

ARRANGING COMPASSES TO PREVENT ATTRACTION.

When Capt. R. F. Finlay, in 1853, was selected to pilot the United States frigate *Mississippi*, with Commodore Perry, to the banks of Newfoundland (on the fisheries dispute), that fine ship had five compasses, all of which differed. The commodore, in knocking about in such a foggy climate along shore, was distrustful of her compasses, so Capt. Finlay suggested a plan for their correction. The commodore at once gave orders to place everything needed at his command, whereupon the captain ordered the armorer to make an iron ring with a flange upon it, and this he secured to the upper part of the basin of the compasses. This counteracted the local attraction and the compasses worked well. "Who taught you to do that?" asked the commodore. "No one," said Capt. Finlay, "but I remember being on board of an Irish sloop, where the compass failed to work properly, owing to the chain-locker being close by. Her captain took it out, placed it in a bucket of pitch situated below the iron, when the compass then performed its natural functions. This suggested to me the idea of the iron ring."—*Mitchell's Steam Shipping Journal*.

[If this statement is not correct it can easily be contradicted by those who were on board of the *Mississippi* on that occasion. If true, it is a strange coincidence of an invention made about the same time, we believe, by two persons situated hundreds of miles distant from each other; we mean the iron ring of Mr. Calvin Kline, of this city, for obviating local attraction, and which was secured by Letters Patent several years ago. It was discovered afterwards that it was not a perfect corrector of local attraction; but the same inventor, by a subsequent arrangement of a battery of magnets near the needle, has rendered the correction of compasses perfectly reliable.

From the defective operation of the compasses of the frigate *Mississippi*, and the recent wrecks of two iron steamers, the *Indian* and *Hungarian*, on the coast of Nova Scotia, in all probability there may be causes which induce strong local attraction of the magnet in these seas. The powerful and well-known currents which exist on the coast or the projecting headlands may exert a strong magnetic influence and account for those catastrophes. This is a subject which is well worthy of further investigation by those engaged on our "Coast Survey," and by Lieut. Maury, at Washington. As the safety of every ship depends upon the quiver of the little magnetic needle, too much attention cannot be bestowed upon rendering its action reliable under all circumstances.

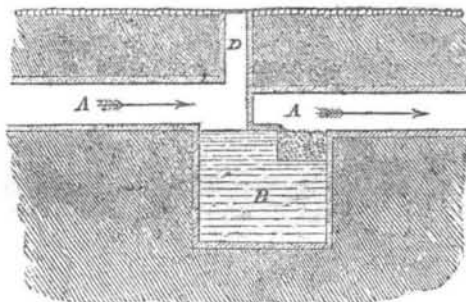
IRON FENCES.

Some 15 years ago, nearly all the iron fences which were constructed were made of wrought iron fashioned at the blacksmith's forge. This process was, of course, enormously expensive, and consequently caused a very limited demand for the article. The introduction of cast iron reduced the expense, and resulted in a considerably-increased demand. This material made a more ornamental fence, and one which, in appearance, was more substantial; but it was, of course, in reality much more liable to be broken than a fence made of wrought iron.

In 1849, the manufacture of wire fence and railing was commenced on a large scale in this city by Messrs. Hutchinson & Wickersham, No. 312 Broadway, whose works, it will be remembered, we described very fully about a year ago. The operations of this firm have since increased very largely, and we are now furnished with a striking evidence of the extent and prosperity of their business by the publication of a very costly catalogue of their articles, illustrated by neat and elegant lithograph engravings, which represent a great variety of designs for fences, railings, verandahs, gates, brackets, &c. Some of their railing is made wholly of wrought iron wire or rods, from three-sixteenths to an inch in diameter; some is made of hollow tubes (gas pipe), but most is constructed of a combination of rods with cast iron fastenings and ornaments. This is the celebrated composite iron work for which a patent was granted to Henry Jenkins on January 13, 1852; the patent now being owned by Messrs. Hutchinson & Wickersham. By this plan the wrought iron rods are fastened together at the ends and crossings by ornamental cast iron bands, which are cast around them, making a remarkably cheap, strong and elegant fence. The catalogue of varied designs is distributed gratis among such architects as desire to use the railing.

SEWERAGE OF CITIES.

MESSRS. EDITORS:—Having read with great satisfaction the letter of Professor Liebig in your valuable journal (which I have constantly read for the last 12 years); and having been, for more than 20 years, more or less engaged in the laying out and construction of sewers, I fully concur with him in all that he says of the importance of the subject, with regard to the saving of those hitherto lost substances by which we may renovate our impoverished lands. I have oftentimes brought the subject before my own and some neighboring cities, but without any success. What the learned professor says of the older countries is already beginning to be true even here. My first suggestion of a plan to save the sewerage of cities would be to sink vaults under the bottom of all lateral and inlet sewers before they reach the main receiving sewers that carry off the larger bodies of water from the streets. Into these vaults all the matter from the blocks must flow with the water that carries it; out of these vaults the water should flow through an inverted filterer leaving all that is valuable in the vaults, so that nothing but nearly clear water would reach the main sewers; consequently, no nuisances would be created at these outlets. And as all matter in the vaults would be always covered with water, there would be no nuisance from them. How far chemical agents in the vaults and filterers could be made to assist in retaining and improving all the valuable matter retained would be a subject of experiment. Could such a system be carried out in the city of London (and I can see no impossibility in it), the river Thames would present quite a different appearance from what it sometimes does now. In the



accompanying diagram let A A be the sewer, B the vault leading through the filterer, as shown by the arrows, and D the manhole in the street through which the vault should be emptied, by pumping or otherwise; and as cheap disinfectants are known, there need be no nuisance from the emptying of the vaults. In those cities that are already seweraged on the present plan of wasting, everything would have to undergo some alteration in the arrangement of the inlet sewers in those streets, in order to affect the proposed saving; but in most other streets, by a slight modification of the present sewers and some alterations in the disposal of the surface water, the object may be attained with the addition of these vaults. H. L.

