

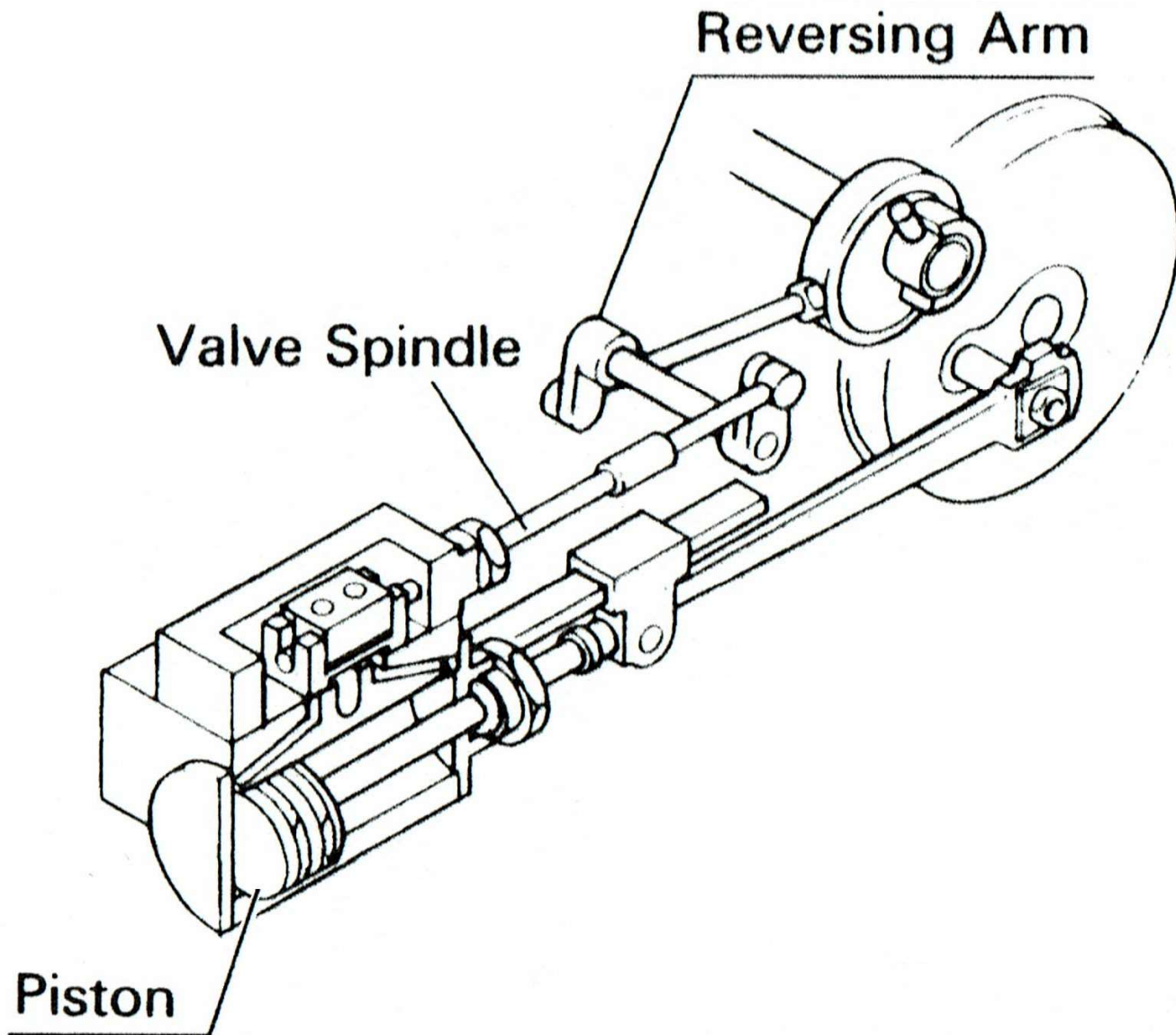
Intro to Basic Valve Gear

Bob Sorenson

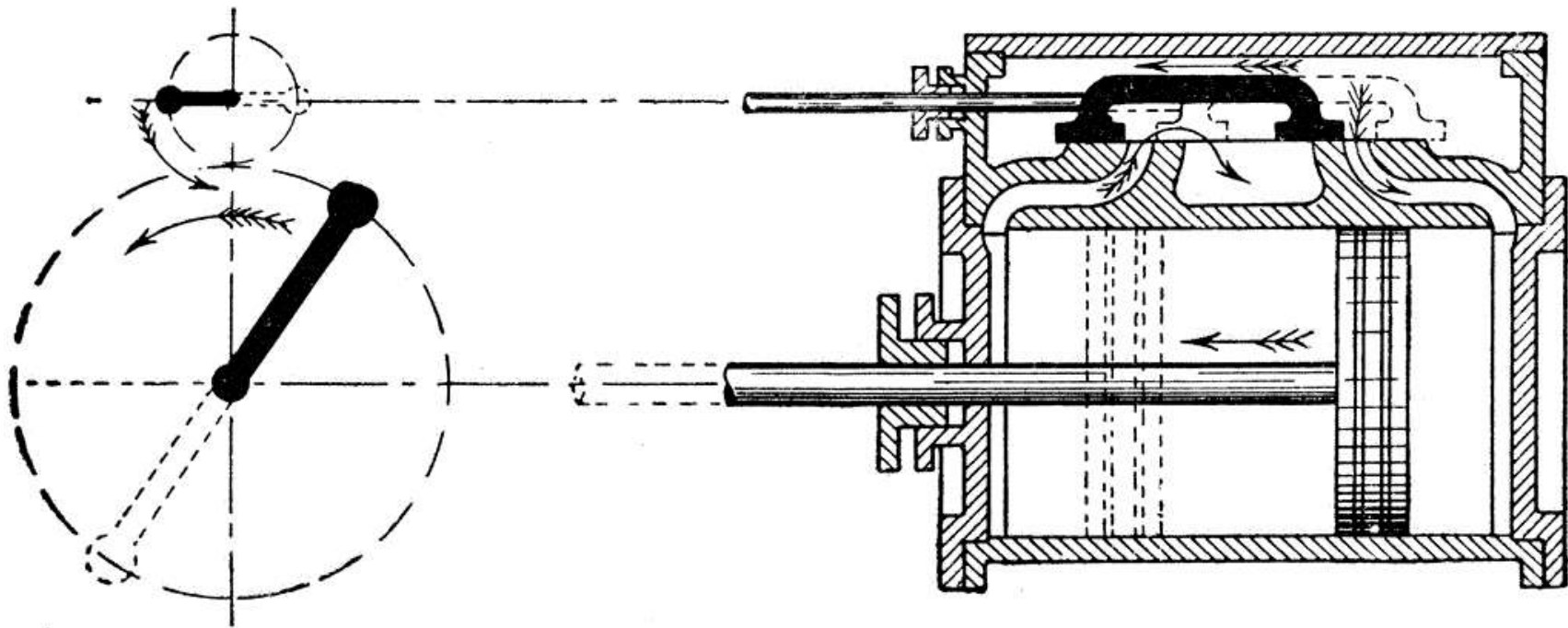
Objectives

- Introduce the “D” slide valve
- “Lap” and “Lead”
- Piston Valves
- Zeuner Diagram
- Stevenson reverse gear
- Walschaerts reverse gear
- Valve gear simulator

