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MECHANICAL DESIGN OF
THE MAIN COMPUTATION CABINET

A part of the electronic model
for tides and storm surges

S. Ishiguro

1980

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INTERNAL DOCUMENT 92

MECHANICAL DESIGN OF
THE MAIN COMPUTATION CABINET
A part of the electronic model
for tides and storm surges

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26 pages, 21 diagrams, 2 tables

The electronic model for tides and storm surges physically consists of the main computation cabinet and control table for peripheral instruments. This document is a collection of selected drawings which give essential information of their physical design. The design and construction were carried out before 1973, and it was necessary to use the metric and imperial units in mixture. No alterations have been made to the original drawings.

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Table 1 List of components in the cabinet (excluding racks)

Ref No Fig. 1	Part	Description	Number
1	Cabinet frame	INT5S/CR2224/1 with VM 'TE' for front, VM 'A' for back	1
		Top plate	1
	Cabinet plate	Side plate	2
		Base plate	1
2	Drawer frame	Non-standard	4*
3	Top slide	IMS/B01/25" single, and holder	4*
4	Bottom slider	IMS/E01/25" pair, and holder	4*
5	Front panel	Non-standard	4*
6	Handle	Type 24A, chrome	4*
7	Lock	Type 1M111	4*
8	Rear paner, top	22.125" x 10.5"	1
9	" , middle	22.125" x 8.75"	1
10	" , bottom	22.125" x 17.5"	1
11	Rear connector board	Non-standard, see Fig. 3	1
12	Rear connector cover	Non-standard	1
13	Mobile base	INT/SMB2219/1P	1

* 4 drawers are identical.

Table 2 Weight of components in each drawer

Part	Description	Number	Weight (lb)	
			Unit	Sub-total
Rotary switch		8	1.33	10.6
Grid card		240	0.115	27.6
Power unit		240	0.346	83.4
MU socket		240	0.0194	4.7
PU cosket		240	0.0165	4.0
RS rack	10 SWG alum, 0.75" agl	2	0.236	0.47
MU rack	0.25" sq aluminium	11	0.153	1.86
PU rack	14 SWG aluminium	4	1.31	5.24
Wire	10 ft	840	0.001 lb/ft	8.40
Total				157

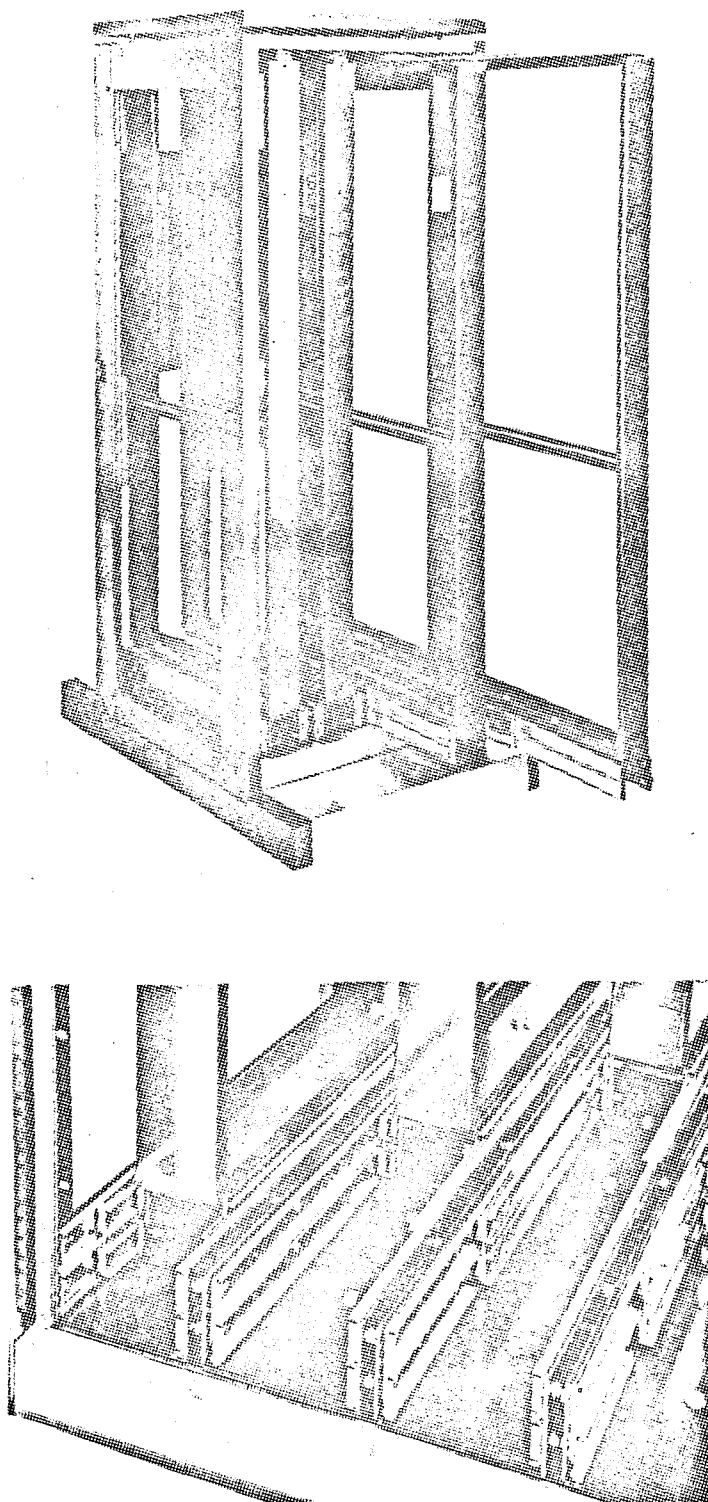


Fig. 2 Frames and drawer slide mechanism of the cabinet.

Main part : $169 \times 67 \times 64 \text{ cm}^3$ Base : $105 \times 64 \text{ cm}^2$
Max. extention of a drawer from the front panel: 59 cm

