

Fig. 6-1 Optical Elements of the Electrostatic "Printoscope"

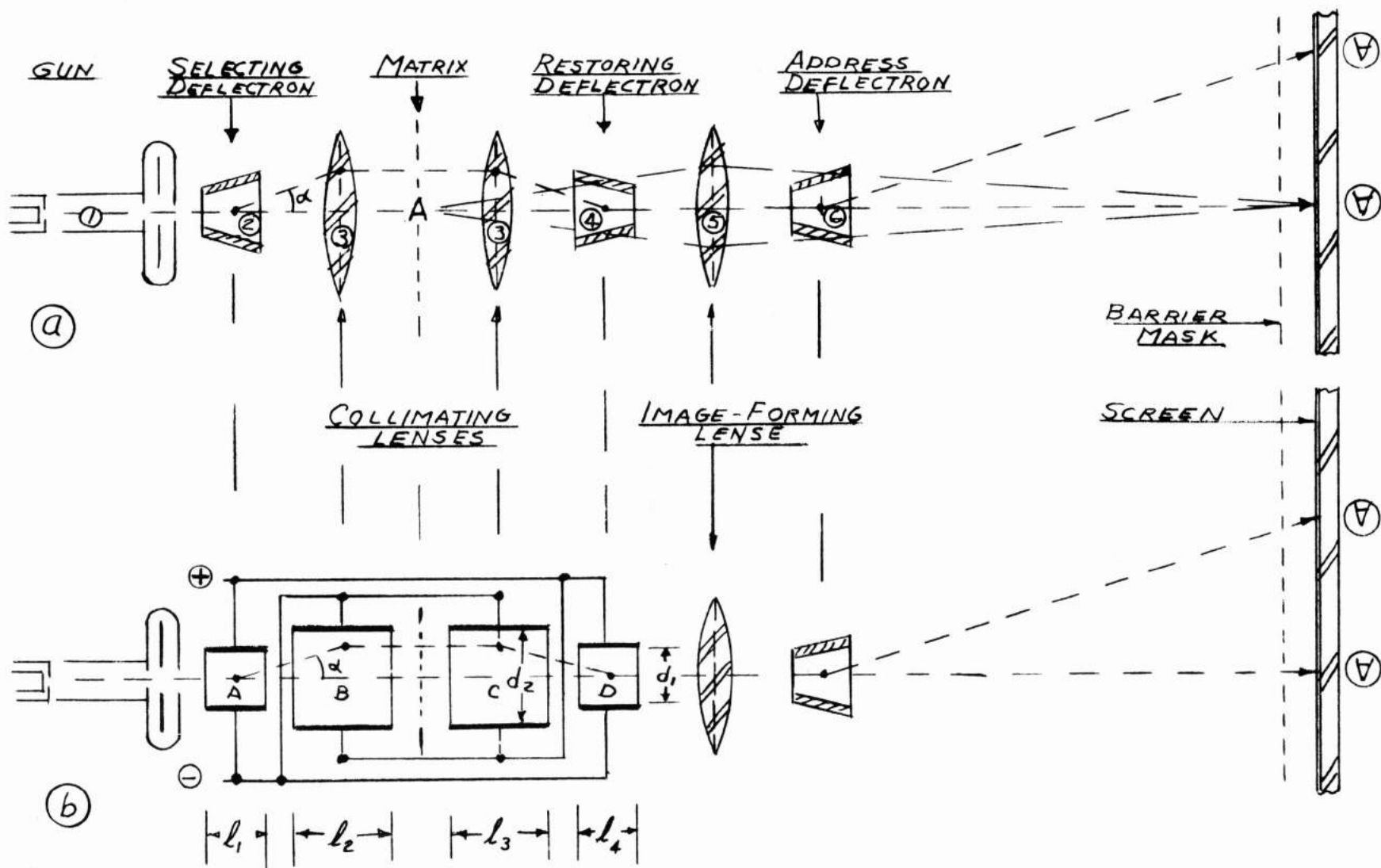


Fig. 6-2 Matrix Construction

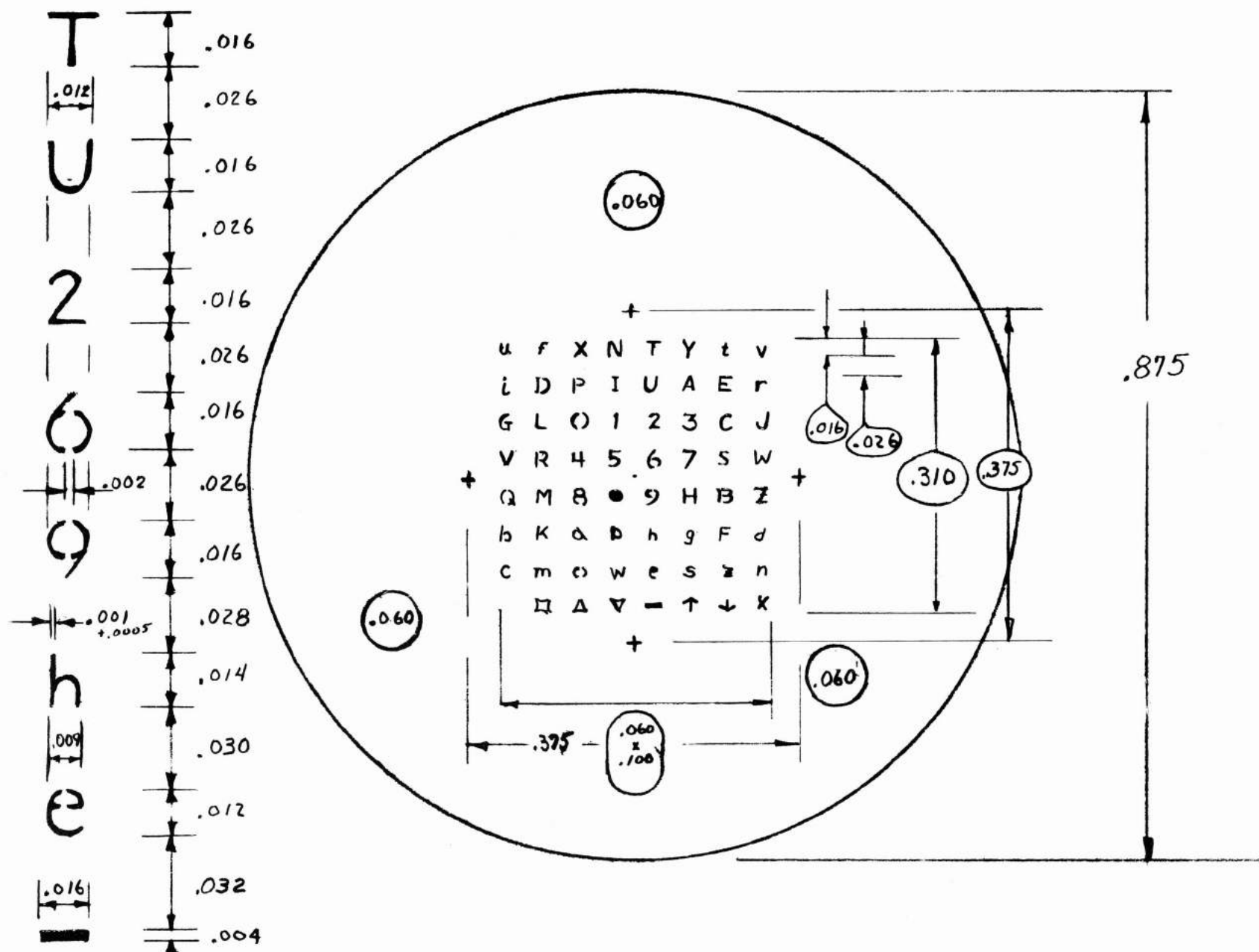


Fig. 6-3

Barrel Lens Unit Tested as Collimator

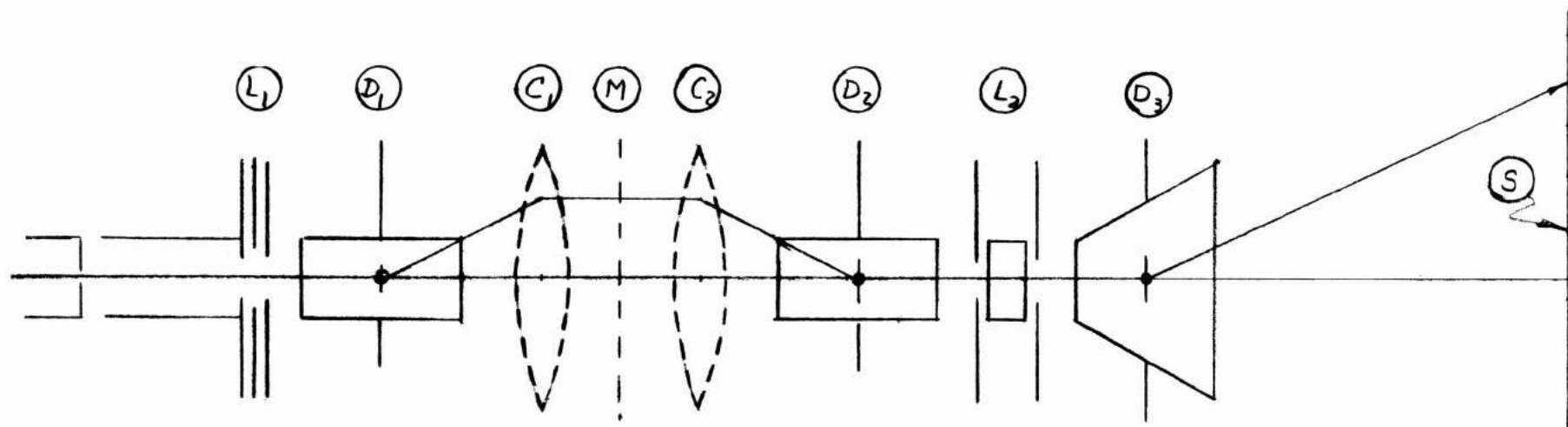
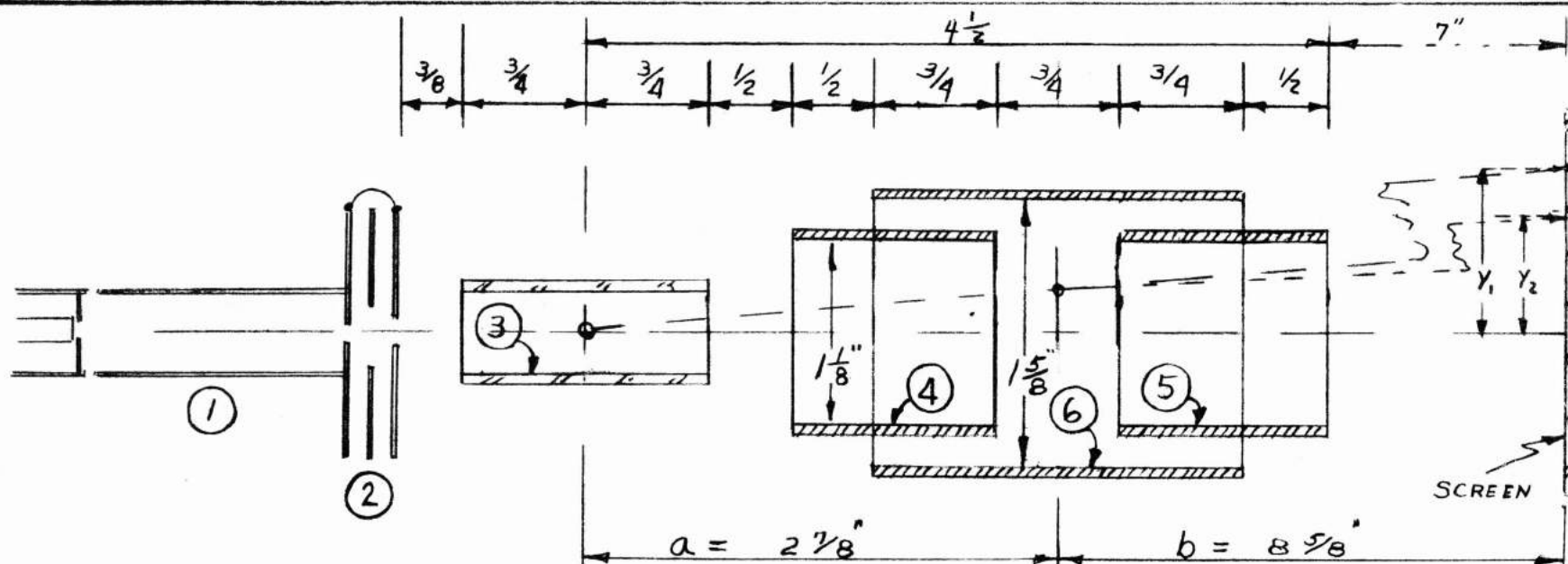


FIG. 6/3a: OPTICAL SYSTEM OF ELECTROSTATIC PRINTOSCOPE.



