

IMPROVED WALK AND ROAD CLEANER.

In large pleasure grounds, such as the Central Park in this city, or in extensive country seats, the labor of keeping the walks and roads clean and free from weeds is both arduous and constant, requiring the employment frequently of a large number of men. A new machine has lately been devised for this purpose, which, drawn by a horse and guided by one man, does the work far more effectually and expeditiously. It is the invention of Mr. Robert McKinley, a practical gardener of Hyde Park, N. Y., and its construction and capabilities will be understood from the annexed illustration.

A is the hoe, which flares forward so as to work close up against the edges of the walk, cutting the same square and clean. This is hung to the forward axle, and is also suitably jointed to a lever, B, by means of which it can be depressed to cut to any required depth, or raised out of action altogether. Following in rear of the hoe is a rotating rake, which may be also lowered or raised through jointed bars connecting with the hand lever, D. The rake is provided at one end with a pinion which is revolved by a gear wheel which, in turn, is rotated by the cog wheel on one of the main wheels of the apparatus, said main wheels being loose on the axle. The teeth of the rake are kept clear by the comb, E. Lastly, in rear of the machine is a gathering rake, F, which may be governed by the lever, G.

The hoe, A, serves to cut out the weeds, after which the ground is raked and the weeds shaken clear of earth by the revolving appliance. Lastly, the gatherer collects the refuse and deposits the same at proper points according to the will of the operator. By replacing the hoe with another of different form, the machine may be utilized for cultivating and other purposes of the farm.

The invention is manifestly a labor-saving one, and is of timely importance just at present. For further particulars the inventor may be addressed as above.

THE MERRIMAN LIFE-PRESERVING DRESS.

We recently published an account of Captain Boyton's daring attempt to swim from Dover to Boulogne, in the life-preserving dress invented in 1869 by C. S. Merriman. Although the adventurer did not complete his task, a journey of probably 30 miles, lasting 15 hours, must be considered a triumph for the inventor, as well as a proof of Captain Boyton's courage and endurance.

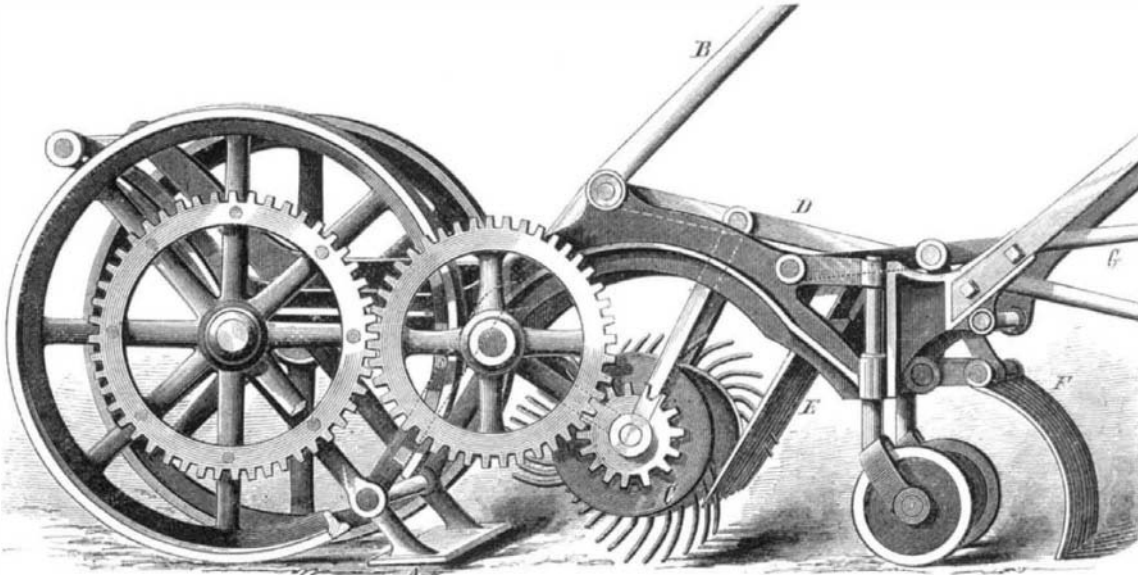
Our illustration gives a clear idea of the manner of using the invention, which certainly seems to be a comfortable and pleasant mode of traveling by sea. Under full sail, with the paddle for steering apparatus, the voyager seems to be as safe on the crest or in the trough of the waves as he would be in a boat; and the reclining position is much less wearisome than either standing or sitting. The steamer Rambler convoyed him across the channel, and he was much applauded when he landed from that vessel in Boulogne harbor.

The Philadelphia Exhibition.

In little more than twelve months the largest exhibition building that the world has yet seen will be opened at Philadelphia. We have already published some descriptive particulars of the huge structure now springing up in one of the principal centers of American commerce. The most recent advices from the States tell us that within the next two months no fewer than ten thousand hands will be actively employed in its construction. The circulars of the British Commission have been issued by Mr. Cunliffe Owen, and applications for space must at once be sent in. It is not too early, then, to consider what the project really means, and we can assure our readers that the subject deserves their best attention. Although the exhibition is, after all, to be nominally provincial, and government aid is withheld, it cannot be denied that the magnitude of the undertaking will really confer on it the dignity of a national enterprise. So far, therefore, the Philadelphia Exhibition cannot well be regarded as inferior in its scope to that of Paris in 1867, or of Vienna in 1873. Many engineers and manufacturers of Great Britain will therefore contemplate the sending of their productions to the other side of the Atlantic. Our purpose now is to urge upon these gentlemen the importance of considering very carefully what they are about before they incur any expense in carrying out this idea.

