

Scientific American

NEW YORK, JUNE 14, 1851.

There is Nothing New Under the Sun.

As a great general fact, no man can deny the correctness of the above language of Solomon, at least so far as it relates to the human passions and the general events of life; "we see the same scenes which our fathers have seen, and we tell the same tales which our fathers have told." Many new and grand discoveries have been made since the son of David laid the foundations of his unequalled Temple, but there is much that is incontrovertible, even when we apply his words to the inventions that are frequently brought before the public now as things supposed to be new.

Almost every day we see something of this kind; the reason is obvious; comparatively few have had, or do have the time or opportunities of acquainting themselves properly with the history of discovery and invention. Another reason is the want of sound ideas respecting the principles of science; thus one man gets up a machine for heating apartments by compressed air, forgetting that the fuel which drives it will heat the apartment much better and at less expense without the machinery; another gets up a machine to gain power by levers, forgetting that no lever can gain power without losing speed, which amounts to no real gain—a thing well and long understood; another gets up a machine to work by centrifugal force asserting that "this is a power which costs nothing and is generally lost." Some machines are got up for speculating purposes, and many are imposed upon by them; others, and the great majority, are the productions of honest but uninformed men. The latest wonderful invention that we have seen and heard of, is a machine to gain power by centrifugal force. All machinery is just the medium of transmitting force in a certain direction or directions. One way is to transmit it in a straight and another in a curved line; but almost in every machine there is a combination of these lines. The stroke of a piston transmits the power in a straight line to work a pump, but to work a wheel the straight line is mixed with the curved line of the crank. Three revolving gear wheels, connected together, do not transmit the power in circles but in a wavy line. This is the way of transmitting the power, and will easily be comprehended, but as it respects the power itself, there are some very erroneous notions abroad, and not one more so than this one of gaining power by centrifugal force. There is no power gained by machinery, but a loss in whatever amount of friction there may be in the parts. What is centrifugal force? This we will render plain in a very few words. Every body by the well known laws of mechanics has a tendency to move in a straight line, therefore, when any body receives a rotary motion, that is the force made to move in a circular direction, it is continually seeking to fly off at a tangent—in a straight line; this is called centrifugal force. It simply means that the force which has been applied, has been bent out of, and seeks for its natural line of direction; so strong is this tendency to move in a straight line in all revolving bodies, that it oftentimes acts like the blows of a hammer on large swift revolving grindstones, destroying the laws of the cohesion of particles and shattering them to pieces. Many accidents have occurred by driving grindstones, wheels, &c., at too great a velocity. The shaking of the centrifugal sugar machines, and the oscillating of large locomotive wheels, is caused by centrifugal force and is the result of driving them at too high a velocity; but to suppose that any new power is derived from such a source is all nonsense; if such were the case, all that has to be done with a steam engine, is just to put on a most tremendous fly wheel, get it up to a great speed, then put out the fires and leave the fly wheel to do the rest, like the song of the "steam arm," the machinery must go on right on forever.

