

THE MCCONNELL GERM-PROOF FILTERS.

Any exhibit designed to illustrate the facility with which water may be freed from possible disease germs, with tolerable certainty and at a moderate cost, was certain to command its full share of attention at the World's Columbian Exposition, where not a few of the visitors, at the beginning of the season, had most exaggerated fears of the quality of the water supplied. In the display of the McConnell Filter Co., of Buffalo, N. Y., are filters of simple construction designed to show a high degree of perfection in operation, adapted for attachment to the water pipe, and so made that it will be but little trouble to keep the filtering medium entirely clean and pure. There are also other styles, made as gravity filters, and as filter and cooler combined, the latter being so arranged that the melted ice does not contaminate the filtered water. The filtering material consists of a porous wall, made of a composition of the finest mineral flour, whose nature is not to paste or flint, but to remain sufficiently porous to allow only pure water and air to pass through it. The impurities are collected on the outer side, from which they are easily washed. These filters are made in all sizes, from those suitable for use in small families up to those of a capacity adapted for restaurant and hotel use.

WINE MAKING REPRESENTED AT THE FAIR,

The very fine showing presented at the Columbian Exposition by American wine makers has not been surprising to those who are familiar with the growth of this branch of business as an American industry within a few years past, however it may have been to those who have heretofore sup-



THE WORLD'S COLUMBIAN EXPOSITION-EXHIBIT OF MCCONNELL FILTERS.

posed all our best wines were imported. The great variety and the number of high quality wines here exhibited, as well as the numerous large establishments represented, afford the best answer to such erroneous assumptions. Among the notable exhibits in this line is that of the Urbana Wine Company, of Urbana, N. Y., shown herewith, in connection with which we give also views of the "finishing room," and one of the champagne vaults at the works, as well as of the main buildings, as they were established in 1865, although they have since been greatly enlarged. It will thus be seen that in all wines which require "aging" to bring out their finer qualities this establishment has had the advantage of more than a quarter of a century's existence, during which period it has had a continuously large and prosperous business, its wines steadily growing in popularity in comparison with the most favorite brands of imported wines.

As the first requisite in the making of a superior wine is to have the best quality and fine varieties of rich, ripe grapes, it was the obvious advantages presented in these particulars that originally led to the location of the works on the shores of Lake Keuka, or Crooked Lake, Steuben County, New York State. Here, besides the vineyards owned by the company, is a large grapeproducing country, which has been famous in this respect for many years. The soil is a gravel on calcareous rock, the ground is undulating and sometimes precipitous, but with a general southeast exposure toward the lake, and the location has been styled the Rheims of America. The principal varieties of grapes cultivated are the Catawba, Isabella, Delaware, Iona, Concord, and









"Finishing Room" at Urbana, N.Y.

THE WORLD'S COLUMBIAN EXPOSITION-EXHIBIT OF THE URBANA WINE COMPANY, URBANA, N. Y.

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grapes, under carefully regulated conditions, that gives the high quality to the various still and sparkling wines made. The "Gold Seal" brand of champagne, prominently displayed in the company's exhibit, has been for many years a leading article of their production, and stands deservedly high in the wine trade and among connoisseurs throughout the country.

The still wines of this company are deserving of especial attention, all being made from the most careful selection of grapes, and they are vouched for as " pure," which makes them particularly desirable with those who want pure goods, and desire to avoid adulterations. All stock is well aged, and sold at a low price, considering the quality.

The Late Hayward A. Harvey.

Hayward A. Harvey, the inventor of the Harveyized steel armor plate process, passed away August 29, at his home in Orange, N. J. Mr. Harvey was born in Jamestown, N. Y., January 17, 1824. His father was General Harvey, the inventor of the gimlet-pointed screw, the cam motion, and the toggle joint. Young Harvey entered the office of the New York Screw Company as draughtsman in 1844, he took charge of a wire mill at Somerville, N. J., in 1850, and in 1852 he became connected with the Harvey Steel and Iron Company, of which his father was president. In 1865 Mr. Harvey founded the Continental Screw Company, of Jersey City. The inventions of Mr. Harvey, up to this time, had nearly all been in the direction of automatic machinery; but he afterward devoted his energies to metallurgical processes, and in 1888 he took out his first patent on a process for treating steel. This invention has now made his name familiar all over the civilized world, and has added another word to our language.

The new process is, briefly, a method of hardening steel on the surface, or carbonizing it, and raising steel NEW YORK, SATURDAY, SEPTEMBER 16, 1893. of a low grade to a higher one. The first armor plate treated by the Harvey process was made in 1890. The Harvey Steel Company was organized in 1889, and works were established at Brill's Station, near Newark, on the Pennsylvania Railroad. Various improvements were introduced in the manufacture of armor plates, and to-day Harveyized steel armor plate stands without a rival. The tests made at the Indian Head Proving Grounds, a few weeks ago, proved conclusively that Harveyized steel plates are the best in the world. In a comparative test with English compound armor plate, Creusot all steel plate, and the regular United Ex States nickel-steel plate, the Harveyized plate proved to be better than any of the others. The construction of battleships has been modified by the introduction of Harveyized armor, and the new process is being adopted by the principal manufacturers of Europe. Mr. Harvey, in the course of a long and eventful life, had 125 patents granted to him.

The Lantern in Scientific Stage Effects.

