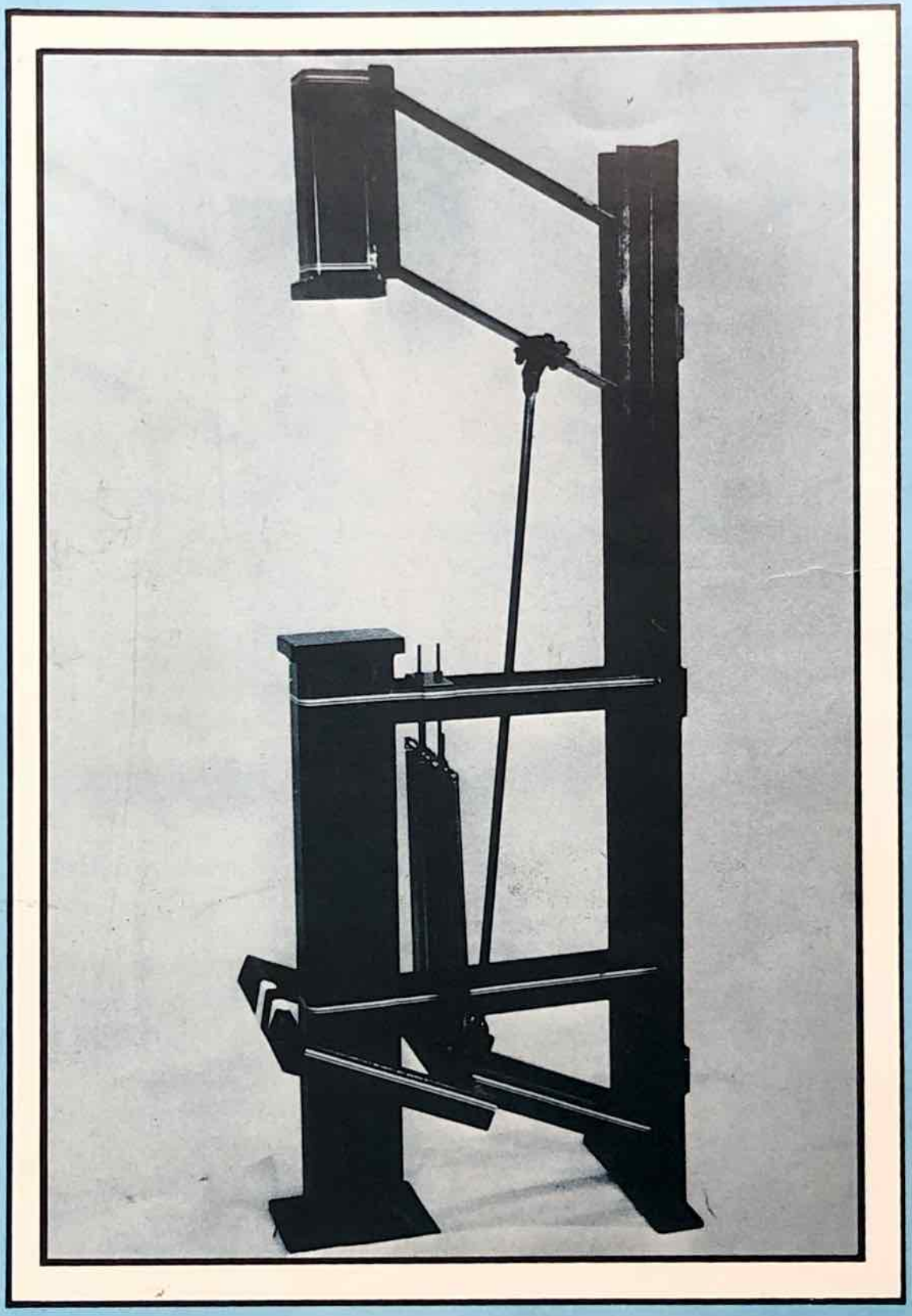
TREADLE HAMMER PLANS



Artist- Blacksmith's Association of North America

ABANA

Artist-Blacksmiths' Association of North America

Executive Secretary
Ruth Cook
P O Box 303
Cedarburg WI 53012

Dear Fellow Smiths:

The following information is in response to the many inquiries about the treadle hammer displayed at the 1984 Artist Blacksmith Association of North America conference. These plans are a refined edition of the hammer, which was displayed.

The purpose of this project is to provide smiths with accurate plans for a very versatile tool and to help ABANA raise revenue through sales of the plans. All proceeds from this will be retained by ABANA. We hope that each of you wishing a set of plans contact ABANA. In doing so, you will be increasing proceeds used to promote blacksmithing.