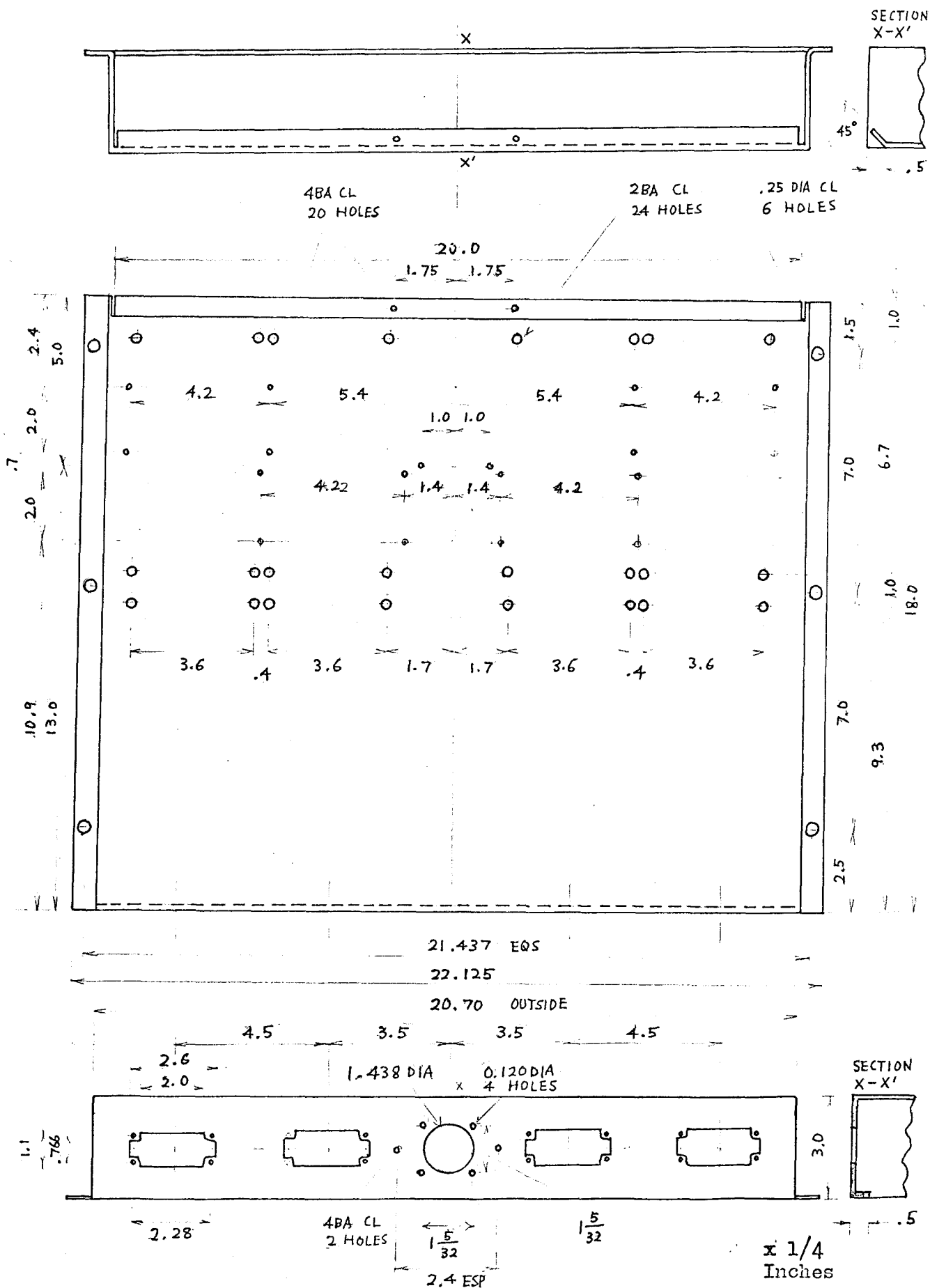
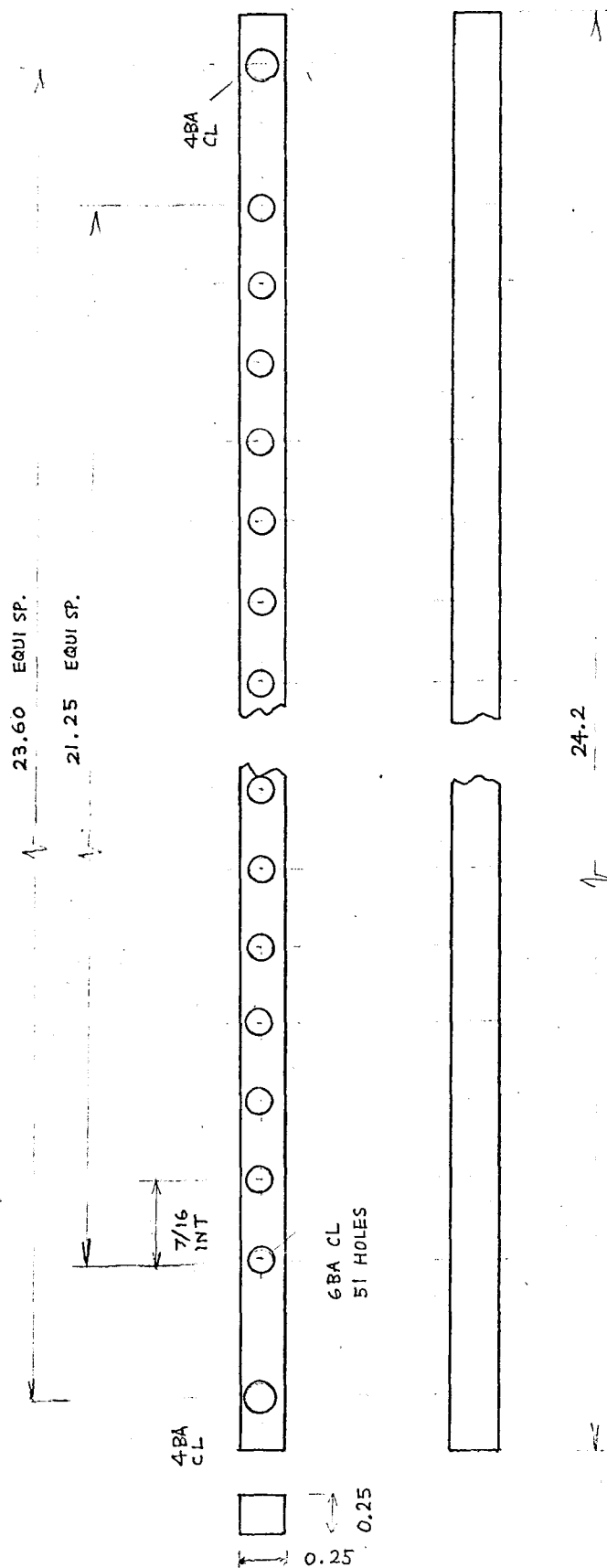


Fig. 3 Rear connector board.

Material: Aluminium alloy.
 Number of units: 11 per drawer.

Finish: Gray anodized.



Full scale
 Unit: Inches

Fig. 5 Frames for the socket matrix board.