Some new scientific stage effects were introduced into a recent performance of Wagner's Die Walkure, at the Grand Opera House, Paris. The scene where the sons of Wotan, mounted on steeds and brandishing their lances, are seen in the clouds, is described as very realistic. The foreground is wild and rocky, and the clouds are seen to scud across the sky. This effect is produced by projecting the image of a cloudy sky by an electric lantern on a curtain of translucent blue cloth. The continuous movement of the clouds for half an hour is produced by painting them on the edge of the disk of glass twelve inches in diameter, and rotating the edge past the lens of the lantern. Three lanterns II. are employed to blend the clouds. The wild cavalcade mi. of Wotan's heroes is produced by a line of mechanical horses, full sized, and carrying real performers. They are supported on a scaffolding, and drawn by means of a cable across the scene at a suitable elevation. The mounted men are strongly illuminated by the electric light, and thus rendered visible through the translucent curtain representing the heavens. The scene terminates by a conflagration, in which great flames run along the rocks, while thick fumes, reddened by Bengal fire, spread through the atmosphere. The flames are due to fulminating cotton, placed in advance on the rocks, and lit by the machinists. Lycopodium powder is also blown through holes in the stage. Weird cloud effects are produced by steam.

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A CHANCE FOR AMERICAN CONTRACTORS.

In another column will be found the advertisement of the Public Works Department of Cairo, Egypt, in which bids are called for relating to the construction of certain street railways in that city and vicinity. Here would seem to be an opportunity for some of our enterprising contractors.

The administration of the Egyptian government under the English advisory auspices has been attended with great success. The financial condition of the country is stable and reliable. In all departments of the government valuable reforms have been made, and nearly everything is now conducted on modern methods. The Public Works Department of Egypt is especially noteworthy for its successful efforts in introducing new improvements. Splendid engineering works relating to the Nile irrigation have been constructed at vast cost, whereby the productive area of highly fertile lands has been greatly extended. Railways have been introduced, telephone and telegraph lines made universal, postal facilities increased and improvements of all kinds along the lines of modern progress brought in. The present proposals for tramway lines doubtless will be found worth looking into.

SAFETY ON RAILROADS.

Within a very recent period several fatal railroad accidents have been chronicled which were of a nature as to point to one conclusion—the futility of trusting to direct human agency for protection. A railroad is assumed to be of the highest standard when equipped with a block system. But as usually interpreted, the block system is far from affording absolute protection. It displays a danger signal and perhaps also a caution signal when a train is within a certain distance of the signal station last passed by it. A following train on the same track is supposed to be arrested by these signals, and the train in advance is thus protected. The signals may be entirely visual. Semaphores by day and colored lanterns by night may be employed. A bell may also be used, which will ring as long as the block in advance is occupied, this constituting an aural signal, or one addressed to the ear. Torpedoes may also be used.

Such is the block system, by which all first-class railroads are guarded. In some cases it is applied by operatives stationed in watch towers along the line of the road. In other cases the manipulation is entirely automatic, electricity, pneumatic and hydraulic power being employed to work the signals. The locomotive itself effects the changes of signals as it leaves one block and enters another. In any case its operation consists in working a signal system for the guidance of the engineer of the locomotive. If it is the watch tower system which is employed, the vigilance of the signalmen as well as of the engineer is an absolutely necessary factor for its working. If the automatic system is employed, then the engineer is the only one who is depended on. There seems to be less chance of error in the latter case.

The block system is designed to prevent collisions. Its defect is at once apparent. It relies absolutely on human agency to prevent accident. Its functions end with the display of a warning signal. It has been proposed to add to it an apparatus which would strike a lever or valve handle on the engine, thereby throwing the brakes into action or shutting off steam if the engine passed a danger signal. This appliance has not been adopted to any extent. Even the best block and signal system has proved so ineffective that when a train stops unexpectedly from any cause, an apprehension of rear end collision may always be felt. This has gone so far that it seems as if the passengers for their own safety should be directed to leave the cars in such contingencies.

In 1853, on the New Haven road, a very bad accident, resulting in the loss of 46 lives, occurred at South Norwalk. A drawbridge was open and the danger signal, announcing this fact, was properly shown. Yet the engineer of an express train ran by the signal and the train plunged into the gap. It was a fearful illustration of the point we have been making-the inefficiency of the human element in signal ing operations. The accident resulted in the passage of a law requiring every train to come to a full stop before crossing a drawbridge. This was certainly a confession of weakness. The law was next satisfied by the use of derailing switches at drawbridges. A derailing switch is one which, when opened, causes a train to leave the track and run along the surface until it stops. Such a switch connected with a drawbridge mechanism so as to be thrown into the derailing position when the bridge is open, will prevent the train from plunging through it. It eliminates completely the personal element and takes care of a danger point automatically. It represents the automatic stoppage of a train as contrasted with a simple danger signal designed to warn the engineer. Throughout the whole system of railroad signaling runs the element of uncertainty. A train is brought to a stop between stations, owing to some accident. A signalman with a lantern by night or flag by day

THE latest use for aluminum is for street car tickets. and it must be conceded that the metal is singularly x. adapted for the purpose. A Michigan street railway has just made its first issue of these light and ornainental tokens, which are about the size of a silver quarter dollar. One is round for the ordinary fare, the other octagonal for children. The adult's ticket is sold by the railroad company to the public at the rate of six for a quarter and the child's ticket at the rate of ten for a quarter. The company does not allow its employes, either conductors or motormen, to sell the tickets to the public, but disposes of them in \$10 lots to the several storekeepers who handle them exclusively.

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