SNOW MELTING AND UNDERGROUND CONDUITS.

How to dispose of the snow: This is one of the most serious problems connected with the comfort and convenience of a great city in this latitude. Many ways of disposing of the snow in the streets have been proposed, but, with a single exception, we believe the only method heretofore adopted to any extent, other than the slow and very costly method of allowing the sun to melt it, is the old way of carting it off. This we all know is exceedingly costly and inconvenient. The single exception, we understand, is found in London, and consists in digging at convenient points in the street suitable pits, connected with the sewer, placing steam coils therein, and carting the snow thereto. This, by shortening the length of the haul of the snow, undoubtedly lessens and expedites the task of its removal. This task, coming, as it usually does, suddenly and unexpectedly, is always great, and sometimes herculean.

Still, with the extensive steam supply plants existing in most cities, it would seem that nothing like a snow blockade of our streets ought any longer to be experienced; for, as we took occasion to say on the 23d of last January:

"The use of steam for removing snow is feasible; both in a practical and economical point of view.

"To melt a ton of snow when the latter is at a temperature of 20° F. will require an expenditure of 147·4 heat units × 2,000 = 294,800 heat units. Each pound of steam used will deliver 966·5 heat units while becoming condensed to water at 212° F.; therefore $\frac{294,800}{966·5} = 305$ would be the pounds of steam required to reduce a ton of snow to water at 32° F., exclusive of all waste.

"If an effective evaporation of 6 lb. of water per pound of coal could be secured, which is only about half what is now obtainable from well-constructed and housed boilers, we should have $\frac{305}{6} = 50\frac{5}{6}$ pounds, say 51 lb. of coal required to do the work.

"Now, as to the economy, we have for a ton of snow removed the cost of 51 pounds of coal or about one-fortieth of a ton, which, at $5 per ton, would be 12½ cents per ton."

We illustrate in this article a new method of utilizing steam for this purpose, proposed by S. D. Locke, of Hoosick Falls, N. Y., that is certainly very simple and economical, and seems to be entirely practical. It is the subject of two or more patents issued to him, to whom all communications should be addressed.

Mr. Locke's method is shown fully in our illustrations, and contemplates utilizing the steam plants existing in most cities to melt the snow, so avoiding all carting. Underneath the surface gutter he proposes to construct a sub-gutter, of cast iron or other suitable material, that connects directly with the sewer and that is covered with a grate, underneath which one or more steam pipes are carried in racks, as shown in Figs. 1 and 2. The snow, as it melts, falls through the grate and is conducted by the sub gutter into the sewer. Fig. 4 is a longitudinal section, showing how the condensed steam is allowed to escape from the steam pipes at the lowest levels, through float valves, into wells.

By this method there is nothing on the surface of the street to interfere with or in any degree impede its traffic, and the snow can as quickly be moved by horse scrapers and brooms into the gutters as the streets can now be swept.

The cost to lay this sub-gutter is figured to be from $3.50 to $4 per lineal foot. Assuming it to be $4, the entire cost per mile, on both sides of the street, will be $42,240.

To show the economy of Mr. Locke's plan, we submit an estimate of the comparative cost of cleaning one mile of Broadway by his method and by carting. In this estimate we will take the width of Broadway to be 44 feet, and, to keep on the safe side, will double our estimated cost of melting snow by steam, and will call it 25 cents a ton instead of 12½ cents.

It costs this city about 50 cents a load, or one cent a cubic foot, to cart the snow off the streets. If the snowfall during a season be only two feet, there will be on one mile of Broadway 464,640 cubic feet of snow; and we have these figures for the cost of its removal:

