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## Economy of the Arts.

The horse-shoe nails dropped in the streets, carefully collected, reappear in the form of swords and guns. The clippings of tinkers shops mixed with the parings of horses' hoofs, or cast-off woolen garments, appear afterwards, in the forms of dyes of the bright est blue, in the dress of conrtly dames. The bones of dead animals pield the chief constituents of lucifer matches-phosphorus. The dregs of port wine, carefully rejected by the port wine drinker in decanting his farorite beverage, are taken hy him in the form of Seidlit\% powders. The washings of coal gas re-appear carefully preserved in the lady' smenling bottle as an ammoniacal salt.

## The Firat Effect of Hearing hestured.

It is amusing to watch the movements and to note the expressions of astonishment of some of those patients who are suddenly restored to acute hearing. This is most remark able when the deafness has existed for years. The patients look around for an explanation of the unusual sounds they hear, and then the very movement of looking round rustles the dress, hearing the noise of which they become again bewildered. They cannot be brought to believe that the sounds they hear are natural. The noises in the street are at first terrific.It is related by the London Times that recently a portly gentleman residing in that city on leaving the bospital in which his hearing bad been restored, bore it pretty well until he got into Piccadilly, when the noise of the omni-busses-every one of which he thought would be upon him-so frightened him that hestarted off in a run, and never stopped until he go home.

## File Cutting Machine.

Various machines have been devised and constructed for cutting files to supersede hand labor, but none, we understand, are in successful operation at present. The accompanying illustrations of one, is the first published in our country and in our colnmns.
Figure 1 is a side elevation, and figure 2 a plan view, of the file cutting machine, in vented by M. Lacroix, and recently secured by patent in England, and illustrated in the London Engineer.
The machine is designed for cutting two files at once. B B is the frame of the machine, and C C are two supporting pieces of the table, U . There are two carriages on the table, which are movable on a center, D. The two guiding pieces, F F, are secured on the carriage, between which slides the file rests, T ; a pair of jaws, M , hold each file. $\mathbf{O}$ is the bracket (one on each side) for supporting the shaft, $\mathbf{Z}$, on which the spring chisel holders, G G, are fixed by screws; H H are cutter chisels secured by screws; $H^{\prime} H^{\prime}$ are hammers, secured by a screw on the lever or handles, R , each movable on an axis, to set it to any angle. D D are two cam wheels on shaft $K$; and $K^{\prime}$ is a $\operatorname{cog}$ wheel on the same shaft, actuated by the wheel, $\mathrm{P}^{\prime}$, on shaft P , which carries the fly wheel. A pulley on the fly wheel is actuated by a band from any main driver-steam engine or water wheel; $d$ is a clutch lever for the workman to throw the machine in and out of gear-stop and set it in motion. An. accurately divided tooth

wheel, $H^{\circ}$, is secured on the upposite euid of inch. engrges in a nut on each file rest, which haft, $P$, and can he replace with onother to slides in yrooves in the guides, $F$; one of the modify the fineness of the cut of the file. If enis of the divisiou screw has a collar, which gears with the wheel, V , on the shatc, E , and turns freely in a bearing on one side of the carwo bevel wheels, $\boldsymbol{a} \mathbf{b}$, gear with similar ones fixed on two peg wheels, 1 and f , which gear on either side with intermediate wheels, 2,3 4 , and 5. A spring above and one beloweach hammer handle regulate the force of the blows. In figure 2 the file carriages on table U are placed towards the left, and the files are placed on the rests, $\mathbb{T}$. Two toothed segments, $Q$, of a circle are made fast on each carriage, and gear with a rack, Q , on lever, $r$, to change the position of the files, right or left, for the firs or second cutting. riage; the other end of the division screw is received by a center pointed screw at the other side of the same carriage; toothed wheels gear with the peg wheels, 4 and 6 ; the latter, torning towards the right, cause the said wheels, as well as the division screws, to turn tn the lefli, and thus the file rest is carried back to the other side os the carriage. When the frst culting of the file is effected. the catch is removed from its rack, which being moved forward, the carriages are moved to the left on the table, and the toothed wheels then gear A division screw of about $1-16$ th of an with peg wheels, 1,3 , which, turning to the

