

BRIGADIER-GENERAL NATHANIEL LYON.

Nathaniel Lyon was born in Connecticut in 1821, and entered the Military Academy at West Point in 1837, where he graduated four years afterward with the rank of 2d Lieutenant of the 2d infantry. In February, 1847, he was made 1st Lieutenant, and for gallant conduct in the battles of Contreras and Churubusco during August following he was breveted captain. On September 13th, he was severely wounded in the assault on the Belen gate, and in June, 1851, was promoted to a Captaincy. This rank he held at the time of the trouble in Kansas, whither he was sent during the Presidency of General Pierce. Not altogether liking the way in which things were managed there in a political sense, he threw up his commission and retired to private life. He was in command of the Missouri Volunteers at the recent capture of Camp Jackson, and for his well-proven bravery and eminent military ability has received his recent promotion, and is now in command of the department of Missouri.



ISSUED FROM THE UNITED STATES PATENT OFFICE

Reported Officially for the Scientific American.

. Pamphlets giving full particulars of the mode of applying for patents, under the new law which went into force March 4, 1861, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

A SCREW LOOSE AT THE PATENT OFFICE.

The last list of claims received from the Patent Office for publication contained the patents of May 14th, and were printed in our last number. By some unaccountable delay at the Patent Office, we had not, at the time of going to press this week, received the claims of Patents issued on the 21st and 28th ult., and 4th inst., all of which were due, and the first list should have been furnished us for publication more than two weeks ago, according to the system adopted and enforced by previous Commissioners.

This slip shod way of transacting business renders it impossible for us to state whether we shall probably have the list of claims due on the 21st of May in time for even our next issue. There are, no doubt, at least 20,000 weekly readers of the SCIENTIFIC AMERICAN, in this country and Europe, who are interested in patents, and who depend upon these columns for an accurate report of the doings at the United States Patent Office, and we hope not to be obliged to apologize again to our readers for the absence from our columns of the official list of claims, or to upbraid the Patent Office for its seeming laxity. Inventors may depend, however, upon their institution at Washington being looked after by us and any mismanagement exposed.

BURNHAM'S BREECH-LOADING CANNON, made at Chicopee Falls, and provided with a chambered breech, was exhibited in front of the City Hall on the 5th inst. The cylinder is bronze metal; the breech-chamber is of steel, and is thrown up by a screw to receive the charge, then depressed to make the chamber range with the tube or cylinder. The movement of the chamber is vertical, swinging on a hinge below operated by the screws at the back end. The gun weighs 400 lbs.; the shot is a two-inch elongated bullet, weighing 6 lbs., with lead bands to fit the bore. The iron shell has prongs cast upon it to hold the lead bands, and prevent them flying off when the bullet is discharged. The grooves are of regular twist, making one turn in 16 feet. The workmanship of this light field piece does great credit to the manufacturers.

THE London *Engineer* of May 3d says: "As a rule, low pressure boilers generally produce the most destructive results by explosion, because of the greater quantity of water which they contain." The conclusion as to the cause of great violence in such explosions is certainly a strange idea.

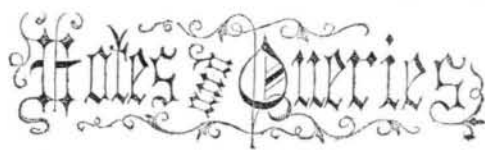
Making Lint by Machinery.

The London *Chemist and Druggist* says that wholesale orders for articles in the druggists' trade from the United States have almost entirely ceased except for plasters and lint, and that for the latter article the orders are far beyond the supply. There has been, for several years, a large importation of patent lint into this country from England, and the *Chemist and Druggist* gives a brief description of the mode of its manufacture. The old hand process is first described. In this, the linen rag or cloth was stretched on a small table, and a sharp knife, suspended above it, with the edge parallel with one series of the threads, the filling, for instance, was brought down upon the cloth with a force so exactly adjusted that it cut part way through those threads which were at right angles with the edge of the blade. The knife then received a slight motion lengthwise, turning up the severed fibres in a very light, loose, soft, feathery nap; and the sheet of lint was still left with considerable strength in the direction of the threads which lay parallel with the knife, and which were consequently not cut.

