

Scientific American

NEW-YORK, APRIL 3, 1852.

The Known and Unknown.

Great though man is, intellectually, still all the knowledge which he possesses is as vanity, compared to the great mysterious unknown—that which he does not know. He makes the lightning his messenger, and sends words of hope, love, or fear to distant places on its fiery wings. He takes iron from the mine and wood from the forest; of the one he makes his steed, and the other his driver, and away he roars on the iron track faster than the eagle cleaves the air. He throws his iron bridge over the sea; and his iron cords span the yawning chasm, where Niagara's waters run dark and deep. The ocean billows are smoothed by the wheels of his steamships; he pierces through the Alps with the chisel and drill; he makes his pathway beneath great rivers, and walks dry-shod beneath the keels of huge ships. All this he does, and much more, by the force of his splendid mind—that constructive faculty implanted in him by his great Creator. But great though man is intellectually, and vast though the powers of his mind are, to comprehend and plan; extensive as is his knowledge of things in earth, water, air, and sky, still all this but teaches him that he knows nothing in comparison with that which is far beyond his ken.

The astronomer hath constructed his telescope six feet in diameter, and with it he seeth clearly five hundred times farther than he can with his naked eye; with it he hath made many discoveries in the starry heavens, for he can tell the height of the mountains and the depths of terrific craters in the moon; he hath counted other systems beside our own solar corner of the universe; but these things only impress more strongly upon his mind the simple fact, "he is but a babe in knowledge." He sees double, triple, and quadruple stars; one red, another blue, one crowned with revolving rings, and another oscillating like a pendulum; and viewing these immensities, the conclusion is forced upon his mind, that this earth, in the universe of worlds, is like a cork on the great ocean, and himself like a butterfly which dances in the sunbeam.

It may be acknowledged that man can know but little of those immensities which are so far removed from the sphere in which he dwells, but it is different with those things which are brought under his strict observation. There is some force in this remark, still the knowledge which man has accumulated in all the generations of his existence, forms but a small mound in comparison with the unknown. No machine hath yet been built which can cleave the air like the swallow, or dwell continually amid the storms of the ocean like the "petrel." No steam or other engine ever constructed, can give out such an amount of power every day, with three pounds of fuel, as the human machine, which, in a full grown man, consumes only three pounds of food. In apparently very simple things we know comparatively little. Who can detect that influence in a bank note which carries disease and death from an infected person to another, hundreds of miles distant. Plagues and fearful diseases are carried on the wings of the wind, but no chemist, by the most refined analysis, has been able to detect the subtle destroyer, which tells man "he dwells in a cottage of clay and is crushed before the moth."

We enter the flowery garden, and one sense tells us there are substances floating in the atmosphere which have been cast off by the rustling rose and geranium, to give pleasure to the mind; but those substances cannot be seen by the eye, heard by the ear, or felt by the hands; they are too fine for the scale of the chemist—his weights and measures are yet far too coarse to weigh an atom or circumscribe its dimensions; and here may lie some of those secrets which, for want of a better term, chemists give the name of "isomeric compounds." In the organic cell of the loftiest and lowliest known existences, there is a world beyond the search of the most powerful microscope that has yet been constructed. If there is an overpowering sense of man's ignorance, derived from an examination

of the immensities of the universe, as strong a sense of our ignorance is derived from the contemplation of a single molecule of matter,—the universe of a drop of water—a single organic cell.

It is not to be supposed, however, that because many things are now hidden and secret to us, they will always remain so. There is a limit to the mental grasp of man—beyond it he cannot go, but the world is full of wonders yet to be discovered—nature hath already revealed many of her secrets, and she will tell us many more. The qualities of a great and good discoverer and inventor, are, a good judgment,—common sense—reflection, industry, observation, and arrangement. Newton was pre-eminently distinguished for those qualities; and by the falling of an apple, his observing mind took up that which, to all others had, since the world began, excited no curious emotion, and it led to the discovery of that law which binds the sweet influences of the Pleiades, guides the planets in their courses in the stellar heavens, and which, as hath been well observed by an eloquent astronomer,— "conveys the thrill of the thrush's song to the remotest star in the universe." Every man, then, who has the least ambition to extend the borders of our knowledge—and oh what a field there is before us still,—should observe, reflect, arrange, and gather up facts,—for science is but a collection of well-arranged facts.

