

**Utilization of Garbage.**

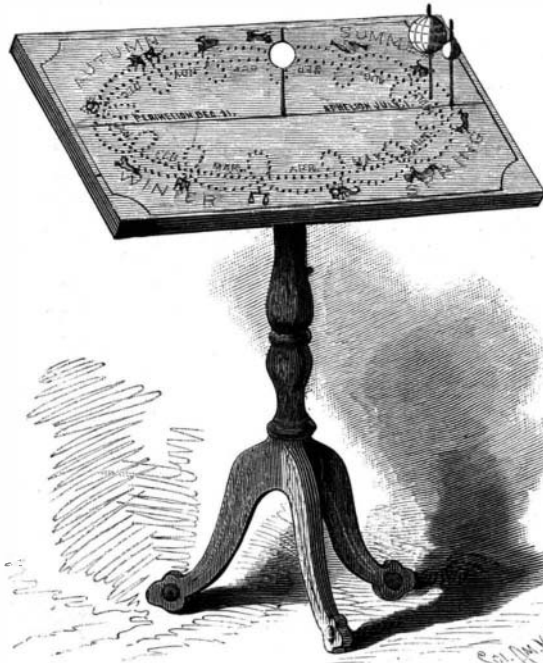
The process of garbage disposal is, according to the *American Architect*, probably carried on now with greater perfection in St. Louis than anywhere else in the world. In the new establishment just completed there, at a cost of nearly a quarter of a million dollars, by the company which holds the contract for disposing of the garbage of the city, the carts bringing the material ascend an inclined plane to the third story of the receiving building, where they discharge into enormous vertical cylinders, which are surrounded by steam jackets. Superheated steam is forced into the jackets, and the water, which constitutes from 75 to 80 per cent of the garbage, is thus evaporated, or rather distilled off, the vapor being condensed, and the condensed water, which is perfectly harmless, and even drinkable, allowed to run off to the sewer.

At a certain stage of the drying, naphtha is pumped into the cylinders and allowed to remain there for thirty or forty hours. This dissolves out all the fats, oil, and grease from the mass. Other chemicals are said to be mixed with the naphtha, but this is probably for the sake of mystification, the naphtha alone being quite sufficient for the purpose. After the proper time has elapsed, the naphtha, with its dissolved oil, is pumped out again into stills, where it is distilled by steam heat, the volatile naphtha being allowed to run back from the condensers into the storage tanks, while the fat, which is left in the stills as a brown, oily mass, is drawn off into barrels. It may be bleached, so as to be perfectly white, and it is said that the pure and delicate Ivory soap, which has gained such popularity all over the country, was originally made of refined garbage grease, before it was found advisable to use cottonseed oil instead. After extracting the grease, the residuum in the cylinders is dried a little more, the last vestiges of naphtha being driven off in the process, and is then removed through a door at the bottom. It is now a brown mass, free from all unpleasant odor, and apparently dry, although it still contains 5 or 6 per cent of water. As it has not been heated sufficiently to cause destructive distillation of the solid portions, it contains practically all the nitrogen of the fresh garbage, with, of course, all the alkalies and phosphates; and, after grinding coarsely and packing in barrels or bags, it commands a ready sale all over the United States. The dealers usually analyze a sample and fix their price mainly in accordance with the proportion of nitrogen found in the sample; but the St. Louis "garbage tankage," as it is called, readily brings in

New York and Boston from nine to twelve dollars a ton, and the demand for it far exceeds the supply.

**AN IMPROVED TELLURIAN.**

This tellurian is more especially designed for use in schools, to show without much trouble, and in a very effective manner, the causes of the seasons and the

**NICHOLS' TELLURIAN.**

relative positions of the sun, earth, and moon. It has been patented by Mr. Grant B. Nichols, of Wapakoneta, Ohio. It comprises an inclined table on a suitable stand, with a central recess, in which is a rod carrying a ball representing the sun, around which is a series of 365 apertures, made in the surface of the table in an ellipse, representing the path of the earth around the sun. These apertures are preferably numbered according to the days in the month, the names of which appear at their respective places, and a vertical rod carrying a globe representing the earth is designed to be placed in one of the apertures. Another series of apertures, also preferably marked or numbered, represent the path of the moon relative to the elliptical path

of the earth, a rod carrying a ball representing the moon being placed in one of these apertures. The rod carrying the ball representing the earth may at any time be inserted on the proper date in the aperture provided for it, the rod carrying the moon being likewise placed in correct position, when the relative positions of the different bodies will be practically illustrated. The apertures for the rod carrying the ball representing the earth are all of the same depth, but those in the path of the moon are of different depths, so that the moon's orbit about the earth is not so much inclined as the earth's orbit about the sun, the moon being thus always represented in the proper position relative to the earth and sun.

