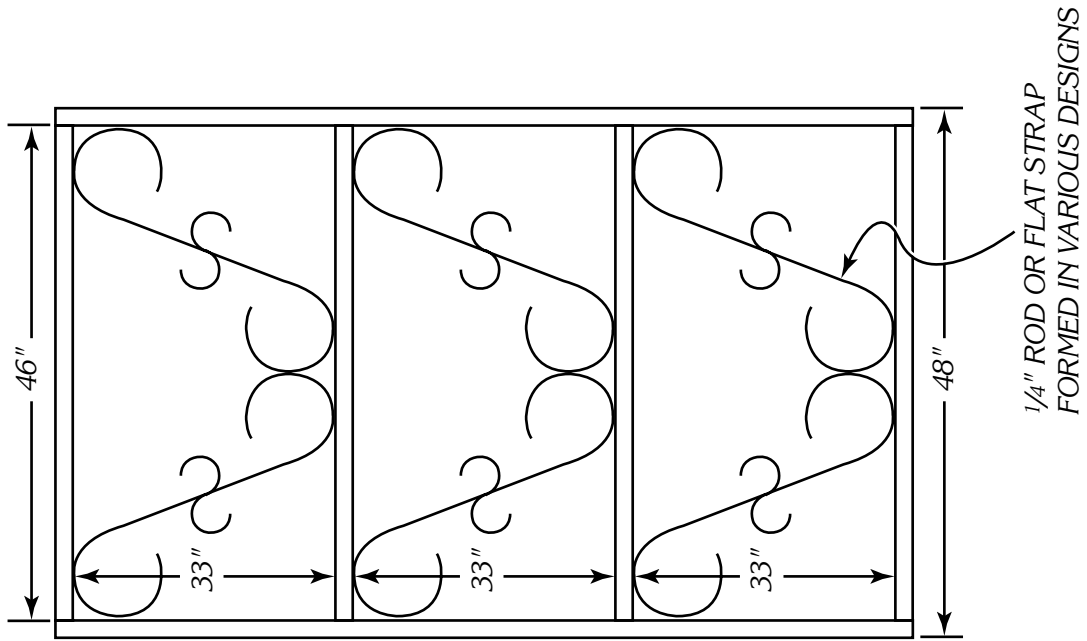


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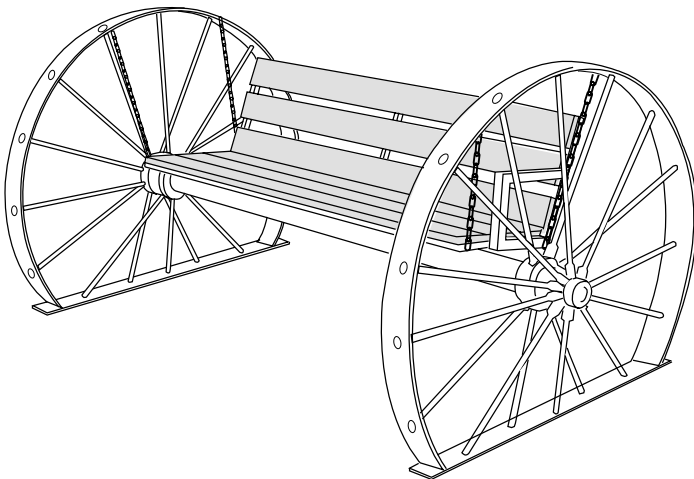
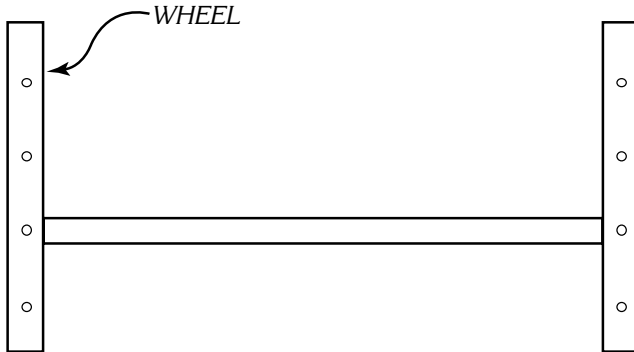
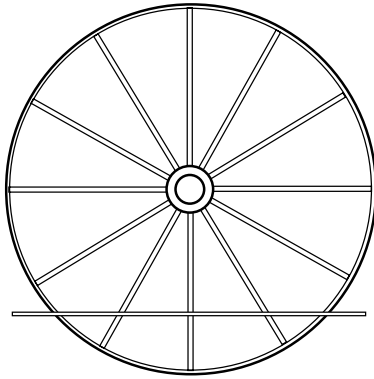
ROSE TRELLIS



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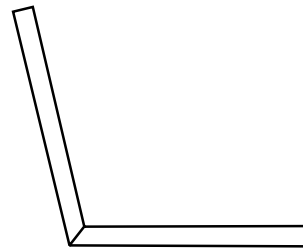
STEEL WHEEL SWING



BILL OF MATERIALS

2 - STEEL GRAIN DRILL WHEELS
6' - PIPE TO FIT HUB OF WHEELS
26' - 1" x 1" x 14 GA. SQ. TUBING
8 - 1/2" x 3" BOLTS
16 - 1/2" NUTS
8' - 4" x 3/16" STRAP

SECTION OFF THE BOTTOM OF THE WHEEL SO THE HUB IS 14" OFF THE GROUND. WELD ENDS OF WHEEL AND SPOKES TO 4" STRAP METAL TO MAKE BASE. WELD 6' OF PIPE BETWEEN THE HUBS.



SEAT FRAME

CUT 2 PIECES OF 1" TUBING - 5'6" LONG
CUT 1 PIECES OF 1" TUBING - 5'6" LONG
CUT 4 PIECES OF 1" TUBING - 18" LONG
WITH 40° ANGLE ON ONE EDGE

MAKE 2 ENDS - WELD 5'6" PIECES BETWEEN THEM. CUT 2 - APPROXIMATELY 16" PIECES FOR CENTER BRACES ON BACK SEAT.

OPTION 1 - CUT 4 EQUAL LENGTHS OF CHAIN - WELD 1 LINK TO THE UNDER SIDE OF THE SEAT OF EACH CORNER OF THE BENCH. THEN WELD THE OTHER ENDS OF CHAIN TO THE TOP OF THE WHEEL.

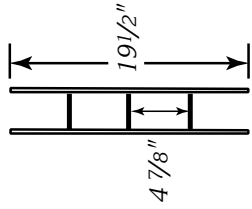
OPTION 2 - CUT 4 - 2' PIECES OF 2" STRAP, CLAMP THEM TOGETHER AND DRILL 1/2" HOLE IN EACH END - CUT HEADS OFF OF 1/2" BOLTS AND WELD A BOLT TO THE UNDERSIDE OF THE BENCH ON EACH CORNER LEAVING 1 1/2" OF THREADED END STICKING OUT. PUT ONE NUT ON EACH BOLT. PUT 2" STRAP ON, THEN TIGHTEN THE STRAPS IN PLACE WITH ANOTHER NUT PARALLEL TO EACH OTHER. PUT ANOTHER BOLT IN THE OTHER END OF THE STRAP AND TIGHTEN. HANG BENCH ON WAGON WHEEL FRAME AND WELD ENDS OF BOLT TO THE WHEEL.

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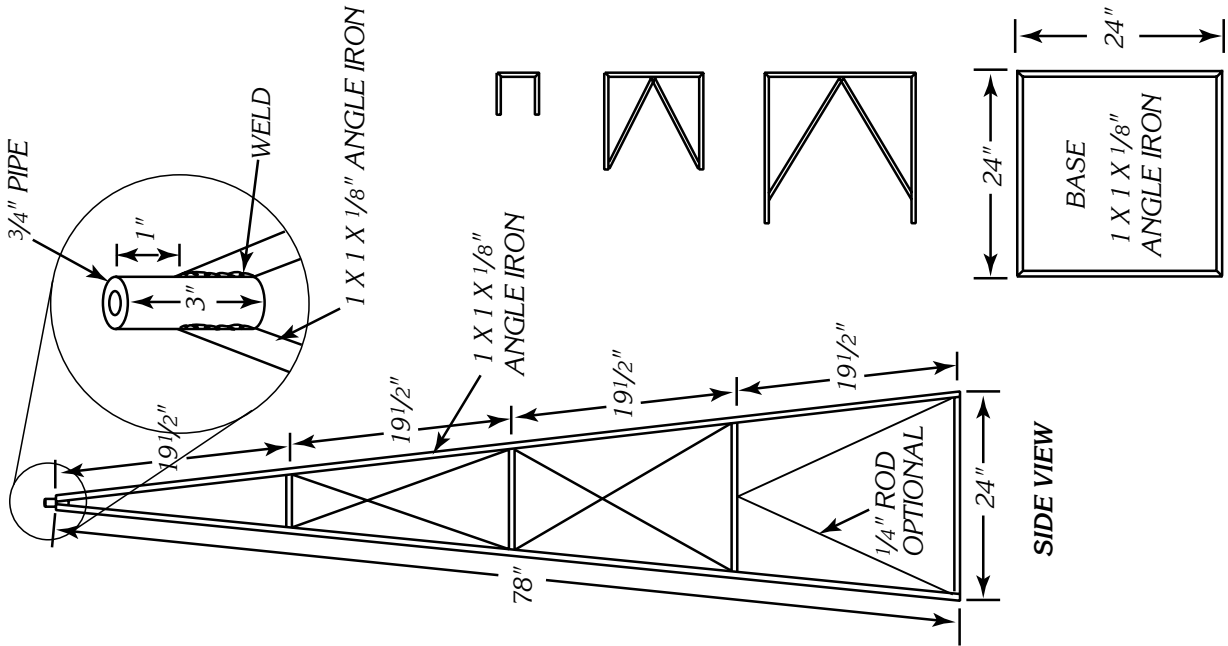
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WINDMILL
SCALE $\frac{3}{8}'' = 1'$