A Few Words for Farmers.

As we have always a practical object in view in our disquisitions, we now wish to direct the attention of our farmers, for a few moments, to the subject of agriculture. The great discoveries yet to be made in agriculture will be the result of strong good sense, close observation, and study of natural phenomena. One very eminent chemist (Liebig), who has devoted nearly his whole attention to agricultural chemistry, has changed his opinions more than once on certain questions relating to agriculture, especially fertilizing substances. Although chemistry is of vast importance to the farmer, a most excellent chemist would make but a very poor farmer if he did not pay attention to more than the mere chemistry of his business. A plant, for example, is analyzed, and is found to be composed of silicon, potash, carbon, lime, and nitrogen; one says, "I shall make my fertilizers of such a compound;" he does so, and fails to obtain satisfactory results; why? Because he has not been a profitable observer of nature's operations. The human body is composed of nitrogen, carbon, water, phosphorus, lime, silicon, and some other substances; carbon, nitrogen, the phosphate of lime, but especially water, are the principal substances of which it is composed, and carbon and water form the greatest portion of its nourishment, as the carbon is the main substance of that low combustion which keeps up the heat of the body: yet who would be so foolish as to prescribe anthracite coal, phosphorus, lime, and nitre for his daily food? No one. We cannot tell why it is that man must plow, sow, and reap grain, and why he must slay the ox for his food, when the same substances of which his body is composed, can be dug from the dust beneath his feet; we only know that such is the fact. The grain of wheat requires sunshine, moisture, and the blanket of mother earth, to make it germinate, grow up, and come forth again in the golden harvest to gladden the heart of man. These operations of nature to produce certain results we are acquainted with, and have learned the facts by observation. All the knowledge of the farmer must be obtained by experience and careful observation. His business is a practical one; not that of a dreamer or speculator; his eyes must be open to see and his hands always ready to do—never afraid to try an experiment, and never too hasty to adopt a theory without experiment. Experiment alone can determine the value of fertilizers, and the best mode of farming—such as the best modes of applying fertilizers—the times, soil, and seasons most suitable to do so. It is our opinion that every farmer should have a few acres of his farm set off for model experimental agriculture; and this period of the year, we believe, is the proper time to commence such a system, hence our present remarks.

The Hair.

Since the custom of wearing long hair and beards has been adopted by so many of our people, during the past two years, and since the Seer Davis has had revelations on the subject from the Spirit World, it may not be uninteresting to take a look backwards to other days. Among the early christians the custom of wearing long hair among men was denounced, and yet, strange to say, the Roman painters, in all the pictures of the Savior, depict him with long waving ringlets. In very ancient times long hair was a mark of beauty among men, as we read, in the case of Absalom, the son of Israel's Shepherd King. Among the Greeks and Romans the dandies wore long hair, and this trait distinguished the patrician Cohort of Pompey the Great, which was routed so terribly by the short haired veterans of Cæsar at the battle of Pharsalia. All the nations in a savage state—the men—wear long hair. The hair was part of the covering of the ancient Irish, at least this is recorded by the old chroniclers. It was esteemed a peculiar honor among the ancient Gauls to have long hair. Julius Cæsar, after subduing them, made them cut off their hair as a token of submission. The keepers of our State Prisons do the same now to their prisoners; they like to follow in the footsteps of great predecessors. In France it was long a peculiar mark and privilege of kings and princes of the blood to wear long hair artfully dressed and curled. All others were obliged to cut their hair in accordance with their rank and condition. In 1096, the Christian Church passed an edict importing that such as wore long hair should be excluded from coming into the church while living, and not be prayed for when dead.

In Queen Elizabeth's time it was common for the ladies to wear false ringlets of various colors, a mixture of fair, brown, and black. This was certainly a curious custom. In the reign of Charles II, all the dandies wore wigs powdered, and for a long time afterwards, both old and young, men and women, powdered their hair with fine flour. This custom was in vogue during the American Revolution. It was an abominable one certainly. In England all who wore powdered hair had to pay a tax (it may still exist), to government. The ridiculous custom of the English chancellor wearing a wig while on the wool-sack, is a relic of the old times. An engraving of Sir Edward Sugden, the new Lord Chancellor of England, appeared in a late number of the London Illustrated News; he had on his robes of office and his ponderous ugly wig. All the portraits of the leading characters in the Augustan Age of English literature would lead us to believe that such men as Addison, Newton, &c., were perfect Absaloms.

