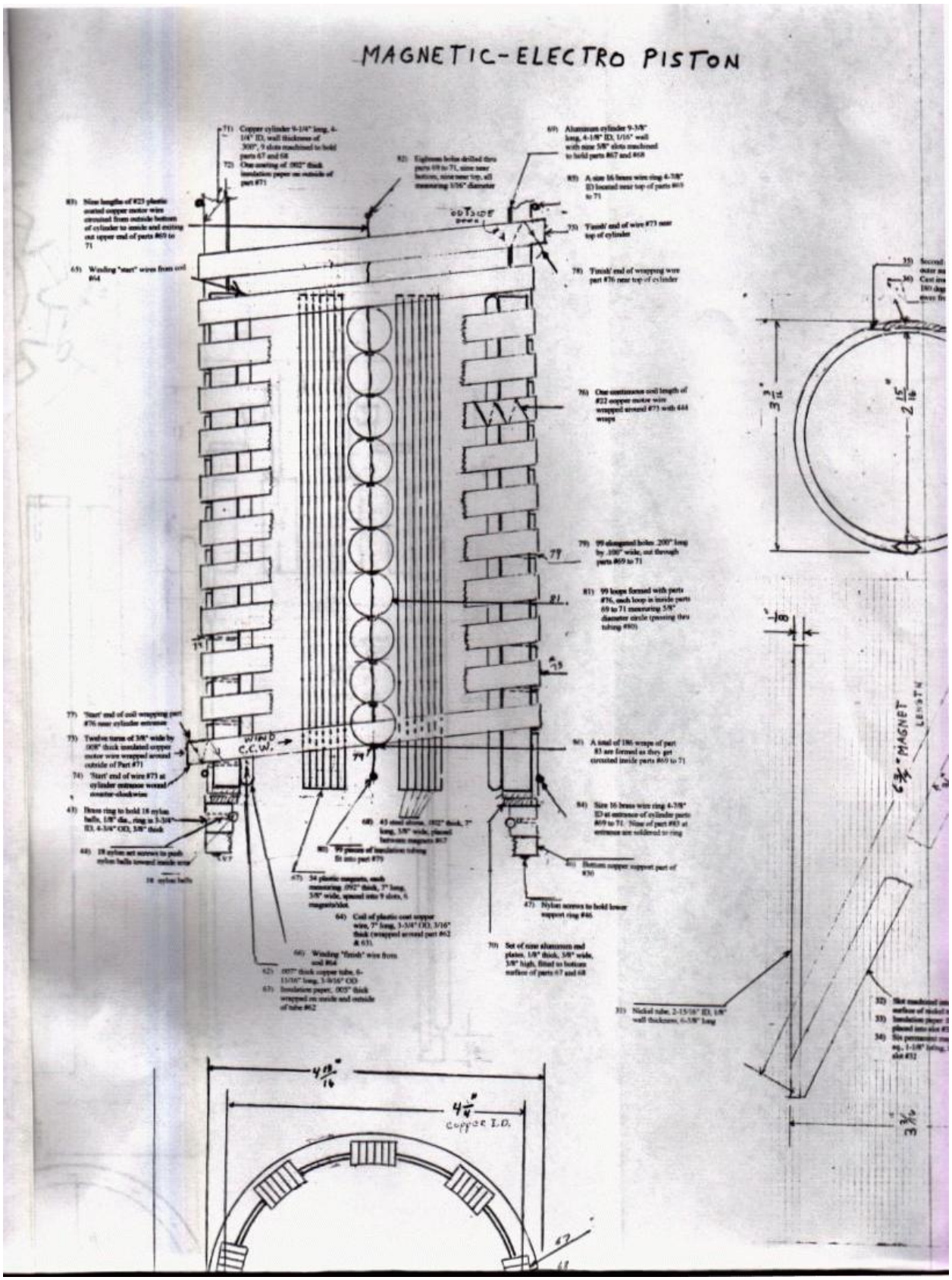
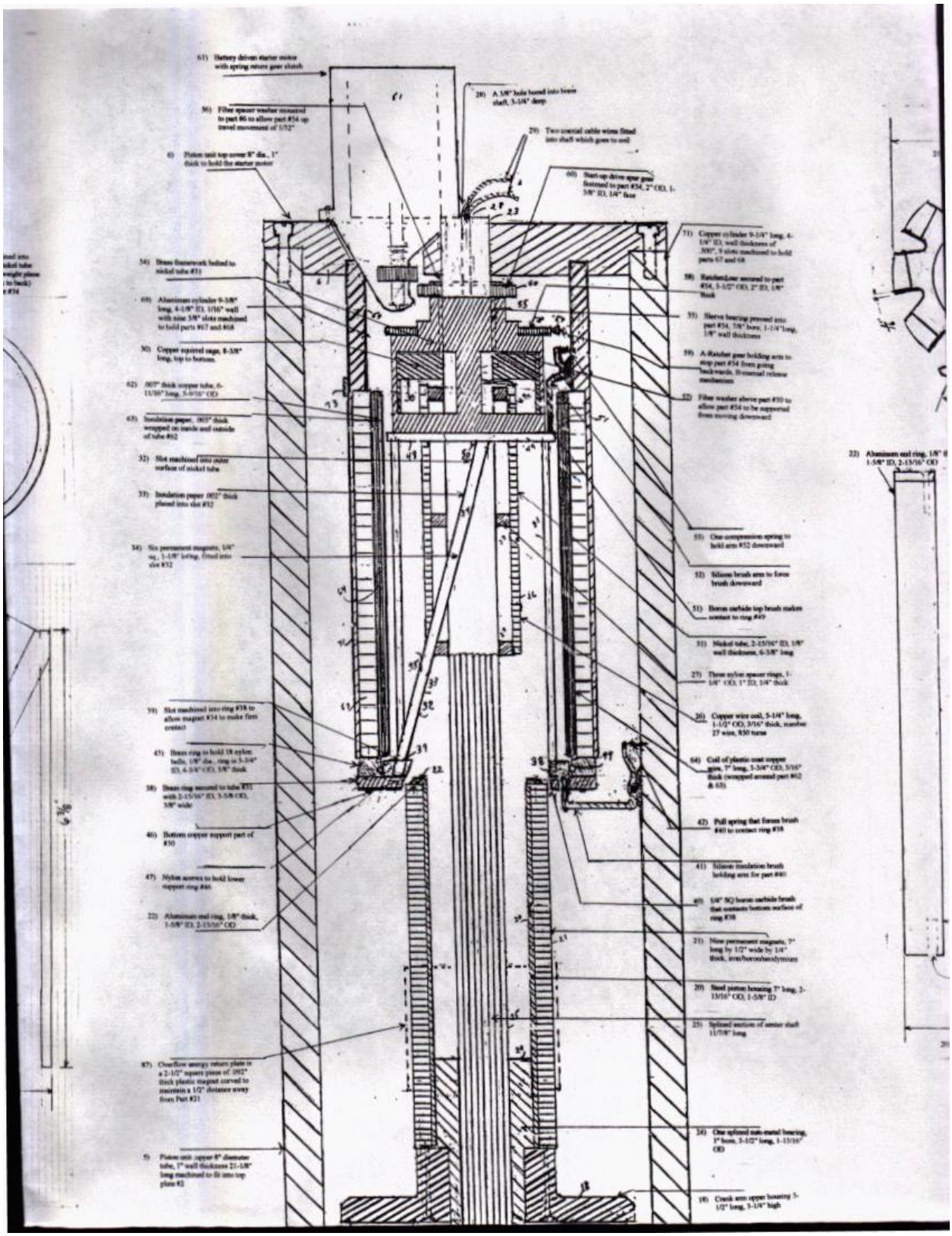
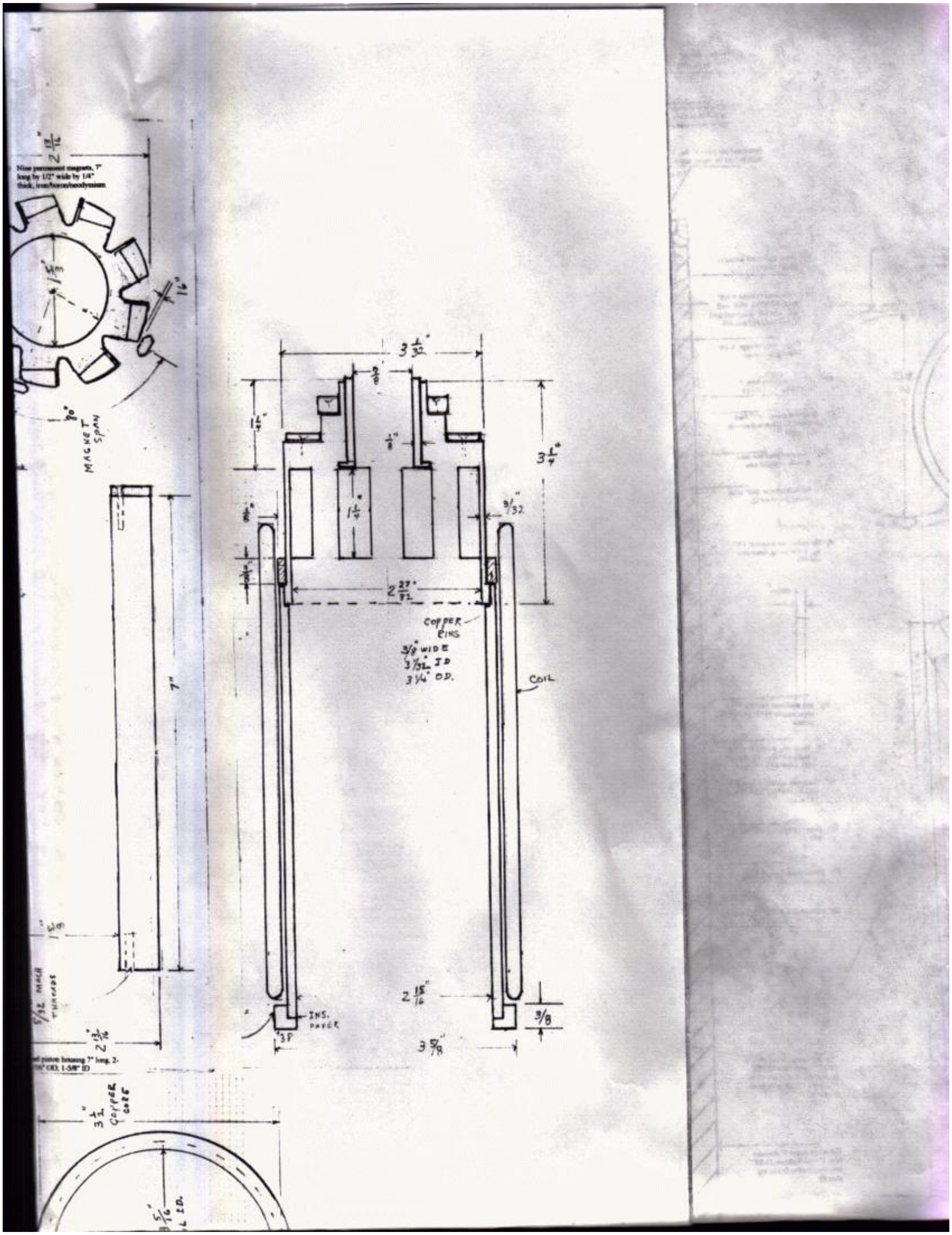
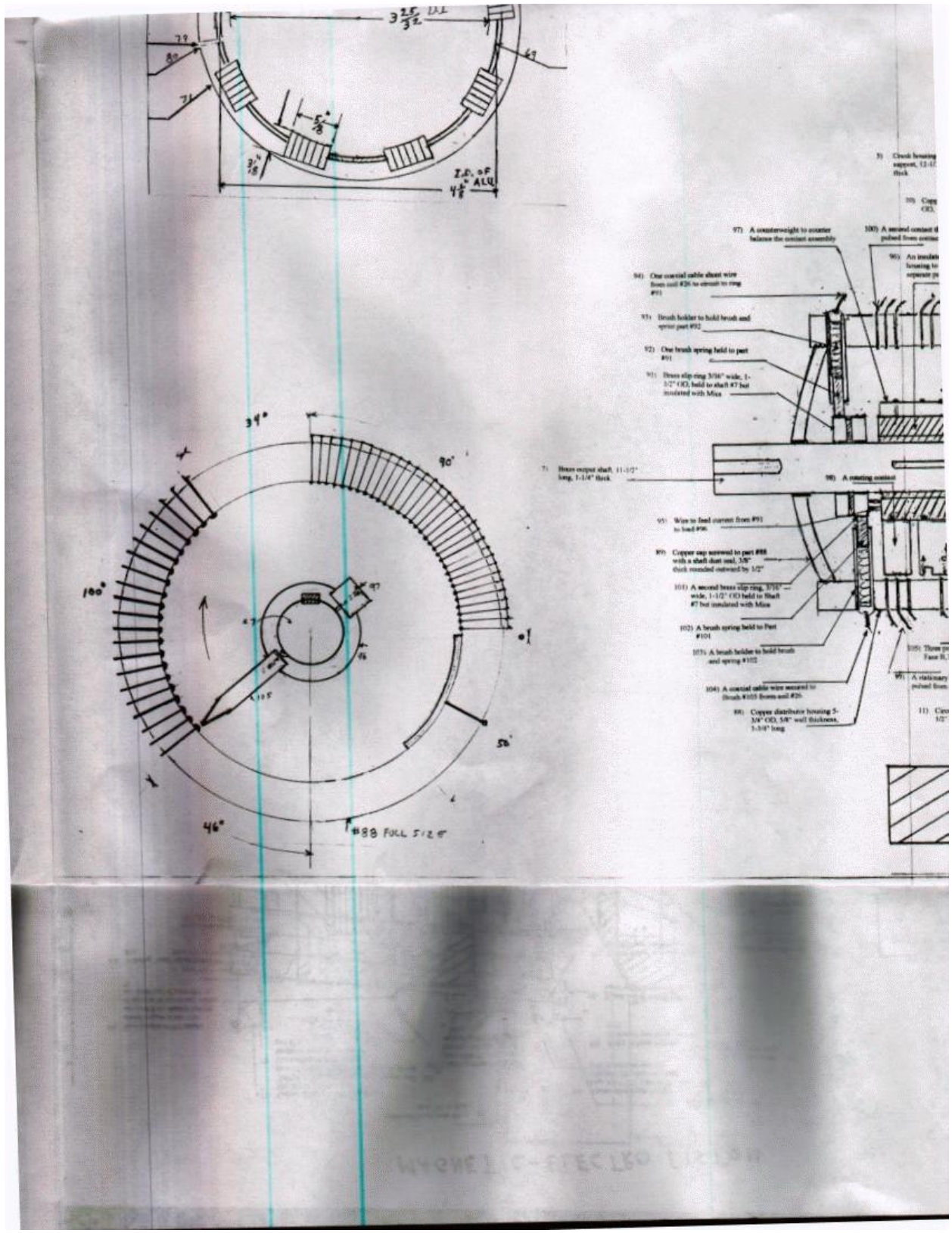
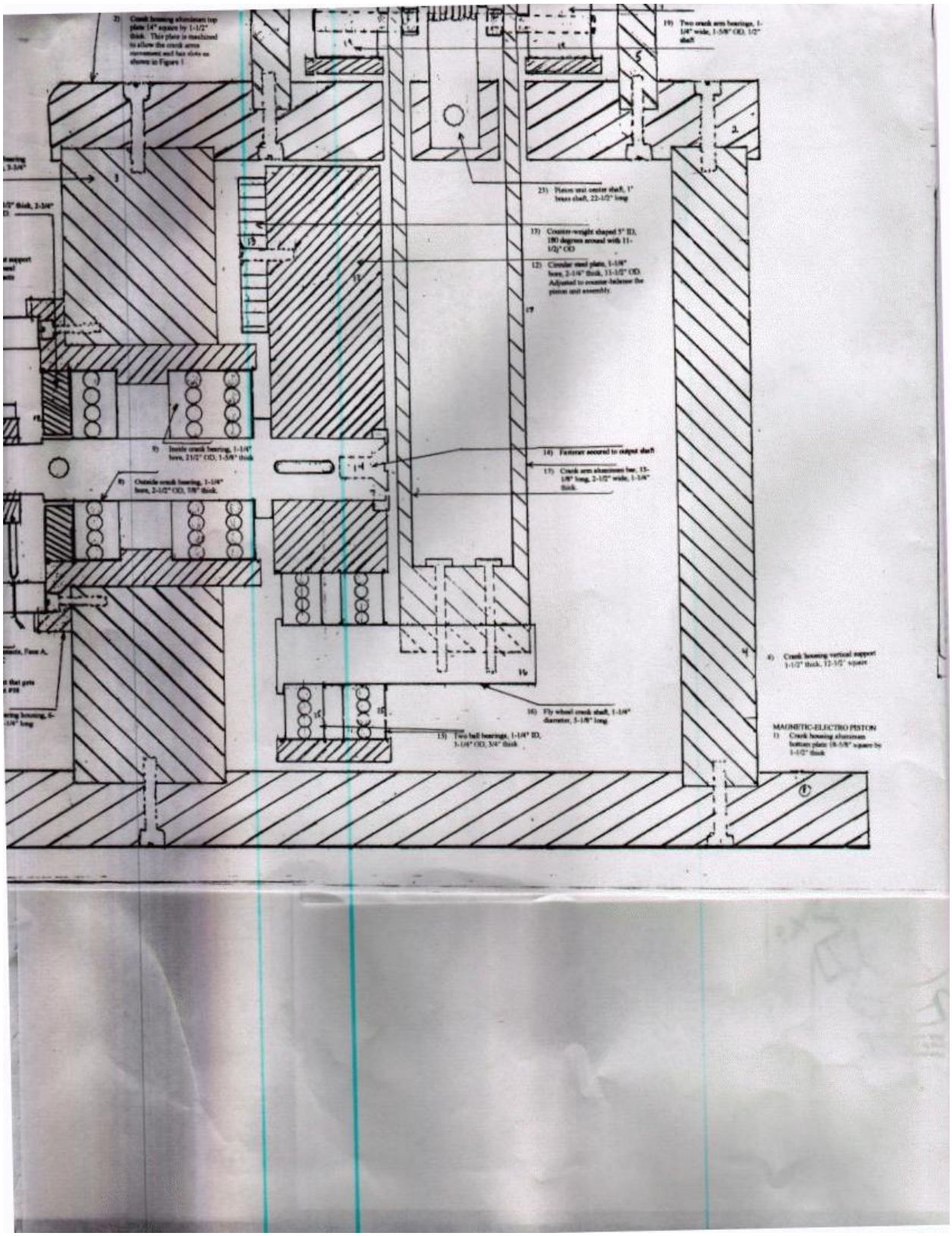
MAGNETIC-ELECTRO PISTON




61) Battery driven starter motor with spring return gear clutch
56) Fiber spacer washer mounted to part #6 to allow part #54 up travel movement of 1/32"
6) Piston unit top cover 8" dia., 1" thick to hold the starter motor
28) A 3/8" hole bored into brass shaft, 3-1/4" deep
29) Two coaxial cable wires fitted into shaft which goes to coil
60) Start-up drive spur gear fastened to part #54, 2" OD, 1-3/8" ID, 1/4" thick
71) Copper cylinder 9-1/4" long, 4-1/4" ID, wall thickness of .300", 9 slots machined to hold parts #57 and #58
58) Ratchet/Lug secured to part #54, 3-1/2" OD, 2" ID, 1/8" thick
55) Sleeve bearing pressed into part #54, 3/8" bore, 1-1/4" long, 1/8" wall thickness
59) A-Ratchet gear holding arm to stop part #54 from going backwards. Bi-manual release mechanism
57) Fiber washer above part #59 to allow part #54 to be supported from moving downward
54) Brass framework bolted to nickel tube #51
69) Aluminum cylinder 9-3/8" long, 4-1/8" ID, 1/16" wall with nine 3/8" slots machined to hold parts #67 and #68
50) Copper squirrel cage, 8-3/8" long, top to bottom.