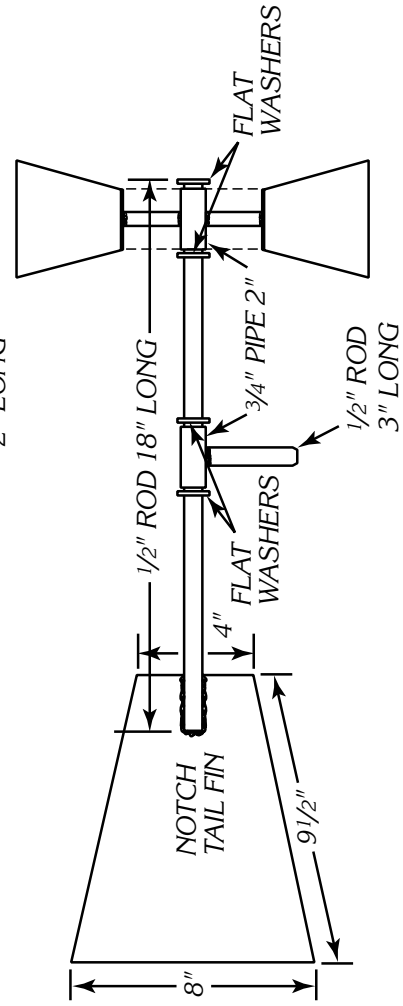
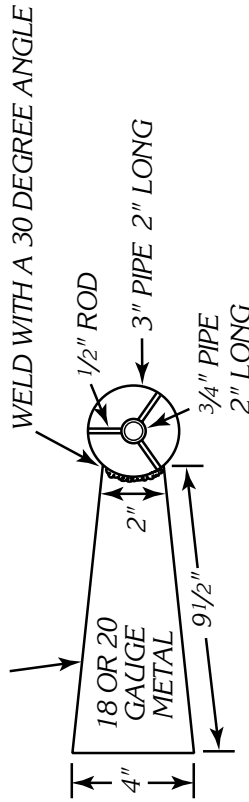
BILL OF MATERIAL	
4	PIECES OF 3" PIPE 21'9" LONG
4	PIECES OF 3" PIPE 60" LONG
3	PIECES OF 3" PIPE 44" LONG
3	PIECES OF 3" PIPE 28" LONG
3	PIECES OF 3" PIPE 13" LONG
3	PIECES OF 3" PIPE 8" LONG
2	PIECES OF 2" X 2" ANGLE IRON 30" LONG
2	PIECES OF 2" X 2" ANGLE IRON 40" LONG
OPTIONAL LADDER	
2	PIECES OF 1" PIPE 17'7" LONG
12	PIECES OF 1" PIPE 16" LONG



OPTIONAL LADDER



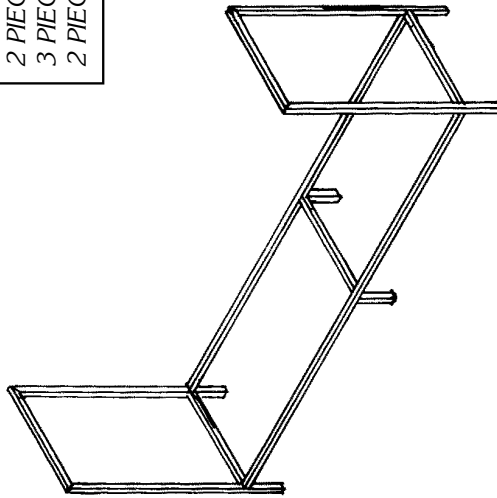
MAKE 12 PIECES AND SPACE
EVENLY AROUND 3" PIPE HUB



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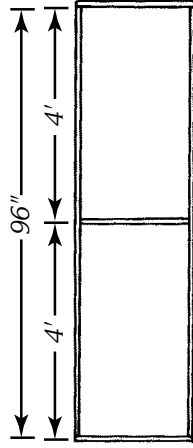
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WOOD RACK
SCALE: 3/4" = 1'

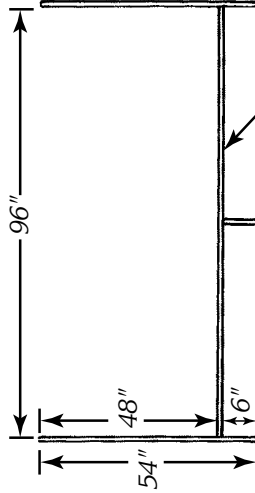
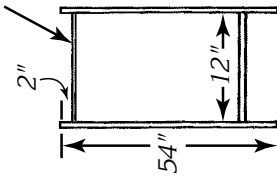


BILL OF MATERIAL

- 2 PIECES OF 1" SQ. TUBING 4'6" LONG
- 4 PIECES OF 1" SQ. TUBING 4' LONG
- 2 PIECES OF 1" SQ. TUBING 12" LONG
- 3 PIECES OF 1" SQ. TUBING 12" LONG
- 2 PIECES OF 1" SQ. TUBING 6" LONG

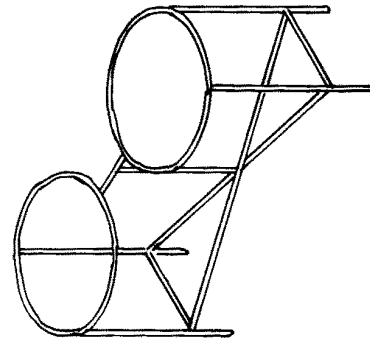


TOP SPACER 3/4" ROD 12" LONG

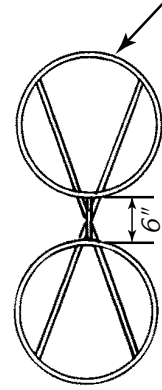


2" X 2" X 14 GAUGE SQUARE TUBING

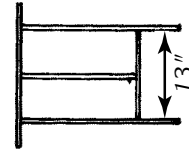
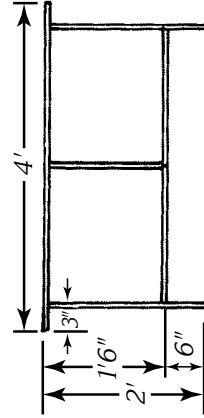
TRASH CAN RACK



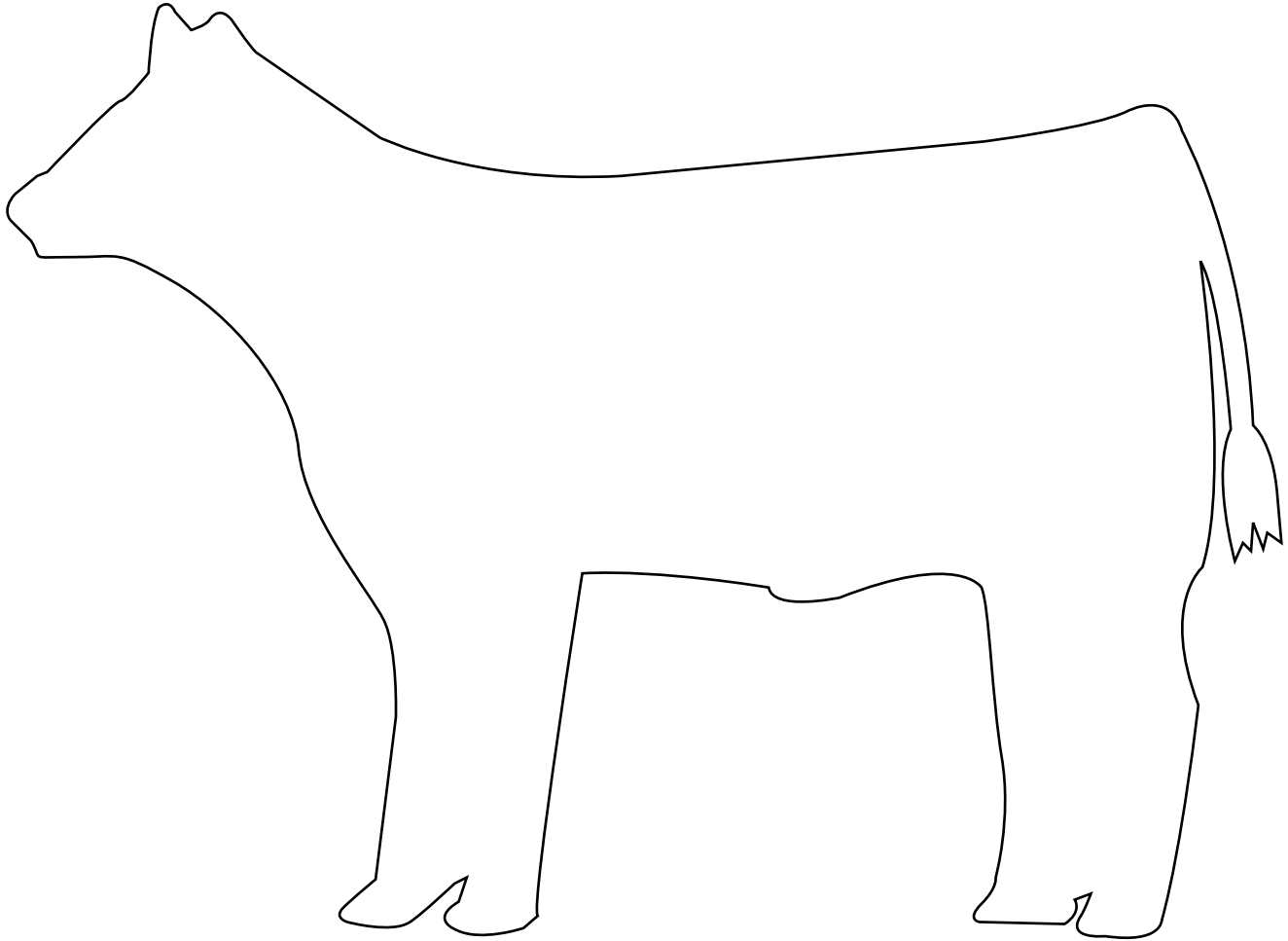
- BILL OF MATERIAL**
- 2 PIECES OF 5/8" ROD 5'5" LONG FOR CIRCLES
 - 2 PIECES OF 5/8" ROD 43 1/2" LONG FOR CROSS PIECES
 - 4 PIECES OF 5/8" ROD 2" LONG FOR LEGS
 - 1 PIECE OF 5/8" ROD 16 3/4" LONG
 - 1 PIECE OF 5/8" ROD 6" LONG