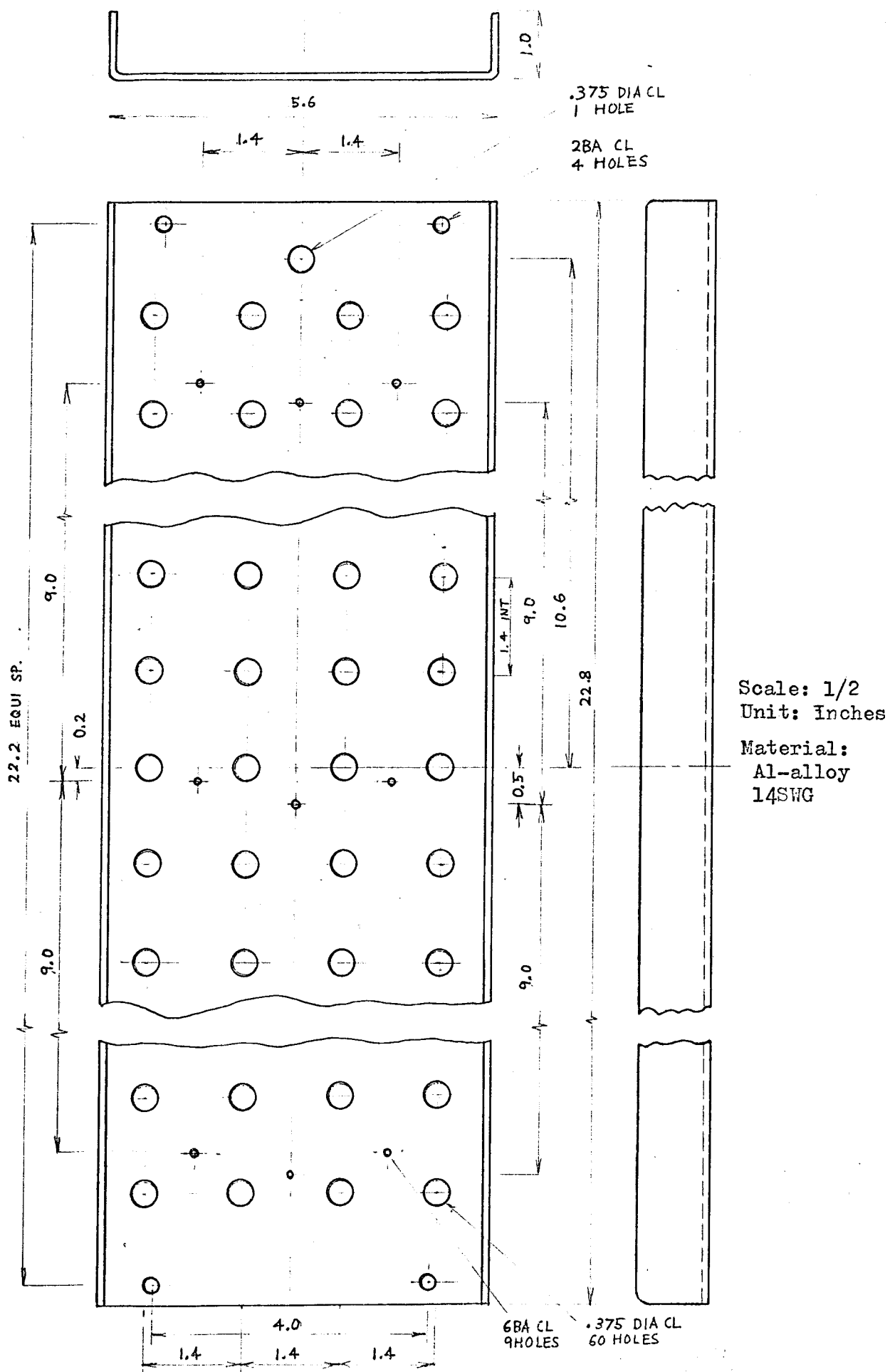
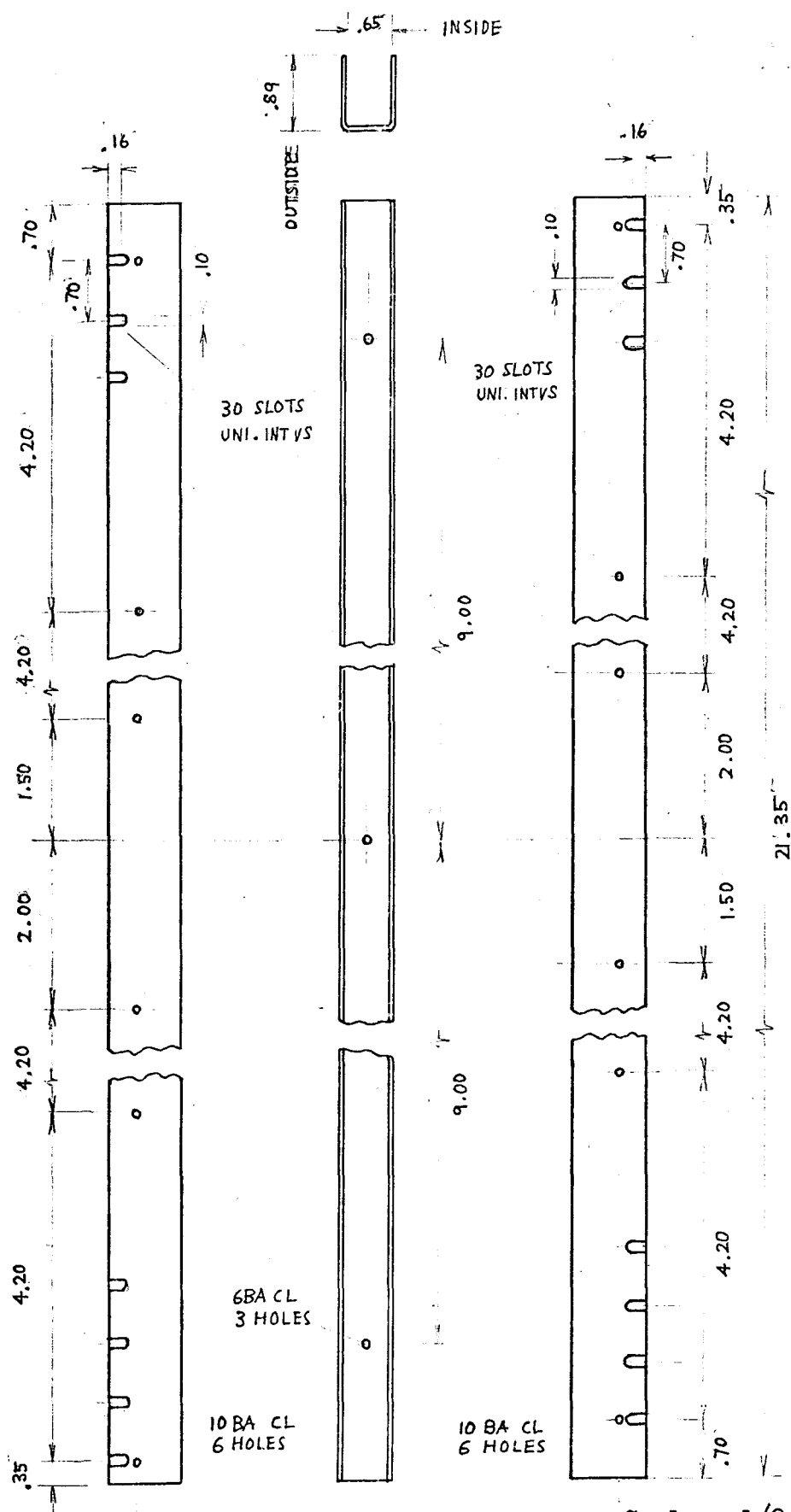
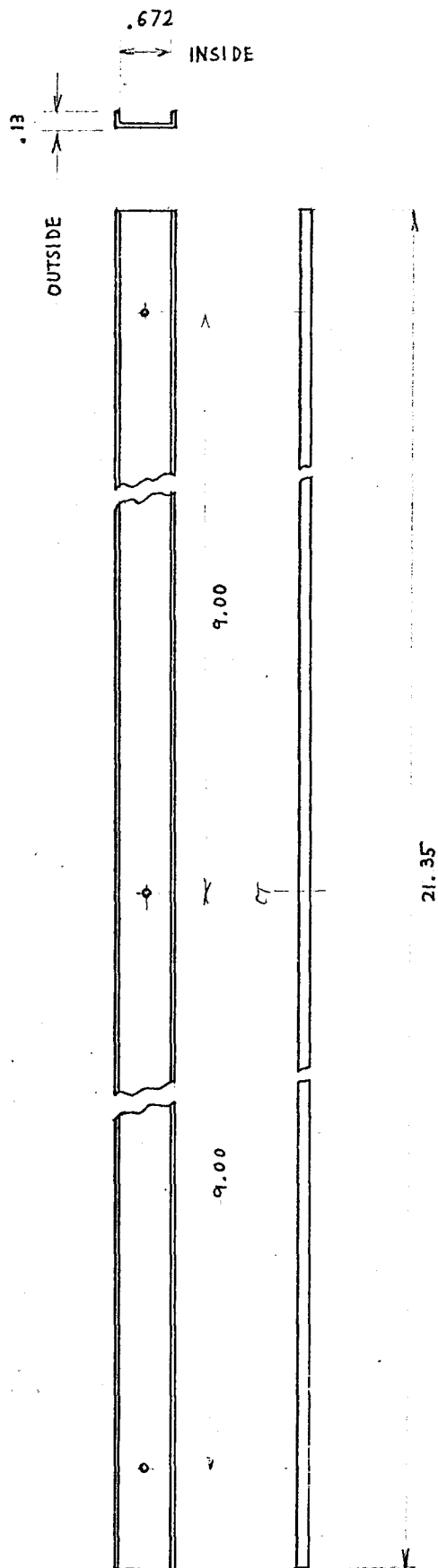


Fig. 6 Power supply rack.



Scale: 1/2
Unit: Inches
Material: Al-alloy
24 SWG

Fig. 7 Wiring duct.



Scale: $1/2$
Unit: Inches
Materials: Al-alloy
24SWG

Fig. 8 Wiring duct cover.

