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O. D. MUNN, S. H. WALES, A. E. BEACH.

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INFORMATION AS TO THE PATENTABLE NOVELTY OF INVENTIONS.

The list of claims published from week to week in these columns, indicate truthfully the extent of business being transacted at the Patent Office.

It will be observed that inventors are far from being dormant, if they are not as numerous and active, as they were a year ago. Since the first of July we have received a great accession to the subscription list of this journal, and for the information of each, we would state that it is the custom, at the office of this paper, to examine models or drawings and descriptions of alleged new inventions, and to give written or verbal advice as to their patentability, without charge. Persons having made what they consider improvements in any branch of machinery, and who contemplate securing the same by Letters Patent, are advised to send a sketch or model of it to this office. An examination will be made and an answer returned by early mail. Through our Branch Office, located directly opposite the Patent Office in Washington, we are enabled to make special examinations into the novelty and patentability of inventions. Having the records of the Patent Office to search, and the models and drawings deposited therein to examine, we are enabled to give an inventor most reliable advice as to the probabilities of his obtaining a patent, and also as to the extent of the claim that it is expedient to set up when the papers for an application are prepared. For this special examination at the Patent Office we make a charge of Five Dollars. It is necessary that a drawing and description or a model of the invention should accompany the remittance. Address—

MUNN & Co., No. 37 Park-row, New York.

OUR WORKSHOPS TURNING OUT ARTILLERY.

For a few weeks past we have observed that the establishment of S. B. Althause & Sons, corner of Greene and Houston streets, in this city, was brilliantly lighted in the evening, and the rattle of hammers showed that some work was being urged forward with great energy. Passing the place on the 13th inst., we observed workmen putting together gun carriages, and on inquiring at the office, we learned that the firm had just turned out the carriages for ten batteries of four guns each, and are making carriages for fifteen guns more. Each battery requires ten carriages, four for the guns, four caissons for the ammunition, one battery wagon and one forge wagon, the last having a complete set of blacksmith's tools, bellows, anvil, vise, hammers, files, &c.

The carriages are all made after the regulation pattern from working drawings furnished by the War Department from Washington, and Mr. Althause says that the inspecting officers are very strict in holding the contractors to rigid compliance with the specifications. The carriages are for 6-pounder guns, and will, of course, receive any gun of this size, though it is understood that they are to be mounted with the Parrott rifled gun, the invention of R. B. Parrott, Esq., proprietor of the Cold Spring Foundry, opposite West Point. It is formed of cast iron, with a stout wrought-iron hoop or reinforce around the breech.

Since the award of the contract, Messrs. Althause and Sons have been running their works night and day, and have turned out the hundred carriages for the ten batteries in thirty days. We understand that several other large establishments in the country are also at work in making artillery, and there is a good prospect that, at the next important battle, the secessionists will not be stronger than we are in cannon.

We expressed the opinion in the beginning that arms could be manufactured in our own workshops more quickly than they could be brought from Europe, and nothing yet done by General McClellan is more calculated to raise our opinion of his sagacity than his calling upon the great industrial resources of the nation to furnish his army with an ample supply of artillery. The result shows that we can manufacture cannon far more quickly than we can procure them from Europe.

IMPROVEMENTS IN ENGINES—SUPERHEATING STEAM.

The application of heat to steam after it leaves the boiler to enter the cylinder of an engine, is called *superheating*. During the past five years this principle of treating and using steam has been adopted on many steamships, and it has been stated that a saving of about one million of dollars per annum has been effected by the use of superheating apparatus on the vessels of the Peninsula and Oriental Steam Navigation Company, England. If this immense saving has been effected by one company, proportional results of a like character can be obtained by similar arrangements on every steam engine, whether used on sea or land. We would reasonably expect that the great railway interests everywhere would be beneficially subserved by the application of superheating devices to locomotives. On some of our American railway engines the cylinders have been placed in the smoke box to prevent condensation of steam by the refrigerating action of the atmosphere. This arrangement also secured partial superheating, but it has been condemned on account of throttling the draft of the boiler. A principal of engineering such as superheating steam may be perfectly sound, and yet owing to defective devices in applying it no useful result may be realized therefrom. Such seems to have been the case with cylinders placed in the smoke box of engines.

Experiment alone can determine the good or evil of any principle when applied to machinery. When a good principle fails by one arrangement it should never be condemned, but rather lead to such efforts as shall secure its success by other arrangements and other devices. The steam engine has been brought to its present state of perfection by persistent efforts, amid numberless failures, and yet it is well known that not one-third of the power due to the complete combustion of the fuel consumed is obtained on any engine that has yet been constructed. Here, then, there is still an expansive field open for experiment and invention to render this venerable and most useful motor a perfect machine.