CIRCLES HAVE 1'9" OUTSIDE DIAMETER



BEEF SIGN CUTOUT



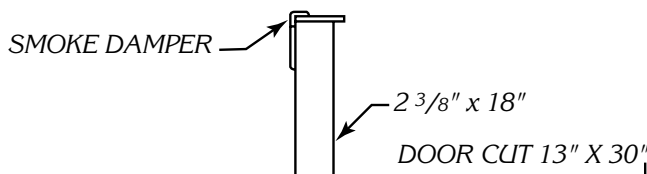
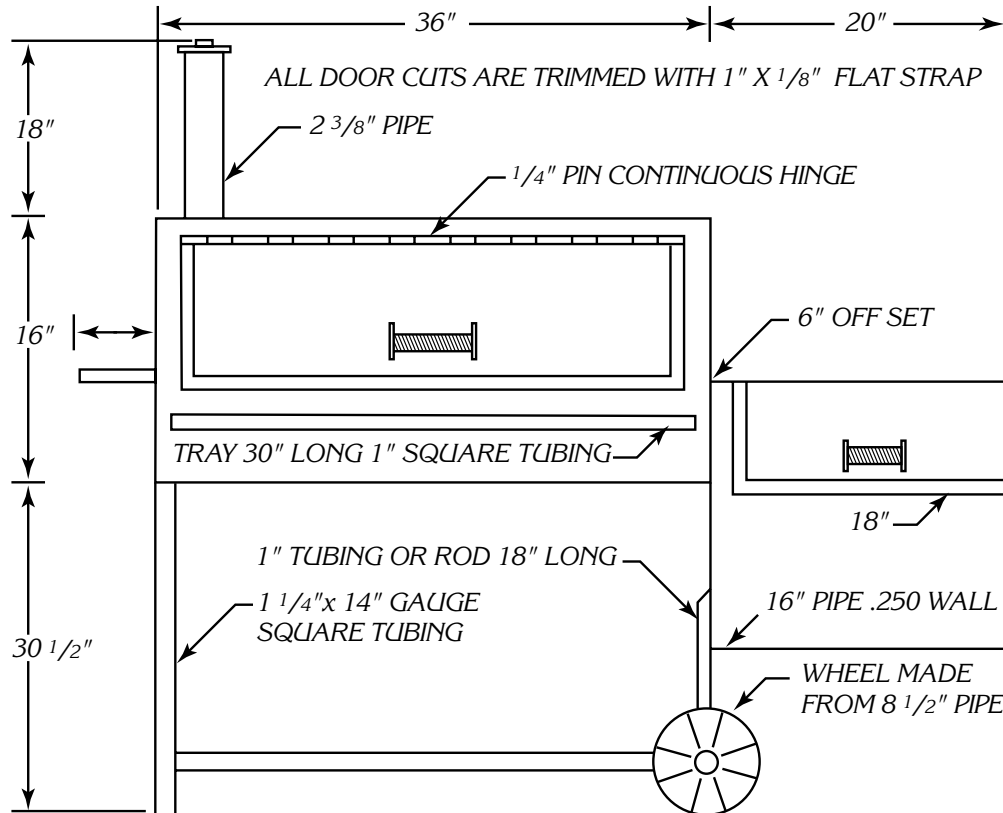
*1/4" - 3/8" FLAT METAL
CUT TO SCALE*

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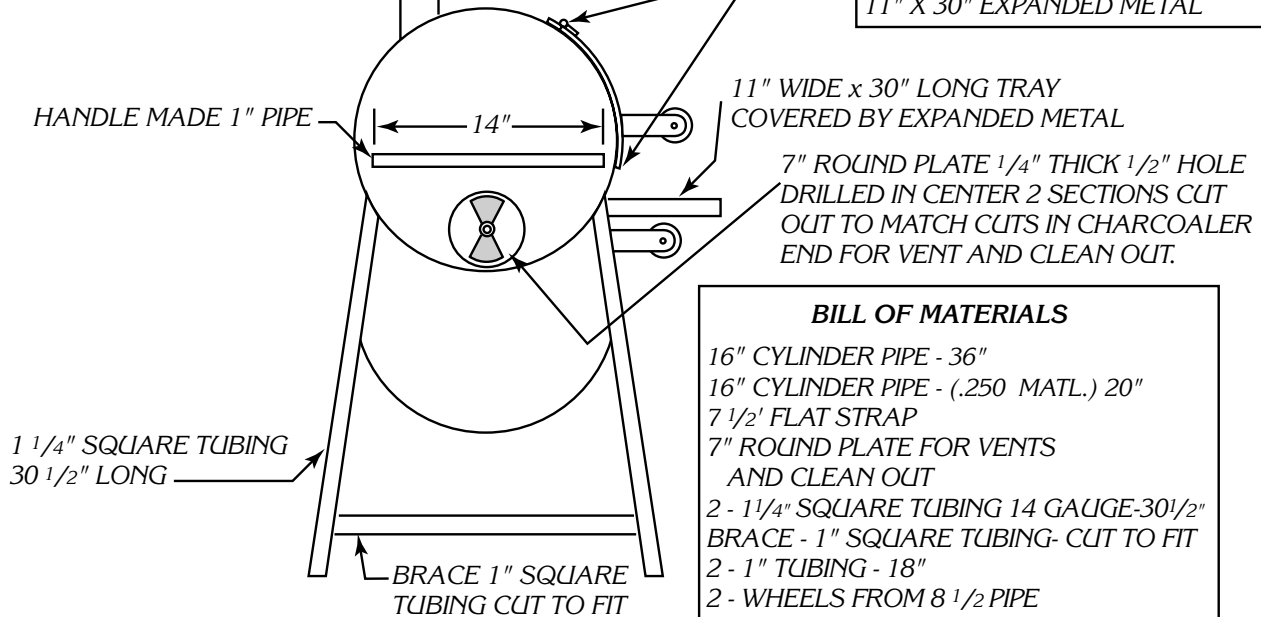
<https://www.okcareertech.org/educators/resource-center>

CHARCOALER / SMOKER



BILL OF MATERIALS

1 - 2 3/8" X 18" PIPE
 1 - 1/4" PIN CONTINUOUS HINGE - 30"
 HANDMADE 1" PIPE - 26"
 11" X 30" TRAY
 1" PIPE - 108"
 11" X 30" EXPANDED METAL



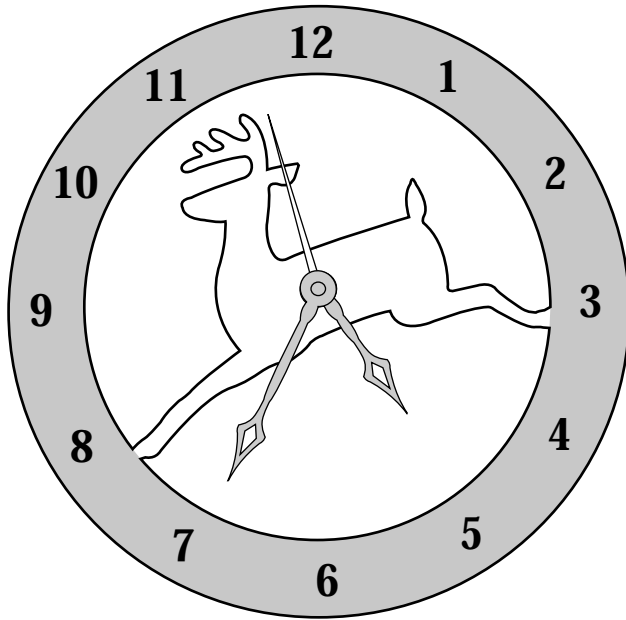
BILL OF MATERIALS

16" CYLINDER PIPE - 36"
 16" CYLINDER PIPE - (.250 MATL.) 20"
 7 1/2" FLAT STRAP
 7" ROUND PLATE FOR VENTS AND CLEAN OUT
 2 - 1 1/4" SQUARE TUBING 14 GAUGE-30 1/2"
 BRACE - 1" SQUARE TUBING- CUT TO FIT
 2 - 1" TUBING - 18"
 2 - WHEELS FROM 8 1/2" PIPE

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DISK CLOCK



BILL OF MATERIALS

- 1 - USED DISK
- 1 - CLOCK MOTOR
- 1 - SET OF STICK ON NUMBERS
(MOTOR AND NUMBERS AVAILABLE
AT MOST WAL-MARTS)

LAY SILHOUETTE OF CHOICE ON DISK AND TRACE. LEAVE 1" TO 2" AROUND EDGE OF DISK. CUT OUT WITH PLASMA CUTTER. MOST DISKS HAVE A LARGE HOLE IN THE CENTER. USE A PIECE OF THE SCRAP DISK TO CUT OUT AND FILL THE HOLE. CUT $\frac{3}{8}$ " HOLE IN THE CENTER FOR CLOCK MOTOR.

