how far it is more efficacious we are unable to say. The many joints which are necessary to the latter, are here superseded by a cord or catgut.

Judson's Governor Valve—This valve is very similar to a disc valve or to the regulator which is used in many locomotives.

MISCELLANEOUS.

Under this head we have comprised a variety of inventions that are not sufficiently numerous, or of sufficient importance, to be classified alone.

Lightning Conductors—By Otis & Streeter.—This invention consists of metal rods running down the sides of the building from which they are insulated by glass stays. Along the ridge of the roof is a horizontal rod, which connects the longitudinal conductors, and at intervals project pointed rods.

Mortising Machine—By O. Judson, of Steuben Co., N. Y.—This is very good for what it is intended, viz., for piercing holes in hubs.

Card Printing Press—By G. P. Gordon, of New York.—This was the only press we noticed at the Fair, at which we are rather surprized, as several patents have lately been taken out. It bids fair to become a formidable rival to the Yankee Card Press now generally used. Mr. Gordon has substituted the revolving type cylinder for the common method,—the paper is in an endless roll, and is fed down from overhead on to a flat bed, where it receives the impression from the cylinder as it revolves, and thence descending, is cut into cards as fast as printed.

Paper Cutting Machine—By S. Perry.—The top cutter is fixed, and the under one revolves—as the latter approaches the paper it closes a catch above, which grips the paper so as to hold it square whilst being cut. As the lower cutter revolves, the catch or nipper is loosened, and the paper is fed down as before.

Daguerreotype Buffer—By Duryea, of Williamsburgh, L. I.—Here we have a new species of buffer, different from any other in use, the inventor using a straight motion instead of a circular one. A bed, covered with buff leather, is made to work to and fro by the usual foot motion. The plates are held up to the under-side of the buffer by means of a lever which the operator holds to regulate the pressure.

Street and Rail Truck Sweeper—By A. S. Watson, of Staten Island.—More likely to be used for the former purpose than for the latter,—consisting of an apparatus fixed beneath the car. Two large geared wheels are worked by a piston; around their edge are fixed vertical brooms, which are kept downwards by spiral springs. The pinion is worked by a species of tread-wheel mounted on the car, but we see no reason for it, as the motion of the car would be quite sufficient from which to derive power.

Stone Picking Machine—By J. T. Foster, of Jersey City.—This invention consists of a series of revolving prongs, which catch up the stones and jerk them into a spout, from which they afterwards run into the car. It is adapted either for roads or agricultural purposes.

Coupling for Shafting—By Vanzile, of New York.—The circumference of the fixed pulley is divided into segments, which are capable of expanding when acted upon by a contrivance that is moved to and fro by a long lever. Supposing the loose pulley in its place in the fixed one, by pushing the lever to the right the segments are forced out and grasp the loose pulley, which carries the shafting around with it. The weight of the lever maintains the tension of the segments.

There are a few standing, embossing and other varieties of presses, in which we noticed nothing particularly new, with the exception of a standing press, (marked in the catalogue No. 1839), in which the maker has placed the screw on a horizontal instead of the usual vertical position, and has also employed an elbow-joint.

There are on exhibition several of Dick's Anti-friction Presses, but most of our readers are acquainted with their excellence, having been fully described and illustrated in the Scientific American.

Cotton Spinning Machine—By Brundred, of Oldham, near Paterson, N. J. (See page 361, Vol. 7.)—This is decidedly the best machine of the kind in use. It is of the throstle description, but no throstle will produce the fine work of which a mule is capable. However, those who desire to produce the description of thread that the throstle is capable of producing, may use this machine with advantage.

Among the minor inventions are a Balance Window Sash and several Bread, Meat, and Fruit Cutters; of these latter it may be observed, that however excellent for particular purposes, they will never supersede the common knife, and the living lever by which it is worked.

Bridges—Of this class we have three different inventions—two trussed bridges and a plan of a submerged bridge for railroad purposes. The peculiarity of the first is its lightness, too much so, in our opinion, to be compatible with bearing much weight; of the second is its strength, in proof of which the inventor, Gralley, of Brooklyn, has loaded the model, on the top, with 2,000 lbs. weight of iron, presuming, we suppose, that the actual bridge will support a proportional burthen; but theory, in such cases, is often at variance with practice. The third, as mentioned above, is a plan of a submerged bridge for railroad purposes. The bridge, when not required for the passage of a train, is sunk at the bottom of the river, and pulled up when a train requires to pass. The idea is good, but the question is as to its general practicability; we foresee many obstacles where the river is wide or deep, in the facility of its construction and management. Otherwise, it would be a great desideratum where stationary bridges are not allowed to be carried over rivers.

