NEW YORK, MAY 5, 1849.

Progressive Science.

Many suppose that because we are not startled every few days with some new and wonderful discovery, that the inventions patented every week are of little consequence, and of little value. But it is not altogether by the noise which some new discovery makes in the world, that we can form a just estimate of its value or merits. And upon the same principle of reasoning, we should not form an unfavorable opinion of any discovery or invention, because it is not paraded in flaunting colors before "a wondering world."

The most conspicuous parts of a steam engine are its walking beam and fly wheel, but these are not its essential parts. A steam engine can operate well without the fly wheel or walking beam. But what would the steam engine be without those quiet and hidden lips, the valves. They breathe exquisite music and set the whole huge and ponderous engine of cranks and rods and pumps dancing, and a dance of such vigor too, that the old reel of witches and warlocks in Alloa's Kirk, so vividly pictured by Burns, cannot hold a candle to it. Like the office of the steam valves, so may be the important office fulfilled by some unobtrusive, meek invention patented this week without a pamphlet written by its author to let the world know its merits. We cannot have discoveries every few days, like those of the steam engine, the steamboat, the spinning jenny, the power loom, electricity, galvanism the telegraph and many other landmarks in the history of inventions. No, this we cannot expect, but yet we have many good inventions though they may not be strikingly characteristic. The machine shop of to day presents a wonderful and beautiful contrast to the machine shop of twenty years agone. The factory too, presents the same favorable contrast and these are certain positive proofs of Progressive Science. The progress of discovery is a gradual one: the trimming off a superfluous shaft here, and a wheel, a crank or drum there, produces important though not very striking results, and upon such improvements in the aggregate (and sometimes a very simple one in the minutia of complex machines,) depend the whole economics of the machinery—its profits and losses.

Bridges.

The grandest Suspension Bridge in the world, we suppose, is one recently completed at the city of Pesth in the dominions of Austria. This bridge was commenced in 1840 according to the design and under the directions of William Tierney Clark, an English civil engineer. It extends over the Danube and has a clear water way of 1250 feet, the centre span being 670 feet. The height of the suspension towers from the foundation is 200 feet, but they have 50 feet of foundation in the water.

The sectional area of the suspending chains is 520 square inches of wrought iron, and the total weight of the same 1300 tons. This is the first permanent bridge since the time of the Romans, which has been erected over the Danube, below Vienna; it having been considered impossible to fix the foundation in so rapid a river, subject to such extensive floods, and exposed to the enormous force of the ice in the winter season. It now, however, stands as another monument of skill and perseverance. This bridge was open for the first time, not to an ordinary public, but to a retreating army, on the 5th of January, 1849—by which the stability of the structure was put to the most severe test.

A correspondent writing to the London Times respecting this event, says:—"First came the Hungarians in full retreat and in the greatest disorder, hotly pursued by the victorious Imperialists; squadrons of artillery and cavalry in full gallop, backed by thousands of infantry—in fact, the whole platform was one mass of moving soldiers, and during the first two days 60,000 imperial troops, with 270 pieces of cannon passed over the bridge.' This fact cannot but be of importance to the scientific world, since it proves that suspension bridges, when properly constructed and trussed according to the design of that bridge, may be erected in the most exposed places, while the cost in comparison with stone bridges, is comparatively insignificant.

The above bridge has a gigantic span. The great Menai bridge by Telford, is 560 feet between the points of suspension, and is therefore 110 feet less in span than the new bridge over the Danube. The suspension bridge at Friborg in Switzerland, is a splendid work, but it is not equal to the bridge at Pesth either.

America can boast of some grand bridges, especially has she been famous, perhaps above all nations, for wooden bridges. The colossus over the Schuylkill was a grand structure, and there are some others that we might mention. Our architects have been famous for their skill in rearing wooden structures, and we believe that they were Americans who erected the long bridge of Derry in Ireland.

