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MARINE ENGINES.

That will be a white day for steamship proprietors which ushers in the marine steam engine as it should be. The screw engine is specially referred to, for although paddles will always be used to some extent there is little doubt but that to this mode of propulsion we must come at last. The screw engine of the present day is far from perfect. Engines for this purpose in this country are of many kinds, and their designs, with but few exceptions, have been imported from abroad; they are copied essentially from those made by English engineers. The engines of our gunboats and frigates are copied in plan from the back-acting English engines built by Messrs. Maudslay & Field. The vertical screw engines, sometimes called "steam trip hammers," are copied from "Clyde" makers. The oscillating engines are notoriously English. There are no other classes of engine in general use on steam propellers, if we except modifications in detail which cannot be called new designs.

The back-acting engine is an abortion. It has a very short connecting rod and twice as many piston rods as it ought to have, and while it is inconvenient to get at when working, it is open to the cinders or fine ashes which are often blown down the hatches. Let the main brasses be fitted perfectly, in a short time they will become loose, so that they can be heard thumping all over the ship. The vertical overhead cylinder has the same defects. In fact, with all engines that have short strokes and short connecting rods, the incessant pounding which occurs soon wears the parts under greatest strain, so that they are frequently out of repair. Add to this the fact that the inverted cylinder engine puts the weight far above the ship's center of gravity, that grease and "drip" from the stuffing boxes is continually running down, fouling and rusting all the bright work in its vicinity, and we have strong objections to its use. The oscillating engine is a good one, and gives excellent satisfaction when well constructed and put in place; some of the largest and swiftest of our Sound, lake and ocean propellers have engines of this class.

The ideal of a marine steam engine is the greatest power with the fewest parts in a small compass. Every five-eighth bolt that is unnecessary is part of a system of complexity which ought to be abolished. Two piston rods, where one would suffice, come in for the same condemnation. And the crowning abortion is to multiply the number of cylinders where

two would suffice, so that the ship's hold is a nightmare of rods, bell cranks, steam chests and counter-balances.

An engine which is completely within view in all parts when at work, which is accessible to be keyed up or otherwise adjusted without removing ten or twelve tons of iron grating, which is compact without being crowded, and so proportioned that the strain is not all put on one part but distributed through the whole, would seem to possess valuable features. From it would result fewer detentions and delays from deranged machinery, fewer hot bearings, a lessened first cost and annual expenditure for repairs, and a general satisfaction and feeling of security to the engineers in charge, which would not be the least important point gained.

PATENTS ON SMALL THINGS.

An English firm has lately patented a peculiar shape for candle ends. By making them conical, or tapering, they will fit any candlestick without being papered or tinkered up in other ways. Now a very small royalty on each pound of candles will give a large annual revenue to the inventors, and the pecuniary value of their idea is seen at once. Similar instances might be given from cases at home, where inventors have originated some simple article in daily use and secured it, they have received large rewards. "Despise not the day of small things," says the proverb, and we may say, in addition, deride no idea as useless that tends to advance the arts and sciences, merely because it seems simple.

A very great misconception prevails in the minds of many persons in respect to patents. They are regarded chiefly as stepping stones to fame or passports to future notoriety. This is a huge delusion. An invention is first and principally an investment, just as an artist's picture, although an inspiration, is a commercial venture. The glory and renown attaching to either picture or invention is the after-part, the dessert to the solid feast on dollars and cents. The natural result of the mistake alluded to, is, to lead persons to underrate the value of their ideas. It is not at all uncommon to hear individuals exclaim, "What, get a patent on that thing!" in alluding to some little affair that can be carried in the pocket. That very despised "thing" will doubtless be the foundation of a good fortune, as many a similar article has before it.

The improvement in some art or manufacture suggests itself to an individual, and he straightway applies it to his own use with very great advantage. Now what shall he do? Patent it and secure the fruit of his genius to himself, or give it to the world without price? The business man would say the former; because if notoriety be the object, great patents confer not only means but distinction, and where the first is attained the second follows.

SURFACE INDICATIONS OF PETROLEUM.

