NEW YORK, JANUARY 27, 1849.

Steam and Gas Engines.

Above all other machines, the steam engine is the great hobby of improvements. Every month brings forward something new in the shape of a new gas, or atmospheric engine—something that is vastly to increase the power and lessen the expense of engines.—Last year we had accounts of an engine being propelled by carbonic acid gas. Then came the wonderful accounts of Boutigny's spherical steam engine, and now we have accounts of a combined steam and chloroform engine, invented by M. du Trembly, at present exhibiting in London.

Gas as a propelling agent early attracted the attention of engineers and inventors. In 1823 there was invented a gas engine by Mr. S. Brown, which made a far greater noise at that time in the world than any of the gas engines invented since that period. It was intended to supersede the steam engine entirely. It was actuated by the inflamation of hydrogen gas in a vessel containing a portion of atmospheric air sufficient for the combustion of the hydrogen. The great principle of it, was in the ingenious plan of creating and employing the vacuum. Oxygen and hydrogen gas when ignited combine in the formation of water and occupy a less space than in their gaseous state. This was the mode employed by Mr. Brown to form a vacuum, by the said vacuum vessel communicating with the working cylinder. Two vacuum cylinders were employed, and the gases were ignited by a jet of burning gas, and the water was discharged by air admitted through a sliding valve. This engine moved a boat on the Thames at the rate of seven miles per hour, but a company formed with a capital of $21,000 to test its utility, lost every penny—it could not compete with the steam engine. In 1823 Sir Humphrey Davy succeeded in reducing carbonic acid to a liquid state by the mechanical pressure of the condensing pump, and immediately it was grasped at as a prime propelling substitute for steam. This liquid at the temperature of freezing water exerts an expansive force equal to 30 atmospheres, and at a heat of only 120° Fah. 90 atmospheres—and it increases at the rate of 10 pounds on the square inch for every additional degree of heat.—Here there was a liquid which from its natural expansive qualities, stimulated the hope that in carbonic acid liquid gas they had discovered a mechanical propellant which could exert a force of 1320 lbs. on the square inch at 212 degrees of Fah, the boiling point of water. Surely there was enough in this discovery to excite almost to delirium any man—even the most scientific. Sir Humphrey Davy himself was enthusiastic on the subject, as his able paper on the discovery read before the Royal Society is abundant evidence.—Four years after the discovery the ingenious and famous engineer I. Brunell, took out a patent for an engine propelled by gases, that had been condensed into a liquid state, and employed carbonic acid gas heated by water at 120°. When it failed in the hands of Brunel, what can we say more about it than "*it was*." Brunel also tried gunpowder as a propelling agent, but that failed too. He found that the gases, nitrogen and carbonic acid, developed in the combustion of the powder, were perfectly uncontrollable.

In 1827, Messrs. Stirling of Glasgow, took out a patent for an engine propelled by heated air. This engine improved is now in operation, but we believe only in a solitary instance.

Last year a gentleman of Ohio was excited to the employment of gunpowder as a propelling agent for a rotary engine, but we believe that it has not answered his expectations.

Last year there was read before the Academy of Sciences in Paris, an account of an engine invented by M. Boutigny, and described in Galignani—and also in the correspondence of Littel's Living Age, as being a wonderful machine " one of ten horse power being so small as to be easily carried in a gentleman's pocket," like a watch no doubt. It was described as possessing its wonderful power by the discovery of " a new property" in the spheroid state of water. This we could never understand. Water will assume a spheroid form when thrown upon red iron, but its temperature in that state never rises above 205° and it gives off but little steam, and furthermore, its oxidising effects we should think, would be great in the formation of what the Germans call oxidule.