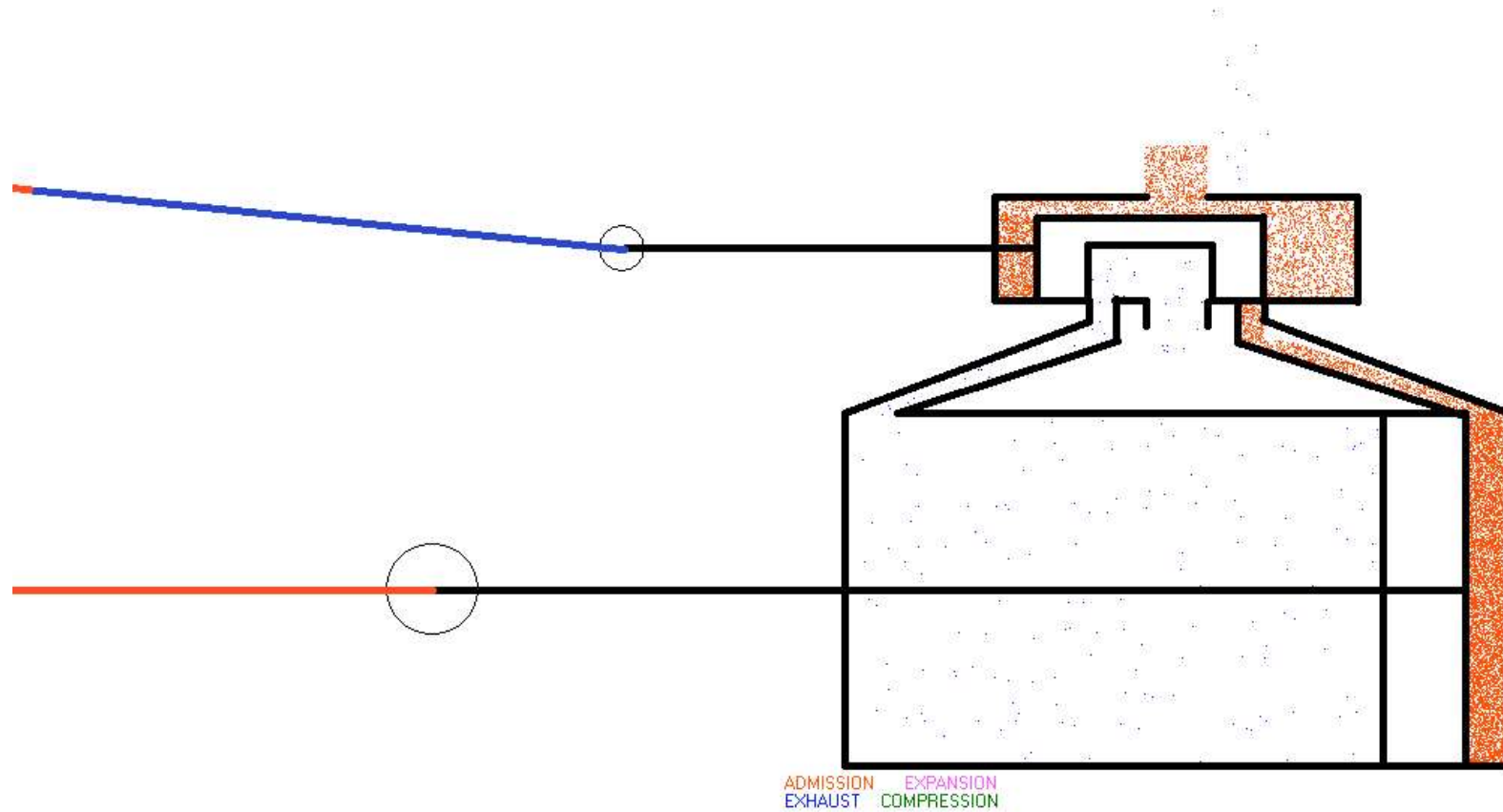
“D” Slide Valve



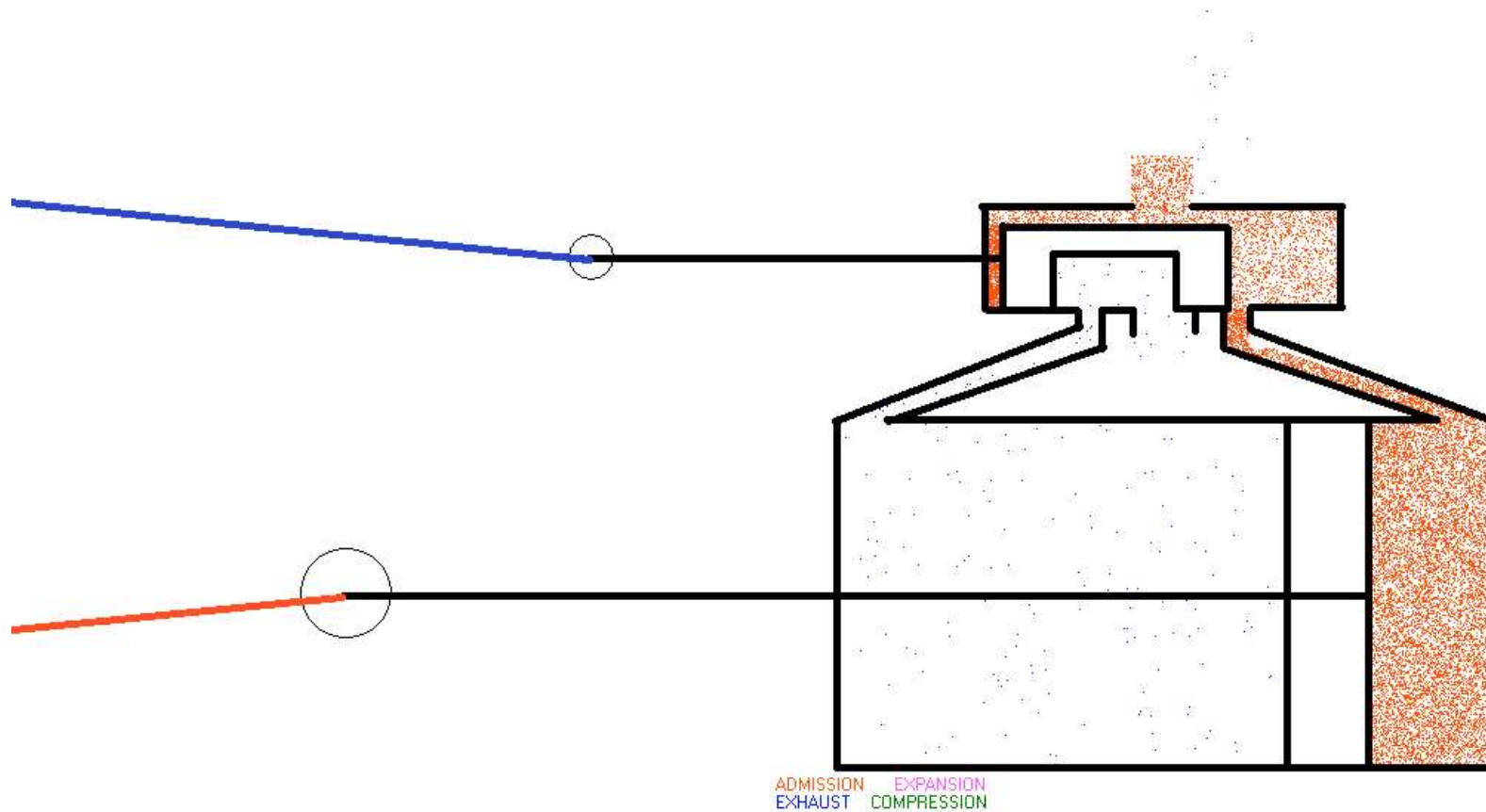
“D” Slide Valve



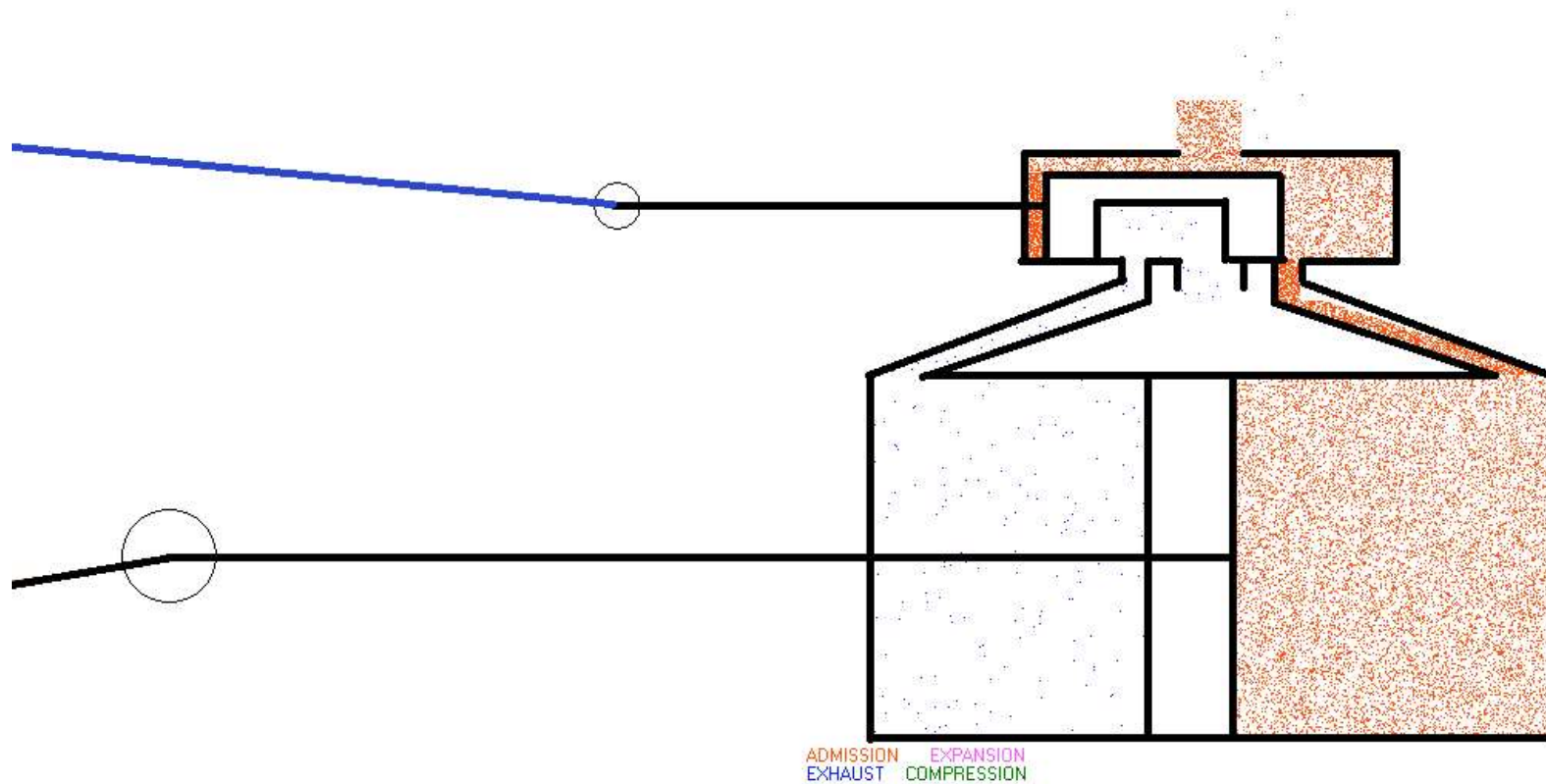
“D” Slide Valve -- TDC



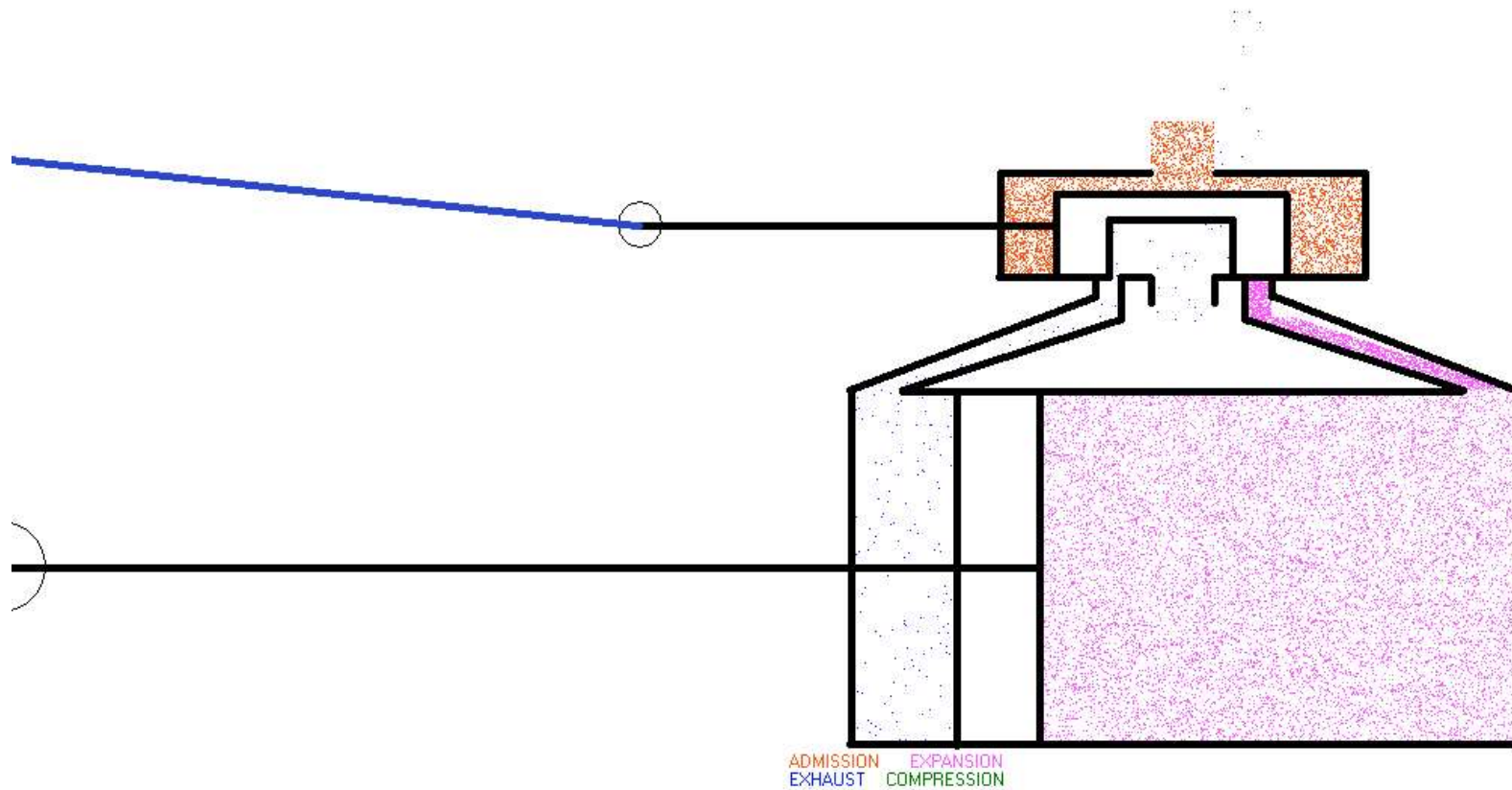