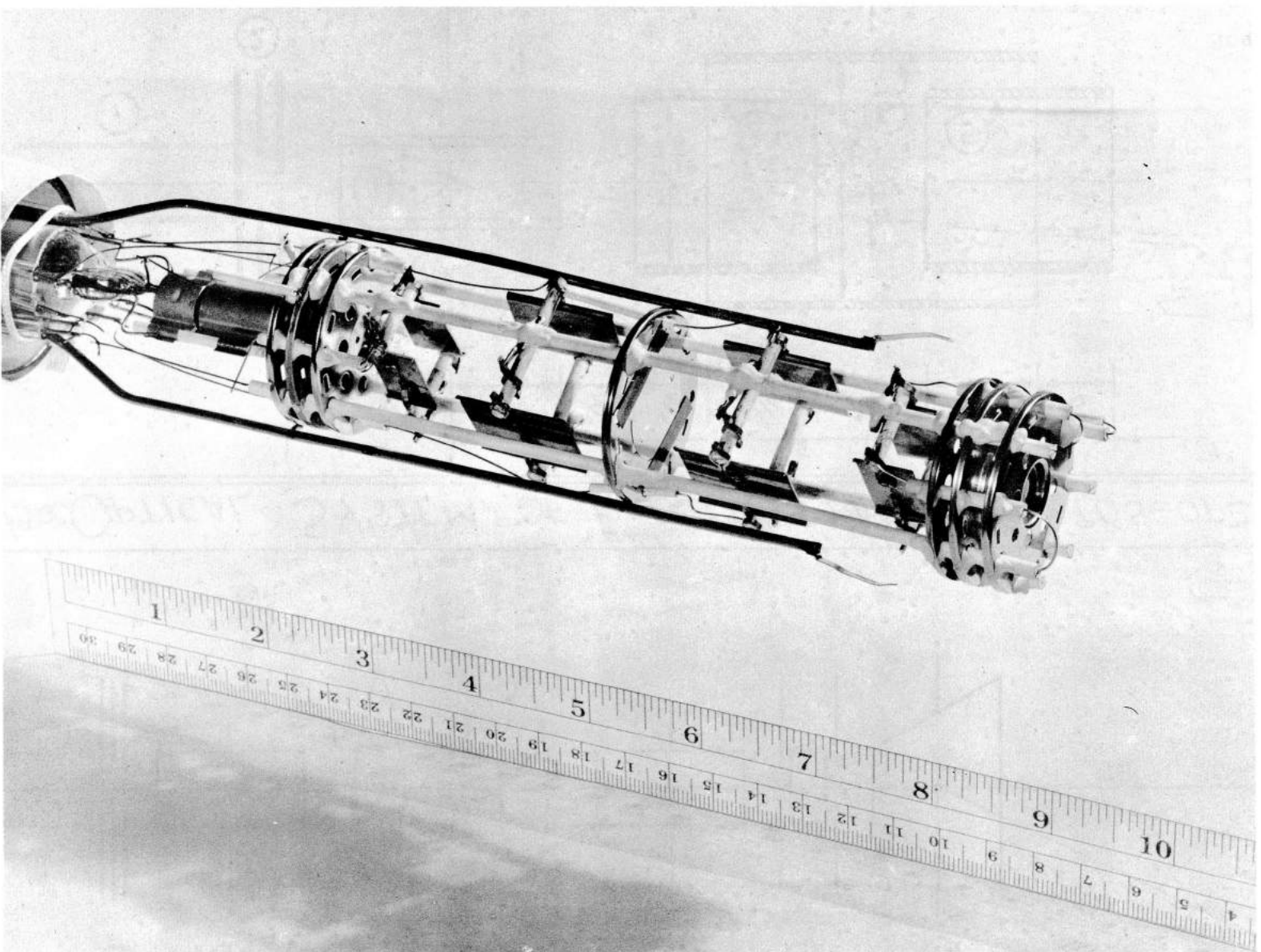
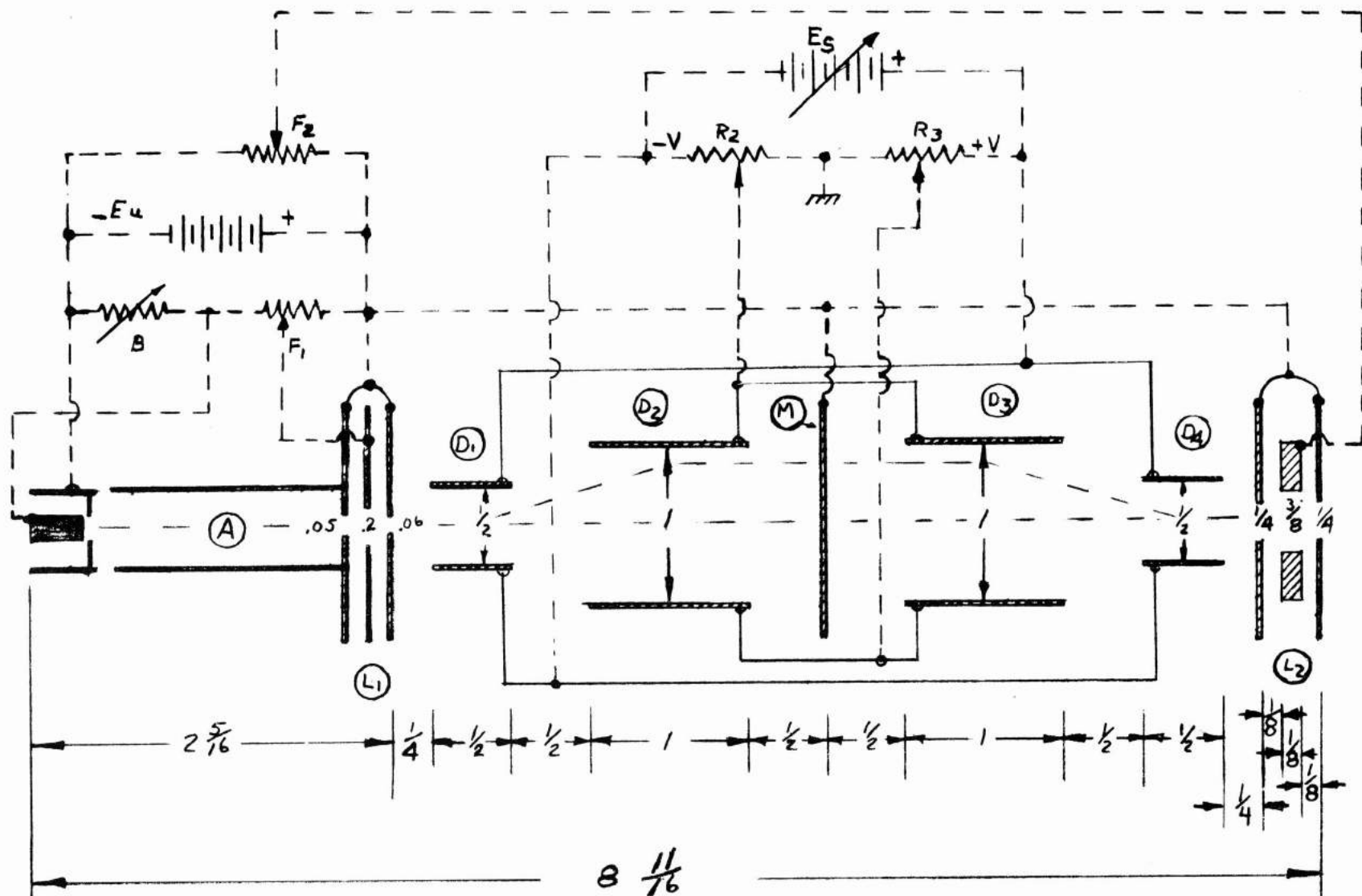


Fig. 6-4 Test Tube for One Dimensional Collimation

Fig. 6-5 Electrostatic "Printoscope" Using Two Pair of Matched Deflectrons





(a)



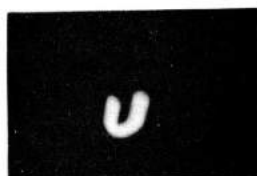
(d)



(b)



(e)



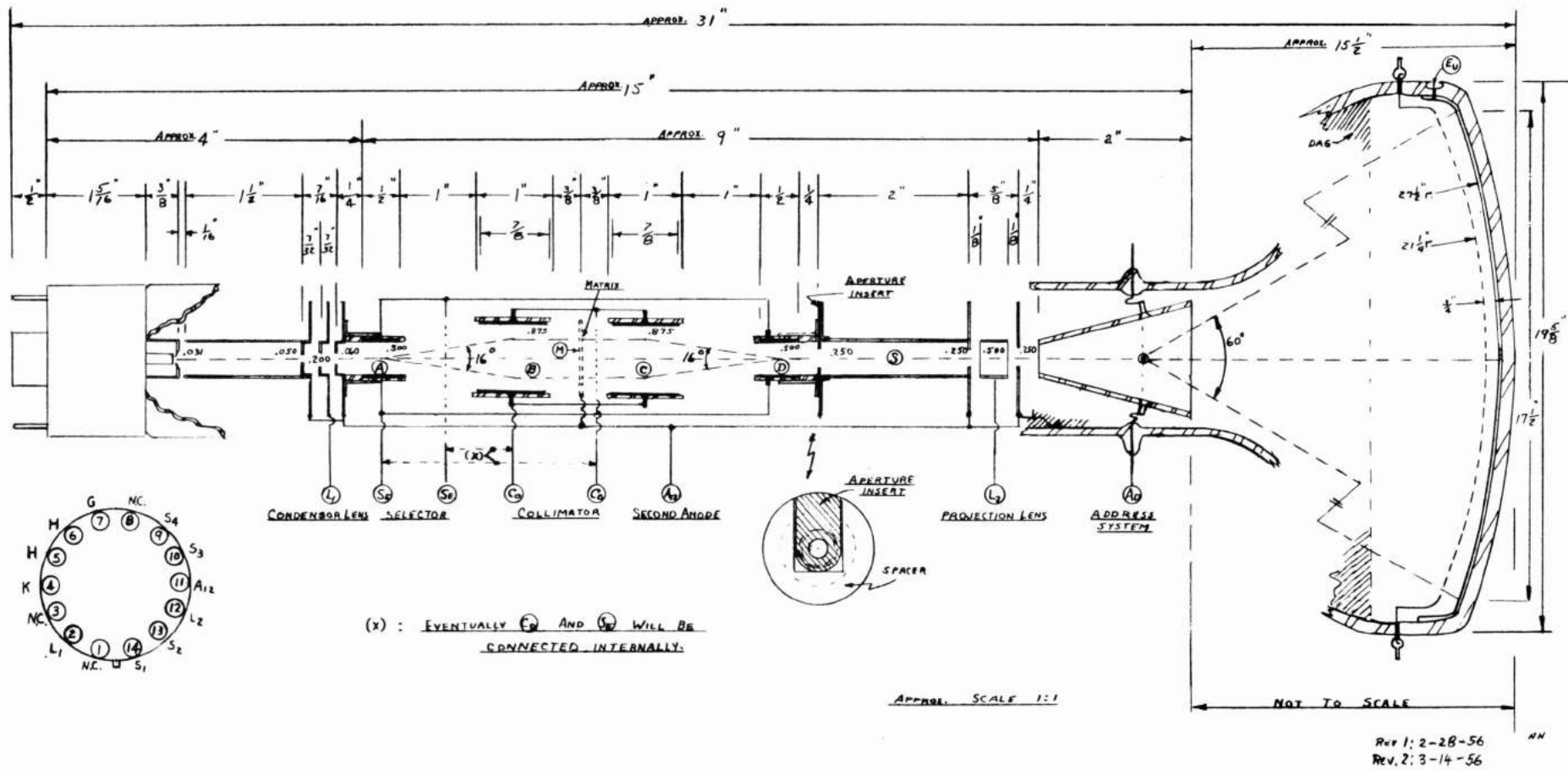
(c)

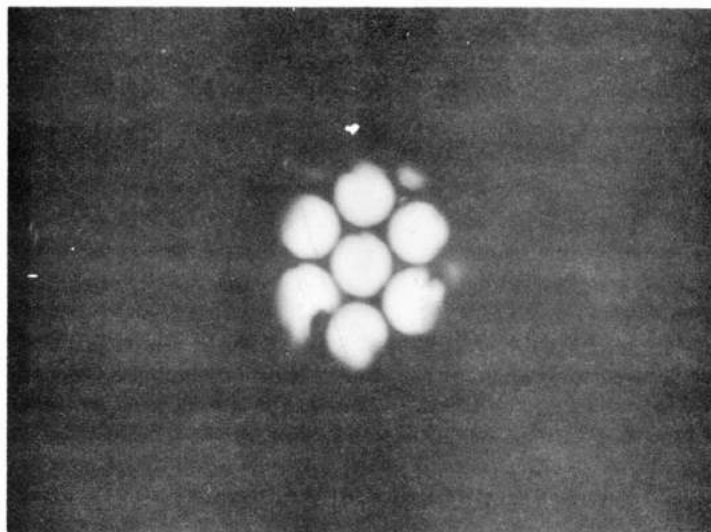


(f)

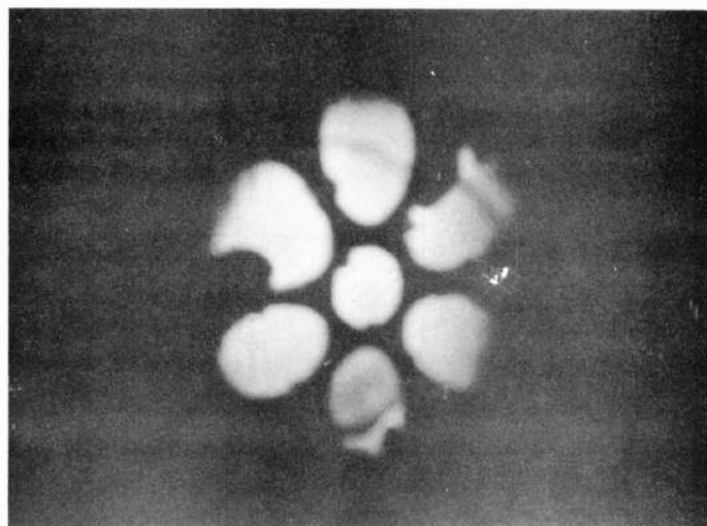
Fig. 6-6 Character Images Obtained with the Tube of Figure 6/4