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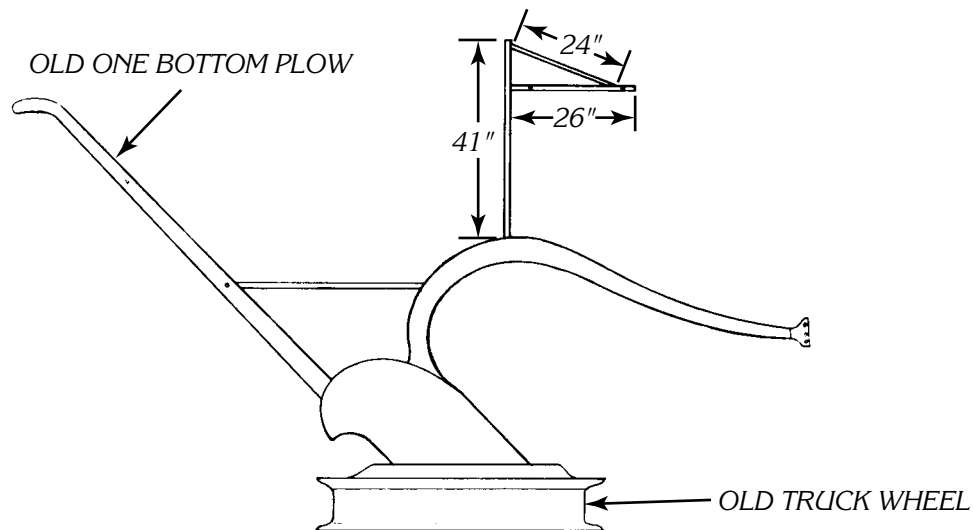
<https://www.okcareertech.org/educators/resource-center>

PLOW YARD SIGN

SCALE: $\frac{1}{2}'' = 1'$

BILL OF MATERIAL

1 PIECE OF 1" SQUARE TUBING 41" LONG
1 PIECE OF 1" SQUARE TUBING 24" LONG
1 PIECE OF 1" SQUARE TUBING 26" LONG
1 OLD ONE BOTTOM PLOW
1 TRUCK WHEEL

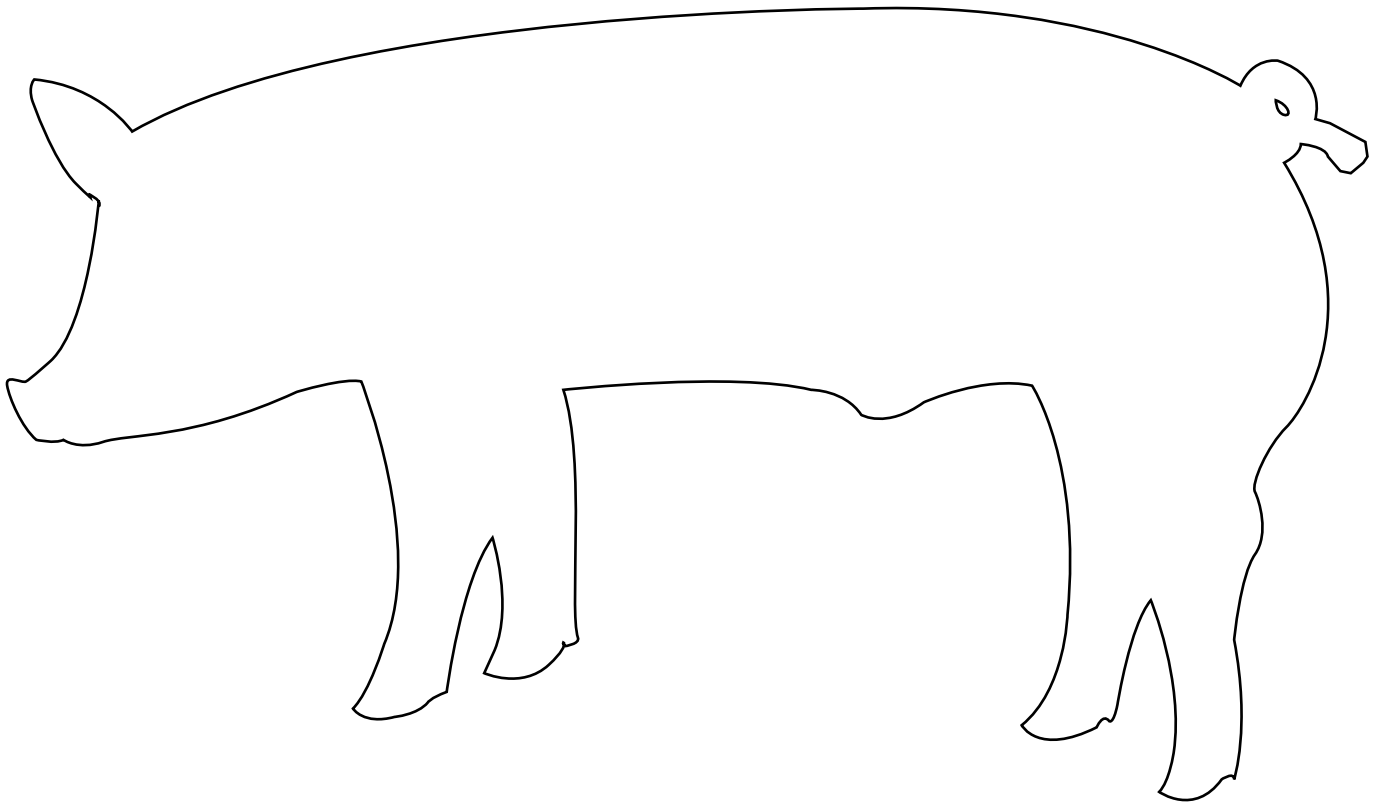


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PORK SIGN CUTOUT



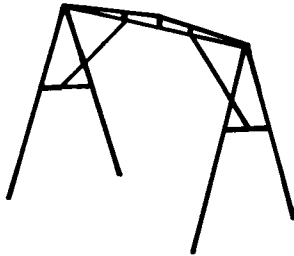
*1/4" - 3/8" FLAT METAL
CUT TO SCALE*

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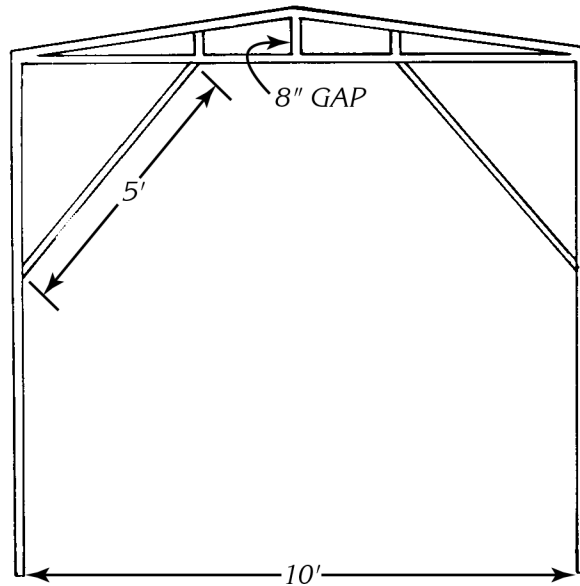
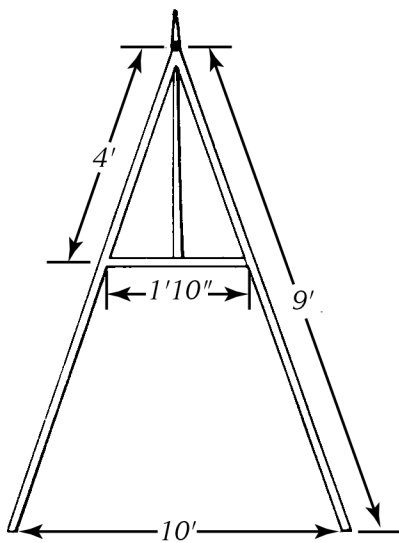
<https://www.okcareertech.org/educators/resource-center>

A-FRAME
SCALE: 1/2" = 1'



BILL OF MATERIAL

- 4 PIECES OF 2" PIPE 9' LONG
- 1 PIECE OF 2" PIPE 10' LONG
- 2 PIECES OF 2" PIPE 5' 6" LONG
- 1 PIECE OF 2" PIPE 8" LONG
- 2 PIECES OF 2" PIPE 3" LONG
- 2 PIECES OF 2" PIPE 1' 10" LONG
- 2 PIECES OF 2" PIPE 5' LONG

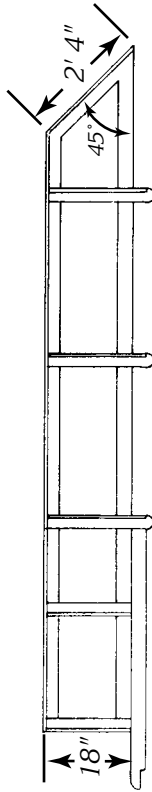


ALL PURPOSE TRAILER
SCALE: 1/2" = 1'

NOTE: CENTER OF AXELS ARE LOCATED
1/2" BACK OF CENTER FOR EVERY
FOOT OF LENGTH

TOTAL LENGTH: 12'
TOTAL WIDTH: 7'6"

