DEMONSTRATION OF THE EARTH'S ROTATION.

The accompanying engraving exhibits Dr. Biot, of London, at the Polytechnic Institution, London, explaining the experiment of M. Foucault, for demonstrating the rotation of the globe.

Fixed to the floor is a circular table divided into 60 degrees, and of 15 feet diameter north and south, supposed to rotate with the earth; while a ball 20 lb. weight, depending from an iron spindle by a wire 45 feet long, vibrates over its surface. The plane of vibration apparently never changes, but the rotation of the table is visible by the alteration of the degrees, and the removal of small portions in the centre of the table by the point of the ball in its rotation.

Dr. Biot professors to conduct the experiment after the manner employed at the Pantheon at Paris, and on the principles laid down by the French mathematicians, adhering strictly to the definitions of M. Foucault.

The proposition assumed in the experiment is, that a pendulum properly suspended and put in motion will vibrate always in the same absolute plane, notwithstanding the shifting of the point of suspension; whereas, if it follows, that at the point a complete revolution will be made in 21 hours, and that at the equator the plane of vibration will never alter at all with respect to the meridian.

The experiment is now the subject of much controversy in England, some not seeing that it is fallacious, others proving it to be the reverse. We have not had an opportunity yet of seeing or trying the experiment. We must, counsel strict observation in those who are now making, or are intending to make the experiment. See that magnetism on the movable and immovable parts, has the same influence. The best account of this experiment that has been published is the communication of Prof. Henderson, of Cambridge, Mass., on page 200, Scientific American.

We have been informed that it has been voted by the directors of the Boston Hill Monument Association to permit the interior of the monument to be used for the purpose of repeating the experiment of Foucault, with a view to demonstrate the rotation of the earth on its axis. The privilege was granted on the application of the Massachusetts Charitable Association, and the experiment to be made under the superintendence of Mr. Bond of the Cambridge Observatory and Prof. Henderson of the Scientific School.

The pendulum to be used in this experiment will be about 36 feet in length.

The monument, from its form and substantial character and the protection it will afford from all extraneous influences, is probably the best place in the country for repeating the curious and interesting experiment. The weight to be suspended is a cannon ball which was fired from one of the British ships during the battle of 17th June 1783, and dropped in this city some years since. This ball is to be fixed in a brass setting, with adjusting screws and a pointing mark to indicate the variation, and thus render perceptible to the eye the rotation of the earth.—Any of our freemen may try the experiment in their basins. Take a wire about 30 feet long, and suspend it in the way described as follows by a correspondent.

"An ordinary 20 lb. weight, suspended by means of a small wire from the rafter of a barn, formed my pendulum. It was 30 feet long, and consequently made 21 vibrations per minute. In order that it might move with an little friction susceptible, and alinement for- ly in a horizontal direction, I took a small slip, and having had one end turned up at right angles to its length, and well hardened, I made the point sharp and smooth. This I drove into the rafter, and on the point suspence a hardwood ring, which had a small inden- tation on the inside to keep it from slipping off the point. To this ring the wire of the pendu- lum was fastened. That the vibrations might be more read- ly traced along the floor, a small pointed rod was attached to the center of the underside of the weight, nearly in a line with a wire, and long enough to reach within an eighth of an inch of the floor. On the floor or under the monument when it was thus suspended, and twelve straight lines drawn through it, making with each other angles 15 degrees each. This pendulum was now set to vibrating along one of these lines; for a short time the point of the rod seemed to trace the line backwards and forwards; but in less than 15 minutes it had deviated perceptibly to the left of the end of the observer. I found it necessary to draw several other lines running in various directions, and found in every instance that it deviated to the left, and that the amount of deviation varied nearly as the time, that is, the longer the time the greater the deviation. To-day I repeated the experiment. At 11 o'clock I set it vibrate along a line running nearly east and west, and now at 2 o'clock, three hours after, I find it moving N. W. and S. E.

According to a well known law of motion, a body once put in motion by any force, will continue to move in the direction in which that force is impressed, until acted upon by some other force tending to move it in a different direction. Now in the present instance, as we know of no force tending to change the pendulum's motion, it seems fair to infer that it still vibrates in the same absolute direction that it did three hours ago. If this be true, the barn must have been turning round to the eastward, making, during those three hours, one eighth of a revolution; and as the barn has the same relative position to all external objects on the surface of the earth around it, we must conclude that it is the earth that is turning round at this rate, and that it will make a complete revolution in 24 hours."
In the machine-shop, the department, the British display great skill, power, and ingenuity. Never have I seen anything like it. There are 800 men employed. The largest is the Lord of the Lofts, belonging to the great Western Co. Its cylinders are 18 ft. in diameter, and 12 ft. in length, and it turns 800 lbs. at the rate of 60 miles per hour. Its power, with 120 lbs. of steam, is 100 horse-power, and it is a common engine for this railroad. It has been tested on our side; but the proprietors of the railway do not want to observe the railway carriages exhibited at all made of hard wood covered with a coat of varnish. They look well, as one of the worst is of the most beautiful description.

