

New Inventions.

Improvement in Locomotives.

The English engineers are directing attention to the superiority of Crampton's system of building locomotives by suspending on the extremities of the frame. Mr. Crampton places the driving wheel at the end of the engine instead of the centre, and the wheels carrying about one-half of the whole weight of the engine on them, it is clear that one-half will be on the driving wheels; and by assuming four wheels at the other end to take the other half, the machine in fact, is suspended on the extremities; but in the ordinary machine, the driving wheels being in the centre, with half the weight on them, the other half is necessarily equally distributed on the fore and hind wheels, having the effect of a balance beam action—one of the greatest causes of oscillation.

To accomplish the same result, the superintending engineers, Mr. D. Gooch, of the Great Western, and Mr. Sturrock, of the Great Northern railway, have had their attention directed to the system of suspending their engines on their extremities; and they have succeeded in a great measure, with coupled engines of the ordinary construction, by applying compensating springs, which have the effect, to a certain extent, of placing the weight of the engine on the extreme ends.

Electro-Magnetic Engine.—A New Safeguard Wanted.

The experiments of Prof. Page, of Washington, towards producing an engine of practical utility as a prime motor of galvanic power, and for which \$20,000, I believe, was appropriated, appears to have ended in no solid benefit to the cause of science. I have seen it stated that he had an engine which was called a five horse-power, and yet it was only able to drive a small circular saw, ten inches in diameter. This could be done by a steam engine of one horse-power. I have seen it stated that the electrical engine lost speed in a wonderful manner when set in motion to do something useful. What would be the cost of a large engine of 100 horse power, built upon the principle of Prof. Page's, and operated by the same agent? I would say, "judge not lest ye be judged," but upon consideration I believe it would be more wise, and would also exhibit a more becoming spirit of humanity in our Congress, if an appropriation was made for the invention of some plan or plans of safeguards, to prevent accidents on steamboats and collisions on railways. Many such calamities, I believe, can be avoided, for I believe that there are men in our country who, if a reward was held out to them for some new and useful invention for the purpose stated, would direct their minds to the subject, and produce something useful to accomplish the desired objects. S. S. Philadelphia, 1851.

Collecting Gold by a New Chemical Process.

Prof. Torrey of this city, in a recent lecture, stated that the washing process of gold in California, often results in a large quantity of ferruginous sand, mixed with a large proportion of gold, which cannot be removed by washing. If the mercurial process is attempted, the amalgam will not coalesce, and the mercury can only be recovered by distillation, leaving the gold where it was. Even the expensive solvent, aqua-regia, will not act. But it was discovered nearly a year since, that chloride of lime will take it out as readily as water will remove sugar from sand. From this solution copperas-water will throw down the gold in a metallic powder, perfectly pure.

The latter part we know to be correct, but cannot assert positively that the primary process will do all that has been claimed for it.

New application of the Daguerreotype.

The Waterbury, Conn., American says,—Mr. Hiram Hayden, an ingenious artist of this village, has shown us three landscape views taken by the usual Daguerrean apparatus upon a white paper surface, all at one operation. This is the first successful attempt to produce a positive picture by this extraordinary medium. The pictures exhibit the effect of light

and shade, similar to a fine engraving, bringing out the most delicate minutiae, with the fidelity of the ordinary Daguerreotype.

[This is certainly a great discovery. But the puzzling part is to account for the production of pictures on a piece of white paper. What made the shade? That's the query.

Photography—The Whiteness Camera.

