wards its erection $248,000 (nearly half a million) have been paid out of the Patent Fund—the money paid in by inventors, and did not cost the rest of our citizens a single cent. Is it not a high-handed recklessness, then, to moral principles, in using and abusing the Patent Office, for any other purposes than those for which it was originally designed?

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING JANUARY 22, 1851.

To A. W. Thompson, of Philadelphia, Pa., for improved Propeller.

I claim a propeller constructed as herein described, in such a manner that any one of its blades, in any line, drawn either parallel or perpendicular to its entering edge, shall have the curvature of a parabola produced, as herein set forth.

To Jacob Scheitlin, of Louisville, Ky., for improvement in Brick Presses.

I claim, first, in combination with the clay ducts and connecting carriage of moulds, the rods with their knives, (for the purpose of cutting off and foregin in to the moulds the regular quantity of clay,) and sliding plate or gate, for the purpose of opening and closing the communication between the clay ducts and moulds, as herein described.

Second, I claim the arrangement of the pins, connecting rod, and standard, with its arm, for the purpose of removing the brick after it is raised from the moulds, when the same are operated by means of the cranks, as herein described and shown.

To G. Thatcher, of Albany, N. Y., for improvement in Stoves.

I do not claim the device of sliding doors between parallel jambs or plates, for the purpose of concealing the same; but I claim providing sliding doors with flanges on their vertical edges, the rear flanges serving the purpose of hinges in opening and closing the same; and also serving to form air-tight joints when the doors are closed. And the front flanges serving in connection with the projecting ends of side plates, to relieve the appearance of a joint, when the doors are opened, as before described.

I also claim the providing of the side plates with projecting front plates, for the purpose of forming fronts to the spaces into which the doors are slid when open, to conceal the same, and in connection with the rear flanges, to form the hinges of the doors, when closing the same; and also to conceal a portion of the front flanges when the doors are opened and slid back, as described.

To E. T. Parker, of Berkley, Ala., for improvement in Convertible Plow Stock.

I claim constructing a sub-soil plow with removable mould board and cutter, in combination with the tri-pronged cultivating teeth, that the same stock may be used either for a sub-soil plow, or for common plowing and cultivating land, as herein set forth.

To Charles Starr, of New York, N. Y., for improvement in tools for Embossing the backs of Books.

I claim forming circular embossing gilding or lettering tools of any required pattern, for embossing, gilding, and lettering book covers, by having a case or hollow metal cylinder fitting on a roller, and having an opening or openings in it, of any required form, for a panel or other border, the part of the periphery of the roller within the opening or openings in the case, having any required number of small tools, of any suitable form or pattern, secured to it, the surfaces of the said tools standing even with the onter face of the case or cylinder, or by the employment of any number of tools, consisting of parts of a hollow cylinder secured to a solid cylinder, substantially in the manner described.

To A. A. Wilder, of Detroit, Michigan, for improved Lee-way Indicator.

I claim hanging the vane loose at the bottom of the rod, which carries or communicates with the pointet, and holding it either in position for operation, or secure within the vessel above the bottom of the keel, by means of a spring or its equivalent, operating substantially as herein shown and for the purposes set forth.

[The above invention was illustrated and described in No. 8, present volume of the Sci. Am.]

To Daniel Wilson, Jr., (assignor to D. Wilson, Jr., & H. M. Bird,) of North Chelmsford, Mass., for Horse Shoe Nail Machine.

I claim the simple combination of the punch, the slotted bed-die the heading die, the header slide, discharging orifice and header, as arranged, constructed, and made to operate together, substantially as specified, or, in other words, their arrangement and construction essentially as explained, whereby they are made to separate the nail blank from the rolled plate to move it downwards upon the header slide, to cause the header slide to advance, in the meantime, to hold the nail blank, by means of the punch and header slide, to cause the header slide to slide underneath the nail while it is so held, to carry the header against the nail and head it, to cause the header slide to retract or move backwards far enough to carry or move the discharging orifice directly under the nail, and so that the nail may be forced down into or through such orifice, by the further depression of the punch which next takes place, and finally to elevate the said punch to the first or highest position.

DESIGNS.