The chloroform engine invented by M. du Trembley, a French gentleman, is reported to give out double the power of a steam engine without any additional cost of fuel. This opinion was embodied in a report presented to the French government in July last. The engine consists of two cylinders, the one piston being worked by steam as in the common engine, while the exhaust steam is received in an air-tight case termed a vaporiser in which there are a number of small copper tubes filled with chloroform. Upon the coming in contact with the tubes, the chloroform becomes vaporised and works the other cylinder, while the steam is condensed and returns into the boiler, as warm water, to regenerate fresh steam, or motive power. In the meantime the chloroform after exerting its force upon the second cylinder, is, in its turn condensed, and, by means of a force pump returned to the vaporiser, which is thus kept regularly supplied, the chloroform being alternately vaporised and condensed.

We make no pretensions to the spirit of prophecy, but it is our opinion that the condensing steam engine as it is, which has stood the test of more than 40 years, almost as it came from the plastic hand of James Watt, will successfully stand the test of as many more.

Gutta Percha.

This substance which we have frequently noticed, has been discovered to be composed of three distinct substances, viz, a white matter, which is considered the pure gutta percha, a substance of a dark brown color, and a considerable quantity of sulphur. Various experiments have been made to ascertain its strength when mixed with other matters, and also as to what pigments would mix with it without rendering it brittle or deteriorating its qualities. From these it appears that the only pigments that could altogether be relied on to be used with gutta percha were orange red, rose pink, red lead, vermillion, Dutch pink, yellow ochre and orange chrome. Under the influence of heat and pressure, gutta percha would spread to a certain extent, and more so if mixed with foreign matters. All the mixtures composed of gutta percha and other substances which had been subjected to experiment, except that containing plumbago, were found to increase its power of conducting heat; but in its pure state gutta percha was an excellent non-conductor of electricity. The best composition for increasing the pliability of gutta percha is that formed in conjunction with caoutchouc tar, and next in order that of its own tar; and the best material at present known for moulding and embodying was obtained by mixing gutta percha with its own tar and lampblack. In the process of manufacturing gutta percha, rude blocks of the material are first cut into slices, by means of a cutting machine formed of a circular iron plate of above five feet diameter, in which there are three radial slots furnished with as many knives or blades. The blocks are placed in an inclined shoot, so as to present one end to the operation of the cutters. The slices are then placed in a wooden tank, containing hot water, in which they are left to soak until found in a plastic state. They are afterwards passed through a mincing cylinder similar to that used in paper mills for the conversion of rags into pulp, and then thoroughly cleansed in cold water tanks; the water, in cases of impure gutta percha, being mixed with a solution of common soda or chloride of lime. It is next put into a masticating machine, such as is used in the manufacture of caoutchouc, and then pressed through rollers; thus being converted into sheets of various width and thickness. When necessary the sheets are again masticated, and again passed through rollers. These sheets are subsequently cut into boards by vertical knives, placed at the further end of the table, along which the sheets are carried by a cloth or web to another roller, round which they pass and are cut into the required widths.—The bands or straps are then removed, and coiled up ready for use. Driving bands for machinery are thus made, and shoe soles and heels are stamped out of similar sheets of gutta percha. All kinds of ornamental wainscotting and mouldings are now made of it

For the Scientific American.

Acoustic Telegraphs.

Pipes for conducting messages by the voice, the same as the telegraph does by marks or signals, has long been a favorite subject with philosophers. In Nicholson's Philosophical Journal of Feb. 1803, a Mr. Walker describes a simple apparatus connected with a speaking trumpet by means of which at a distance of 18 feet he held a communication with another person by only whispering. There are, however, instances of wooden pipes being used to convey sounds in 1750 by Jerrissin, a merchant of Cleves, in Europe. He had become almost deaf, when by accident as he sat smoking one day with the bowl of his pipe resting on the harpsichord while his daughter was playing, he was surprised and delighted to hear the tones of the sweet music. He thought that his hearing had returned, but when he lifted his pipe the sounds vanished. The thought struck him that the pipe had to do with the conducting of the sound, and he afterwards used to hold conversations freely with persons by holding a piece of hard wood in his teeth, while the person who spoke held the other in the same manner. Any person who will try this experiment, will be surprised at the superior conducting powers possessed by wood over the atmosphere. There are some kinds of stone too that conduct sound in a wonderful manner. There is a stone bridge in Dumbarton, Scotland, over the river Leven, which can convey sounds in the most distinct manner across the river, by placing the ear on the coping of the parapet at one end and making the most gentle taps on the other end. Dr. Franklin heard at a distance of 2 miles the sound of two stones struck against one another under water. The velocity of sound in certain solid bodies is 16 or 17 times greater than the air. At the late meeting of the British Association, Mr. Whishaw read a paper on the different applications of Gutta Percha, and among the most prominent objects were speaking tubes with the pompous title of *Telakouphanon.*

