

[Reported for the Scientific American.]

NOVA SCOTIA PATENT LAW.

SECTION 1. Whenever any person resident in the Province, and who shall have resided therein for the period of one year, or any British subject, who shall have been an inhabitant of Canada, New Brunswick, Prince Edward's Island, or Newfoundland, for the space of one year previous to his application, shall apply to the Governor, alleging that he has discovered any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement thereon not theretofore known or used, and pray that a patent may be granted to him for the same, the Governor may direct Letters Patent to be issued, reciting therein the allegations of such petition and giving a short description of such invention, and shall thereupon grant to the person so applying for the same, and his representatives, for a term not exceeding fourteen years, the exclusive right of making, using and vending the same to others, which Letters Patent shall be good and available to the grantee, and shall be recorded in the Secretary's office, in a book for that purpose, and shall then be delivered to the patentee.

SEC. 2. Where any Letters Patent shall be obtained by any person for any such invention, and thereafter any other person shall discover any improvement in the principle or process of any such invention, and shall obtain Letters Patent for the exclusive right of such improvement, the person who shall obtain such new patent shall not make, use, or vend the original invention, nor shall the original patentee make, use, or vend any such improvement.

SEC. 3. The simple change of form or proportions of any machine or composition of matter shall not be deemed a discovery or improvement within the meaning of this chapter.

SEC. 4. Persons applying for Letters Patent, on delivering in their petition, shall pay into the Secretary's office twenty shillings, to be applied as other fees payable therein.

SEC. 5. Any person may receive from the Secretary's office any copy of such Letters Patent, or of the petition whereon the same were granted, or of any paper or drawing connected therewith, on paying sixpence a folio, and a reasonable fee for every copy of such drawing.

SEC. 6. Before any person shall obtain any Letters Patent, he shall make oath in writing that he verily believes that he is the true inventor or discoverer of the art, machine, or composition of matter, or improvement, for which he solicits Letters Patent, and that such invention or discovery has not been known in this Province or any other country; which oath shall be delivered in with the petition for such Letters Patent.

SEC. 7. The affidavit may be sworn by the person making such application before any judge of the Province or colony in which such person shall reside.

SEC. 8. Before any person shall obtain any Letters Patent he shall deliver into the Secretary's office an intelligible and exact description of such invention, and of the manner of using, or process of compounding the same, so as to enable any person skilled in the science of which it is a branch, to make and use the same; and, in case of any machine, shall deliver a model, and explain the principle by which it may be distinguished from other inventions, and shall accompany the whole with drawings and written references where the case admits of drawings, or with specimens of the ingredients sufficient for the purpose of experiment where the invention is a composition of matter, which description, signed by such person and attested by two witnesses shall be filed in the Secretary's office, and copies thereof, certified by the Provincial Secretary, shall be competent evidence in all courts where matters concerning such Letters Patent may come in question; but the Governor may, upon special grounds being shown, dispense with the delivery of the model at the Secretary's office if he shall deem it right to do so.

SEC. 9. Any patentee may assign all his right in such invention and discovery to any person; and the assignee thereof, having recorded such assignment in the Secretary's Office, shall stand in the stead of the original patentee as well as regards his rights as all his liabilities; and the assignee of such assignee shall also be considered to be in the stead of the original patentee.

SEC. 10. Whenever any Letters Patent shall be granted to any person, and any other person, without the consent of the patentee or his representatives first had in writing, shall make, use, or sell the invention or discovery whereof the exclusive right is secured to such patentee, the person so offending shall be answerable to him or his representatives in damages.

SEC. 11. The defendant in any such action may give this chapter and every special matter in evidence to prove that the specification filed by the patentee does not contain the whole truth relative to the invention or discovery alleged to have been made by him, or contains more than is necessary to produce the desired effect, which concealment or addition shall fully appear to have been fraudulently made, or that the invention or discovery so secured by Letters Patent was not discovered by the original patentee, but has been in use or has been described in some published work anterior to the supposed invention, or discovery of such patentee, or that such patentee has surreptitiously obtained such Letters Patent for the invention or discovery of some other person, in either of which cases, upon proof thereof, the verdict shall be found and judgment entered thereon for the defendant with costs, and such Letters Patent, by the court, shall thereupon be adjudged void.

