

Scientific American

NEW-YORK, JANUARY 15, 1853.

Extension of a Patent, and the Granting of a New Patent.

We do not know when we were more pained by an exhibition of bad administrative qualities than in reading the debate in the Senate on the 4th inst., respecting the bill for the relief of Hiram Moore and John Hascall, for extending their patent for a grain reaper, and granting a new patent for improvements on said machine. In 1836 these two men took out a patent for a grain reaper, which patent, by standard law expired in 1850. Well, they have got a bill introduced into the Senate to extend their patent for 14 years from the 27th June, 1850, and to it is tacked the following clause, "together with the improvements invented by them, or either of them in perfecting said machine, or any part thereof, from the date of the original patent, to the day from which the same is hereby renewed and extended." It is indeed a strange thing that such a bill in face of standing laws, got into the Senate, and should have been called up and advocated by Senator Cass, with all his experience as a statesman and lawyer. It is evident that he is either not acquainted with the Patent Laws, or that he never read the bill, an error on his part in both respects. The patent laws demand that a model, drawings, a specification, petition, oath, and certain fees, should be presented to the Patent Office before any patent for a new improvement can be granted. The Patent Office Department is organized for this purpose; it is the agency of government to perform such duties, and patents for improvements are granted at all times. Why did not Messrs. Moore and Hascall submit their improvements to the Patent Office, and why did the Committee on Patents in the Senate not send them at once to the proper quarter, where alleged improvements are examined, and where patents are granted? There must be something essentially wrong about the whole transaction. Senator Walker detected the wrong, and appeared to be the only Senator who spoke, that had studied and thoroughly understood the question. He said, "sir, I believe it may be safely said that there never has been such a proposition before the American Congress, if there ever was such a proposition before any other legislative body in the world. Is this a bill simply extending benefits to Moore and Hascall? Not at all, but the effect of it, in my opinion will be, and I have come to the conclusion, after an examination of it in connection with the patent laws, to give Moore and Hascall a monopoly of everything that has been discovered, invented, or constructed, in the way of improvement since the date of the original patent." This is a fact, and let it ring far and wide, so that our people may see the dangerous influences, which are at work in Washington.—Why did not these patentees get their patent extended in the usual way, at the Patent Office, and why did they not apply in the usual way; has there been a plot to obtain a renewal of the patent, and a new patent combined, by surreptitious action? It looks like it.—Those Senators whose attention has been directed to the real question (not the extension of the old patent,) but the dangerous grant of a new patent, we hope will throw out all the amendments. The improvements claimed by Moore and Hascall may not be their invention at all. How does Senator Cass know. The improvements claimed may belong to McCormick or Hussey, and may be covered by their patents. Unless Moore and Hascall were afraid of something like this, they would go like honest inventors and make application in the usual way, and submit their alleged improvements for examination. This is the way provided for by law, and we do not see why the Senate, who made the law, should override it. The majority will not, we are sure, disgrace the Senate by granting such a bill. We do not say a word against the legal extension of a patent, but to grant this one in this manner would be a violation of the existing statute, which provides for the extension of a patent for seven years, when the inventors have not been sufficiently remunerated. We are believers in sticking to the law in all cases. Moore and

Hascall have not complied with its provisions, and for the Senate to grant their petition would be like paying them a premium for contemning the very laws made by the Senate itself; such an act should not be so much as named in the Senate.

Critical Dissertation on Steam, Air, and Gas Engines.

In the strictest sense of the term the fuel may be denominated the "prime motive power" of an engine, for upon the quantity used the whole economy of steam power depends. It is not the mere price of fuel, it might be ten times dearer or ten times cheaper than it is and yet fail to confer any benefit upon man. Thus for example, if 200 tons of one kind of coal could raise steam enough to drive the Pacific steamship across the Atlantic, it would be cheaper to pay \$40 per ton for it than \$8 per ton for a kind of coal which would require 1,000 tons to work the engines during one voyage. The quantity of coal used determines the length of steam voyages. The great object in all inventions to improve steam power, or supersede it, should be the development of force with a saving of fuel; we want something better than the steam engine if we can get it, and it is all sheer nonsense to say that hot air, as a substitute for steam, will save fuel, as is now said about the hot air ship, and yet that ship not sail as fast as a steamship. If the principle does save fuel it should make a ship sail faster. If the reason is asked, why? it is easily given. A steamship requiring 300 tons less coal, and equal to another in every respect, must surely sail faster, at least as fast, and have the advantage of carrying 300 tons more of paying cargo. The greatest care has been exercised, and much ingenuity has been expended on marine engines and boilers, in order to save fuel—the quantity of it—for if it required 2,000 tons of coal to navigate a ship of that tonnage across the Atlantic, there would be no ocean steam navigation.