The department in which I like to see the most is that of the English steamboat. There is no doubt to their coming here, and how faithful to the shout of his trumpet. Here each is lying quietly as the answering carriages exhibited are all made of hard wood covered with a coat of varnish. They look well, as one of the worst is of the most beautiful description.

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American Association for the Advancement of Science.

This very respectable Association met at Cincinnati on the 10th inst. The people of Cincinnati exhibited to the members the noblest hospitality we have seen for many years. At the next meeting of the Association is to be held, will not forget this. Prof. Bach, of Washington, recently called on a party of friends, the Rev. Mr. Tubbs, and Prof. Charles, who were a godly assurance of members. A great number of valuable papers were read, which will be published in "The Transactions." Among the many curious calculations, the mass of the ring which was determined by Bessel, the thickness from Bond, of Saturn is then the next meeting of the Association is to be held in Cincinnati on the 5th, and adjourned on the 10th.

To this point, these observations, extended on railways, both wheels and rails abrade, we know that the maximum adhesion, or surface gained, will augment very materially when the wheels, though the weight remains the same.

The article obtains its name from the preparation of the paper, which forms the principal matter of it. The wheel, when it has had sufficient time to dry, is scoured, and the varnish is applied on the surface of the pearl. Before this varnish has become dry, pieces of pearl cut out in the form of leaves, roses, and other flowers, as the writer believes, then are used, and left in the open air for several hours to dry, and then polished.

The article is still in an unfinished state, after a thorough polish, has to be submitted to the hands of an artist, upon whose skill its beauty in a great degree depends.

Under his hands the piece of pearl, but roughly formed, is soon converted into a beautiful flower, surrounded by its leaves and buds. The branches are first traced out with a camel's hair, painted in size, upon a fine gold leaf in allowance. The artist follows the painting of the flowers and leaves, the colors of which are rendered almost indistinguishable by the transparency of the white varnish. Persons who have seen paper maché articles have doubts been struck with the beauty of these objects, and they are now in demand among the wealthy classes of the city.

To the above considerations, the writer respectfully invokes the attention of his professional brethren, in the hope that some of the companies they serve may at once put this important matter to the test, and lay a few hundred yards of rails, four inches in diameter, and the high gradients of some railway doing heavy business. A few months' use, and a few hundred yards of rails, four inches in diameter, and the high gradients of some railway doing heavy business.

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New Inventions.

Improved Machining Machine.

Mr. E. B. Wilson, of Bloom Valley, Crawford Co., Pa., has taken measures to secure an improvement in machinery for making pipes, valves, etc., by which a great saving in labor, for making and unlodging pipes, raising boggles up into stoves, etc. Two bearings, a person acts on the side foot, like operating a hand turning lathe, more gear wheels by pairs, which turn an iron groove on the outside bar, and elevs and elevates by rope any bail or bag secured to the same. The weight of the person operating it is applied instead of the movable section of the arms only.

Improved Spiking Machine.

Mr. Mark J. Loe, of Etowah, Cass Co., Ga., has taken measures to secure a patent for improvements in machinery for making spikes and nails. This invention is different from the roller spike machines, and the verti- tically reciprocating cutting nail machines. There is a horizontal table nearly the form of the oval to the circle, having a hollow space within it, in which works a revolving ram on a shaft concentric to the table. The iron plate is fed into the spikes, fed in along the upper surface of the table, and is cut off in strips, of suitable size, across the edge of the opening in the top of the table, by a vibrating shear arm working above, and these are pointed after the manner of the arms and the table. The cam spoken of has an intermittent motion, and is made to carry the spike within the space of the table, and allow it to stop under a holding die which receives it, when a heading tool comes down and completes the operation.

Improved Flow.

Mr. George Sheldon, of Millburn, Holmes Co., Ohio, has taken measures to secure a patent for an improvement in pipes which he has recently invented. The improvement consists in applying a series of central rollers so arranged as to throw off the mound on the land side of the pipe, instead of employing the ordinary mound under the machine. The central rollers re- serve while the pipe is in motion, consequently there is less friction on the said rollers, than on the mound under the machine.