A true copy from the statutes. ROBERT STUBS.
Notary Public and Patent Agent.

Night Telegraph Army Signals.

MESSRS. EDITORS:—My attention has been directed to Mr. Tuttle's letter in regard to a system of night signals based on short and long flashes of light, thereby imitating the dot and line alphabet of Morse.

The idea is not new, as I applied the same system during the winter of 1844, by means of two parabolic reflector lamps, the short and long flashes being made with a movable slide or screen, worked with a lever, for telegraphic purposes. The experiments were made in Baltimore, in presence of several gentlemen, during my superintendence of the government experimental telegraph office in that city, under the direction of Professor Morse, the Superintendent of United States telegraph lines. All of the experiments proved satisfactory, at that time, but the mode of signaling was objected to by masters of merchant vessels, as well as by navy officers, from the fact that trained operators would be required, and therefore the system could not be generally introduced.

About this time, (1844,) I proposed to Lieut. (now Captain) Ringgold, U. S. N., to apply the short and long flashes of light to telegraph, by means of the electric light. This was also objected to for the same reason.

At a subsequent period, in 1847, Mr. B. F. Coston, Superintendent of the Naval Laboratory at Washington, prepared a system of night signals composed of brilliant fires, which I considered better adapted to the purpose.

My object in addressing this note is to claim the invention, reserving the right to offer it to the government or to patent it hereafter. At present, however, I must say, in justice to Mrs. Coston, the widow of the late B. F. Coston, U. S. N., that the signal lights, recently furnished the Navy Department, under the patent granted for Mr. Coston's invention, surpass all I have seen in the United States or in Europe, and therefore that lady's invention is well worthy of the patronage of the government.

HENRY J. ROGERS,
Telegraphic Engineer.

[Our correspondent could not now secure a valid patent for this discovery, as it is manifest that he has abandoned it to the public. Inventors ought never to delay making application for their patents in this manner—they are sure to regret it. Almost any invention is worth the cost of a patent.—Ems.]

THE largest dredging steamboat in the world has lately been built in Glasgow, for the purpose of deepening the Tyne river in England. It is 149 feet in length, 38 in breadth, and 11 in depth. It has a single beam engine of 60 horse-power. It is 700 tons burden, and cost about \$100,000. It has arrived at its destination and by this time is raising the mud from the bed of the Tyne.

TRIAL TRIP OF THE STEAMER "SHANTUNG."

The engineers' trial trip of the new steamer *Shantung* came off on Monday, the 8th inst., and was very successful. This vessel is the property of Augustine Heard & Co., of Boston and China, and is designed for the special use of the owners in China. The hull was built by Thomas Collyer, of this city, and is of the following dimensions:—Length, 151 feet; breadth of beam, 26½ feet; depth, 9½ feet. She is strongly built, and is diagonally braced with iron strips. Her hold has a capacity for 225 tons of cargo; and her cabin is constructed to accommodate her officers and a moderate number of passengers. It is fitted up with great taste, and every convenience. The quarters for the sailors and firemen are in the extreme forward end, and are very comfortable and well ventilated. She has two masts, and is half-rigged, with yards on the foremast. The engine of the *Shantung* was built at the Neptune Works, Eighth-street, E. R., this city. The diameter of the cylinder is 36 inches; stroke, 10 feet. The wheels are 22 feet in diameter. The engine is an overhead beam, similar to our river boat engines, and beautifully finished.

The model is beautiful, and the workmanship of the hull and machinery does credit to our nautical architects and engineers. We have no doubt but she will elicit the admiration of John Chinaman when she reaches the celestial kingdom. Her chief business will be the carrying of opium, and she will soon be ready to proceed upon her voyage to the Chinese seas.

She started from the foot of Eighth street—below the Neptune Works—at 9 A. M., proceeded out to the Light Ship, and returned, making an average speed of about 16 knots per hour. "The winds were fair, the sky was clear, no breeze came o'er the sea," and the steam engine did its duty well. There was a pleasant party of gentlemen guests aboard, invited by P. L. Everett, Esq., one of the proprietors of the vessel, and all things passed off pleasantly.

The New Gunboat Contracts.