It is not long since that one of our citizens, Mr. Remington, was astonishing the inhabitants of Britain (and is so yet for aught we know) with his skill in bridge architecture. We believe that he asserted in one of his letters, that "his bridge was well secured by patent at home—in America." We have in vain endeavored to discover his patent claim, so we cannot tell in what particular his invention, if any, consists, but this we know that the Flying Pendent Lever Bridge is not a new invention. If any one will turn to Pope's Treatise on Bridge Architecture, published by Alexander Niven, No. 120 Duane st. this city, in 1811, he will see the design of a bridge spanning the noble Hudson from "Manhattan to Jersey's shore," and a curiosity too, is a view of Fulton's steamboat "walking the waters like a thing of life." (This was the year when the first successful paddle steamboat was constructed in Britain.)

Pope's work is a curious one. He was a scientific and ingenious man and possessed much enthusiasm, with some vanity withal.—His work, however, would instruct some of our architects yet. In it he discusses the principles of the lever and its application to bridge building, with the skill of a master. Abutments, trussed sides and trussed floorways are all described by him with great clearness and precision.

High and Low Pressure Engines.

As there are many who do not know the difference between these two kinds of engines, we presume that a description of them will not only be instructive but interesting.

The high pressure engine is a simple machine in comparison with the condensing engine. In the high pressure engine the steam escapes into the atmosphere after having forced the piston to the end of the stroke, and as the pressure of the atmosphere is 15 pounds to the square inch, the impelling force is therefore that which is due to the difference of the pressure of the steam and the pressure of the atmosphere. In the condensing engine, the steam after having pushed the piston to the end of the stroke, passes into the condenser in which a vacuum is constantly maintained, therefore the impelling force in this engine is due to the difference between the pressure of the steam above the piston and the pressure of the vacuum beneath it. There is the whole pressure of the steam urging the piston and the pressure of the atmosphere besides. A condensing engine can be worked with a pressure of steam less than the pressure of the atmosphere, but it is very difficult to start the engine unless the pressure of the steam is greater. In low pressure engines the steam may be taken at five pounds pressure above the atmosphere or twenty pounds altogether. A cubic inch of water makes a cubic foot of steam of the atmospheric pressure, and high pressure steam is just low pressure steam forced into a less space—both are the vapor of water, unless there be some chemical change produced by the heat which is not yet explained. In the high pressure engine in comparing it with the low pressure, there is always the loss of the vacuum which will amount to about twelve and a half pounds on the square inch. Steam at the mere pressure of the atmosphere would not urge the piston at all, without a vacuum connected with it. There is an obvious and generally admitted advantage in working steam at a considerable pressure above the atmosphere, even in condensing engines, but in high pressure it is an especial advantage. A cubic foot of steam at 45 pounds pressure, is as effectual as 3 cubic feet of steam at 15 pounds pressure, in other words, the former will do as much when cut off at one third the stroke as the latter will do if applied during the whole.

Improved Method of Preserving Organic and other Substances.

FIG. 1. FIG. 3.

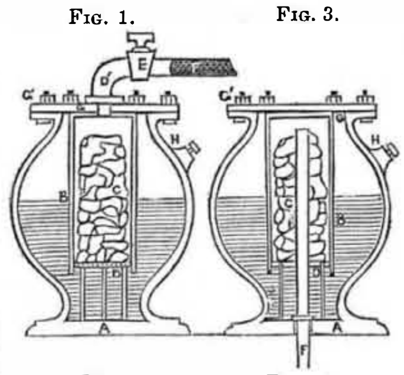
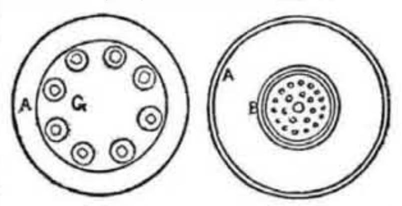


FIG. 2. FIG. 4.