Fig. 6-8 Electrostatic Printoscope





A. Spherical Aberration Light



B. Spherical Aberration Heavy

Fig. 6-10 Near-Focus (NF) and Far Focus (FF)
Condensor Adjustment

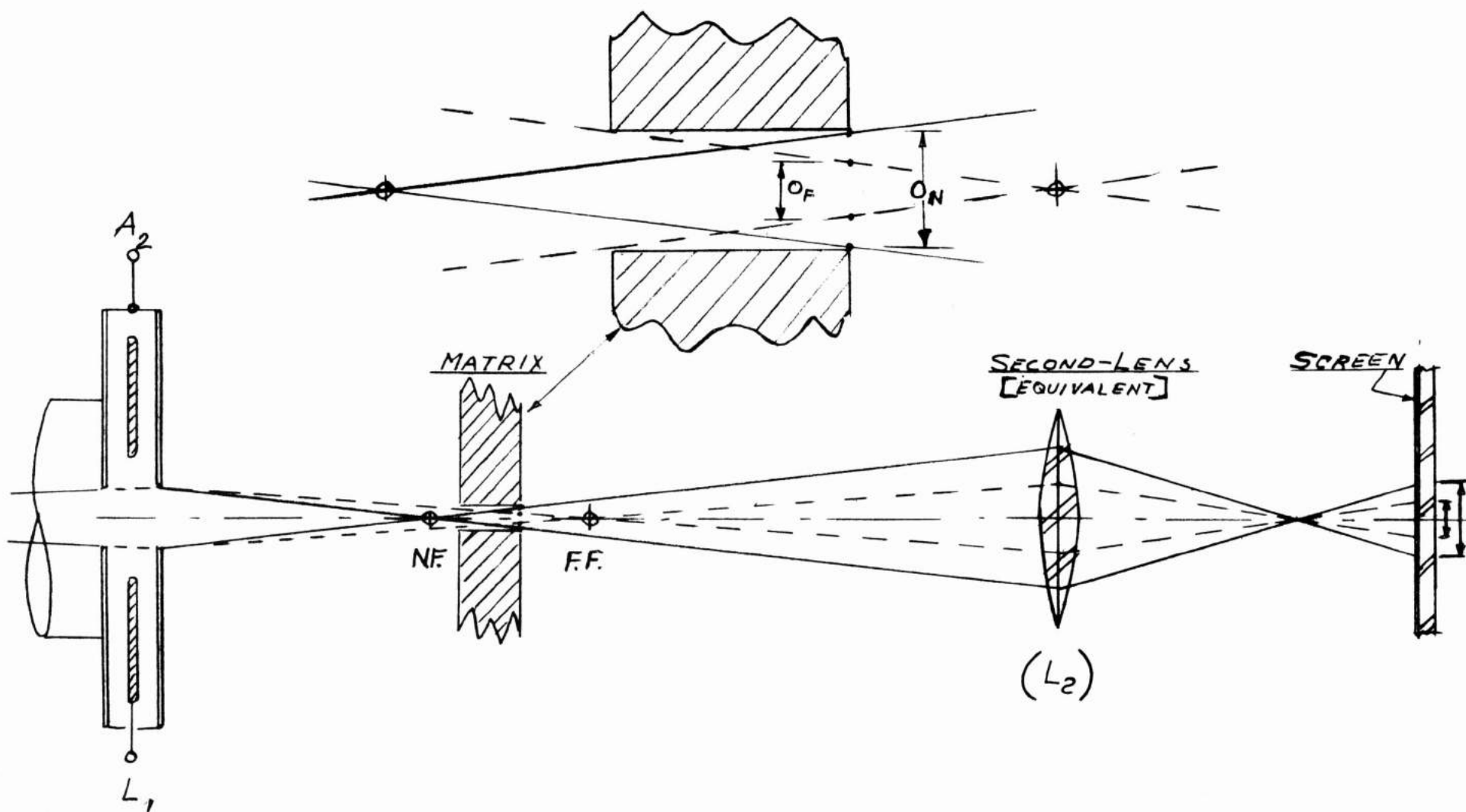


Fig. 6-11 Second Phase of Printoscope Development

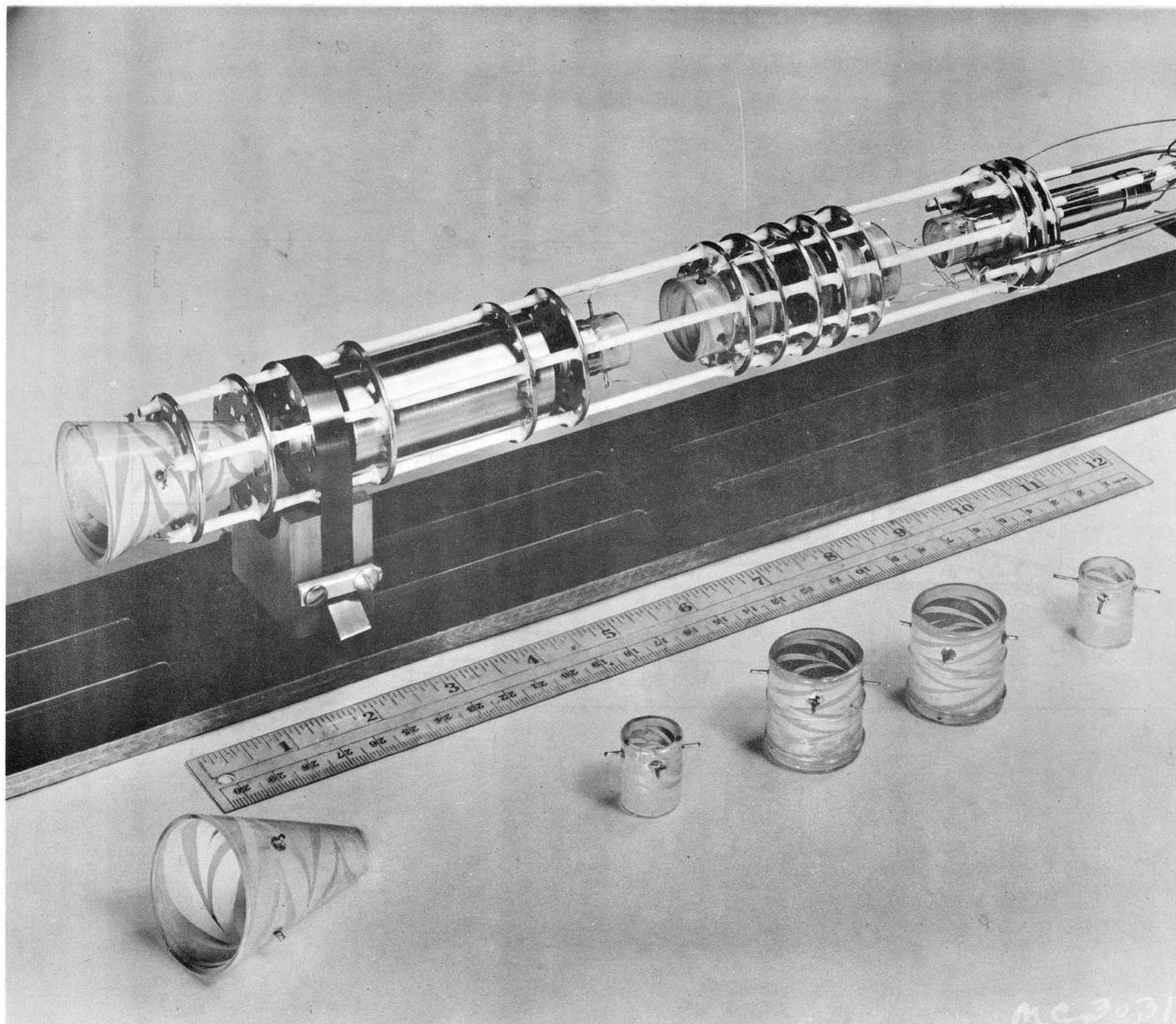
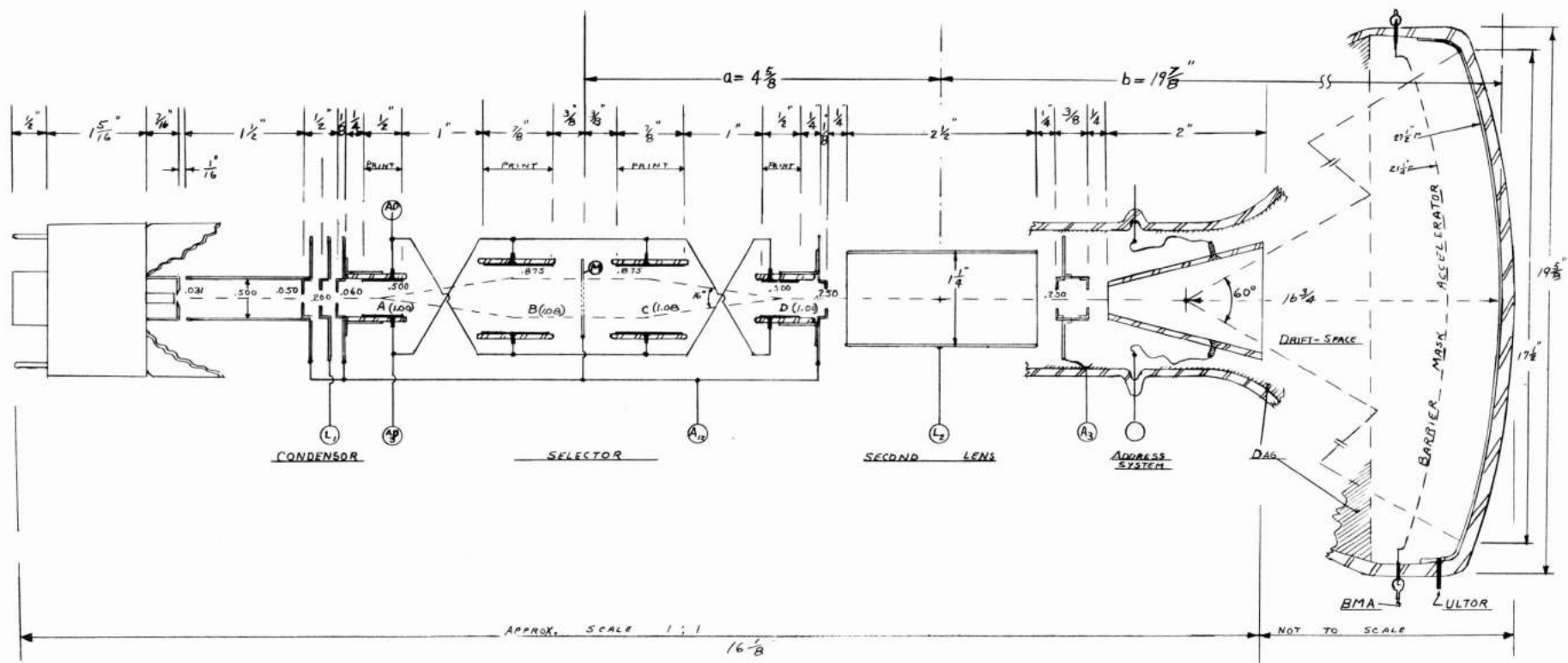


Fig. 6-12 Electrostatic "Printoscope" with Magnification Control by a Decelerating Lens



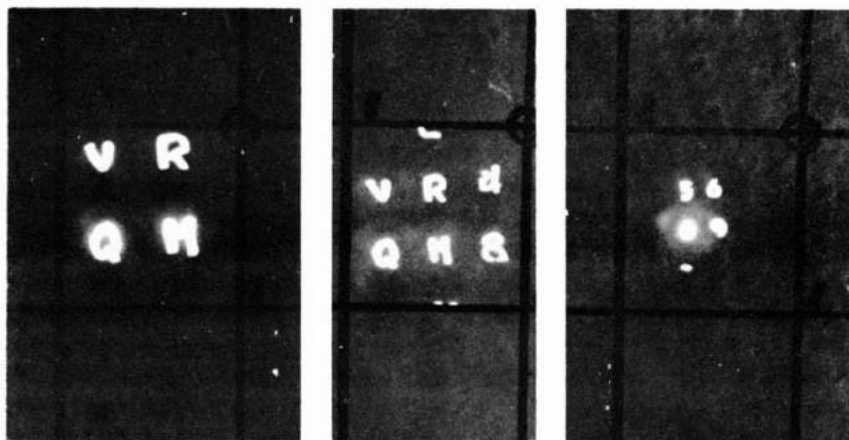
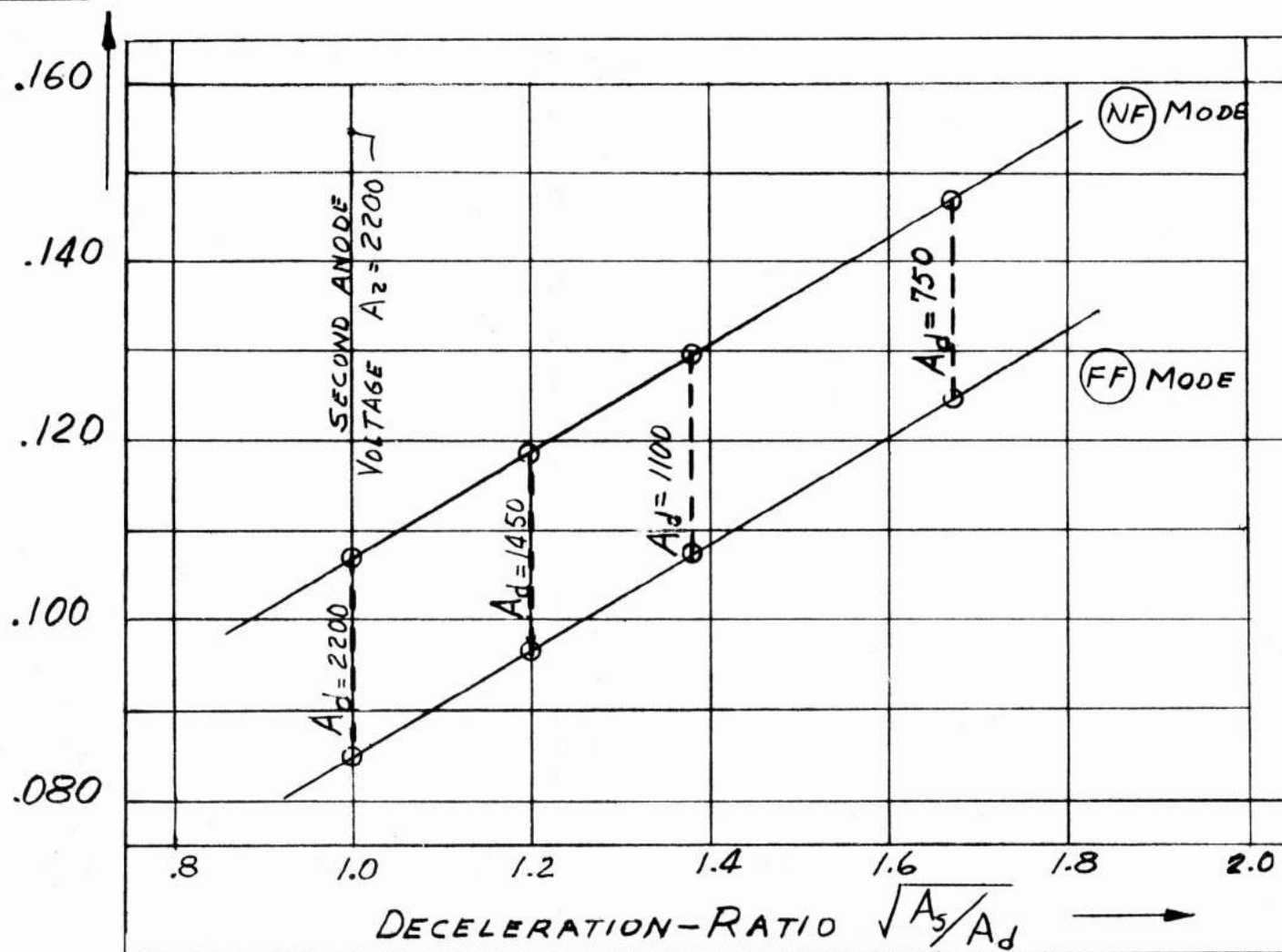