The contracts for twenty-three new gunboats, of 500 tons burthen each, have been given out, and the work divided among a great number of establishments, so as to get it done as quickly as possible.

The hulls are given out as follows, one to each party, according to the information we have received: John J. Abraham, Baltimore, Md.; M. Thatcher, Wilmington, Del.; John Lynn, Jacob Birley and Hillman & Stracker, Philadelphia; Jacob Westervelt, John English, T. Stack, J. Simonson, E. & H. Pouillon and Webb & Bell, New York; E. & W. Goodspeed, East Haddam, Mass.; Marseen Fish & Co., Mystic, Conn.; Gildersleve & Sons, Boston; Paul Curtis, A. & G. Simpson, and Curtis & Tilden, Newburyport, Mass.; G. W. Jackson, Jr., Thomaston; G. W. Lawrence, Belfast; C. P. Carter, Portland; J. W. Dyer and Larabee & Allen, Bath, and N. N. Thompson, Kennebunk, Maine.

The contracts for the machinery are given out to the following firms: Charles Reeder, Baltimore, one; Chester Iron Works, Chester, Pa., one; Merrick & Co., Philadelphia, one; Morris & Co., do., two; Novelty Works, three, Allaire Works, two, Morgan Works, three, all of New York; Highland Iron Works, Newburgh, N. Y., one; Pacific Iron Works, Bridgeport, Conn., one; Woodruff & Beach, Hartford, one; Harrison Loring, two, Atlantic Works, one, Boston.

AUSTRALIAN GOLD MACHINERY.—A very large capital is now invested in gold mining in Australia. The number of miners engaged in obtaining gold is 107,572 of which there are 60,874 Europeans and 28,100 Chinese. There are 294 steam engines of the aggregate power of 4,137 horses; also 3,957 horse puddling machines, 354 horse gins, and 128 water wheels. These are all used in the alluvial workings. Beside these, there are used in the quartz mining and crushing 420 steam engines, equal to 6,696 horse-power, 6 water wheels, 40 horse crushers, and 184 horse gins. The aggregate ratio of the mining plant (machinery, &c.) is about \$6,000,000. The government is about to engage in the building of great reservoirs to store up rain water for the alluvial diggings. They have adopted a method nearly like the American Wykoff & Fell patent system of amalgamating gold in Australia.

Improved Pneumatic Spring.

Air springs for railroad cars have been somewhat extensively used, and were found to work satisfactorily in every respect except the difficulty of preventing the air from leaking out, either around the piston or through the walls of the cylinder. The spring which we here illustrate was invented by J. W. Hoagland, a practical engineer, for the purpose of obviating this objection, and from the experiments made, seems to accomplish the object perfectly. The invention consists of two arrangements, one the lining of the cylinder with a thin sheet of india-rubber to prevent any leakage, and the other a pump operated automatically by the motion of the spring, to force air into the cylinder to supply the loss by leakage should any occur.

Fig. 1 of the engravings represents an outside view of the apparatus, and Fig. 2 is a vertical section. The cylinder, A, may be made of cast-iron with the hollow piston, E, which supports the weight of the car, working loosely into its upper end. The lower portion of the cylinder is filled with a close bag of india-rubber, lining it completely, and on this the lower end of the piston rests. Air is forced into the india-rubber lining of the cylinder, and compressed sufficiently to sustain the car and its load.

To prevent friction as the piston is forced into the cylinder the lower portion of the latter is enlarged, thus allowing the india-rubber lining to roll downward, without bringing the folds in contact. This is one of the principal features in this invention.

It is supposed that this india-rubber lining will hold the air in the cylinder, A, an indefinite period of time, but in case it should leak a little, or should it be thought in some situations desirable to dispense with it, arrangement is made for forcing air into the cylinder. The device for this is very ingenious. A small cylinder, I, also lined with india-rubber, is placed in the middle of the piston or plunger, E, and is provided with a plunger, J.— This plunger has a stiff rod, K, passing through it and into holes in the main cylinder, A, so as to hold it constantly in the same position in relation to the main cylinder; the piston, E, being provided with vertical slits, so that its working up and down may not be prevented by the rod, K. A passage, e, leading from the external air into the cylinder, I, is provided with a valve, g, opening inward, and the passage, F, leads from the cylinder, I, into the main cylinder; a valve, h, permitting the flow of the air downward, but preventing its return. From this arrangement it will be seen that as the piston, E, rises, the air is forced from the cylinder, I, into the main cylinder, while the descent of the piston, E, again fills the cylinder, I, from the external air. By this plan the air is drawn into the main cylinder at a time when the latter is most relieved of pressure.

