

and are fit for transplanting. To perform this latter operation, they are detached from the crawls in deepest water, and are placed in pockets made of old nets that are fixed on wickerwork not so far in the sea. The young mussels spread all around the pocket, and attach themselves thereto by the aid of filaments called byssus by naturalists. In measure as they grow and space begins to fail them, they are "thinned out" and "transplanted" on to new poles nearer and nearer the shore. Finally, the mussels that have acquired their full size and become salable are "planted" on the highest crawls. Here it is that the "crop" is gathered. Every day an enormous quantity of freshly gathered mussels is carried to La Rochelle, from whence shippers send them to Tours, Limoges, and Bordeaux.

Arrived at the fishery, the owner of a crawl gathers his crop, and returns laden with it at the rise of the tide, which carries him to the shore without difficulty. The crawls, which are now arranged in seven rows, and some of which are one kilometer from base to apex, occupy a space 10 kilometers in length by 4 in width.

The next excursion of the association was made on the 29th of August to Saintes, for the purpose of visiting the remarkable buildings, etc., at that place; but steady rain prevented any localities of interest being visited on the occasion. After partaking of a dinner here, the excursionists left by rail for Rochefort. Arriving there the association visited the arsenal, and afterward the port, where a torpedo boat was made to explode, under water, an apparatus charged with gun-cotton, which shot into the air a column of water 20 meters in height. Afterward, there were visited the iron-clad Tonnant, now in course of construction, and the military hospital. In the evening, after dinner, a reception at the Hôtel de Ville wound up a very interesting day.

The final excursion, which was made on the 1st and 2d of September, to Royan and Ile de Ré, was, like the ones just mentioned, full of interest.—*La Nature*.

Petroleum in Missouri.

Very promising discoveries of petroleum are reported in Vernon County, Missouri, where shallow wells had been sunk by persons prospecting for asphaltum. The supposed asphaltum, which in places covered the ground to a depth of four or five inches, has been pronounced by oil experts to be heavy petroleum. It is described as of a blackish green color, and of the consistency of thick molasses. The region in which petroleum is supposed to exist in quantity is a plateau about 5,000 feet above the level of the sea, lying near the center of a spur of the Ozark Mountains and between two arms of Clear Creek. The soil is of a silicious nature, yet so finely decomposed that it is admirable for farming purposes. Beneath the soil there is a thin stratum of clay which rests on a layer of argillaceous rock. Underneath this rock is a stratum of porous sandstone from 20 to 40 feet thick. Next comes a thin vein of coal, and beneath that is the oil deposit. The wells that were sunk in the search for asphaltum are from 25 to 40 feet in depth. Arrangements are making for the sinking of deep wells.

Turkey-Red from Alizarine.

Fifty grammes turkish-red oil are dissolved in 1,400 c. c. water, 15 grammes of 22 per cent alizarine added, also 0.2 grain of tannin. The mixture is then slowly heated to boiling temperature, and 60 c. c. are added of a solution of aluminum sulphite of 1.1014 specific gravity, which has been previously mixed with 22 per cent of soda crystals. On prolonged boiling, the alizarine lake separates out, which is freed from excess of oil by washing with ether. It then forms a powder of splendid carmine red color, which is constant in the light, and is not attacked by dilute acids and alkalis. It still contains a certain quantity of oil, which cannot be removed by ether, but which causes the luster of the preparation. When mixed extremely well with water, the lake can be used for dyeing tissues in shades similar to those produced by eosine. By using other mordants than alumina, different shades can be obtained.—*A. Müller-Jacobs, Moskau*.

Zinc in Making Potash.

Numerous methods have been invented for converting the chloride of potassium into the more useful and hence more valuable carbonate. The latest is that of Wittgen and Cuno, in which zinc oxide, or its hydrate or carbonate, is added to a concentrated solution of potassium chloride, which is then subjected to the action of carbonic acid gas. A double carbonate of potassium and zinc is thrown down as a precipitate, while the zinc chloride remains in solution. The former is decomposed into its constituents by means of hot water, and the solution of carbonate of potash evaporated down. The zinc chloride solution still contains some potassium chloride and zinc dissolved as a bicarbonate. Upon evaporation of this solution, the carbonate of zinc separates first, and afterward the double chloride of potassium and zinc. The latter is separated into the two separate salts by dissolving and crystallizing. G. P.

