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THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 362,

For the Week ending December 9, 1882.

Price 10 cents. For sale by all newsdealers.

PROGRESS OF THE STREET STEAM SUPPLY IN NEW YORK CITY.

The laying of steam pipes in the streets of the lower part of our city has made rapid progress the past summer and fall, almost too rapid, we think, to be substantial and free from the every-day mishaps now occurring. Defective pipe and fittings and misjudgment in the selection of material for packing the flanges, together with insufficient testing before the closing of the trenches, has resulted in the blowing out of joints, the breaking of flanges, and the digging up and blockading of the streets over and over until the patience of the mercantile community is wellnigh exhausted. The spirit of rivalry between the companies has been carried to the reckless extent of doubling the lines of pipes in many streets, to the detriment of all other franchises and interests without giving satisfaction to the takers of steam.

Although there may be competition wherever there are rival lines, as well as the cutting of rates, the gain is not equal to the nuisance of the continued disturbance of the streets and increased temperature of the water supply from the proximity of so many steam pipes.

Is there not room enough for the expansion of two live steam companies in our great city without doubling up their lines of steam pipes under our streets to the detriment of all other interests?

The blockade of the streets alone by one company is a nuisance, and what must it be when the rival company repeats it; but when packings blow out to such an extent as to fill the streets with steam and jeopardize life, it becomes time to suspend the extension of the lines, and endeavor to perfect the work already done.

The general plans of distribution of the two steam companies are nearly the same, but the details of the laying of the street mains vary somewhat. The flange packings of the New York Company are corrugated copper gaskets or washers. These have so far proved the best that have been tried, but the paper gaskets upon the valve bonnets have been the cause of several blowouts. The expansion joints of this company are disks of copper fastened by their inner edge to the end of a line of pipe, and by their outer edge to a short flanged cast iron cylinder, making a flexible joint upon the same principle as has been so long in use upon the main steam pipes of our large steamers; the same arrangement in principle being also in use for accommodating the unequal expansion in the steam and exhaust connections of large cylinders.

This class of expansion joints have had a long trial, and found faultless for small variations, but having so little range they are hardly a criterion by which to judge of the success of the copper ones, which are subjected to much strain and flexure. The line-pipe is felted or covered by a thickness of about two inches with mineral wool, the whole being inclosed in a case of wood, made by boring out large logs and splitting for the convenience of inclosing the pipe and inserting the felting; the whole being made as nearly impervious to water from the outside as possible by asphalt felting.

The flange packings of the American Co., as we hear, were at first made with gaskets of compounds of rubber, plumbago, and other materials, a variety of which are made under various patents. They are too plastic, and are liable to give way under pressure and heat before they become set or vulcanized, and therefore require setting up by the screws or bolts for some time previous to closing the trenches. A few hours' testing with an inadequate supply of steam upon small sections is entirely insufficient for perfecting the joints. We understand that asbestos is being tried as a packing, but we fear that it is too frail a fabric to stand the continued pressure and the flexure from large and rigid pipes.

The line pipe of this company rides upon friction rollers within a box of heavy plank, which is thoroughly treated with coal tar, the top and bottom of the box being laid crosswise and filled in with pulverized charcoal.

The expansion joints are of the sliding type, made of brass or composition, with brass bearings. They have a great range, and therefore require a less number in a given distance than those of the other company, but the packings require frequent attention.

The regulations, capabilities, and extent of steam supply by these companies, will be considered in a future article.

GENERAL AND LOCAL WEATHER SERVICE.

A convention of volunteer weather observers was held at Indianapolis, Ind., November 15. Governor Porter opened the exercises with an interesting address on the Indiana Weather Service, tracing its history and pointing out the value of the services rendered by the volunteer observers in the seventy-six counties of the State.

Lieutenant Dunwoody, First Assistant in the Chief Signal Office in Washington, who was presented to those intending to engage in the work, said that State weather services were organized during the past year in Ohio, Indiana, Illinois, Michigan, Kansas, Nebraska, Missouri, and New Jersey. The most perfect State service is that in Iowa, which was the first organized, and is operated under a State law. The object of the State service is to observe and utilize every feature of the weather that affects the prosperity of the inhabitants of the State as to crops, health, life, etc. It is essentially a plan for gathering and utilizing local climatic data, and eventually it will define precisely the localities most favorable or unfavorable to special crops, diseases, and the like. The chief of the service should be in such communication with the Signal Office at Washington that he would be able to receive and disseminate any information of importance, such as predictions of frosts, tornadoes, and floods. The service was organized in Indiana last spring, and is the most extensive of its kind in any one State. Excellent work from it is expected.

