It seems that, during the interval above named, the old blank forms were used while the new ones were being prepared and engraved, the above difference in wording not being considered of any essential importance, and certainly in no manner exposing the validity of the grant. It would have been a simple matter to have changed the wording of the old forms with pen and ink, if it had been legally required, or even desirable. We understand that the chief reason for adopting a new blank form was to reduce the size. Why a change was made in the wording of this paragraph in the law itself is not apparent. Persons, therefore, who may have seen the sensational item alluded to, and have had their fears much excited thereby, can safely compose themselves on the subject. Even in case the Office had committed an error, as stated, affecting in any measure the soundness of any patent, Congress would not fail to protect the rights of the party interested.

SOMETHING ABOUT FACES.

It is a trite remark that, among all the multitude of people who inhabit this globe, no two can be found that exactly resemble each other. Even in cases of twins, where a strong similarity exists, there is always to be found some point of difference by which those most intimately acquainted with them are enabled to distinguish one from the other. And it may be further observed, that those most alike in early youth lose their resemblance, to a greater or less degree, as age advances. No face leaves this world at mature years without having undergone changes that astonish even the most intimate when comparisons are rendered possible. In this age of photographs, almost any one is able to make such comparisons, and to note how the various circumstances and trials of life carve their impress upon the features. Very few have, however, fully estimated the infinite variety and number of indirect, direct, near and remote influences that have operated through ages to work out the form and feature of every face upon earth.

A skillful physiognomist may often determine character approximately by the countenances of men; but, as a sheet of paper, printed and reprinted, must at last become a confused jumble of indistinguishable characters, so are most people's faces too much interlined and crosslined, by the confused imprint of circumstances and events, to be intelligible even to the most practiced reader of faces.

There are, indeed, some traits of character, and some passions, that ordinarily stamp themselves upon faces more conspicuously than others. Of these may be mentioned cruelty, settled melancholy, and jolly good nature. As a rule, these traits are easily distinguished by a look at faces; but it is not infrequent that good faces conceal bad hearts, and sanctimonious appearances cover secret vices.

A man who was tried for and convicted of murder, and who confessed his crime before his execution, was admitted, while on trial, to be as fine looking and prepossessing in appearance as any man on the bench, in the bar, or in the jury box, yet that court room contained some men whose lives and record have been in the highest degree honorable, and whose personal appearance could scarcely be excelled by any equal number of men anywhere.

It is notorious that circumstances of easy living, the absence of business cares and worries, will do much toward smoothing away the marks of crime; while the faces of criminals that have lived in circumstances of physical hardship gather a rough brutality from which we instinctively shrink.

As the circumstances which give character to the human face at birth have been infinitely various, and have acted through long periods of time, it is not a matter of surprise that the results are so varied, but rather that they should be even as uniform as they are. Were it not that throughout nature there prevails the great law of compensation, and also the great law of reversion (admirably set forth by Darwin), there could be no two living things even approximately alike. There would be neither *genera* nor species, even if the wide difference in structure and habits thus arising should not lead to the mutual destruction of all.

As circumstances shape our birth, so they shape our lives and mold our characters. Yet, with all the thought and effort toward social improvement that marks the age, the effort of society seems to be directed to making character adapt itself to circumstances rather than to form character by controlling the circumstances through which character is developed. Thus we have failed to recognize the fact that physiological law is stronger than social law. We do not yet admit the fact that, if our habits and customs are such as to develop the animal in us at the expense of the mental and spiritual, we shall have animals to control by civil law; or if we do see this, we do not see that civil law must prove utterly inadequate to control animals, that obey only their depraved instincts.

Society, in assuming to govern not only the depraved, but the healthy, instincts of our animal nature, assumes too much when it attempts to force violations of physiological law. As well might it legislate that weights shall fall upward; they will fall downward in spite of enactments; and so will the catastrophes and crimes that have lately shocked our community continue to happen so long as the circumstances that lead to them are permitted to exist. If we feed our children upon heating diet, and place them where they are forced, like plants under glass, into premature bodily development, let us blame ourselves only, that their immature minds and wills are too weak to contend with the strength of their passions which we have taken such pains to cultivate; and if, in the temptations that beset them, they overstep the bounds of social propriety, let us not be surprised that, in their efforts to escape the disgrace society attaches to such lapses, they, some of them, resort to dangerous practices, and find a final escape in death.

DEATH OF SIR RODERICK IMPEY MURCHISON.