“D” Slide Valve -- 45°



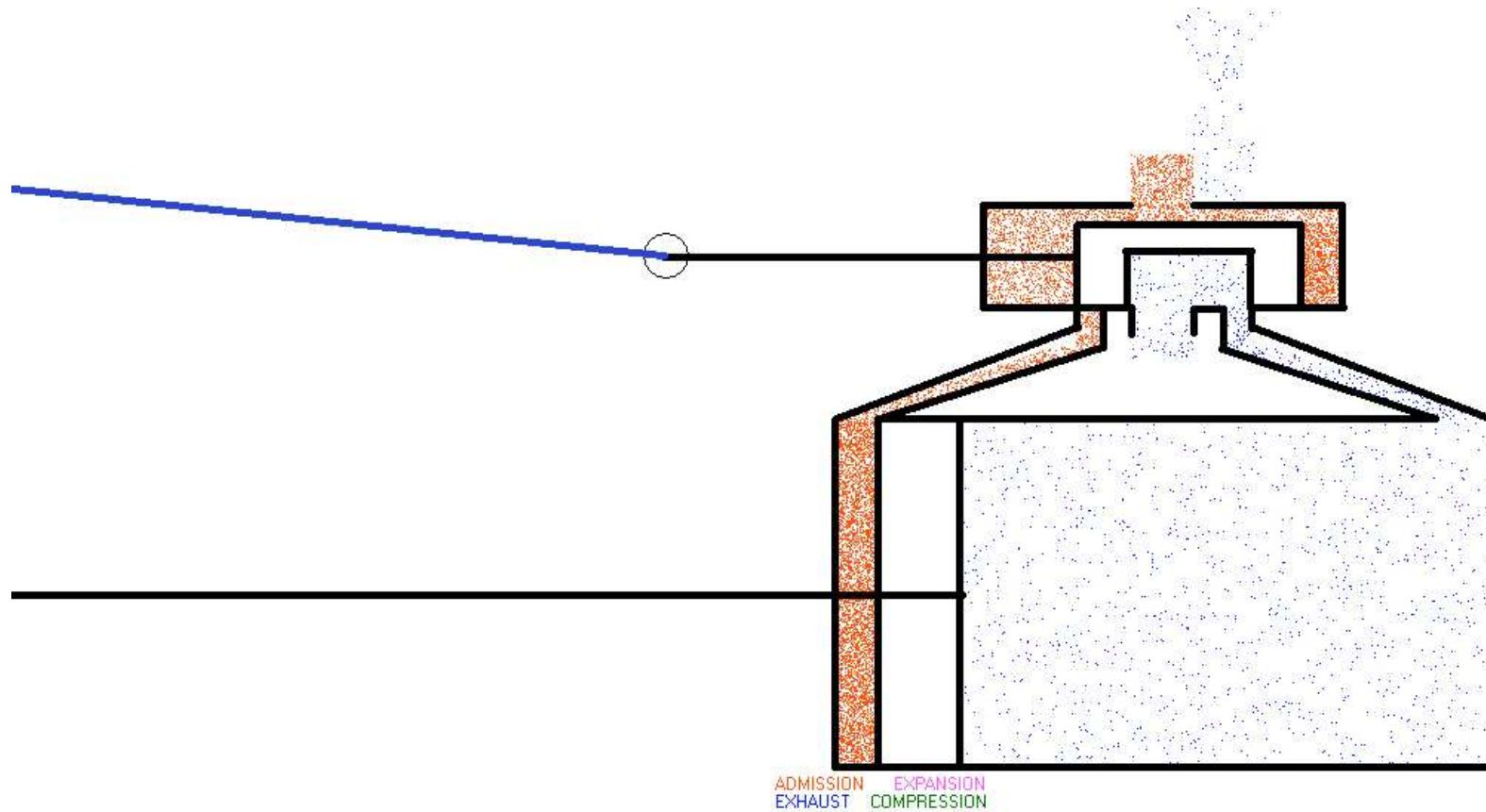
“D” Slide Valve -- 90°



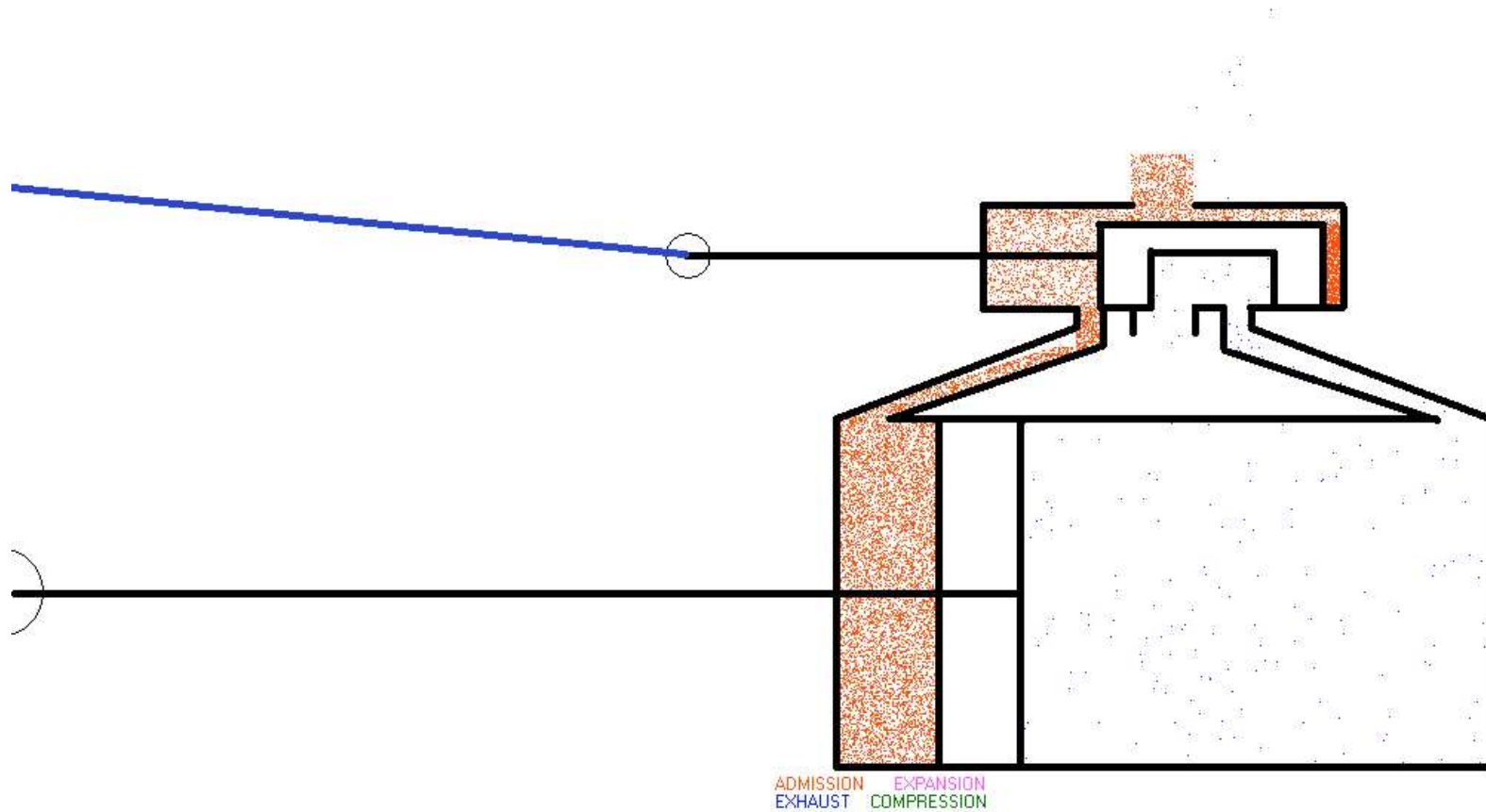
“D” Slide Valve -- 135°



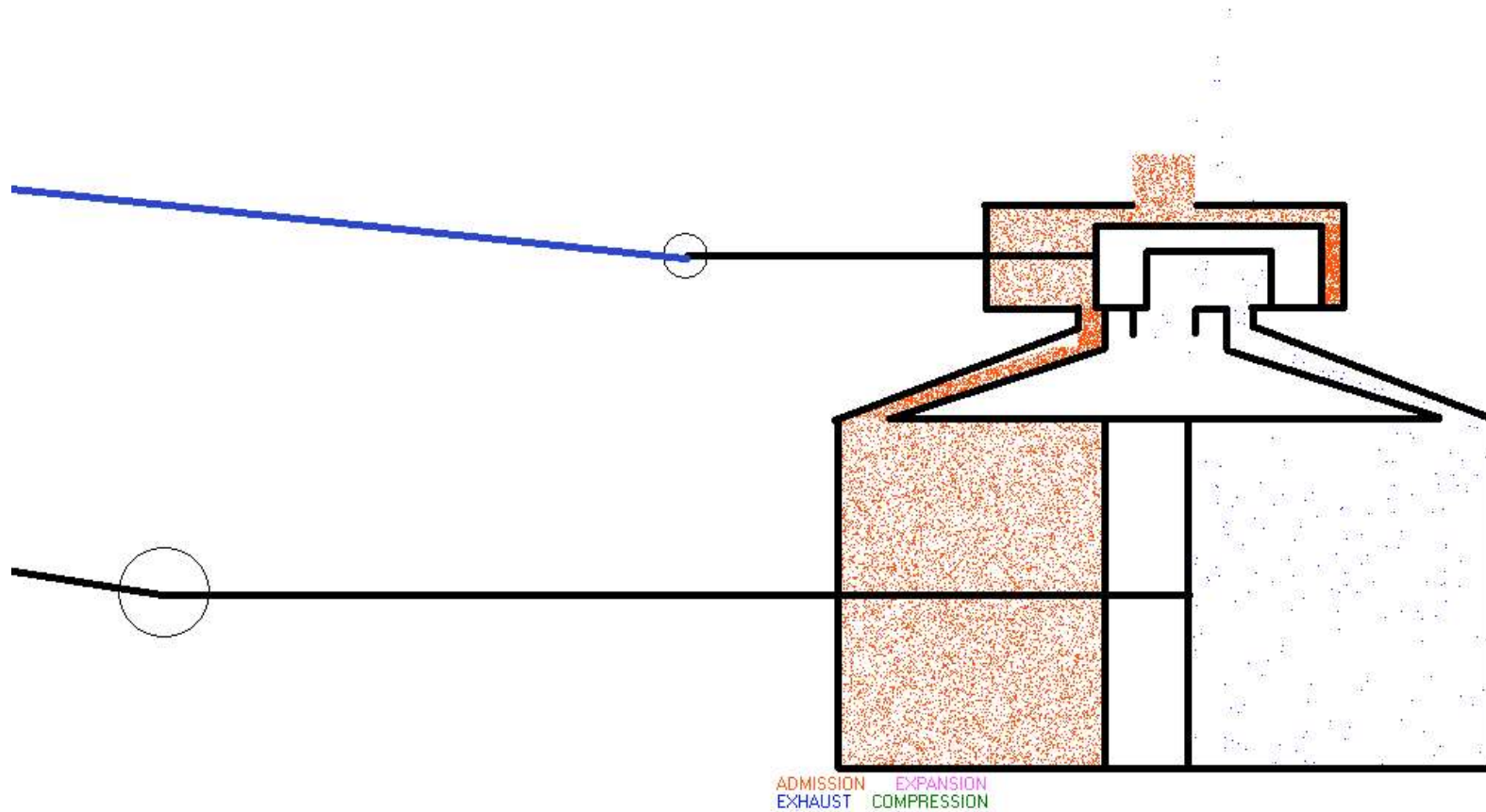
“D” Slide Valve -- 180°