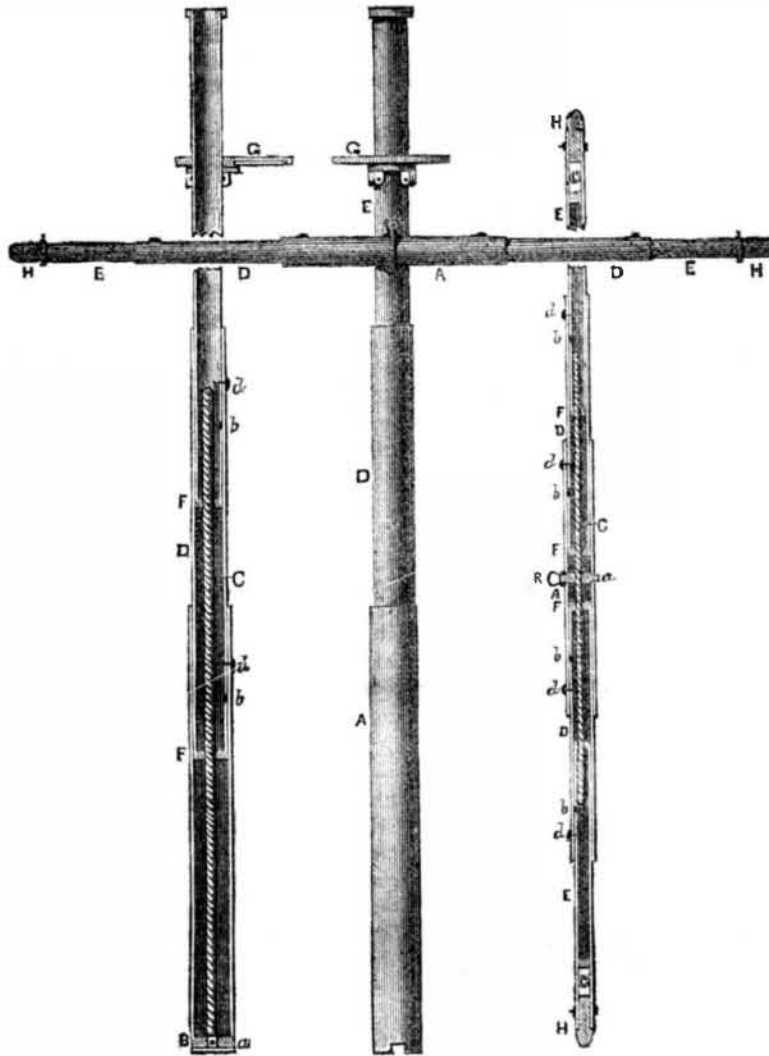
We have indulged in these remarks because we know there is a positive necessity at the

present time for doing so. They are intended to do good, and we have no doubt but they will accomplish the object intended.

Philip Crabbe, Esq., the first manufacturer of lead pencils by machinery, died a few days ago in London at the advanced age of 100 years.

CAPT. BROWN'S TUBULAR WROUGHT IRON EXTENSION MASTS, YARDS, AND SPARS.

Fig. 2. Fig. 1. Fig. 3.



This improvement is the invention of Captain Charles F. Brown, of Warren, Bristol Co., R. I., who has taken measures to secure a patent for the same. This invention consists in the employment of masts, yards, and other spars of wrought iron tubes fitting within one another in a manner similar to the joints of telescopes, the larger tubes forming the larger part or parts where the greatest strength is required, and the innermost or smaller tubes forming the ends, the whole number being secured together by a screwed rod or rods, made secure to the larger outside tube or tubes and passing through nuts in the inner ones. The several tubes can be set in any position by setting screws so that the length of each mast, or spar, may be varied at pleasure. Fig. 1 is an elevation of a lower mast and yard. Fig. 2 is a vertical section of the mast. Fig. 3 is a longitudinal section of the yard placed upright.

The same letters refer to like parts. A is the largest tube, and is the lowest one in the mast; in the yards it is the middle one. B, fig. 2, is a socket nut in which is secured a rod, C, with a thread on its whole length. The rod may be secured firm in its socket nut by a pin, a, passing through to prevent it turning round. The rod, C, in the yard, requires to proceed in both directions from the middle. D and E are inner tubes fitting into one another as represented. At the inner end of each there is a nut, F, so secured as to be incapable of turning within it. These nuts fit the rod, C, and by turning either tube, it may be screwed into or out of the other. In each encasing tube, near its end, there are one or more holes, through either of which a set screw, d, passes and is secured into one of a row of holes, b, in the tube inside of it, the said holes having threads for the reception of the screws, and by these means the length of the mast or yard may be varied; G is the round top, which may be made of wrought, or cast iron and secured to the mast in any suitable manner; H H are plugs of wood inserted in the ends of the smallest tubes, E E, fig. 3, to preserve

their form and give them the required strength for the mortice to receive the sheave, C. Instead of one rod, C, in the yard, separate rods may be used for connecting each pair of tubes. The same mode of connecting the joints may be applied to the mast. The upper masts are to be made in the same way as the lower ones, and to fit into them and be secured by other screw rods secured to the upper joints of the masts immediately below them. The gradual diminution of the size of the tubes, gives the necessary taper to both the mast and yard, and each may be formed of any number of joints necessary for the purpose intended. The masts and spars, when stowed away, can be screwed into one another, or the screw rods may be taken out, and the tubes slipped into one another, thus enabling them to be stowed away in very little space. Any spars may be made in the same way. The advantages of this invention are self-evident, and we have no doubt but it will arrest the attention of nautical men. It will enable sailing vessels to be greatly increased in size, as it is difficult to obtain solid sticks for masts.