This hand manufacture has been superseded by machines which operate in substantially the same manner as the old hand process; some of the machines having rotary knives and others reciprocating. The lint made by the latter is considered the best, as the knives beat and soften the cloth on which they raise the pile. A suitable fabric is now woven expressly for the lint manufacturer in lengths of 100 yards.

On the night when the regiments first entered Virginia, a band of noble-hearted ladies belonging to the Fourth Presbyterian church in Washington city took up their position on the Long Bridge, and presented Havelocks to the soldiers who were not previously provided with such useful coverings for the head.

PERSONAL.—We have received a call from George Hazeltine, Esq., editor of the *London American*. He visits this country to gain information concerning the progress of events connected with the war, and it is gratifying to know that his journal affords a vigorous support to the Federal government in its efforts to arrest the most monstrous rebellion that ever existed.



D. J., of Ill.—We would cheerfully furnish you with all the advice in our power in reference to the formation of artillery companies, but we have no practical information on this subject. We hope you can be supplied with rifled cannon. You can obtain in this city the following works on artillery: "The Artillerist's Manual," by J. Gibbon, compiled from various sources, and adapted to the service of the United States. It can be had for \$5, and is thought to be the best work on the subject extant. Colonel Anderson, of Sumter fame, translated from the French, and arranged for our army, the "Evolutions of Field Batteries of Artillery." The price of it is \$1.

D. H. J., of Wis.—You propose to construct a submarine tunnel across a river by using a great tube of waterproof canvas, in which the builders shall work in erecting a stone arch on the bottom of the river. Such a tube could not stand the pressure of the water; it would collapse like a pipe of soft clay in the hands of the potter. On page 233, Vol. XII, and page 336, Vol. XIII. (old series), of the SCIENTIFIC AMERICAN, there are illustrations of submarine tunnels proposed for the East river, this city. When Brunel constructed the great tunnel under the river Thames, he employed a huge iron shield to support the roof of the tunnel as he advanced in laying the arch.

F. B., of Pa.—Henry Cort is dead, but we believe his heirs have received some compensation for his valuable discoveries in the manufacture of iron. He discovered the process of converting pig iron into wrought iron by the flame of pit coal in a puddling furnace, thus dispensing with the use of charcoal, which, owing to its scarcity and importance, made Cort's discovery of great value. He is also the inventor of drawing iron into bars by means of grooved rollers, an operation previously performed by hammer and anvil.

W. B. G., of N. Y.—A properly balanced bullet could be shot as accurately from a smooth bore gun as from a rifle, if absolute perfection were also obtained in the gun. We doubt whether such perfection is practically obtainable. Your plan of floating the bullets in mercury would doubtless insure a high degree of perfection in the bullets.

C. N., of Mo.—We support the government, not as a party organization, but as the governing power, entitled to the obedience of every citizen. When a change is to be made in the officers, let it be done in the manner prescribed by the Constitution. Thus only can our country be saved from anarchy and confusion. It seems to us you cannot fail to appreciate our position; and if the people of your State are loyal, or even alive to their best interests, they will hold on to the Union as their best and only hope. Secession will involve you in war and ruin.

C. E., of Mass.—James Watt died in 1819, at the great age of 83 years. There is a fine monument to his memory in Westminster Abbey, executed by Chantrey at a cost of \$30,000. His best monument, is his work. In this sense the steam power of the world must be considered. It is estimated that the steam power of Great Britain is equivalent to the manual labor of 400,000,000 men, or more than double the number of males supposed to inhabit the globe.