There are two kinds of steam engines totally distinct in the principles of their operation, the one is the "condensing engine," and the other the "non-condensing"—commonly called the "high pressure." The former allows the steam to escape (after acting on the piston) into a chamber where it meets with a jet of water and is suddenly condensed into its original volume, thus leaving a vacuum for the next jet of steam from the cylinder, and taking away all back pressure from the next stroke of the piston. The non-condensing engine allows the steam to escape into the atmosphere acting against the pressure of the air, which is 15 lbs. on the square inch. The condensing engine economizes fuel because it saves a pressure of 13 lbs. on the square inch (the other 2 lbs. being deducted for the power required to work the air pump,) by forming a vacuum behind the piston by the condensation of the escaping steam in the condenser instead of letting it escape into the atmosphere. For this reason, and owing to the greater safety of low pressure steam, the condensing engine is exclusively employed in steamships. There is one principle, however, in which both engines are alike, we mean the exhaustion of the steam out of the cylinder into a place where the pressure is below that of the steam. Thus if the pressure of the atmosphere was 45 lbs. instead of 15 lbs. on the square inch, a non-condensing engine with a pressure of steam at three atmospheres, (45 lbs.) would not operate at all. If the steam could not be reduced suddenly into water again, then the condensing engine would be out of the question, so that the success of the high pressure steam engine depends on the pressure (15 lbs.) of the atmosphere, and that of the condensing engine on the quality of the steam, it being suddenly condensable to its original volume by a jet of water. The principle, then, whereby every steam engine is rendered operative, depends upon the medium into which the steam escapes after having acted on the piston; it must be a colder medium than the steam. An engine operated by hot air cannot act upon any other principle; the hot air must be allowed to escape into a colder medium, or it will not operate. For example, supposing an engine to be operated by hot air at 491° is placed in a room having its atmosphere heated to 491°, the hot air engine, if its

exhaust ports opened like a high pressure engine into the room, would not operate at all, because the air in the room is of the same tension—the hot air within the cylinder and the hot air without would be in equilibrium—static pressure. How can it be possible, then, for hot air to propel an engine, as has been pretended, and save all the heat of the air. It is a chemical impossibility, and no wonder it baffled Faraday to explain, as was stated in an article copied from a foreign magazine, by a sapient journal in our city. For example, allowing hot air at 491° to be the propelling agent of an engine, and allowing the hot air to have driven the piston to the end of the cylinder, before the said piston can be driven back again, the hot air on one side must be suffered to escape into a condensing, or colder medium, before the hot air applied at the other side of the piston can urge it to the other end of the cylinder to make a full stroke. Well, allowing that the hot air escapes into a series of layers of wire gauze—or a regenerator, as was proposed by Stirling, and mentioned, as he states, in his first patent of 1827, (see London Mechanics Magazine, Vol. 45, for the year 1846, page 563 and 564) it is obvious that just as the wire gauze, takes up the heat of the air, so in proportion as their heat increases, their efficacy as an absorbing medium—condenser, refrigerator, or call it by whatsoever name, is vitiated, and the result of this is, that the back resistance increases, and if the heat of the gauze was allowed to attain to 491°, the engine would not act at all, as would be the case with a steam condenser without an air pump. To pretend that the same heated air can be transferred to wire gauze in a regenerator, and used over and over again, the regenerator acting both as a condenser and boiler is an anomaly. Upon the same principle of saving fuel, every engineer should exhaust his steam into his boiler. Not much fuel, to be sure, would be used, but as little power would be developed. If a certain quantity of hot air can be made to act on a piston, exhaust, give out its heat and take it up again, and so keep a round of action, like one jet of steam making a rotary engine run round for ever, then the same thing can be done with steam, for steam is a gas, as well as air, and comes under the same laws in combination with heat above 212°. The hot air engine cannot act but upon the principle of expansion and contraction, and the steam engine upon the very same principle (evaporation and condensation). The engineer could never make his locomotive fly along the iron track like a whirlwind, but for the absorbing power of the atmosphere, and its cooling effect on the escape of the exhaust steam; also the cooling property of fluid evaporation. If such a law did not exist the boiler would soon become red hot and be rent to pieces, but that all absorbing property for heat exhibited by water, which renders it, as stated in our last article, so superior to hot air, and which is carried off by the steam at a comparatively low temperature, robs the furnace of its energy, makes it safer and more economical to use than hot air, and enables a force to be generated with a rapidity for propelling purposes, far surpassing that of the gases.