62) .007" thick copper tube, 6-11/16" long, 5-9/16" OD
63) Insulation paper, .003" thick wrapped on inside and outside of tube #62
52) Slot machined into outer surface of nickel tube
53) Insulation paper .003" thick placed into slot #52
54) Six permanent magnets, 1/8" sq., 1-1/8" long, fitted into slot #52
55) One compression spring to hold arm #52 downward
52) Silicon brush arm to force brush downward
51) Boron carbide top brush makes contact to ring #49
51) Nickel tube, 2-15/16" ID, 1/8" wall thickness, 6-3/8" long
27) Three nylon spacer rings, 1-1/4" OD, 1" ID, 1/4" thick
26) Copper wire coil, 5-1/4" long, 1-1/2" OD, 3/16" thick, number 27 wire, 850 turns
64) Coil of plastic coat copper wire, 7" long, 3-3/4" OD, 3/16" thick (wrapped around part #62 & 63)
59) Slot machined into ring #38 to allow magnet #34 to make firm contact
47) Brass ring to hold 18 nylon balls, 1/8" dia., ring is 3-3/4" ID, 4-1/4" OD, 1/8" thick
38) Brass ring secured to tube #51 with 2-15/16" ID, 3-5/8 OD, 3/8" wide
46) Bottom copper support part of #50
47) Nylon screws to hold lower support ring #46
22) Aluminum end ring, 1/8" thick, 1-5/8" ID, 2-13/16" OD
42) Pull spring that forces brush #40 to contact ring #38
41) Silicon insulation brush holding arm for part #40
40) 1/8" SQ boron carbide brush that contacts bottom surface of ring #38
31) Nine permanent magnets, 7" long by 1/2" wide by 1/4" thick, iron/boron/neodymium
20) Steel piston housing 7" long, 2-13/16" OD, 1-5/8" ID
23) Splined section of motor shaft 11/7/8" long
87) Overflow energy return plate is a 2-1/2" square piece of .092" thick plastic magnet curved to maintain a 1/2" distance away from Part #21
5) Piston unit, upper 8" diameter tube, 1" wall thickness 21-1/8" long machined to fit into top plate #2
24) One splined non-metal bearing, 1" bore, 3-1/2" long, 1-13/16" OD
18) Crank arm upper housing 5-1/2" long, 3-1/4" high
22) Aluminum end ring, 1/8" t
1-5/8" ID, 2-13/16" OD


3 1/32"
3/8"
1 1/4"
1/8"
3 1/4"
3/32"
1 1/4"
2 27/32"
COPPER RINGS
3/8" WIDE
3 7/32" ID
3 1/4" OD.
COIL
2 15/16"
INS. PAPER
3/8
3 5/8"
7"


97) A counterweight to counter balance the contact assembly
94) One coaxial cable sheet wire from coil #26 to circuit to ring #91
93) Brush holder to hold brush and spring part #92
92) One brush spring held to part #91
91) Brass slip ring 3/16" wide, 1-1/2" OD, held to shaft #7 but insulated with Mica
7) Brass output shaft, 11-1/2" long, 1-1/4" thick
95) Wire to feed current from #91 to load #96
89) Copper cap screwed to part #88 with a shaft dust seal, 3/8" thick rounded outward by 1/2"
101) A second brass slip ring, 3/16" --- wide, 1-1/2" OD held to Shaft #7 but insulated with Mica
102) A brush spring held to Part #101
103) A brush holder to hold brush and spring #102
104) A coaxial cable wire secured to Brush #103 from coil #26
88) Copper distributor housing 5-3/8" OD, 3/8" wall thickness, 3-3/4" long
34°
90°
180°
46°
#88 FULL SIZE


19) Two crank arm bearings, 1-1/4" wide, 1-5/8" OD, 1/2" shaft
23) Piston strut center shaft, 1" brass shaft, 22-1/2" long
17) Counter-weight shaped 5" ID, 180 degrees around with 11-1/2" OD
12) Crankshaft steel plate, 1-1/8" bore, 2-1/4" thick, 11-1/2" OD. Adjusted to counter balance the piston unit assembly.
9) Inside crank bearing, 1-1/4" bore, 2½" OD, 1-5/8" thick
8) Outside crank bearing, 1-1/4" bore, 2-1/2" OD, 1/8" thick.
14) Fastener secured to output shaft
15) Crank arm aluminum bar, 13-1/8" long, 2-1/2" wide, 1-1/4" thick.
