Turrets Placement using DFS Traversal

As the legend goes, the benevolent guardian of the castle needs you to install multiple conscious guardian turrets to protect their castle. The problem is that these turrets do not like one another, which means that they have to be positioned such that no two turrets can see one another. Write a program called place_turrets. py that takes the filename of a map in the same format as Part 1 as well as a single parameter specifying the number k of turrets that you have. You can assume k ≥ 1. Assume two turrets can see each other if they are on either the same row, column, or diagonal of the map, and there are no walls (defined by ' X') between them. A turret can only be positioned on empty squares (marked with .). It's okay if turrets see you (you are defined by '@'), and you obscure the view between turrets, as if you were a wall (they won't attack you). Your program should output a new version of the map, but with the turrets' locations marked with p. Note that exactly one p will already be fixed in the input map file. If there is no solution, your program should just display False. Here's an example on the same sample output

Map1.txt

```
....XXX
.XXX...
....X..
.X.X...
.X.X.X.
pX...X@
```

```
[<>djcran@silo ~] python3 place_turrets.py map1.txt 5
....XXX
.XXXp..
.p..X..
.X.X...
.X.X.Xp
pX.p.X@
```