As this constant forcing of air into the cylinder, A, would soon compress the air to too great a degree for the action of the spring, it is necessary to provide some means for the escape of the air when the proper degree of compression is exceeded. To this end, an opening, N, is made into the cylinder, A, this opening being closed by a valve, S, which is pressed

against its seat by a spring, p, the tension of this spring being easily adjustable to any degree of compression desired. A longitudinal groove is made in the upper side of the valve, S, so that when the latter is forced away from its seat, the air may escape. The tension of the spring, p, is regulated by screwing the cap, P, a greater or less distance upon the cylinder which surrounds the valve.

For a common railroad car the springs would be about nine inches in diameter, and nine inches in height.

The mechanical engineer who devised these ingenious modifications is satisfied that he has overcome all the difficulties encountered in the use of the air

and the production of a peculiarly soft, silent and elastic spring.

When carriages are hung upon C springs and thorough braces of leather, in the old style, the springs are held in place by a heavy wood perch or reach plated with iron, and stayed with strong braces of iron and wood, the weight of the body and passengers being suspended from the points of the C springs, rendering this perch necessary to keep the springs in place; therefore, the great weight and expense attending the construction of C spring carriages have conspired to drive them out of use, notwithstanding their elegant appearance and many advantages. Mr. Wood's invention retains all the beauty and advantages of the old method, with the lightness of the modern no-perch carriage. Abandoning as worthless the heavy reach or perch, with its ponderous braces, &c., he has contrived to hold in place the C springs by counter stays, as represented in the cut, and has secured his invention by Letters Patent.

This is done by bracing the axletree directly from the carriage, and may be effected by several mechanical devices all essentially of the same character. One plan is to introduce a spring brace between the end of the elliptical spring, on which the C spring rests, and the body of the carriage. The plan, however, to which Mr. Wood gives the preference, is the one represented in the engravings. A stiff iron rod (or it may be a steel spring) a,

is securely bolted to the upper leaf of the elliptical spring, b, which is secured to the axletree, c. The forward end of the rod, a, is connected with the body of the carriage by a hinge joint, d, the bolt of the hinge being surrounded by india-rubber, to obviate any jar or noise arising from concussions.

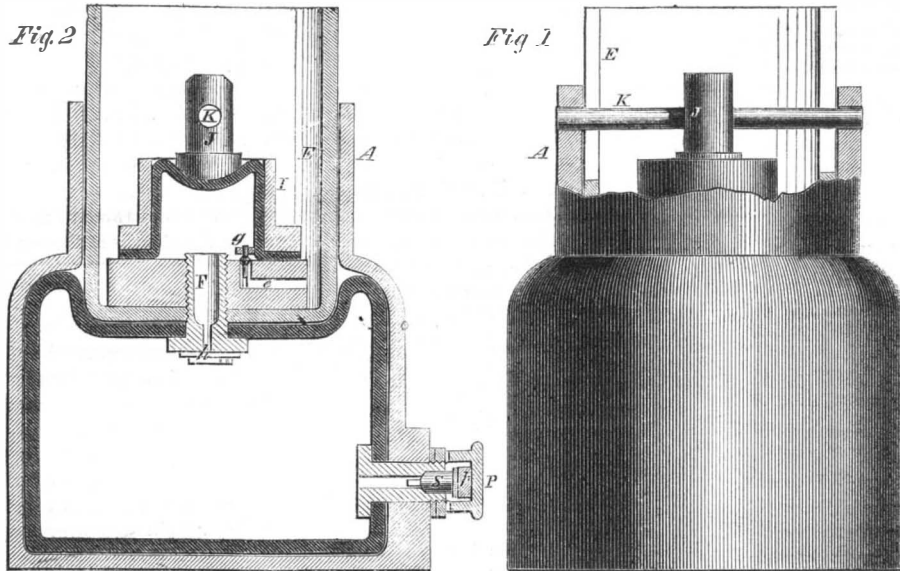
It will be seen that this arrangement, beside the lightness and cheapness which it secures in the construction of the carriage, interposes either leather or india-rubber between all connections of the spring with the body; and thus causes the carriage to run with very little noise, as well as with remarkable softness and ease to the occupants.