The monarchists, named Cavaliers, in the reign of Charles I, wore long hair; the Puritans wore short hair, and were called whigs. During the time of the United-men in Ireland, the revolutionists wore their hair short, and were named "Croppies." The cut of the hair also distinguished the band of young Parisian Frenchmen who had vowed hostility to Robespierre. At the present day the cut of the hair is followed by every man after his own fashion. It neither indicates rank nor religion, but it oftentimes proclaims the peculiar temperament of the man.

The most difficult question connected with the hair is the different color in different people. The Africans, Hindoos, Chinese, and American Indians are, in respect to their hair, all black. Some are lank, some curled, and some of frizzly quality. Among the nations of Europe there is every variety of color, although some nations are more distinctly uniform than others. What are termed the "Celtic, Scandanavian, and German races," have every variety of color, such as fair, red, and black, but at the present day none of these races are to be found pure, except it may be in a few small spots, such as in Finland, Saxony, and the Highlands of Scotland, and yet in those places, we believe there are mixtures. Among the Anglo-Saxon race there is every variety of color, but the Anglo-Saxon race is not a type, but a mixture of the Angles (Scandanavians), Saxons, Celts, and Romans, and yet of the Celts there are various distinct tribes. It is generally supposed that

the fair and red races are Finnic and Saxon. The Danes were esteemed the red race in olden times, but the custom among some races in the East to color their hair red, at the present day, is an evidence that they are descended from the Finnic race which at one time conquered Egypt, and whose likenesses are portrayed in the old tombs. It is not possible to classify the European nations by the color of the hair, for they are all a hotch-potch of mixtures, although there are great varieties of language among them.

The woolly heads belong exclusively to Africa, but Smith says, in his work on the Human Races, that there is also a woolly-head race in the East Indies.

No person can account for the differences in the hair of different nations; we know that such and such races have such head marks, and we know also, that they are distinct and characteristic, for a mixture of races is sure to produce a corresponding change in the hair.

We presume to state that as no man has the choice of his own hair, when born, he must just take it as it happens to come, and make the best of it, according to circumstances, to suit his fancy, if he can; and if he cannot, to bear it like a philosopher.

Recompense to the Heirs of Woodworth.

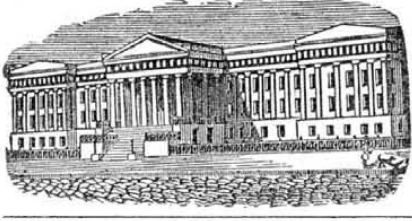
We have seen it stated that the heirs of the Woodworth Patent do not receive remuneration for their father's invention. Well, then, whose fault is it? Are the people of the United States to be taxed to support a great overgrown monopoly—keeping up a number of noble families in our land, because the heirs of Woodworth have been so foolish as to sell their rights at a low price? That is a queer way of bringing up arguments for the perpetuation of evils. A number of fortunes will be made out of the Woodworth Patent yet in the four years which it has to run. There can be no doubt of this, we believe. It is not true, either, that the heirs of Woodworth have not been remunerated.

Equinoctial Storms.

At the late meeting of the American Association for the Advancement of Science, which was held in Albany, N. Y., last summer, Prof. Loomis, of this city, read a paper on Equinoctial Storms; the conclusions arrived at were that the common opinion respecting regular storms at the equinoctial seasons, was erroneous, that it was like the vulgar notions of planting potatoes at full moon—and all such nonsense. He had kept a record of the kind of weather which had occurred during these seasons for a number of years, and that was the data for his conclusions. One or two members of the Association corroborated his view, but Dr. Hare, of Philadelphia, expressed a different opinion. He always expected, and always experienced, rough weather during the equinox terms. On sea he had experienced it, and the general opinion, he believed to be correct. The present equinox has been a stormy one, and affords testimony in favor of vulgar opinions about the storms. It is true that on the 22nd of March, last week, we had no rain in New York City, but we had plenty on the 23rd. We have noticed that, what are termed equinox storms, do not take place on the very days (22nd March and September), but generally before that particular time in March, and after it in September. We had a great deal of stormy weather within the past two weeks. On the 17th inst. (St. Patrick's Day) we had a most terrific snow storm,—it was a complete tempest.