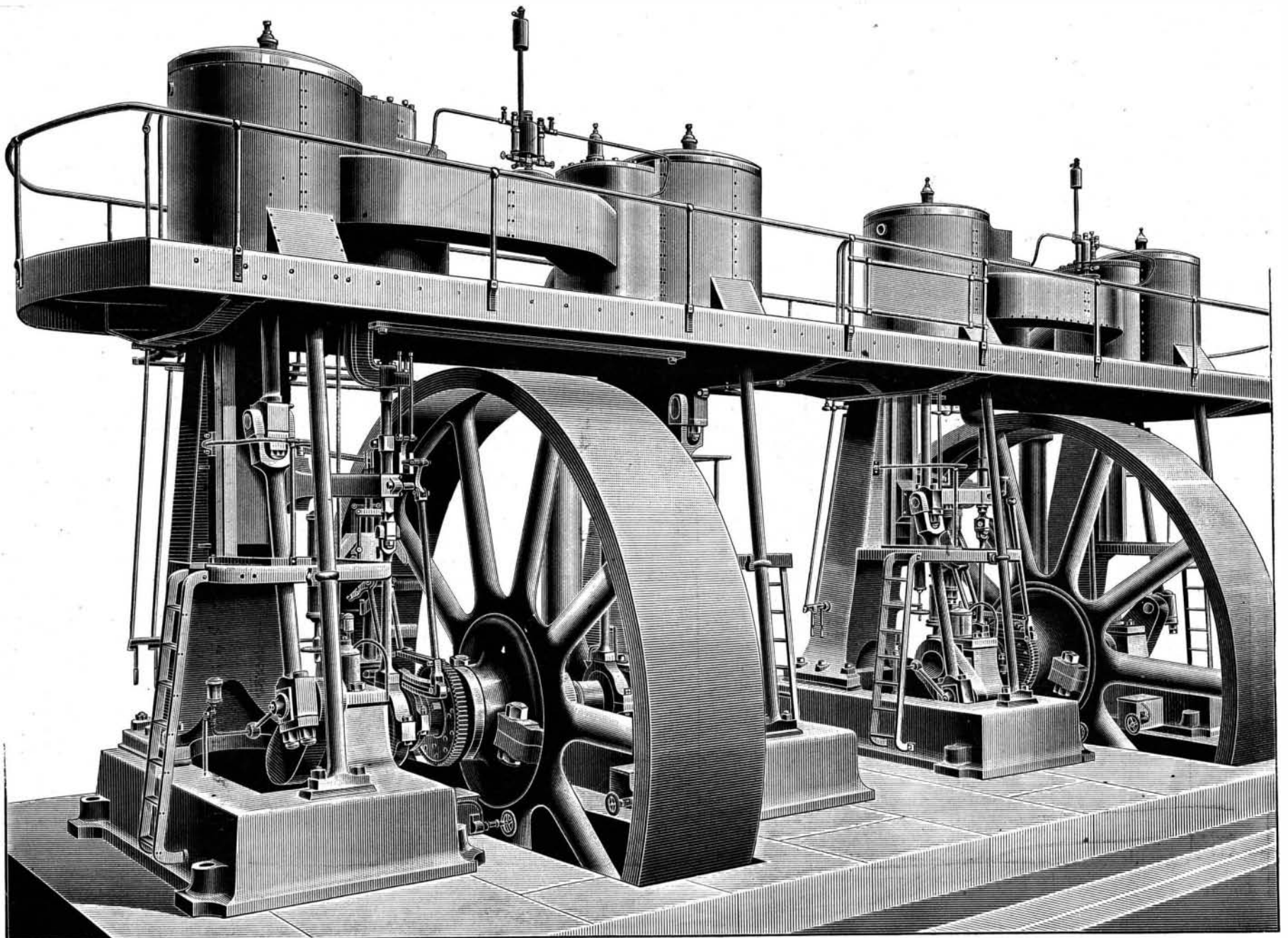
**ELECTRIC LIGHT ENGINES, MANCHESTER CORPORATION.**

We illustrate the engines constructed by Messrs. Galloways, Limited, for the Manchester corporation.

We are indebted to the *Engineer*, London, for our engraving and the following particulars:

The engines are arranged at either side of a gangway, this gangway giving access to the upper staging of all the engines in the installation. The steam pipes below are in duplicate, as also are the steam valves on the boilers and the stop valves on the engines, so that either series may be used at will. The lower pipe over the gang way is the water supply from the tank over the boiler house; this pipe supplies the Korting ejector condensers. The engines have high pressure cylinders 17 inches diameter, low pressure 34 inches diameter, with a piston stroke of 3 feet, and they are intended to run at a varying speed of from 75 to 90 revolutions per minute. The admission of steam is controlled by expansion valves arranged in accordance with Messrs. Galloway's plans, the gear consisting of a block working in a slotted link directly in connection with the governor. The governor is of the parabolic type adopted by Messrs. Galloway some years ago with unequivocal success, but in this case a portion of the center weight has been removed and a spring substituted to give a varying load. Both cylinders are steam jacketed, and a receiver is formed round the jacket of the high pressure cylinder, so that the two cylinders have apparently the same diameter.

THERE are 11 American cities that spread over more territory than Paris, while Berlin is exceeded in area by 17 of our cities.

**IMPROVED COMPOUND ELECTRIC LIGHT ENGINES.**