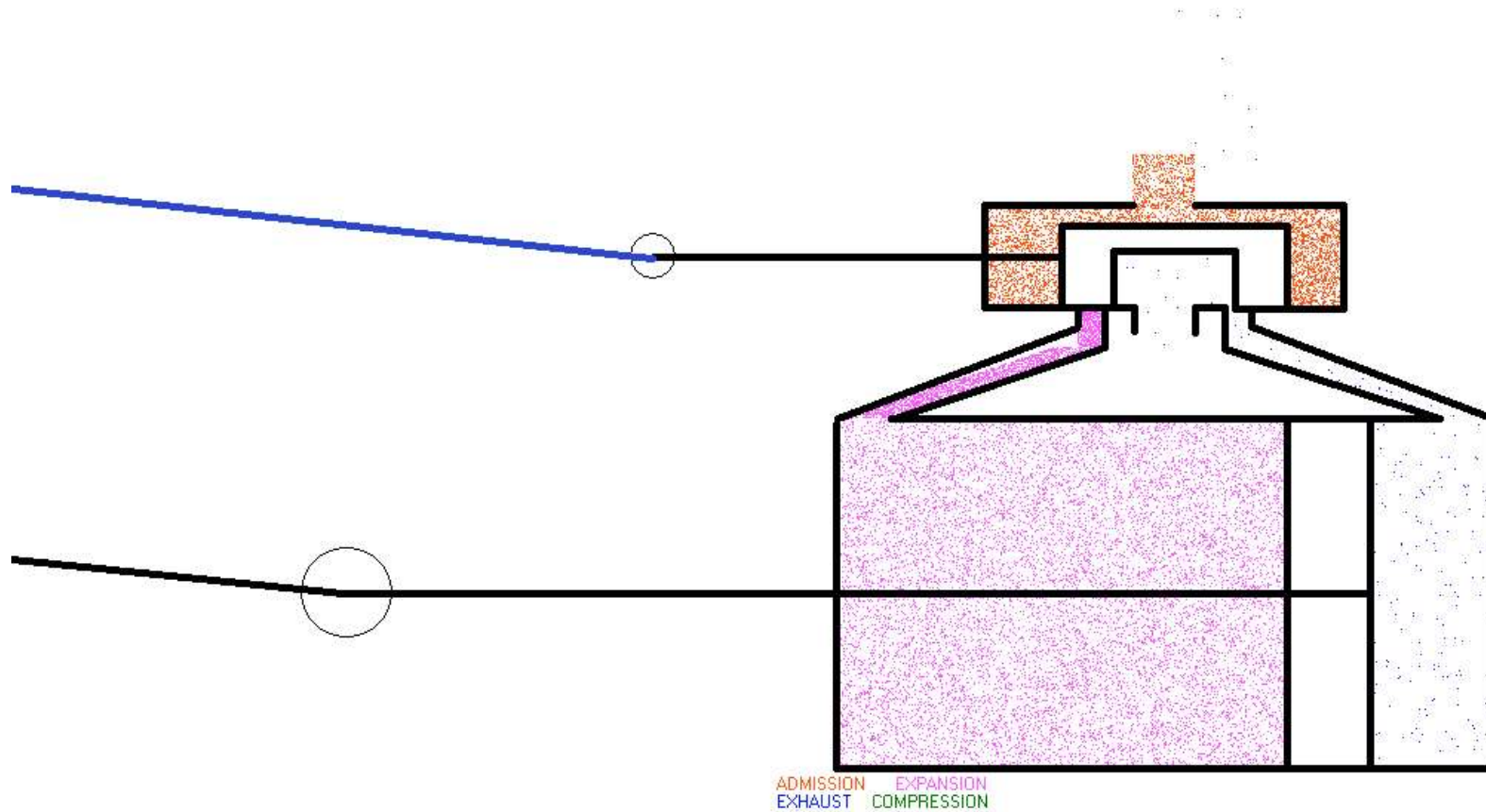
“D” Slide Valve -- 225°



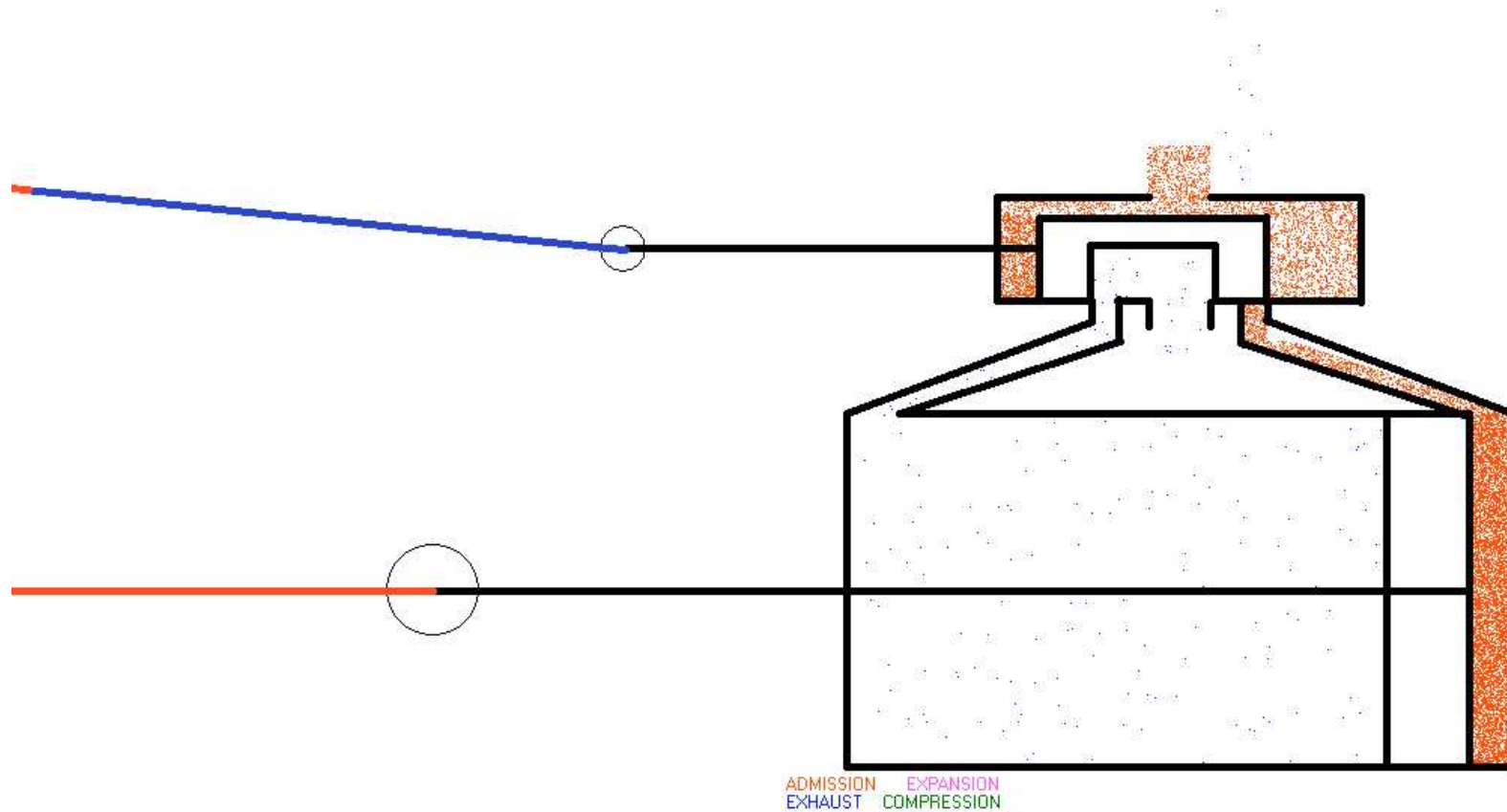
“D” Slide Valve -- 270°



“D” Slide Valve -- 315°

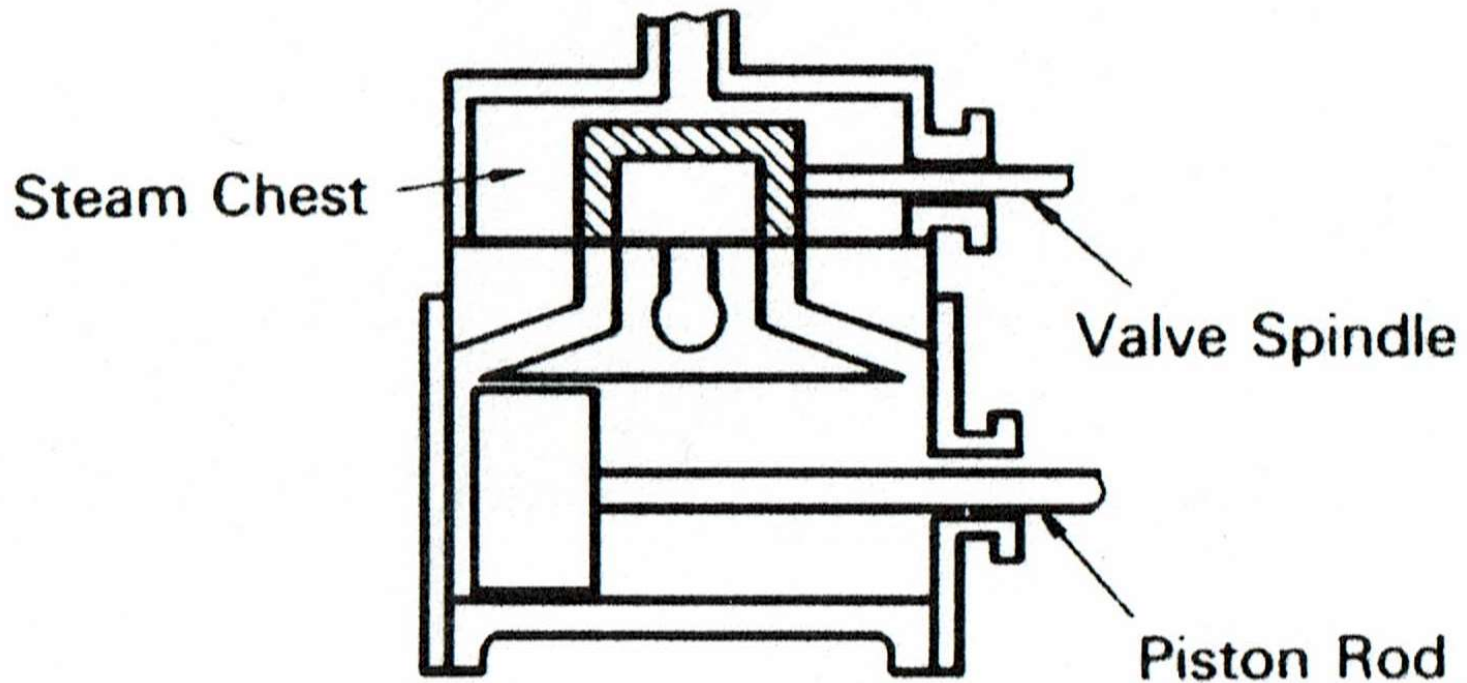
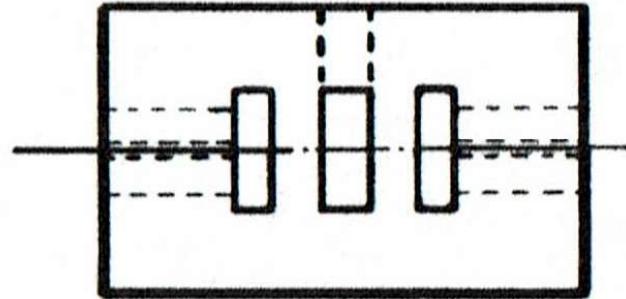


