pounds per square inch, connected with tapering screw ends, and wrought-iron couplings.

For special curves, bends, and other details, cast-iron was used.

Valves were placed in various positions, in the same manner as in gas, and water works, so as to be able to turn off the supply of steam where-ever necessary.

PROTECTION AGAINST CONDENSATION.

This is the vital point of the system, and condensation was guarded against in two ways; first, by protecting the pipes by non-conducting materials, and, secondly, by keeping them dry, when underground.

The pipes were prepared as follows: The naked pipes were held in a lathe, and were wrapped with the following materials:

1. Sheet asbestos about $\frac{1}{8}$ of an inch thick, one thickness.

2. Porous felt paper, two or three thicknesses, or hair felt $\frac{1}{2}$ inch thick.

3. Manilla paper, one thickness (sufficiently strong to stand handling covered pipes, and not to tear).

4. Wooden strips, about $\frac{3}{4}$ inch broad by $\frac{1}{8}$ inch thick.

Three or four of these strips were laid slightly spirally around the pipe, forming spacing pieces. Copper wire was used to bind the strips, and string for the other coverings.

The outside casing of all was made of solid square pine logs, bored out about two inches larger than the diameter of the pipe, the thickness of the wooden shell being in no place less than three or four inches; the ends of the wooden pipes were made to fit into each other. When the iron pipes, duly protected, were put inside the wooden log, the spacing pieces left an air space all round, and allowed the iron pipe to expand and contract freely, by changes of temperature, while the logs were securely anchored and immovable.

(In the System at Belleville, Ill., the mains were not wrapped at all, but dependence made entirely upon air spaces inside wooden casings.)

Keeping the pipe casings dry, when underground, was effected by placing a tile drain, three or four inches in dia-