The superheating of steam appears to be a forward step toward perfecting the engine, as its economy on steamships has lately been equally realized on locomotives, thus showing the principle to be good in itself and insuring beneficial results when properly applied. The Toronto (C. W.) *Leader* states that the locomotive superintendent of the western section of the Grand Trunk Railway has applied superheating apparatus (illustrated on page 129, Vol. IV, present series, of the SCIENTIFIC AMERICAN) to several passenger and freight engines, and on comparing their performances with engines of the same class not provided with superheaters, they have effected a saving of from 25 to 30 per cent in fuel. The *Leader* states that an examination of the working returns of nearly a score of engines, running on the Grand Trund Railway, shows that in no instance has the superheater failed to improve the engine in hauling power and steaming qualities.

WHITE GUNPOWDER.

There is an article upon the above subject by M. Pohl, a German chemist, in the London, Edinburgh and Dublin *Philosophical Magazine* for July last, and another on the same subject in the *Chemical News*, Aug. 24th, by F. Hudson, Esq. Considerable attention has lately been given by some chemists to this peculiar substance. The former states that prussiate of potash 20 parts, sugar 23 and chlorate of potash 49 parts, make good white gunpowder. In exploding this powder, 100 parts of it yielded 47·44 of gaseous products and 52·56 solid residue. Ordinarily black gunpowder furnishes only 31·38 of gaseous products and 68·06 of solid residue. The efficiency of gunpowder is measured by the gases which are produced from it by explosion. An equal weight of white gunpowder will produce 1·67 times the explosive effect of the black. In order to obtain the same effect on projectiles and in mines, only 60 parts of white power will be required for 100 parts of the common kind. The residue of the white being as 31·53 to 68 of the black, it is more cleanly, while the heat generated when it is ignited is much lower ; and a greater number of shots can be fired with it without heating a cannon.

M. Pohl considers that white gunpowder, being more energetic in its action than common black powder, it approaches more nearly gun-cotton for efficiency, and it has the advantage over this substance in being more easily prepared, keeping for a longer period of time without change, and is cheaper. This powder is not only easier of preparation than the old, but it may be made in a few hours in great quantities with very simple machinery. M. Pohl states that it is difficult of explosion by pressure and percussion ; but Mr. F. Hudson, in his communication to the *Chemical News*, states that he made several samples according to M. Pohl's receipts and found that when he mixed the materials moist, then dried them at 150° Fah., the powder was very liable to explode with friction—it was indeed percussion powder. This was not the case when they were mixed dry. He says :—"A cannon loaded with white gunpowder goes off on the application of a few drops of sulphuric acid applied at the touch-hole. The property of this gunpowder may possibly be applied to some advantage in the preparation of bomb shells for long ranges. These shells would not explode until they strike the object, if filled with white powder, and contain a small glass vessel with sulphuric acid. No explosion of the shell would take place in the air, as is too often the case with the ordinary fuse shell."

As this white powder contains a very large amount of the chlorate of potash, it will corrode the locks and barrels of rifles more rapidly than common gunpowder. It, however, may be used as a good substitute, if saltpeter becomes scarce and high in price. It will also require to be handled with more care, as it is liable to explode with severe pressure. We have exploded it easily on an anvil by a blow with a hammer. As it is very cleanly we would prefer it to black powder, and it may yet be so manufactured, we believe, as to become a substitute for it, for most purposes.

A NEW ARTICLE MADE FROM OLD SHOES.

A patent has lately been taken out in England by T. Gee, of Nottingham, for manufacturing a new article to be used for belting, the upper of shoes, and various other purposes for which pure leather has been hitherto employed. He first takes old boots and shoes, old harness, belts &c., cuts them in small pieces, washes them thoroughly in water and reduces them to a soft pulpy condition by soaking. After this he rolls them out between rollers, dries and mixes them with minute quantities of hemp or flax fiber. They are now intimately united together with a strong solution of glue or gutta percha, then rolled out into bands for belts, or pressed into molds for the uppers of shoes, or other articles designed to be manufactured from it. This is designed to be the conversion of what has been considered *waste* substances to useful purposes.

We have seen wrapping paper and several other articles manufactured out of waste leather, but they all lacked strength. The mixing of flax fiber with the leather pulp may impart to it sufficient tenacity to render it strong and durable.