

**American Prizes at the Paris Exhibition.**

We have no doubt of the fact, that in proportion to the number of exhibitors, the United States will receive a larger number of prizes relatively, than any other country. This is certainly something for which every American can feel a just pride.

A recent correspondent of the *Tribune* states what appears to us will very likely prove true in reference to the awards:

"Of the reapers and mowers, McCormick takes a gold medal, Manny and Wright each a silver medal. The Emperor has purchased McCormick's machine, the one which operated so beautifully at La Trappe, for the Conservatoire des Arts et Metiers.

Pitt's (Buffalo) thrashing machine takes a gold medal. Manufactories of this machine will soon be established at different points in France.

Blanchard's machine for bending wood takes a silver medal. The machine by the same inventor for cutting and sculpturing busts, meets no sympathy from the French jury.

Of the sewing machines, Singer of New York, and Mangin of Lyons, France, take gold medals, the other American machines silver or bronze medals. The jury awards a medal to the French machine, not on account of any general superiority over the American machines, but because of a new improvement which is thought to possess value. (The reader will recollect that the juries were instructed by Prince Napoleon to look particularly for new ideas and new principles not heretofore brought to public notice.)

The vulcanized india rubber of Goodyear receives a gold medal.

In dentistry, Fowler & Preterre, of New York, established in Paris, take a silver medal, the only medal awarded to this branch.

Colt's guns and pistols will not obtain more than a third-class medal or an honorable mention. These instruments met with immense opposition from the start, on the part of the French members of the jury and the large number of competitors from France and Belgium, and thus the few friends of the Colt pistol who were found on the jury were overpowered.

Richmond's machine for cutting iron for steam boilers, &c., receives a silver medal.—The manufacture of this machine is to be commenced immediately in France, and the inventor is in a fair way to receive large profits from its sale.

Some difficulty has arisen in regard to the silver medal awarded to the piano of Ladd & Co., of Boston, but it is not believed that the decision has been definitely changed.

Lieut. Maury's maps and charts have received a medal, but I have not ascertained of what class.

Thus about twenty gold and silver medals are certain, which gives a medal to every eighth exhibitor, a higher proportion of first class medals than will be received by any other nation. There may be more than these awarded, and without doubt there will be several bronze medals and honorable mentions, but these have not yet transpired. Then, again, when the Grand Council meets to inspect the awards of the individual juries, and to "eliminate" an overplus of awards, some of the American exhibitors may be cut down. However the result will soon be known, as notice has already been given to the exhibitors occupying the transept of the Palace that they must in a short time remove their articles in order that the whole of the grand gallery may be free for the ceremony of the distribution of the medals.

Tousley & Reed, of New York City, exhibitors of an oscillating engine, have made the grand hit in the American Department.—This engine, which is the invention of Mr. Reed, and I believe only a year old, is considered one of the most remarkable advances in the science of machinery which is to be found in the Exhibition, and receives in consequence a silver medal. M. Periere, the great railroad king of France, pronounces it one-half better for railroad purposes than any engine in existence. This gentleman has taken it under his powerful protection, and is going to adopt it immediately on four of the leading railroads of France, in which he is the largest stockholder and most influential director. Mr. Reed's fortune is thus made sure, for with M. Periere's

influence, this engine will not be long in becoming European.

The encouragement thus far met by the American inventors who have brought their inventions to the Exhibition has been so satisfactory in a pecuniary point of view, to say nothing of the honor, that it will be, for a long time, a source of regret that more of our useful inventions had not been brought over; and this remark applies particularly to agricultural instruments, which seem to have been seized with great avidity by the French agriculturists.

**Fatal Submarine Experiment.**

Messrs. Editors—It is my painful duty to request a small place in the columns of your valuable paper, to give an account of the end of my unfortunate friend Henry Levy, for the instruction of those interested in submarine matters.

