

Scientific American.

NEW YORK, MARCH 20, 1858.

The Patent Office and its Management.

Perhaps no other department of the government has been less subjected to the unfavorable criticism of the press and the public, since its organization, than the Patent Office; and we may assert with perfect confidence of its truth, that no other department has been better managed as a general thing, or more free from influences unfavorable to an honorable administration of its affairs. The utility of this institution is admitted by all. It was founded in a true appreciation of the value of genius to the development of the material and moral forces of our country; and but for its fostering protection, we should not now occupy the position we have assumed as a nation.

Since the re-organization of the Patent Office under the act of July 4, 1836, the duties of Commissioner have been discharged successively by H. L. Ellsworth, Edmund Burke, Silas H. Hodges, Thomas Ewbank, Charles Mason, and Joseph Holt, the present incumbent; all gentlemen above the suspicion of intentional wrong doing, yet not all equally felicitous in the management of the Office. We begin our brief review of the affairs of the Office at the time when Judge Mason assumed its duties, early in the administration of President Pierce. The department at that time had fallen into a somewhat confused condition, not from any intentional neglect on the part of the officials, but from a want of the executive ability to manage its complex details, which want had been confessedly shown by the preceding head of the Office. The Office had become unpopular with inventors; their claims were unreasonably delayed; and the whole tendency of its affairs was to an almost indescribable mass of confusion. One Examiner would kick like a bull in a China shop, rejecting nearly all the claims which were presented to him, and not hesitating in the least to reprimand either the applicant or his attorney, under the official seal, for presuming to argue against the fallacies of his decisions. Another Examiner would reject the case, and frame his own notions in regard to it; and the applicant might argue and plead in vain for a reversal of the decision, even although the invention might possess patentable novelty.

We recollect a case about the time we refer to—an improvement in a clock-pendulum. It was an excellent thing, and had so been proved by actual use. Upon an examination it was rejected; but not satisfied with the reasons given for its rejection, the attorney appeared before the Examiner on behalf of his client, and after a considerable conversation, the Examiner informed the attorney that he thought he could see just what was new in the invention; but immediately shut off this gleam of hope with the complacent announcement that "it was not his business to suggest features of novelty." It will force itself upon any one at all conversant with such matters, that the attorney might have guessed half a hundred times without hitting the precise idea which lurked away in the profound cranium of the Examiner. In cases like this, if the applicant was not satisfied with the unsound references cited to overthrow his claims, and persisted in arguing against them, the Office clapped its official action down upon him, with the agreeable announcement, that if not satisfied, an appeal could be taken to the District Court on payment of a fee of \$25; and thus in many cases the inventor, for want of means to carry on his appeal, would be deprived of his just rights; but should he appeal, lo! and behold! here is this same Examiner in the Court ready to confront him, in the capacity of an attorney for the Patent Office who had before said he "could see novelty" in the honest man's case, but re-

fused to lift a finger to point it out. When Judge Mason took the Office, he found it like "a nest of unclean birds;" and he set the power of his mind to the devising of plans for its purification. He carefully studied the law under which it was governed, and acquired a knowledge of its letter and spirit. As a disciplinarian he had the nerve to assert his authority, and after becoming familiar with all the details of the Office, he established a system and enforced obedience to it. Appeals could be taken from an Examiner's decision up to the Commissioner, who, with a patience worthy of the patriarchs of old, sifted the chaff from the wheat, and over-ruled many wrong-headed, unjust decisions. This course necessarily entailed upon him a vast amount of labor, (though he could perform more than most men,) so much, in fact, that he was compelled—previous to his leaving the Office—to call special assistance in deciding appeal cases. Judge Mason performed a herculean labor; but before his views were completely established he retired, respected and beloved by all; and yet, strange to say, Congress paid no sort of attention to his recommendations, and he left the Office under the same laws as existed at his entrance. Not a change was made, and not one of his views received favorable action from that authority which alone had the power to legislate upon them.