x 1/4

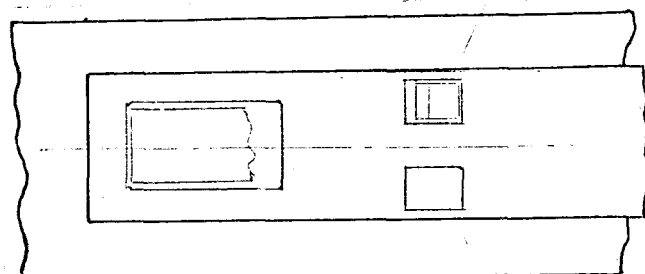
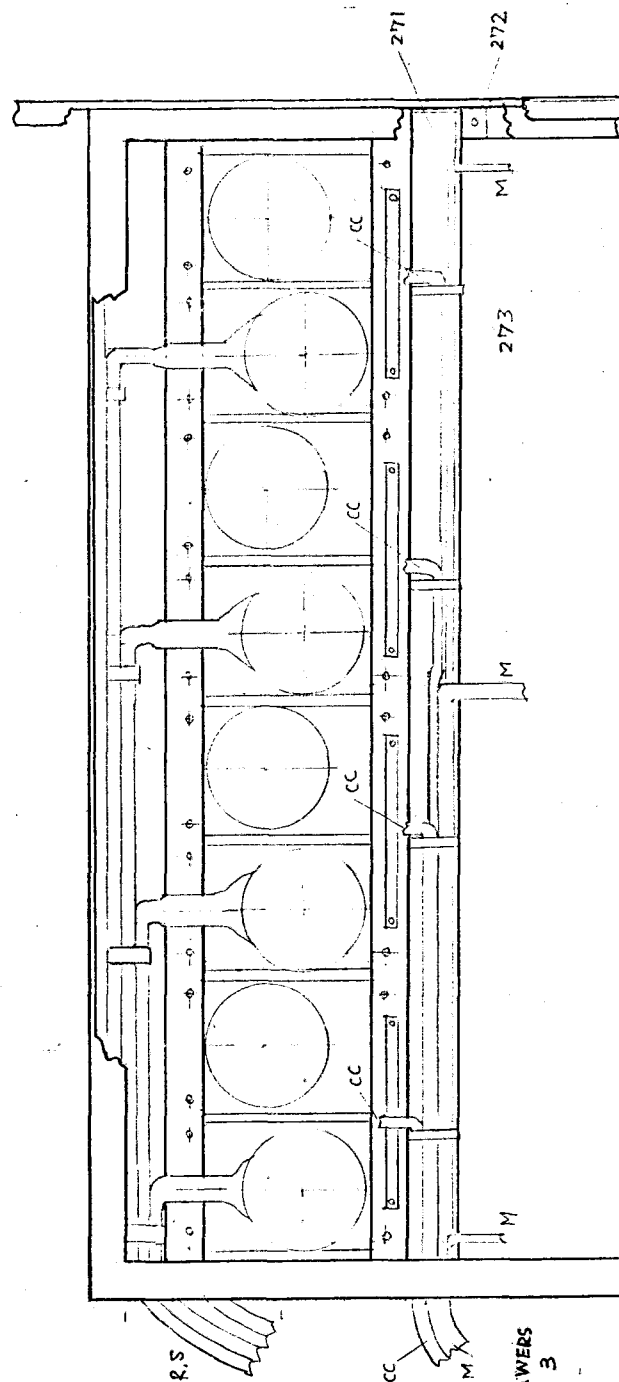
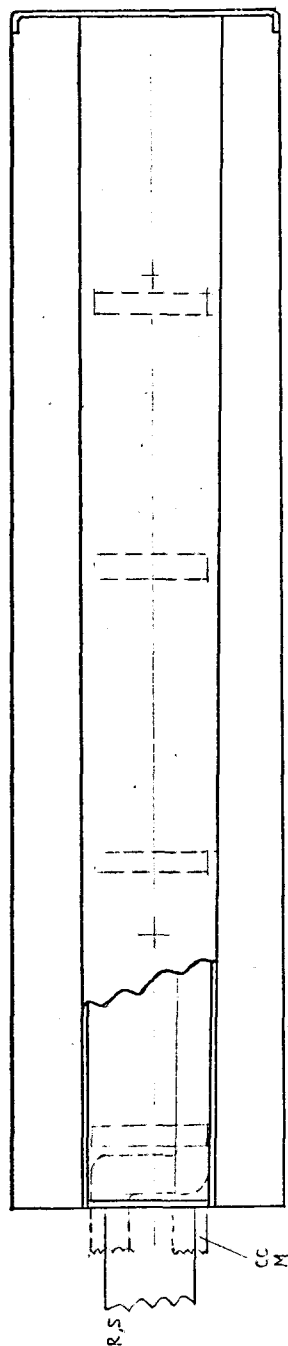
DRAWERS
2 & 4

Fig. 10 Physical arrangement around the rotary switches.



Fig. 11 Physical arrangement of wires in the top-rear panel.

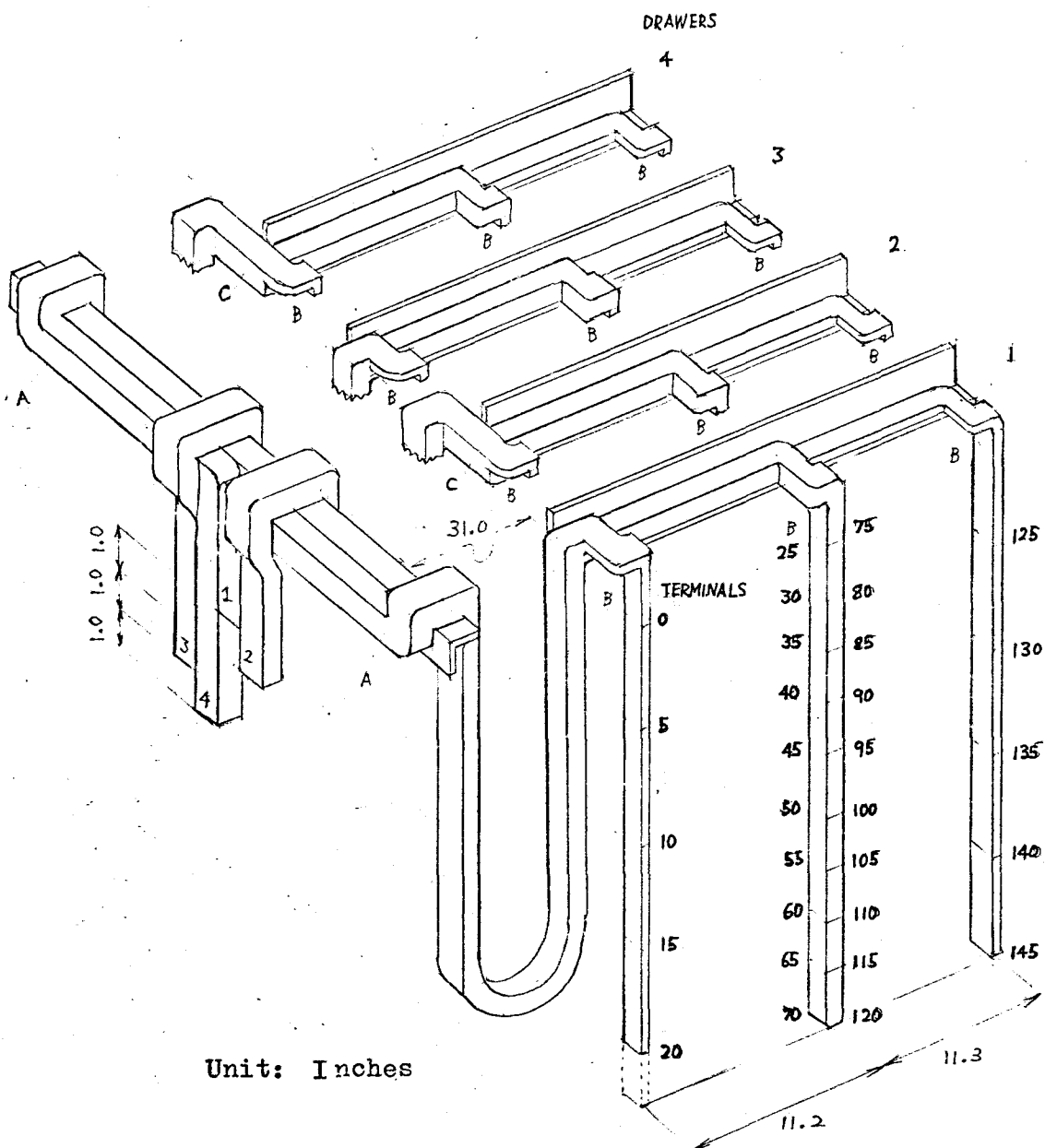


Fig. 12 Physical arrangement of Wire Group M.

