

Science and Art.

Interesting Geological Curiosity.

The editor of the *Eutaw Observer* was lately shown, by Dr. E. F. Bouchelle, a specimen of rock of the primitive order of formation, and of the pentadral order of crystallization, containing in its center a globule of water, movable and visible. The water is, if there be any truth in geology, one of the oldest drops of water in the universe, far more ancient than the waters of the flood of Noah. To use the language of Dr. Bouchelle, "It is a drop of the waters that covered in darkness the face of the great deep when the earth was without form and void. In other words, this little drop is a portion of the first water that was created during the six days of Genesis, and became entangled among the particles of the rock during the act or process of crystallization. The rock being primitive, or the first of creation, the water must also be primitive."

Newly Discovered Paint Deposits.

Professor De Bow recently visited the paint deposits lately discovered by Hugh White on his land near Liberty, Bedford county, Va., and furnishes the *Richmond Inquirer* with the result of his investigations, from which it appears they are the most extensive body of decomposed ochrous iron ores in the United States, if not the world. Though situated in juxtaposition with the decomposed granite in the form of porcelain—which is beautiful and abundant—and formed from the decomposition of the primitive order of silicious formation, this paint has all the features of a real pigment, pulverizes easily, contains no foreign impurities, is soft and yielding to the touch, and though oily and compressible, is entirely free from clay, and indeed has all the properties of umber, which it resembles both in character and appearance. In color it varies from a light yellow to a dark brown, as taken from the bank. The small or loose umber is the lightest, both in density and color. The flake ranges from a chrome yellow to a brown black, and when burned and properly prepared, forms the fine burnt umber of the arts, so valuable to painters and artizans generally.

The hard smooth face presented by the common paint, as taken from the mine, and simply mixed with oil, give it a valuable character as a durable fire-proof paint, well adapted to railroad cars, bridges, buildings, &c. The bank containing it is admirably situated, in regard to availability, both for transportation and mining, or preparing for market. It is near the Virginia and Tennessee Railroad, and situated on the side of a hill, from which the water drains naturally. The paint in the crude form, as it comes from the mines is well adapted to all common purposes, and is said to be much superior, both in appearance and utility, to Blake's paint, with which most of our readers are acquainted. We have no doubt but that this deposit will prove valuable to the owner, and of much utility to the community, since a good and cheap domestic article of paint is a desideratum of much importance.

Improved Bolting Reel.

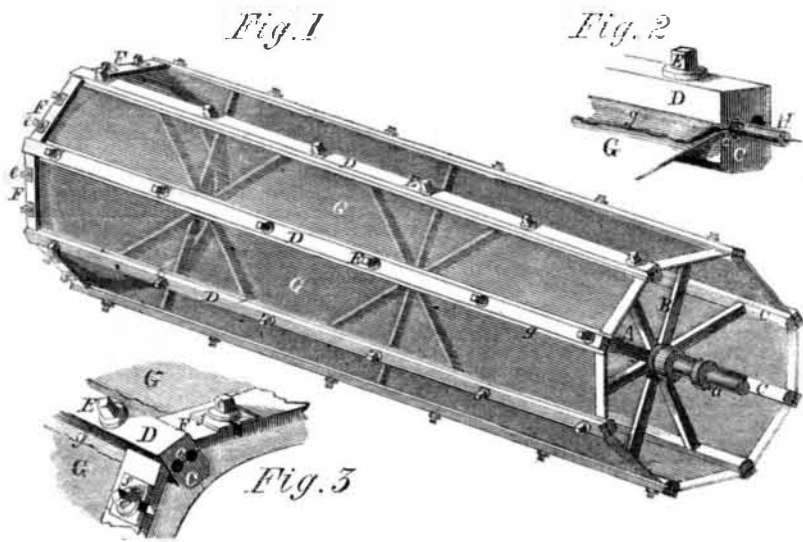
The method usually pursued in attaching bolting cloths to reels is clumsy and inefficient, being by means of tacks, which tear the cloth, and will never keep it at the same tension or tightness all around the bolt. It is extremely troublesome to remove, and should any portion get torn or damaged it cannot well be repaired, so the millers usually paste up the hole, which helps to clog the bolt, and prevent its perfect action. The method of attaching cloths to reels, which is the subject of our illustration, is the invention of John Woodville, of Chillicothe, Ohio, and was patented by him April 21, 1857.

Fig. 1 is a perspective view of a bolt, A being the central axle, with journals, a, on which it can rest, and from the axle projects two or more sets of radial arms, B, that carry

the slats, C, which run parallel with the axle from the reel. Each of these slats, C, has two semi-circular grooves in it, c, and there fits on the top of each of them another slat, D, having corresponding semi-circular grooves; C and D, being secured together by square headed screws, E. At one end of the bolt, plates, F, pass between the slats, giving rigidity to the reel, and helping to hold the cloth

(seen in Fig. 3). They are attached to a rim with which that end of the reel is provided, by screws, e, passing through a slot in the metal plate, f, that is on the wooden plate or piece, F. G are the cloths, each of which, whether of silk or fine wire gauze, should be bound with canvas to protect the edges and ends. The canvas of one of the long sides is stitched round an iron or other rod, which,

WOODVILLE'S BOLTING REEL.



