

is required to enable it to mount even a slight gradient, and all this energy is wasted in heat and friction on the brakes in ascending the next grade. The extra amount of energy consumed by an electrically-driven train in mounting a gradient could again be utilized in descending the next gradient, because the descending train, moving at a high velocity, instead of having its speed checked by the use

THE GREAT ROSE-TREE.

The oldest rose-bush in the world is found at Hildesheim, a small city of Hanover, where it emerges from the subsoil of the Church of the Cemetery. Its roots are found in the subsoil, and the primitive stem has been dead for a long time, but the new stems have made a passage through a crevice in the wall, and cover almost the entire church with their



HILDESHEIM CATHEDRAL, AND OLD ROSE TREE.

of brakes, could turn a switch in such a direction as to convert the motors themselves into generators, which would actually send a current into the line which would be available for the use of other trains. The storing of energy developed by a descending train has always been a desideratum; it is quite impracticable to use it with steam-driven trains, while it is considered a very simple matter in trains that are driven by a cable or by electricity."

branches for a width and height of forty feet. According to tradition, the Hildesheim rose-bush was planted by Charlemagne in 833, and the church having been burned down in the eleventh century, the root continued to grow in the subsoil. Mr. Raener has recently published a book upon this venerable plant, in which he proves that it is at least three centuries of age. It is mentioned in a poem written in 1690, and also in the work of a Jesuit who died in 1673.