To J. G. Lamb, of Cincinnati, Ohio, for Design for Stoves.

To S. W. Gibbs, of Albany, N. Y., (assignor to North, Harrison, & Co., of Philadelphia, Pa.,) for Design for Stoves.

To S. W. Gibbs, (assignor to Ira Jagger, Wm. B. B. Treadwell, & J. S. Perry), of Albany, N. Y., for Design for Cooking Stoves.

Shanghai and the Chinese.

The Chinese excel in the compactness of their cooking apparatus, which consists of an earthenware stove, about the size of a flower pot, in which they burn charcoal, and fan it very quickly into a red heat; by covering this over with an iron thing, something like a dish cover, they bake pastry very nicely.

About Shanghai the country is very flat, and ages ago it must have been covered with water. It appears to be going to decay for all the bridges and the joss houses, and the statues in them, are going to ruin. From the general character of the Chinese just now, they appear not to have two ideas, yet their buildings, tombs, and statues show them to have been a fine race, some time or other. It is pitiable to see their fine bridges and buildings going to ruin. The land is divided into large fields of 40 or 50 acres by ditches, which are navigable for their small boats when the tide is in, and are used for irrigating the lands. These fields are sub-divided by narrow paths, and almost every family has a small quantity of land, on which they grow wheat, cotton, and rice; and the surplus of any of these, after they have taken what they require for their own use, is sold, and fire-wood generally bought with it. Fish is very abundant, and the ditches attached to their property in a great measure supply them. The men do the heavy work in the fields, but the women and girls assist at harvest time, and in packing cotton.

They thrash with a flail, which is an improvement on ours. It has two fashes, which are connected by strings; they also have good winnowing machines. * * * They have a very nice gin for cleansing the seed of cotton, but not equal to the American ones. They spin and weave by hand. The cloth they make is very good and strong, but only about fourteen inches wide. Nearly all the native cloth is dyed blue; indeed that is the only color used except drab, and white for mourning. They grow their own indigo. The cotton seeds, after cleaning the cotton, they feed sheep and goats with, and also grind or crush it, to extract oil from it, and feed the cattle with the remainder. They grind the wheat with millstones, which are turned by a pony or Buffalo, and make very fine flour.

For the Scientific American.
Mechanical Principles.--No. 5.

I do not intend to occupy any more space in the columns of the Scientific American with this subject, than a few brief remarks in the present number. As a subject somewhat abstract, it is not of much interest to the great majority. My object was to present, clearly, in as few words as possible, the outlines of the science; and I will now conclude with a few words of advice to those who are in search of new things.

Before any man assumes to have discovered something new, he should inquire,—"do I know all that is already known on this subject?" We hear of this and that alleged new discovery, and many such are made, but it is also true that a great many of them are not improvements nor discoveries. Some men, with a hardihood of no common kind, leap out with a discovery which, in their estimation, proves all the old philosophers to have been men of little capacity, and of less correct knowledge. This has been the case in two instances in the Scientific American. One, who professed to have discovered a new principle in mechanical philosophy, about *inertia*, and the best form of sailing vessels; and the other a totally different principle in *inertia*, namely "gravity," and it was in answer to him that I commenced these articles. By a careful consideration of the works of Newton and Euler, it will be found that no new light has been elicited in Mechanical Philosophy.

In the construction of any machine, no man can make it give out more power than it receives:—the steam is the power of an engine, the water is that of a water wheel. That machine is most perfect which transmits the greatest amount of the real power, whether it be of water or steam. The rendering more simple the various parts of a machine, so as to decrease friction, &c., is a subject which should engage the attention of every mechanic, because the field for improvement, in this respect, is very extended—to save power, in all machines, is a grand desideratum. There are but few who have applied any philosophic improvement, like the "governor" to machinery—such inventions are rare.

Various as are the modifications of machines, there are only three objects to which their utility tends:—First, furnishing the means of giving to the moving force, a good direction. Second, accommodating the velocity of the work to be performed in the most proper and economical manner. Third, guiding the motive power to produce the greatest effect, so as not to throw any of it away. Now, to attain this knowledge, no mere theory will suffice; experience alone is the teacher, but this experience must be linked with a good judgment, and a knowledge of mechanical principles, or else no improvement can be expected.