W. B. S., of R. I.—We claim for Charles Goodyear the process of vulcanizing india-rubber, and believe him entitled to it. The English, however, persist in awarding the claim to Thomas Hancock, who made a good many experiments in this department.

J. P., of N. Y.—We are prepared to prosecute your foreign patents with all possible dispatch. We only require the use of the Letters Patent, and to be furnished with such suggestions as you may have to make in regard to the claims. Parties who apply for patents in Europe usually select Great Britain, France and Belgium.

J. U., of N. Y.—Fulminating quicksilver (powder for percussion caps) is made as follows:—Take 1 lb. of quicksilver and dissolve it in 10 lbs. of pure nitric acid. Now pour this solution into 8 lbs. of absolute alcohol contained in a stoneware vessel. This must be done with great care. A violent reaction ensues, accompanied with the evolution of white vapor, and the result is a precipitate in the form of a dense gray powder. This is the fulminate of mercury. It is washed with water and kept in a moist state (in which it is perfectly harmless) until required for use.

H. S. P., of Vt.—We do not know where you can obtain magnetic masks for needle makers. The heating of telegraph wires affects but does not destroy their conducting properties.

J. M. K., of Conn.—The indigo and wood blue are the only real permanent blue colors known to us for woollen fabrics. Royal blue dyed with the prussiate of potash, some logwood and the muriate of tin is almost a permanent color, still it is not equal to that of indigo.

T. A. B., of Pa.—To remove tar from clothes rub some warm butter or olive oil upon the spots; this will soften the tar which may now be washed off with soap and water. We use clean water and a clean sponge for removing dirt from plaster-of-Paris images. A solution of alum applied to plaster casts tend to render their surface very hard when it dries.

J. R. A., of C. T.—Your suggestion of making shells with two chambers, one within the other, the inner one filled with powder to produce its explosion, and the outer one with chloroform to send the occupants of a fort to sleep when the shells explode, is very ingenious, but we fear it is impracticable, as it seems to us that the vapor of chloroform would not be sufficiently concentrated. The vapor of chloroform, to produce sleep or stupefaction, must be inhaled without being much diluted with atmospheric air as much as we think it would be when diffused as you propose. If this difficulty could be shown not to exist, we think you could obtain a patent. We think your idea about the breech-loading cannon is new and patentable. Either invention would require a model for the Patent Office.

A. F. F., of Vt.—The attachment of knives to cannon balls in such manner as to be closed when the ball is placed in the gun, and thrown out when the ball is discharged, is a very old idea. We do not know whether such balls have ever been used; we never heard of their use.

C. F. J., of N. J.—India rubber dissolved in turpentine, and mixed with copal varnish makes a very good water-proof cement which may answer your purpose, but no solution of glue, so far as we know, is water-proof. The cement called marine glue does not contain any glue; it is an india rubber and varnish compound.

E. M. F., of Phila.—Marriott's law, that "the elastic force of any given amount of gas, the temperature of which remains the same, varies inversely as its volume," is correct for all pressures. You must remember that the temperature of gases varies with the pressure.

J. Y., of Pa.—Point blank range is too indefinite to render a reply to your question possible. Point blank shot is a shot with the gun in a horizontal position, and the point blank range is the distance from the gun thus fired at which the shot first strikes the ground. Of course this will vary with the height that the gun is held from the ground, and until some definite standard is established for the latter, the point blank range is a term with no precise signification. Your case, we hope, will be acted upon soon.