This invention relates to the preservation of substances by supplying certain gases that are non-supporters of combustion, such as a mixture of carbonic and chlorohydric acids, or a mixture of carbonic and vinegar, or pyroligneous acid. The best mixture of the gases for preserving animal matters is a mixture of carbonic and pyroligneous acids in the form of gas. This mixture is preferred because of the small quantity of kreosote in the pyroligneous acid. The way in which these gases are obtained, is to take the common muriatic acid of the druggists weakened with half its bulk of water and pour it in a suitable stoneware vessel containing marble dust, to which had been added a small quantity of kreosote. The gases thus obtained will communicate no taste or odor to the substances that are to be preserved. Common vinegar with a small portion of kreosote added, will make a good gas when poured on powdered marble which will answer every purpose, but pyroligneous acid (wood vinegar) is preferred to this. The above is for the preservation of animal substances, but for the preservation of vegetable substances, carbonic acid gas alone is preferred, and this is obtained by pouring weak muriatic or sulphuric acids on powdered marble, and it is best to let the gas pass through a vessel of clear water to wash it, and in this state the gas is in a proper state for preserving fruits, beer and wines. When meat is to be preserved it is first placed in an air tight box made in any of the well known ways, and fruits and liquors are placed in bottles or other suitable air-tight vessels. The accompanying engravings represent a self acting gas apparatus to make the gas. The same letters refer to like parts on all the figures. A, is the vessel, made of glass or stone ware, to contain the acid. B, is an inner vessel containing small pieces of marble C C, which we prefer to the dust, as the gas will not rush out so fast. These rest upon a false perforated bottom to allow the acid to come in contact with the broken pieces of marble. D, is a bent tube furnished with a stop cock E, which may be joined by a flexible tube F which communicates from the inner vessel B, with an air tight case containing the articles to be preserved. When it is required to change the marble the inner vessel B, can be taken out by removing the flange or cap plate G, which fits over A, around the neck of B, and secured air tight by screws with a strip of vulcanized india rubber between. H, is a small tube or inlet to supply the outside vessel with acid. Figs. 3 and 4, show another arrangement of apparatus from 1 and 2, with only the difference that the tube F, passes down below instead of above. For preserving meat a considerable pressure of gas should be employed, and the gas generating vessels in that case should be made of iron glazed inside to stand the pressure. The meat should also be contained in a stout safe, the pressure upon which may be regulated by a safety valve, and there is no use of an air pump as the gas will force out all the air in the meat safe, if a small orifice is left for that purpose. Small tin cases may be filled with the gas very conveniently, and bottles containing fruit such as grapes, &c. in their natural state. The invention is that of Mr. John Ryan, M. D. of the Royal Polytechnic Institution London, patented by him, and was first published in the London Patent Journal. We believe that it would be very useful to many people in our great country. It is simple and easily made and used, and every person knows the preserving quality of the gas employed. We believe that butter, meats and fruits may be well preserved by this process. Grapes and fruits, we should think, would acquire a slight pleasant spirituous taste by being preserved by the carbonic gas. The principle of the invention is of universal application, and it was this principle of its utility that induced us to call the attention of our readers to the subject.

Light without Combustion.

The National Intelligencer speaking of the Electric Light which has lately made so much noise in London, says that in 1819 they published accounts of such a light having been discovered in Paris about that time, and refers to a letter of Judge Meigs to the Commissioner of the General Land Office at Washington on the subject. An extract from the letter says, "since I wrote you I have seen an account of a discovery of a singular and highly important character announced in Paris by a Professor Meinike, a German probably, viz. an artificial gas confined in glass, assuming, by an electric shock, a permanent, steady light, without heat or combustion !—Here is a grand desideratum, indeed; a candle which can be thrust into carded cotton innocuous—into a cistern unextinguished—which can be placed under one's pillow while we sleep, and pulled out at pleasure. The whale may keep his blubber and the shark his liver," &c.

Without endeavoring to take away the merit of this discovery we would state that Professor Brand claims the merit of this discovery for Sir Humphrey Davy and has publicly made this statement where there are thousands who saw the great chemist produce such a light frequently in his lectures, but then it was only in experiments, without a thought of applying it to domestic illumination.

Patent India Rubber Oil.

Of all the substances of modern application that of India rubber seems to be one of the most extraordinary as well as the most useful. One of its most recent, and probably one of its most powerful applications has recently been made in using it as an oil, or rather in so combining it with oil, that it holds it in such a condition as to render it capable of increased fluidity, at the same time that it has a sort of toughness, or a fibrous quality like glue.—This composition is called "Devlan's Patent Oil." We have noticed this article before and we allude to it again because we hear that its fame is on the increase.

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