Terrible Accident.

Friday last week, a lamentable accident occurred near this city, on the East River, near Hurl Gate. Mons. Maillefert, who has been operating for some time on the rock named the "Frying Pan," intended to make 4 blasts at low water, and had made one; while attempting the second, the accident occurred. Each charge is a cannister of 125 lbs. of powder, and several of these cannisters are taken into a boat, and one at a time is let down upon a rock. When one is let down, M. Maillefert takes the end of the wire which is attached to the cannister and rows off, paying out the wire. When away far enough from danger, he closes the electric circuit of the battery, and the cannister explodes. The cause of the accident was owing to his touching the wrong wire.



Reported Officially for the Scientific American
LIST OF PATENT CLAIMS
 Issued from the United States Patent Office
 FOR THE WEEK ENDING MARCH 23, 1852

OMNIBUS STEP—By Josiah Ashenfelder, of Philadelphia, Pa.: I claim the application of the inclined covering or protector, to the outside of the omnibus door, as described, to prevent persons from standing, laying, or sitting on the steps, in combination with the brush, or broom, secured to the bottom of the covering, or protector, so as to open and shut therewith, for the purpose of cleansing the step or steps, each step, if more than one, requiring a brush or broom attached, together with a back board, to protect the inside of the step, as described.

SHOP AWNINGS—By W. H. Bakewell of New York, N. Y.: I claim the method of protecting the awning by the construction and arrangement of the cylindrical sheathing, or covering, in combination with the slat, in the manner and for the purpose as fully set forth.

MACHINES FOR STAMPING ORES—By Wm. Ball, of Chicopee, Mass.: I claim the combination of the washing basin, or contrivance, with the stamp rod and its bearing, so as to operate in the manner and for the purpose as specified.

I also claim the defective plate in the entrance spout or hopper, as combined with the same, and the mortar and stamper, and used for the purpose as specified.

I also claim the improvement in the stamp head, or the making of it with a greater stamping surface, on one side of its axis of rotation, than it is on the other, the same being for the purpose of preventing packing of the charge, as specified.

I also claim the mode of applying the stamp head to the stamp rod, viz., by means of the circular arcs, or curves, of the sides of the universal dovetail connection, with the wedge key, as described.

PLOWS—By E. Ball, of Greentown, O. (assignor to Isaac N. McAbee, of Canton, O.)—I claim connecting the beam to the plow irons, by means of a pivot and stay bolt, and adjustable standard, the whole being constructed and arranged as described, so that the front end of the beam can be set towards either side, or either extremity raised or lowered, without changing the height of the other, or both extremities raised simultaneously and equally, or unequally, substantially as set forth.

FRICITION PRIMERS FOR CANNON—By Wm. Ball, of Chicopee, Mass.: I claim the combining with the discharging string and tube of the primer, a cylinder or plug of leather, or other like substance, inserted and secured in the upper end of the primer, and having the exploding string passing through it, as set forth, the said plug or cylinder serving the purpose of a breech, to confine the charge; when exploded, as a protector of the sand paper and priming, against the absorption of humidity and as a bearing for the string to draw over, when pulled.

MACHINES FOR FELTING CLOTH—By George G. Bishop, of Norwalk, Ct. Ante-dated Sept. 23, 1851. I claim the method described of hardening the bat by alternate steaming and jiggering, substantially as set forth, whereby one section of the bat is jiggered while an adjoining section is steamed, preparatory to being jiggered.

I also claim the process of steaming and jiggering two or more bats simultaneously, whereby much labor and time are saved, and the texture of the cloth is improved.

I also claim constructing a machine for jiggering felt bats, in such manner that it will subject successive portions of the bats to equal amounts of jiggering and then stop, whereby a greater uniformity of texture is secured in the cloth.

I also claim the arrangement of the steam pipes and adjusters in the steam chamber, substantially in the manner and for the purpose set forth.

MARINE SIGNALS—By Thos. H. Dodge of Nashua, N. H.: I claim the employment for signaling or indicating the course of a vessel, of two lights of different colors, attached to or hung in a cylinder or disc, which is capable of revolving on a fixed axis, so as to change the position of the lights: the position of either light, relatively to the other, being made to point the course, in any manner substantially as described.

[This is a most excellent invention. See engraving on page 145 this Vol. Sci. Am.]