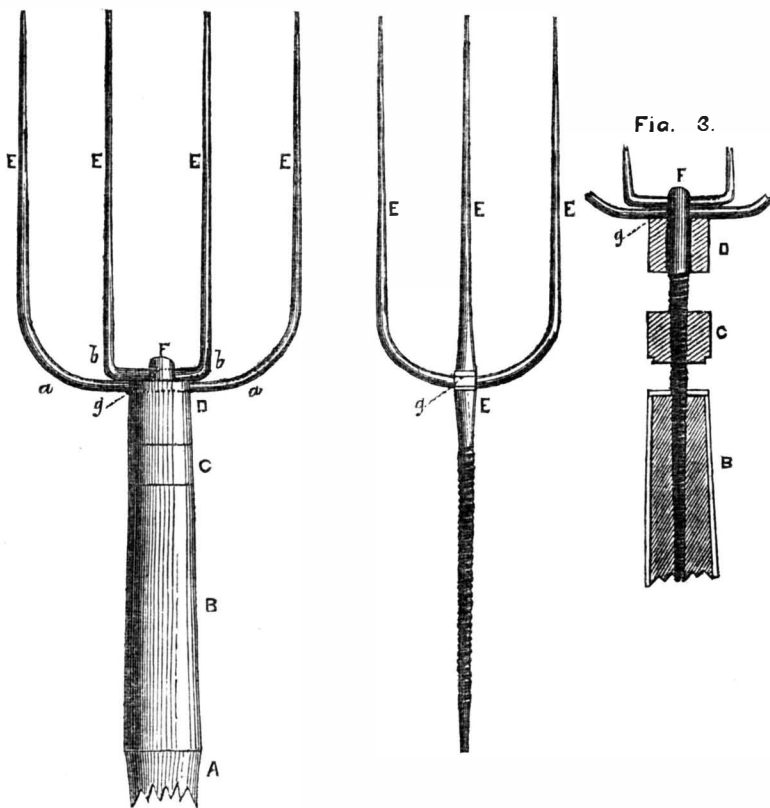
We find in the last received number of the London Athenæum a letter from W. E. Kilburn, "Photographer to the Queen," on the subject of M. Blanquart-Everard's new mode of using a whiteness instead of darkened camera

in taking sun pictures. He says that he has, since seeing the notice of the new process operated daily with a whiteness camera "on every variety of subject," and he sends the Athenæum specimens of the results obtained. He adds:—"I support to a certain degree the opinion of M. Everard that his arrangement quickens the process, but not to the extent claimed by him:—and, as a matter of course, it would assist in the formation of an image by light too feeble with the box blackened. I think it is also of service in making very dark shadows less opaque.

IMPROVEMENT IN AGRICULTURAL PITCHFORKS.

Figure 1.

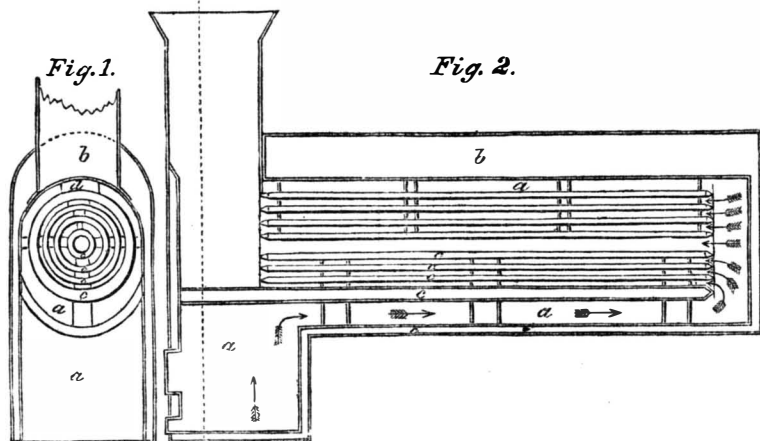
Figure 2.



The accompanying engravings illustrate the invention noticed by us before on page 180. It is the invention of Mr. George Ransom, of Chester, Conn., who has applied for a patent. Figure 1 is a front view of the fork with four tines; fig. 2 shows the manner in which a three tined fork is constructed, and fig. 3 is a section of a four tined fork. The same letters refer to like parts. This pitchfork is so made that it can be changed from a two to a four tined fork, and vice versa, at pleasure. A is the handle; B is that part of the handle which receives the screw shank of the fork; C is a nut, and D is a collar. E E are the tines of the fork; F is a screw rod or shank which fits into the nut end of the handle, A. This shank has an oblong eye (not seen), at g, in its side near the outer end. The tines are put through this slot, and the shank, F, screwed into its

socket in the handle, thus completely tightening the tines in the eye. It will therefore be readily perceived that two tines can as easily be secured and used in this way as the four tines represented by a a and b b, and they are so made that the tines will go through the eye, g, and be turned up with the shoulders in their proper position to be screwed up by the nut, C. The three tined fork is made with the middle tine, E, fig. 2 extended into the screw shank with the eye, g, made in it through which the double tines are inserted, otherwise it is the same as the one described. By this description, and the engravings, every person will be enabled to understand Mr. Ransom's improvements; other information may be obtained by letter addressed to him at the place mentioned above.