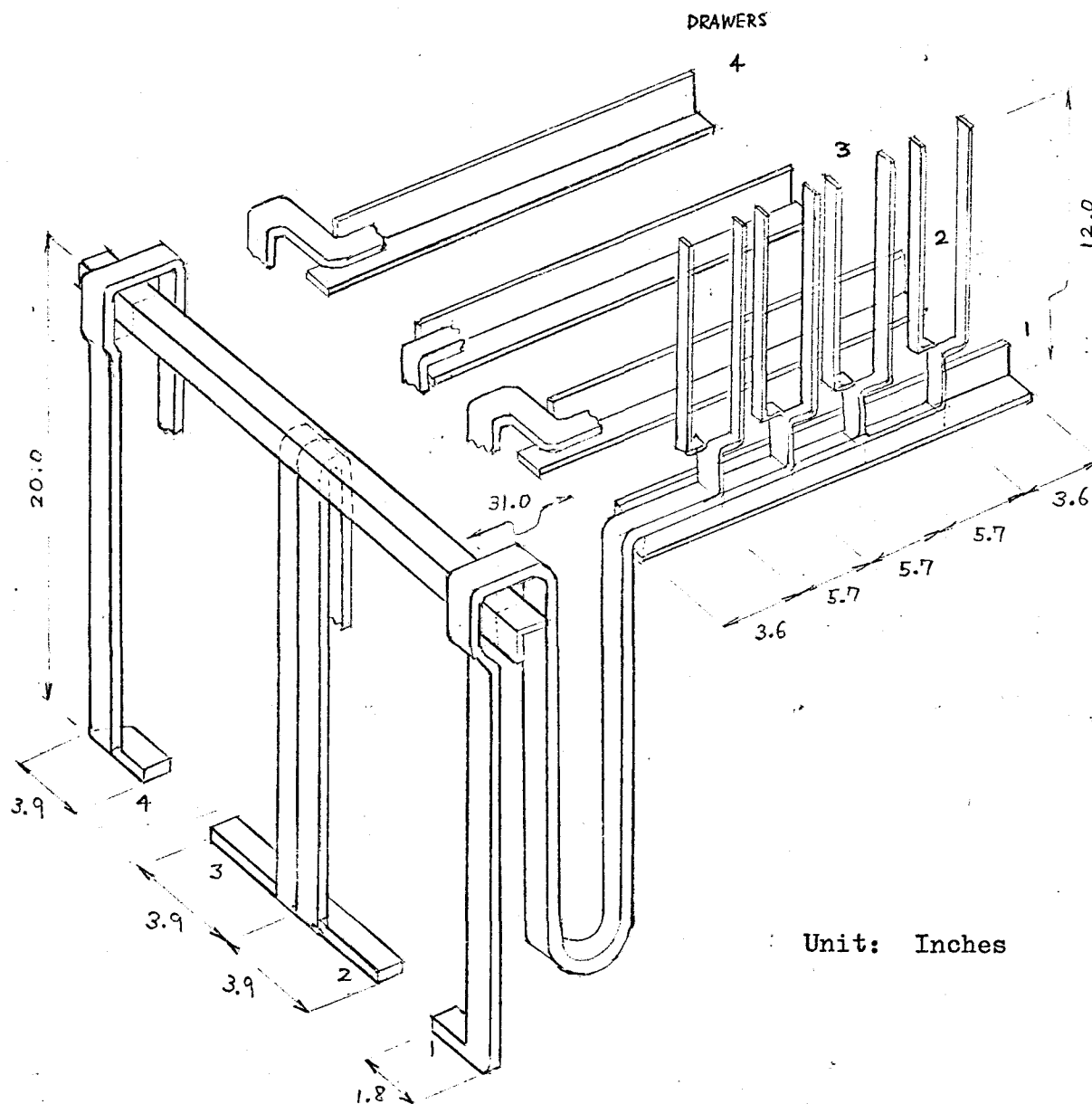


Fig. 13 Physical arrangement of Wire Group CC.

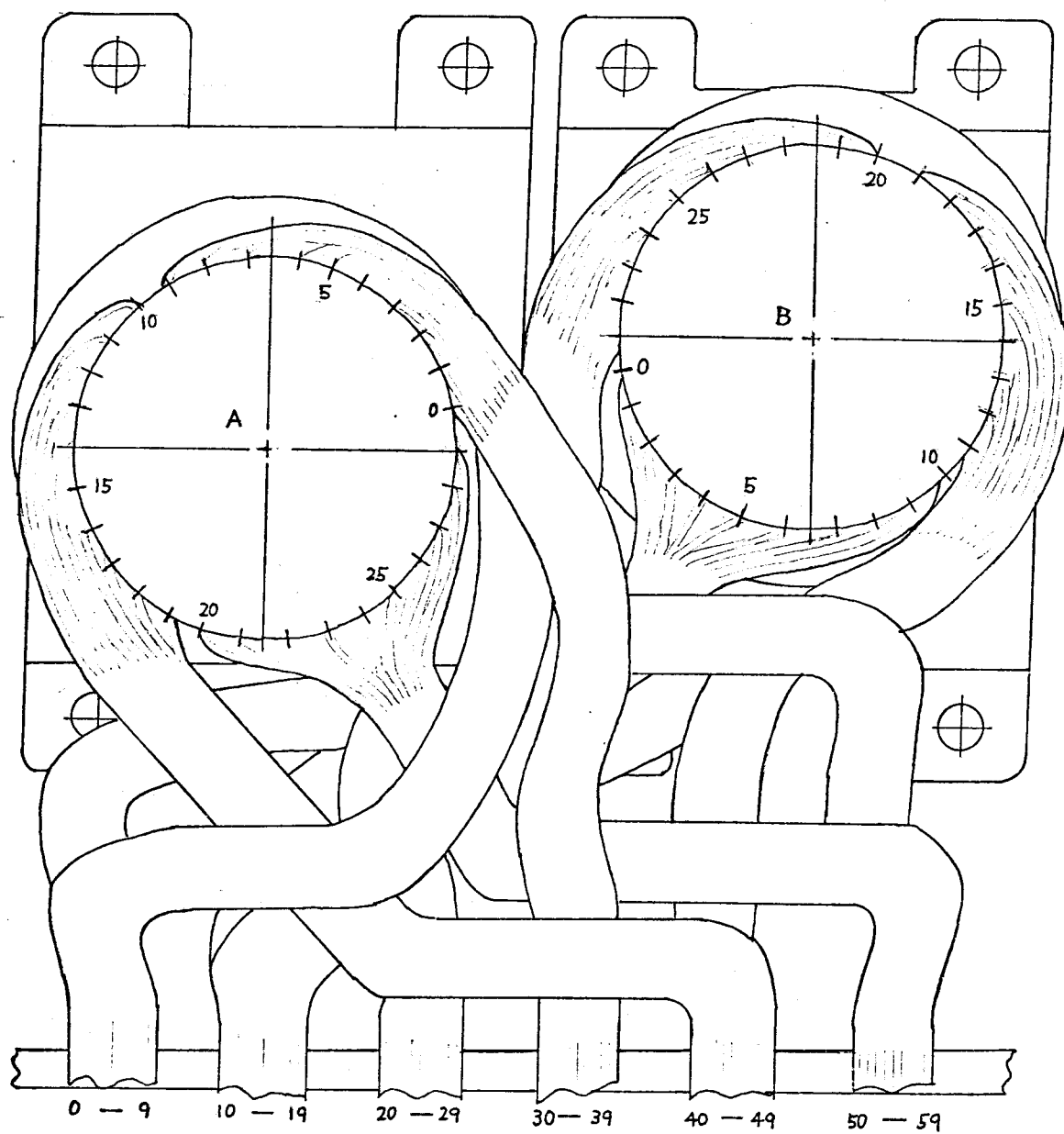


Fig. 14 Physical arrangement of wires around the rotary switches.