Fig. 6-14 Size Control by Deceleration

IMAGE SIZE
IN INCHES

MAGNIFICATION
IN OPEN
ACC. TUBE



10 TO 1

7.5 TO 1

5.0 TO 1

Fig. 6-15 Observed Image Size vs Deceleration Ratio
in an Open Accelerator

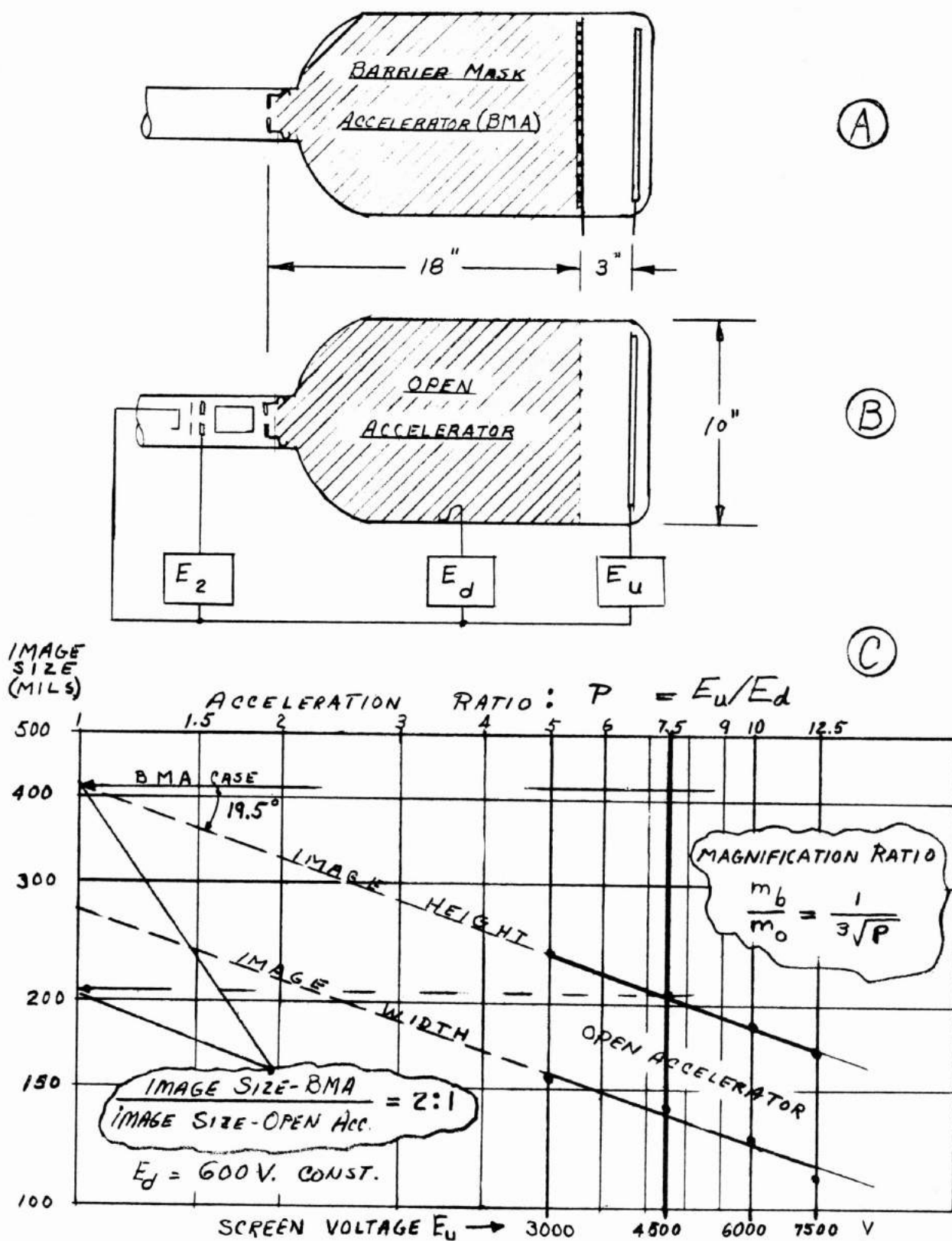
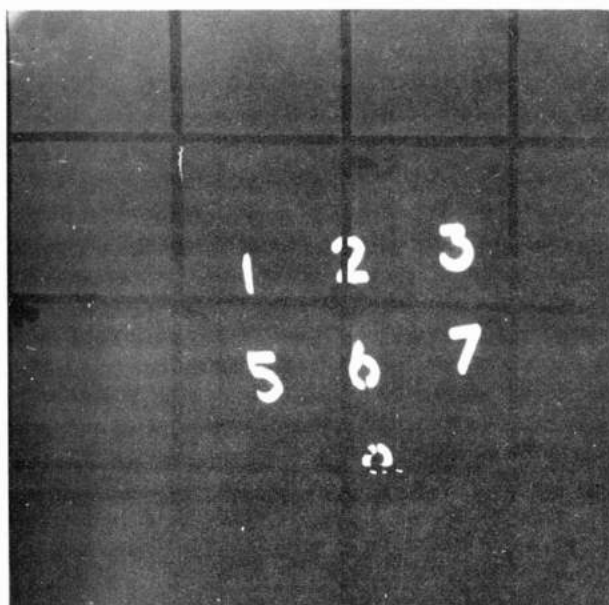
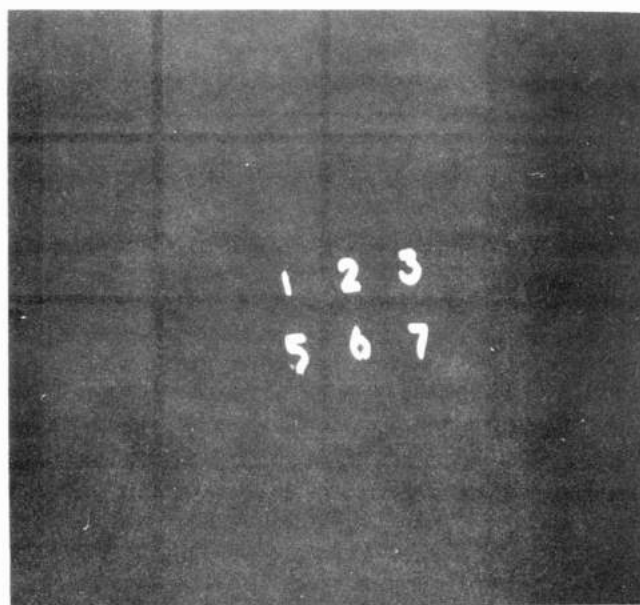


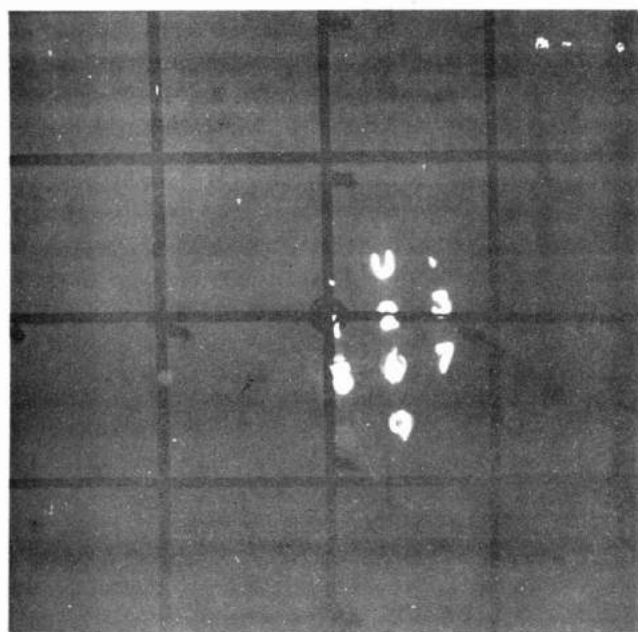
Fig. 6-16 Comparative Magnification: Open Accelerator vs BMA