MACLAURIN.

Fast Sailing Ships.

The British are beginning to awake to the importance of fast sailing ships, to compete with America. It is well known that American ships have taken the trade out of the hands of English houses and that all the fine packet ships running between New York and and Liverpool are built in America. The Liverpool Albion states that clipper built ships are beginning to be built and to supersede all others there.

It states that in the year 1822 some spirited Scotchman located in Liverpool built in the town several vessels for the Charleston trade, called the Lalla Rookh, Marmion, &c., which were superior in sailing qualities to any other then existing. They did not meet with encouragement, were afterwards sent out to Brazils, and were subsequently wrecked.—Their preformances kept alive, however, some spirit of enterprise in merchants connected with the Brazils, but it was not until the year 1839 that the Columbus began her career of navigation between this port and Pernambuco. She was built in London for a paddle-wheel steamer, under the superintendence of Captain Daniel Green, and was intended to test the experiment of working steam with quicksilver, instead of by the ordinary method. That experiment did not answer; she was converted into a sailing ship; and her performance induced the owners to build a kind of sister ship, called the Sword-fish commanded by a brother of Captain Green, between whom there has been a praiseworthy rivalry, and they have at times run each other very hard, each having made passages of about twenty-two days to and from Pernambuco. Beyond this little notice was taken of the matter, except later on the building here of the Seraphina and Empress, to compete with the above vessels.—Shipbuilders and merchants were wedded to old ideas, and content to jog on in the old-fashioned way.

To Aberdeen belongs the merit of carrying out a practical illustration of the advantages to be derived from building ships combining superior sailing qualities with great capacity for cargo, and it is hardly necessary to point to the Pilot-fish, the Bonita, the Reindeer, and Emperor, as reflecting infinite credit on the spirited parties who projected those vessels. The system is now being generally adopted, sharpened, as it must be, by free trade and competition with foreigners.

For the Scientific American.
Belts and Pulleys.

In Vol. 6, page 53 of the Scientific American is an inquiry relative to the use of thick and thin belts; in the number succeding you alluded to it without giving a definite answer,—and in No. 18, E. M. Chaffee attempts to answer the question, but fails in correctness. E. M. C's result, from his experiment, is correct, and would apply were the driver and driven pulleys of the same size, but when the sizes vary it is incorrect; for, supposing the one pulley was 48 inches diameter, and the other only 12, the difference in speed, with an extremely thin belt, would be precisely four times, because 12 is contained 4 times in 48; now if the belt is of sufficient thickness to increase the large pulley one inch in diameter, making it 49 inches, the same belt will increase the small one an inch, making it 13 inches, causing the small pulley to make only 3·779 revolutions to one of the large pulley. The large and small pulley must be increased or diminished, relatively, to keep the speed equal. Experiment has taught that ropes, belts, &c., in coiling around cylinders or pulleys, stretch on the outer side, and contract on the inner—and the stretch being 2, and the contraction 1—consequently, the point that neither stretches nor contracts, is one-third the thickness from the inside, and two-thirds from the outside of the rope or belt. If in the above illustration we wish to know how thick the belt must be to increase the diameters one inch, we find that it is increased half an inch on each side, and as that point of the belt that keeps its length must be half an inch from the surface of the pulley, by the above rule we see that the contraction is one, and the stretch two, and that the belt must be 3 half inches, or one and a half inch thick.

The rule for calculating speed by belts, accurately, is always to add to the diameter of the pulleys and drums, two-thirds the thickness of the belt or rope to be used in making the calculations, but in making the pulleys they are to be ⅔ thickness less in diameter.

H. W. BENNETT.

Rutland, Vt., Jan. 20, 1851.

English Patents to Americans.

Edward Dunn, of New York, now residing in London, for an improved engine for producing motive power by the expansion of alcoholic vapors. Patent dated Dec. 26, 1850.

John Ransom St. John, of New York, engineer, for improvements in the construction of compasses and apparatus for ascertaining and registering the velocity of ships through the water. Patent dated 27th Dec. 1850. This is a great invention. Mr. St. John is a resident of this city.