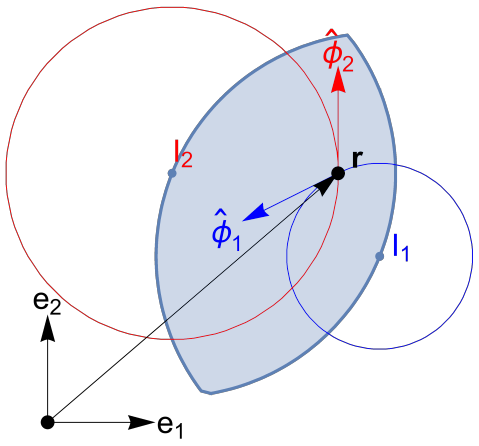
Figure for amperesLawBetweenTwoCurrents.eps. Circles surrounding two currents, with respective phicap vectors around those sources.

```
<< peeters` ;
peeters`setGitDir[ "../project/figures/GAelectrodynamics" ]
```

```
/Users/pjoot/project/figures/GAelectrodynamics
```

```
ClearAll[o, e1, e1, stuff, fs, bold, rot90, plot1]
o = {0, 0};
{e1, e2} = IdentityMatrix[2];

rot90 = RotationMatrix[Pi / 2];
bold = Style[ #, Bold] &;
fs = Style[ #, FontSize → 16] &;

stuff[center_, boundingPt_, idx_, color_, one_] :=
  Module[{radius, r, rcap, phicap},
   r = boundingPt - center;
   rcap = r // Normalize;
   phicap = rot90.rcap;
   radius = r // Norm;
   {
    color,
    Circle[center, radius],
    Text[Subscript["I", idx] // fs, center + 0.15 Normalize[center]],
    Arrow[ {boundingPt, boundingPt + phicap one}],
    Text[Subscript[OverHat["ϕ"], idx] // fs, boundingPt + phicap one 1.15]
   }];

plot1 = Module[{p1, p2, (*p3,*)r, range, one, rr, range2},
  p1 = {2, 1};
  p2 = {1, 2} 0.75;
  rr = Norm[p1 - p2];
  (*p3 = {2,2};*)
  r = {1.75, 1.5};
  range = {-0.5, 2.75};
  range2 = 10;
  one = 0.65;
  Show[{

    RegionPlot[
     (x - p1[[1]]) ^ 2 + (y - p1[[2]]) ^ 2 < rr ^ 2 &&
      (x - p2[[1]]) ^ 2 + (y - p2[[2]]) ^ 2 < rr ^ 2
     , {x, -1, 3}, {y, -1, 3}, Ticks → None, Frame → None],
```

```
    ListPlot[ {p1, p2},
     AspectRatio → 1, PlotRange → {range, range}, Ticks → None],
    Graphics[
     Flatten[
      {
       stuff[p1, r, 1, Blue, one],
       stuff[p2, r, 2, Red, one],
       {
        Black,
        Arrow[{o, r}],
        Arrow[{o, e1 one}],
        Arrow[{o, e2 one}],
        Text["r" // bold // fs, r + 0.15 Normalize[r]],
        Text[Subscript["e", 1] // fs, e1 one 1.15],
        Text[Subscript["e", 2] // fs, e2 one 1.15],

        PointSize → 0.02,
        Point[{o, r}]
       }
      },
      1]
    ]
   }]
]
```



```
peeters`exportForLatex["amperesLawBetweenTwoCurrentsFig1", plot1]
```

```
{amperesLawBetweenTwoCurrentsFig1.eps, amperesLawBetweenTwoCurrentsFig1pn.png}
```