“D” Slide Valve -- TDC



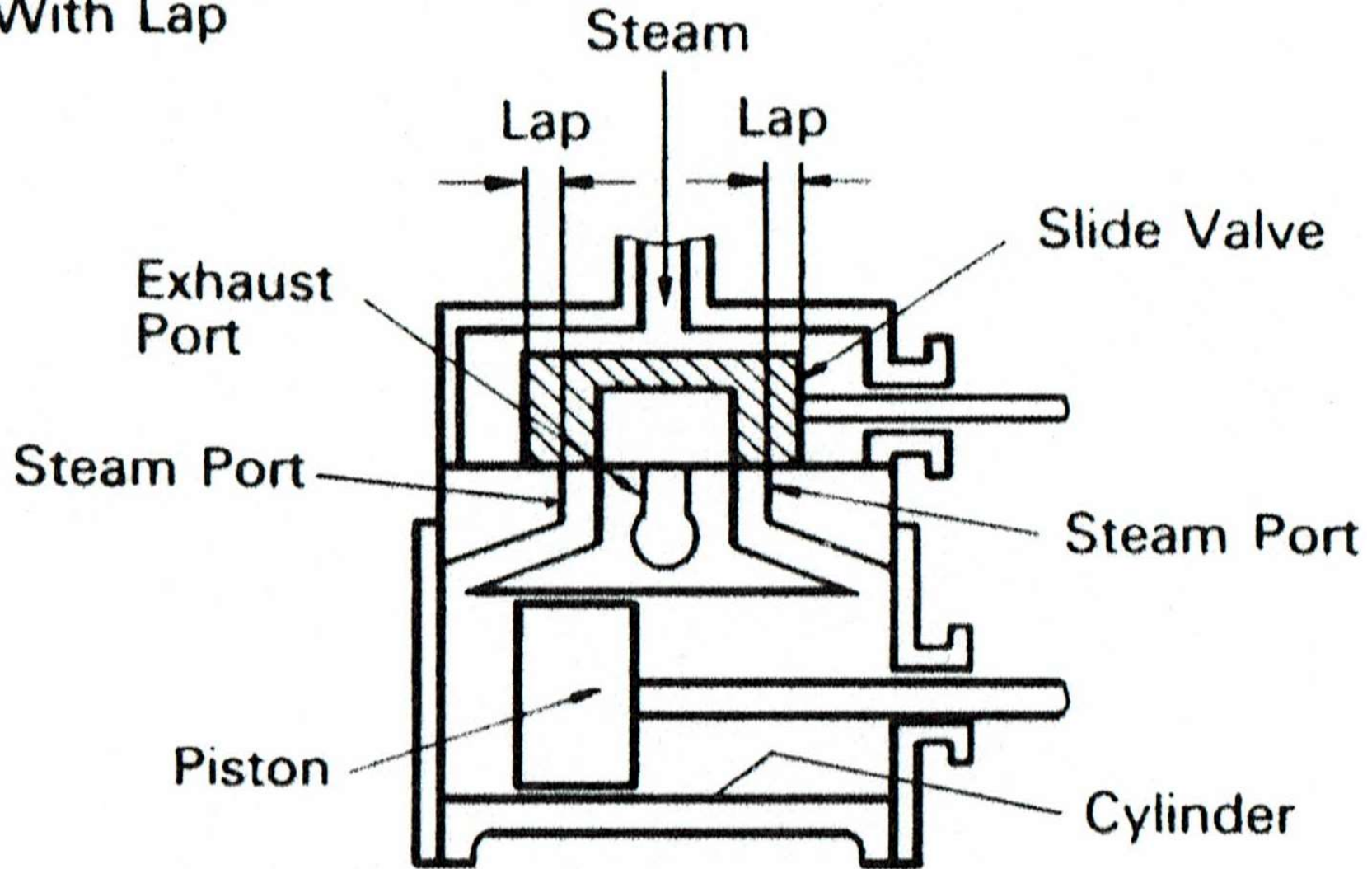
Lap & Lead

Slide Valve
Without Lap



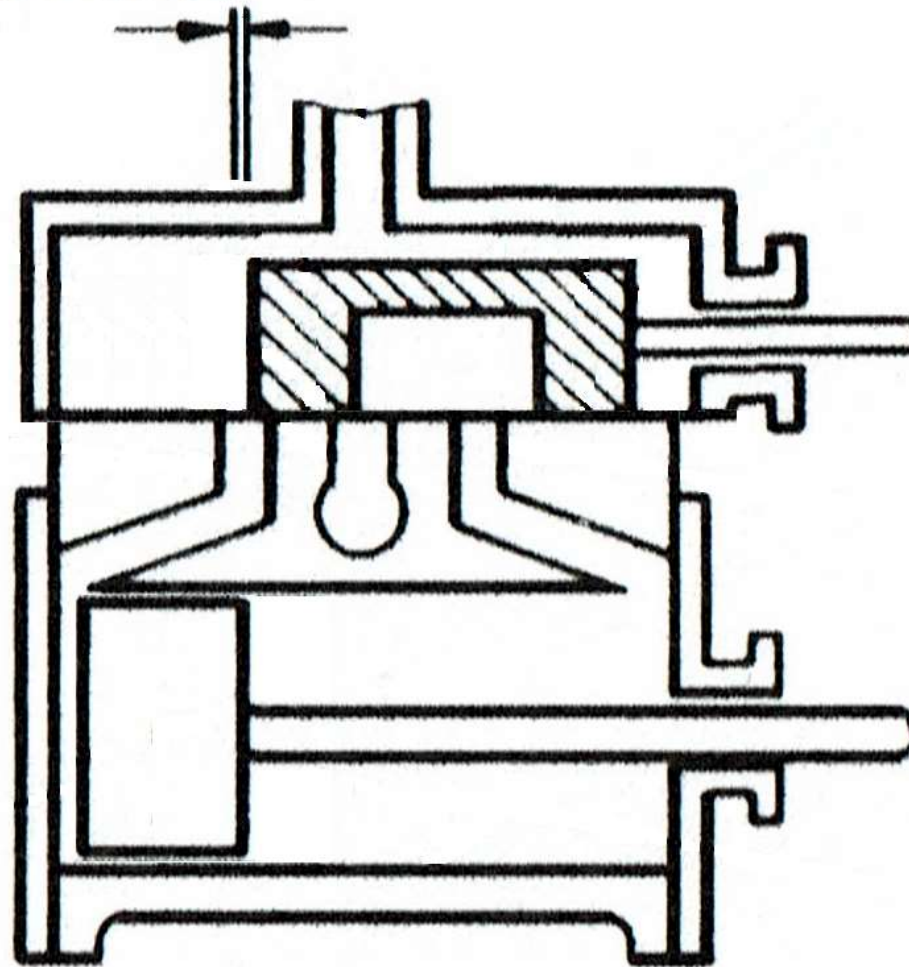
Lap & Lead

Slide Valve
With Lap

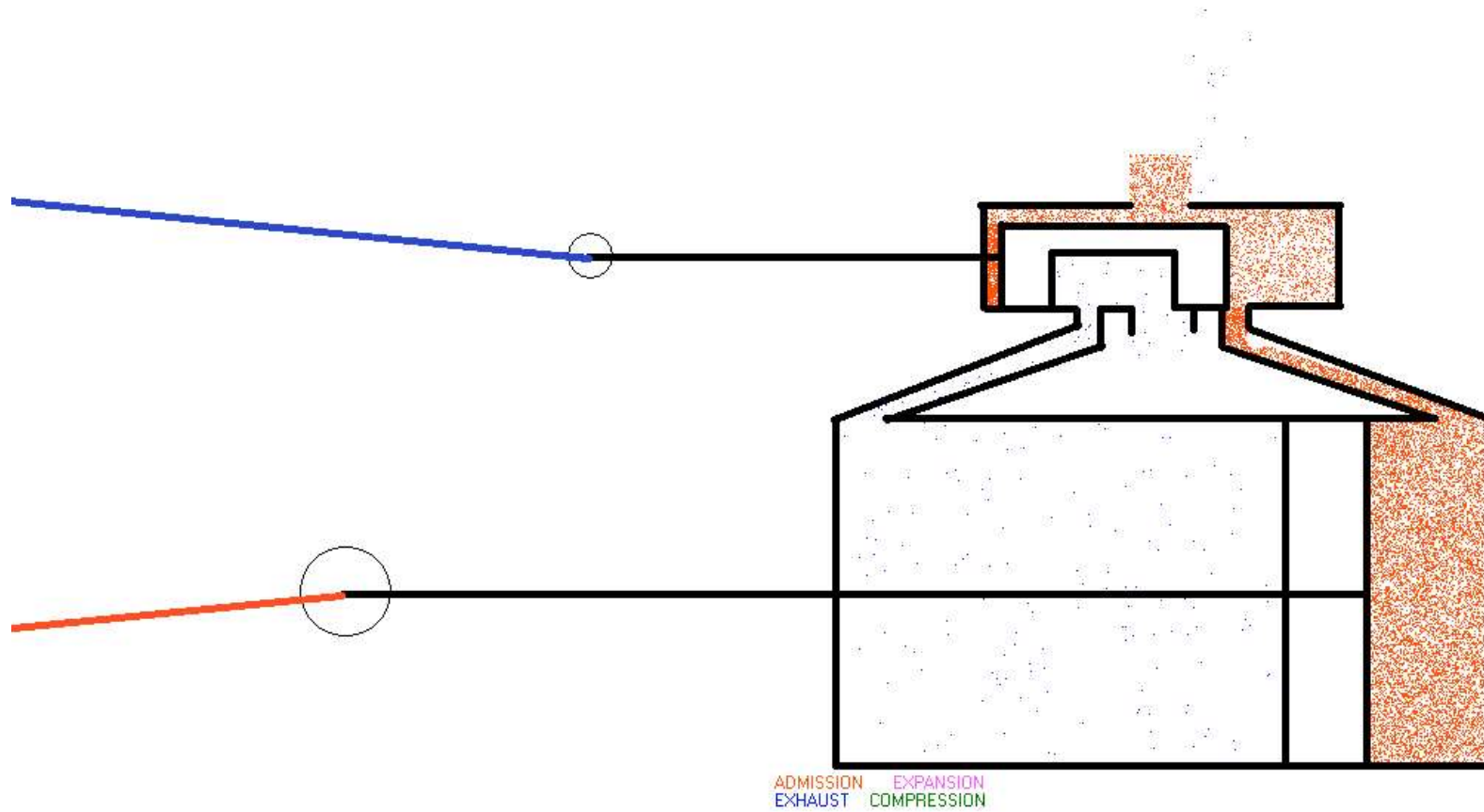


Lap & Lead

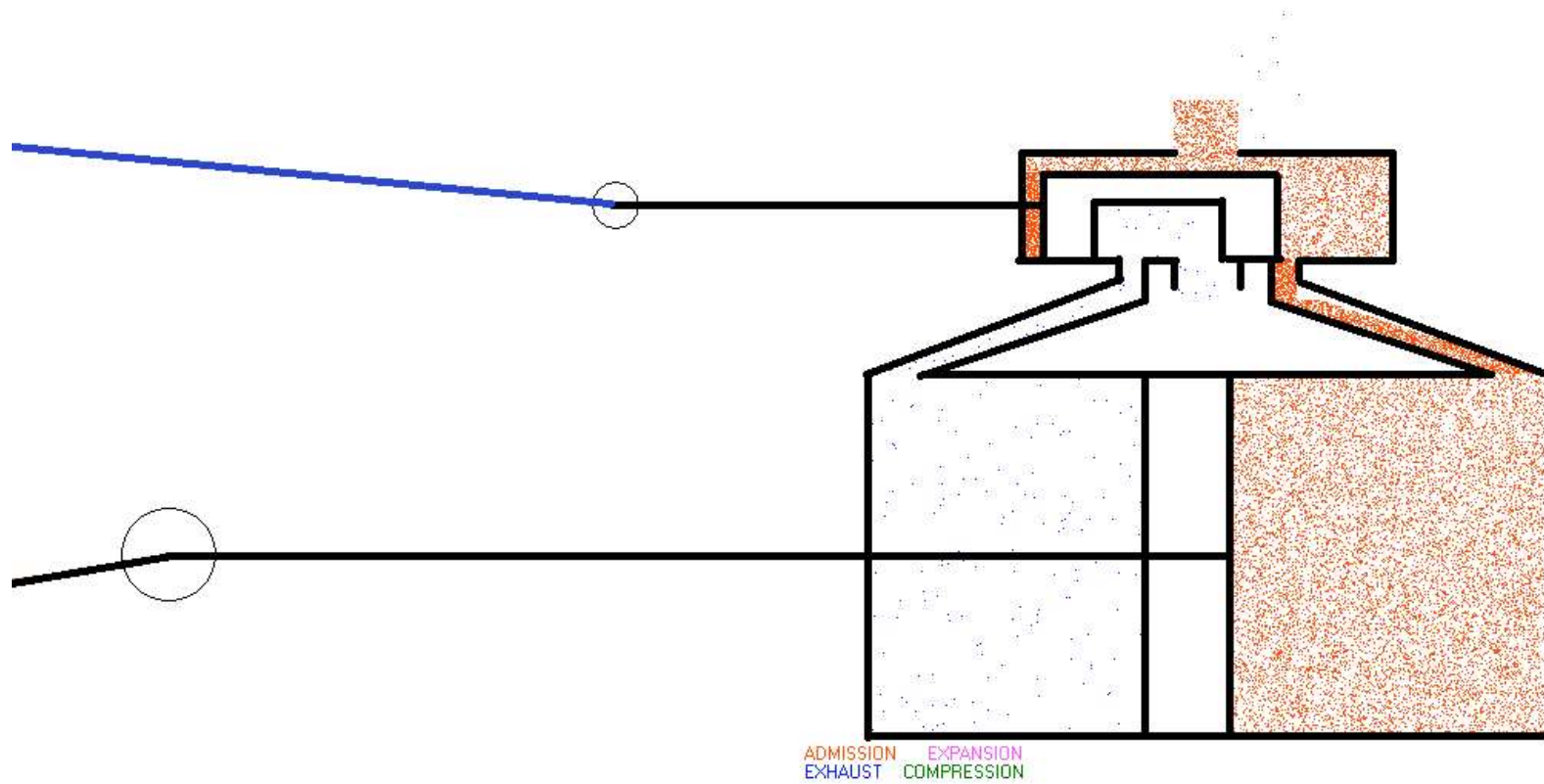
Slide Valve
With Lead



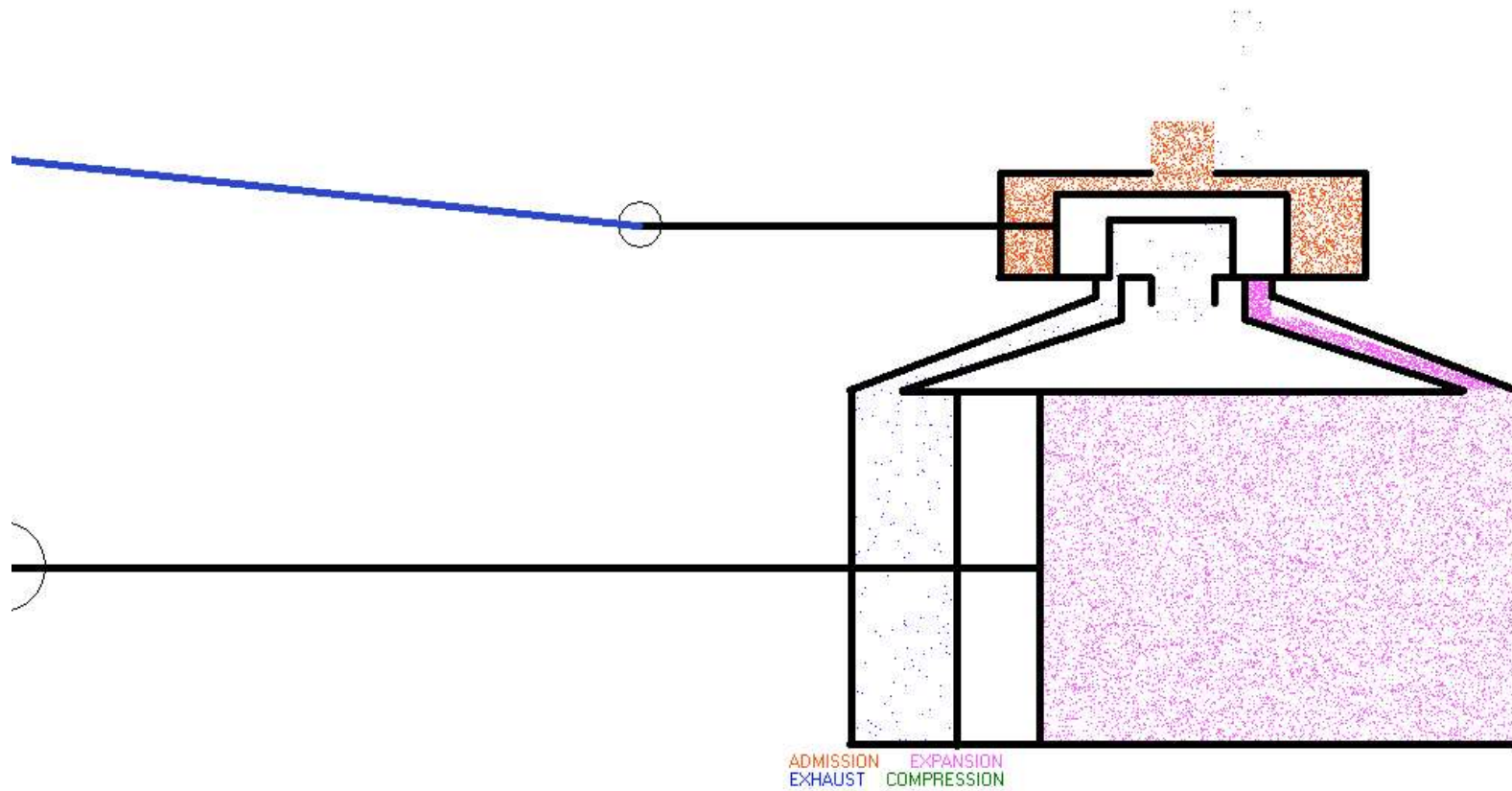
Lap & Lead