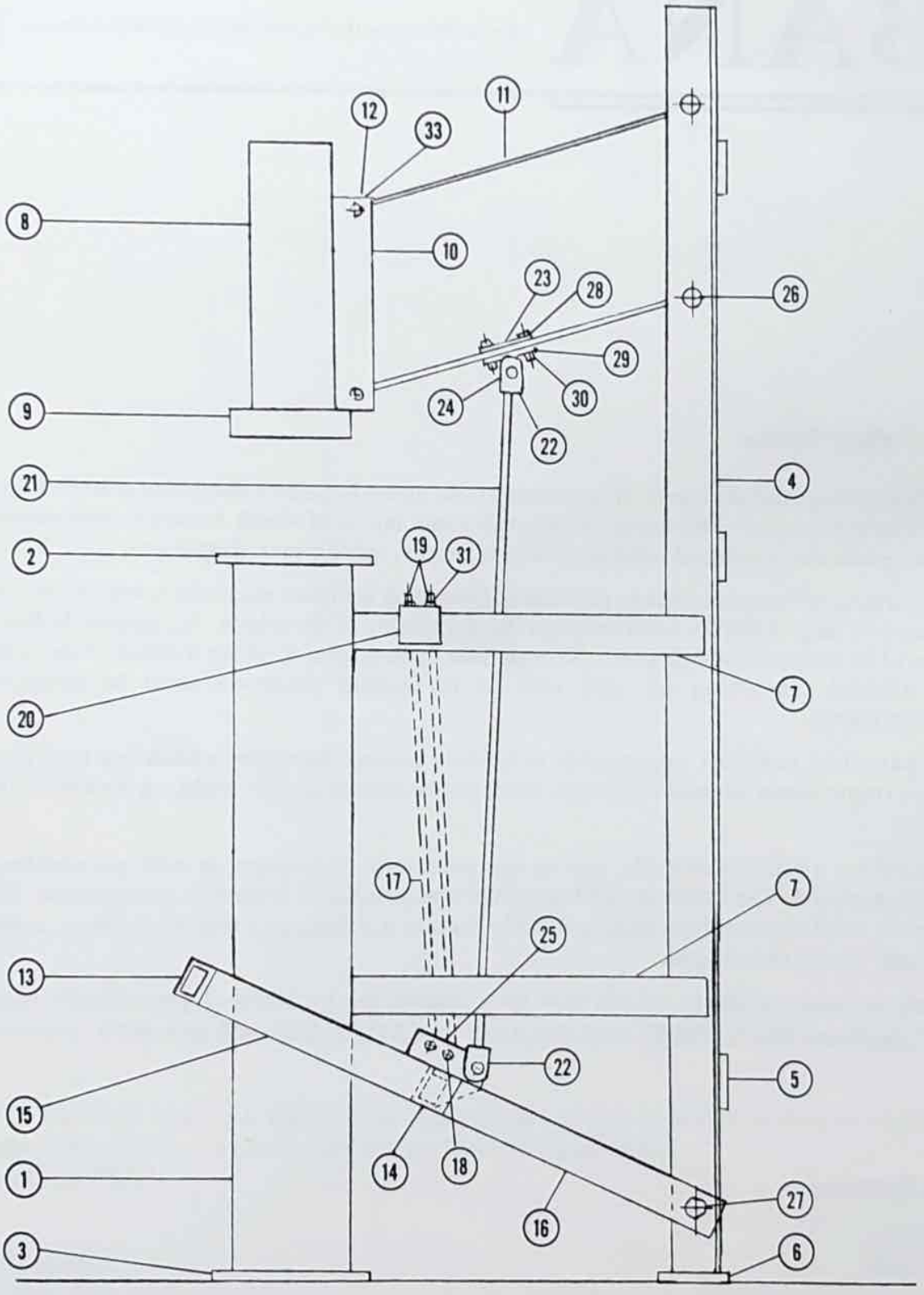
This pamphlet contains information to build a proven hammer, a hammer that provides a tremendous amount of power, more power than a sledge-wielding striker could muster.

Included are a bill of materials, spring specifications, drawings, as well as construction suggestions. The hammer photographed was produced from this information. All materials used are standard sizes normally seen in a structural fabrication shop, making them easily obtainable.

To help answer questions which may arise during the building of your treadle hammer, telephone PAUL MARX 608-249-8637 or GARY GADE 608-846-4870, evenings.