The death of this distinguished man is announced by telegraph to have taken place on October 22, in England, at the advanced age of seventy-nine years. It has rarely fallen to the lot of any man to contribute so largely to the advancement of science as this deceased scholar. His career was a peculiar one. In early life he was an officer in the British army, and, as such, served under Wellington in Spain. He left the army, in order to marry and settle down to quiet literary pursuits; and, in accordance with the advice of his friend, Sir Humphrey Davy, as well as the influence of his accomplished wife, and following a natural predilection, he took to scientific studies, more particularly to geology and physical geography.

One of the earliest fruits of this study was the publication, in 1834, of a work "On the Geology of the Neighborhood of Cheltenham," which was afterwards augmented by Buckman and Strickland, and republished in 1845. "The Geology of the Counties of Salop, Hereford, Radnor, etc.," appeared in 1835; and, in 1839, was published "The Silurian System, founded on geological researches in the County of Salop." By this time Murchison had become a thorough scholar, and an indefatigable investigator; and, like many previous scientists, had taken up a hobby, which he pushed with admirable zeal, and in elegant language. The ancient name of Wales was Siluria, and this served to give character to the new system of the oldest rocks. The Silurian system has become one of the recognized names in geological science, and for this we are indebted to Sir Roderick.

From the date of his first publication, in 1834, down to the time of his death, Sir Roderick Murchison was a constant contributor to the proceedings and transactions of learned societies, and the author of several popular books. The genial character of the man and his high social position at once pointed him out for the position of presiding officer over the learned societies of London, and he was for many years President of the Royal Geographical and Geological Societies; and in this double capacity he was able to aid in the organization of some of the most important exploring expeditions that have ever been fitted out in England. To his persuasion and energy, the world is indebted for much that we have learned of obscure portions of the earth.

The death of such a man will create a profound impression in the whole scientific world, for there is no part of the globe where his name has not been carried by the indefatigable explorers fitted out and sent through his influence. A thorough gentleman, a conscientious scholar, an active publisher, an elegant writer, and an eloquent speaker, he will be greatly missed from English circles, and will be mourned by lovers of scientific truth everywhere.

Death of Mr. Charles Babbage.

We have received from England the news of the death of Mr. Charles Babbage. This gentlemen gained considerable celebrity by inventing a calculating machine, which excited great public curiosity for a time, but was found to be valueless for general use. It was subsequently improved, and is now in use in England for indicating logarithms in one of the statistical departments of the Government service. The deceased was for many years the holder of the mathematical professorship at Cambridge University, a position long held by Sir Isaac Newton. Mr. Babbage's writings on the economy of manufactures and cognate subjects are numerous and valuable. He was, in the year 1832, a candidate for Parliament, but was defeated at the election. He died in his seventy-ninth year.

FAIR OF THE AMERICAN INSTITUTE.---ADDITIONAL OBJECTS OF INTEREST.

Many objects of interest have been added to this exhibition since our last visit, some of which we will notice in the present article, and which, together with what we have already noticed, render this year's fair one of the best ever held by the American Institute.

GLASS AND STONE CUTTING BY SAND BLAST.

The new process of cutting hard substances by the sand blast has, on account of its novelty and unique character and the great rapidity and exactness with which the work is performed, attracted crowds of admiring observers, so much so that it was quite difficult to get near enough to see the operation of the apparatus. When, however, we succeeded in approaching it, we were lucky enough to be in time to witness a test experiment, being the drilling of a ¾ inch hole through a solid emery wheel; this was done at the rate of a quarter of an inch per minute. Specimens of glass cutting in beautiful lace patterns, and of lettering in marble in either *intaglio* or relief, elicited unanimous commendation. Few that saw the operation of the machine failed to see that the process is destined to a high place in the useful arts. As we purpose giving an engraving of this machine, we reserve further particulars for a future article.

NAIL CUTTING.

Mr. Henry Scheurle, 64 Avenue B, New York city, has added to the attractions of the fair a nail cutting machine that cuts, from cold bar iron, 400 nails per minute. The machine is small and very compact, and its gluttonous way of satisfying its appetite for iron amuses all who see it.

GEOMETRICAL LATHE.

Mr. A. Schaefer, of 82 Forsyth street, New York city, exhibits a geometrical lathe. This wonder of mechanical art, seen for the first time by the majority of visitors to the fair, is a center of attraction to which many are drawn, and the delicacy and richness of the tracery wrought by it are marvelous to the uninitiated.

