(Our Foreign Correspondence.)

How They Make Maccaroni.

NAPLES, Italy, Jan. 20, 1856.

MESSRS. EDITORS—I have already shown you that "labor-saving" machinery is very little used in the Italian States; but I believe I have never attempted to describe any of the mechanism these people employ when they wish to produce results that cannot be obtained by manual dexterity. As a sample, I will give you a description of a "Maccaroni Factory" which I entered in the course of a visit to Pompeii, a few days since. On entering the establishment we first witnessed the sifting of the flour—a kind of coarse, yellow meal—which looked so much like Yankee corn meal that I could not be satisfied to the contrary until I was shown the wheat, and saw it undergo the grinding process in one of the hand *machtnes* used for the purpose, namely, a huge pestle and mortar. After the grain had been pounded into a coarse bran it was poured into large round sack bottomed sieves suspended from the ceiling, which were shaken by a man, who, from time to time, skimmed off the "rough," while the flour fell upon a cloth laid upon the floor; from this cloth the flour was carried to a large wooden trough, and mixed with warm water to a sticking consistency. The "cake" was then transferred to the kneading contrivance, where it was placed on a platform raised a couple of feet from the floor. At one corner of this platform a long pole was attached by a movable joint, and laid horizontally across the platform. Boys setting or hanging upon the other end of the pole sprung it up and down upon the dough until the substance was kneaded and compressed sufficiently to spread out and roll up into the size required for the screw press, which is the next piece of machinery used in the process of making maccaroni.

The press is, in itself, quite a curiosity. Two upright posts are firmly fastened into the ground and ceiling; near the center is a stout cross bar, in which a large copper screw works, eight inches in diameter, with an en larged head, similar to the top of a capstan. A short distance below is another cross bar, in the center of which a hole has been bored to receive the mold, which is a strong copper cup or vessel having numerous small holes in its bottom, each hole being partially filled by a piece of wire. The dough is now placed in the mold and pressure applied by several men, who turn the screw with a long wooden bar. This forces the dough through the holes in the bottom of the mold, the wires giving it a tubular form so characteristic of all maccaroni's. As the "screwing process" is repeated, wooden blocks of the proper size are alternately placed in the mold on top of the dough, until it has all been squeezed through the mold. The dough issues from the mold in small stringy tubes, and a boy with a large palm leaf fan is employed in keeping the strings cool as they protrude. From time to time he cuts them off into the proper length, by means of a knife attached to the bottom of the machine. As fast as this boy cuts off the strings he hands them to other boys, who arrange them upon long poles placed in frames set out in an open court-yard. Here they are exposed to the action of the sun and air, and in a few days these tubes of paste become almost imperishable articles of food.

As maccaroni forms the chief "feed" for the lower classes in Italy, I am surprised that more expeditious machinery is not employed in its manufacture. I do not doubt but an inventive Yankee would reap a golden harvest if he brought some kind of a small machine out here that would enable every family to make its own maccaroni. At present the population of an entire city thrives upon the production of this article, while hundreds of the neighboring farmers bring in their grain, receiving the manufactured paste in payment.

J. P. B.

The Way to Keep a Razor Sharp.

A correspondent informs us, that after trying "strops" innumerable, to keep his razor sharp—he having a heavy beard, and has cut it from 3 to 7 times per week for 30 years, often suffering great pain—has at last found a complete remedy, in what? An Arkansas oil stone (Arkansite.)

Three years ago, a friend of his gave him one of these stones; it was so fine in the grain hat he tried his razor on it, then used it without *stropping*, and has so used it ever since—never allowing it to touch a strop. "Shaving," he says, "is now a luxury;" a few strokes on his "Arkansite" never fails to set his razor right when it becomes dull, and he feels sure it is the best method of keeping it sharp. Acids and razor strops he now puts beyond the pale of civilized razordom, for keeping the edge sharp.

(For the Scientific American.)

Alder Flowers, Oak Bark, Swamp Maple, and Tartar in Dyeing Colors.

MESSRS. EDITORS—In your paper of the 2d of February you state "that Piesse Dupierre, of Paris, has obtained a patent for the employment of alder flowers to form a substitute for cream of tartar in dyeing black and other colors."