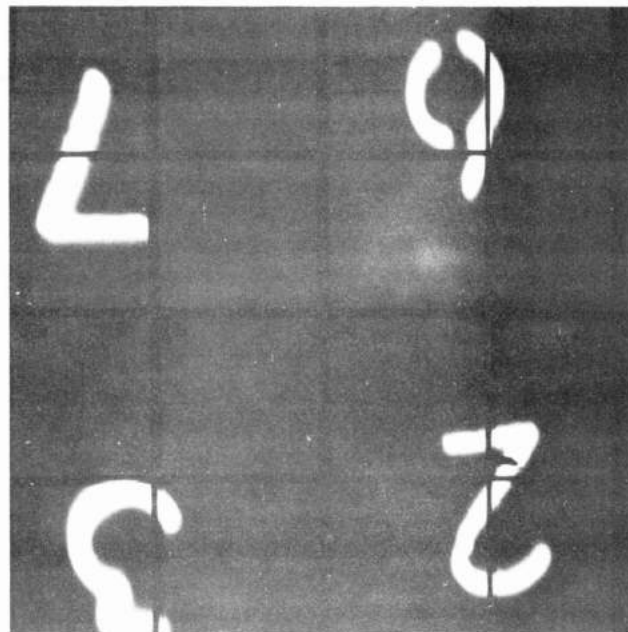
A



B



C



D

Fig. 6-17 Electrostatic Unipotential Lens: $L/D = 2$

Fig. 6-18 Electrostatic Deflection of Oblique Ray

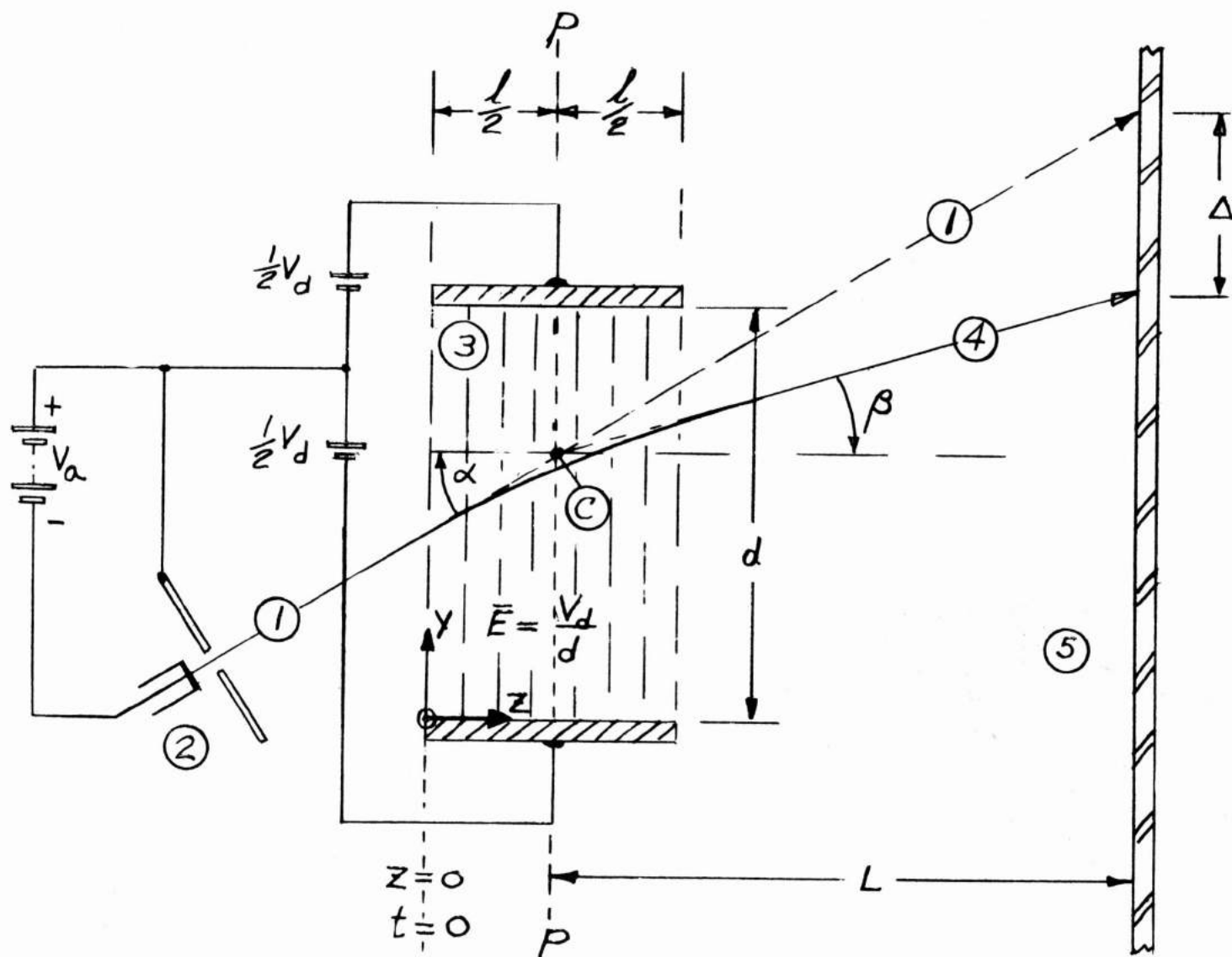




Fig. 6-19 Collimation by Two Blocks of Field

Fig. 6-20 Character Selection by Four Electric Fields

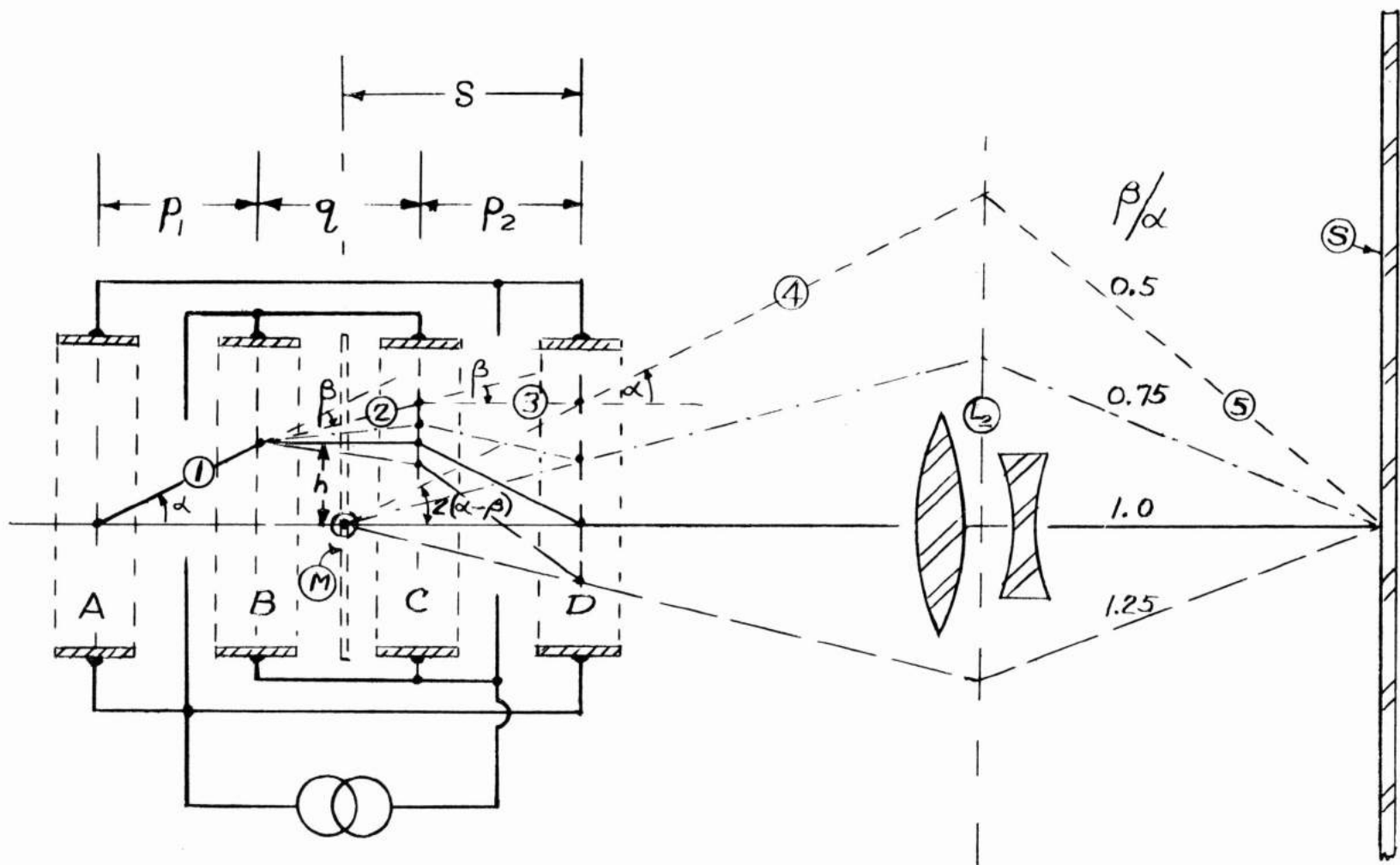


Fig. 6-21 Analysis of Mismatch Between Yokes

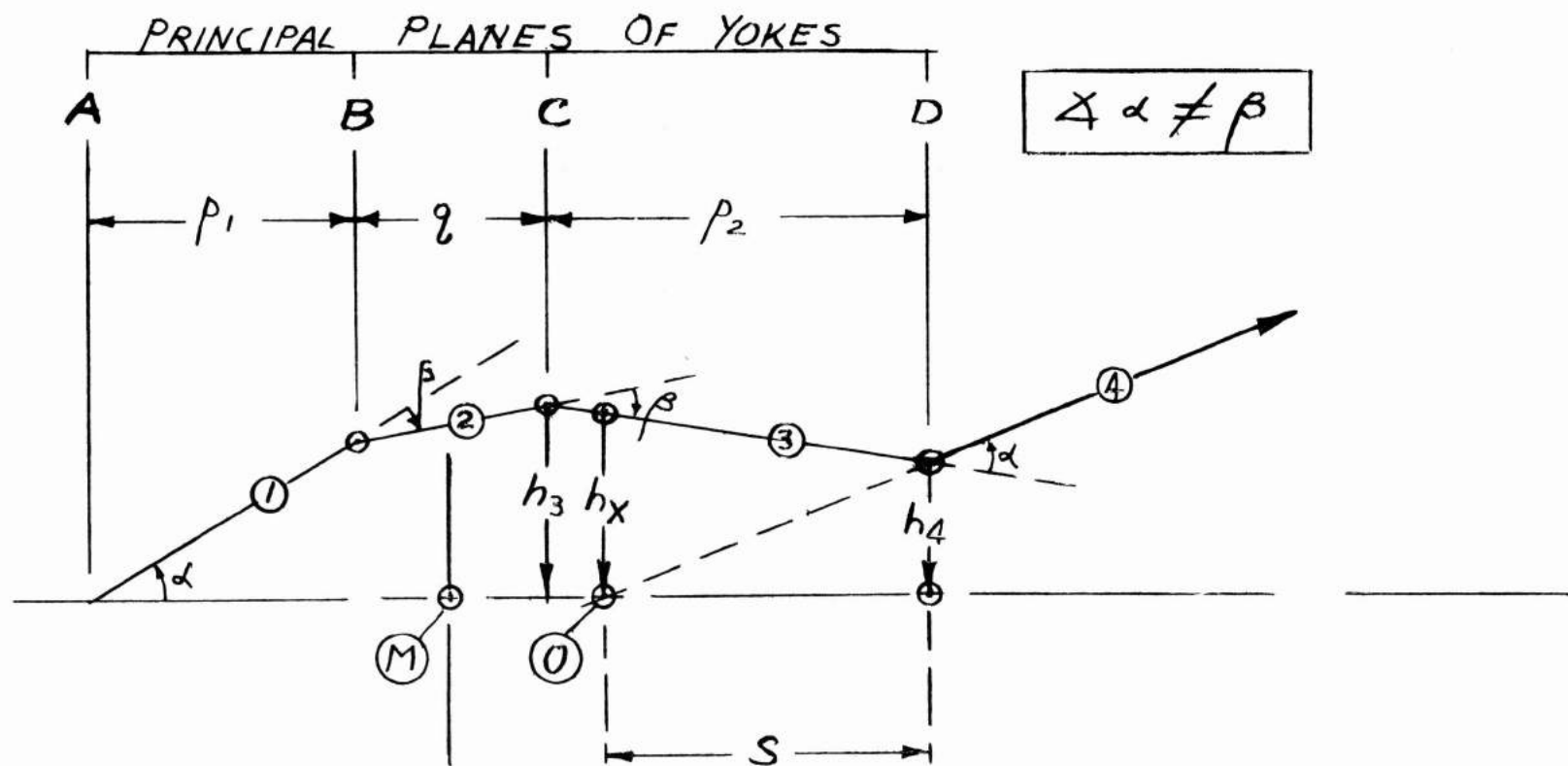
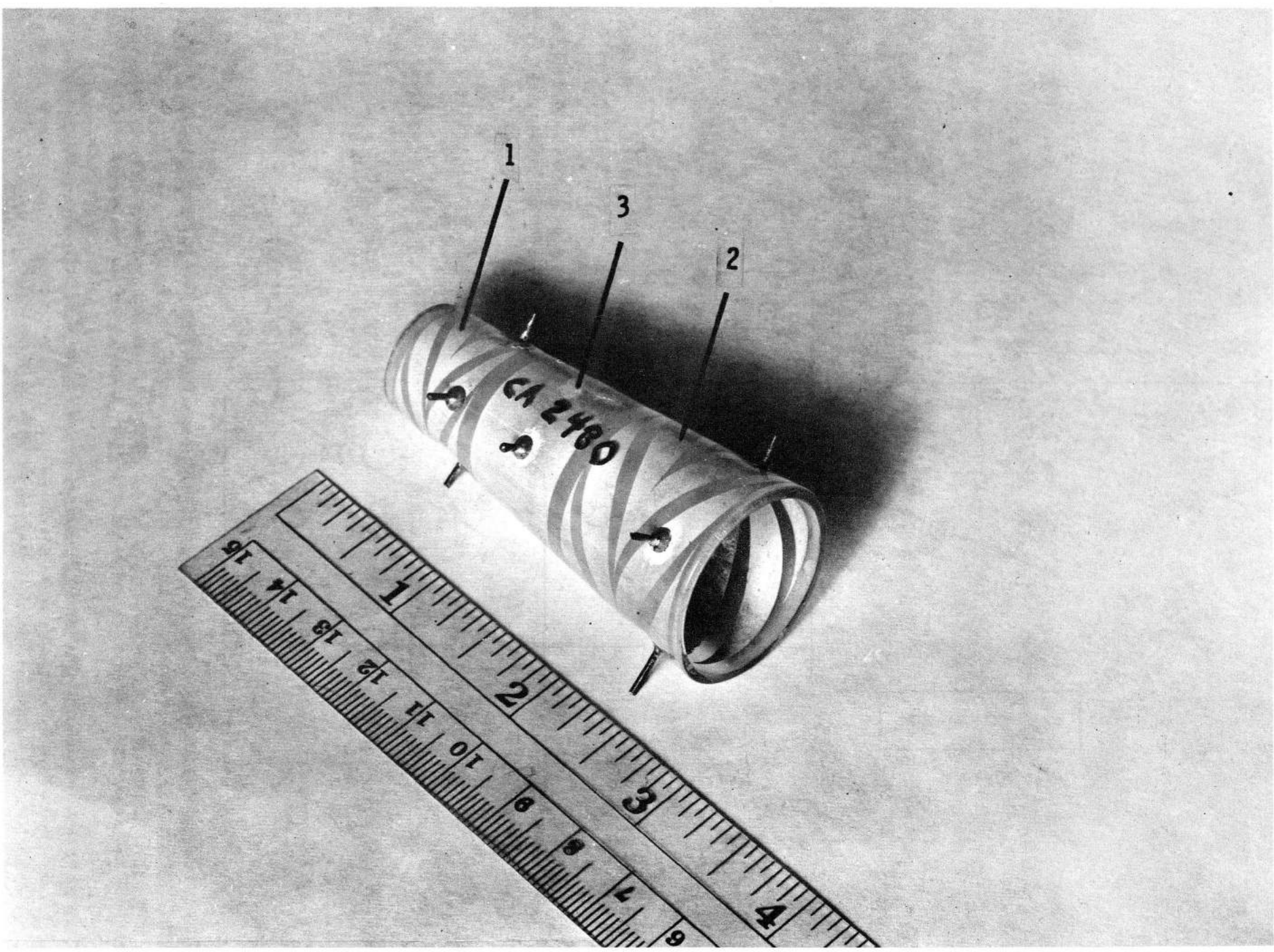