The patent for this invention was granted through the Scientific American Patent Agency, May 14, 1861, and further information in relation to it may be obtained by addressing Messrs. Wood Brothers, extensive carriage manufacturers, 396 Broadway, New York.

ARMS FOR THE GOVERNMENT.—The Hartford (Conn.) Press states that the Sharp's Rifle Company have received an order from the War Department for 6,000 rifles, to be delivered as soon as possible—a job amounting to over \$250,000. The works run night and day, employing about 325 men. Col. Samuel Colt received an order from the War Department on the

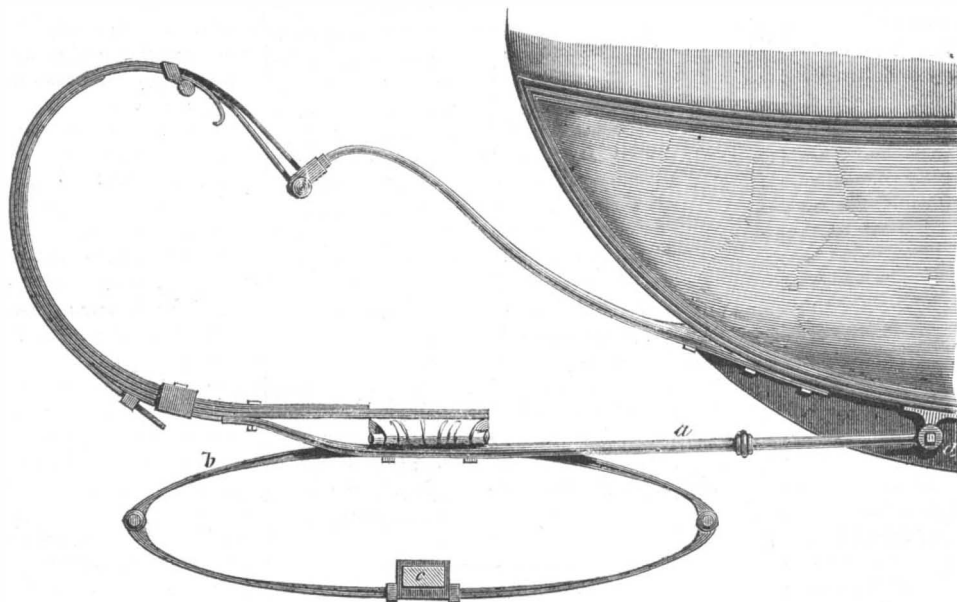
5th inst., for 25,000 Minié muskets.

TEMPERANCE IN THE ARMY.—Dr. Hamilton, in his new work on military surgery, in treating on the subject of temperance in armies, mentions the interesting fact that, during the Revolutionary War, the Fourth Massachusetts regiment lost, in three years, by sickness, not more than five or six men. This was at a time when the troops were not paid, and consequently cut off from the luxury of stimulants. Similar facts were noticed also during the war of 1812.



HOAGLAND'S PNEUMATIC SPRING.

spring; and that, by the adoption of his improvements, the great advantages of that most perfect of all springs can be practically realized. This spring can be made of the cheapest quality of cast-iron, as the rubber lining prevents leakage through the metal however porous it may be; and any railroad company adopting it can have the springs made in their own workshops. It is applicable to other vehicles as well as to railroad cars, and in short is claimed to be the cheapest, most compact, and most durable of all carriage springs.



WOOD'S IMPROVED CARRIAGE.

The patent for this invention was granted through the Scientific American Patent Agency, and further information in relation to it may be obtained by addressing Hoagland & McMullen, New Brunswick, N.J.

Improved Carriage.

The object of the improvement in the mode of constructing pleasure carriages, here illustrated, which was invented by Mr. Charles B. Wood, of the firm of Wood Brothers, carriage manufacturers, of this city, is the saving of weight and cost in C spring carriages,