AGRICULTURAL IMPLEMENTS.

In this department there is on exhibition the ordinary run of agricultural machinery, but we did not observe anything very novel in their arrangement. There are three or four different kinds of reaping and mowing machines, but there is nothing very interesting about them. The same remark is applicable to the other kinds of implements, which do not vary particularly one from the other in the arrangment of their machinery. Among the articles stationed in this part of the exhibition, we noticed a new faucet for water and other liquids, the invention of E. Stebbins, of Chicopee, Mass. It substitutes a flat valve, which is raised by a screw, for the ordinary tap; a leather seating is used for the valve, and likewise leather packing for the screw. Abraham's patent, in England, is very similar, but probably more expensive, as he employs a mitre valve.

Four Grain Cradle—By S. Wilkinson, of Middleton, Orange Co., N. Y.—This instrument differs somewhat from the ordinary cradles, in the number and arrangement of its adjusting screws, as also in the shape of the handle, which is curved differently from what is usual. From the specimen exhibited, we should conclude it to be a superior article.

FINE ARTS.

In this department we noticed several beautiful specimens of workmanship and taste,—a collection of medallions, busts, &c., in what is called, by the artist, Sitler—Parian composition resembling alabaster; bronze figures, &c., Lucet;—with a variety of objects of luxury and use, which it would be impossible to particularize. Furniture of every description—chairs, bedsteads of iron and wood, silver ware, clock stands, telescopes, &c. Fire-proof safes, so ornamented that they appeared more fit for a lady's boudoir than a merchant's counting-house. Specimens of inlaying in wood, by Volkert, Elm street, N. Y.; Electrotype specimens by John Evans, Jr.; pictures, prints, needle-work,—and a host of miscellaneous articles.

Daguerreotypes—This department of the Fair is generally very attractive to the idlers, who love to while away the time by studying the various specimens of the "human face divine." We have, as usual, a goodly collection. Gurney exhibits below, in the body of the building, some choice specimens of the art,—there is a softness about his pictures which we meet with nowhere else; whether it arises from a more judicious light, or better prepared plates, we know not, but such is the case. The majority of the Daguerreotypists however, exhibit in the upper gallery, and here we pass, in rotation, Holmes, Meade, Root, &c., &c. Meade's collection has an imposing appearance from the number of extra mammoth-sized pictures exhibited, they are mostly superior specimens, but should not be ticketed, as some are, with what may be called certificates of character—"good wine needs no bush." We noticed one or two ticketed in this manner, "A Rembrandt," but why or wherefore we cannot tell, as to being copies of Rembrandt's peculiar style, we decidely object to the assumption. Root exhibits some specimens of crayon daguerreotypes which do him infinite credit; they are a pleasing diversity from the ordinary pictures, and depict, with great effect, the more striking traits of the physiognomy. Insley also exhibits some unique specimens of the art, which, as models of a peculiar style, are highly commendable; the method appears to us particularly applicable for copying statues, &c., of which the specimens exhibited are copies. As a matter of course, there are several other exhibitors of this class, but the above-mentioned struck us more particularly with their excellence.

[To be Continued]

For the Scientific American

On Rainbow Colors.

It is found that if we diminish the thickness of transparent bodies to a certain degree, instead of transmitting and reflecting white light, it is in both cases colored; this is seen in soap-bubbles, thin films of glass, mica, &c. In all these cases the colors are due to the interference of the luminous rays, and the different colors depend upon this interference—the light from the under-surface of the film interfering with that reflected from the upper. In this manner De la Rue applied iridial colors to paper, plaster of Paris, wood, &c., by dropping a colorless varnish on water, and lifting up the substance under the colors thus produced, giving to objects the appearance of the mother-of-pearl, the iridescent hue of the plumage of birds, the shields of beetles, and colors of a like nature. The same colors are frequently seen when oil and other substances, not soluble in water, are thrown on that liquid; these colors are also produced by the reflection of light from delicately grooved surfaces, as is seen in the mother-of-pearl, and whalebone which has been cut transversely. By cutting grooves in polished steel or other metallic surface, at the distance of from the 2,000th to the 10,000th of an inch apart, the same colors are produced, and I have frequently succeeded in producing them by corrugating thin films of gum arabic, tannin, isinglass, &c., by rapidly drying a solution of these on a smooth metallic surface. In all cases where the colors are produced by grooved surfaces they are transferable to wax and other plastic substances.