lft, cause the said wheels and screws to turn $1,2,3,4,5,6$, revolve once; thus the hamme to the right, bringing back the sliding rests, will strike three blows for each half turn of T , to their starting point. The file is then the screw, or three cuts in each eighth inch. cut with double cross cuts. The inclination If the wheels, $\mathbb{W}$ and $V$, be not of the same of the cuttings of the file is given by the in- diameter, the first being greater or less, the clination of the carriages, F F. The wheel, cut of the file would be coarser or finer, by W , on the shaft outside the frame gears with changing these wheels the cut required will the wheel, V , fixed on the same shaft as the be obtained. In order that the chis or cutbevel wheels $a b$. If the wheels, $W$ and $V$, ter may bear truly on the file, the file rest is are of equal diameter, and the wheel $\mathrm{K}^{\prime}$ half movable, and made half cylindrical, with a the diameter of the wheel $\mathrm{P}^{\prime}$, the cam wheel collar at each end working in suitable bearshould $n=?=l v e$ twice when the wheels $W$ and ings. This half cylinder bears in its length , the bevel wheels, $a b$, and the peg wheels, in a gro ove cut in the brass rest, and the bor
ing on which the file is held fast by the jaw $M$, is secured by screws on the face of the half cylinder, which allows the file to recline in all directions. and the chisel to bear on the whole breadth of the file. D' is a round iron piate fastened on the carriage, and turning in the table, U , to allow the carriage to turn to the right or left, as required. Cams, $I$, are fixed on the cam wheels, D D.
This machine has not been patented in the United States, it is therefore public property at present. It appears to embrace every motion requisite for cutting files, such as the fineness of cut, the force of the b!ow of the hammer, the inclination of the clisels and all the devices necessary for cutting either straight or cross-cut files.

## dialvanic Dccomposition of Water

The following, from the Philadelphir Ledger, describing a contrivance for exhibiting the action of galvanism in decomposing water, will be of interest to evcry man of science The action is described by Larduer to be difacult of explanation :-
"One of the latest, and, in itself, simplest and most usefin, tor the purpose of illustration, is a contrivance to explain the nature of galvanic decomposition, made by Professor Rogers, of the Cniversity, and suspended in the Lecture Hall, hefore the class. It consists of a board, representing a ressel containing sulphuric acid. At one extremity is let down a plate of zinc-the positive; and at the other extremity the negative pole-a plate of copper. The manner in which the atom of oxygen combines with that of hydrogen, in its passage across the liquid, from one electrode to the other, is shown by the pulling of a string, which brings the two in contact, and so on till the whole is traversed, when, having no atom to unite with, it (the atom of hydrogen) escapes free, and returns towards the positive pole, again to form a fresh union.This simple contrivance promises to be of great use to the student, and, when hrought before the class, elicited much admiring ap probation. Professor R. explains the pro cess of silver plating, and exhibits a heautiful pitcher made by Mead. It was remarked that the britanuia ware might be made as thin as desired, and the silver eposited with any depth wished, and that thus a far more beauciful article could be made than with the tiful ar
hand."

Vew drefuration of Cottop.
The Charleston (S. C.) Mercury, in noticing the articles on exhibition at the late fair of the Mechanic's Institute in that city, describes a new prenaration of cotton, which appears to he a valuable invention. 1t says :-
"Mr. .r. M. Legare, of Aiken. sends a stand, rustic table, reading chair, Emperor Adrian's cabinet, picture frame, library screen, \&c. made of cotton, which imitates carved woodwork, by subjecting it to a chemical process. In its use it is pliant and ductile, and may be molded if desired, but with still greater facility worked up by hand without molds. When dry it is moderately elastic, is not affected by heat, cold, or moisture, and possesses a hardness and tenacity beyond the bardest wood." The Fair is stated to have been an excellent one in every respect, and was very well conducted.

The milk sickness is at present prevailing in some districts in Illinois, and great numbers of the cattle have died. It is caused by a long drouth. The people have learned to refrain from drinking milk, and eating meat and butter where it prevails, and thus they escape being infected with it.

A new seam of cannel coal has been dis covered in Clinton Oo., Pa.