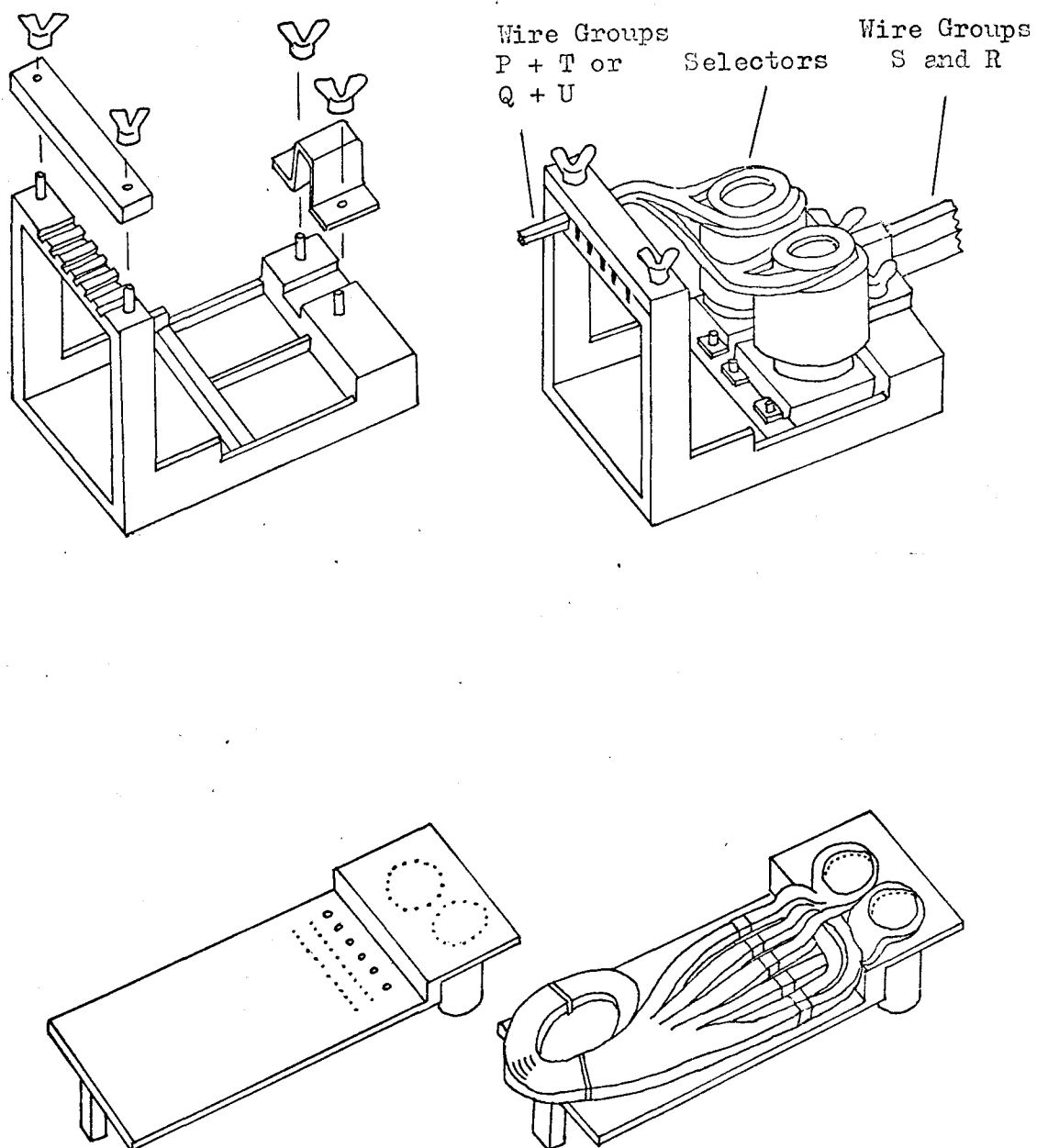


Fig. 15 Two jigs for assembling the rotary switches.

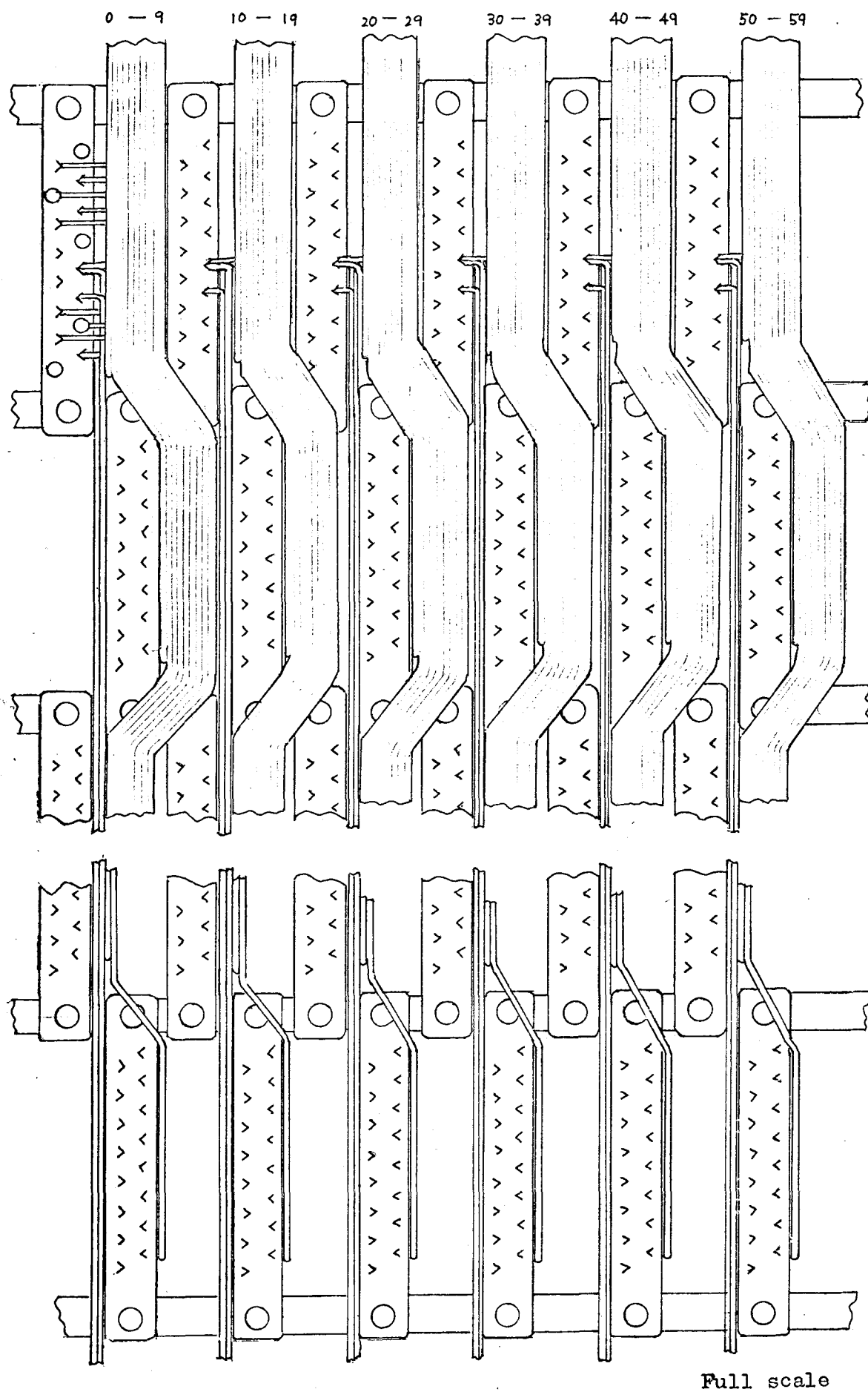


Fig. 16 Physical arrangement of wires in the socket matrix board.

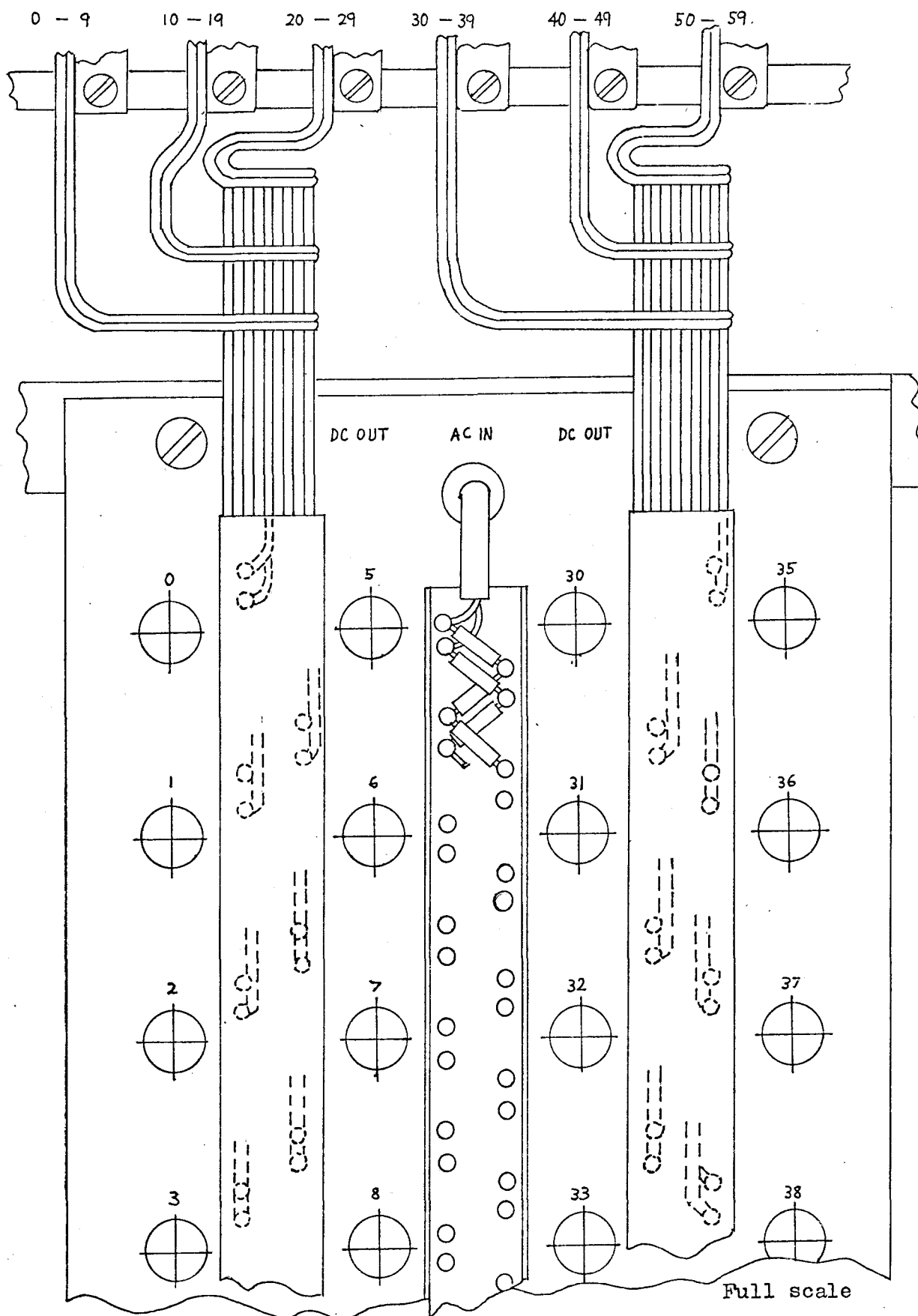


Fig. 17 Physical arrangement of wires in the power supply rack (DC output).