The apparatus he used for his experiments consisted of an india rubber armor, with a metallic helmet. It dispensed with the air tubes and force pumps used at present with the ordinary armor, instead of which he had a supply of oxygen gas, enclosed in an india rubber receiver, attached to his body. The flow of the gas was regulated by means of a tube and faucet; and a vessel containing slacked lime and caustic soda, placed on his breast, was intended for the absorption of the carbonic acid gas expelled from the lungs. His ballast was composed of a sufficient quantity of leaden weights attached to different parts of his body. Several experiments had already been made with this apparatus with sufficient success to inspire, in the minds of all connected with him, complete confidence in the practicability of the process. At one time he remained twenty-five minutes under water. Another time he remained about one hour and fifteen or twenty minutes in the armor—part of the time under water, and the rest on land—and was enclosed air tight in his machine. The experiment which was the cause of his untimely death took place at Hunter's Point, L. I., on Friday, 11th inst., in the presence of several persons residing in New York City, who intended to apply the invention to immediate practical use. After being dressed in the armor he walked into the water a short distance, and returned, feeling unwell, and requested to be cooled. After this, in spite of our entreaties to postpone the experiment, he went in again, until he was about three feet below the surface. A rope was fastened to his helmet and held in his hands, for the purpose of giving signals and guiding him. Express orders had been given by himself not to draw him out on any account unless a particular signal was made. He remained 30 minutes below, giving, during that time, the signal that all was right. How this was done I do not know; perhaps it was caused by the motion of the water. At any rate, according to agreement he was withdrawn; and perceiving that something was wrong, we quickly cut the whole apparatus to pieces to liberate him, but, alas! the poor man was found to be dead! All our efforts to revive him were of no avail. A post mortem examination was held the next day by Coroner Boyd, of Flushing, and a verdict of "Death by suffocation in a submarine armor" was given. The unfortunate Henry Levy was about 28 years old, born at Strasbourg, France; he was a man of brilliant talents, and full of bright promises.

LOUIS BONNET.

**Glazing of Sheet Iron.**

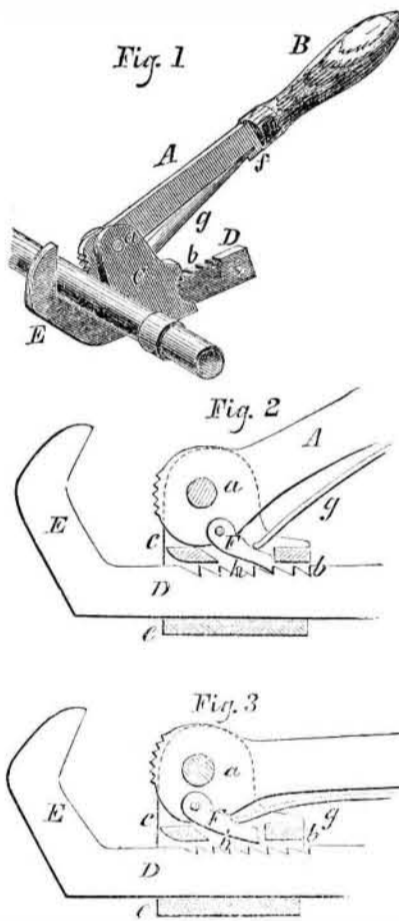
Messrs. Editors—Although not new, this process for protecting sheet and wrought iron by means of a thin coat of glass, may be of importance to some readers of the *SCIENTIFIC AMERICAN*. The inventor, Mr. Paris, of Bercy, near Paris, France, applies it to various articles, such as kettles, saucepans, chemical ware, stove pipe, gutters, roofing, &c., with complete success. The articles are first to be scoured bright, and washed with dilute acid, then dried and brushed over with a solution of gum arabic. The glass is then dusted over them by means of a sieve. The ware is next dried in an oven, heated to 300 degs., then put into another oven, where it is brought to a bright red heat, until the glass is in a melted state, which is ascertained through suitable openings in the furnace. After this it is taken out, and put in a closed chamber, to prevent sudden cooling. If necessary, a second coat is to be put on in the

same manner. The glazing is composed of 130 parts of flint glass, 20-2 parts of carbonate of soda, and 12 parts of boracic acid, carefully mixed and melted in a glass house pot. This glass, after casting and cooling, is pulverized under a steel pestle, and sifted through a bolting cloth; it is then fit for use. This covering for iron is transparent, and does not scale off, nor split, by the action of heat, and it resists sudden changes of temperature. Acids even concentrated and hot, do not act in a notable manner on the iron coated with this composition. On the other hand, boiling solutions of caustic potash or soda, seem to dissolve small portions of the silica and boracic acid.

Among the manifold applications of this process, is the very useful one to cooking implements, as a substitute to tinned ware; its advantages are cleanliness and absence of metallic taste in food. Stove pipe is, by this means kept from rusting. Among the latest applications is the coating of pots for sugar refineries, crystallizing vats for fatty acids, and other articles of sheet iron. It can be applied to the cast-iron plates used in candle stock presses, these plates and presses being liable to rust and stain the fatty matters.

