SCIENCE AND MECHANICS.

FILE CUTTING MACHINE.

This article in common is perfectly familiar to all our readers, but we doubt whether the *modus operandi* of its manufacture, is known to more than a few. The notice of a newly invented machine for this purpose, is given by the editor of the Boston Courier, who observes: "The mode of cutting a file, is generally by mallet, or hammer and chisel—a movement of the hands similar to that of the sculptor or rough carver, and the operation leaves a sort of rough edge to the ridges, which are in this manner turned up. Several machines have been invented for the purpose of cutting ridges in pieces of steel, but they have generally failed in accomplishing the desired object,—that of giving to the ridges the rough edge, or tooth, which is made by hand power or the use of the chisel. They have cut or pressed regular teeth, in any desired fashion—cross ways, straght lines, round curves, &c.; but the teeth have been invariably smooth, and the files, when manufactured, have been of no more use than the worn out files of the English manufacture.

"But we have seen a new invention, which will, we think, accomplish the desired object, and make files with all the necessary qualifications. It is a machine now in operation, or soon to be in operation, at the Ballard Vale machine shop, by which files can be cut, and when cut, possess all the roughness of the English article. The piece of steel to be cut is placed on a socket, and then carried gradually under a sort of hammer chisel, which moves with a motion similar to that of the toggle joint reversed, and which not only cuts the ridges or teeth, but at the same time turns up the edges so as to make them rough. The apparatus is very simple, and shows that Yankee ingenuity can overcome all obstacles.

"As we have said before, other machines have been invented for the same purpose, but they have all failed in giving the rough edge to the teeth of the file, which this one cannot fail to give. The machine at Ballard Vale is very regular in its movement, and there is little or no doubt that it will accomplish all that the company expect. If it should, it will accomplish the very desirable object of making our country, and perhaps the whole mechanical world, independant of a comparatively small set of worthless and desperate men, who are now the only file cutters, and its successful operation will make a very material reduction in the price of an article of almost indispensable use in almost every mechanic's shop in the world.

"The machine, which we have seen in operation at this establishment, is not by any means perfect, but it accomplishes one object that has never been accomplished by machinery before, either in this country or in any other—it gives the rough edges to the teeth, Practice has proved that it can do this, and experience has shown that all other machines to make files can only cut the grooves and leave the teeth smooth.

"It is a little singular that nearly all file cutters should be Englishmen. We learn that three-quarters, probably, of all the files made in the world, are made in Sheffield. A few are cut in Germany, but the German files are not worth as much as the English, partly in consequence of the inferior quality of German steel for the stock, but mostly in consequence of the workmanship.

"The French are entirely dependent upon England for their files, as the Americans would be, but for the machine which we have attempted to describe. We understand that this branch of business will now be extensively engaged in by the Ballard Vale Company, as soon as certain experienced mechanics whom they have already engaged, shall arrive from England to superintend the works. We understand that this machine has been examined by the inventors of other machines intended to accomplish the same ends, and pronounced more capable than theirs of produing the desired result."

In regard to the above invention we would simply remark that we *hope* it may succeed, but before putting implicit faith in its utility, would prefer to see it more fully tested. The writer is somewhat in error in supposing this to be the only machine that has accomplished the desired object of giving the "rough edge to the teeth." This has been accomplished in two instances at least in this country, and in one case by Mr. James Slinn, who, about twelve years since, constructed a machine for file cutting, that worked to perfection as far as the mechanical operation was concerned, but the great difficulty arose from the difficulty of keeping the cutting chisels sharp a sufficient length of time for any purpose, as the time required for their removal from the machine for sharpening, and their re-adjustment, more than counterbalanced the advantage of the invention. Mr. S. is an enterprising and intelligent mechanic, and hat been constantly engaged in the file cutting business for about twenty-five years, and thinks that many unforeseen difficulties must yet be overcome before this invention can be called perfect. His skill and experience entitle his opinion to much weight on the subject.—*N. Y. Farmer.*