PLANING MACHINES—By John Howarth of Salem, Mass.: I claim the reciprocating plane, for scoring the face of the board transversely, and reducing it to a uniform thickness, arranged substantially as described, in a compound frame, which carries the plane back and forth across the board, by a regular and positive motion, and back and forth lengthwise of the board, by a motion dependent upon the reciprocal action of the board against the planes, in one direction, and of springs against the frame in the opposite direction, substantially as set forth.

I also claim the method of smoothing the surface of boards or other lumber, by plane irons, reciprocating endwise, and operated in such manner, that the tendency of one to draw the board towards the side of the machine to which it is moving is counteracted, in whole or in part, by the tendency of one or more of the others, to draw the board towards the opposite side of the machine, these several counter tendencies being thus made to neutralize each other, substantially as described.

SHINGLE-TREES—By Chas. Howard, of Madison, Ill.: I do not claim the ring and link; but I claim the flange, as set forth, wrought or cast, in combination with a ring and link, for the purpose of forming attachments, substantially in the mode set forth.

MACHINES FOR MAKING CORDAGE—By Wm. Joslin, of Waterford, N. Y.: I claim the application of the fan in combination with the pulleys, belt, gear, and bobbin, as a drag or take up, as described.

FLOUR PACKERS—Nathan Kinman, of Lewiston, N. Y.: I claim the friction roller clutch, constructed and arranged in the manner and for the purpose as set forth.

SMUT MACHINES—By Thos. H. McCray, of Madisonville, Tenn.: I claim the formation of a series of corrugated recesses within the periphery of the cylindrical casing of my improved smut machine, substantially of the forms represented, when the said cylindrical casing is combined with a rotating beat-

er which has its beating surfaces, &c., arranged in position which incline obliquely to the radii of the beater, for the purpose of throwing the smut and kernels of grain into the said series of corrugated recesses in such directions that they will, in entering and rebounding therefrom, be brought in contact with their active surfaces, and thereby produce so great an amount of friction action, as to break up the smut and white caps, and polish the kernels of grain, without breaking the same.

CRACKER MACHINES—By John McCollum, of New York City: I claim the use of the bed plate, resting upon or supported by springs, or their equivalent devices, so that a yielding or receding action is obtained in the bed plate, while under the pressure of the cutters; or while the cutters are pressing down, for the purposes and in principle of construction and operation, as set forth.

ARTIFICIAL TEETH—Wm. S. McIlhenny, of Philadelphia, Pa.: I claim the formation of an artificial tooth, or teeth, from spar, siliceous, clay, sand, glass, or any material used for the purpose, into a suitable condition for the finishing furnace, by the simple operation of moulding, thereby avoiding the tedious and uncertain process of enamelling.

PAGING BOOKS—By S. E. Parrish (assignor to E. B. Clayton & Sons), of New York City: I claim, first, the use of the type plates, having channel ways and springs in their faces, and holes in them corresponding to the ten subdivisions of their peripheries and their inner circumferences divided into ten equal sides, in combination with a barrel having stop pins in its circumference, for the type plate, and a changing plate attached thereto, and ratchet wheel, cap plate, and pawl, and bent lever, for the purpose of operating a series of number plates, the said combi-

nation of parts being entirely distinct from any known mode for producing the same result (that is, counting), which I lay no exclusive claim to, the principle being well known, and I therefore limit my claim to combination of parts, substantially as set forth.

Second, I claim the use of the rod, lever, inking roller lever, and arm, in combination with the type wheel, substantially for the purposes as set forth.

Third, I claim the use of the inking roller frame and rod attached thereto, and rotating ink plate, in combination with the lever, slides, and type wheel and levers operating the same, substantially as set forth.