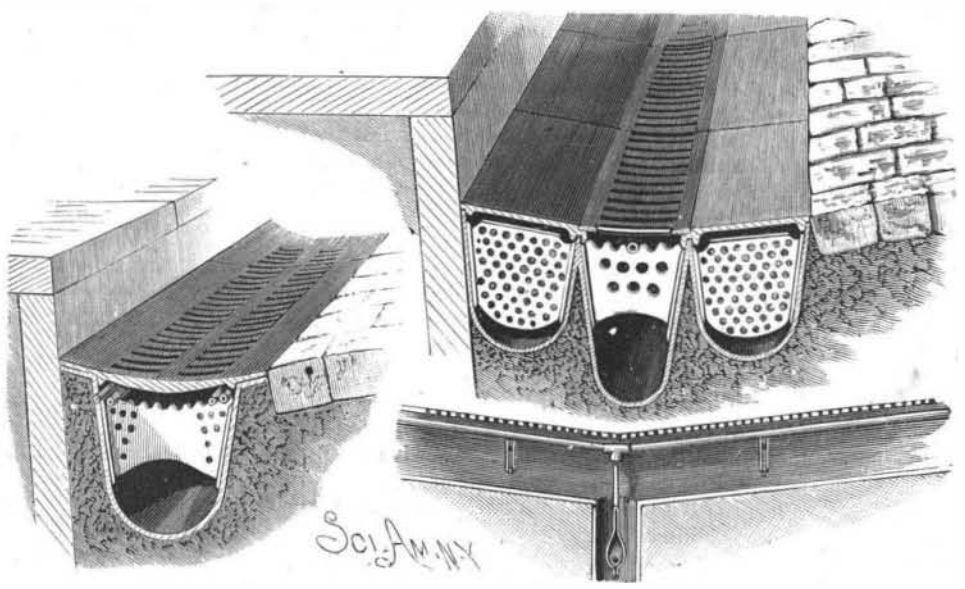
By carting 464,640 cubic feet at one cent a cubic foot =$4,646.40. By steam, assuming that a cubic foot weighs ten pounds, the 464,640 cubic feet will weigh 2,323·4 tons, which, at 25 cents a ton, costs $580.08. To this add 5 per cent interest on plant, $2,112, and we have $2,692.08.

If the snowfall be five feet, the figures are by carting $11,616, against only $3,564 by steam.

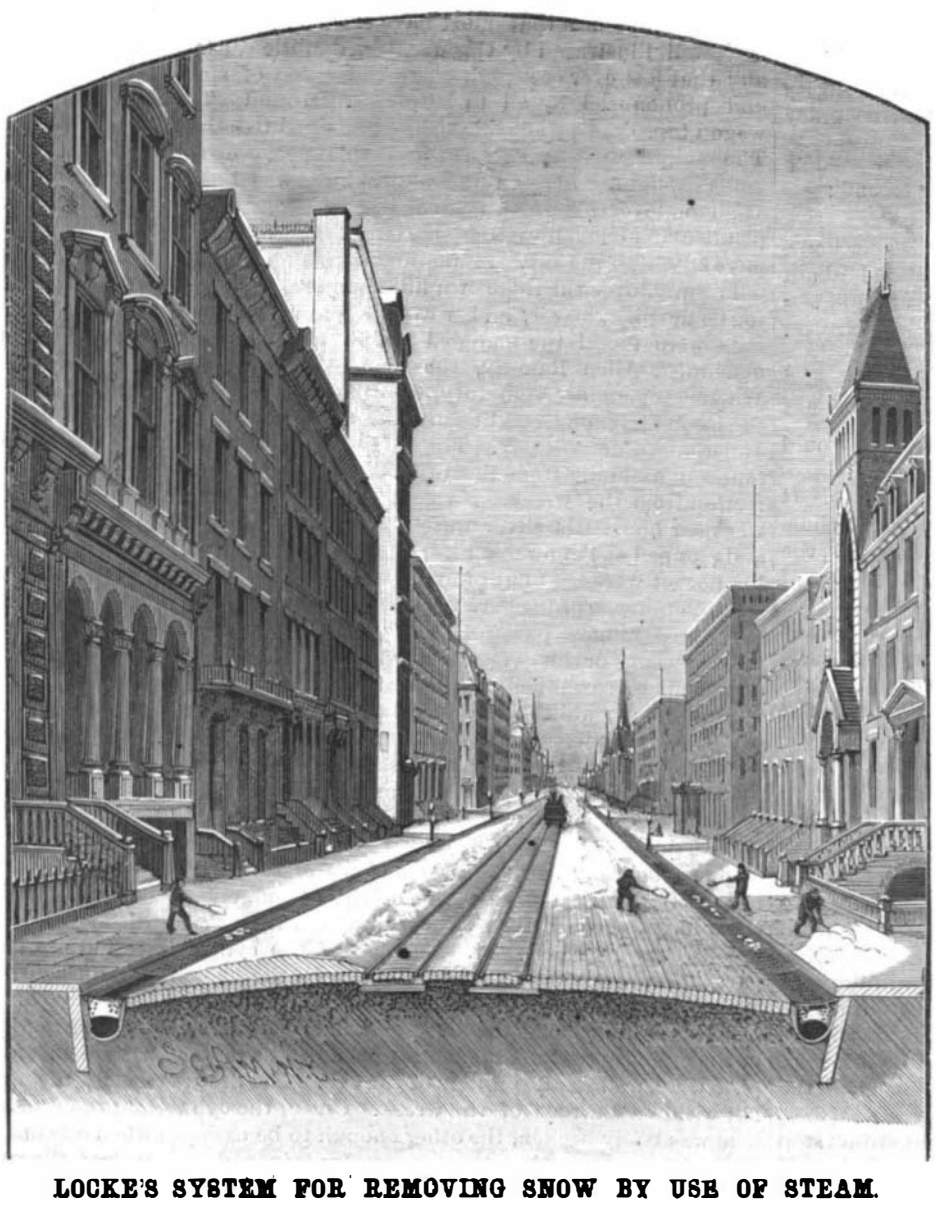
These figures are suggestive; and in addition to the undoubted economy of the steam method shown thereby, it must not be forgotten that it would be far more effective, and that with it no such thing as snow encumbered, much less snow blockaded, streets would ever occur.

