VENTILATED RAILROAD CARS.

During warm and dry weather, railroad traveling is rendered exceedingly uncomfortable by the clouds of dust which come into the cars through the open windows. As the cars cannot be closed under the penalty of suffocation, a method of supplying them with fresh air, perfectly screened of dust, has become a great desideratum. If there is such a system of car ventilation known, and if it is perfectly practicable, it appears to us that it is not only the duty, but it would also be the best policy for all railroad companies to apply it to their cars. On the New York and Erie Railroad two car-ventilating systems have been applied and tested. The one is that of G. F. Foote, of Buffalo, N. Y., which is applied to two cars. An angular bonnet, covered with wire gauze, is situated on the top, and is connected with a passage at each side of the car, and with a fountain of water. When the car is in motion a current of air passes through the bonnet on the top, thence down the air passage at the sides, through a shower of spray—which removes all the dust from it—thence it passes up into the car through gratings situated along the middle of the floor. The fountain of water is sustained by a rotary pump connected with the axle of the truck.

There are also four or five cars on this railroad which are furnished with Mr. H. Ruttan's system of car ventilation. The air passes into the car through a fountain of water, thence down and out through the bottom, instead of coming in by the floor. The Michigan Central Railroad has applied this system to most of its passenger cars, and persons who have lately traveled on this road are unstinted in their praise of the comfort they enjoyed compared with their former experience in riding on the same road.

On the Hudson River Railroad the cars are made with double roofs, or, in other words, a portion of the roof for the whole length through the center of the car is elevated so as to admit of another set of registers through which a current of air can pass, and thus better ventilation is secured. This is a simple plan, yet not entirely effective in excluding the dust, but it answers a good purpose, and we understand that hereafter all the cars on this road are to be arranged on this plan.

On the New York and New Haven Railroad, which carries more passengers in proportion to its length than any other road running out of New York, no proper attention is paid to comfort in this respect. The cars are mostly of the old-fashioned kind with plain roofs and plain windows, having small registers placed above them, which serve at best but a poor purpose in admitting fresh air, and none at all in excluding dust. It seems to us that this Company is grossly inattentive to the comfort of those who so liberally patronize it. We frequently pass over this road, and, in warm weather, we share with our fellow passengers all the discomfort which its accommodation affords. The idea of the Company seems to be to get all it can out of the public, and to return just as little comfort or politeness as it is possible to bestow. It would do us good to catch an occasional smile on the face of the Superintendent and some of his attendants. At any rate we would be glad to get less dust and more comfort, and we could even afford to forego the smiles.

An Old Large-Hooped Gun.

A correspondent (A. S. Walbridge, of Malone, N. Y.,) informs us that cannon constructed with hoops shrunk over the tube or barrel, are of ancient origin. He states that there is one in the Castle of Edinburgh, Scotland, which was made in 1486, which has its center or barrel part formed of wrought-iron bars forged together, and these are hooped with iron bands shrunk on in a similar manner to the hoops of some guns that are now made in England and America and which have been supposed, by many persons, to be a recent invention. The old cannon in Edinburgh is 13 feet in length, and its bore is 18 inches in diameter. The thickness of metal at the muzzle is 4½ inches; the workmanship, as a piece of forging, is as good as any work executed at the present day, as it never was bored out, and yet the bore is so straight that it does not vary the eighth of an inch from end to end. It was used in war in 1491, but the bullets then were only granite spheres—the art of casting iron balls not being known. It is capable of taking in an iron ball of 796 lbs. weight, but it is not sufficiently strong to withstand the full charge of modern gunpowder with a solid iron shot, or even an iron shell. It is kept in Edinburgh as an object of curiosity.

IRWIN'S LAMP AND LANTERN.