That alder flowers and the bark of alder are valuable materials in dyeing black is nothing new, for between the years 1796 to 1805 I used many tuns of them in black dyeing. When a supply could not be obtained I used white oak saw-dust, which I found to produce a still better effect. Any material containing gallic acid and tanning principle can be used to advantage in black dyeing. In this country, during the last English war, I used our swamp maple bark with better effect than the alder. Three pounds of ground maple bark is equal to one pound of nut-gall.

Cream of tartar is used in a given range of bright colors, such as scarlet, orange, aurora, yellows, crimson, purple, violet, &c., for the purpose of imparting to them great brilliancy. It is used with either muriate or nitro-muriate of tin. The nitric and muriatic acids having a greater affinity for potash then the tartaric combines with it, liberates the tartaric acid, which combines with tin, forming in the liquor a tartrite of tin, which gives great brilliancy to coloring matters. How the gallic acid and tanning principle, both possessing powerful saddening qualities, and precipitating tin instead of combining with it, can be used in place of the tartaric, is to me very unaccountable. It is well known by experienced dyers that cream of tartar is never used in black dyeing, as it operates as a check on saddening. Both the gallic and tartaric acids are triple compounds of the same elements, hydrogen, carbon, and oxygen, but varying materially in their proportions, tartaric containing forty per cent. less hydrogen, twenty less carbon, and sixty per cent. more oxygen. Perhaps M. Pierre Dupierre may have some cheap magic process by which he can change the components of the gallic into the tartaric.

WM. PARTRIDGE.

Binghamton, N. Y., Feb. 18, 1856.

Flour and Bread, Bakers, Millers, &c.

MESSRS. EDITORS—Wheat sown in the fall will produce grain much heavier than the same seed sown in the spring; and one hundred pounds of winter wheat flour will make more and better bread than one hundred pounds of flour made from spring wheat.

Millers find it economical to use large stones in grinding; but large stones injure the quality of the flour. No mill-stone should be over three feet in diameter; flour from such a stone will make more and better bread than flour made from a five foot stone; so that 100 pounds of winter wheat ground with 3 foot stones, and baked by a regular baker with the drugs and chemicals at present used, will make 170 pounds of good bread. 100 pounds of the same description of flour baked as women bake for their families will make 140 pounds of good bread. 100 pounds of bad flour, baked as women bake for their families, will make 100 pounds of pretty good bread. By bad flour I do not mean flour which has received any damage from heat or damp, or from any other cause; but I mean sound spring wheat, nicely and finely ground with large stones, 5 feet or more in diameter—flour that almost any one except master bakers, would pronounce to be "superfine, A, No. 1."

One pound of dough, if baked in an oven in *pans*, will make one pound of bread, nice large sweet bread, and almost entirely devoid of nutritous qualifications, useful principally as a kind of vehicle to transport butter into the human stomach. One pound of dough baked on the bricks on the bottom of the oven will lose 2 or 3 ounces in weight in baking, and will not look so nice, but it will be sixty per cent. more nutritious than the same amount of dough baked in the pan.

This statement in relatian to baking in pans and on the bottom of the oven may seem incredible to most people, and I would advise all persons not to believe what I have stated until they choose to try the experiment themselves.

In the army we had issued to us every morning sixteen ounces of bread; those that got their ration in pan bread would eat it all for their breakfast, and hardly be able to know what had become of it; while those that got their ration of oven bottom baked bread would have enough for breakfast, dinner, and sometimes a little for supper.

If good flour in barrels be stored in the same room with barrels of salt or salted provisions in warm weather, in three or four weeks the flour will become sour, but if it be then taken into a dry building where there is no salt or salted stores, the flour will become regenerated and will make good bread.

When the flour is dry and not musty, and a baker wishes to judge of its quality in his own shop, he squeezes a handful of it tight, and if, on opening it, the flour retains the shape of the hand and fingers, it is a sign that it possesses the good qualities I have mentioned above; if it crumble down on opening the hand, it will not make as much nor as good bread. When a baker is inspecting flour, not in his own shop, or in the presence of outsiders, he takes a handful carelessly, squeezes it tight, and then throws it back into the barrel; if the lump keeps its shape, or breaks only into two or three pieces, he will buy it; if, on the contrary, it goes into fine powder, he will not have it, because it will not make much nor good bread.

T. ROYAL.

Bridgeton, Pa.

The Cotton Gin.