Without solicitation by, and against the wishes of the appointee, the Commissionership was tendered to Mr. Holt, who at first refused it; but upon the pressing urgency of the President he accepted the charge, and at once entered vigorously upon the performance of his duties. He also made himself acquainted with the law, and in his report to Congress, dated Jan. 20, 1858, he gave an expression of his views in relation to it. They are eminently worthy of his head and heart; and we say, without the slightest word of qualification, that no similar document—we make no exception—ever received such general commendation from inventors.

Commissioner Holt's policy is an advance in the right direction upon that which he found upon entering the Office. He has grasped the whole subject, and is earnestly working to establish the Office upon a sound and just basis. One of his first acts was to select from among his Chief Examiners an Appeal Board of three individuals, to whom cases could be carried from the decision of primary Examiners. He was fortunate in this selection, so far as the interests of inventors are concerned; but he was unfortunate in not being able to please every Examiner in the Patent Office. Some of them kicked against his judgment, but without avail; he would not recede. The growling and snarling continued, but suddenly the doors are opened, and some of the growlers are bid to seek repose outside of the spot wherein they were evidently so uncomfortable; and we say emphatically, that the Office is better for these changes, and we say further that it is clearly the duty of every employé in the Office to resign, unless they can lend their obedience to the rightful authority of the Office. The responsibility falls upon the Commissioner, and upon him alone; and in the name of common sense, we submit that the subordinate officers have no business to undertake to subvert his authority. Commissioner Holt is not the man to tamely submit to this species of dictation. He will listen to advice, he is glad to receive it, but it is unlike him to suffer his honest judgment of what is right, to be defied or trampled upon by those who should look to him for their proper action. This independent course of the Commissioner, while it is working admirably to the advantage of the Office, and to the entire satisfaction of those who have claims before it, has incited rebellion and provoked opposition, which has shown itself in the shape of a patent bill, published in the SCIENTIFIC AMERICAN, No. 25, and in certain dirty squibs which have appeared in one of the prominent daily papers of this city. They have been the offspring of malice; and of course, truth has been perverted to render

them useful in serving the selfish ends of their propagators.

The Washington Union, under date of the 5th inst., condescends to notice these silly and malicious attacks, and by an appeal to the facts, derived from the records of the Patent Office, completely upsets them, and exposes their sophistry in a manner somewhat damaging to the assailants. They want very much to drive Commissioner Holt from the Office. He stands in their way, but it is not at all likely that he will please them in this matter.

Spontaneous Combustion and Fires.

When a substance takes fire in the atmosphere without being exposed to intense or high heat, the action is called "spontaneous combustion." Phosphorus is the only common substance which is subject, under all ordinary circumstances, to this action. The fuels (wood and coal) employed to produce artificial heat, require exposure to a high temperature before they will burn, hence they are not subject to spontaneous combustion; that is, they will not take fire of themselves under ordinary circumstances. Were it otherwise, there would be no safety for the "dwellings of men," and it would be impossible to conduct any kind of manufacturing operations requiring fuel.

Although these statements are positive facts, yet it is also true that disastrous fires sometimes do take place under such peculiar circumstances that no other theory of explanation as to their cause is left but that of "spontaneous combustion."

We have a letter now before us, received from F. Dunworth, of Dobbs' Ferry, N. Y., in which he relates two rather singular cases of this character, known personally to himself. One of these took place in the Britannia Metal Works of James Dixon, Birmingham, England, and the other in an establishment in the same place, where the manufacture of German silverware was carried on. In the first manufactory, rottenstone in fine powder, rubbed up between the hands with oil, was used for polishing the metal. A quantity of this, wrapped up in paper, was laid upon one of the iron beams in the shop by one of the workmen, just before quitting work in the evening. On his arrival next morning, he found it, to his surprise, in an incandescent state, glowing like molten brass—it had taken fire spontaneously. This circumstance threw light on the cause of a fire which had consumed a former factory of Mr. Dixon, and which had been considered the work of an unknown incendiary.

In the German silverware establishment, lime in fine powder mixed with oil, like the rottenstone, was employed for polishing. A quantity of this was left one evening on a bench, as it had often been left before, and no thought of danger entertained. Next morning, however, when the first workman arrived and opened the door of the shop, he was driven back, for a few minutes, by dense fumes rushing out; and when enabled to enter, his surprise was great to behold the prepared lime on fire, and luminous as molten metal in a crucible.