Mr. Whishaw stated that "speaking tubes of Gutta Percha, were quite new, also the use of a whistle with them to call the attention of people at a distance." Turning to the Bishop of St. Davids he said " that in the event of a clergyman having three livings, he might by the aid of three of these tubes preach the same sermon in three different churches at the said time." In America this never could happen, for such purposes it could be of no use here; nevertheless, we think that gutta percha tubes might be well employed for an acoustic telegraph. Tin tubes are used in factories and printing establishments for this purpose, but acoustic tubes might be employed of several miles in length and gutta percha we believe is the best substance for this purpose. This invention however, is not new, and Mr. Whishaw borrows his idea and almost his very language, from Thomas Dick. In 1824, we think it was, M. Biot made a number of experiments in Paris by transmitting sound through long tubes of 1,039 yards long and heard whispers audibly at that distance in 5½ seconds. This was in 1824, and it established the feasibility of conveying messages through acoustic tunnels. Don Gautier calculated that by using a series of horizontal tubes, a long message might be conveyed 900 miles in one hour. We do not doubt it, and we may yet live to see the acoustic telegraph established between different cities, thereby friends will be enabled to hear the voice of friends at 60 miles distant. We hail the discovery of gutta percha as one probable means of carrying out this project. It is not chimerical scheme by any means but one which sooner or later will be adopted, on a small scale in every Factory, Foundry and Public Building in the country.

Lighting with Gas.

A committee of the city Council of Worcester Mass. has made a report recommending the the lighting of Worcester with oil gas—" as being cheaper, a more beautiful and agreeable light, and because it is superceding coal gas in many places"—instancing Philadelphia and New York. This is new to us here. It is generelly believed that the coal gas is the cheapest. They report in favor of lighting the city with the oil gas made according to James Crutchett's Patent.

The process of making oil gas is more simple than that of coal gas, as it requires less purification, and the proposition to light Worcester does not appear extravagant in price. A gallon of whale oil affords on an average about 90 cubic feet of gas, of the specific gravity of 900. When oil gas is subjected to a pressure of from 20 to 30 atmospheres, about one fifth of the gas is condensed into an oily volatile fluid of a specific gravity of 821.—When the pressure is removed, this liquid does not entirely reassume the vaporous state, and it may be preserved in ordinary well stopped bottles. Several oil gas establishments were erected a few years ago in Britain, but owing to the cheapness of coal there in comparison with oil, although the latter is more simple and easy to manufacture, they were all failures, and were converted into coal gas manufactories.

The American Condensing Steam Engine.

This work which we noticed last week is now ready for sale at our Office. The Plates are better executed than any that has ever been presented to the public. They are beautifully shaded and every part in its relative position is presented at once to the eye. There is not a steamboat, machine shop, college, or school that should be without one of the plates framed and hung up for reference. The price is $3 for the plate with a pocket key explaining all the different parts, together with a short but true history of the machine.

Manufactures in the South.

The Southern States are fast spreading a network of cotton factories among the cotton growing regions. On one creek in Lawrence county, Tennessee, there are four factories in successful operation. The Hope factory has 800 spindles in operation and employs about 50 hands. The Shoal Factory has 720 spindles in operation and employs 45 hands. The Union factory has 2000 spindles and 100 looms and the Eagle factory has the same number of spindles as the Shoal factory.

The Southern Cultivator published at Augusta, Geo. by D. Lee, comes to us in a beautiful New Year's dress, and full of interesting matter as usual.

The Genesee Farmer also comes out with a new coat and the New England Farmer is resuscitated and will not say fail again.

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