NOTE: 1/8" SHEET METAL SIDES
1/8" SHEET METAL FENDERS

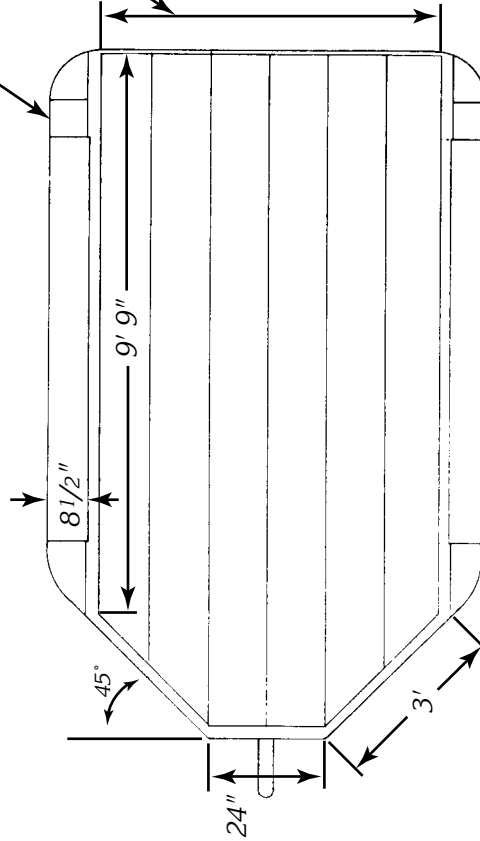


SIDE VIEW

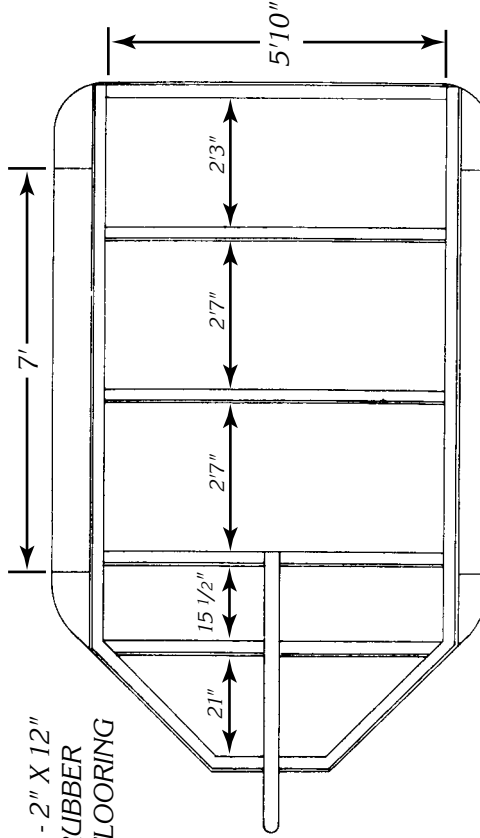
BILL OF MATERIAL

- 4 PIECES OF 3" ANGLE IRON 10'1" LONG
- 4 PIECES OF 3" ANGLE IRON 3' LONG
- 2 PIECES OF 3" ANGLE IRON 2" LONG
- 4 PIECES OF 3" ANGLE IRON 6'2" LONG
- 1 PIECE OF 3" ANGLE IRON 6' LONG
- 10 PIECES OF 3" ANGLE IRON 17' 1/2" LONG
- 2 PIECES OF 3" ANGLE IRON 2'4" LONG
- 2 PIECES OF 1/8" SHEETMETAL 7' X 8 1/2" LONG
- 2 PIECES OF 1/8" SHEETMETAL 2'4" X 8 1/2" LONG
- 2 PIECES OF 1/8" SHEETMETAL 1'11" X 8 1/2" LONG
- 6 - 2" X 12" X 11'9" RUBBER FLOORING
- 2 PIECES OF 1/2" SHEETMETAL 7'9" X 17"
- 2 PIECES OF 1/8" SHEETMETAL 3' X 17"
- 1 PIECE OF 1/8" SHEETMETAL 2' X 17"

5" PIPE WITH
RECESSED TAILLIGHT



TOP VIEW

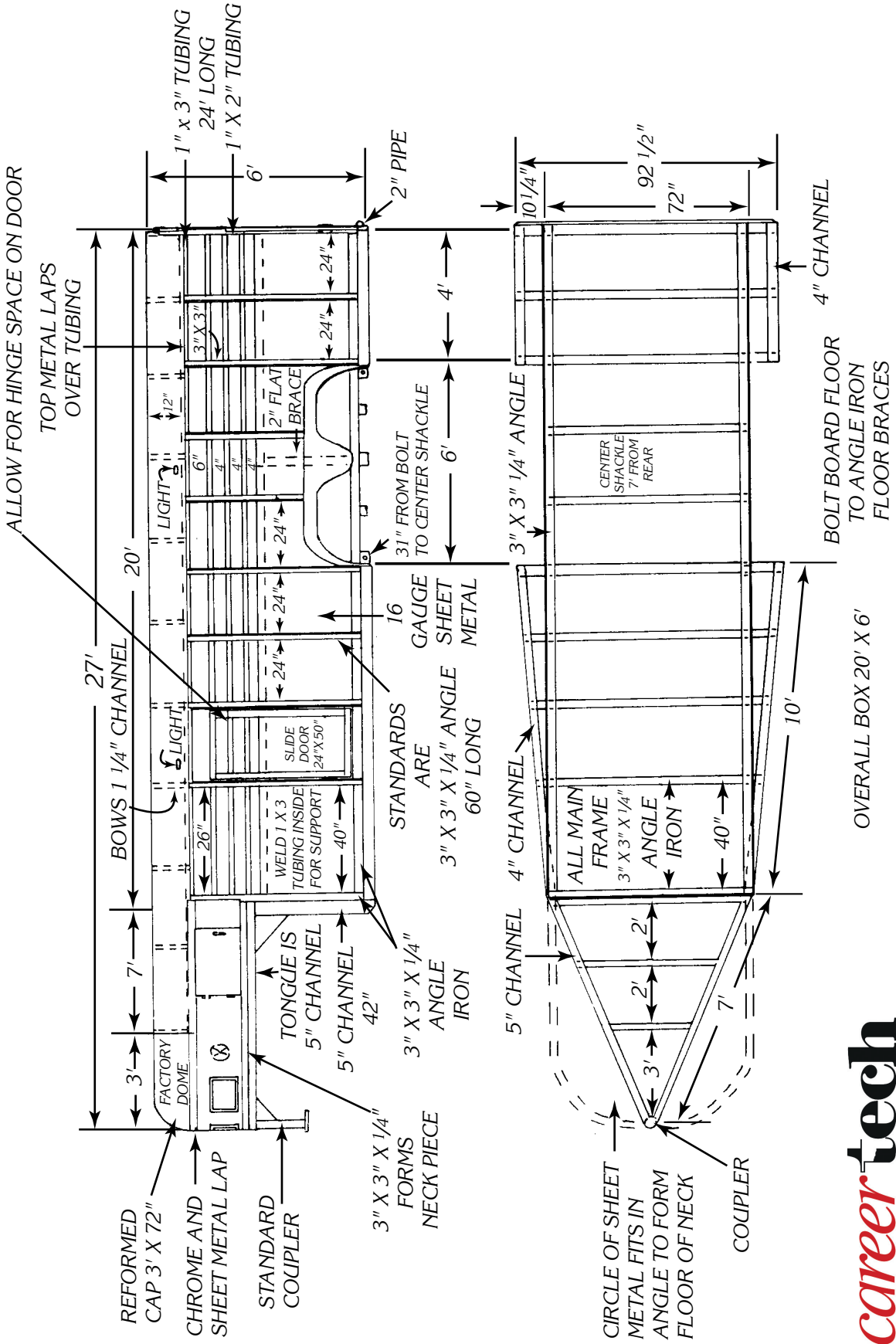


BOTTOM FRAME VIEW

NOTE: ALL FRAME WORK - 3" ANGLE IRON

GOOSENECK TRAILER AND SLIDE-IN RACKS

SCALE: 3/16" = 1'



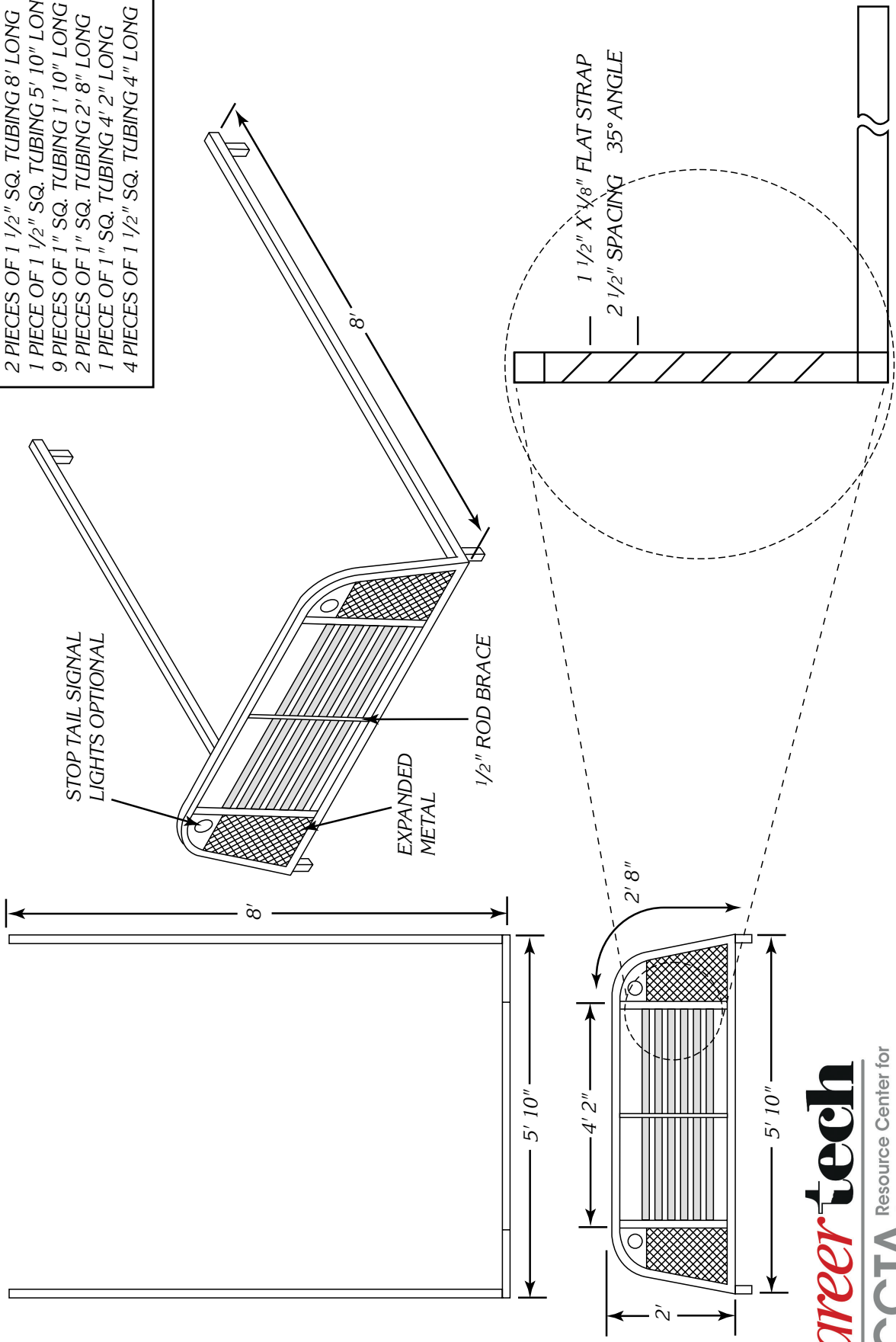
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HEADACHE RACK
SCALE: 3/4" = 1'