Rainbow colors are frequently produced in coating the silver tablets for taking daguerreotype pictures, by the formation of a thin film of the iodide of silver, but when thus taken they are not permanent, as they are blackened by the well known action of the sun's rays on the iodide of that metal. This objection can be obviated by using a polished copper plate, instead of one of silver, the iodide of copper not being affected by light. They can also be permanently witnessed upon a silver plate by holding it over sulphur which is being sublimed on the fumes of burning sulphur, by which a thin coating of the sulphuret and sulphite of silver are formed, neither of which are affected by the chemical rays of light. When burning silver is used, under a silver plate, the colors are of a bluish cast and of great beauty.

Copper, when well polished, and held over the fumes of sulphur or bromine, will also receive an iridescent appearance, and objects composed of wood, plaster of Paris, cloth, &c., may all be made to receive these colors by first coating them with silver or copper, by means of galvanism, and exposing them to the vapors of sulphur, iodine, bromine, and the fumes of burning sulphur.

The colors produced by evaporating solutions of the gums on smooth metallic surfaces are effaced by varnishing them, the grooves being filled up, but this is not the case when iodine or sulphur is used, their intensity being heightened by the application of varnish. The latter, of course, are not transferable to sealing-wax from not being formed of grooved surfaces. CHAS. W. WRIGHT, M. D.

Cincinnati, October, 1852.

A New Kind of Brick.

The following we have seen in quite a number of exchanges:—

"The article referred to is made of coke and other materials, and with such success and economy, that they can be afforded for about one-third the price which is now paid for the common bricks made of clay. The manufacture, according to the specification, is effected by means of cast-iron moulds, the interior of which are the exact dimensions of the common brick; in this mould a certain quantity of duff or waste coal, powdered coke, charcoal, or cinders, is placed, and being carbonized, the amalgamated material swells to the exact form required.

When taken from the mould it undergoes a finishing process, in which varnish is applied to the end or side having, while wet, a coating of powdered glass, with an admixture of a mineral coloring matter sifted over it. The brick is then vitrified, when a beautiful glaze of any required color is produced, and the article is ready for use. During the manufacturing process, the fumes are passed through water. The finishing process is only required for particular purposes, as in many instances the coke brick is equally available without it. The material is rendered fireproof by an application of the muriate of alumina, and is impervious to atmospheric influences by the nature of its formation. When articles of coke fabric are required of extraordinary density, a variation in the filling material, and also an extraordinary amount of compression, are necessary; and then there is hardly any limit to the degree of solidity which may be obtained. It is further stated that there is no description of article used in the erection or ornamentation of buildings but may be produced of the material; thus columns of interior and exterior use, cornices, capitals of plain or ornamental design can be manufactured and supplied in a finished state."

[Now, no one acquainted with the price of coke and clay can for a moment doubt, if he reflects, that this new material must be far more expensive to manufacture than brick. Common bricks can be vitrified in the same manner, and as clay contains a great quantity of alumina, bricks do not require to be rendered fire-proof, (for this they are already) by being dipped into a solution of chloride of alumina. Instead of such bricks being made for one-third less than common bricks, we believe that they could not be made for double the price, and in every sense they must be inferior in quality. Ornamental brick can be made of clay,—they are now made.

Gold Deposits in Canada.

The provincial geologist of Canada, in his report for the year 1851'52, gives an account of gold washings on the river Du Loup, at its junction with the Chaudiere, in which he states that during the present season 1,900 pennyweights of gold have been obtained by fifteen men employed by the company engaged in working the deposit. Much time and money were lost in consequence of their dam being carried away, but on the whole the labor has been remunerative. The other minerals found in connection with the gold and iron sand, a small quantity of platinum, and irrodium with an indication of mercury.

Several prospectors, both American and Canadian, have traversed the country around, and have been successful also in finding the precious metal in other localities, but had not succeeded in making its collection profitable. The geologist concludes, from the evidence collected, that the deposits are not generally sufficiently rich to render their working remunerative to unskilled labor; and that agriculturists and others engaged in the ordinary occupations of the country, would only lose their time and labor by turning gold-hunt ers.

Preservation of Timber.

Mr. J. C. Symms, of the U. S. Arsenal, of West Troy, N. Y., is now engaged in making experiments with different solutions on white oak timber for the United States, an account of which experiments he will present in a series of articles to the readers of the Scientific American.