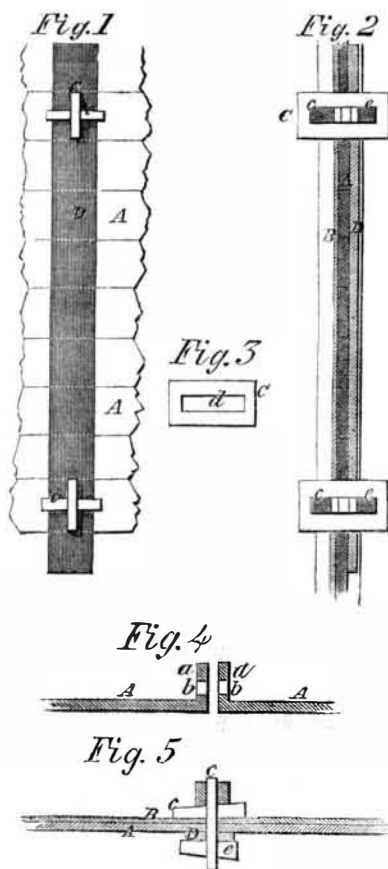
being inserted into the semi-circular groove in C, and the plate, D, screwed down tight over it, holds the bolting cloth perfectly rigid at one side. The other side is now passed round a loose rod, H (seen in Fig. 2), which is placed in the nearest groove, c, of the next slat, and the cloth being pulled tight round it, the slat, D, (having first a side of another cloth placed in its other groove,) is partly screwed down, and the cloth can be pulled to any desired tension by the projecting slip, g; but when D is once thoroughly screwed tight

it will not move. The ends are now pulled "taut," and the piece, F, secured, and the bolting cloth is fixed. In this way the whole reel is quickly made up.

This system has been in use some time, and has fully answered the inventors' expectations, giving, by the evenness of its surface, a superior bolting reel, and being easily repaired, cleaned, or adjusted. We recommend it to the notice of every miller.

Any more particulars can be obtained from the inventor, as above.

McKibbin's Method of Securing Metal Bars.



Great difficulty has been experienced in securing the ends of bars firmly together when arranged on the same line with each other, in the construction of bridges and other structures, and the object of this invention is to provide a simple and effective plan for accomplishing this object. It consists in a novel and very simple method of clamping and securing the ends of metal bars, and uniting plates with the said bars, by which great strength is obtained. The invention is applicable, in almost all cases where it is required to connect the ends of iron bars.

In our illustrations, Fig. 1 represents this contrivance applied to a portion of an iron bridge girder; Fig. 2 is a vertical transverse section of ditto; Fig. 3 is a view of the slotted plates between the bars; Fig. 4 is a horizontal section of the ends of two bars nearly brought together; and Fig. 5 is a horizontal section of ditto connected. Similar letters refer to like parts.

A are a series of flat horizontal iron bars, arranged edgewise one above the other, and united to form part of the bridge girder. B is a plate iron sheathing, covering one side of the said series of bars. As the bars, A, extend the whole length of the bridge, they have to be composed of several lengths or sections united at their ends, and the mode in which these lengths or sections are united constitute the invention. The ends of the bars, A, are bent at right angles to form lugs, a a, in which are formed narrow slots, b b, to receive a wedge or key, c. Between the lugs, a a, of two lengths of bar iron, is fitted a plate, C, whose width is the same as the width of the bars, A A, and in which is formed a slot, d, of the proper width to receive the wedge or key, c. A vertical iron plate, D, is placed against the opposite side of the joint to that from which the lugs, a a, project, and this plate, D, contains slots for the plate, C, to pass through. When the plate, C, is placed between the lugs, a a, and the plate, D, applied, the wedge or key, c, is inserted through the slots, b b and d, of the lugs, a a, and plate, C, and a wedge, e, is inserted in the slot, d, outside of the plate, and when both wedges are driven tight, the joint between the two lengths of bars, A A, is secure.

The sheathing, B, when used, is simply applied close to the bars, A, on either side, holes being provided in the sheathing for the plates, C C, or for said plates and lugs, a a, to pass through, according to the side on which the sheathing is placed. When a series of several bars are to be combined, by arranging them together endwise, the plates, D, are to be long enough to lay across the end of the

whole series of said bars, and to serve for two joints; but if a single line of bars only are intended to be united, these plates, D, need only be long enough to cover one joint.

This simple combination of parts to accomplish a very desirable end was patented on the 9th of March, 1858. Any further information can be obtained by addressing the patentee, William McKibbin, San Francisco, Cal.

News from the Bells.

The new Victoria bell, which is "Big Ben" re-cast, and is intended for the British Houses of Parliament, weighs 13 tons, 10 cwt., 1 qr., 12 lbs., or rather more than 2 tons less than the original. Its diameter is 9 feet, and height 7 feet 6 inches. The church of Bon Secours, at Rouen, France, is about to be supplied with a chime with all the modern improvements; the chimes are to play special airs on saints' and holy days, and to have a finger-board, so that any musician can make them discourse eloquently.

Vacancy in the Patent Office.

In our last number a paragraph appeared with the above caption, which, owing to a misapprehension on the writer's part, was not altogether correct, and does one of the ablest Examiners which the Patent Office now possesses—Dr. King—a slight injustice. Soon after the removal of Dr. Everett from the Patent Office, Dr. King was appointed to fill his place, which comprises inventions almost as diffused as air or carbonic acid. Willing and talented as Dr. King is, he is not quite equal to a labor of Hercules, and this is the reason why so many inventions in the steam engine department have had to wait a long while for their examination, together with the fact that such a great number of inventions come within this class.



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