L. B.

**Read's Patent Screw Wrench.**



The annexed engravings represent the improved Screw Wrench of George B. Read, of this city, who obtained a patent for it on the 1st of February, 1853, but which has never before been brought thus before the public.

Fig. 1 is a perspective view, showing how the wrench is used in screwing up a tube joint. Fig. 2 is a longitudinal section through the center, showing the parts where the wrench is ready for operation. Fig. 3 is a section showing the pawl free from the teeth in the movable jaw, to allow the latter to be adjusted, contracted, or expanded. The same letters refer to like parts on the three figures.

The nature of the invention consists in having the shank of the adjustable jaw pass through a recess attached to the stationary jaw by a pivot, and the shank of the movable jaw provided with a rack into which a pawl catches to retain it in proper position.

A is the metal stock of the Wrench, and B is the handle. C is a metal clasp, pivoted at a to the stock A. E is the movable jaw, having a shank, D, with teeth, h, on its inner edge. This shank works in a recess, e, in the clasp, C, and is retained in any part of this recess by the pallet, F. The head of the shank, A, is serrated, and forms the stationary jaw of the Wrench, opposite to the movable jaw, E. c b are two small division pieces in the inside of the clasp, C, between which the pallet, F, works; they are therefore guides to it; g is a

flat spring secured at f (fig. 1.) to act under the tongue of the pallet, F, and retain it in place to hold the movable jaw firm while being used.

OPERATION—If it is desired to open or expand the jaws of the Wrench, the handle, A, and the inner end of shank D, are pressed together between the thumb and fingers, so as to squeeze them into the position shown in fig. 3. This act makes the spring, g, slip further under the pallet, F, which relieves it, and allows it to assume the position shown, viz.: freed from the teeth, h. The shank, D, of the movable jaw, E, can then be pushed further in or drawn further out of the clasp recess, e, to expand or contract the jaws—increase or lessen the space between E and the serrated head of the stock. The pallet, F, springs into place when the stock, A, and shank, D, are relieved of the squeezing pressure. In using the Wrench to expand or contract the jaws, it is held in the hand with the movable jaw on the upper side, and not on the under side, as shown in the figures.

By this arrangement of the jaws of the Wrench, their tendency is to press firmly upon a nut, or other object, while the handle, A, is being turned. The movable jaw is prevented being drawn out by a pin inserted in it near the end of its shank. It will be observed that while the jaws are acting on a square nut, or on a round object like the tube, fig. 1, their leverage is exerted to keep the pallet, F, in the teeth of shank D, and thus they are held remarkably firm to work. Owing to their particular form and relative position also, they will not slip on a nut; and they can retain within their grasp a round as well as a square object; this is a valuable quality in a Wrench. As has been explained, this Wrench can readily be adjusted to operate nuts, bolts, and tubes of different sizes and forms.

More information respecting it may be obtained by letter addressed to Mr. Read, at No. 217 Fifth street, this city, N. Y.

**How to Attack Fortifications.**

Messrs. Editors—In the *SCIENTIFIC AMERICAN* of 29th September, the article on "War Projectiles, &c.," you remark that "during the siege of Sevastopol the only effective means of making advances on the works appear to have been the old plan of sap and mine." It is surprising that the Allies have been building wrought-iron cannon-proof floating batteries, and have not thought of applying the invention of these batteries to assaults on land.—The immense amount of money, the extraordinary loss of life and time expended by the Allies in digging "parallels and covered ways" in the rocky strata on which Sevastopol is built, might possibly have been avoided, and the walls have been at once approached and battered down, if they had used batteries of wrought iron, as directed in one of your former numbers. Instead of being made to float, it might be mounted on rollers, and its parts be arranged so as to suit the new applications; for instance the guns might be moved along separately on their own wheels, &c.

YANKEE CREOLE.

New Orleans.

[The idea of our correspondent is a good one. If thick wrought-iron plates can make effectual floating batteries, why may they not make excellent flying batteries and approaches against fortifications? This would certainly be a very excellent revival of the old method of attacking castles and walled cities by covered approaches moved on wheels, in which the workman wielded their battering rams with terrific effect. We recommend the plan to the contending powers of Europe; it is one which deserves to be tried against the north side of Sevastopol.

**Health Seekers.**

There are men who may be called martyrs of good health; not content with being well, they are always wishing to be better, until they doctor themselves into confirmed invalids, and die ultimately of too much health.

It is said that for Professor Agassiz's great work, which will cost \$120 per set, there are already 10,000 subscribers in this country. This probably is the greatest subscription list any scientific work ever obtained.