Problem of the Week-2: A Conic Section

Ibrahim b. Sinan, a 10th century mathematician (908-946), describes a conic section as follows:

Let A be the center of a given circle and B be any point outside this circle. Consider the collection of all points X so that X is the center of a circle tangent to the given circle and passing through B. This collection is one branch of a conic section.

What conic section is described here? As always, explain and justify your answer.