Good Smithing,

Paul Marx
Gary Gade



SCALE : $1\frac{1}{2}" = 1'-0"$

TREADLE HAMMER

Nomenclature and Bill of Material

Part Number	Nomenclature	Quantity	Material and Size
1	Pedestal Column	1	Rectangular Tube 6x4x3/8x36"
2	Pedestal Strike Plate	1	1x5x7
3	Pedestal Base Plate	1	1/2x8x9-1/2
4	Vertical Column Uprights	2	2-1/2x2-1/2x1/4 angle 66"
5	Vertical Column Cross Ties	3	3/8x3x8
6	Vertical Column Base Plate	1	3/8x3x15
7	Pedestal-Vert. Col. Connectors	4	3/8x2x17-1/2
8	Head	1	Tube 4x4x3/8x12
9	Head Strike Plate	1	1"x4x5
10	Head Spring Connectors	2	1/4x2x12
11	Head Spring	2	Flat Leaf .262x3x17
12	Head Spring Bearings	4	1" Round x 3"
13	Treadle Cross Tube-Front	1	1x2 Tube x 17" 14 Gauge
14	Treadle Cross Tube-Rear	1	1x2 Tube x 15" 14 Gauge
15	Treadle Side Tubes	2	1x2 Tube x 12-1/2" 14 Gauge
16	Treadle Pivot Tubes	2	1x2 Tube x 15-1/4" 14 Gauge
17	Treadle Extension Springs	8	# 020-001-GI
18	Spring Rods	4	3/8x7 Threaded Rod
19	Tension Rods	2	1/4 x 12 Threaded Rod
20	Tension Rod Saddle	1	1/4 x 2x6-1/4"
21	Treadle Rod	1	5/8 Round x 40-1/4" Hot Rolled
22	Treadle Rod End Yokes	2	1" Square x 1-1/2"
23	Head Spring Rod Clamp	2	3/8x3x5"

4-BILL OF MATERIAL

Part Number	Nomenclature	Quantity	Material and Size
24	Rod Connector	1	3/8x1x1-1/2
25	Treadle-Spring, Rod Plate	1	3/8 Plate x4-1/4 x 3-1/2
26	Bearing Shaft	4	1/2x5 Round
27	Bearing Shaft	1	1/2x8 Round
28	Bolts	6	1-1/2 x 3/8-16
29	Washers	10	3/8 Flat
30	Washers	6	3/8 Lock
31	Nuts	4	1/4"
32	Nuts	32	3/8-16
33	Grease Fittings	4	1/4-28x1/4 Long

SPRINGS -

EL Simeth Co., Inc.
402 South Hawley Rd.
Milwaukee, WI 53214
414-771-9270

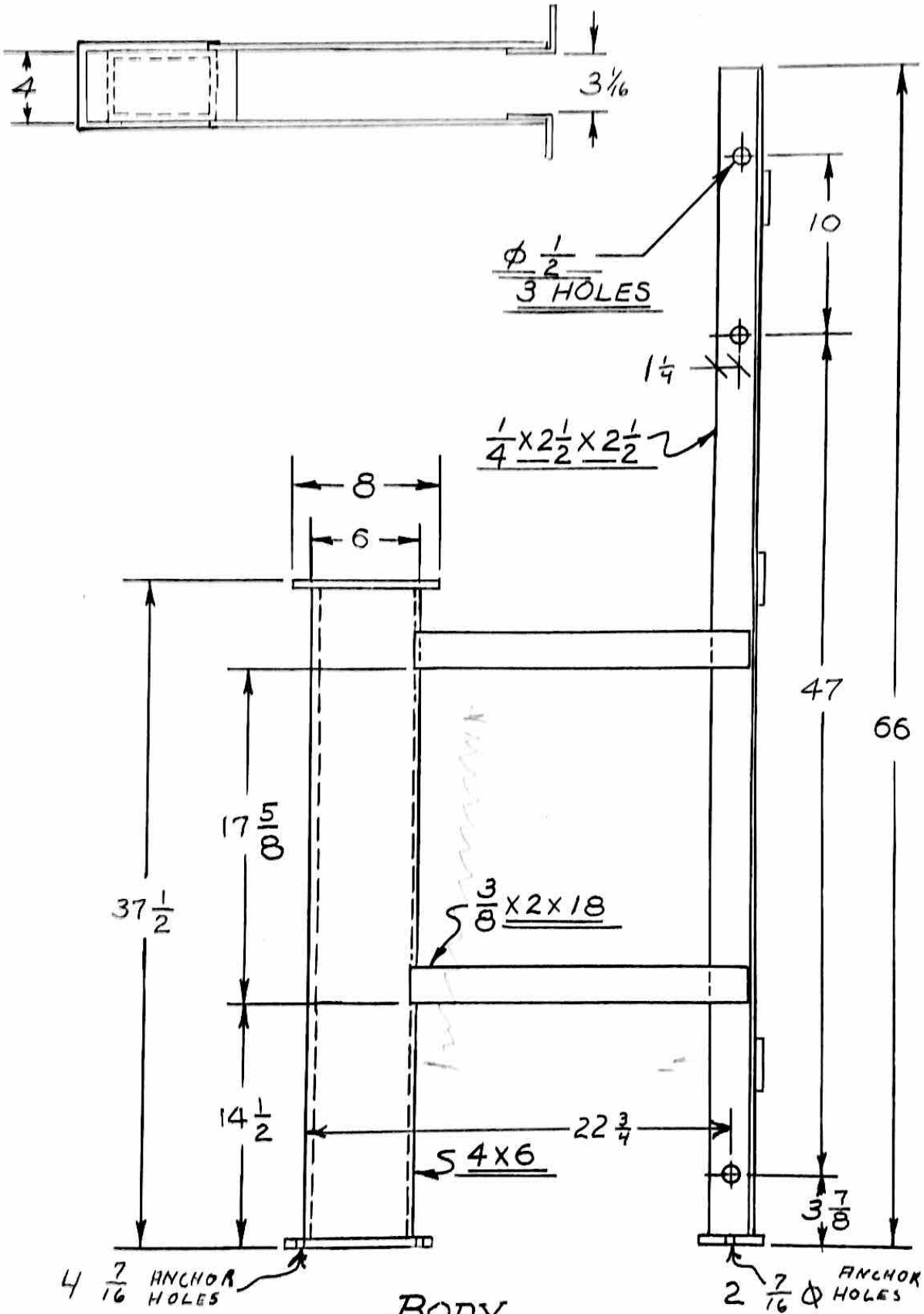
Spring # 020-001 (GI) $4.00 approx. cost/spring