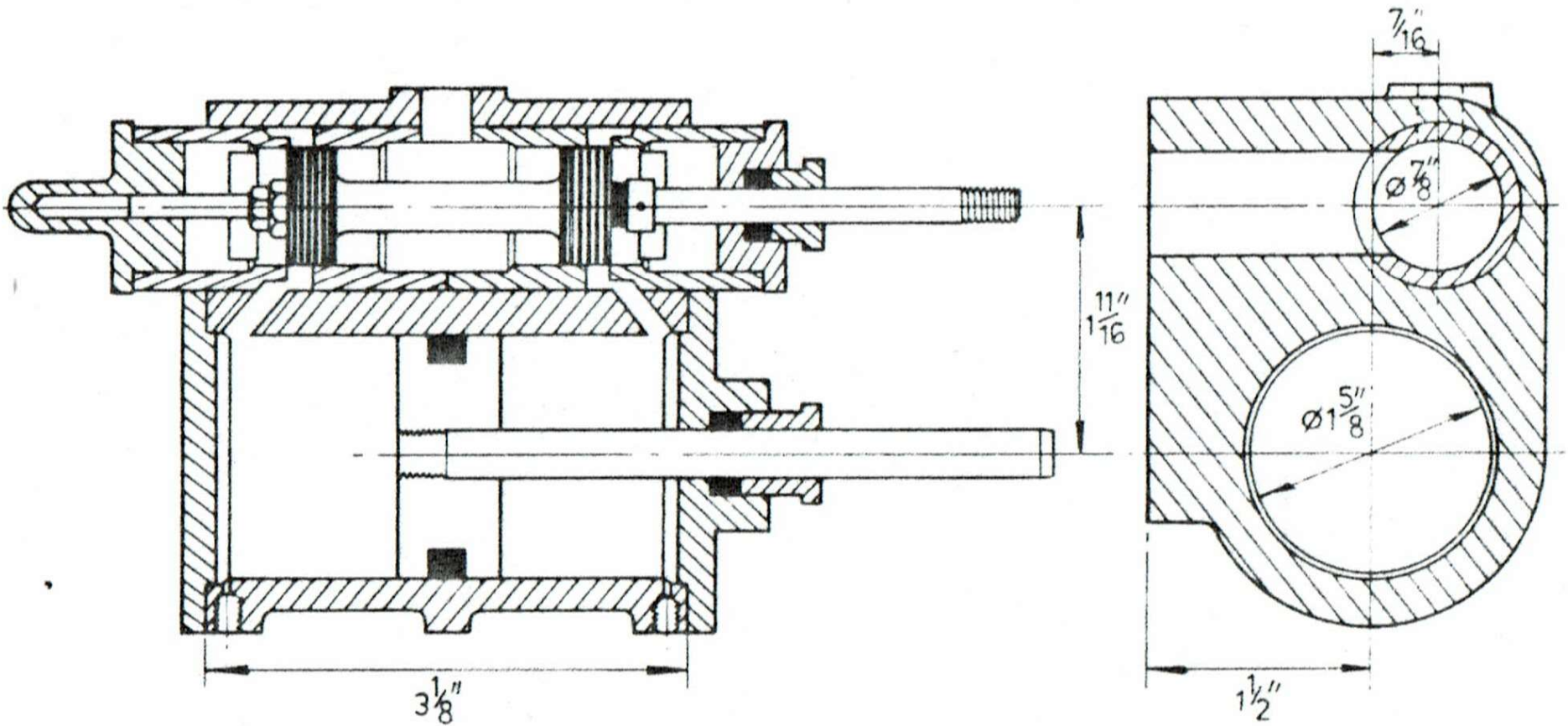
Lap & Lead



Lap & Lead



Piston Valves



PISTON VALVE CYLINDERS
for 5" gauge

Zeuner Diagram

ZEUNER VALVE DIAGRAM

Scaling Factor = 0.5
 0.5 1.0 2.0 5.0 10

Valve Travel = 0.500

Max Cutoff % = 80.0

Lead = 0.015

Steam Lap = 0.104
 Adv Ang Deg = 28.5

Exh Lap = 0.000

Exhaust % = 87.9
 Compression % = 6.1
 Admission % = 3.0

