NEW YORK, SEPTEMBER 4, 1847.

American Genius and Enterprise.

Considering the short period of our existence as an independent nation, history furnishes no examples by which we can compare ourselves, either as it regards an increase in wealth, power, population, or influence.—Seventy years ago we appeared before the world as a feeble, though spirited colony of Britons. Now we have a population equal to England and Scotland combined. We have an empire extending from Cape Florida on the south to the St. Lawrence on the north. We hold the keys of the Atlantic on the east and the Pacific on the far distant west. Our navies sweep the Gulf of Mexico and our armies occupy the land of the ancient Aztecs and their conquerors of ancient Celtiberia. Every American must feel a glow of enthusiasm swelling his heart as he thinks of his country's greatness, her might and her power. Much as we may admire and rejoice in our national power, we must acknowledge that her name and her fame as a good and scientific nation, inspires us with most pride. Power may gain us the reverence of fear, but virtue and learning will gain us the reverence of true respect and affectionate admiration. Our nation re-echoes the peals of victory that come thundering down from the peaks and gorges of the Cordilleras, and the flags of the vanquished float in mournful grandeur beneath the star spangled banner, or are trod beneath the hoofs of our charging coursers. While our whole nation rejoices at the triumph of our courage and military genius, we must confess that we turn our eyes with a fonder look to another field and our heart responds with deeper enthusiasm to other sounds than those of the battle cry. The triumph of American Art, the triumph of American skill and mechanical genius thrill our heart with the deepest emotions. We glory that West was President of the Royal Society of Painters, and that Franklin and Rittenhouse, and many others, members of the Royal Society in London, as well as almost all of the similar societies in Europe, and at the present moment the fame of a Powers in sculpture fills not only the imperial city of Rome, but the wide world. His statue of the Greek Slave, is here—it is a spiritual marble—most exquisite in form, grace, ease and expression. The lovely slave has the shackles on her lovely arms—and well has the sculptor touched them off to adorn the captive and inspire pity for her fate. You behold her and go back to the days of old and think that you see a daughter of Pythagoras torn from the arms of her aged father in all the purity of youthful innocence and weeping affection. This is a triumph of American Art of which we may well be proud.

If we now turn our eyes to the North of Europe, we behold still greater triumphs of American genius and enterprise There, in the heart of the Russian Empire—the most mighty of earth's despotic dominions, we behold a few American mechanics engaged in undertakings which will, in our opinion, exert an influence upon the future destinies of the North of Europe and Asia, portentous with glorious results. Under the superintendence of Major Whistler, there are now about 30,000 Russians, building railroads, and under the superintendence of Messrs. Harrison, Winans and Eastwick there are about 2000 occupied in building machinery. Two hundred locomotives, 5000 trucks and 70 passenger cars are to be completed by 1849, and then across the Steppes of the Volga and through the Passes of the Ural mountains, will yet roll the swift American locomotive, pealing notes of nobler victories than those of the reddest warfare—the triumphs of American mechanical genius. Who knows now what great and good influence in the cause of Freedom and Reform is exercised by the mingling of our mechanics with the peasantry of the Russian empire.—Who knows but in a few years the now Russian serf, may stand a freeman at his own cottage door, and as he beholds the locomotive fleeting past, will take off his cap, keel and bless God that the Mechanics of Washington's land were permitted to scatter the seeds of social freedom in benighted Russia.

The Press is the voice of freedom—the Railroad its highway of travel, then, to improvements in physical science and to the triumphs of American mechanical genius in opening up the great pathway of Russian communication, may we not justly and fondly anticipate a happier day for the social condition of the peasantry in Europe and Asia.

The Hammer.