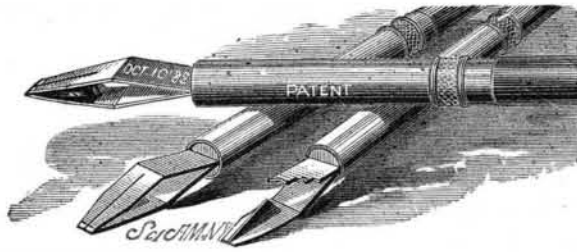
Salt in the Wyoming Valley.

An experimental well sunk for salt midway between the Warsaw and Wyoming wells (in Wyoming county, New York) has proved successful at the depth of 1,350 feet. This would indicate a wide extension of the Wyoming salt basin. The salt is exceedingly pure and in great quantity. The brine pumped is said to be nearly a third stronger than that of the Syracuse salt basin.

RECENT INVENTIONS.

New Shading Pen.

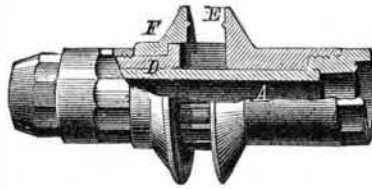
We give an engraving of a novel marking pen, called by the inventor "the chromatic," from the fact of its using two kinds of ink at once, the pen being provided with a longitudinal partition to prevent the mixing of the two inks. Each part of the pen is also made to put each kind of ink on the paper in delicately shaded lines, so that with



one stroke lettering may be made of two different colors that would be impossible with the old pen or a brush. The pen is especially adapted to lettering all kinds of show cards, notices, bulletins, signs, for making headings, etc. It is also excellent for writing mottoes, texts, etc. This invention was recently patented by Mr. J. W. Stoakes, of Milan, O.

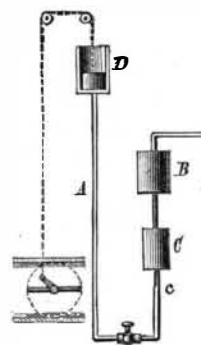
Wagon Hub.

An improved hub for wagon or carriage wheels, shown in the annexed engraving, has been patented by Mr. John D. Torrence, of Vermillionville, La. A tapering axle box, A, provided at its inner end with enlargements for the collar on the axle, is screwed into a tubular core of the hub. It is provided at or near its middle with a ring of mortises, the separating partitions of which project above the surface of the core, so that the depth of the mortises will be greater than the thickness. The core is provided with a collar, E, forming the stationary end wall of the mortises, and having a height equal to about double their width. A ring, F, is provided with a flange of the same outer circumference as the collar, E. This ring fits on the core, B, and the outer end of the core is threaded to receive a sleeve for holding the ring in place. A dust cap is screwed on the outer end of the core. The collar, E, and the flange of the ring, F, have annular sharp-edged projections on their inner surfaces. The tenons of the spokes are fitted into the mortises, one of the sides resting against the collar, E. The flange of the ring, F, is placed against the opposite surface, and is pressed firmly against the tenons by the screw sleeve on the core.



Draught Regulator.

We give an engraving of a device for automatically regulating dampers in steam boiler furnaces. It has been patented by Mr. Hippolyte Bisson, of Henderson, Minn. A pipe leading from the boiler is bent downward at right angles, and connected with a reservoir, B, in which steam is condensed to prevent direct contact of the steam with the mercury in a reservoir, C, below. From the reservoir, C, the pipe, c, is continued perpendicularly for a short distance and then turned horizontally, as shown; and in this portion is a cock for emptying the pipe and reservoirs of their contents. Beyond the cock, the pipe, A, is bent upward vertically, terminating in a reservoir, D, which is open at the top, and contains a float that is connected to the damper in the usual manner. When the pressure is up in the boiler it acts on the mercury, forcing it into the float chamber, raising the float, and permitting the damper to close by its own gravity. When the pressure is reduced the mercury flows back from the float reservoir, permitting the float to resume its normal position, opening the damper.



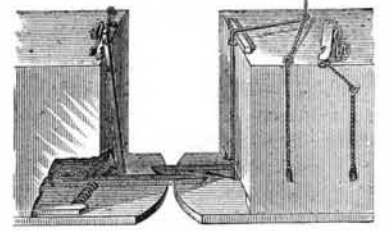
Insect Trap.