Mr. G. L. Kelty, 723 and 724 Broadway, New York, has laid the public under obligations by exhibiting the various processes in the manufacture of upholstery trimmings. The beautiful wares, growing under the practiced and skillful fingers of the trained female operatives, are very curious, and make a very instructive and interesting exhibit. The machines employed have a somewhat primitive appearance, and there is more than one operation now performed by hand that appears susceptible of being done wholly by automatic machines.

BRICK MAKING.

Mr. J. Nottingham Smith, 225 South Third street, Jersey City, N. J., claims with much reason that it is useless to press bricks when molding them, for, consisting of intimately mixed clay and water, they, at that stage of the process, form a practically unyielding mass. When, however, they have partially dried, they are susceptible of being further compacted, and he has therefore invented, and exhibits at the fair, a machine designed for this purpose, which is worthy the attention of brickmakers. The theory seems plausible, and the machine is evidently the production of a thoughtful mechanic. It is guaranteed to press one thousand bricks per hour.

AIR COMPRESSING ENGINE.

This is the exhibit of J. B. Waring, consulting engineer of the Norwalk Iron Works, 133 Center street, New York city. It is a very handsomely finished and effective machine, evidencing in its design a full comprehension of the niceties of engineering required in a first class air compressor. The air cylinder is kept cool by a water jacket. The trouble experienced in some compressers, from congelation of moisture on the chilled pipes, seems, by certain peculiarities of mechanism, to have been obviated in this machine. It supplies power to two rock drilling machines in another part of the building, of one of which we have now an engraving in process of preparation, and in describing which we find it necessary to again allude to this air compresser.

THE CAMPBELL COMBINATION PRINTING PRESS.

We have already noticed briefly this beautiful machine, and we now return to it, because its liberal exhibitor, having announced that it will be sold at the close of the fair, and the proceeds donated to the Chicago Relief Fund, we are anxious to aid in its sale for a good price by some further exposition of its merits. Said a bystander at our last visit: "That machine feels and thinks," and surely the extreme delicacy of its operation is such as to make it easy to imagine a brain and nervous system concealed in its beautiful proportions. If it has not these, it has the nearest approach to them human art has ever been able to achieve, a galvanic battery, which so acts upon the adjustment of the machinery that it is impossible to print out of register. Said its inventor to us: "When I first began to construct presses, it was impossible to print in register. I first rendered it possible, and now I have made it impossible to print out of register." As a proof of the truth of this last assertion we have now on our table a sheet, one side of which received two impressions, the form being inked the second time and the sheet fed in precisely as at first. No one in comparing it to a similar sheet printed only once could tell it had been printed twice, except that, having received double the usual quantity of ink, it is somewhat darker in general tone. There is no indistinctness of outline, and yet this sheet has upon it engravings of a character that would show the slightest discrepancy in the registering.

Unless the sheet is properly presented to the grippers, the press refuses to print it. If it is a quarter of an inch from the guide, it is thrown out perfectly blank and uninjured; if it is farther away from the guide than this, it may be rumpled, but will not be soiled. If the sheet is not printed, the press places it on the regular pile, with its edge sufficiently projecting to be easily seen and drawn out, so that it shall not be sent to the bindery. In printing the second side, unless the registering points are entirely through the paper, the sheet cannot be printed, as, these points then failing to make the battery circuit complete, a stop motion, to all the parts not necessary to throw out the sheet unprinted, acts to effect this result. Ink is only taken by the forms when the press prints; when a sheet is printed, the press runs on but takes no more ink till the next sheet is printed; and although the roller may have run many times over the form, there is to the ordinary observer no perceptible difference between the sheets printed. This results from the fact that in inking there are two distinct and complete operations, at each end of the form, that distribute the ink in, so to speak, two superimposed wedges, the thin end of one lying on the thick end of the other, and thus making the layer of ink uniform throughout. No part of the form can be over inked. This, with the new and peculiar mode of adjusting the form rollers, makes four rollers equal in efficiency to twenty of the old style, as is shown daily in the actual working of this press. All this automatic accuracy in working is accomplished through the agency of the sheet itself. It must cover, when laid, three small holes in the sheet guides, which, when so covered, establish a perfect communication between a small gravity air pump and two diaphragm bolts. These moving pieces accomplish all the varied results, and they are so simple and easy to comprehend when seen that they surprise even the best mechanics who have, after long search for something complicated, found in them the secret of the delicate working of the press. If any one wishes to see a mechanical poem, and to converse with a man who has reduced printing