As neither rottenstone nor slacked lime are combustible substances, they certainly could not have taken fire of themselves in the foregoing cases. The cause of spontaneous combustion in both of these instances was the oil spread thinly over very extended surfaces when mixed with the powders. Various fires have taken place spontaneously, by oil being mixed with cotton waste in factories; but as cotton is very combustible in itself, not so much surprise is excited by such instances, in comparison with combustion produced in lime and rottenstone. Oil has a great affinity for the oxygen of the atmosphere when spread minutely over an extensive surface. During the action of absorbing the oxygen, considerable heat is generated, which, if not conducted away, owing to confinement in a somewhat warm place, is liable to become so concentrated as to produce intense, or "spontaneous combustion." The oil does not take fire spontaneously, like phosphorus; it is only

liable to take fire spontaneously under certain circumstances, such as those related. On this very account, there is, perhaps, a greater necessity to be cautious and watchful in its use, as persons are apt to forget that it *may* take fire. Any substance in a finely subdivided state which contains oil should never be left in an insecure place. As charcoal dust rubbed with oil is sometimes employed to polish metal, it is as liable to spontaneous combustion as cotton waste. Great care should also be exercised in preparing charcoal dust for other purposes, not to allow oil to get amongst it, because of the danger stated.

Bituminous coals in the holds of ships are liable to spontaneous combustion under certain conditions, but not anthracite coal or coke. There is a great quantity of oil in rich bituminous coal, and this may be the main cause of the coals' liability to take fire spontaneously. This oil is distilled at a comparatively low temperature; and if there is iron pyrites in it, a little moisture finding access will unite with the sulphur, and generate sufficient heat to decompose the oil, which, as it is rather volatile, and has a great affinity for oxygen, may ultimately engender sufficient heat to produce intense combustion. This may be the process by which spontaneous combustion takes place with bituminous coal in the holds of ships; but be this explanation correct or not, a sure and accessible means of detecting incipient combustion in the holds of ships is much needed, because a few bucketsful of water, in the early stages of any fire, will prevent a conflagration.

The late case of the burning of the *Sarah Sands*—an iron steamer, well known in this city—by spontaneous combustion of coal while on a voyage to India with troops, has called forth a method of detecting such fires in an early stage, by Dr. Hay, the Admiralty Chemist, at Portsmouth, England. It consists of a small thin copper cylinder, like the air chamber of a water ram or force pump, capable of containing a quart of air, placed in the coal bunker, and connected with a small iron gas pipe, bent down like a syphon, then carried to any suitable place up into the cabin. This pipe is terminated with a glass tube attached to a graduated scale, which tube is filled to zero with a solution of soda and water tinted with litmus. The slightest rise of temperature in the air of the metal chamber in the coal bunker will show a material rise of the fluid in the tube of the indicator, and thus the officer on duty can at once detect when the temperature below is increased from any cause, and take prompt measures against danger. Such an apparatus is adapted for being placed in the holds of vessels carrying cotton, which sometimes take fire, and it should be applied to the store-rooms and holds of all ships, as a protective indicator.

Preparing Murexid Color.

A few weeks since—on page 181—we gave a description of murexid as employed in dyeing, and in the last number of *Newton's London Journal*, we find the description of an improvement, for which a patent has been obtained in England by Wm. Clark, relating to the preparation of this new coloring agent. The patentee states that it has been known heretofore that by treating alloxantine with carbonate of ammonia murexid was obtained. The improved process consists in taking alloxantine in a powdered state or in crystals, and submitting it to contact with ammonia in a gaseous state. A closed chamber or vessel is therefore necessary for conducting the operation, to bring the gas in contact with the alloxantine. Very pure murexid is also obtained by treating the alloxantine with liquid ammonia mixed with alcohol. The ammonia dissolves the alloxantine, and after this, by driving off the alcohol and ammonia by heat, the murexid obtained is very pure, and capable of being preserved a considerable time. Alloxantine is the product of uric acid dissolved in nitric acid and exposed to heat.