

IMPROVED FLOODWAY FOR WAREHOUSES.

In the accompanying engravings we illustrate still another of the useful inventions of Mr. John H. Morrell, several of which, of similar nature to that below described, have already appeared in our recent issues. The present device is intended to supply a means of quick discharge from the sinks or reservoirs of a building to the drain pipe, and is so provided with valves that no foul air from the sewer can rise back into the house. In case of fire breaking out in the lower stories, the smoke ascending the main sewer pipe will be prevented by the invention from escaping into the upper rooms through the reservoirs. All draft through said pipe is also checked at the reservoir at each floor. We also represent a modification of the device, showing its adaptation to street sewers, both for preventing the entrance of solid material which would choke the drains, and the reflux of foul gases to poison the air in the vicinity.

The bottom of the sink or floodway reservoir, as shown in Fig. 1, is set inclined so as to cause the hinged valve, A, to rest in a closed position until such time as water may enter in sufficient quantity to lift the valve from its seat. The water then escapes, after which the valve instantly falls back to its former position, thus effectually preventing the return of foul gas. B is a wire netting or grating set across the pan so as to keep floating debris from choking the valves or pipes.

In case where it is desirable to carry the drain pipes through the walls of a building or underground, a valve of similar construction is used, inclosed in a box as represented in Fig. 2.

The sewer floodway is shown in section in Fig. 3, and is applied to a sewer opening, such as is ordinarily made at street corners. Just beneath the opening the box connecting with a pipe, C, leading to the sewer, is set. This box is divided into two compartments by an inclined partition, in which the valve, connected similarly to that before described, is hinged. In front of the valve aperture is a movable grating, E, which serves as a strainer. There is also a movable pan, F, surmounted by another grating, G. The pan, which can easily be taken out, allows of the removal of collected obstructions, which are stopped by the inner gratings, and thus admits of the quick cleansing of the floodway. The invention is simple, and could probably be cheaply constructed. Its use might prove an important sanitary precaution in localities where the sewer arrangements are defective in means for preventing escape of gas.

Patented through the Scientific American Patent Agency, October 5, 1875. For further information address the inventor, at Morrell's Storage and Safe Deposit Buildings, corner of Fourth avenue and 32d street, New York city.

The Death of the Vice President.

Vice President Henry Wilson died on the morning of the 22d of November, of a third and fatal attack of apoplexy. The first stroke of the disease occurred some two years ago and a second attack quite recently had prostrated him and aroused serious fears for his life. From the last, however, he appeared to be recovering when the fatal visitation came and resulted in almost instant and painless death.

Like many of the men whose names have become famous, and who have occupied the most exalted positions in the nation during the last decade, Mr. Wilson arose from the humblest position in life. His origin was not only in utter poverty but almost in vagrancy, and at barely ten years of age he was sent forth from the mere hut in which his parents dwelt to become a farm drudge. For eleven years he labored at his apprenticeship, employing every spare hour at hard study from such books as he could borrow in the vicinity, or at his tasks during the winter months of district schooling. When his apprenticeship had concluded, he obtained small wages, and the money he scrupulously saved; and as was common with Massachusetts boys in those days, he looked forward to emigration to another part of the State, where a trade might be learned, from which a better income could be gained.

In course of time he journeyed to Natick and there engaged as a shoemaker. In three years, he made seven thousand pairs of shoes and saved seven hundred dollars, which sum he determined to devote to the acquisition of a good education. He had already entered an academy when the failure

of the person in whose hands his earnings were deposited swept all away. Nothing daunted, young Wilson relinquished his long cherished plans and went back to his trade, working on his own account. He prospered so well that in 1840, after six years labor, he owned his shop and the land on which it stood, besides a handsome residence in the main street of the town. It was during the year above mentioned that he made his first appearance in politics, by warmly advocating the election of General Harrison for the Presidency,

Railway Tunnel under the London Docks.