There is no more important problem engaging the attention of mechanicians and men of science, than the production of a lamp that will burn rock oil absolutely without smoke, under all conditions. Our pages bear ample evidence of the great amount of effort which is being devoted to this task, and we aim to record every considerable step which is made toward its accomplishment. Petroleum may be burned for illuminating purposes in lamps, without any difficulty, so long as the lamps remain stationary, but some of the best of these lamps always begin to smoke when they are carried through the air, or when they are encountered by slight drafts. To obviate this difficulty is the object of the invention here illustrated.

Fig. 1

Fig. 2.

The holes for the entrance of the air to feed the flame are surrounded by a cape, A, which extends some distance down the sides of the lamp, leaving a space between the cape and the lamp. Ribs, B B, are fastened upon the outside of the lamp, and extend under the cape to guide the air, which may be passing across the sides, directly into the holes, and thus prevent the cross currents, which produce the smoke.

Fig. 2 represents a lantern constructed on the same principle, to prevent unequal currents or puffs of air, as the lantern is moved up and down. The lamp, C, is surrounded by an external casing, *d*, with a space between for the passage of the air to feed the flame. The casing, *d*, is enlarged at the base, and the air passage is crossed by two diaphragms, one, *e*, perforated with holes, and the other, *f*, being merely a disk of metal extending pretty nearly across the base. This disk is connected with the external case by radial flanges which prevent the action of cross currents, while the two diaphragms effectually prevent the sudden puffs of air that cause the clouds of smoke in ordinary lanterns when they are moved quickly up or down.

These improvements were invented by J. H. Irwin, of Chicago, Ill. The patent for the lamp improvement was granted, through the Scientific American Patent Agency, May 6, 1862, and application for a patent for the lantern has been made. Further information in relation to either may be obtained by addressing J. F. Griffin, dealer in lamps, to whom one half interest in the inventions has been assigned, at Box 334, P. O., Chicago, Ills.

New Hampshire Manufactures.

The Manchester N. H. *Mirror* states, that the Manchester mills are running every spindle, and never made so many goods in the same time as during the last six months. They are now running 200 more looms than they did at this time last year.

For the six months ending the first of June 1862, they made 9,144,227 yards of delaines and print cloths, 26,000 dozen pairs of hose and 190,000 yards of cassimeres, and their monthly pay roll has averaged about $30,000.

The repairs and building of this corporation are unusually large at present. They are just completing an addition, 40 by 45 feet, 3 stories high, to No. 3 mill. They are also building a new store house, south and adjoining their present one south of Granite street, to be of the same style and hight. It will be 160 by 105 feet. For the print works of this company they are also going to build a new madder dye house, 66 by 150 feet, and a garancine house, 66 by 150 feet, both of brick. It will take about one million and a half of brick for these two buildings and the store house. The goods of the print works are in excellent demand.

The Amoskeag mills have stopped some of their spindles, owing to the high price of cotton. But the company which own these mills are also proprietors of the machine shop and armory. The latter gun establishment is nearly complete, and will be able to turn out 1,500 rifles a month, and will give employment to 200 machinists. They have a Government contract to make 10,000 rifles of the Springfield pattern.

They are making 500 breech-loading carbines, of the Linder Patent, for the Government. They have also built a steel breech-loading cannon, which is ordered by Russia as a sample.

Electrical Music.

Professor Gore, of London, states that visible vibrations accompanied with sounds of varying intensity are made by the passage of voltaic currents through a solution of cyanide of mercury and potash in dilute hydrocyanic acid, under which circumstances the mercurial connections, if of the requisite forms, are thrown into visible vibrations of varying rapidity, and emit sounds, the pitch of which varies with the vibrations.

It was found that when a small number of cells of a large size were employed, the vibrations were small and the sounds emitted high; but that when the cells were numerous and small, the vibrations of the mercury were large and the sounds bass. Again, the number and pitch of the vibrations produced by the same current can be varied by transmitting it through a primary or secondary coil of wire.

The Philadelphia *Ledger* says the use of steam for city passenger railroads would be a great saving of horseflesh. The time will yet come when not a horse will be seen drawing a car in any city.

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