CHAMPION'S ANNULAR STEAM BOILER.



This boiler is the invention of Mr. Thomas Champion, of Philadelphia, and was secured to him by patent on the 19th of last month; the claim will be found on page 190, Sci. Am. Two views of the boiler are here presented. Fig. 1 is an end view, with the outside plate removed to show the ends of the annular cylinders.

Fig. 2 is a longitudinal section. The same letters refer to like parts. The boiler is very simple and will be easily understood by attending to the following description; a a represent the fire box, and the arrows in the spaces marked, a, show a large fire space nearly surrounding the annular cylinders.

The heated air and products of combustion are made to return as shown by the arrows at the back and through the spaces between the cylinders, c c c, and pass up the smoke pipe, thus presenting a large heating surface with return spaces, it may be said to get all the benefit of the fuel. There are a number of large evaporation openings communicating with all the cylinders, but d is the upper opening above the annular cylinders, to allow the free using of the steam into the steam chamber, b, above. The openings spoken of will be observed more particularly in fig. 1 as extending around the cylinders, uniting them together, and answering the four-fold purpose of braces securing the cylinders firmly together, allowing the free ebullition of the water and passage of the steam upwards into the steam chamber, b, and also the settling of dirt and impurities to the bottom part, where they may be blown out by a blow pipe, to keep the boiler free from incrustations. They also expose more fire surface, and thereby tend to more rapid evaporation.

It will be observed that this improved boiler has many advantages. According to the space which it occupies, it exposes more than double the amount of heating surface of any other boiler in use. Its form being cylindrical, it embraces strength in its construction, as well as economy of space. Its general construction is such that it affords every facility for a good draught, and Mr. Champion believes that he can save at least one-third of the fuel now used in the best steamship boilers.

More information can be obtained by letter addressed to Mr. Champion, No 465 Callowhill, above 12th street, Philadelphia.

The Patent Office Edifice.

A correspondent from Washington, says "Congress adjourned without granting the request of the Secretary of the Interior in relation to altering the plan of the west wing of the Patent Office Building, for the accommodation of his department. Your article saved the building to the inventors.

It is said that Mr. George Curtis, of Boston, has been appointed Commissioner of Patents."

[We have seen the latter paragraph almost in all our exchanges. We still doubt the correctness of such statements; such action we do not think would be judicious. If we have done any good for the honor or interests of our inventors, we claim no praise—we only did our duty.

Subscribers, Attend!

While we remind many of our patrons that their subscriptions expire with this number, we would also suggest that now is an excellent time for new subscribers to forward their names with those old subscribers who will be remitting their dollar for the balance of the Volume.

For the information of those who may wish to become subscribers, we would say the first half of the present Volume may be obtained by remitting an extra dollar. Any one who may desire to obtain the previous Volume complete [Vol. 5] is informed that we have a few bound copies yet to dispose of, which may be had at \$2.75 each; also a few sets in sheets, which may be sent by mail, price \$2.

It is an invariable custom of the publishers of the Scientific American to erase every name from the mail books as soon as the time for which subscribers have pre-paid expires, therefore those who commenced with this Volume, and have paid but one dollar, are reminded that their subscriptions expire with this number, and that their papers will be discontinued until further orders, according to previous custom.

Manufacture of Salt in New York.

The whole number of bushels of salt manufactured and inspected on the Onondago Salt Springs Reservation, during the year ending Dec. 31, 1850, is 4,268,919 bushels—814,450 bushels less than in 1849. The decrease the past year is thought to be owing to the very large amount manufactured the previous year.

The cost of salt made by artificial heat at the works, has not exceeded, during the past year, 10 cents per bushel of 56 lbs., including the duty paid to the State; and that of solar salt, 14 cents.