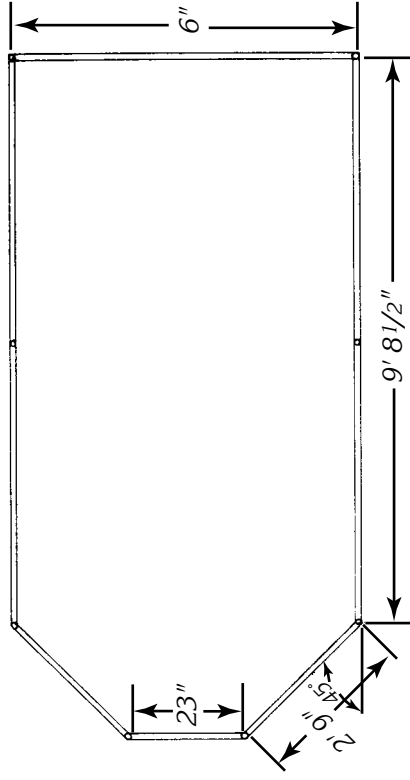
BILL OF MATERIAL
 2 PIECES OF 1 1/2" SQ. TUBING 8' LONG
 1 PIECE OF 1 1/2" SQ. TUBING 5' 10" LONG
 9 PIECES OF 1" SQ. TUBING 1' 10" LONG
 2 PIECES OF 1" SQ. TUBING 2' 8" LONG
 1 PIECE OF 1" SQ. TUBING 4' 2" LONG
 4 PIECES OF 1 1/2" SQ. TUBING 4" LONG



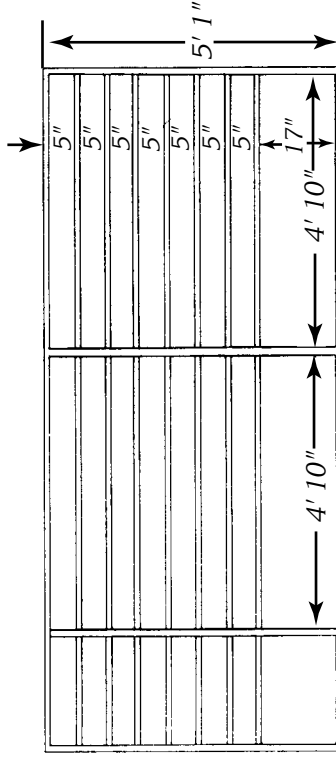
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Livestock Rack for Utility Trailer

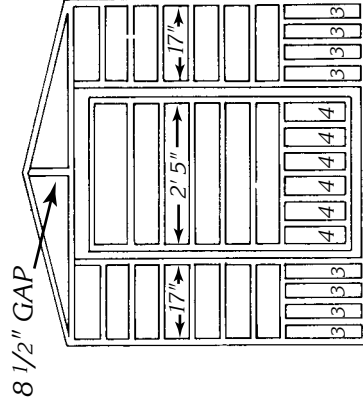


NOTE: RACKS ARE HELD IN WITH
SPRING LOADED BOOMERS



BILL OF MATERIAL

- 8 PIECES OF 1" PIPE 5" LONG
- 2 PIECES OF 1" PIPE 4' 1" LONG
- 2 PIECES OF 1" PIPE 4' 6" LONG
- 6 PIECES OF 1" PIPE 17" LONG
- 5 PIECES OF 1" PIPE 1' 2" LONG
- 9 PIECES OF 1" PIPE 23" LONG
- 18 PIECES OF 1" PIPE 2' 9" LONG
- 36 PIECES OF 1" PIPE 4' 9" LONG
- 2 PIECES OF 1" PIPE 5' 10" LONG
- 2 PIECES OF 1" PIPE 2' 7" LONG
- 14 PIECES OF 1" PIPE 17" LONG
- 6 PIECES OF 1" PIPE 2' 5" LONG
- 1 PIECE OF 1" PIPE 8 1/2" LONG
- 2 PIECES OF 1" PIPE 37" LONG
- 2 PIECES OF 1" PIPE 4" LONG
- 1 PIECE OF 1" PIPE 7" LONG
- 3 PIECES OF 1 1/2" PIPE 3" LONG
- 4 PIECES OF 1 1/2" PIPE 1 1/2" LONG



GATE OUTSIDE
MEASUREMENTS
4' 6" X 2' 7"

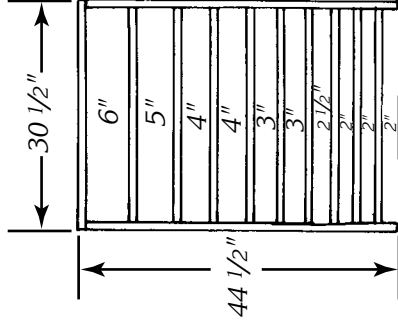
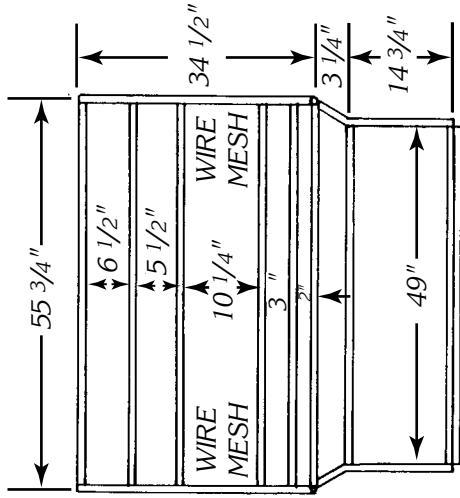
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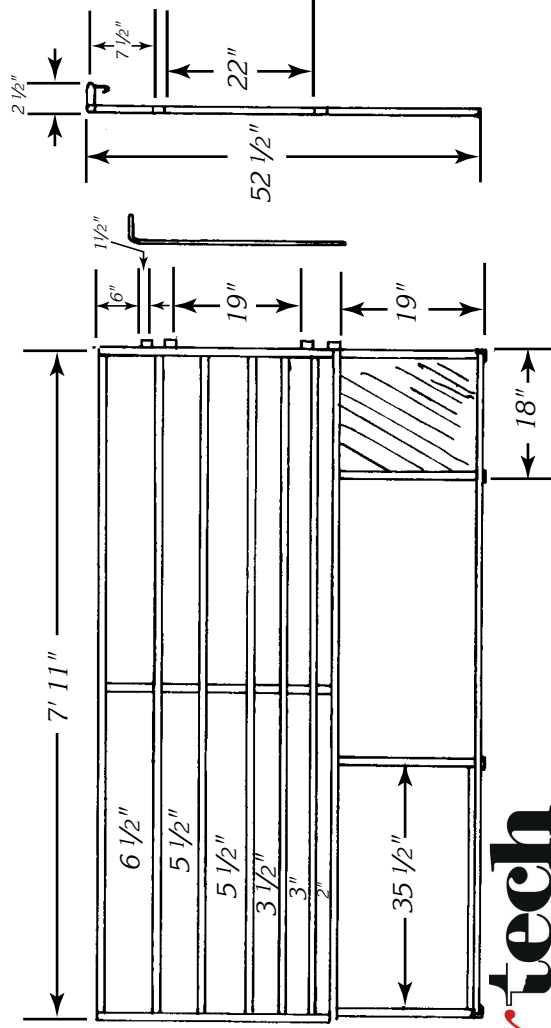
PICKUP STOCK RACKS

SCALE: 3/4" = 1'

BILL OF MATERIALS
 4 SQ. FEET OF EXPANSION STEEL
 4 SQ. FEET OF 18 GAUGE SHEETMETAL
 8' OF 1" STRAP IRON
 12 - 2 1/2" ROUND HEAD STOVE BOLTS
 24' OF 1" X 6" FENCING LUMBER
 7' OF 1/4" PIPE
 265' OF 3/4" PIPE



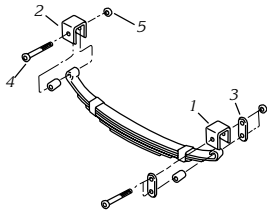
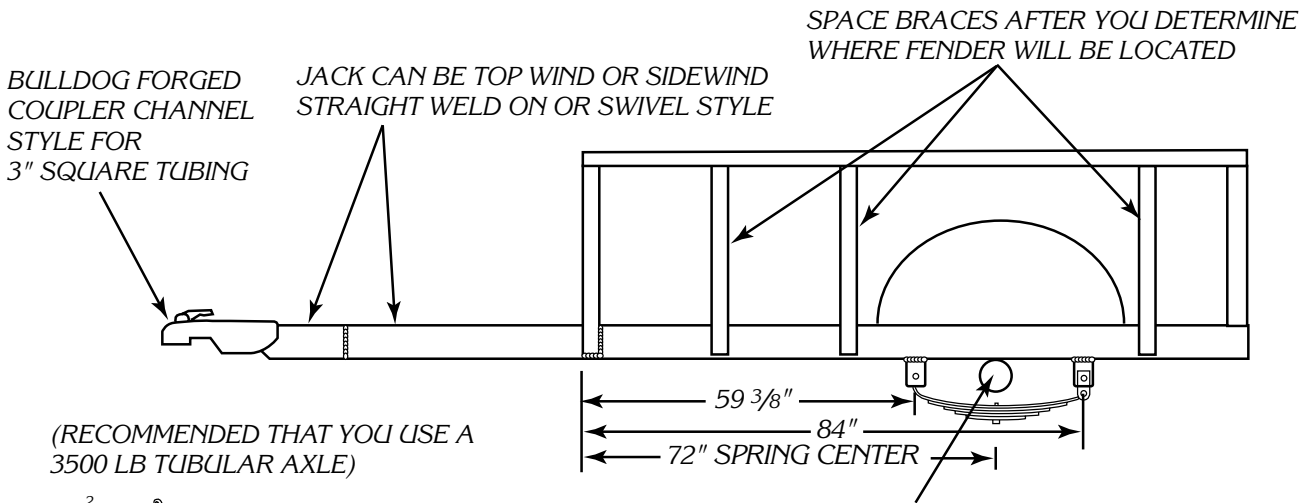
ANGLE IRON WELDED TOGETHER TO MAKE RUN