New Planing Machines.

Our list of patents this week there is one granted to Mr. George W. Beard, of Buf- falo, which is entitled "The Elzett Cutler Planing Machine," and is said to be a valuable improvement. It is claimed to be designed for cutting work superior to the hand plane, and that it is claimed for it that its operation will produce 9,000 feet per minute, or 200,000 feet per hour, and that it is superior to the ordinary mould board. The conical rollers are arranged as to throw off the mould on the land side of the plow instead of employing the ordinary mould board. The cutter extends down on the head of the plow of the cotton, and is fastened by a mortise through it, which receives a tenon on the wrought iron plate bolted to the mould board. The plow point and plane is fastened to the plate which has a tenon thereon, and an ordinary screw bolt with the ability to spread the plate, but it is believed they will be sufficiently un- derstood. More information may be obtained by letter addressed to Mr. Cloud.

WALKER'S PATENT IMPROVED SHEET METAL FOLDER—FIGURE 1.

This invention is the property of Mr. Jabez Walker, of East Bloomfield, Ontario, consisting of a strong bar having its faces curved an improvement on machinery for hoisting, and the same letters refer to like parts. cam, the ends of which are connected to the fixed bar, and the lever, B, may be moved nearer to or further from the jointed by pins, C, cloud, C, may be turned in front, one face of the tumbler bar, D, is then level with the upper edge or face of the bed, and is kept in that position by resting against the front of the bed, the receded part, E, of the case, g, is then over the turned part of the bed, and is then put as far up as possible, the bed, F, when being depressed, the jaw, C, is thrown up by the springs, I, and the lip, J, is consequently kept out of the way to be folded, represented a line, is then put at the front between the lip and the bed, and the cylinder, K, is then thrown back, and as soon as the projection, L, on the same come in contact with the friction rollers, E, F, which, by means of the bar spring, F, and screws, pull down the cylinder, K, and cress the plate tightly between the lip, c, and the bed, preventing its being drawn back while being folded; as the letter addressed to Mr. Walker, the circular parts of the cases continue to bear the friction rollers and keep the plate se­ cure, the plate being held back when the tumbler reaches the back position, by which time the fold is complete. When the lever, H, is thrown back to its original position as at first described, the jaw, C, is raised by the springs, I, and the plate may be removed, a fold of book being perfect formed.

More information may be obtained by let- ter addressed to Mr. Walker.

Machine for Flocking Cloth.

The following is the condensed specification of a patent granted to Dime B. C. Means, C. Cloud, and Mr. Perry Dickson, of Blooming Valley, Pa., which has been prepared and of the spinning wheels, it is dried in a room at about 80°. When completely dry, it is immersed in a warm solution of bleaching salts, prepared by dissolving 1 lb. of sodium carbonate and a quarter of an ounce of the salt in one gallon of water, of which the water parts are thrown off. It is then permitted to get nearly cold, when it is immersed in a strong hot solution of gums, to which has been added one ounce of strong nitric acid for every gallon of the boiling solution, which has been kept in it until they are completely saturated, when they are taken out and dried and found to be of a soft, resilient state, and are then dried up, day or two after the operation for castings are slightly bent and curved over with a pair of tongs. The pieces are then brushed with the Canada balsam dissolved in turpentine, after which they are kept warm until the turpentine is driven off. Various colored substances may be used along with the materials specified to color the artificial marble, such as indigo for blue and other substances for other colors. The marble is also streaked and beautifully variegated.

Scientific American.

Improvement in Flows.

The accompanying engraving is a perspective view of an improvement in flows by Mr. J. C. Cloud, of May's Landing, Atlantic Co., N. J., for which a patent was granted on the 9th of last February. The improvement relates especially to what is termed an ‘auxiliary furrow side.’ A is the mould board; B is the auxiliary furrow side with a curved concave shank, C. This shank is a section bell shape, with its upper edge projecting forward so as to act upon the surface of the mould that is turned over. It is well known that the projection of plowing consists in turning over, perfectly the mounds so as to turn under the swell, or otherwise what was the exposed side face. This "auxiliary furrow side forms a broad bearing at the bottom of the mould-board, and so acts upon the surface as to turn it into a scroop, if it be imposed, while at the same time, it breaks it nearly like a harrow. This auxiliary piece is fastened by bolts and nuts, or

impossible to have the streets of cities the luxury of a carriage without the present incessant rattle of corriam. . . . without the present incessant rattle of carriage. The motion—the wheels being, in fact, springs, and, by their elasticity, giving a lighter draught than with the iron tire. We have seen a set of wheels which have been driven 6,000 miles, they have here and there a tefling out but show no appearance of being worn out, and seem quite capable of another thousand or four thousand. An iron tire in gen- eral worn out in 2,000 miles, so that the indi-

ral rubber tire has so far proved itself the more lasting. It is certainly a great addition to the luxury of a carriage to have it run without jar or noise; and it would be a unilvred comfort to have the street without the present incessant rattle of carriage, omnibuses, etc.