PINS.—A dozen years since, all the pins used in this country were imported. Now, none are imported, except a few German pins for the supply of the German population of Pennsylvania. The invention, by Mr. Samuel Slocum, now of Providence, of a pin-making machine far superior to any of them in use in England, led to the establishment of a pin-manufactory at Poughkeepsie, by Messrs. Slocum, Jilson & Co., which soon distanced foreign competition Of all the Pin Companies which have been established or attempted in the United States, only three are known to exist at present, viz: The American Pin Company (which has works both at Poughkeepsie and at Waterbury, Conn.;) the Howe Company, at Derby, Conn.; and Messrs. Pelton, Fairchild & Co., of Poughkeepsie. The quantity of pins turned out by these establishments, especially the two first, is enormous. The statistics of one of them, we have ascertained, are about as follows.—Per week 70 cases, averaging 180 packs each, each pack containing 12 papers, and each paper 280 pins; making an aggregate of 39,984,000 pins per week, or 2,079,168,000 per annum. If the products of the other two establishments, and the small amount imported, are together equal to the above, we should have a grand total of 4,158,336,000 pins for consumption in the United States, equal to 200, on an average, for every man, woman and child in the country. A pretty liberal allowance, we are thinking. The number of pin-making machines employed by said Company is about 30, and of work people about 50.

The wire which is to be wrought into pins, runs from a reel like yarn, into one end of the machine, and comes out at the other, not wire, but pins, cut, pointed and headed, in the most perfect manner, at the rate of 150 a minute. This is about the usual speed, but the machinery is capable of being so adjusted as to produce 300 a minute. Being now of a yellowish color, they are thrown, by the bushel, into kettles containing a certain liquid, by which they are whitened, and prepared for *sticking*; i. e. for being stuck into papers in rows, as they are bought at the stores. This process of sticking is also performed by a machine invented by Mr. Slocum. The narrow paper in which the pins are stuck, is wound from a reel, of any imaginable length, and then cut off at uniform intervals. One sticking-machine will stick as many pins as three pin-machines can make; and three of the former can be attended by one girl. A part of the pins of the American Pin Company are made of American copper, obtained on the borders of Lake Superior.—*Jour. of Com.*

ASPHALTE FELT ROOFING.—Thomas J. Croggin has a patent from the Engish Government for Asphalte Felt. He describes it as principally made of hair, completely saturated with asphalte, without pitch, tar, or rosin, and consequently more durable, a good non-conductor of heat, entirely impervious to rain, frost or snow, and superior to all other descriptions of roofing on account of its lightness, elasticity, economy and durability, because it may be laid on by unpracticed persons. Its price, 1 penny the superficial foot, or 9 pence the square yard,—and it may be manufactured of any required length, thirty-two inches wide.—*N. Y. Farmer.*

CHLOROFORM.—The application of chloroform was successfully employed on a patient in the infirmary at Newcastle, by Sir John Fife, who performed the operation of lithotomy on a youth named Frederick Potts, and so perfect was the patient's unconsciousness of this formidable operation, that he would not believe it done till the stone extracted from his bladder was placed in his hand. A young woman was put under the influence of chloroform by Dr. Glover, and suffered, while in the state, the excision of a tumour weighing upwards of three pounds. She felt no pain, and was not aware that an operation had been performed upon her till assured that it was over.

BAD PRACTICES.—The Practical Educator, Dr. Cornell's monthly, says that external applications of *heated vinegar* to remove pain are always dangerous. Writing with blue ink, and putting the pen in the mouth occasionally is also dangerous.—Blue ink contains Prussic acid in solution, and a drop of this acid applied to the tongue of a cat will kill her. If many men had not been tougher than cats, (whether they have as many lives or not,) they would have been killed with sucking blue ink from their pens.

STARCHING LINEN.—In starching linen, the effect will be the same, whether the starch be hot or cold, providing the irons used be properly heated. It is sufficient to mix the starch with a little water, to dip the linen in it, clapping it with the hands, and then apply the hot iron while the linen is still moist. By this means, the grains of starch will burst from the action of the heat of the iron, its membranes will expand as they combine with a portion of the water that is present, its soluble matter will be partly dissolved in the rest of the water, and the linen will be starched and dried by one process.—*Amer. Agri.*

ORIGIN OF INFLUENZA.—Attempts have been made to date the existence of influenza at a very remote period. Dr. Most has extracted from the writings of Hippocrates an account of a disease which he regarded as influenza, but which differed from it in several important particulars. Some Epidemic catarrhs which prevailed in the fourteenth and fifteenth centuries are recorded; but these can scarcely be regarded as influenza, of the existence of which we have no credible accounts previous to the year 1510. Such is the opinion of Dr. Schweich; and the instances brought forward by Dr. Gludge of the earlier existence of this epidemic are not satisfactory. Since the sixteenth century it has frequently occurred, and the extent of country over which it has passed, as well as the large number of individuals whom it has affected, has afforded ample opportunity for local descriptions of the disease, of which medical authors have considerably availed themselves.