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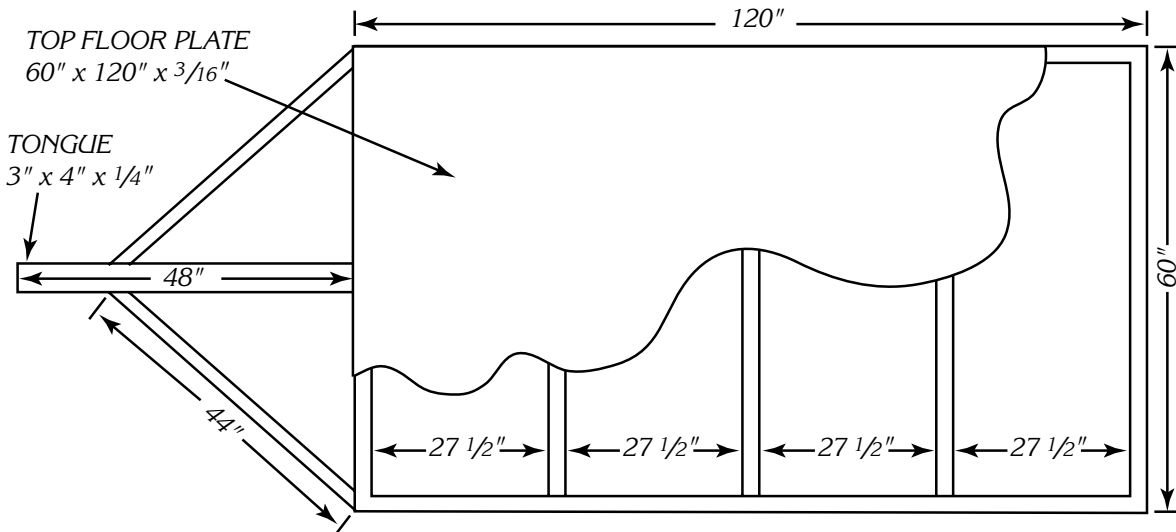
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SIDE VIEW



APSI	
2	93X REAR HANGER
2	28-5 FRONT HANGER
4	115052 LINK
6	9/16 X 3 BOLT AND NUT

USE STRAIGHT OR DROP AXLE WITH 58" SPRING CENTERS AND A 74" TRACK. LOCATE FENDER 4" ABOVE TIRE WITH WEIGHT OF TRAILER SITTING ON TIRE AND AXLE.



BILL OF MATERIALS

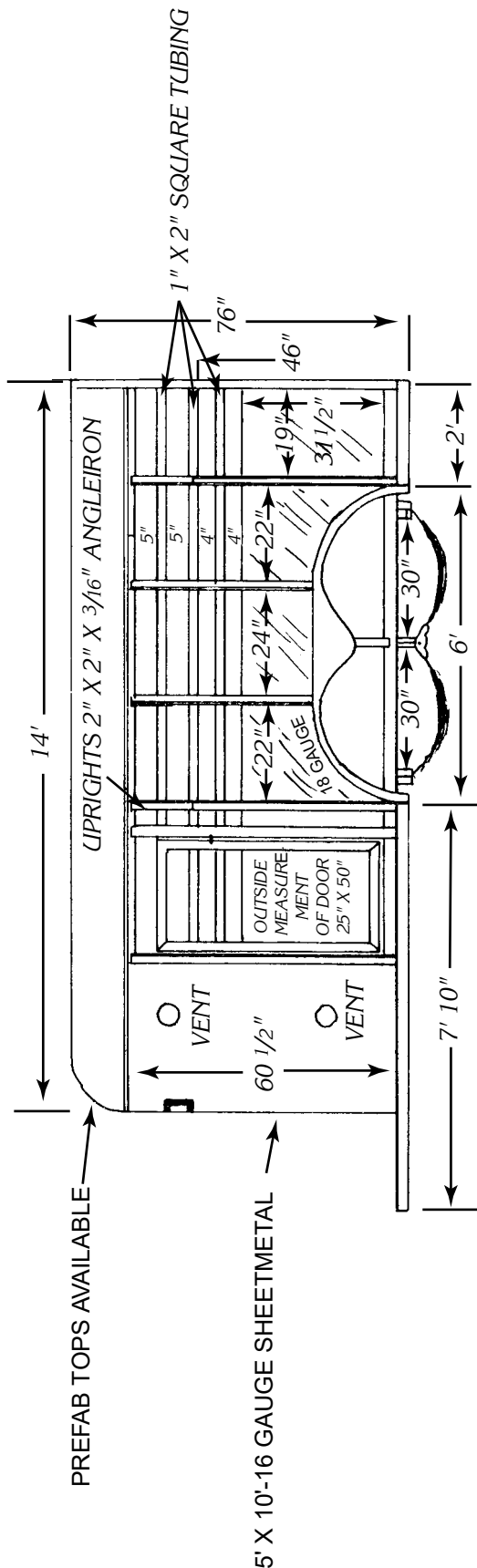
- 1 - TOP FLOOR PLATE - 60" X 120" X 3/16"
- 1 - TONGUE - 3" X 4" X 1/4" - 48"
- 5 - 60" BRACES
- 2 - 120" BRACES
- 2 - 44" BRACES
- 1 - BULLDOG HITCH FOR 3" SQUARE TUBING
- 3500 TUBULAR AXLE
- APSI BOX

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STOCK TRAILER

SCALE: 1/2" = 1'



BILL OF MATERIALS

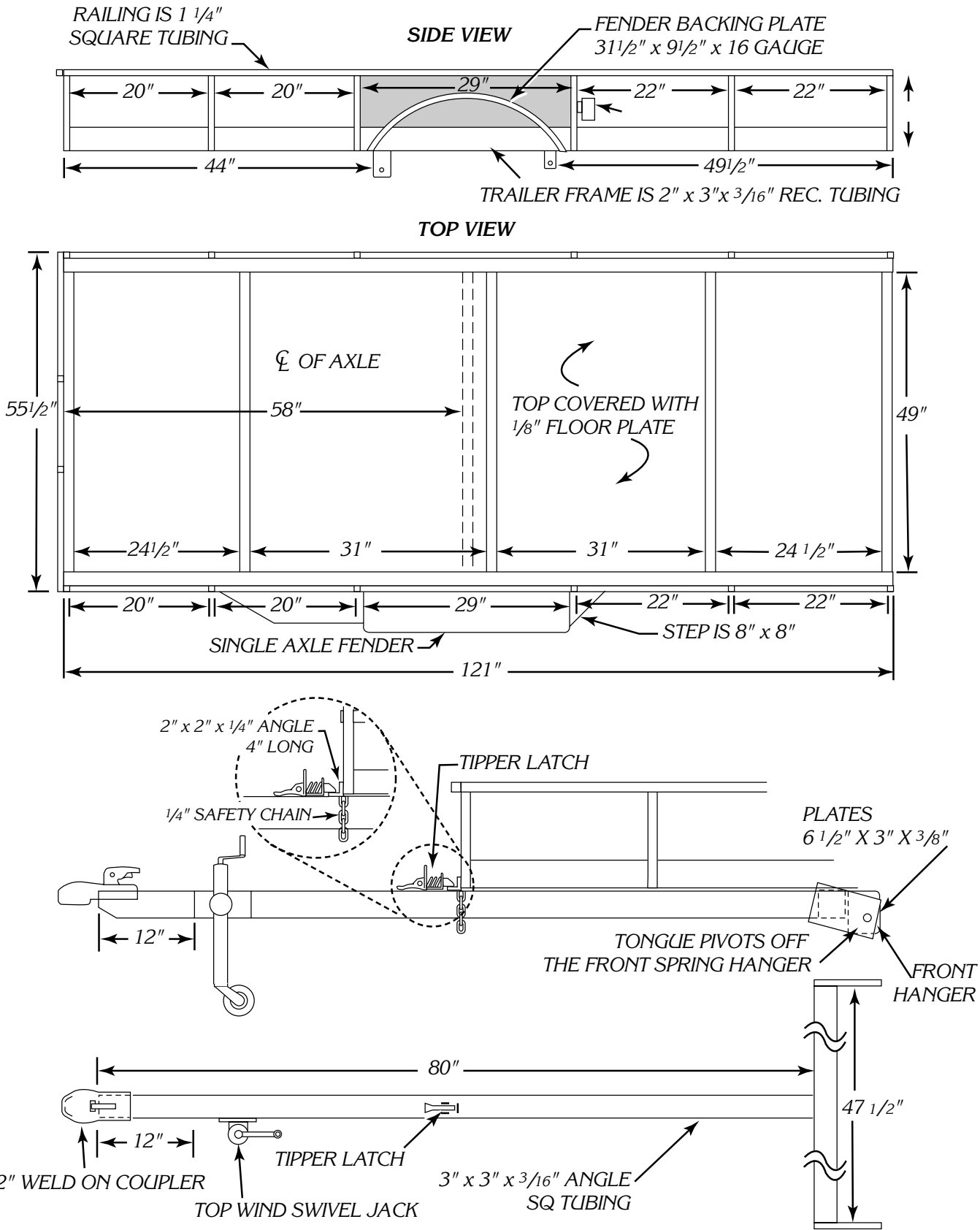
- | | |
|--|---|
| 2 PIECES OF 3" ANGLEIRON 11' 6" LONG | 2 PIECES OF 1 1/4" PIPE 4' 9" LONG |
| 3 PIECES OF 3" ANGLEIRON 81 1/2" LONG | 4 PIECES OF 1 1/2" PIPE 1 1/2" LONG |
| 2 PIECES OF 3" ANGLEIRON 103" LONG | 4 PIECES OF STRAPIRON 1 1/2" X 4" X 3/8" |
| 2 PIECES OF 3" ANGLEIRON 54" LONG | 12 PIECES OF 3/4" PIPE 1 1/2" LONG |
| 2 PIECES OF 2" ANGLEIRON 54" LONG | 2 - 1/2" PINS 5" LONG |
| 1 PIECES OF 1 1/2" ANGLEIRON 15' 8 1/2" LONG | 1 - 1/2" ROD 4" LONG |
| 1 PIECE OF 3" PIPE 81 1/2" LONG | 4 PIECES OF FLATMETAL 2 1/2" X 2 1/2" |
| 2 PIECES OF 2 1/2" ANGLEIRON 6' 1" LONG | 2 PIECES OF 1" X 2" SQ. TUBING 4' 7" LONG |
| 1 PREFAB TOP | 4 PIECES OF 1" X 2" SQ. TUBING 47" LONG |
| 8 PIECES OF 2" ANGLEIRON 5' LONG | 1 PIECES OF 1" X 2" SQ. TUBING 43" LONG |
| 4 PIECES OF 2" ANGLEIRON 3' 5" LONG | 7 PIECES OF 1" X 2" SQ. TUBING 25" LONG |
| 2 PIECES OF 2" ANGLEIRON 6' LONG | 2 PIECES OF 1" X 2" SQ. TUBING 26 1/2" LONG |
| 6 PIECES OF 1" SQ. TUBING 4' LONG | 7 PIECES OF 1" X 2" SQ. TUBING 22 1/2" LONG |
| 2 PIECES OF 1" X 2" SQ. TUBING 4' 9" LONG | 2 PIECES OF 1" X 2" SQ. TUBING 25 1/2" LONG |
| 2 PIECES OF 1" X 2" SQ. TUBING 4' 7" LONG | 2 PIECES OF 1" X 2" SQ. TUBING 50" LONG |
| 2 PIECES OF 1" X 2" SQ. TUBING 4' 6" LONG | 2 PIECES OF 1" X 2" SQ. TUBING 21 1/2" LONG |
| 2 PIECES OF 1" X 2" SQ. TUBING 2' 2" LONG | 3 PIECES OF SHEETMETAL 2' X 2' 6" |
| 1 PIECE OF 1" X 2" SQ. TUBING 4' 5" LONG | 1 PIECE OF SHEETMETAL 2' X 2' 4" |
| 6 PIECES OF 1" X 2" SQ. TUBING 1' 10" LONG | 2 PIECES OF SHEETMETAL 8' 6" X 31 1/2" |
| 8 BOARDS 2" X 8" | 1 PIECE OF SHEETMETAL 5' X 10' |