To Make Artificial Marble and Stone.

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NEW YORK, May 21, 1851.

The Department of the Exhibition is but loosely occupied; even Julius Faivre, the celebrated French marine engineer, and his able assistant, M. Desnoeux, are absent. "The London "Times," says, "in the most respectful manner, invites two or three of our ablest artists to visit the Exposition; the objects of the present time are of such a nature that the artists of this country cannot be omitted one—two—three of the most promising artists, who have never travelled abroad."

To this we can only add, that the whole business was managed contemptibly: and among the very few pieces we are able to show we have the following:

The accompanying engravings represent an application of a new machine invented by Mr. Henry S. Vrooman, of Springfield, Mass., and recently secured to him by patent. Fig. 1 is a perspective view of a small machine for performing the labor of boring or gibbing engine wheels, or for obtaining any degree of polish or finish on an engine substance drawn round a circle, cutting the ends in close contact, performing the work with great ease and precision, besides being a much more economical manner of accomplishing said operation.

The representation shows the machine attached to the covering of an engine wheel, and indicates its position prior to the leading being straighned or brought together preparatory to touching. A representation of the circle or base to each end, of which is attached a handle, which is fitted with a hinged joint, each pair being thrown open to receive the gibbing substance, by which the wheel is gibbed, these being operated by a movable thumb wrench. E is a hollow screw passing through the base, and, being operated by the squire the right, each pair is then opened and the leather or gibbing substance adjusted, and secured when the screw is turned to the right, moving the whole machine from the wheel, producing any desired tension of the gibbing substance; E and E are turned to the left simultaneously, giving a compound movement of B, B, both, bringing them together or contracting them, and settling down to the wheel, or the object is gibbed. It gives the machine rate, by the screw inside, the ends of the gibbing substance in close contact, and covering the entire face of the wheel, without the least restriction on the parts, the leather being first prepared and glazed on its whole surface ready for use.

The machine of suitable size but differently formed jaws is used with complete effect in the cutting of both of the jaws, the application and form being seen in Fig. 2.

Vrooman's Patent Lasting, Crimping and Stretcing Machine. (Patents.)

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To the Editor of the Scientific American.

[Paragraphs discussing various scientific and technological advancements, including the description of a device for collecting and processing cotton, and a discussion on the improvement of steam engines.]

Yours truly,

[Signature]

[Note: The text continues with further discussions on scientific inventions and improvements.]
MECHANICAL INSTITUTE.-The Executive Committee, who have just concluded the necessary arrangements, are now ready to admit to the institute, in any capacity, individuals who shall apply for admission. The class of October will commence next week. All who have not applied are requested to do so immediately.

J. E. A. M.-We have received from Mr. J. E. A. M., of New York, the catalogues and plans of his new Patent Traction Engine. The engine is designed for the purpose of transporting dead bodies from one place to another. The engine is constructed in such a manner that it can be easily transported, and may be erected at the place it is wanted. The engine is provided with a powerful steam engine, and is capable of performing its work with great facility. The engine is sent to Messrs. Couch & Alcott, who will give it a trial, and we believe it has never been introduced to any extent in this country. We are also advised that Mr. J. E. A. M. has constructed a Patent Traction Engine, which is now being erected at the Patent Office, and will be ready for examination in a short time.

STEAM ENGINE MANUFACTURE.-J. E. A. M. has constructed a new Patent Traction Engine, which is now being erected at the Patent Office, and will be ready for examination in a short time.

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The rocks are sandstone of a very porous nature and are very poor conductors of heat. One side of the mountain consists of a massive wall, many hundred feet in thickness, and capped by an assemblage, in a mass of rock containing several thousand cubic feet. As the mountain has a general direction from southeast to northwest, the face containing the ice is covered with snow, and in the bituminous coal regions of our country the ice extends over the level edge of the notch at I in figs. 21 and 25. A notch, as it will be understood, a rectangular opening reaching to the bed of the coal, from which the water may be driven off, and a new supply added would be protected from external heat by the non-conducting sides of the notch. The mass withdrawn from the retort, and a new supply placed over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over hot ashes, the products passing into a condenser, from which it is removed to be distilled over ho...