The Progress of Our Republic.

The census of the United States, for 1850, is enough to astonish all the world but ourselves—whom nothing can astonish in the way of doing up things *slick*. The increase of our wealth and population are evidences of our great prosperity. For the past eight years, especially, we have reason to be deeply thankful for the steady and prosperous advancement of our commerce, and internal resources. There have been no sudden fluctuations, and nothing but general progress. Some interests have suffered, but the Republic as a whole has not felt them. How striking the contrast between our country, and the civilized countries of Europe. Our superiority in every respect has been strikingly manifested. We have beheld Europe convulsed from centre to circumference. France has spouted out her race of monarchs and her citizens have made the streets of Paris reek with human gore. Rome cast out her

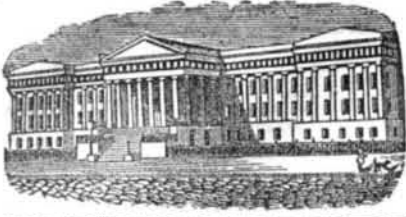
spiritual ruler, who was only reinstated by the cannon of the Gaul, who, more than once, as in days of old, has become master of the Eternal City, perhaps yet to pay the debt to a more than Cæsar's vengeance. The fields of Italy have been stained with blood, and the cannon of Austria have battered on the walls of Venice. Bloody have been the struggles on the plains of Hungary, and Vienna has smoked with the ashes of the slain. Every nation in Europe but Russia and England have had the knife of civil war bared in the savage contest of father against son and brother against brother; Ireland has lost two millions by the famine and the pestilence, and what country in the old world has escaped some scourge or reverse of fortune? Not one. We have been engaged in war, and we glory not in that, because we are the friends of peace; we have also had the pestilence, but it would seem as if those things which injured and retarded the progress of other nations tended always to advance and prosper ours. Strong are we now in population, and stronger than all other nations in enterprise, and never-tiring onward pushing. In the year 1800 the population of the United States was 5,300,000; it is now 23,500,000.

The number of States then comprising the Union was sixteen; it is now thirty-one. Our territory then was 1,000,000 square miles; it is now 3,200,000. All our present domain west of the Mississippi then belonged to France and Spain, and was an unbroken wilderness. Florida was owned by Spain, and Georgia was the only State on the Gulf of Mexico. West of New York, there were no States but Kentucky and Tennessee, and these had spent most of their feeble energies in bloody strifes with a savage foe. Illinois, Indiana, Michigan, and half of our western States were yet but hunting grounds where Indians roamed unmolested. At that period the total value of all kinds of manufactures and products of industry in the United States hardly exceeded a hundred millions of dollars; the total value now of our products of industry will be about six hundred millions. The exportation of cotton alone has increased from \$5,000,000 annually, to sixty-five and seventy millions.

Our inland lake trade has increased from an amount too insignificant to be estimated, to the enormous value of \$200,000,000 annually. Our foreign marine is now hardly inferior in extent or value to that of Great Britain, and we are now gaining faster than ever on our gigantic rival. Fifty years ago, scarcely one of our present four thousand miles of canal existed, and not one of our present eight or ten thousand miles of railway, or our present sixteen thousand miles of telegraph were either known or dreamed of. In short, under the influence of free institutions, we have grown great and strong, with a rapidity which is enough to astonish and confound even the gigantic ambition of the Czar of all the Russians. The Emperor of Russia is called the colossus of the north; his empire is about three times the area of the United States possessions, with about three times the amount of population. It is about one-fifth greater in area than the empire of Great Britain. On the other hand, the British scepter exercises dominion over one hundred and eighty millions, three times more than Russia. It is the greatest empire at present in the world, and its industrial products are in proportion to its population. Next to England, in productive industry and commercial enterprise stands the United States, but in rapidity of advancement in giant strides to be the first empire in the world, it requires no "mystical lore" to predict that in thirty years hence, the result will be accomplished—the prediction fulfilled.

Mr. J. R. Hind has discovered another new planet in the constellation Scorpio, about eight deg. north of the ecliptic, and forming at the time an equilateral triangle with the stars Scorpio and Libra. It is of a pale bluish color, and its light is about equal to that of a star of the ninth magnitude.