Spring Specification
O.D. 7/8"
Length 10"
Wire Diameter .0915
Coils - 94
Approx. initial tension, 4-3/8 lbs.
Rate per inch 2-1/4 lbs.
Max. extension 11"
Max. safe load 30-1/2 lbs.
Type of ends - Full loops.
Number per box 3

Feder - Abmessungen :

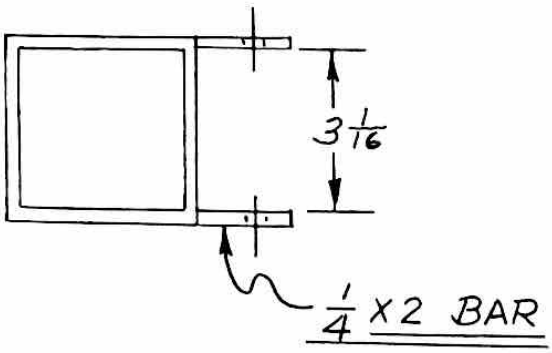
ϕ Aussen ~ 22 mm
Länge 254 "
Drahtstärke ϕ 2,2 "
Wind'gen 94

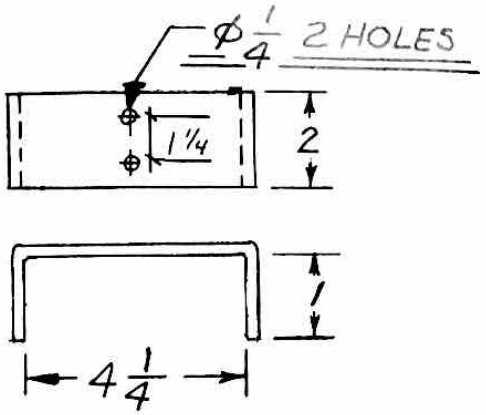
max Länge 280 mm



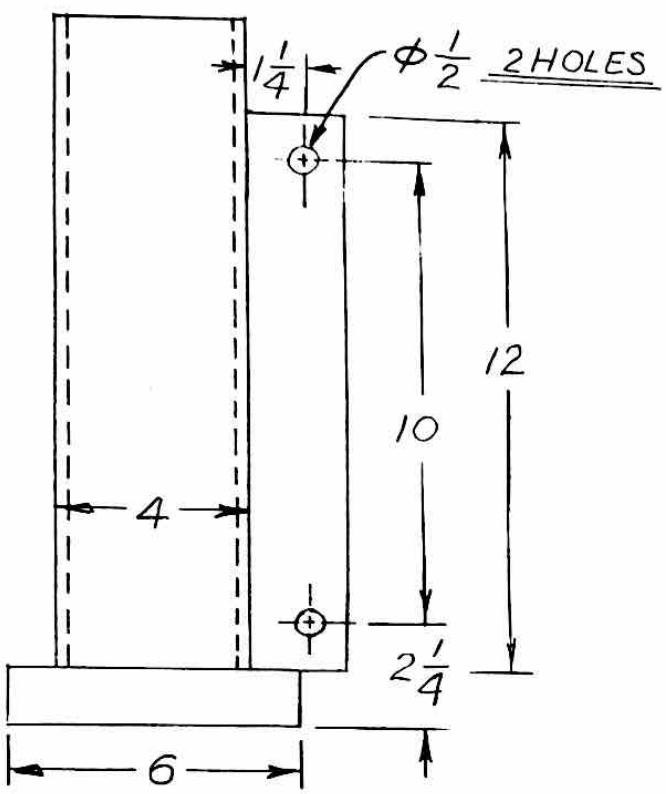
BODY

SCALE: 1 1/2" = 1'-0"