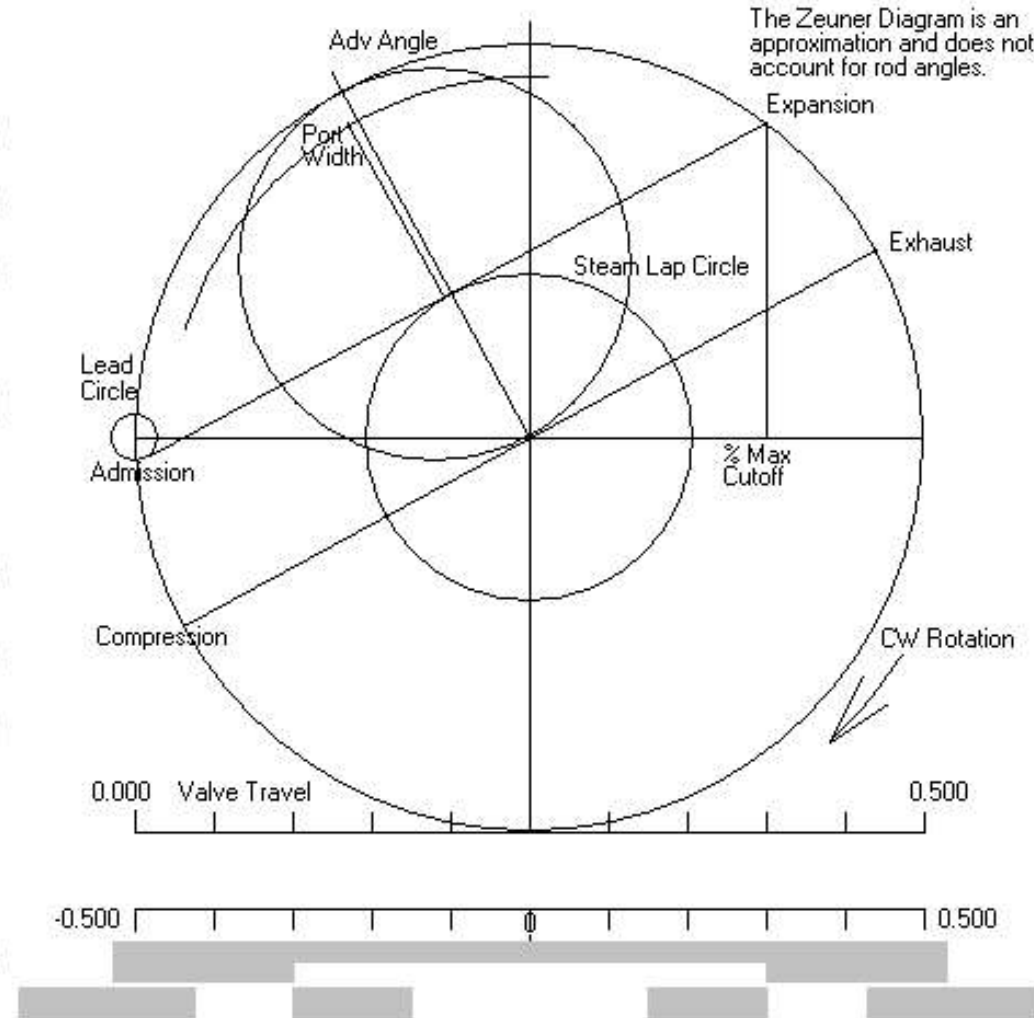
Port Width = 0.125

Bridge Width = 0.150

ExhPortWidth = 0.300

Valve Width = 1.058
 Valve Cavity = 0.600

ValvePosition = 0.000

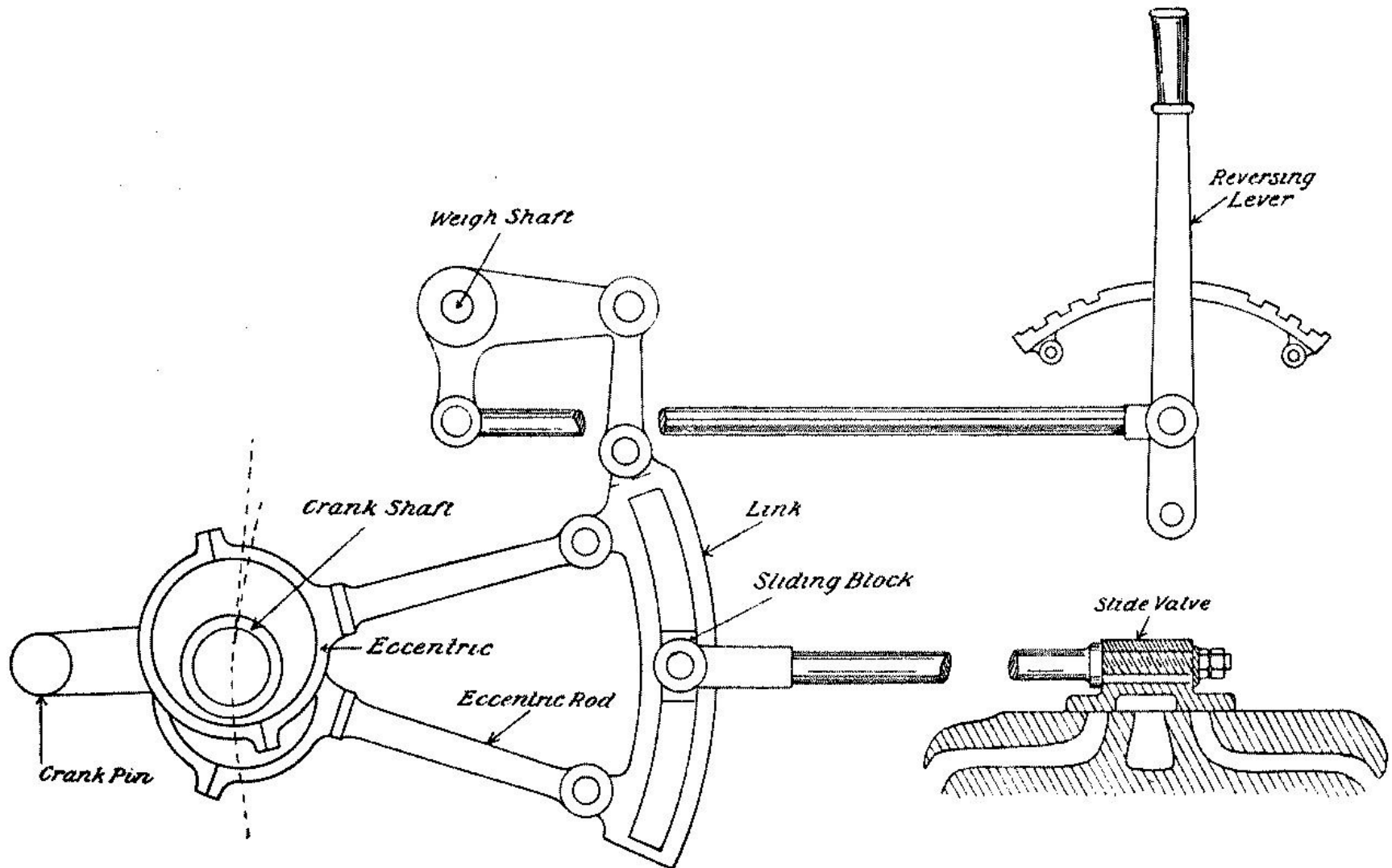


Valve Gears for Reversing

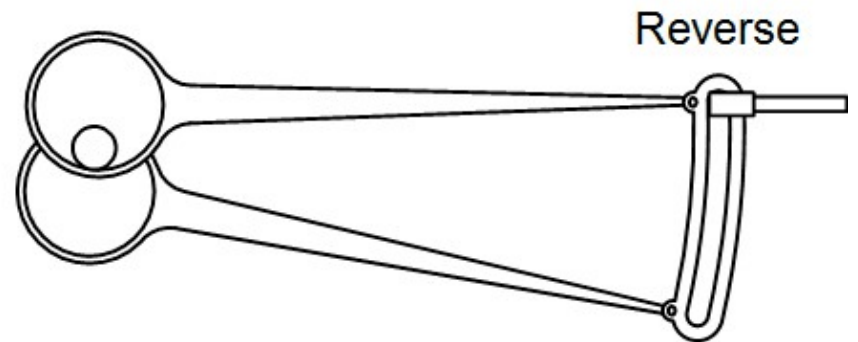
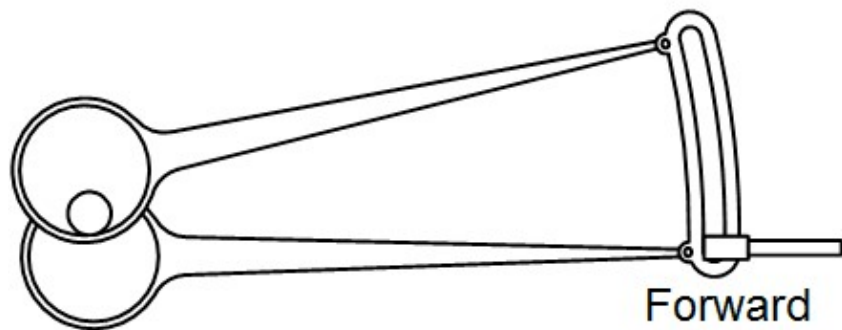
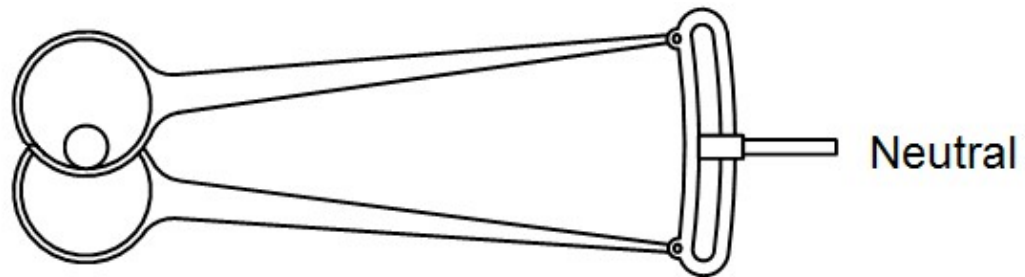
Stevenson