The Pacific, American steamship, having made the three fastest voyages across the Atlantic, her officers are to be presented with handsome presents by Mr. Collins. Right.



Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.
FOR THE WEEK ENDING JUNE 3, 1851.

To John C. Paet, of White Haven, Pa., for improved Self-adjusting and looking Switch for Railroads.

I claim the combination of the counterpoise weights (four) or their equivalents, with the toggle levers (two) and stops, substantially as described, operating in the manner and for the purpose herein substantially set forth and made known.

To Horace S. Cook, of Leominster, Mass., (assignor to H. S. Cook and Seneca Colburn), for improvements in Comb-Cutting Machines.

I do not claim the invention of a single chisel made to operate by successive blows or cuts, each of which is in advance of another, and so as to create a series of cuts through a plate of horn or shell, such as will separate such plate into two combs, without what is termed a bottoming, that is to say, with the roots of the teeth of each of the said combs in a straight line and not in a curved line as they are when made with the "bottoming." Nor do I claim a die so made with stationary cutters, (that is to say, those which are immovable with respect to one another) and for the purpose of enabling a person by pressure of the whole series of cutters at once against a plate of horn or shell, to separate it into two combs, either with or without a bottoming; but what I claim is my improvement in comb cutting machinery, the same consisting in making the cutters to operate or move separately and independently of each other and in regular succession, in combination with making them of different and the required lengths, so as to produce the separation of two combs from a comb plate, substantially in the manner and with the bottoming to their teeth, as herein specified.

To Margaret Hulings, of Randolph Co., Ind., for improvement in hand machines for Spinning Machines.

I claim the clamp, the inclined planes (two), the lifters (two), the adjustable stop, the trip, hand and ratchet, with another hand and ratchet, combined and arranged as set forth, and described, or any analogous device for the purpose of spinning wool.

To S. B. Hutchins, of Oswego, N. Y., for improved arrangement of machinery for actuating the Crank Indicator.

I claim the arrangement of bevel wheels (four) and their shafts (three) herein represented and described, the first in the series being actuated by a motion derived from the eccentric by means of a crank and pin, and the last giving motion to the indicator hand, the whole being constructed in the manner and for the purposes herein set forth.

To David & Herman Wolf, of Lebanon, Pa., for improvement in Seed Distributors of Seed Planters.

We claim, in combination with the notched transverse bar, the employment of the jointed cleavers projecting from the recesses of said bar into the apertures of slide bars, for preventing the choking of the apertures.

To J. W. Briggs, of Cleveland, O., for improvement in Collars for harness.

I claim the U shaped metallic breast plate suitably padded and made to fit around the neck of the horse, the same being so limited in length, as not to reach the shoulder blades of the animal, and being suspended from the neck by a neck strap.

To Peter Claussen, of Great Charlotte st., Blackfriars, England, for improvement in processes for treating Vegetable Fibre. Ante-dated August 16, 1850.

I claim the preparation of vegetable fibre capable of being spun or felted, by submitting the plant from which the fibre is to be derived, to the action of caustic soda or other solutions of like properties, and then to that of sulphuric or sulphurous acid, in the manner set forth, whereby the gummy, glutinous, and other matters which connect the fibre with the woody portion of the plant, are dissolved and discharged; and at the same time effecting the discharge of the oleaginous and other coloring matters contained within the woody portions or straw, without staining the fibre.

Second, I claim splitting the fibres of vegetable matter, in preparing them for spinning, by the generation and liberation of carbonic acid, or other gas, within the cellular portions of said fibres, in the manner described, or in any other manner, by which gas may be generated and liberated, for the purpose set forth.

To Joseph Osborn, of Weymouth, Mass., for improved Sash Stopper.

I claim arranging a sash stopper composed of the friction plate parallel to the side of the sash, and the bolt rising obliquely upward therefrom, in the manner herein set forth, so that the upward motion of the sash will relieve the same from the frictional resistance of the friction plate, by counteracting the force of said spring; and that the downward motion tendency of the sash will augment the frictional resistance of said friction plate by aiding the force of said spring.

To Cyrus Avery, of Tunkhannock, Pa., for improvement in Horse Powers.