The paying wells of petroleum are shafts bored into cavities in the rocks, in which the oil has been collecting for immense periods of time. Petroleum is found in all the geological formations, but it is only in certain rocks that the caverns occur for its accumulation in large quantities. If a rock is found saturated with petroleum at the surface, it is absolute proof of the existence of the oil at that locality, but it is no proof of the existence of a great basin in the rock below, filled with the valuable fluid in quantities sufficient to pay for sinking a well.

SPECIAL.

Subscribers who bind the SCIENTIFIC AMERICAN should carefully preserve the frontispiece in the first number of the present volume, as we shall not be able to furnish it at the close of the year as heretofore.

BRISTOL'S IMPROVED TEA URN.—In our number for June 20, 1863 we gave an illustration of this improvement, referring to which, the reader will perceive that the urn has two separate compartments, one for hot water, the other for the decoction of tea. The invention is now being brought into market, in good style, and promises to be extensively used. A practical trial convinces us that the good opinion of the article formerly expressed by us, was fully deserved. Arle Bristol, Detroit, Mich., is the inventor.

TO PRACTICAL MEN.

During the past year the SCIENTIFIC AMERICAN has received communications on various subjects from practical men of all trades. We devote one department of our paper to these communications, and feel that it is extremely valuable to our readers to hear what actual workers have to say. When a man writes what he knows and sends it to a newspaper there will be hundreds of readers to profit by it, and it may be the means of inducing others to forward their experience on the same subject. It adds to the stock of popular knowledge on practical matters, and is a source of advantage in many ways not necessary to detail at greater length.

We would, therefore, urge all those who have so kindly forwarded us their views on several subjects, to continue the correspondence, and others who read, but never write, to follow the examples alluded to, and give us the results of observation in any art, science, or trade. We make no restriction as to the subject or treatment, except that as regards the latter it must be brief. Neither do we agree to print every letter we receive, but we shall carefully consider each one solely on its merits. From this time forward we hope to present an attractive correspondence page every week.

THE BALANCE OF TRADE DELUSION.

The delusion in regard to perpetual motion is disappearing before the progress of knowledge, but the delusion in regard to the balance of trade retains its hold on the minds of many intelligent men with singular tenacity.

The balance of trade depends simply upon the way the books are kept at the custom houses.

A trader buys \$100,000 worth of wheat in New York, and ships it to England, where, with the profits and freight added, it sells for \$125,000. The proceeds are invested in lead, iron, cloth, and other articles, which on being brought to New York, with the freights and profits added, are worth \$150,000.

In this case the export has just paid for the import, and the country has \$50,000 worth of merchandise more than it had before.

Now, if the books at the custom house are so kept that the value of the articles is entered, at the prices paid for them, the balance of trade against us will be \$25,000; if they are entered at their New York value, the balance of trade against us is \$50,000; while if they are entered at their value in England, there is no balance either way. If the articles are entered either at our home valuation, or at the purchasing price, the more profitable is the commerce, the larger will be the balance of trade against us.

We have made this explanation before, but are prompted to repeat it by the reception of a pamphlet from Lorin Blodget, Esq., in which he labors through fourteen pages to show that, for the last four years the balance of trade has been in our favor, including gold, which is one of our staple products. As our merchants are shrewd, we do not believe that they have continued for four years the practice of exporting merchandise of more value in our ports than that which they have obtained in exchange. If they have, they have been doing a business unprofitable to themselves and to the country.

THE PETROLEUM OIL INTERESTS.

Let no one conclude from the tenor of our article in the last number, in which we exposed the oil stock swindle, that we intended to depreciate the valuable petroleum interests of the country. These interests are of a most valuable character. Millions of dollars are annually realized from these flowing streams of light and heat, and thousands of our citizens are honestly employed in their development. The same is true also of all the great and inexhaustible mineral interests of the country. It will be found, however, that stripping off all the efflorescence of humbuggery, these vast resources are not developed without much loss in money and misapplied labor; and that thousands lose their honest investments and suffer bitter disappointment, simply for the reason, that following the general geological theory of mineral deposit, they do not happen to strike a vein, while some no more industrious neighbor near at hand does happen to hit upon the right spot and garners up a fortune. By honest toil and a judicious investment of