Walschaerts

Stevenson Reverse Gear



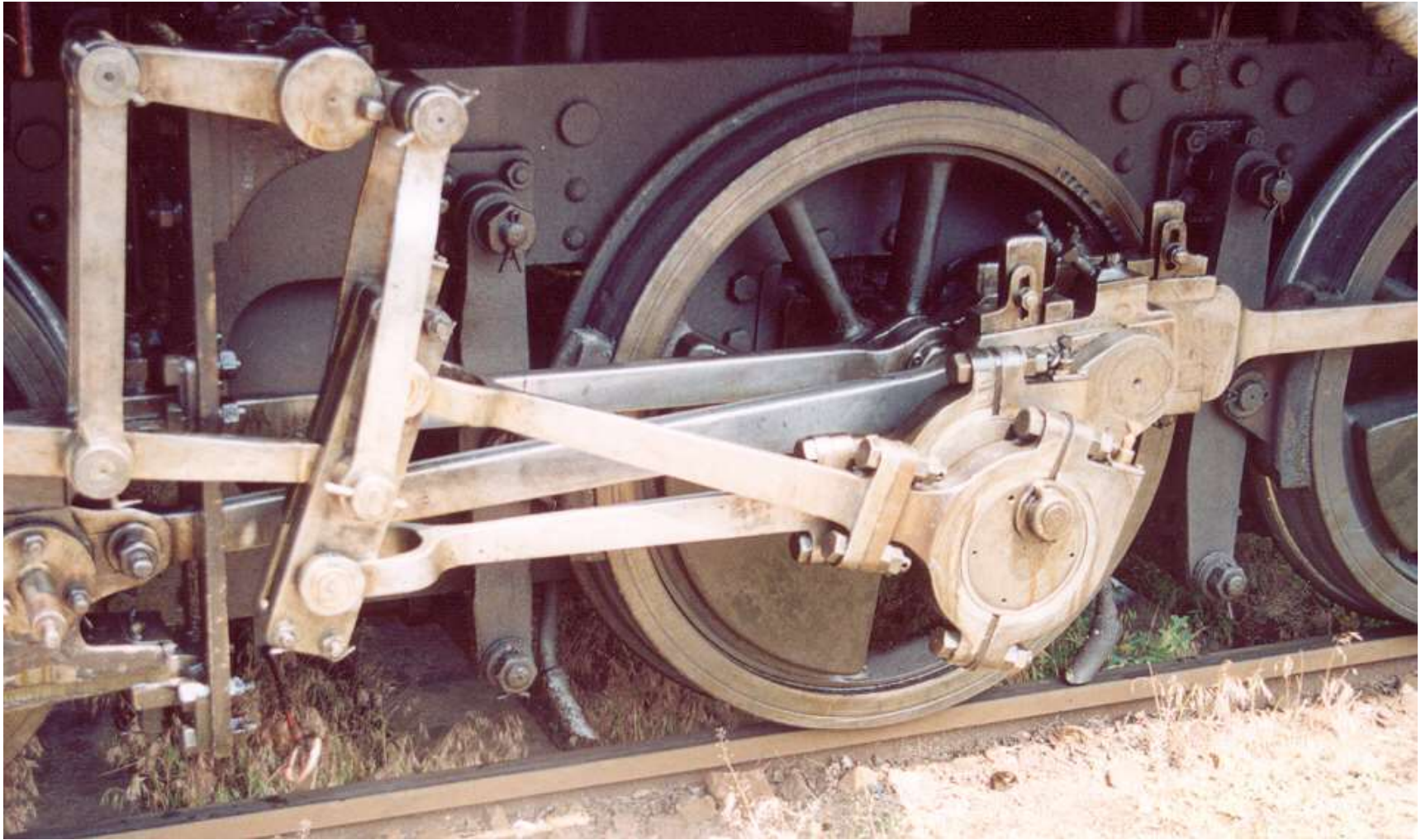
Stevenson Reverse Gear



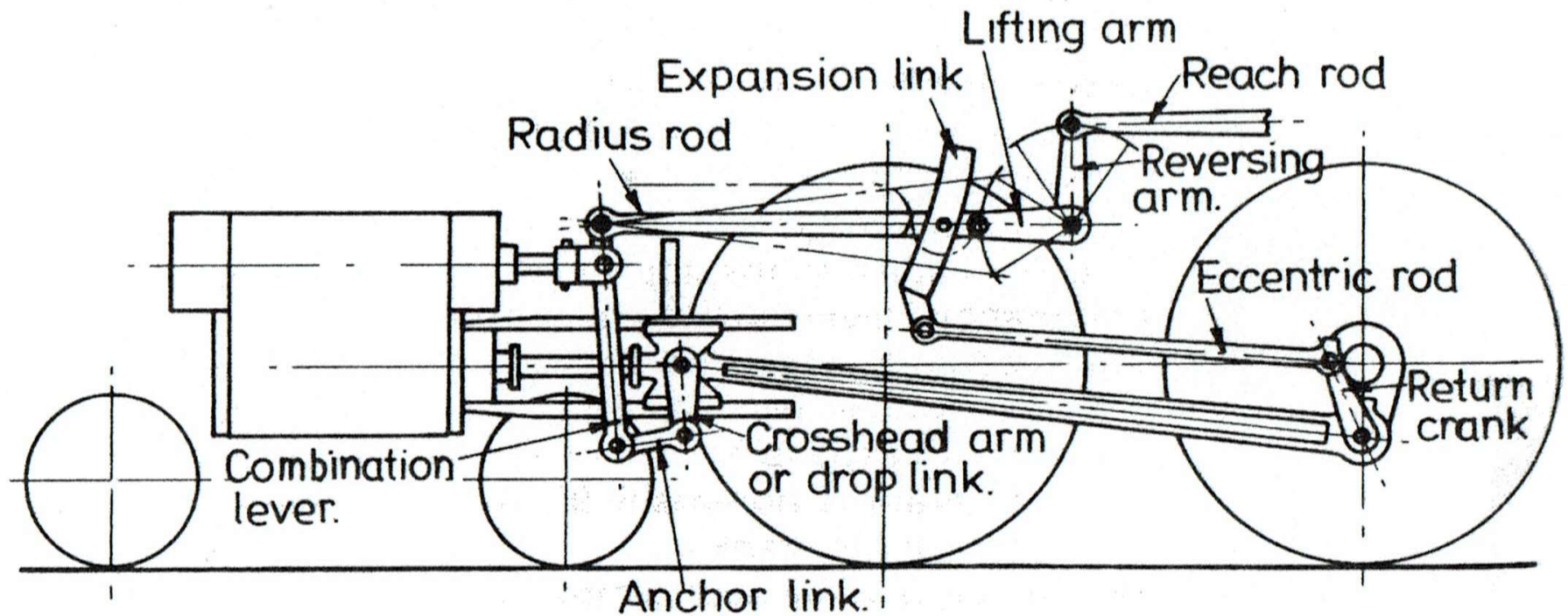
Stevenson Reverse Gear



Stevenson Reverse Gear



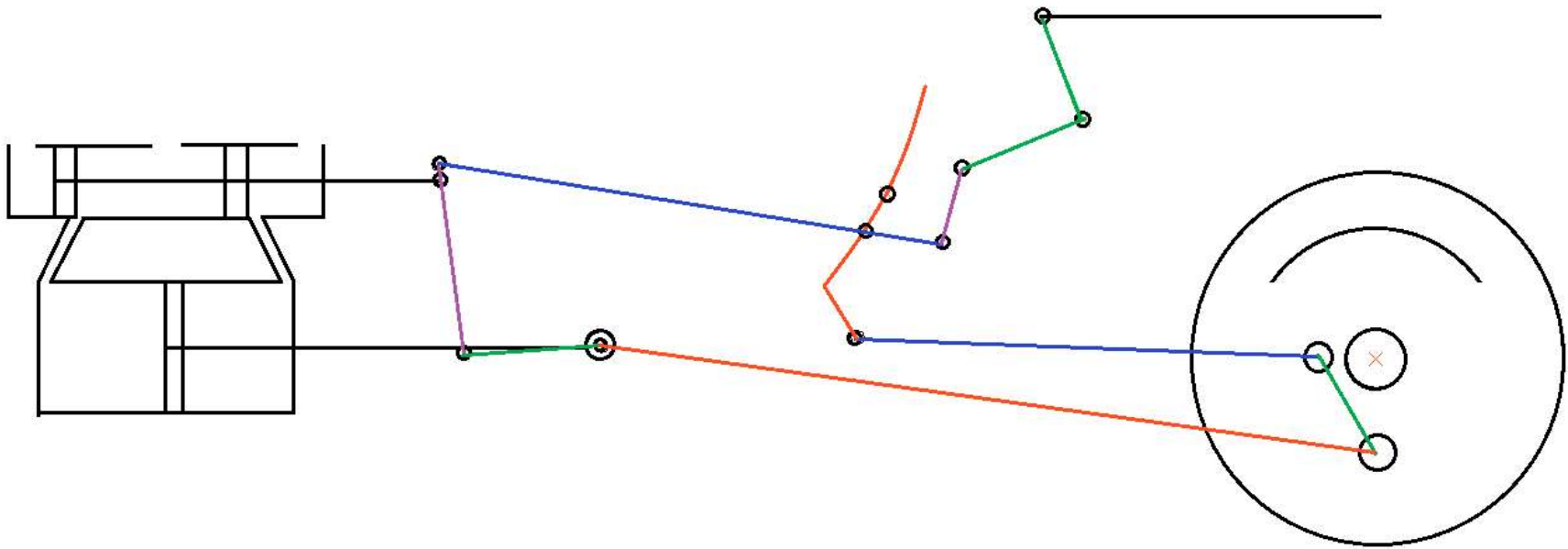
Walschaerts Valve Gear



WALSCHAERTS' VALVE GEAR FOR PISTON VALVE CYLINDERS.

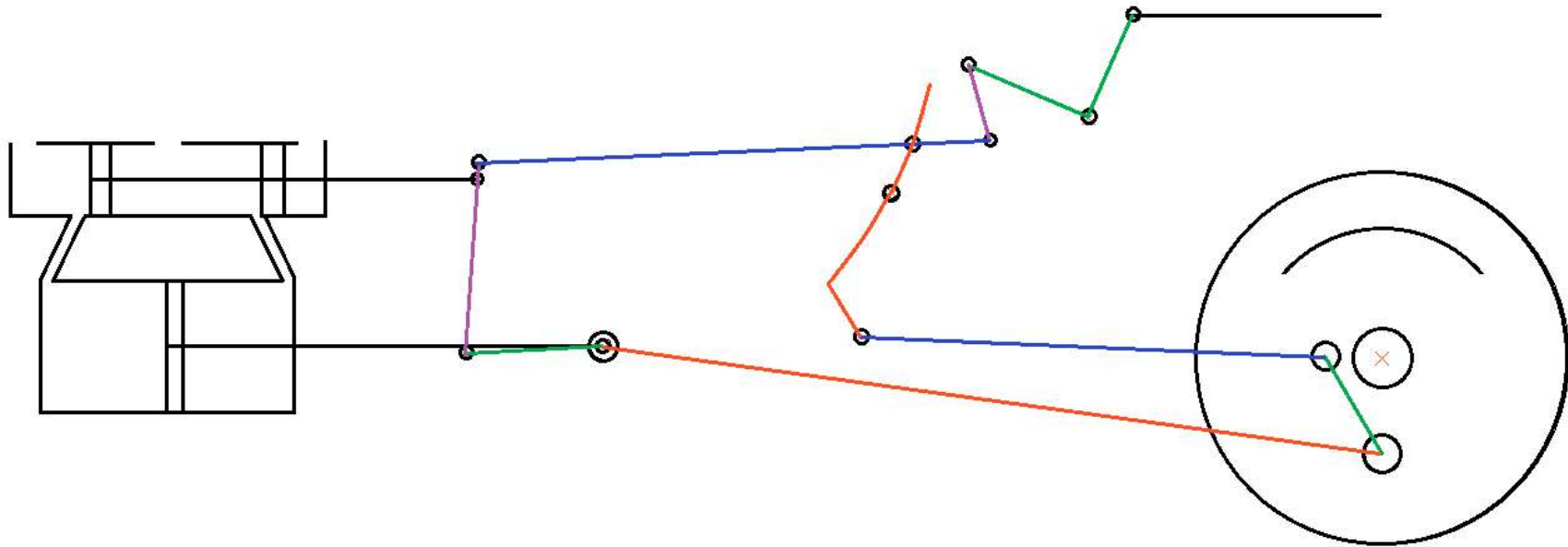
Walschaerts Valve Gear

Piston Valve, Forward Direction

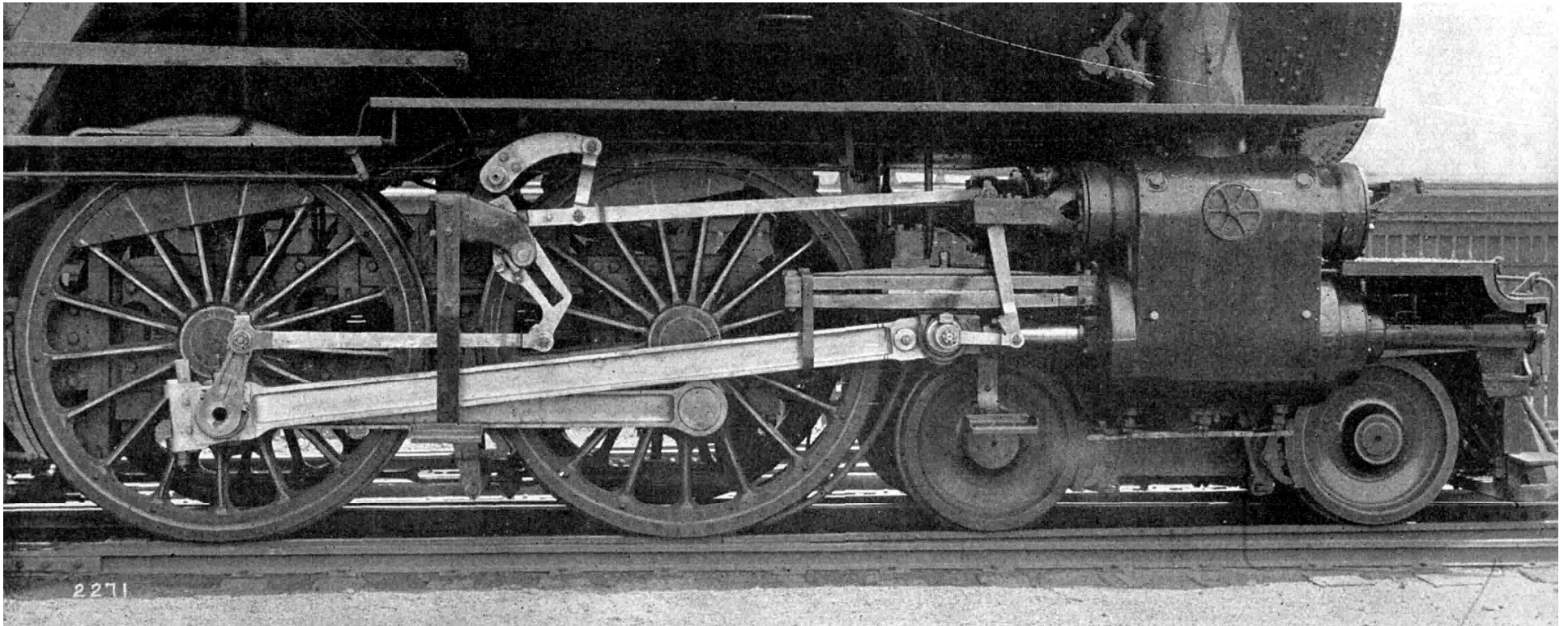


Walschaerts Valve Gear

Piston Valve, Reverse Direction



Walschaerts Valve Gear



Valve Gear Simulator

- Google search “charles dockstader valve gear”
- <http://www.billp.org/Dockstader/ValveGear.html>
- <http://www.bcwrr.org/Dockstader-Valve-Gear.html>
- Download ZIP all the files to a directory
- “Un” ZIP each file
- VGSTART.exe starts the simulator

Questions??