Mr. Locke also proposes, by dividing his gutter into two or more longitudinal compartments, to utilize it as a conduit for electrical conductors. A modification for this purpose is shown in Fig. 3, wherein the lateral compartments are especially adapted to carry wires or cables. The cover, being laid in inclined close-fitting sections, prevents water from entering the electrical compartments. All of the sections of the cover, being held in place only by gravity, are easily removed, so enabling the whole contents of the conduits to be quickly exposed for the purpose of examination or repair, without disturbing in the least the pavement of the street.

Does not this plan offer to our telegraph and telephone companies a practical way of disposing their wires underground, in a position where they can be reached at any time, and that, too, without tearing up our streets? If so, a long suffering public, always being provoked to righteous wrath by the constant digging up and laying down of street pavements, will take courage and be glad.



LOCKE'S SYSTEM FOR REMOVING SNOW BY USE OF STEAM



LOCKE'S SYSTEM FOR REMOVING SNOW BY USE OF STEAM.

Indicating Furnace Temperature.

A method for determining the temperature of furnaces has been recently described by M. Wallerand, a Belgian mining engineer, in the *Belgique Industrielle*. The arrangement is applied in the first instance to a Siemens-Martin steel furnace; but the principle is capable of adaptation to other classes of furnaces. It depends upon the observation of a pendulum, beating seconds, hung against the furnace wall in a convenient place for the fireman. The pendulum is made of a simple rod, carrying at one end a ring by which it is suspended, and a weight capable of being adjusted up or down by a screw. In every case it is necessary to regulate the pendulum at the commencement by comparison with a watch or clock giving seconds. When the stoker wishes to ascertain the temperature of his furnace, he inserts an iron hook into the middle of the fireplace through a hole left for the purpose in the door. The iron is made from 8 mm. round rod, and is left in the fire for 22 seconds, or the same number of oscillations of the pendulum, when it must be quickly withdrawn. If the furnace is at a proper heat, the end of the hook will in this time have attained a welding temperature, as shown by the fact that sparkling drops of molten iron will be thrown off by vigorously swinging the bar through the air. If, on the contrary, the test rod comes out of the furnace merely red or yellow, and does not throw off drops, the furnace is not hot enough. It is evident that this procedure will not indicate the exact heat of the furnace in absolute measurement.

Preservation of the Dead.

In speaking of the preservation of dead bodies, *Gaillard's Medical Monthly* says that Edward I., who died in 1307, was found not decayed 463 years subsequently. The flesh on the face was a little wasted, but not putrid. The body of Canute, who died in 1017, was found fresh in 1766. Those of William the Conqueror and his wife were perfect in 1522. In 1569 three Roman soldiers, in the dress of their country, fully equipped with arms, were dug out of a peat mass near Aberdeen. They were quite fresh and plump after a lapse of about 1,500 years. In 1717 the bodies of Lady Kilsyth and her infant were embalmed. In 1796 they were found as perfect as in the hour they were embalmed. Every feature and limb was full. The infant's features were as composed as if he had only been asleep for eighty years. His color was as fresh and his flesh as plump and full as in the perfect glow of health. The smile of infancy and innocency was on his lips. At a little distance it was difficult to distinguish whether Lady Kilsyth was alive or dead. The question is, What preservative was used, and how applied?

Sixty Whales Captured.

A large school of whales was lately captured at Cullivoe Yell, Shetland, after a very exciting chase. The whales first approached the Unitshores, and when observed a number of boats set out in pursuit. They succeeded, however, in gaining the water, but, after a six hour's chase, they were driven ashore and killed at Cullivoe. The school numbers over sixty, some of them measuring over twenty feet in length.