Fig. 6-22 Auto Collimating Tandem Deflectron



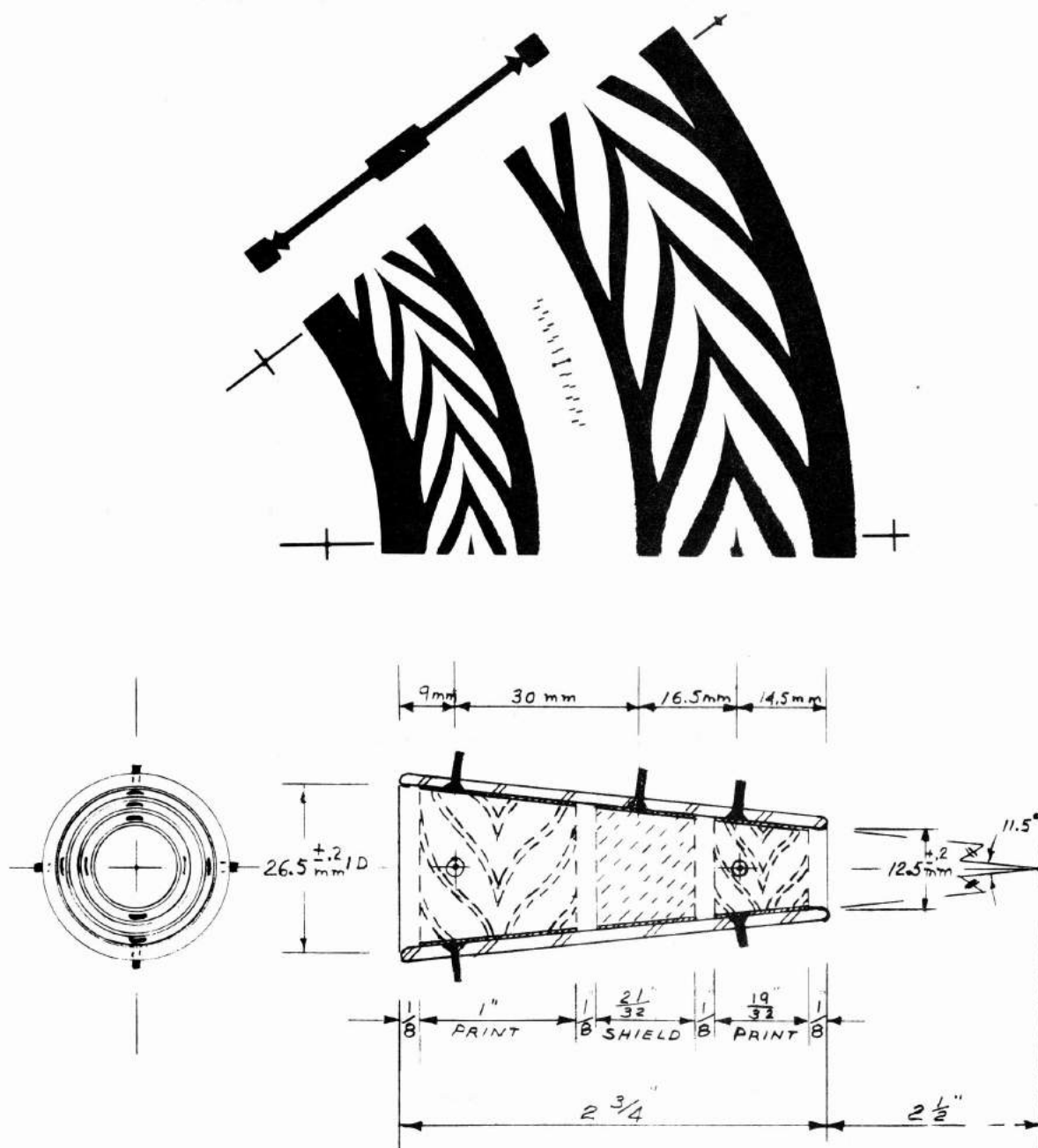


Fig. 6-23 Tandem Deflectron Master Film and Glass-Body

Fig. 6-24 Tandem Deflectron Test Set

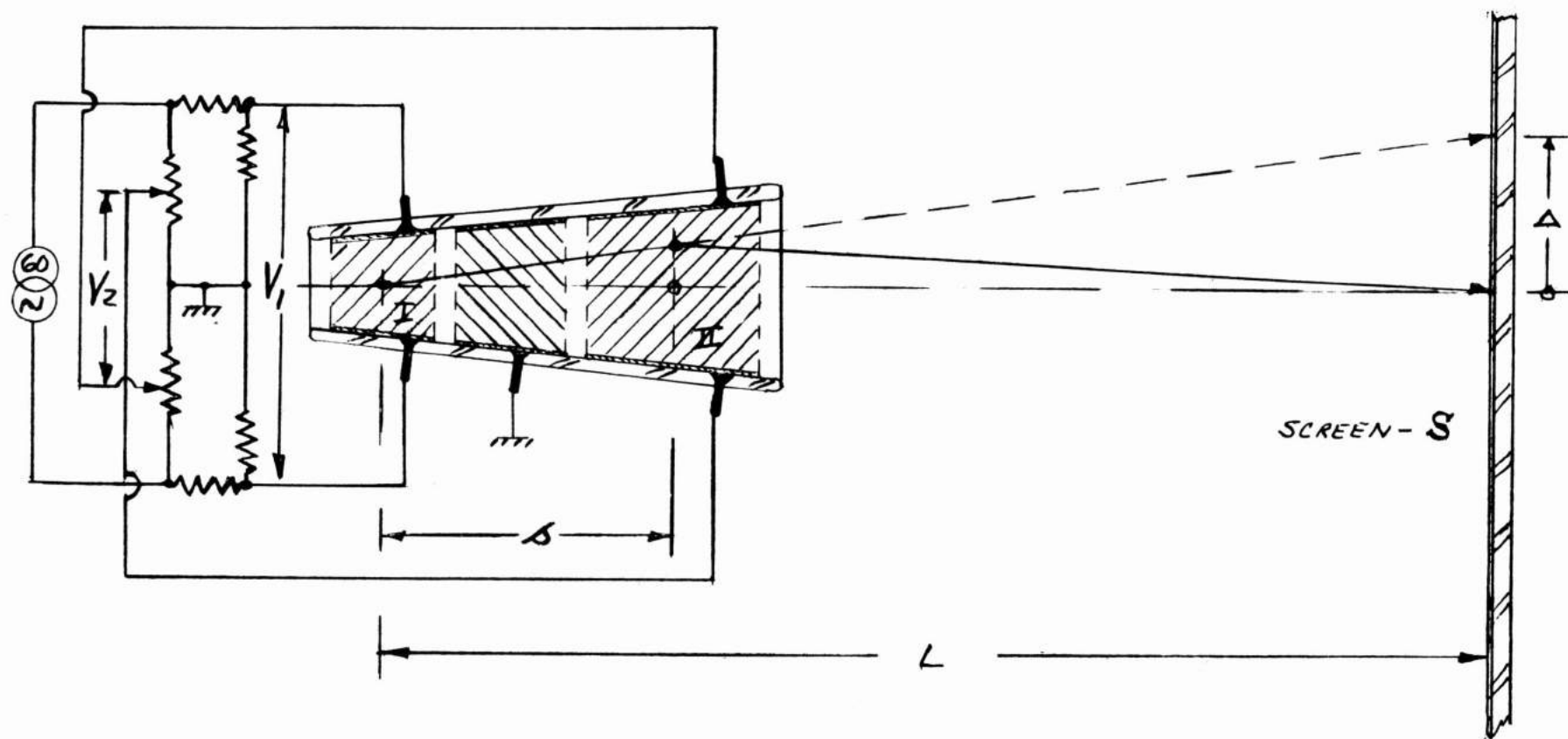


Fig. 6-25 Printoscope Gun and Screen Assembly

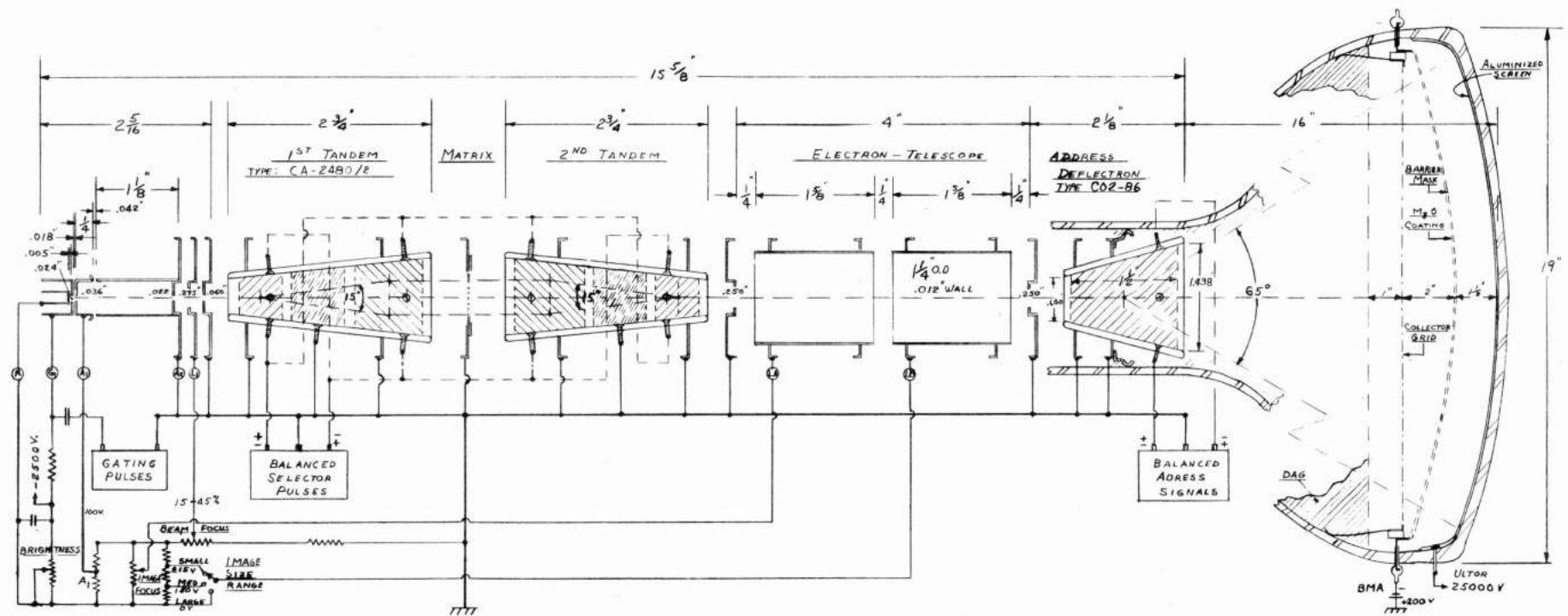


Fig. 6-26 Final Form of Printoscope Gun

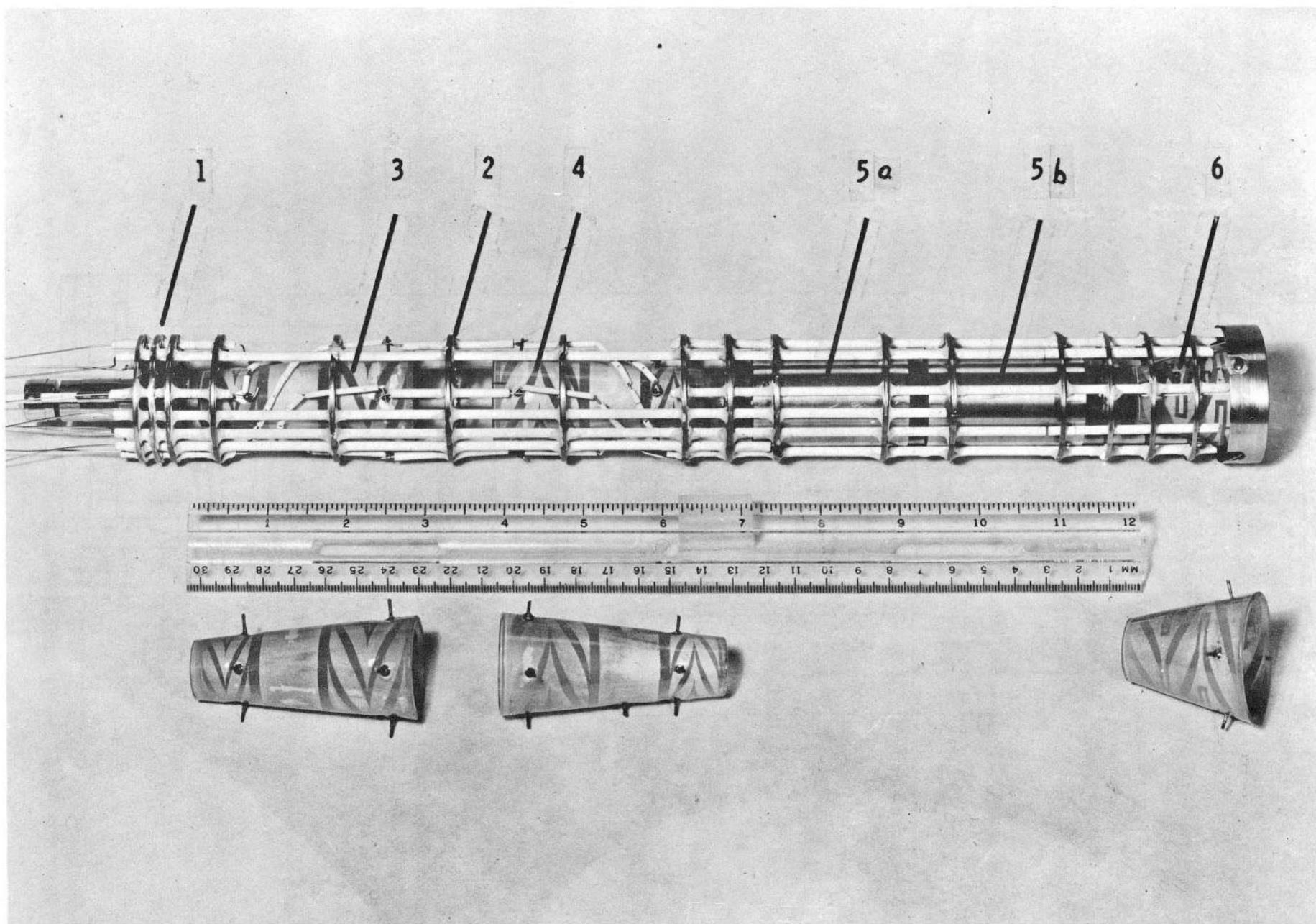


Fig. 6-27 Optical and Electronic System Alignment

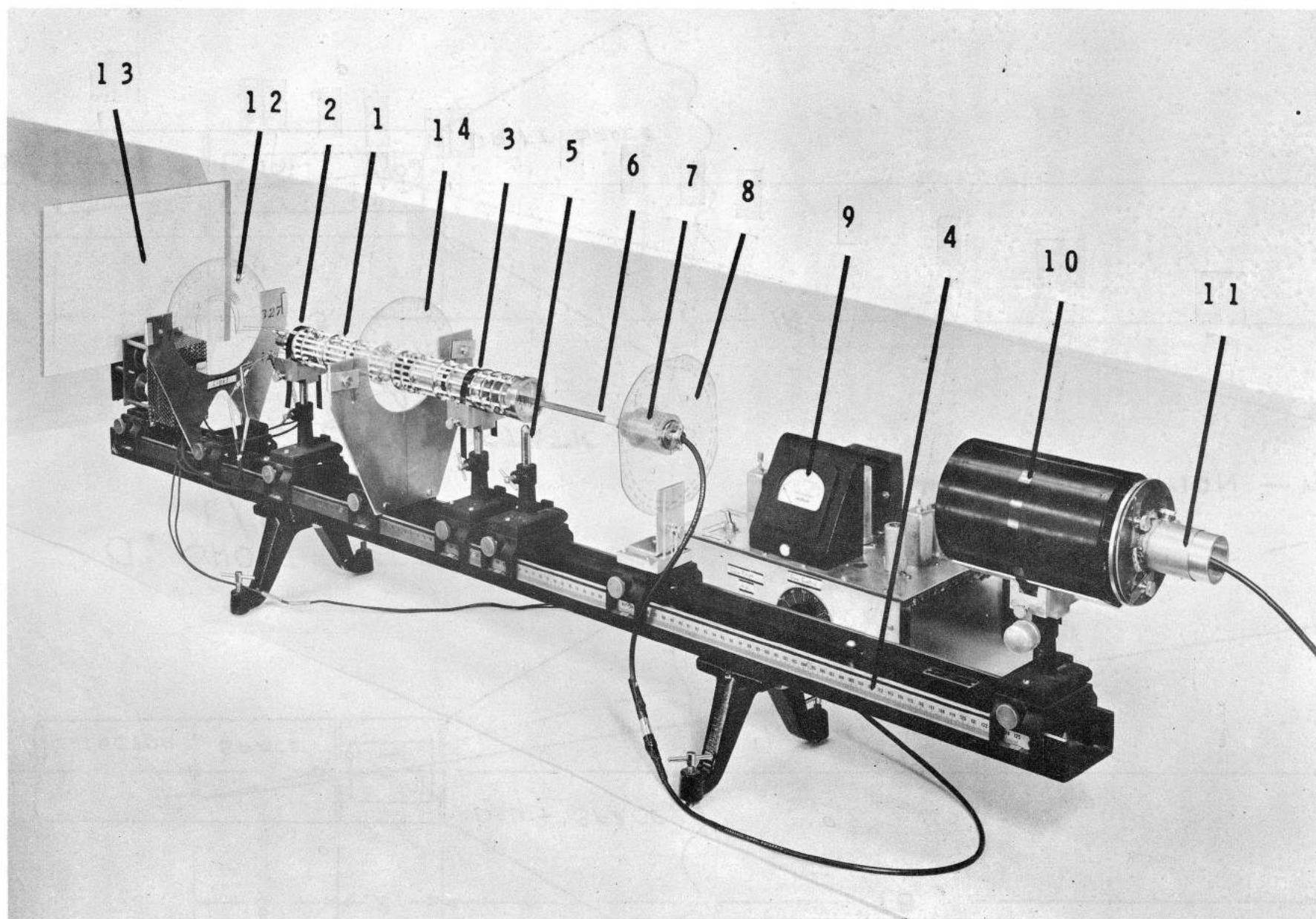