To Manufacturers of Machinery.

A subscriber in North Carolina wishes to know where he can get the best machinery for making linseed oil, as he is about to commence its manufacture. We cannot give him the exact information which he wants. It would be well for manufacturers of machinery—all kinds—mills, &c., to advertise in our columns, once at least, in every volume. We are positive that it would put far more than the price of advertising into their pockets, it would save us much trouble, and be of great benefit to many of our readers. Manufacturers and others who use and wish to purchase machinery look to our columns for information. We have no occasion to make these remarks for the purpose of obtaining advertisements.

We do not speak from pecuniary motives, although we admit that advertisements of machines are advantageous to us for the reasons given before, that those who use machinery look to the Scientific American as the source of obtaining information about the same. In this respect we derive a benefit, but much more the ma-

nufacturing advertiser, and those who require such information.

We are constantly receiving enquiries from every part of the country concerning the price of various machines and tools, and the address of the manufacturers.

Those manufacturers who make machines for turning, mortising, sawing, tenoning, planing, tonguing, and grooving, etc., etc., who will send us circulars, stating capacity and price of each size will find it for their interest to do so, besides it will render us better able to give our patrons reliable information. Not a day passes but we have enquiries (besides receiving a number of letters), made at the office, for the address of some manufacturer, or to know which machine in some particular branch of business is the best. To answer these incessant enquiries it takes much time, and cannot always be done satisfactorily, whereas, if our manufacturers will send us lists of what they manufacture, we will paste their circulars in a portfolio, and keep them in a conspicuous place for the benefit of such as may be in pursuit of machinery or tools, and no doubt both sellers and purchasers will be benefitted thereby.

The Aeroport or Flying Ship.

Another number of the *Aerial Reporter* has been published by its indefatigable editor, Rufus Porter Esq., who has been sadly thwarted in the production of his grand development—the wonder of the age, we mean his aeroport or flying ship, or in plain words, a "steam balloon." This great machine, on account of its perigrinations, or rather those of its great designer, has changed its locality more than once, and its name oftener still. It is the aeroport—alias revoloidal spindle—alias flying machine, and a few other names of the jaw breaking stamp which we forget how to spell. Mr. Porter has been very unfortunate, he is really a doomed man by the prince of the power of the air. Lest he should steal a march on Satan by his flying balloon in navigating (as he has promised,) the atmosphere and sailing along to California in three days, his sable majesty has been keeping up a perpetual war with him. Some rowdies on Thanksgiving Day, rewarded the permission given to view the work, by clandestinely cutting the material of which the float is made. The rent produced by this was the next day increased by a blast of wind, and then a rain storm, followed by a freeze, caused considerable additional trouble. However, Mr. Porter has so far repaired all this mischief as to be waiting only for suitable weather to renew and complete his task. We presume, therefore, that nothing further will be undertaken on the aeroport until the spring has advanced. Mr. Porter professes to be more than ever sanguine of success. He announces in this number that the leading motive which prompted him to the invention of "the main principles of the aeroport was the liberation of Napoleon from St. Helena, where he was then imprisoned." So that the aeroport is no mushroom affair of yesterday.

We advise him when it is completed to make his first voyage across the Atlantic to Paris and pay his respects to Napoleon III, who no doubt, for the great development of a patriotic heart—the liberation of Napoleon the Great—will reward him abundantly, perhaps he may yet become President *du Departement de Grand Ballon*.

Notices of Inventions.

On page 20, this Vol., Scientific American, we gave a brief notice of a machine for turning irregular forms, stating that we would soon publish the engravings of it. We were induced to present that notice, as such machines have a very extended interest, and because the word of the owner was promised for the engravings. His promise has not been kept; we regret this for his own sake, and for the future we will take care and promise no engravings of a machine until we are sure of being able to present them. We make these statements because we have received letters asking why the said engravings did not appear according to the announcement made.

The Hot Air Ship made a trial trip on Wednesday, the 5th inst., and with a strong wind and tide in her favor, made about 11½ miles per hour.