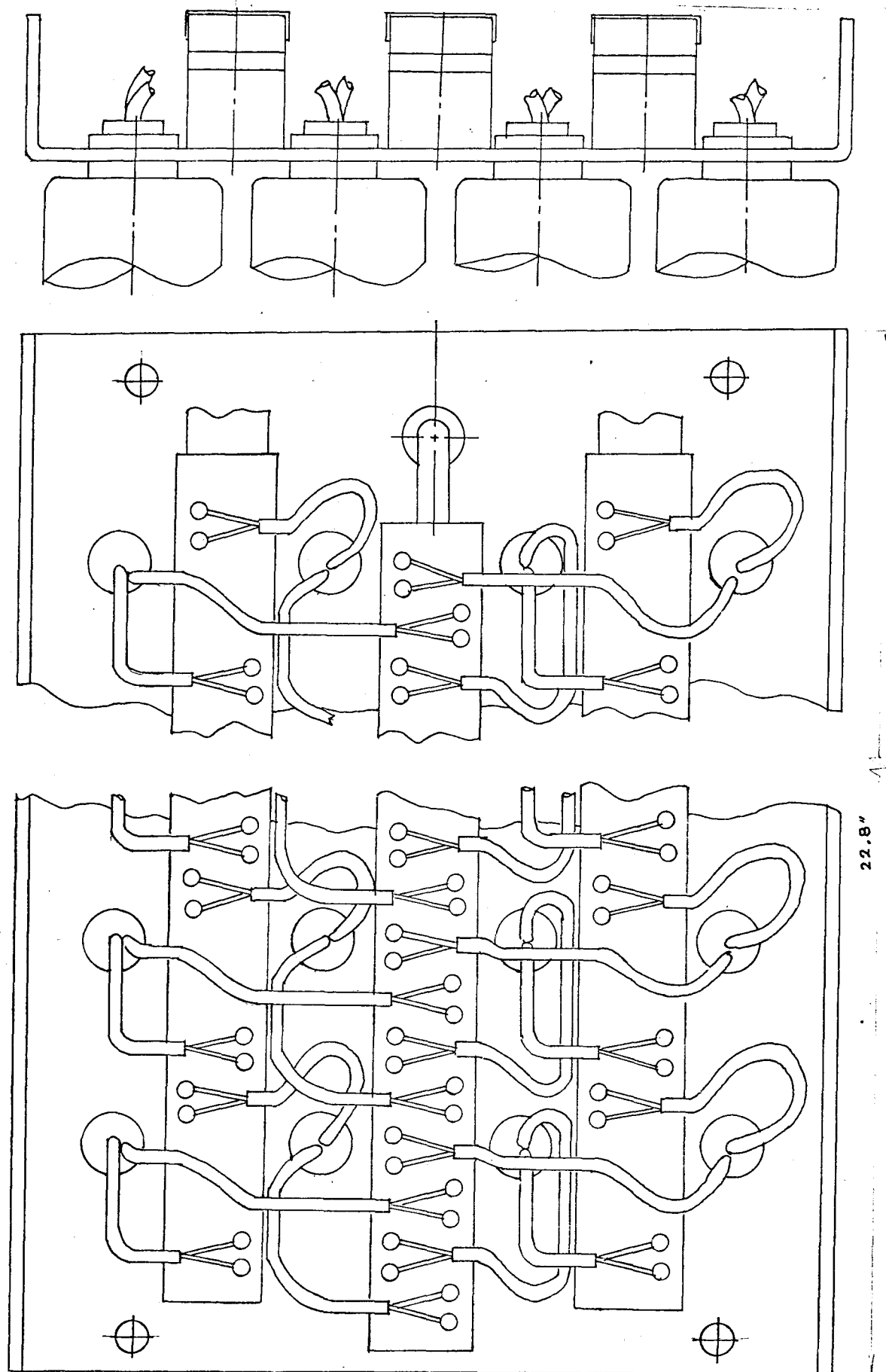


Fig. 18 Physical arrangement of wires in the power supply rack (AC input and DC output leads). Full scale.

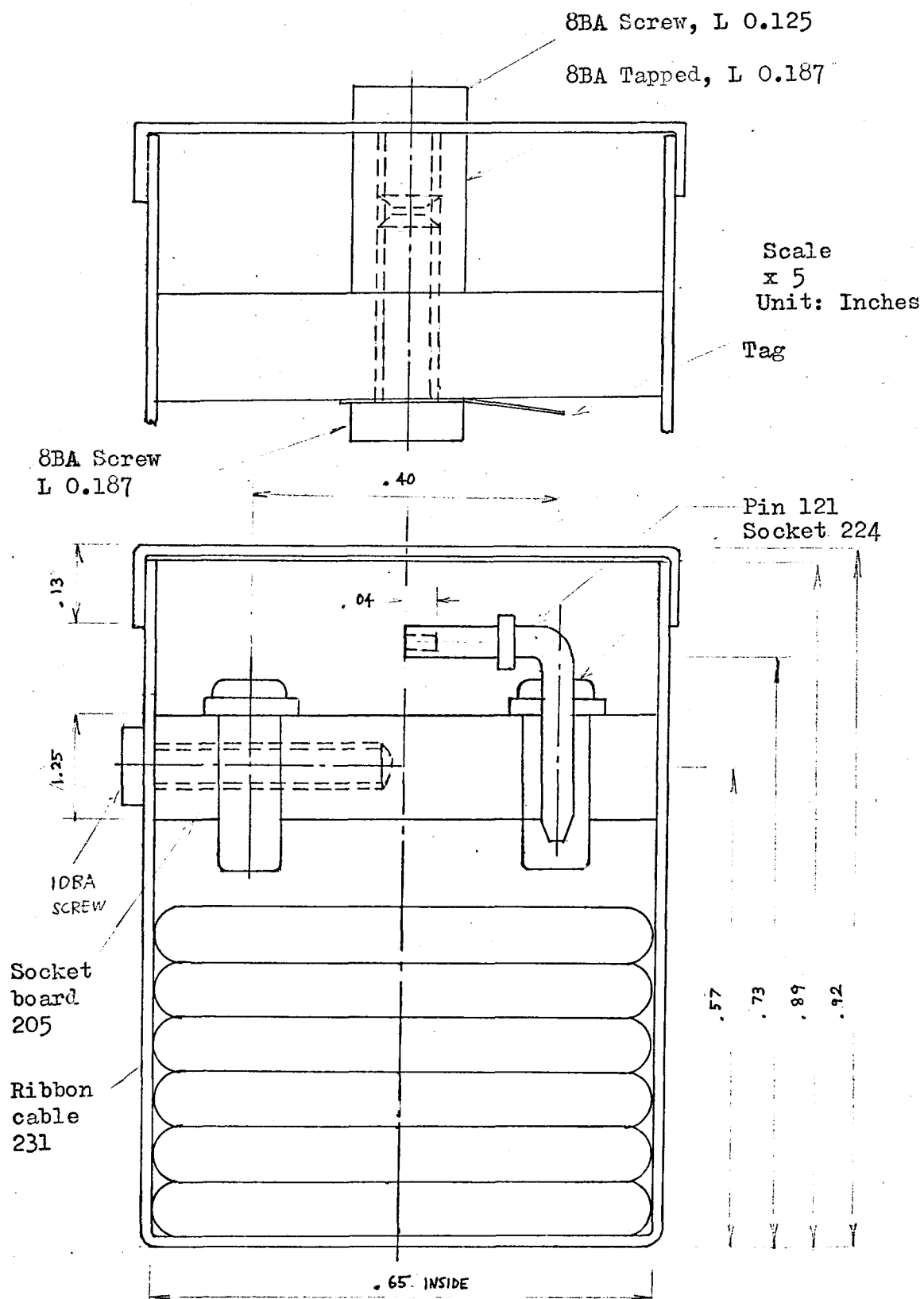


Fig. 19 Details of the screened duct.