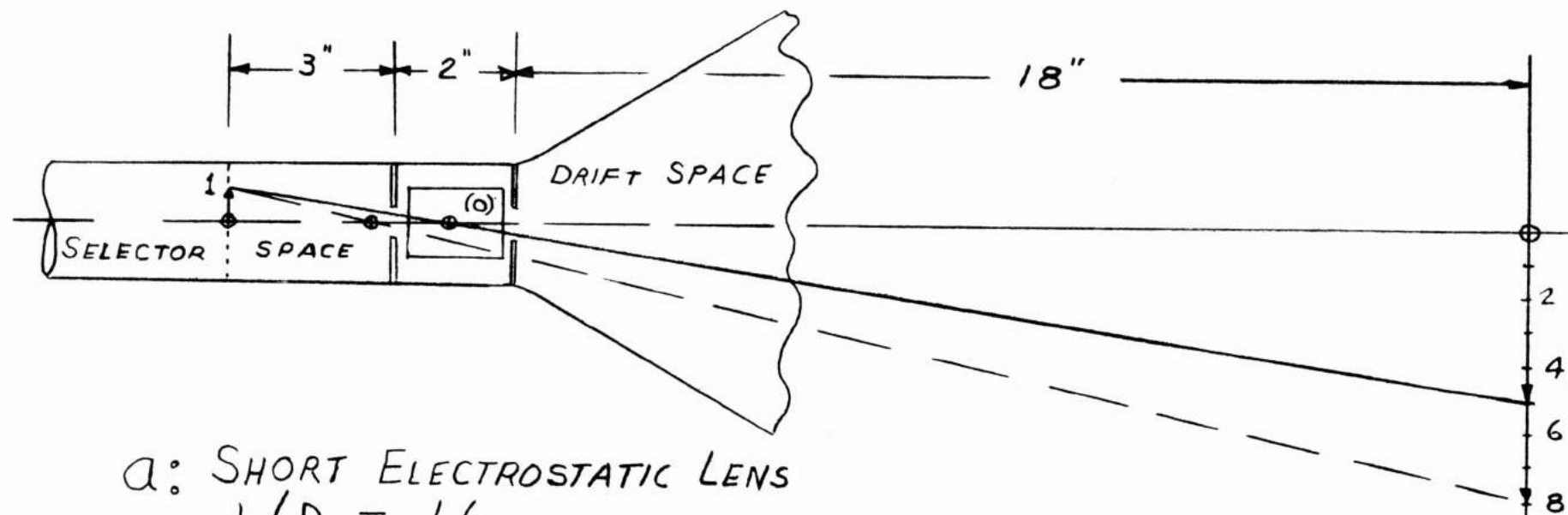
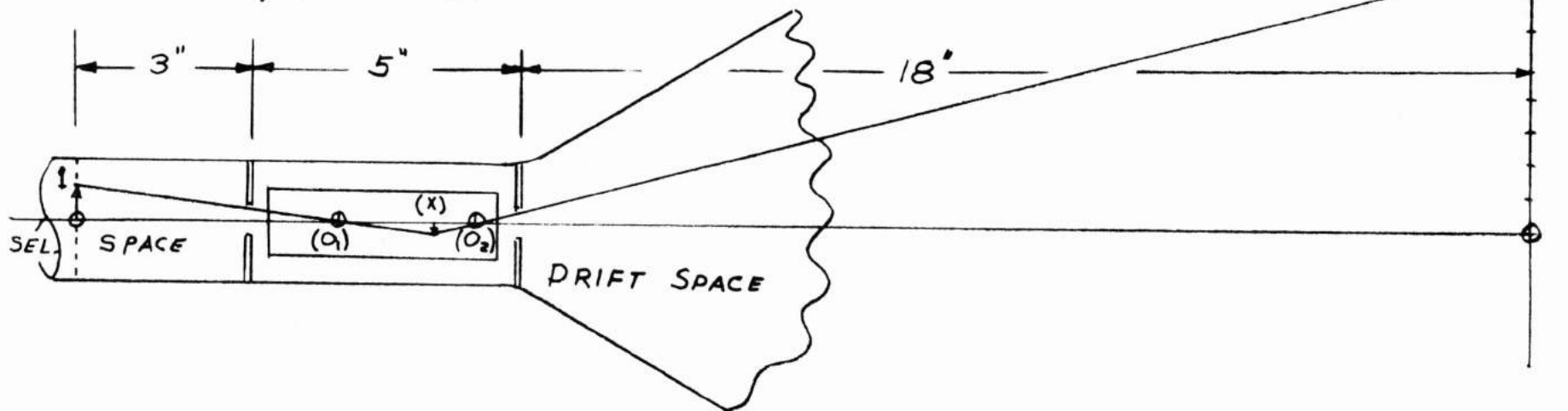


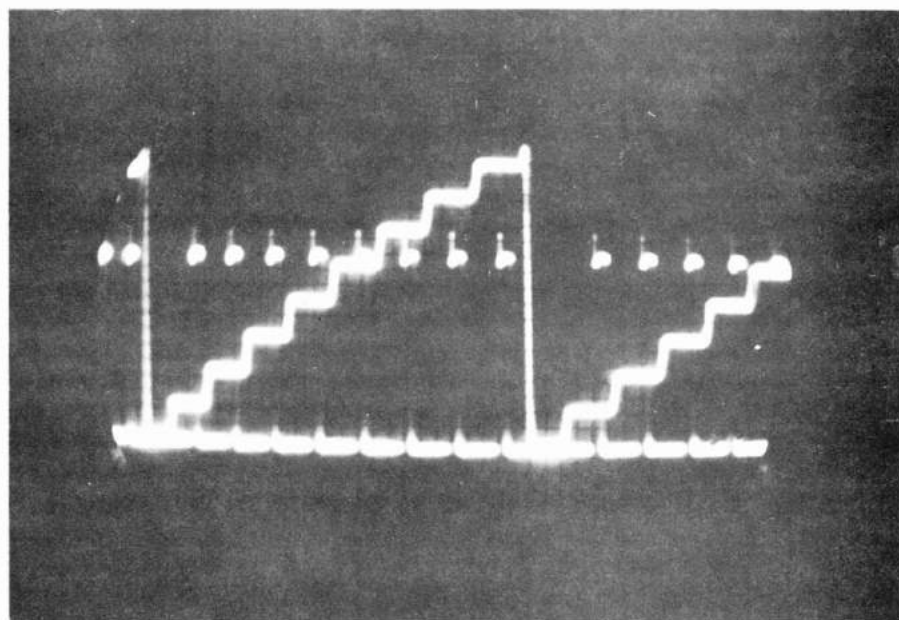
Fig. 6-28 Short vs Long Electrostatic Lens



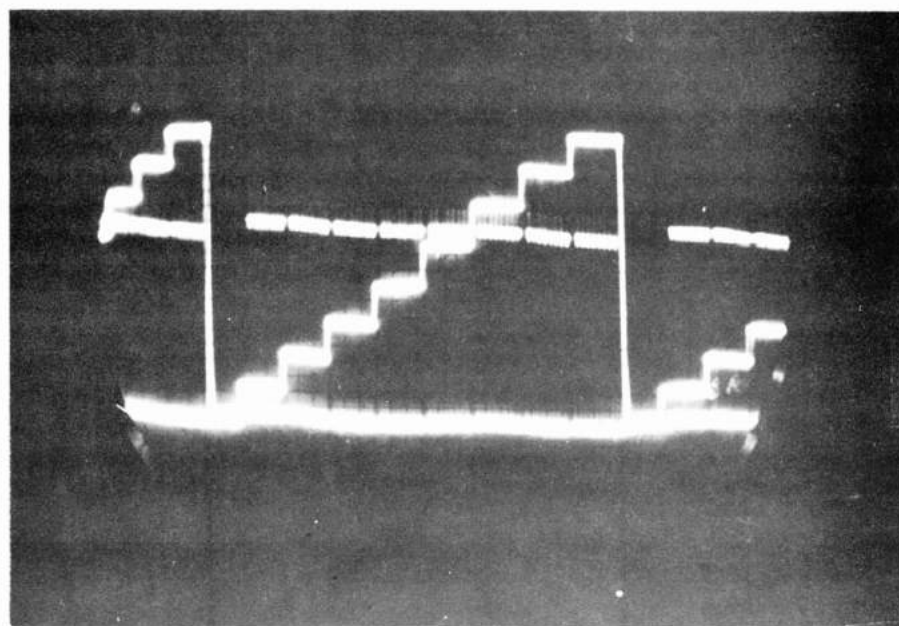
a: SHORT ELECTROSTATIC LENS
 $L/D = 1.6$

b: LONG ELECTROSTATIC LENS
 $L/D = 3.4$





A



B

Fig. 6-29 Gating and Selecting Waveforms for Printoscope Read-Out Test

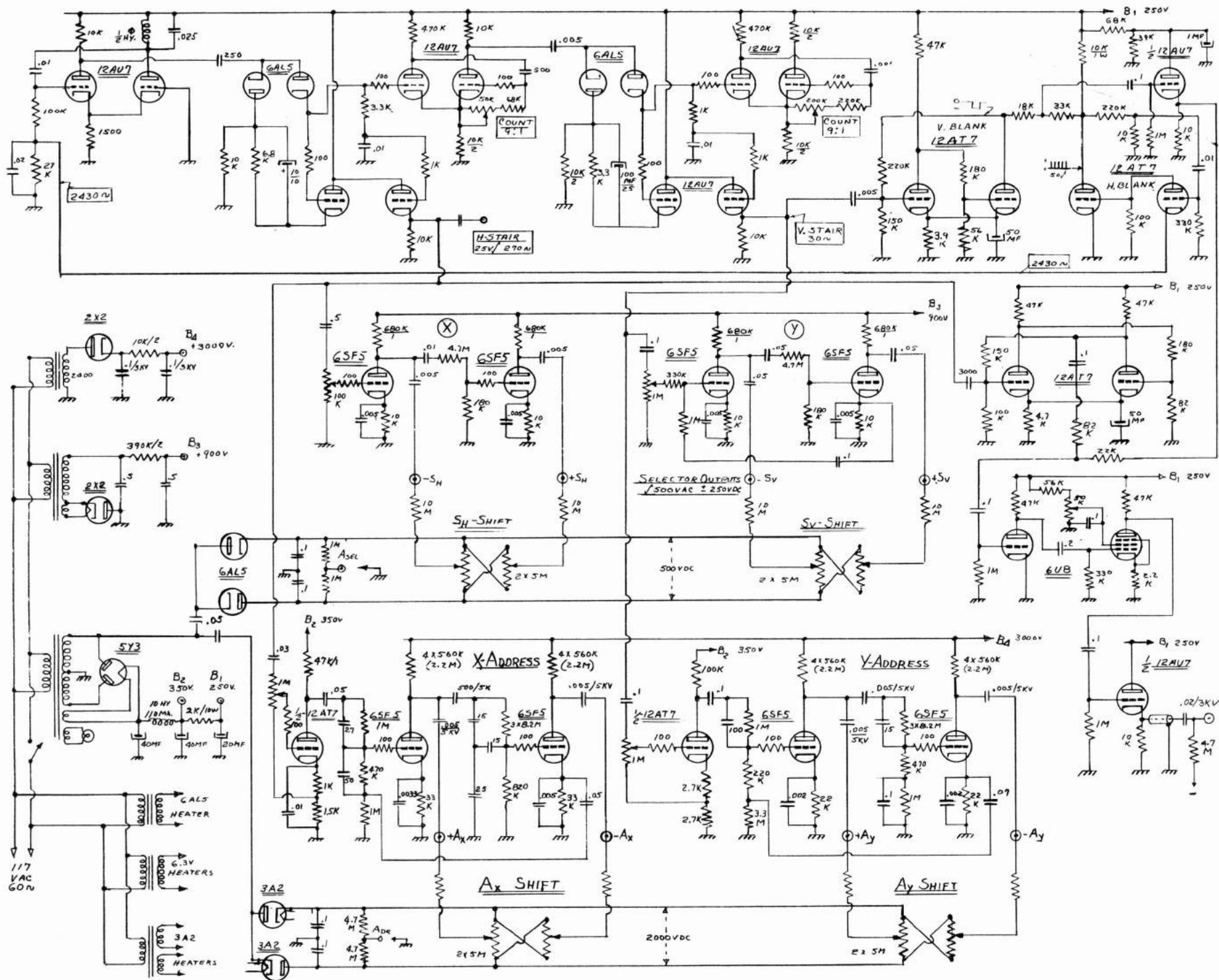
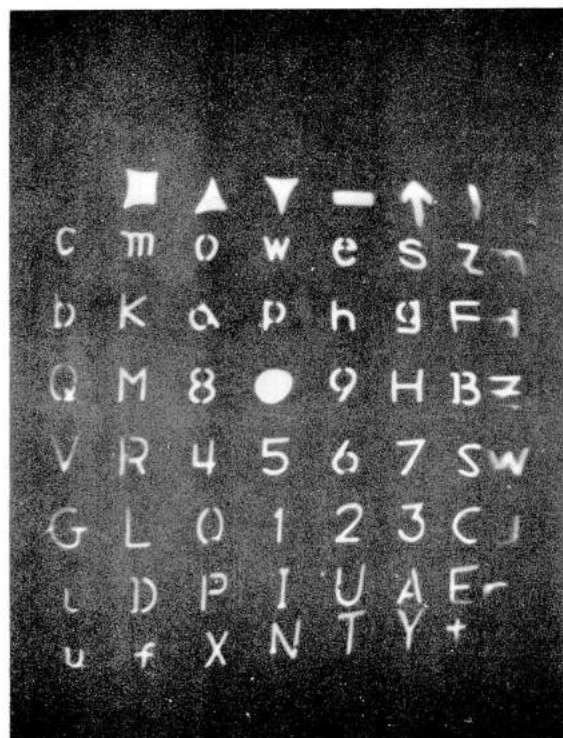
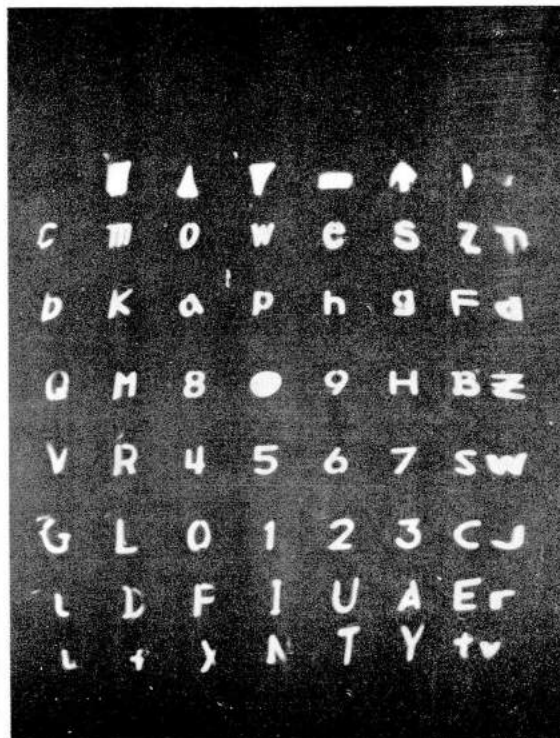