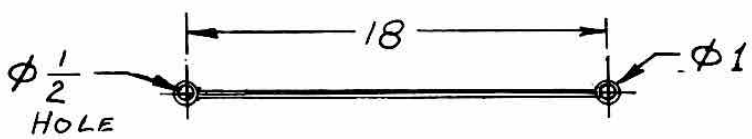




SPRING SADDLE
SCALE 3" = 1'-0"

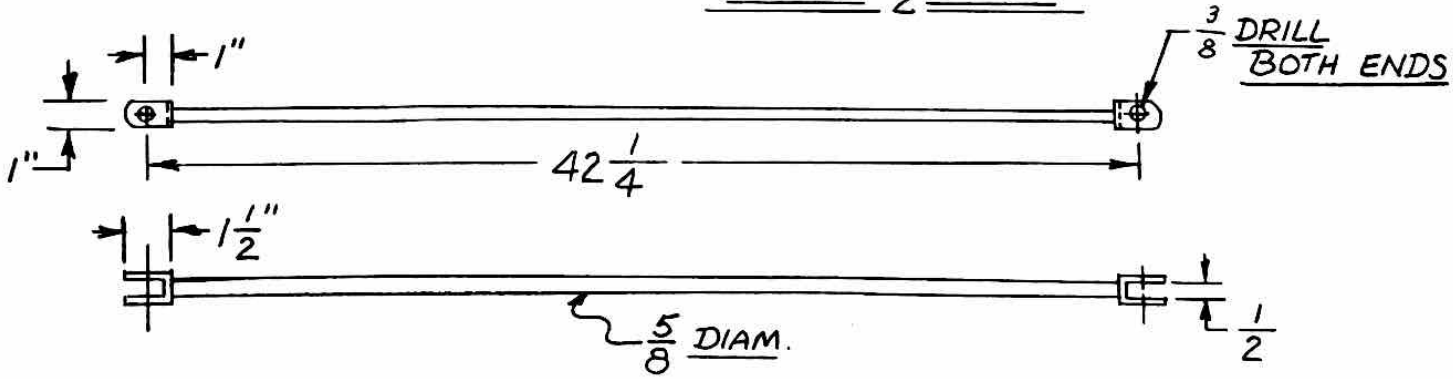


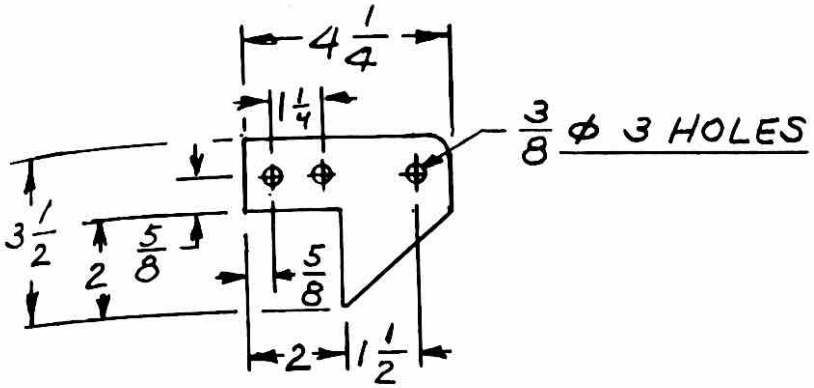
HEAD 55-60 #
SCALE : 3" = 1'-0"



LEAF SPRING .262 X 3"
SCALE : 1 1/2" = 1'-0"

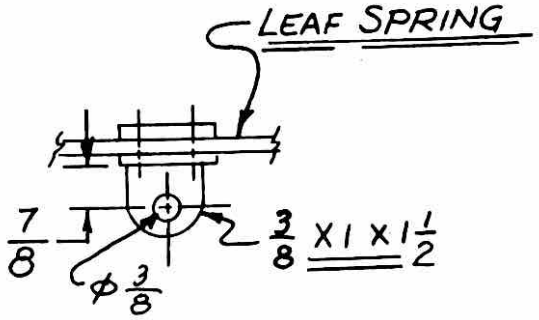
CONNECTING ROD
SCALE : 1 1/2" = 1'-0"