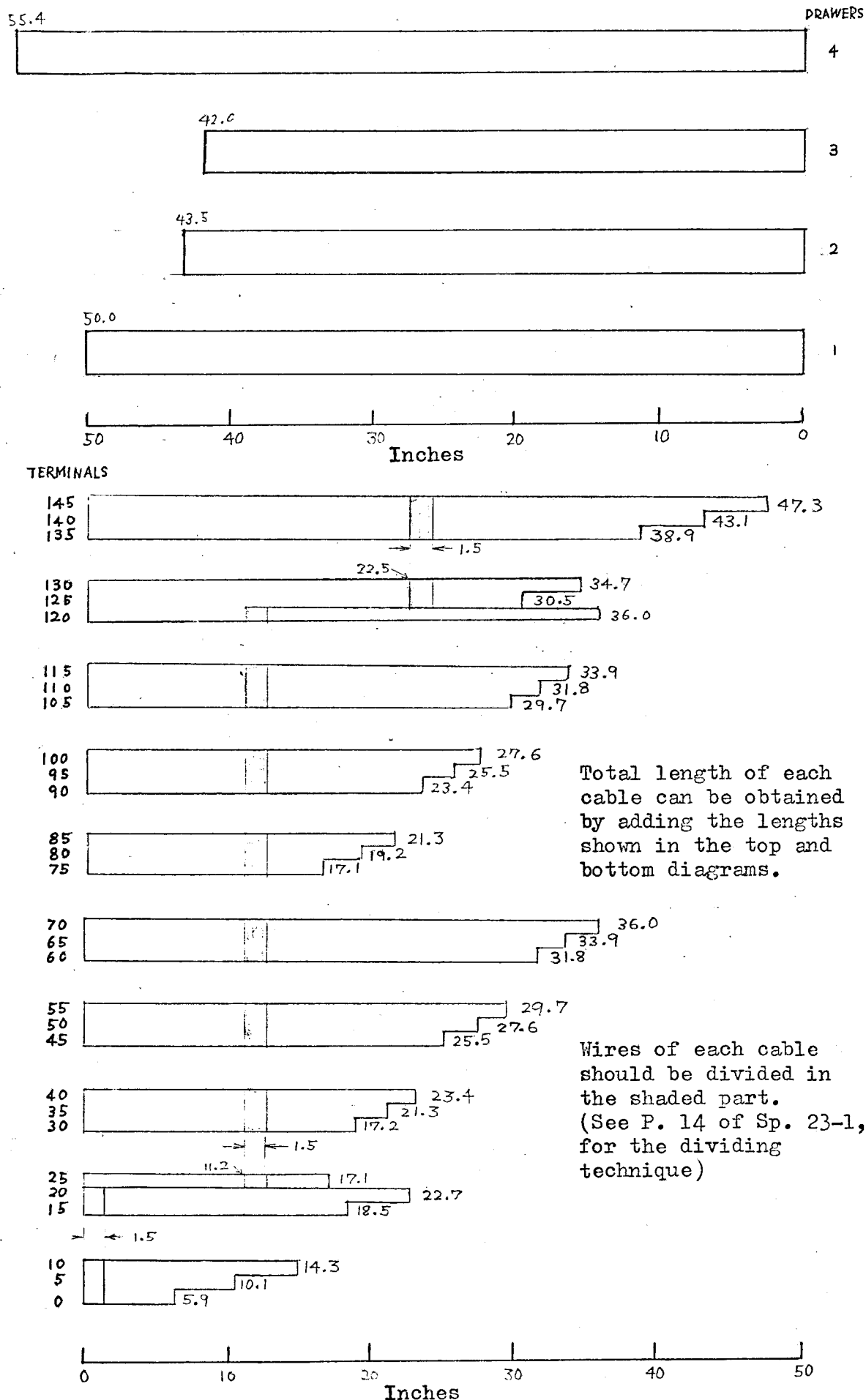
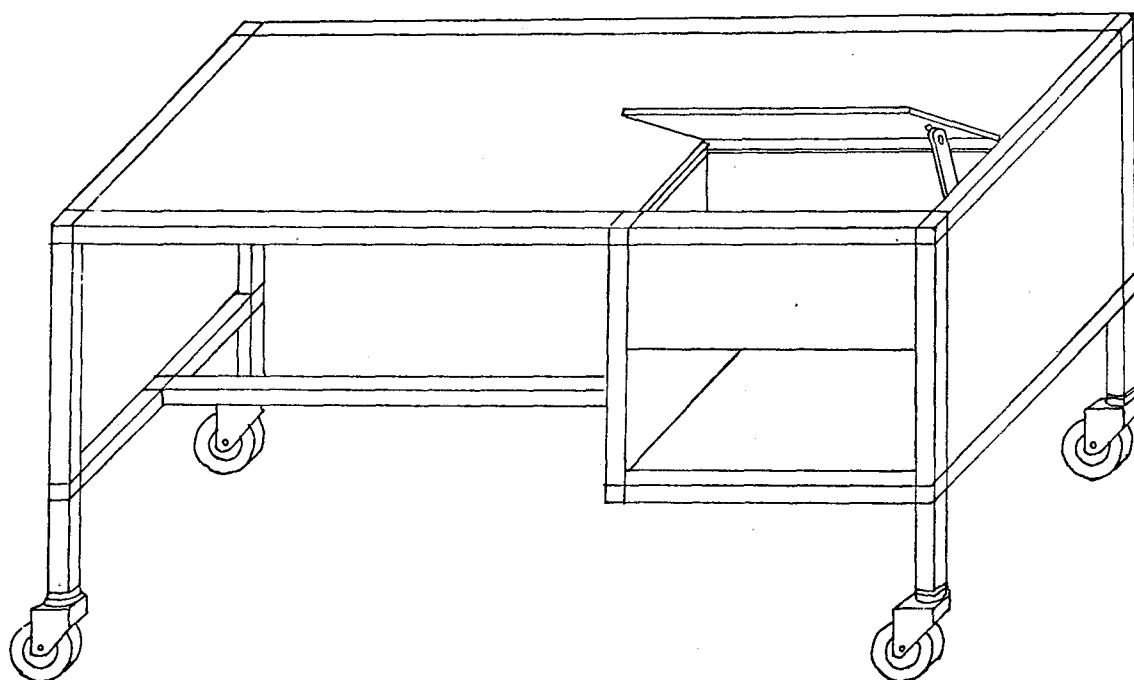
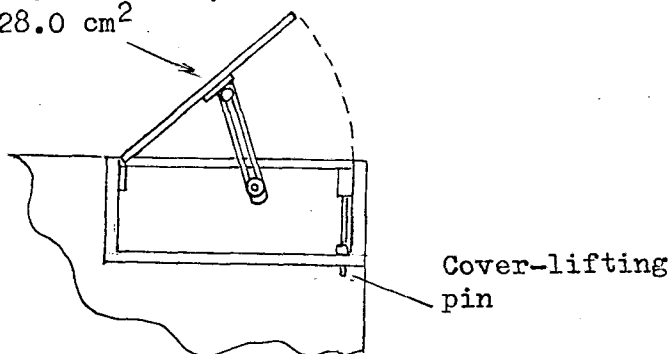


Fig. 20 Length of the cables for Wire Group M.



Perspex cover
51.1 x 28.0 cm²



Frame work	:	2.5cm-square 'Handy Tube', 18g cold-rolled mild steel (black)
Joints	:	High-density polythene with steel core (black)
Castors	:	10cm dia. Heavy duty, 270kg/unit max. (gray)
Table top	:	1.8cm plywood, covered by leatherette cloth (dark blue)
Side	:	1.8cm plywood, covered by vinyl cloth (dark brown wood pattern)
Tape punch/ reader compartment	:	Inside: leatherette cloth (dark blue) Cover: 0.7cm Perspex, with a leather hinge, a latch and a cover-lifting pin.

Fig. 21 Construction of the control table (general).