I claim, first, the employment of rollers (two) mounted or hung on the main shaft and lower guide shaft, in combination with the flanges on the wheels to retain said wheels upon their axles, when passing from one platform to the other, and to check their revolution as described.

[This is a good improvement of Mr. Avery, who is a veteran inventor.]

To Henry Bessemer, of Middlesex, Eng., for improvement in machines for expressing cane juice. Ante-dated Dec. 31, 1850.

I claim, first, the extraction of the juice from cane, by submitting the stalks of the same in perforated tubes or other vessels, constructed on the principle described herein, to a continuous pressure in the manner set forth, whereby time is afforded for the juice to flow from the cellular tissues, and re-absorption into the exhausted cane is avoided.

Secondly, the perforated compressing tubes, having either a straight or a tapering bore.

Thirdly, the combination of the pistons with the perforated tubes and hoppers, whereby the operations of regulating the feed, cutting the canes into equal lengths, pressing and discharging the same, are effected substantially as set forth.

To M. J. Hunt, of Rising Sun, Md., for improvement in the gearing of a Seed planter.

I claim the arrangement and combination of the double bolt with its slotted arm, rock-shaft, with its arms (two) and pitman, for the double purpose of giving motion to the feeding apparatus, and also regulating the quantity of seed to be sown, when said pitman is operated by a long crank upon which it travels, as shown.

To J. C. Dickey, of Washington, D. C., for improvement in Revolving Frames for drying fruits and other articles.

I claim the centre with three or more arms, to support a cord netting or cloth, for the purpose of exposing cloths, clothes, glue, fruits, seeds, &c., with facility to be dried, so constructed that the arms may be raised up and brought together, to expedite the collection of the articles dried, and so that it may be conveniently removed when not in use, substantially as described.

I do not intend to limit my invention to the precise form of construction described, but to vary it to suit the circumstances in which it is to be used, while I accomplish the desired object, by means substantially the same.

To R. B. Beech, of Kensington, Pa., for improvement in ornamenting baked earthen ware.

I claim, first, the application of coloring matter mixed with varnish or its equivalent, to the surface of baked earthenware, for the purpose of giving to such ware a surface of

sufficient body and of sufficient brilliancy for ornamental purposes, thus obviating the necessity of the glazing process, substantially as described.

Second, the inlaying of pearls, gems, &c., on china and baked earthenware for ornamental purposes, substantially as described.

Third, the peculiar cement and process by which I affix pearls and gems to the china or baked earthenware.

To L. S. Chiocheater, of Williamsburgh, N. Y., for improvement in Carving Machines.

I claim the use of the pendant lever suspended from a ball and socket joint, in combination with a horizontal table for the pattern and block, the said table being affixed to the end of the pendant lever by a ball and socket joint, the whole being arranged with respect to the tracer and cutter, substantially in the manner described.

I also claim preventing the pendant lever from changing its centre of motion, or from rotating on its own axis, or on any line passing through the centre of its motion, by the use of the bent arms working in balls in spherical sockets, substantially as described.

I also claim combining with the pendant lever, two or more tables, substantially in the manner described, or in any other substantially the same, and arranged each with a tracer and cutter respectively, in order that large carvings may be obtained from a small pattern, or vice versa, or both at the same time and with the same machine, substantially as described.

DESIGNS.

To L. S. Hapgood, of Boston, Mass., for Design for Stove Plates.

To Wm. L. Sanderson, of Troy, N. Y., (assignor to R. R. Finch, of Peekskill, N. Y.), for design for Stoves [In reference to designs, let us say, that a great deal of attention is now being paid to patenting them. The price is nothing, while the benefits derived from the patent of a good design are immense.

(For the Scientific American.)

Practical Remarks on Illuminating Gas.

[Continued from page 302.]

That water can be decomposed and resolved into its original aeriform state, is well known, and that Mr. Paine accomplishes this we have no doubt. To decompose water, however, and produce oxygen and hydrogen gases, a very large and powerful battery becomes requisite; as hydrogen has no illuminating power in itself, it therefore becomes necessary to carburet it before it can be made available for illuminating purposes. If it is allowed to pass through spirits of turpentine it must appear evident that the greater the amount of turpentine absorbed, in just such proportion will be the light produced; and from this we may deduce that, as is the carbon, so is the illuminating power.