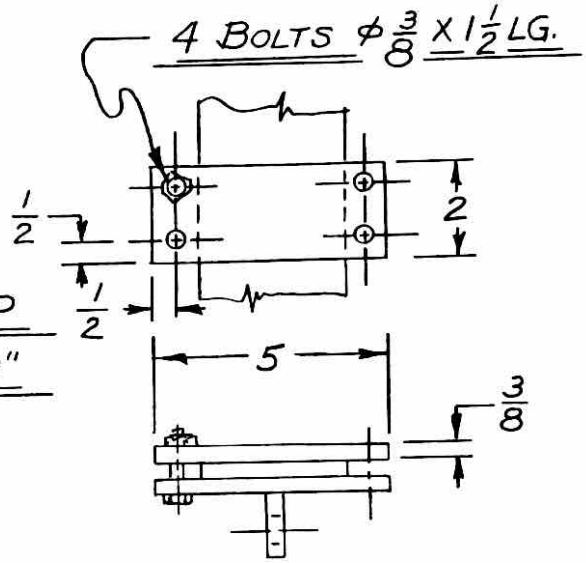




SECTION A-A

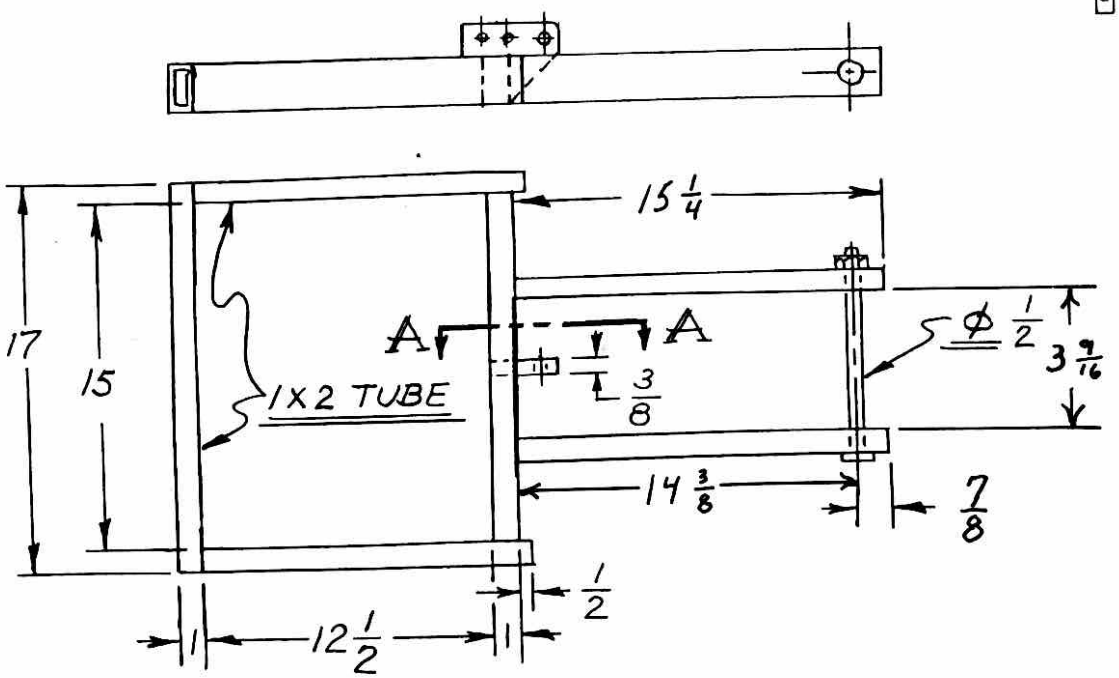
SCALE: 3" = 1'-0"





CONNECTING ROD CLAMP

SCALE: 3" = 1'-0"



TREADLE

SCALE: 1 1/2" = 1'-0"

The following suggestions may help in fabrication:

HEAD ASSEMBLY
Total weight 60-65 pounds. Fill the 4 x 4 tube with lead to arrive at this weight. Head weight is important since this is an inertia device. FOR YOUR SAFETY— We recommend a safety chain or strap to prevent head from flying forward in the event a spring should fail.

PEDESTAL ASSEMBLY
Weld base plate to 6 x 4 column and fill with steel and concrete. The pedestal should then weigh about four times the head assembly weight. When filling with slugs, scrap or whatever, we used enough cement to fill voids around the steel. As filling with steel and cement progresses, strike the tube with a hammer to insure complete settling of cement around steel. After the cement sets up, weld pedestal strike plate to column.

HEAD SPRINGS
These are standard leaf springs .262 x 3'' x 17'' long. This size spring is stiff enough but also slightly flexible. Weld spring stock to spring bearings with low hydrogen electrodes, E7016 or E7018. Alignment of the springs and bearings is important to insure proper contact between head and strike plates. Grind a double bevel at spring ends to give complete penetration welds.