Money Received

At the Scientific American Office on account of Patent Office business, during one week preceding Wednesday, June 5, 1861:—

N. G. S., of N. Y., \$40; B. H., of Ill., \$25; A. H. D., of Cal., \$15; T. R. R., of Ohio, \$15; P. & L., of Mich., \$10; W. C. and J. D., of N. Y., \$20; W. J. S., of N. Y., \$45; S. H., of Maine, \$20; C. T. P., of N. Y., \$350; G. L., of N. Y., \$20; F. D., of Ohio, \$25; F. R., of Ind., \$25; E. L. E., of Conn., \$15; C. A. C., of Mich., \$10; T. H. K., of N. Y., \$22; S. J. A., of Cal., \$20; J. J. S., of N. Y., \$15; J. F., of Wis., \$15; W. & M., of N. H., \$40; S. B., of N. Y., \$25; G. W. B., of N. Y., \$10; J. H., of Wis., \$15; W. H., of Pa., \$25; F. & W., of Iowa, \$15; M. L. R. H., of Ill., \$25; J. R. J., of N. Y., \$45; N. M., of Ohio, \$40; S. S. H., of N. Y., \$20; M. J. K., of N. Y., \$20; K. & T., of N. Y., \$20; A. R., of N. Y., \$43; J. Q., of Minn., \$25; J. N. P. H., of Maine, \$15; W. B. Jr., of N. Y., \$43; J. E., of Vt., \$15; B. & P., of N. Y., \$100; S. & F., of Pa., \$40; M. D. C., of Vt., \$15; A. R. D., of N. Y., \$30; N. G. S., of N. Y., \$25; J. M. A. G., of Mass., \$20; J. H., of Ohio, \$30; J. T. L., of L. I., \$15; S. H. H., of Ill., \$25; F. R., of Ind., \$20; G. L. T., of Mass., \$20; L. B. S., of Conn., \$15; J. S. S., of N. Y., \$20; B. & W., of N. Y., \$20; A. J. S., of Ill., \$20; S. & G., of N. Y., \$25; K. P. K., of Vt., \$15; S. J. P., of Conn., \$15; D. M. C., of Ind., \$15; J. C., of Ohio, \$20; H. K., of Conn., \$15; J. L., of L. I., \$250; C. A. S., of Wis., \$15; T. C. H., of N. Y., \$30.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from May 29 to Wednesday, June 5, 1861:—

S. H. H., of Ill.; J. K. P., of Mich.; J. M. A. G., of Mass.; P. G. B., of Cal.; E. L. E., of Conn.; W. B., Jr., of N. Y.; Mrs. L. S. H., of N. Y.; L. D. G., of N. J.; F. R., of Ind.; W. H., of Pa.; N. G. S., of N. Y.; W. J. S., of N. Y.; A. R., of N. Y.; J. G., of Mass.; M. L. R. H., of Iowa; B. H., of Ill.; S. A. B., of N. Y.; S. J. P., of Conn.; C. A. C., of Mich.; L. B. S., of Conn.

CHANGE IN THE PATENT LAWS.

NEW ARRANGEMENTS--PATENTS GRANTED FOR SEVENTEEN YEARS.

The new Patent Laws, recently enacted by Congress, are now in full force, and promise to be of great benefit to all parties who are concerned in new inventions.

The duration of patents granted under the new act is prolonged to SEVENTEEN years, and the government fee required on filing an application for a patent is reduced from \$30 down to \$15. Other changes in the fees are also made as follows:—

Table with 2 columns: Fee description (e.g., On filing each Caveat, On filing each application for a Patent) and Amount (e.g., \$10, \$15).

The law abolishes discrimination in fees required of foreigners, except in reference to such countries as discriminate against citizens of the United States—thus allowing English, French, Belgian, Austrian, Russian, Spanish, and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms.

During the last sixteen years, the business of procuring Patents for new inventions in the United States and all foreign countries has been conducted by Messrs. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN; and as an evidence of the confidence reposed in our Agency by the Inventors throughout the country, we would state that we have acted as agents for more than FIFTEEN THOUSAND Inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of Inventors and Patentees, at home and abroad.

Testimonials.

The annexed letters, from the last three Commissioner of Patents, we commend to the perusal of all persons interested in obtaining Patents:—

Messrs. MUNN & Co. --I take pleasure in stating that, while I held the office of Commissioner of Patents, more than ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE CAME THROUGH YOUR HANDS. I have no doubt that the public confidence thus indicated has been fully deserved.

CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

Messrs. MUNN & Co. --It affords me much pleasure to bear testimony to the able and efficient manner in which you have discharged your duties of Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability and uncompromising fidelity in performing your professional engagements.

J. HOLT.

Messrs. MUNN & Co. --Gentleman: It gives me much pleasure to say that, during the time of my holding the office of Commissioner of Patents, a very large proportion of the business of inventors before the Patent Office was transacted through your agency, and that I have ever found you faithful and devoted to the interests of your clients, as well as eminently qualified to perform the duties of Patent Attorneys with skill and accuracy.

WM. D. BISHOP.

The Examination of Inventions.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a reply written corresponding with the facts, free of charge. Address MUNN & CO., No. 37 Park-row, New York.

Preliminary Examinations at the Patent Office.

The advice we render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there, but is an opinion based upon what knowledge we may acquire of a similar invention from the records in our Home Office. But for a fee of \$5, accompanied with a model or drawing and description, we have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a Patent, &c., made up and mailed to the Inventor, with a pamphlet, giving instructions for further proceedings.

Caveats.

Persons desiring to file a Caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The government fee for a Caveat, under the new law, is \$10. A pamphlet of advice regarding applications for Patents and Caveats furnished gratis on application by mail. Address MUNN & CO., No. 37 Park-row New York.

How to Make an Application for a Patent.

Every applicant for a Patent must furnish a model of his invention, if susceptible of one; or if the invention is a chemical production, he must furnish samples of the ingredients of which his composition is composed, for the Patent Office. These should be securely packed, the Inventor's name marked on them, and sent, with the government fee, by express. The express charge should be prepaid. Small models from a distance can often be sent cheaper by mail.

Rejected Applications.

We are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the prosecution of rejected cases has been very great.

All persons having rejected cases which they desire to have prosecuted are invited to correspond with us on the subject, giving a brief history of their case, inclosing the official letters, &c.

Foreign Patents.

We are very extensively engaged in the preparation and securing of Patents in the various European countries. For the transaction of this business, we have offices at Nos. 66 Chancery-lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels.

Inventors will do well to bear in mind that the English law does not limit the issue of Patents to Inventors. Any one can take out a Patent there.

Interferences.

We offer our services to examine witnesses in cases of interference, to prepare arguments, and appear before the Commissioner of Patents or in the United States Court, as counsel in conducting interferences or appeals.

The Validity of Patents.

Persons who are about purchasing Patent property, or Patentees who are about erecting extensive works for manufacturing under their Patents, should have their claims examined carefully by competent attorneys, to see if they are not likely to infringe some existing Patent, before making large investments.

Extension of Patents.

Valuable Patents are annually expiring which might be extended and bring fortunes to the households of many a poor Inventor or his family. We have had much experience in procuring the extension of Patents; and, as an evidence of our success in this department, we would state that, in all our immense practice, we have lost but two cases, and these were unsuccessful from causes entirely beyond our control.

Assignments of Patents.

The assignment of Patents, and agreements between Patentees and manufacturers, carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park-row, New York.

TO OUR READERS.

Models are required to accompany applications for Patents under the new law, the same as formerly, except on Design Patents, when two good drawings are all that is required to accompany the petition, specification and oath, except the government fee.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and inclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of \$2.

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NEW PAMPHLETS IN GERMAN.—We have just issued a revised edition of our pamphlet of Instructions to Inventors, containing a digest of the fees required under the new Patent Law, &c., printed in the German language, which persons can have gratis upon application to this office. Address MUNN & CO., No. 37 Park-row, New York.

RATES OF ADVERTISING.

Thirty Cents per line for each and every insertion, payable in advance. To enable all to understand how to calculate the amount they must send when they wish advertisements published, we will explain that ten words average one line. Engravings will not be admitted into our advertising columns; and, as heretofore, the publishers reserve to themselves the right to reject any advertisement sent for publication.

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