Buffalo, N. Y., March 1, 1860.

SHAKER PLAN OF MAKING SOAP.—The trustees of Shaker Village, N. H., give us the following easy and cheap method of making soft soap:—"Place a shallow iron kettle, to hold from 4 to 6 barrels, just out of the wash-room, under cover of a shed. Extend half or three-quarters inch pipe for steam to the middle of the bottom, bending it to form of surface, and terminating with open end. Take another pipe to discharge cold water over the top of the kettle. Use the best quality of 'first sorts' of potash in the proportion of 6 pounds of potash to 7 pounds of grease, for a barrel of 40 gallons. Break up the potash into small lumps, and dissolve it in, say, 2 pails of hot water to 24 pounds. It dissolves rather slowly when the potash is good. When dissolved, put the solution into the kettle, and add the grease quite warm, and stir the mixture together. Allow it to stand over night, if convenient. In the morning, apply a moderate jet of steam until the mixture appears ropy, or rather, soapy. Shut off the steam and open the cold water valve, stirring the mixture, as the water runs, until the kettle is full, or the required quantity obtained for the materials used. My man makes an excellent article, and never fails. The materials for 40 gallons of soap cost, at present prices, 64 cents; the labor nothing, as the man is not hindered by making it."

SIGNS OF THE TIMES.

Dr. Cumming, the famous Scotch preacher of London, has recently stated in a public lecture at Leeds (England) his opinions respecting the great events which, according to his interpretation of the book of Daniel and the Apocalypse, are looming in the future. He said the year 1867 seemed to end 6,000 years of the world's history, and from the earliest periods onward it had been the almost universal belief that the six days of creation were typical of those 6,000 years, and that the seventh day of creation, or the Sabbath, was typical of the millennial rest of 1,000 years. But they would say that, supposing this were so, they were at this moment over 140 years short of the 6,000 years. It was a remarkable fact, however, that the ablest chronologists, irrespective of all prophetic theories, had shown that a mistake of upwards of 100 years had been made in calculating the chronology of the world, and that the year 1860 of the Christian era began not from the year 4004 of the world's history, but in the year 4138, and that the year of Christ's birth was five years before that, or in 4132. If his premises were just, then they were at that moment within seven years of the exhaustion of the 6,000 years; so that if 1867 were to be the termination of this economy, they had arrived at the Saturday evening of the world's long and dreary week. If this were so, it was a magnificent thought that there were some in that assembly who would never die. They were just plunging into the days such as they had never before seen; an European war was looming more dreadful than that through which they had recently passed, and when these things happened it would be seen that the sentiments he had uttered were not the dreams of fanaticism, but the words of soberness and truth.

Messrs. Rudd & Carlton, of this city, have published, quite recently, two volumes of lectures by Dr. Cumming, entitled "The Great Tribulation." They are among the most interesting religious publications extant; and however widely we may differ from the learned doctor, in some of his views, yet we cannot but admire the eloquence and piety which these lectures exhibit.

THE IMPERIAL CYCLOPEDIA OF MACHINERY.—We acknowledge the reception of the last 11 numbers of the "Imperial Cyclopædia of Machinery," from the hands of Messrs. C. B. Russell & Bros., of No. 12 Tremont-street, Boston, the American agents of Mr. W. Mackenzie, of Glasgow, the publisher. The above-named work has been produced in a style of truly "imperial" magnificence, and comprises a series of plans, sections and elevations of stationary, marine and locomotive engines, spinning machinery, grinding mills, tools, &c., all of the newest and most approved construction, and many of them only recently patented; also several of the most useful and important machines that were exhibited at the World's Fair of 1851; the illustrations being accompanied by full descriptive letter-press, an essay on the Steam Engine, a history of the Railways in Great Britain and America, a dissertation on Screw Propellers, and a treatise on a new method of Perspective, applicable to the delineation of complicated machinery and designed to obviate, in a great degree, the necessity of making expensive models. The illustrations are drawn on a scale large enough for the practical mechanic to work from; and being got up under the superintendence of eminent practical engineers, their fidelity in every detail can be relied on. We earnestly recommend this elaborate and comparatively cheap work, as a standard of excellence, peculiarly adapted to preserve and foster the spirit of progress among the thousands of our readers who are engaged in the practical application of the principles involved in the science of Constructive Mechanics.

CANADIAN PATENT LAW.—Some of our cotemporaries are erroneously publishing that a new patent law has passed the Canadian Parliament, and that there is now a chance for American inventors to secure patents in those Provinces. Probably this announcement it made upon the review of the Canadian patent bill, as published by us on page 89 of the present volume of the SCIENTIFIC AMERICAN. The bill has not yet become a law, but in anticipation of its early passage, we have our arrangements nearly perfected for prosecuting patents in the Canadas; meanwhile, inventors and patentees should look to our columns for the earliest and most reliable information on the subject, as we are in direct correspondence with the committee.