PEDESTAL AND HEAD ALIGNMENT
The alignment of these two is important to the successful operation of the hammer; but if parts are prepared accurately, this will take care of itself.

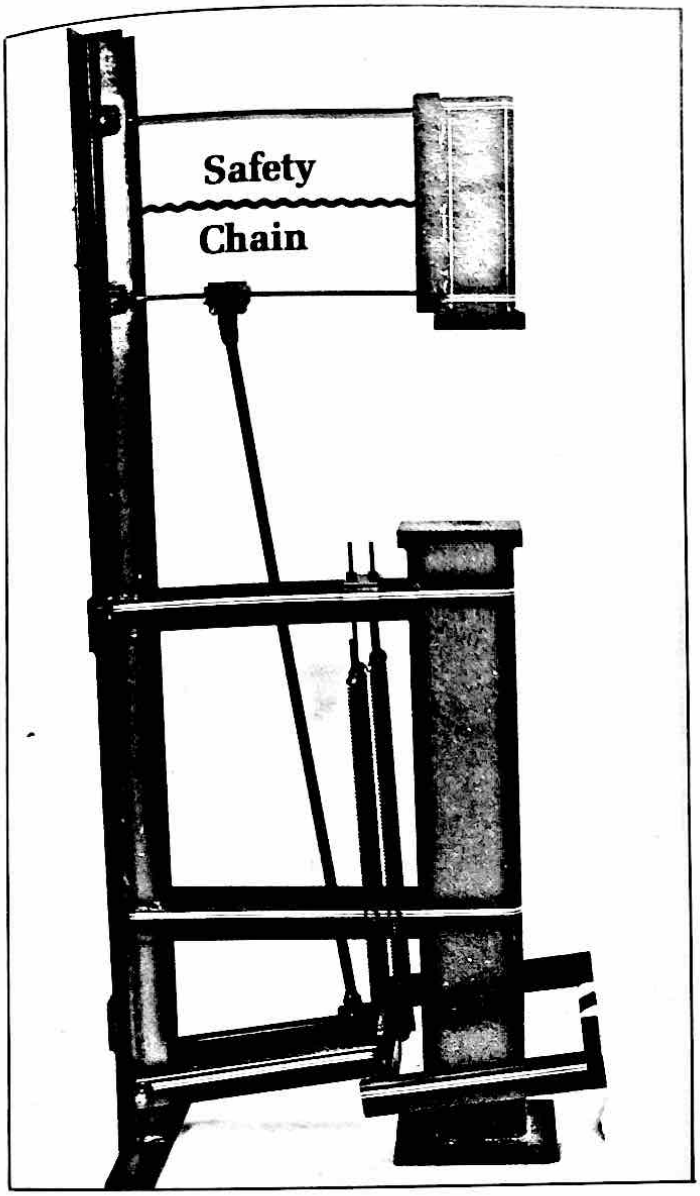
FOOT TREADLE
1 x 2 x 14 gauge is used because it has enough torsional rigidity to hold up to ''standing on it'' when maximum hammer power is required. The treadle also limits the upstroke of the head.

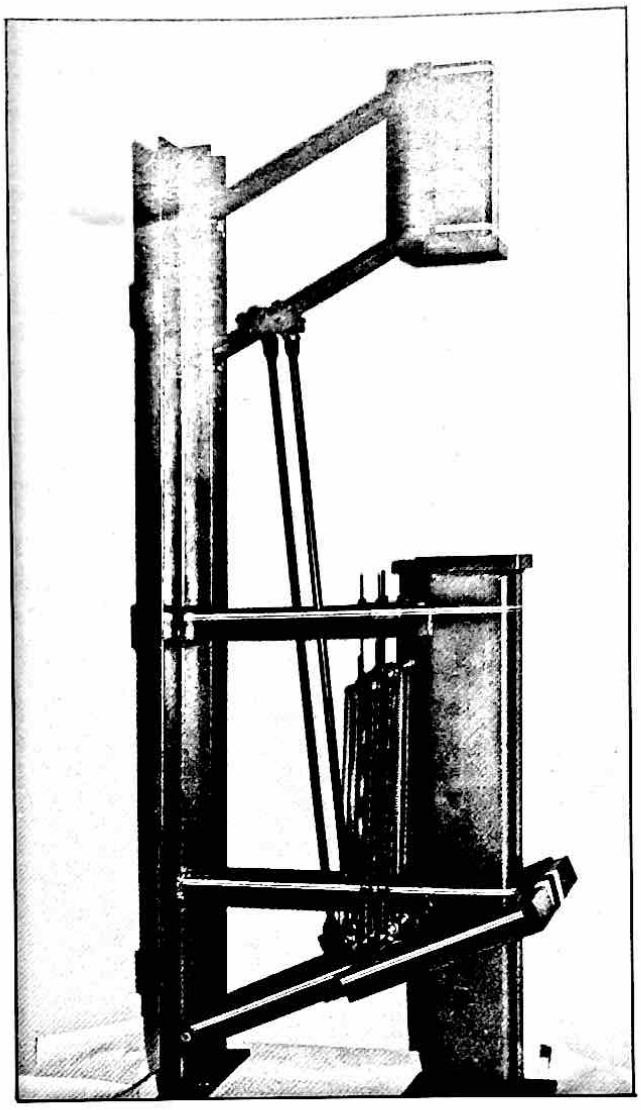
TREADLE EXTENSION SPRINGS
These springs were selected to work properly with the overall hammer design and head weight.