The Hammer is the universal emblem of Mechanics. With it are alike forged the sword of contention and the ploughshare of peaceful agriculture, the press of the free and the shackle of the slave. The eloquence of the forum has moved the armies of Greece and Rome to a thousand battle fields, but the eloquence of the hammer has covered those fields with victory or defeat. The inspiration of song has kindled up high hopes and noble aspirations in the bosoms of brave knights and gentle dames, but the inspiration of the hammer has strewn the field with tattered helm and shield, decided not only the fate of chivalric combat, but the fate of thrones, crowns and kingdoms. The forging of a thunderbolt was ascribed by the Greeks as the highest act of Jove's omnipotence, and their mythology beautifully ascribes to one of their gods the task of presiding at the labors of the forge. In ancient warfare, the hammer was a powerful weapon, independent of the blade which it formed. Many a stout skull was broken through the cap and helm by a blow of Vulcan's weapon. The armies of the Crescent would have subdued Europe to the sway of Mahomet, but on the plains of France their progress was arrested, and the brave and simple warrior who saved Christendom from the sway of the Mussulman was named Martel—"the hammer,"—how simple, how appropriate, how grand, "the hammer." The hammer, the saviour and bulwark of Christendom. The hammer is the wealth of nations. By it are forged the ponderous engine and the tiny needle. It is an instrument of the savage and the civilized.—Its merry clink points out the abodes of industry—it is a domestic deity presiding over the grandeur of the most wealthy and ambitious as well as the most humble and impoverished. Not a stick is shaped, not a house is raised, a ship floats, or carriage rolls, a wheel spins, an engines moves, a press speaks, a viol sings, a spade delves, or a flag waves, without the hammer. Without the hammer civilization would be unknown and the human species only as defenceless brutes, but in skilful hands directed by wisdom, it is an instrument of power, of greatness and true glory.

Lightning Speed.

The Washington Union of Aug. 23 says:—The administration, having occasion for the services of one of its most dinguished officers, who was then in New York or in Philadelphia, sent him a Telegraphic Message on Friday at 3 o'clock, to both cities. He had, however left New York at 5 o'clock on Friday evening, without receiving the message; but at 9 o'clock on that night he received the one sent to him at Philadelphia, and arrived in this city the next morning at 8 o'clock. Thus a message may pass from Washington to Philadelphia at 9 o'clock in the night, and in eleven hours the message reaches Philadelphia and the officer returns to Washington. This is one of the prodigies of the age arising from the immense improvement of art in the applications of the principles of science.

Water Witch Steamer.

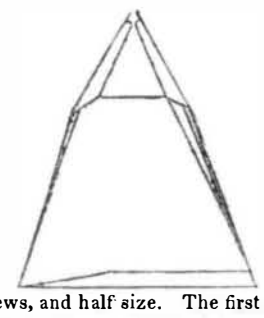
This vessel which was fitted with Hunter and Loper's propellers, has lately had them taken out and a common crosshead engine put in, working downwards, it is said at an angle of 54 degrees. The entire engine is below the shafts—six feet stroke—cylinder 37½ inches diameter—side wheels—air pump about an angle of 54 degrees—two feet stroke She makes easily eleven knots an hour, which is considered remarkably well. Her engine is of seventy five horse power. The mechanics at the Navy Yard, Washington, appear to be proud of her

Mechanical Manipulations.

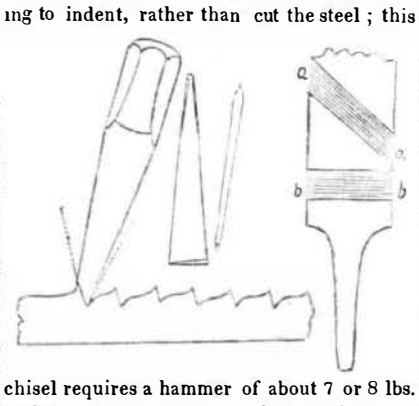
The pieces of steel, or the blanks intended for files, are forged out of bars of steel, that have been either tilted or rolled as nearly as possible to the sections required, so as to leave but little to be done at the forge; the blanks are afterwards annealed with great caution, so that in neither or the processes the temperature known as the blood-red heat may be exceeded The surfaces of the blanks in-now rendered accurate in form and quite clear in surface, either by filing or grinding. Where the majority of the files manufactured are small, the blanks are mostly filed into shape as the more exact method; and where the greater number are large, the blanks are most commonly ground on large grindstones as the more expeditious method. The blank before being cut is slightly greased, that the chisel may slip freely over it, as will be explained.

The file cutter, when at work, is always seated before a square stake or anvil, and he places the blank straight before him, with the tang towards his person, the ends of the blank are fixed down by two leather straps or loops, one of which is held fast by each foot.