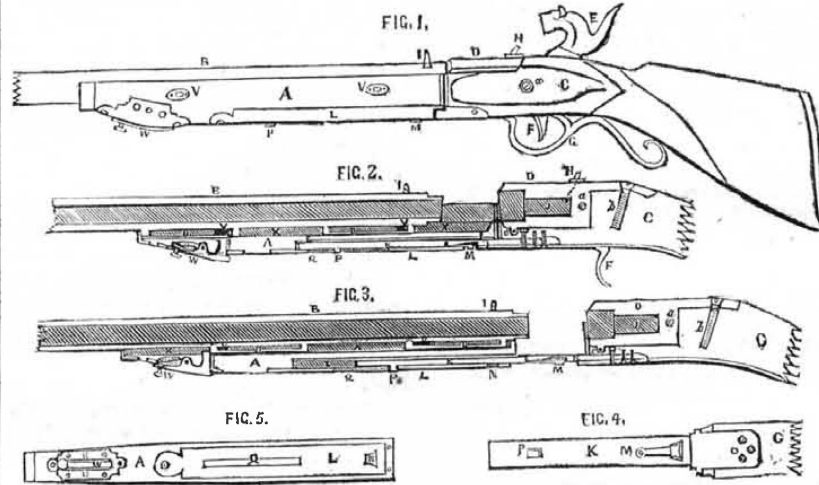
Fourth, I claim the bed, with guides attached thereto, in combination with the table and type wheel, substantially as set forth.

JOINTING SHINGLES—By Wm. Stoddard, of Lowell, Mass.: I claim the arrangement of the horizontal sliding boxes, which carry the jointing knives, by which they will cut the edges of any width of shingle, itself operating the devices for holding the boxes firmly, and in the proper position, while the shingle is being cut, as set forth.

AIR-HEATING STOVES—By J. M. Thatcher, of Lansingburgh, N. Y.: I claim the combination of the inverted domes or frustums, and plate, with the short tubes connecting them, substantially as described, for the purpose of effecting the connection between the lower end of the fire or draught flues, and carrying the air through them, to the spaces between the cylinders or tubes.

PARAFFINE OIL—By James Young, of Manchester, England. Patented in England Oct. 7, 1850: I claim the obtaining of paraffine oil, or an oil containing paraffine from bituminous coals, by treating them as described.

NICKERSON'S IMPROVEMENTS IN FIRE-ARMS.



Permit me, through the medium of your useful and widely circulated journal, to draw the attention of manufacturers and others to the valuable improvement in fire-arms of C. V. Nickerson, of Baltimore, Md., and to make a few remarks on guns of that description. The peculiar uses and advantages to which fire-arms made for loading at the breech can be applied, are various and important and may be defined under several heads as follows:—viz., for riflemen in bush fighting and mountain warfare, they are invaluable, as they can avail themselves of any obstruction barely sufficient to screen the body, load and fire with great rapidity, without unmasking, as is the case in using the ramrod. Mounted men, whether in the chase or fight, can avail themselves of its great facilities, without alighting or interfering with the management of the horse. In light infantry drill it often becomes necessary for troops to extend their line, and at intervals of several paces lay flat on the ground; after the first fire the operation of re-loading in that awkward position, with the ramrod, must be apparent to all; whereas, with a weapon of the above description, he may retain his ground and fire at pleasure. The ordinary musket can be altered to this plan at a trifling expense. Its advantages, when infantry have formed to receive cavalry, are manifest, as no matter how compact men may be forced, this method of loading enables them to fire with that rapidity which is absolutely necessary to check an assailing force. Fowling pieces can be manufactured with great beauty and economy; cartridges can be made to suit the bore of the gun with neatness and accuracy, entirely superseding the shot-bag and powder flask, and in the pursuit of game, with competitors in the field, the sportsman can load and fire much faster, and without that nervous excitability consequent on hasty loading with the ramrod. The spirit of invention cries "onward!" and even the school of the soldier must give way to the march of improvement; the day is not far distant when the old-fashioned method of "ramrod cartridge," will be an obsolete idea.

The following description is taken from the Letters Patent:

Fig. 1 represents an elevation of the ordina-

ry fowling piece; fig. 2 is a vertical section view of the same, the barrel having been moved in a position to insert the cartridge into the breech chamber. Figure 3 is a vertical section, showing my improvement as applied to a musket, the barrel and stock having been moved forward in a position to insert the charge into the breech chamber. Figure 4 is an inverted view, showing the projecting bar with its spring catch, of the butt of the stock. Figure 5 is a view of the underside of the stock showing its grooved socket case. Where the same letters of reference occur on the above figures they indicate the same parts.

The nature of my invention and improvement consists in dividing the stock at the junction of the barrel and breech, and furnishing the butt of the stock with a horizontal bar or guide blade projecting from the lower portion thereof, fitted into a socket, sheath, or case, secured to the under-side of the stock, whereby the barrel and stock are supported, and allowed to have a longitudinal movement from the breech for the insertion of the cartridge into the chamber, and using a spring catch attached to the under-side of the said bar, for interlocking with the sheath or case, whereby the barrel is held securely in its place. When closed in with the breech chamber to confine the charge, this manner of mounting the barrel is designed to be applied to the musket, wherein the barrel is firmly banded to the stock and cannot slide independently of the latter.

