

## 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.

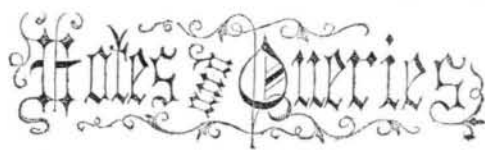
## Making Lint by Machinery.

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 eyed 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.—Mariotte'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 which 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. O., of Minn., \$25; J. N. P. H., of Maine, \$15; W. B., Jr., of N. Y., \$43; J. B., 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., \$25; 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. Y.; 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.