The works on the East London Railway, by which the line will be extended from the present terminus at Wapping to the Liverpool street station of the Great Eastern Company, are now rapidly approaching completion, and it is expected that the extension line will shortly be opened for traffic, when there will be through communication between Liverpool street and New Cross, where the line forms a junction with the London and Brighton and the Southeastern lines. The most formidable engineering portion of the works is the tunnel under the eastern basin of the London Docks, which has just been completed. The water communication between one side of the basin is restored, and vessels of large tonnage may now be seen berthed in the basin immediately over the submarine railway which has been formed. Operations were carried on by means of coffer dams and dredging trenches in the bottom of the dock until the London clay was reached. The driving of the piles and the construction of the walls of the coffer dams was one of the most formidable portions of the work. The arches of the tunnel are of the ordinary horseshoe shape, built with seven rings of brick, and are surrounded with three feet of puddled clay. About two thirds of the Shadwell station are already completed, and the covered way northwards, in continuation, is also nearly all finished to about 50 feet north of Commercial Road. The retaining walls for the Whitechapel station are also nearly finished, and the station itself will soon be completed. The line continues from Whitechapel station to its junction with the Great Eastern line at Brick Lane, and the works at this point, which are comparatively light, are actively proceeding. The whole of the works have been designed by Sir John Hawkshaw, and are being carried out by Mr. Hunt, the resident engineer. The estimated cost of the works is set down at \$2,500,000 per mile.

Education of the Flea.

Mr. Bertolotto, the well known educator of the flea, is now in New York exhibiting his curious success in this line. The insects he employs appear to be the species of flea common to dogs. The first lesson, he says, is to put the insects in a small circular glass box, where, by jumping and knocking their heads against the glass for a day or two, the idea is finally beaten into them that it is useless to jump; and during the remainder of their natural lives, to wit, about eight months, they are content to crawl.

Having corrected their intellects in regard to jumping, the instructor now fastens a delicate pair of wire nippers to the middle part of the flea's body; to the nippers any desired form of miniature vehicle, such as a wheelbarrow, a car, a wagon, etc., is attached, and the flea thus harnessed trots away with the load, to the great amusement of the looker-on. The professor harnesses his insect pupils into a great variety of other positions, and makes them perform many curious duties, such as the operation of a fortune-telling wheel, orchestra playing, racing, etc. They are allowed to feed twice daily upon the instructor's arm. It remains for Mr. Darwin and his compeers to determine what effect this system of insect education is likely to have upon the habits and development of future broods.

Cold Bands in the Obscure Portion of the Spectrum.

When a thermo-electric battery is moved along in front of the part of the screen where is shown the ultra-red portion of the solar spectrum, a succession of thermic minima are noticeable, which may be called cold lines or bands, by analogy with the black rays of the luminous spectrum. The spectra from artificial sources, such as from incandescent lime, do not exhibit this phenomenon; but M. Desains has lately succeeded in developing it by causing the radiations to traverse a thickness of 0.4 inch of water.

M. Desains, from his investigations, logically concludes that the cold lines are due to atmospheric vapor of water. The position of the principal ones, measured from the extreme end, is found to be so near the position of the solar lines that the difference is almost imperceptible. For four of the former lines in an artificial spectrum, the angular distances 19° 8', 30° 6', 39° 5', and 52° 8' are given, while the solar spectrum gives cold lines at 19° 1', 29° 41', and 59°. We look for further information as to the results of M. Desains' experiments.