A is that portion of the stock in which the barrel, B, is mounted; C is the butt of the stock, in which the breech, D, is mounted; E is the cock; G is the trigger guard; H is the cap nipple communicating with the breech chamber; I is the sight of the barrel; J is the chamber of the breech to receive the charge, enlarged at its outer end to receive the end of the barrel, B; when closed in with the breech, D, it is secured firmly to the butt, C, by bolts, a, b, c. K is the bar for supporting the barrel, bolted firmly to the under-side of the butt, and projecting horizontally forward into the case or sheath, L, let into and secured to the stock, whereby the barrel is permitted to move from and towards the breech; this bar, K, is provided with a spring catch, M, to

lock the barrel and stock, A, (which are banded together) to the breech where the charge is inserted, by the end thereof entering an opening, N, forward in the case, L; the bar, K, is also furnished with a pin or catch, P, near its outer end, which enters a slot, Q, made in the said case, L, the use of which is to arrest the movement of the barrel, B, from the breech by catching against the end of said slot, Q, (as shown in fig. 3), the slot allowing the barrel, B, and stock, A, to recede toward the breech to be again locked by the spring, M, after the insertion of the charge. The bar, K, is provided with a recess to permit the spring catch, M, to rest from the socket case, L, to move the bar with its stock. The upper portion of the supporting and guide bar, K, is made flat, and the lower portion convex to fit the socket case.

The operation of loading the musket is as follows:—The operator grasps the stock, A, with his barrel in his left hand, and with the fore-finger presses the spring catch, M, inwards, and thus unlocks the projecting bar, K, from the socket case, L, of the stock, and with the right hand separates the butt of the stock with the breech, D, from the other part of the stock, A, and barrel, B, until the pin or catch, P, strikes the end of the slot, Q, in the socket case, L, the cartridge is thus inserted, and the breech and barrel again drawn together, the end of the barrel entering the enlarged portion of the cartridge chamber or breech, D, where they are again locked together by the spring catch, M, entering the opening, N, in the socket case. C. V. NICKERSON.

Maryland Institute.

On Tuesday evening last week, Walter R. Johnson, Esq., delivered the closing lecture of the season before the institute. The subject was the Social and Industrial Relations of Man in America and Europe. The Baltimore papers (Sun and Clipper) speak in glowing terms of the lecture. The following extract from it is worthy of great attention:—

"In the University of Turin is given by one of its learned Professors a course of chemical lectures specially intended for students of Architecture. It is called chemistry applied to the art of the builder. How eminently serviceable might not such a course be in our country! Had even so much only of the laws of chemistry as relates to the temperature at which wood is liable to take fire been understood or attended to by the builders of our national capitol, we might probably have been spared the deplorable and discreditable loss of our great Congressional Library. And had something been known of the causes of decay and disintegration of building materials, our public edifices at the seat of government would not have so often required the mantle of charity to be spread over their multitude of sins, in the shape of coats of paint, daubings of putty, and patches of plaster."

Cheap Ocean Postage.

A resolution has been introduced into the Senate, in favor of reducing the postage on letters carried across the ocean. We go for such a law, heart and soul. It is certainly a very singular thing that a letter can be carried three thousand miles on land for three or five cents, but cannot be carried across to England, or from it, for less than 24 cents. It is said that the expense of ocean steamers is very great, hence a large postage has to be charged to pay their expenses. This is not good reasoning; the same kind of arguments were employed against the enactment of the cheap land postage law. It is our opinion that an ocean ten cent letter postage, across the Atlantic, would bring in as much money to the Post Office, as the 24 cents for each letter now. The increase of letters would be so great that it would cover all expenses. A ten cent ocean postage, might be tried, we believe, without the least risk; it would be a great blessing to men of business and millions in our country. Let the Senate wake up to cheap ocean postage; that is the intervention we want just now, along with any other useful measure.

An experimental trip has been made by a small locomotive weighing only three tons, on the Lowell (Mass.) railroad. It ran at the rate of 26 miles per hour, with 50 passengers,