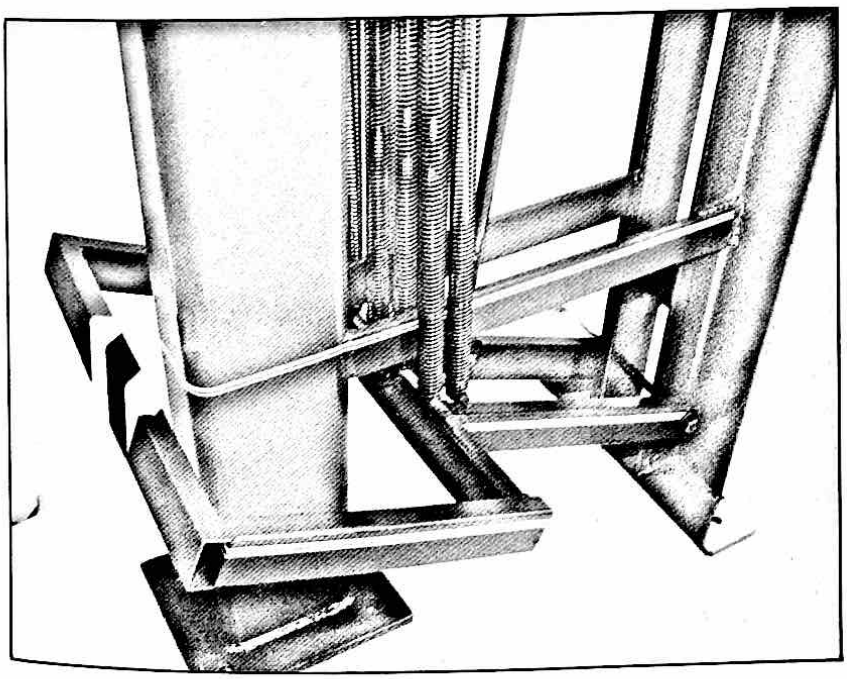
TREADLE-HEAD CONNECTING ROD
This rod should be clamped to the leaf spring when the treadle is completely to the floor and there is a ½'' clearance between the head and the pedestal strike plate. The rod will flex enough to make zero contact if necessary.

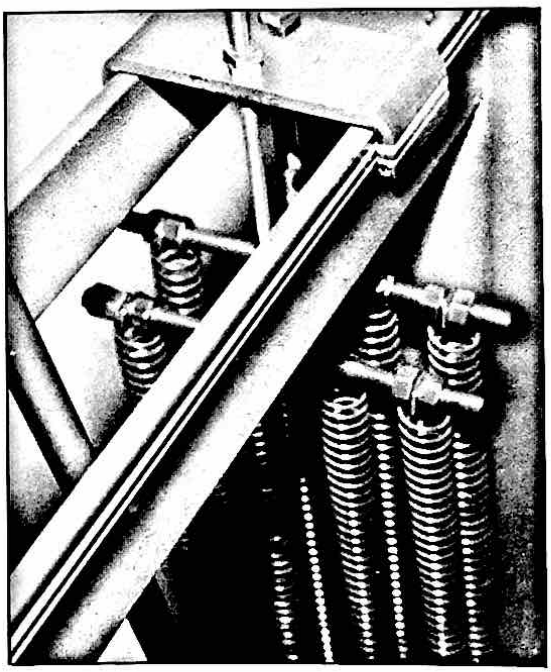
BEARING RODS
The ½'' round x 7'' bearing shafts should be welded to the angle iron verticals. Weld each about halfway around.

BILL OF MATERIALS
Alternative materials may be used to construct this hammer depending upon availability; however, the initial measurements must still be held to insure proper spacing of components and satisfactory overall operations.


Safety
Chain







10-PHOTOGRAPHS