The largest and smallest chisels commonly used in cutting files are here represented in



two views, and half size. The first is a chisel for large rough Sheffiield files, the length is about 3 inches, the width 2½ inches, and the angle of the edge about 50 degrees, the edge is perfectly straight, but the one bevil is a little more inclined than the other, and the keenness of the edge is rounded off, the object being to indent, rather than cut the steel; this



chisel requires a hammer of about 7 or 8 lbs. weight. The smaller one is the chisel used for small superfine files, its length is 2 inches, width ½ an inch, it is very thin and sharpened at about the angle of 35 degrees, the edge is also rounded, but in a smaller degree; it is used with a hammer weighing only one to two ounces, as it it will be seen the weight of the blow mainly determines the distance between the teeth. Other chisels are made of the intermediate proportions, but the width of the edge always exceeds the width of the edge to be cut.

The first cut is made at the point of the file, the chisel is held in the left hand, at an horizontal angle of about 55 degrees, with the central line of the file, as at A A, and with a vertical inclination of about 12 to 4 degrees from the perpendicular, supposing the tang of the file to be on the left-hand side. The blow of the hammer upon the chisel causes the latter to indent and slightly to drive forward the steel, thereby throwing up a trifling ridge or *burr*, the chisel is immediately replaced on the blank, and slid from the operator, until it encounters the ridge previously thrown up, which arrests the chisel or prevents it from slipping further back, and thereby determines the succeeding position of the chisel. The heavier the blow, the greater the ridge, and and the greater the distance from the preceding cut, at which the chisel is arrested. The chisel having been placed in its second position, is again struck with the hammer, which is made to give the blows as nearly as possible of uniform strength, and the process is repeated with considerable rapidity and regularity, 60 to 80 cuts being made in one minute, until the entire length of the file has been cut with inclined, parallel, and equi-distant ridges which are collectively denominated the *first course*. So far as this one face is concerned, the file if intended to be single-cut would be then ready for hardening, and when greatly enlarged its section would be somewhat as in the diagram annexed.

Most files, hower, are double-cut, or have two series or *courses* of chisel-cuts, and for these the surface of the file is now smoothed by passing a smooth file once or twice along the face of the teeth, to remove only so much of the roughness as would obstruct the chisel from sliding along the face in receiving its successive positions, and the file is again greased.

The second course of teeth is now cut, the chisel being inclined vertically as before or at about 12 degrees, but horizontally, only a few degrees in the opposite direction, or about 5 to 10 degrees from the rectangle, as at B B · the blows are now given a little less strongly, so as barely to penetrate to the bottom of the first cuts, and from the blows being lighter they throw up small burs, consequently the second course of cuts is somewhat finer than the first. The two series of courses, fill the surface of the file with teeth which are inclined towards the point of the file, and that when highly magnified much resemble in character the points of cutting tools generally, for the burrs which are thrown up and constitute the tops of the teeth, are slightly inclined above the general outline of the file, minute parts of the original surface of which still remain nearly in their first positions.

If the file is flat and to be cut on two faces it is now turned over, but to protect the teeth from the hard face of the anvil, a thin plate of pewter is interposed. Triangular and other files require blocks of lead having grooves of the appropriate sections to support the blanks, so that the surface to be cut may be placed horizontally. Taper files require the teeth to be someweat finer towards the point, to avoid the risk of the blank being weakened or broken in the act of its being cut, which might occur if as much force was used in cutting the teeth at the point of the file, as in those at its central and stronger part.

Good Wages.

The "blowers," or head-workmen in the German Sheet Glass Works in Lancaster England, receive wages varying from four to seven pounds sterling per week, exclusive of overwork, and in addition a furnished house rent free, and a free passage from and to the continent at the beginning and end of their term of contract. About two thousand persons find employment in this peculiar branch of the Glass business.

Changes in the Course of Trade.

Among the articles received from the South by Canal at Toledo, Ohio, during the month of August, for shipment to the North and West were 29,236 lbs. Sugar, 7,152 sacks Hemp, 33,-907 lbs Cotton, 197,097 Leaf Tobacco, and 16,-445 manufactured do. The receips of Cotton are constantly increasing—the manufacturers of New York having ordered their supplies from the West. The cost of transportation is said to be from 50 to 75 per cent. cheaper.

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