```mathematica
n = 1.0; R = 0.082057338; Th = 1000; Tc = 300; Vmin = 1; Vmax = 10; C1 = 0; C2 = Pi; C3 = Pi + 0.2; C4 = 2 Pi - 0.2; C5 = 2 Pi; Cv = 5 / 2;

ph[V_] := n R Th / (V + 1); pc[V_] := n R Tc / (V + 1);

point[t_] := {
  {Rescale[t, {C1, C2}, {Vmin, Vmax}], ph[Rescale[t, {C1, C2}, {Vmin, Vmax}]]}   C1 ≤ t < C2
  {Vmax, Rescale[t, {C2, C3}, {ph[Vmax], pc[Vmax]}]}                              C2 ≤ t ≤ C3
  {Rescale[t, {C3, C4}, {Vmax, Vmin}], pc[Rescale[t, {C3, C4}, {Vmax, Vmin}]]}   C3 < t < C4
  {Vmin, Rescale[t, {C4, C5}, {pc[Vmin], ph[Vmin]}]}                             C4 ≤ t ≤ C5

PV[t_] := Plot[{pc[V], ph[V]}, {V, Vmin, Vmax}, ColorFunction → Function[{x, y}, ColorData["TemperatureMap"][1 - x]],
  Epilog → {PointSize[0.015], Gray, Point[point[t]]},
  Prolog → {{Thick, ■, Line[{{Vmin, ph[Vmin]}, {Vmin, pc[Vmin]}}]}, {Thick, ■, Line[{{Vmax, ph[Vmax]}, {Vmax, pc[Vmax]}}]}},
  PlotStyle → {{Thick, Black}, {Thick, Black}}, PlotTheme → "Scientific", PlotLabel → "P-V diagram", FrameLabel → "Stirling Cycle",
  Frame → True, PlotRange → {{0, Vmax + 1}, All}, ImageSize → Medium, FrameTicksStyle → Directive[FontOpacity → 0, FontSize → 0]];

PV1[t_] := Plot[{pc[V], ph[V]}, {V, Vmin, Vmax}, ColorFunction → Function[{x, y}, ColorData["TemperatureMap"][1 - x]],
  Epilog → {PointSize[0.015], Gray, Point[point[t]]},
  Prolog → {{Thick, ■, Line[{{Vmin, ph[Vmin]}, {Vmin, pc[Vmin]}}]}, {Thick, ■, Line[{{Vmax, ph[Vmax]}, {Vmax, pc[Vmax]}}]}},
  PlotStyle → {{Thick, Black}, {Thick, Black}}, PlotTheme → "Scientific", PlotLabel → "P-V diagram", FrameLabel → "Stirling Cycle",
  Frame → True, PlotRange → {{0, Vmax + 1}, All}, ImageSize → Medium];

pumpFrame = {
  FaceForm[Gray], EdgeForm[Black],
  Disk[{0, 2}, 0.36],
  Disk[{0, 2}, 0.1],
  Red,
  Rectangle[{-.5, -.7}, {-.6, -.15}, RoundingRadius → .02],
  Rectangle[{.5, -.7}, {.6, -.15}, RoundingRadius → .02],
  Blue,
  Rectangle[{-.5, -.7 + 1.2}, {-.6, -.15 + 1.2}, RoundingRadius → .02],
  Rectangle[{.5, -.7 + 1.2}, {.6, -.15 + 1.2}, RoundingRadius → .02],
  RGBColor[.3, .3, .3],
  EdgeForm[Black],
  Rectangle[{-.5, -.75}, {-.45, 0.35 + 1}],
  Rectangle[{.5, -.75}, {.45, 0.35 + 1}],
  Rectangle[{-.5, -.75}, {.5, -.7}]
  };

Stir[t_] := Graphics[{Polygon[{{-.45, -.75}, {.45, -.75}, {.45, .3 Sin[t] + 1}, {-.45, .3 Sin[t] + 1}}, VertexColors → {Red, Red, Blue, Blue}],
  EdgeForm[{Black, Thick}],
  Gray,
  Rotate[Rectangle[{.3 Cos[t - Pi] * .87 - 0.05, .3 Sin[t] + 0.9}, {.3 Cos[t - Pi] * .87 + 0.05, .3 Sin[t] + 2.05}, RoundingRadius → 0.03],
    -0.3 Cos[t - Pi] * .87, {.3 Cos[t - Pi] + 0.05, .3 Sin[t] + 2.00}],
  Blue,
  Rectangle[{-0.45, -0.37 + .3 Sin[t] + 1}, {0.45, 0 + .3 Sin[t] + 1}],
  Gray,
  Rotate[Disk[{.3 Cos[t - Pi] * .87, .3 Sin[t] + 2.}, 0.005], -0.3 Cos[t - Pi] * .87, {.3 Cos[t - Pi] + 0.05, .3 Sin[t] + 2.00}],
  Rotate[Disk[{0, .3 Sin[t] + .95}, 0.005], 0, {.3 Cos[t - Pi] + 0.05, .3 Sin[t] + 2.00}], pumpFrame,
  EdgeForm[{Black, Thick}],

  Rotate[Rectangle[{.3 Cos[t - Pi + Pi / 2] * .5 - 0.05, .3 Sin[t + Pi / 2] - .1}, {.3 Cos[t - Pi + Pi / 2] * .5 + 0.05, .3 Sin[t + Pi / 2] + 2.05},
    RoundingRadius → 0.03], -0.3 Cos[t - Pi + Pi / 2] * .5],
  RGBColor[Red],
  Rectangle[{-0.4, -0.37 + .3 Sin[t + Pi / 2]}, {0.4, 0 + .3 Sin[t + Pi / 2]}, RoundingRadius → 0.03],
  Rotate[Disk[{.3 Cos[t - Pi + Pi / 2], .3 Sin[t + Pi / 2] + 2.}, 0.005], -0.3 Cos[t - Pi + Pi / 2], {.3 Cos[t - Pi + Pi / 2], .3 Sin[t + Pi / 2] + 2}],
  Disk[{0, .3 Sin[t + Pi / 2] - 0.05}, 0.005]

  }, ImageSize → Medium]

Str1[t_] := Stir[t - Pi / 2]

work[Vmax_, Vmin_] := Integrate[ph[V] + pc[V], {V, Vmin, Vmax}]; eff[Tc_, Th_] := 1 - Tc / Th;

Animate[PV[t], {t, C1, C5, AnimationRate → 0.5}]

Animate[Str1[t], {t, C1, C5, AnimationRate → 0.5}]

Manipulate[Grid[{{PV1[t], Str1[t]}, {Text[Style[Row[{"Efficiency:"}]]] × Text[Style[Row[{eff[Tc, Th] * 100, " %"}]]]},
  {Text[Style[Row[{"Work per cycle:"}]]] × Text[Style[Row[{work[Vmax, Vmin], " J"}]]]}}], {Vmin, 1, Vmax - 1}, {{Vmax, 10}, Vmin + 1, 40},
  {{Tc, 300}, 300, 500}, {{Th, 1000}, Tc + 1, 2000}, Control[{{t, 0, "cycle progress"}, C1, C5, Animator, AnimationRunning → False, AnimationRate → .5}]]
```