4) Crank housing vertical support 1-1/2" thick, 12-1/2" square
16) Fly wheel crank shaft, 1-1/4" diameter, 5-1/8" long
13) Two ball bearings, 1-1/4" ID, 3-1/4" OD, 3/4" thick
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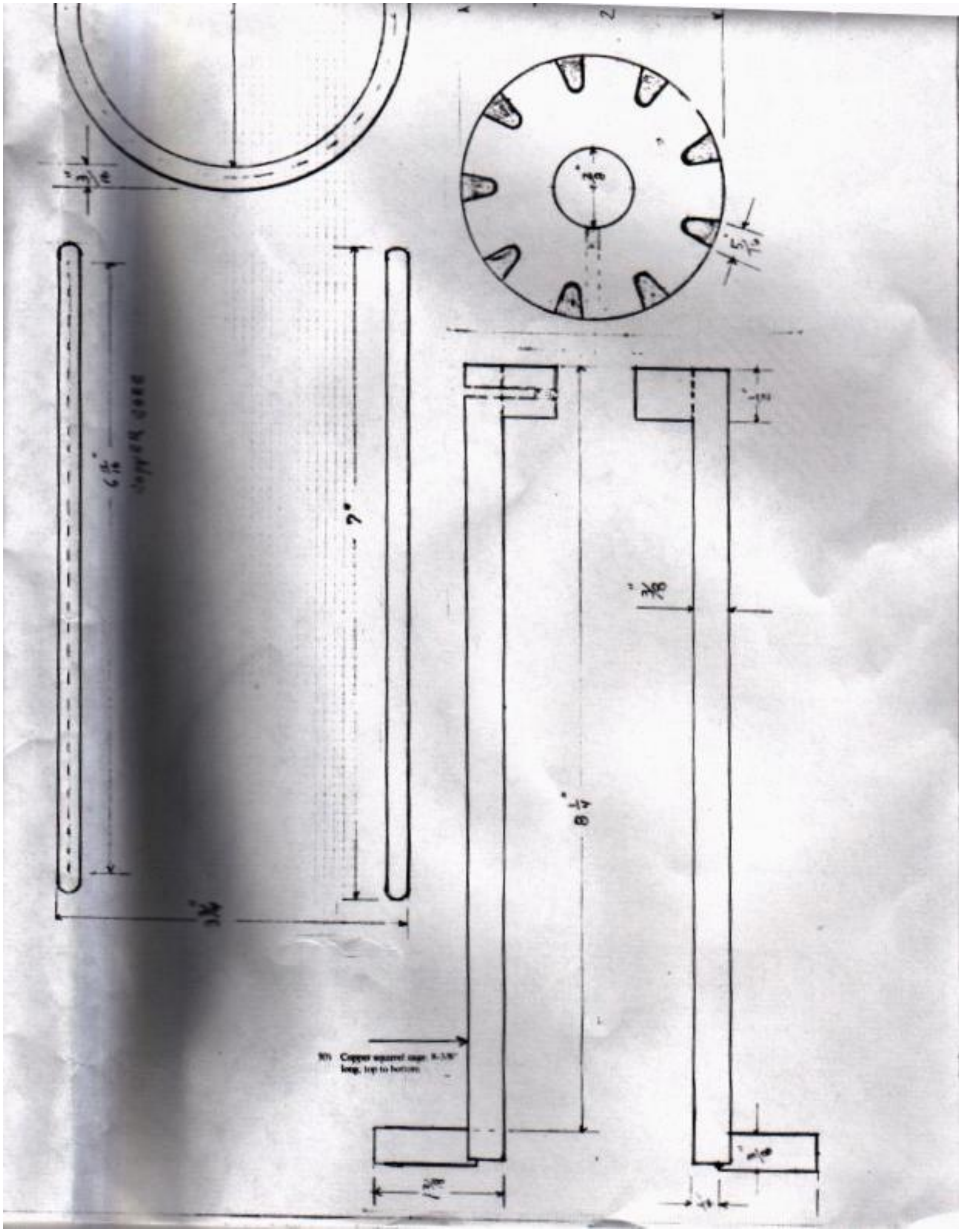
1) Crank housing aluminum bottom plate 18-1/8" square by 1-1/2" thick


30) Copper squirrel cage 8-3/8"
long, top to bottom
7"
8 1/4"