Fig. 1

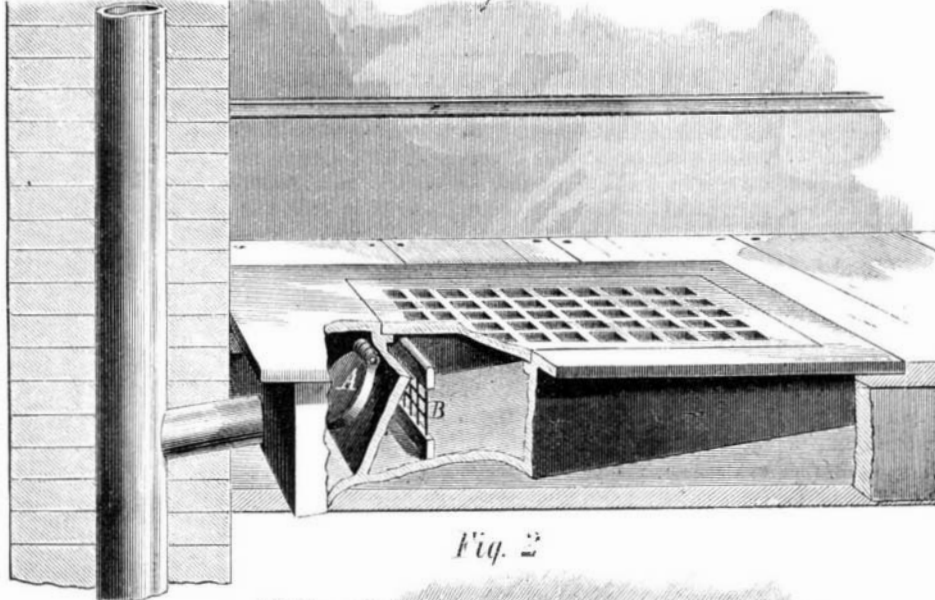
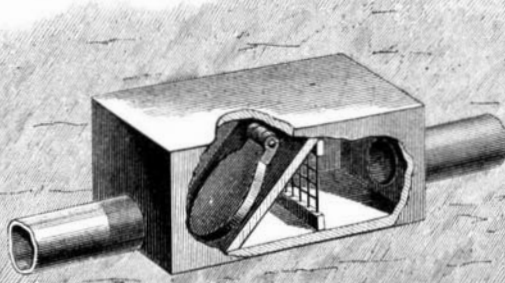
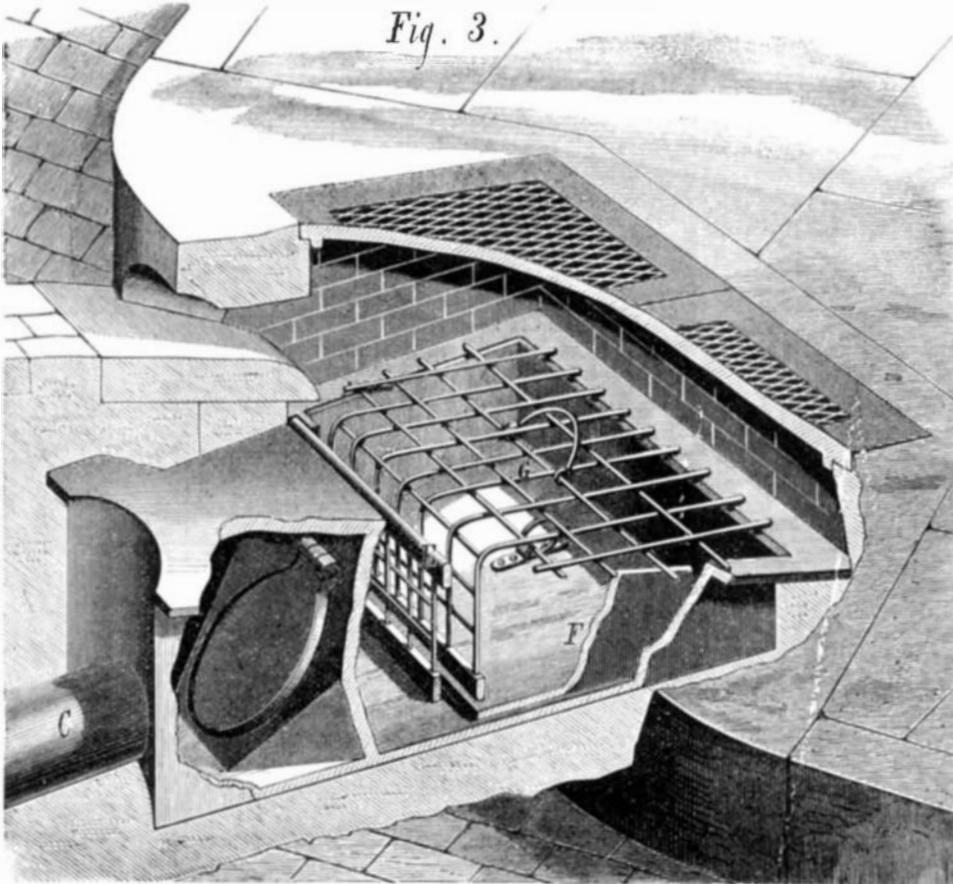


Fig. 2

**MORRELL'S FLOODWAY FOR WAREHOUSES.**

a course which resulted in his being chosen to the Legislature of Massachusetts from Natick. Detailed reference to his political career, which extended from the cobbler's bench to the second position in the gift of the nation, is without our province. After repeatedly holding office in his native State, he was elected to the senate in 1855 and continued

Fig. 3

**MORRELL'S SEWER FLOODWAY.**

therein until he was elected to the Vice Presidency. His record in the cause of emancipation is a most noble one, and the mere history of the great reforms to which he gave undeviating toil would fill a volume.

Mr. Wilson was born in February 16, 1812. The autopsy of his remains shows, in addition to the effects of the malady which resulted in his death, a diseased condition of many vital portions, which probably would materially have shortened his life had the apoplectic stroke not terminated fatally