Fig. 6-30 Printscope Read-Out Unit

A



B



C

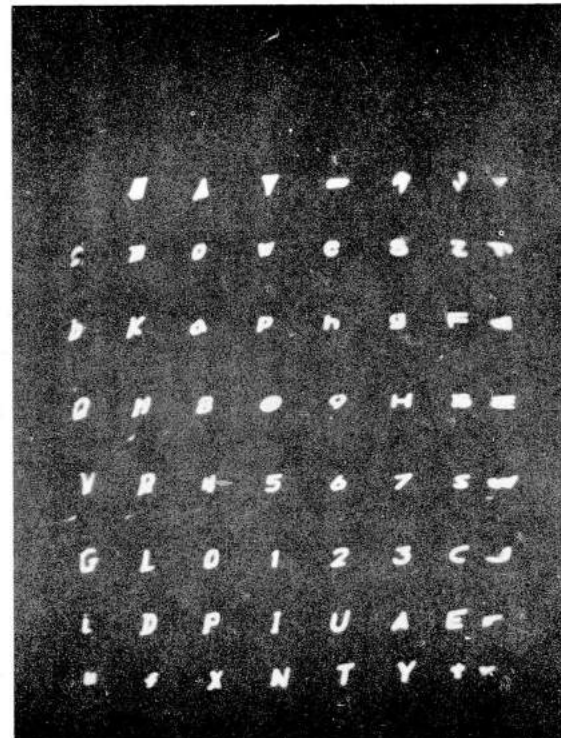
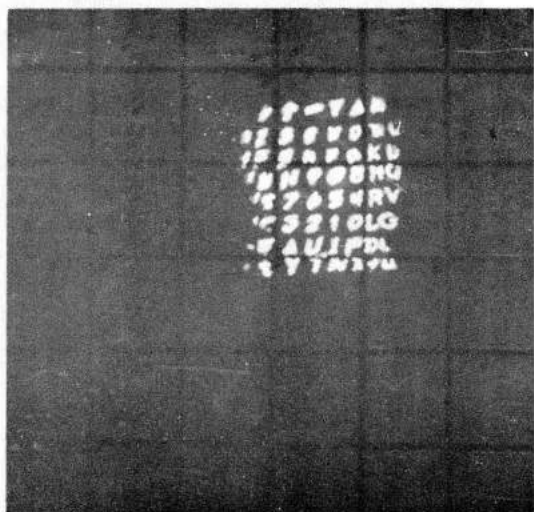
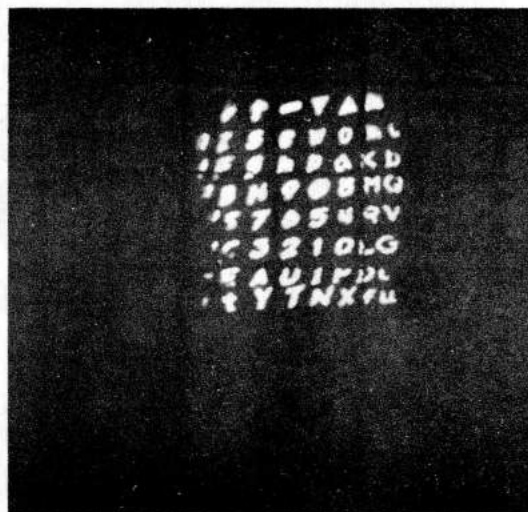


Fig. 6-31 High Frequency Read-Out Test with
Controlled Magnification

A



B



C

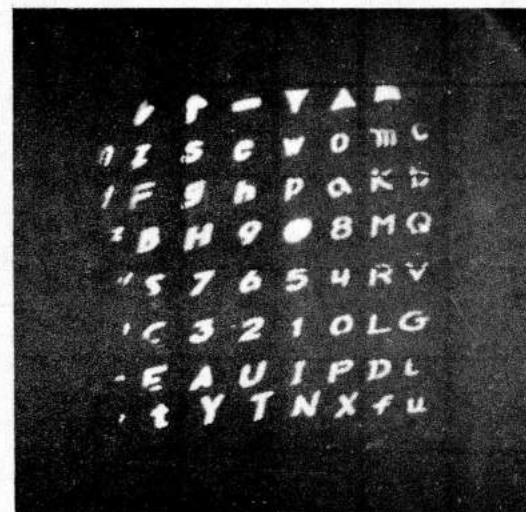
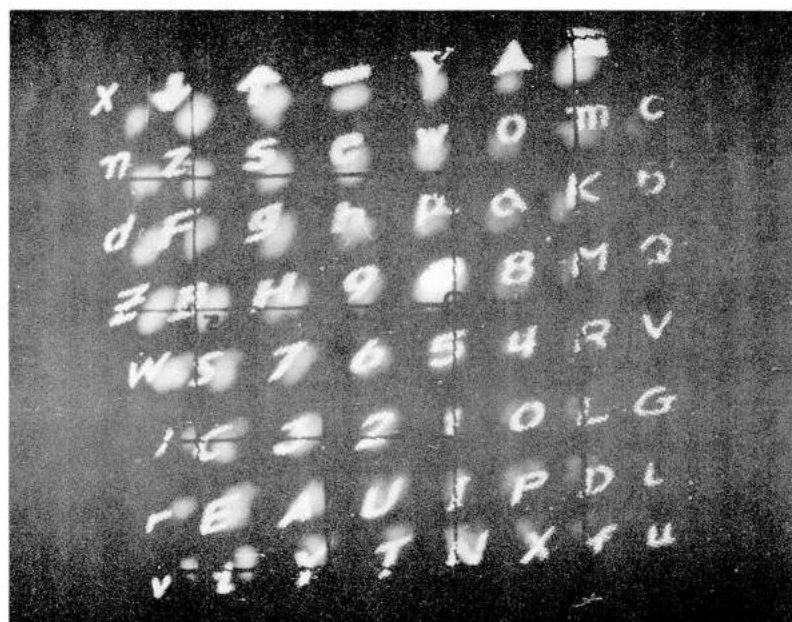


Fig. 6-32 Magnification Control Test

A



B

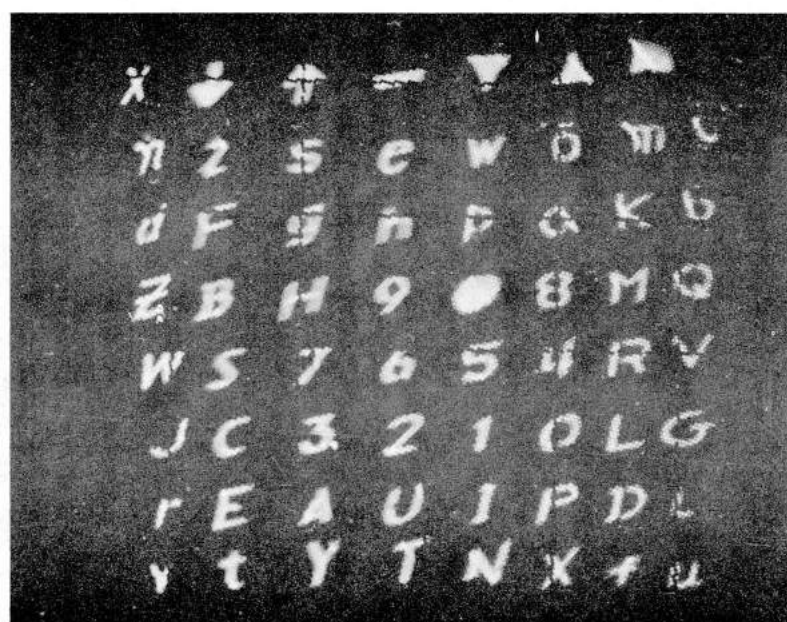


Fig. 6-33 Barrier Mask Rejecting Secondary Images

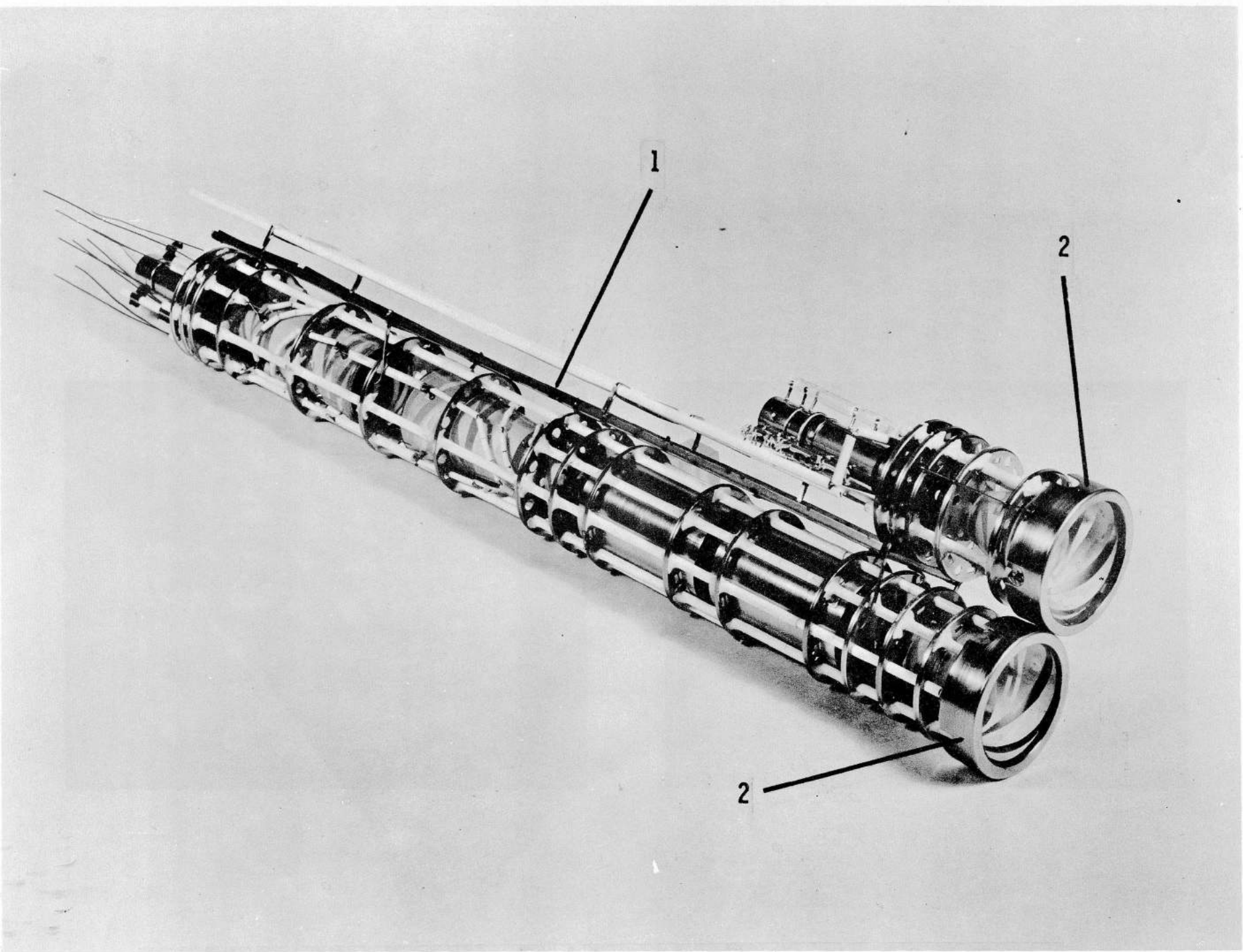


Fig. 6-34 Dual Gun Assembly for Radar Display and Identification