In plain English, international or provincial exhibitions are

simply great bazaars, in which space is taken and to which goods are sent, either to effect sales, or to serve as advertisements. The latter scheme has been so thoroughly carried out, indeed, that instances have occurred in which manufacturers have agreed for space, and exhibited nothing after all but dozens of photographs of their wares, and cases of the medals which they had previously obtained elsewhere. The Philadelphia Exhibition will prove no exception to the general rule. It will constitute a gigantic bazaar, in which a good trade may or may not be done, according to circumstances.

**McKINLEY'S WALK AND ROAD CLEANER.**

But the question arises here: Is what England is likely to receive, in return for her trouble, worth having? In one word, will it be a good speculation to exhibit at Philadelphia in 1876? We call spades spades, it will be seen, and have no fear of shocking our readers when we state that the work of exhibiting in the present day has become a speculation, which can only be justifiable when it affords a fair prospect of proving remunerative. Let us take this consideration as the basis of our reasoning regarding the propriety of exhibiting at Philadelphia, and we venture to think it can easily be shown that no exhibition has ever existed which holds out so little promise of being serviceable to English manufacturers. The principal things we have to sell as a nation are coal, iron, machinery, and woolen and cotton goods. It is not likely, for obvious reasons, that any English coal owner will do at Philadelphia as continental coal owners did

America. On woolen goods, for example, a tax of fifty cents a pound, and 40 per cent *ad valorem*, must be paid before they can be taken out of bond. Under such conditions, what possible value can accrue to our Leeds or Huddersfield houses by exhibiting in the United States? As regards iron, again, it is obvious, in the first place, that we can show nothing which America cannot produce equally well, albeit at a much greater cost; and the idea of establishing any trade in iron with the States as a result of exhibiting iron in 1876 is simply absurd. The duty on machinery is just as prohibitive,

and the value of the machinery which we send to the States now would certainly not be augmented by a single dollar if every engineer in the United Kingdom exhibited at Philadelphia. It may be urged, perhaps, that, at all events, goods sent for exhibition would be admitted and sold duty free, and in so far would pay for the sending. This is a mistake. Goods sent to the States for exhibition will be virtually in bond in Fairmount Park, and the exhibitor can carry them back to England without paying duty; but if he sells anything for use in the States, the custom house officers will demand and must obtain the tax before it will be suffered to leave the building. In the fact that a prohibitive American tariff intercepts the course of trade between the two countries lies the

reason for which we assert that English exhibitors can secure no possible benefit of any kind by sending their productions to Philadelphia.

We are not singular in holding this opinion. The weavers of Kidderminster have determined that they will send no carpets for exhibition. The implement makers of Birmingham will keep their goods at home. The leading agricultural engineers have already held a meeting, to discuss the propriety of exhibiting in 1876. After careful discussion, the following resolution, moved by Mr. James Howard, Bedford, and seconded by Mr. Shuttleworth, Lincoln, was unanimously passed: "That, looking to the prohibitory duties—from 30 to 40 per cent—imposed by the United States upon English agricultural machinery, the Association of Agricultural Engineers recommends its members to hold aloof from the Philadelphia Exhibition, considering the imposition of prohibitory duties to be out of harmony with the objects of international exhibitions." Members of nearly the whole of the great firms, and many of the smaller ones, were present, and the feeling was that no good could accrue to the English makers from exhibiting, although it would unquestionably be of advantage to American makers to have our best specimens of agriculturing engineering displayed before their eyes.

The fact that the United States *pin their faith on protection*, both in theory and practice, renders it impossible that exhibiting at Philadelphia could repay English exhibitors. A nation which carefully excludes the wares of other countries has no right to expect those whom she treats as trade foes to send their choicest productions to her for inspection.

There is yet another reason why Englishmen should hesitate before taking part as exhibitors in the Philadelphia enterprise. Apparently the matter may be regarded as of little importance, but it really deserves very careful consideration. Up to the present moment all experience goes to show that the Americans are unable to carry out with success the organization of an exhibition. The questionable transactions which disgraced the administrative department of the American section of the Vienna Exhibition are, no doubt, more or less familiar to all our readers. Scarcely a "fair" can be held in the States that is not attended with some more or less unworthy squabble among officials, exhibitors, or both. Have we any reason to expect that everything will be done in Fairmount Park during the summer of 1876 with a strict regard for the best interests of British exhibitors? The United States have availed themselves of their opportunity to show that they can do without us. The chance of manifesting a reciprocity of feeling on this point is now afforded to British manufacturers. We trust they will not suffer the occasion to slip. They will have truth and justice on their side if they say to the people of America: You will not buy from us; why should we trouble ourselves to show you what we have to sell? Of course, it may be said that this is a very selfish and illiberal policy. Those

**CAPTAIN BOYTON IN MID-CHANNEL.**

at Vienna, and exhibit trophies of mineral fuel, so that we may dismiss coal from our list at once. All the remaining articles are so heavily burthened by import duties that it is vain to expect that we can trade successfully in them with

who talk in this way are ignorant of the true character of such exhibitions, and practical men, whether engineers or journalists, must deal with things as they are, not as they are believed to be by amiable enthusiasts.—*The Engineer.*