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TILTING GOLF CART TRAILER

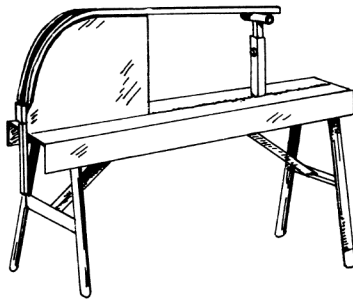
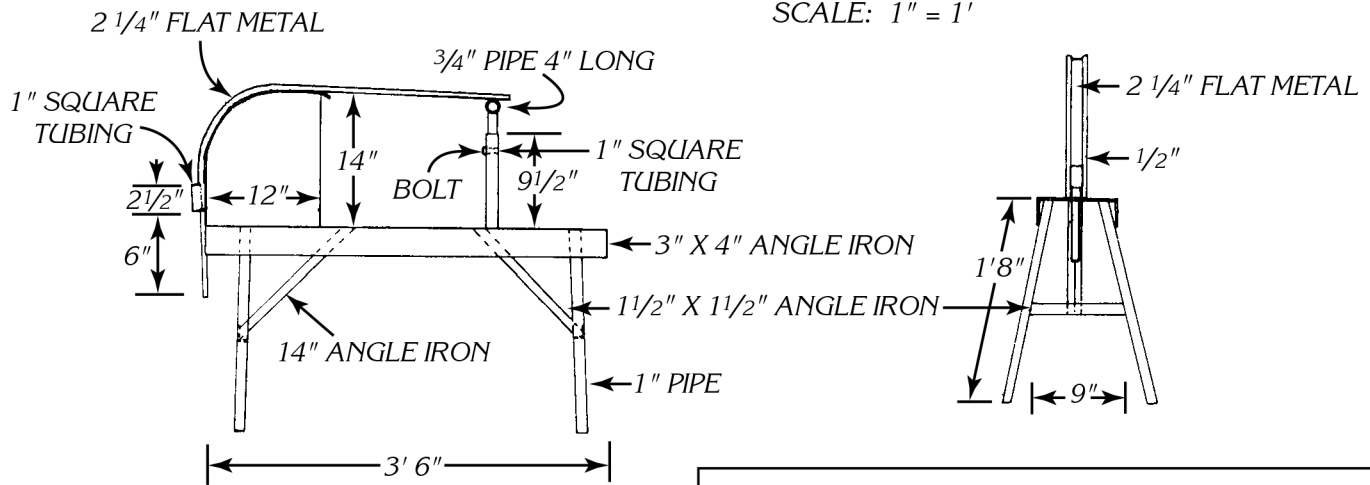


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TRAILER BOW BENDER

SCALE: 1" = 1'



BILL OF MATERIALS

- 2 PIECES OF 3" X 4" ANGLE IRON 3' 6" LONG
- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 14" LONG
- 2 PIECES OF 1 1/2" X 1 1/2" ANGLE IRON 9" LONG
- 4 PIECES OF 1" PIPE 1' 8" LONG
- 1 PIECES OF 1 1/4" SQUARE TUBING 9 1/2" LONG
- 1 PIECE OF 1" SQUARE TUBING 5" LONG
- 1 PIECE OF 3/4" PIPE 4" LONG
- 1 PIECE OF FLAT METAL 12" X 14"
- 1 PIECE OF STRAP METAL 2 1/4" WIDE X 22" LONG
- 1 PIECE OF 1" SQUARE TUBING 2 1/2" LONG
- 1 PIECE OF 1" ROD 8" LONG
- 2 PIECES OF 1/2" SQUARE TUBING 22" LONG

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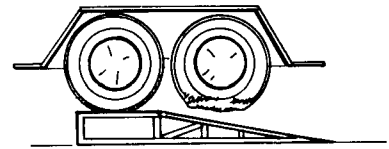
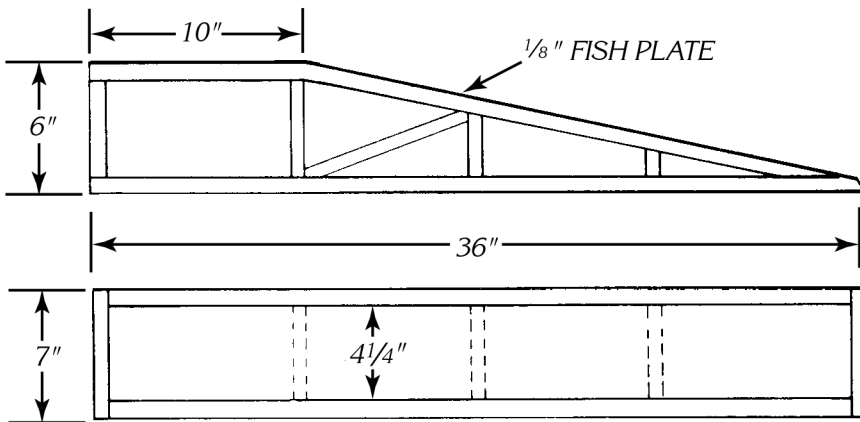
<https://www.okcareertech.org/educators/resource-center>

TRAILER JACK RAMP

SCALE: $\frac{3}{16}'' = 1''$

BILL OF MATERIAL

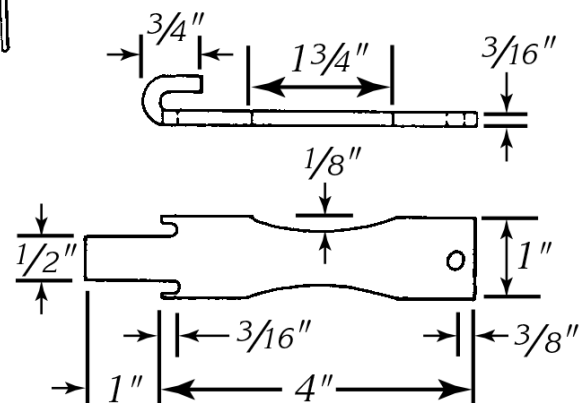
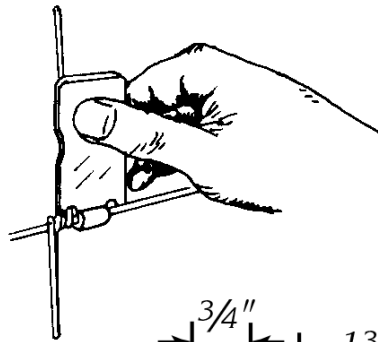
1 PIECE OF $\frac{1}{8}''$ FISH PLATE 7" X 36"
1 PIECE OF 1" SQ. TUBING 18' 8" LONG
3 PIECES OF $1\frac{1}{4}''$ PIPE 65" LONG
4 PIECES OF 1" PIPE 14" LONG



BILL OF MATERIALS

1 PIECE OF $\frac{3}{16}$ " FLAT METAL 1" WIDE AND 5" LONG

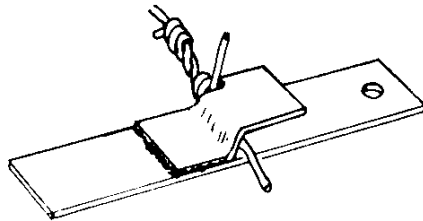
WIRE BENDER
SCALE: $\frac{1}{2}$ " = 1"



BILL OF MATERIALS

1 PIECE OF $\frac{3}{16}$ " FLAT METAL $\frac{3}{4}$ " AND 4" LONG

1 PIECE OF $\frac{1}{8}$ " FLAT METAL 1" WIDE AND 1 $\frac{1}{4}$ " LONG



WIRE SPLICER

SCALE: $\frac{3}{4}$ " = 1"