That Mr. Paine does carburet his hydrogen by passing it through spirits of turpentine, we cannot say; I would only state what he asserts that he does. The experiment of carburetting hydrogen, by passing it through spirits of turpentine, has been tried by many practical chemists, and the results have invariably been that the carbon of the turpentine would not unite with the hydrogen, nor would the hydrogen combine with the turpentine at common temperatures; and they have also found that no signs of carbon are evinced in the hydrogen until it is brought up to a temperature when its vapors pass off, uniting with it. Mr. Paine has gone still further, and asserted what he confirms as a fact, that water is a simple element, and composed of hydrogen only, and that the oxygen which has heretofore been obtained by chemists, is produced by the imperfect decomposition of the water.

Mr. Paine's statements, although quickly repulsed by scientific persons, being considered so grossly absurd as to be unworthy of further thought, were upheld by many unacquainted with the subject, and therefore gained believers very rapidly, as do all new and novel inventions; and it would seem the more preposterous the statements by the originators of any new scheme, the more converts are gained; so craving is the public mind for new things, and so assiduously does it seek excitement. At the time the excitement produced by this novel mode of illumination was at its

height, a party of scientific gentlemen of undoubted ability and veracity, from New York and Boston, waited upon Mr. Paine at his request, in order to investigate the apparatus from which this novel light from water was produced, and which had created in the minds of many people interested in gas companies and unacquainted with the principles of gases, a feeling pertaining to alarm. These gentlemen thoroughly and faithfully examined his apparatus, and in their report, which was published at the time, gave, as their decided opinion, that the gas, which was represented to be water gas, was in reality oil gas; and that the hydro-electric light was an imposition.

From that time the light appears to have been extinguished, from the public view, at least, and is now reckoned among the things that were—or rather that were supposed to have been.

Although it may seem very singular that any person should place any reliance upon a man who brings forth such an invention, substantiated by such statements, and whose whole life has been teeming with the marvellous, still it must be admitted that many have given it countenance, and perhaps, I may say, have believed that Paine's hydro-electric light was to supersede all others. However, we see by this with what ease people who do not understand principles, are led into difficulties; and how important it is that we look into new lights thoroughly, and view them at such times when reason and judgment reign supreme, over the exciting impulses of our nature, and that we acquaint ourselves and become familiar with the first principles of all supposed luminaries, before we allow ourselves to be led away by them. The progressive march of science is ever onward, we are well aware, and new developments are made evident every day; still we do not believe, nor can we think, that science will ever recognise the method, or countenance the generating of hydrogen from water by electricity, and carburetting that material in a satisfactory manner for illuminating purposes; for where can carbon and hydrogen, the base of all illuminating gases, be obtained so easily and directly as to compete with nature, who has abundantly supplied us with a material in the form of pit coal, which for cheapness and efficacy is unsurpassed.

Having now treated upon the different kinds of gases, and the method of generating, we cannot perhaps terminate with more propriety than to append the following extract from an article which appeared in the Boston Courier some time since:

"It is somewhat strange that, at this day, when the art of gas illumination, so strictly scientific, is capable of the nicest investigations, parties are putting up works for distilling gas from grease, oil, or rosin, endeavoring to persuade those who are ignorant of the first principles of the process, that they are more economical than works designed to supply coal gas; for it is well known, both in this country and in Europe, that gas made from coal is not only much more economical, but more cleanly and free from unpleasant odor, than that made from any other material; and it really excites a smile upon the countenance of any scientific or practical man at all conversant with the process, to hear the boasting of those who vend their newly-patented, but really old exploded ideas, with regard to manufacturing gas. We esteem it a public blessing, when men of really scientific attainments devote their energies to diffuse so great a blessing as pure light, which, next to pure water, is indispensable to the natural wants and comforts of man. So simple is the process, when entrusted to the hands of scientific men, that we have no hesitation in saying that, within a very short period of time, every village in New England will have its works for the manufacture of coal gas, thus diffusing this great comfort among our whole population. Here, also, as in Europe, every cotton and woolen mill will be lighted with gas, thus adding to the comforts of the operatives, lessening the danger from fire, and increasing the profits of the owners." J. B. B.

(To be Continued.)