The frost warnings lately inaugurated for the benefit of the fruit, cotton, and tobacco growers have proved of great value to agriculture, and similar warnings for other interests are soon to be inaugurated. The department at Washington regards the Indiana service as one of the best of these, as the reports show great skill and proficiency in the work. These State services will soon prove of very great advantage in making deductions and predictions regarding weather conditions, and will have an important influence on agriculture.

CONVENTION OF STREET RAILWAY OFFICIALS.

A convention of street railway officials is to be held in Boston, December 12. Its purpose is the formation of an association for the promotion of scientific and practical knowledge relating to the construction, equipment, and management of street railways; an interchange of information and ideas, and the cultivation of a spirit of fraternity among those engaged in street railway enterprises.

Considering the wide extent and enormous financial importance of the street railway interests of the country, and the number of men employed, the field for such an association is manifestly a large and inviting one. Properly organized and conducted, the proposed association cannot fail to be of advantage, both to the street railway service and to the public. If, on the contrary, it is to be pervaded by a spirit of opposition to inventors and their improvements in the means and methods of the service, after the fashion set by certain other railway organizations, it had better never come into existence. From their very nature, street railways are apt to be measurably if not wholly exempt from competition, and where serious competition is lacking, their managers are not apt to be over-eager for the adoption of improvements primarily intended for the better accommodation of the public. Closer intercourse with their more progressive associates may help to stir up the laggards to the advantage of both the companies and the traveling public.

HOW OUR FARMERS ARE HELPED BY THE PATENT SYSTEM.

There has been this fall what is called a crisis in the grain trade of Russia.

When asked the cause of it, a grain merchant of St. Petersburg replied: "The American cheap grain has completely undermined us. It is clear that we cannot compete with our transatlantic friends, at least under present circumstances. Our agriculture is in a primitive state, and our transportation is in its infancy. In spite of dear labor, American grain costs the producer only half as much as Russian grain."

This great contrast in the relative situations of the grain merchants of Russia and America but faintly illustrates the contrast in the positions of the farmers of the two countries.

With American facilities for cheap and rapid transportation, the price of grain at the farm much more nearly approximates the seaboard price than is the case in Russia. In other words, while it does not cost the newly immigrated Russian farmer in the West half as much to raise a bushel of grain as it does his brother in Russia, he gets for it a far greater share of the Liverpool market price; and all other American farmers enjoy the same advantage over their chief competitors for the export grain trade of the world.

These advantages are in no way due, it will be observed, to the superior skill or thrift of the farmer himself. He has at command—thanks to the geographical position of his farm—better means for producing and handling his crops and for getting them to market. These alone give him his commanding position; and for these he is indebted entirely to the activity of our inventors and manufacturers. The concurrent testimony of all our inventors and manufacturers is that their productive activity has been greatly stimulated and sustained, if it was not originally awakened by the inducements held out by the Patent Office in moderate fees and the protection of inventors' and manufacturers' rights which the patent laws afford.

And yet, because of minute and incidental inconveniences arrising from the application of the patent laws—in many cases attributable largely to contributory negligence on the part of the sufferers—a considerable class of our Western farmers would wipe out those features of the patent system which make it most effective in stimulating invention.

Without their improved machinery—which has been invented because improvements were patentable and thereby defendable and therefore valuable—the enormous and cheap grain crops of the West could have no existence. Without our means of cheap transportation—which have been invented because patentable, protectable, and profitable—the grain, if produced, would have to rot in the bins or be burned for fuel, for it would not pay for hauling half across the continent. Without the enormous home market for ninety-nine hundredths of our grain production—due mainly to the multiplication of non-producing consumers employed in purely mechanical pursuits which have their basis in the patent system—the surplus of agricultural products beyond what could be exported would make such crops as we now raise unprofitable to the growers, even at the present low cost of production.

Whatever way we may look at it, the disposition of many