A trap for catching and destroying insects, shown in the annexed engraving, has been patented by Mr. William L. Waddy, of Peytona, Ky. Conical plates are provided with apertures in the middle, and are united by radial plates in such a manner that the cones project toward each other, and a short chimney provided with a cap is attached to the top of the device. The conical and radial plates are all made of reflecting material, so that a flame placed in the central aperture of the reflector will be reflected multifold, and a brilliant light will be produced. The insects are attracted to this light and rush to it, and strike the reflectors and drop upon the flame and are destroyed.



Car Coupling.

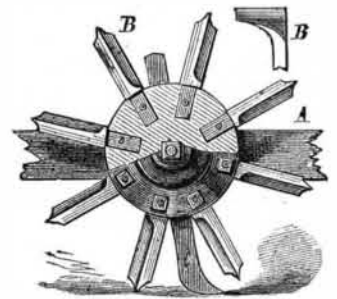
The accompanying engraving shows a car coupling which has been patented by Messrs. John W. Allen and Ashley B. Poyner, both of Franklin, Tenn. The draw bar of the car is connected to the frame in the usual manner, and is recessed to receive the shank of a coupling hook, which is pivoted to the draw bar by a bolt, and the forward or hook end of the coupling projects so far that it will readily engage the coupling hook on an adjacent car. The outer ends of the hooks are beveled upon their inner sides, so that they will slide past and engage with each other automatically as two cars are run together,



and they are also beveled upon their lower sides, so that they will slide readily upon the draw bars. The hooks are pressed forward to cause them to engage with each other by spiral springs attached to the draw bars and pressing against the hooks. The hooks are forced back to uncouple the cars by levers pivoted to the front end of the car, one arm of which rests against the forward side of the hooks, while the other projects over the top of the car. To this lever a cord is attached to operate it from the side of the car.

A Revolving Stalk Cutter for Plows.

The engraving represents a novel device for attaching to plow beams in front of the plow to cut the stalks and other rubbish that come before the plow when in use. A is a plow beam, having a colter, C, attached to it by two bolts, one above and the other below the beam. The bolts pass through the colter and a bar placed upon the opposite side of the beam from the colter, and have nuts screwed on their outer ends. The heads of the bolts are countersunk in the colter. A bolt which passes through the colter, midway between the yoke bolts, is countersunk in the inner side of the colter, and upon it is placed a hub that is secured in its place by a washer and nut, so that it will be free to revolve upon the bolt. In the inner end of the hub are formed radial sockets, into which are fitted the shanks of radial knives, B, secured in place by bolts countersunk into and passing through the knives and the hub, the outer surfaces of the knives being flush with the surface of the hub, so that the knives and hub can work close to the colter. The outer ends of the knives are tapered to an edge, so that they will take firm hold upon the ground, and thus rotate the hub, causing the successive knives to operate in connection with the colter as shears to cut stalks or rubbish. This device has been patented by Mr. Albert A. Kellogg, of Chamois, Mo.



Walking Stool for Children.

The engraving shows a new walking stool for the use of children when learning to walk. Such stools have been made with a ring-shaped top supported upon legs, and they have been used by placing the child's feet foremost through the top of the stool. This invention avoids this trouble by having a ring formed with a hinged section between two of the legs, so that the section may be swung outward. The section rests at the ends upon two of the legs, and is provided at its under side with a sliding bolt, for retaining the segment in its closed position. In the lower ends of the legs are balls provided with stems or shanks entering holes in the bottoms of the legs, so that the balls can be readily adjusted to vary the height of the stool to suit the child. The child can be readily placed within the ring by swinging out the removable section, and when the child is in place the section is closed and fastened. This avoids the necessity of placing the child in the ring feet foremost, and avoids the risk of injuring or breaking its limbs. The invention has been patented by Mr. Gustav Peterson, of Galveston, Texas.



A SHIP BURST BY WET RICE.—The Italian ship *Franческа*, laden with rice, sprang a leak and put into port at East London, May 11. She was promptly pumped out and a large force of men were set to work to unload her. The rice was in bags and the work was pushed with all speed; yet the wet rice swelled so rapidly that the ship was violently burst asunder May 13.