MESSRS. EDITORS—My object in writing my letter published on page 94 SCIENTIFIC AMERICAN, was to draw out something of public utility from any one familiar with the cotton gin; this in part has been accomplished.

In replying to the letter on page 131, which was an answer to mine, its author has written me a friendly letter, and is desirous of eliciting anything that may be of service to the public. Mr. Brown has also informed me that his saws were arranged for ginning the Sea Island Cotton. I therefore take pleasure in removing any unfavorable impression that may have obtained against his gin by my remarks respecting the staple reaching over more than one saw at the same time, as I did not intend them to apply to any but the upland or short staple cotton. In my first letter it was admitted that the fiber might be cut by an imperfectly made or badly regulated gin. The only way in which the fiber can be cut is by pressure of the saws against one side of the rib, acting like a pair of shears, as in the case of crooked or imperfectly trained saws in the first place; or in the second, by the ginners neglecting to keep the saws in the center of spaces between the ribs. If this be the true theory, then every form of saw gin, from W. Whitney's down to the present, is liable to cut in the aforesaid manner, and yet the perfectly made saw gin, according to my first statement, is exempted from the charges made against it.

If the old gin of Whitney, now in Georgia, makes finer cotton than those now in use, I presume it is not because there has been no improvement in the gins of the present day, but, possibly, because of its taking but little hold of the fiber at one time, and ginning very slow, a thing that will not do for this progressive age, wherein the planter wishes the gin to keep up in speed with the increase of his hands and enlargement of his field.

JOHN DUBOIS.

Greensboro, Ala.

The Chinese Yam.

This new esculent, respecting which so much has been said and written as being a valuable substitute for the potato, has been cultivated by W. R. Prince & Co., Flushing, L. I.—celebrated florists—who have issued a pamphlet describing its nature, and the method of cultivating it. In our opinion, this yam is no better than other yams; and we beneve it will never answer as a substitute for, nor supersede the common potato, as has been asserted by some.

Mechanical Equivalents in Law.

MESSRS. EDITORS—What is a "mechanical equivalent?" I know what an equivalent is, and I have some idea of the term as applied to mechanics, but what I desire to know is—what construction would be given to it by a court? I find among inventors a wide difference of opinion on this point, and a great anxiety to have it settled. To illustrate:—On the 3rd of Jan., 1854, a patent was granted to J. B. Terry, assignee of Harvey, for an improvement in pin-sticking machinery, "which improvement consists in a slide for taking one row of pins from the conductors, and delivering them to the forceps for sticking them."

"The claim is for allowing one pin at a time to pass down the conductors by means of a vibrating slide, or its mechanical equivalent, so as to supply one row of pins at a time by the conductors to the forceps."

Now I am told by one man that any means by which one row of pins is allowed to pass down the conductors at a time is an infringement of this patent, and by another that an infringement would consist only of a vibrating slide made and operated in a manner substantially like this. Others say that any device embracing the same or similar mechanical principles in its construction and operation would be an infringement. Please enlighten your readers on this point, and oblige, at least.

A. F. O.

Cohoes, N. Y.

(The first question presented to us in the case cited, is not, "what is a mechanical equivalent," but "what is the thing distinctly claimed as new in the patent." In patents for improvements on machinery, the claim, or claims, only embrace the device (or devices) that accomplish a new and useful result, or an old result in a superior manner. Having therefore, a clear idea of the thing or things claimed, it will not be so difficult to decide upon the question "what is its equivalent?" In the case cited, if the claim is simply for the slide, as constructed, then any similar device is an equivalent. If the claim is for *the method* of allowing only one row of pins to pass at once to the conductor, then any *similar method* to produce a like result, is an equivalent. A *method* in a machine may embrace one or more devices, but devices it must embrace; and it is upon the similarity of these that mechanical experts are called upon as witnesses, to give opinions in patent trials. In trials for infringement of patents on complex machines, it is sometimes difficult to decide upon *equivalents*, especially when the thing claimed relates to a result produced by a combination of devices. Such an equivalent is not that of a simple device, but a number of them, and these arranged in a peculiar manner. A wheel on a shaft connected eccentrically with the rod of a piston in a steam cylinder, will give rotary motion to the shaft, just like a crank, or an eccentric plate with a strap round its edge—these are all mechanical equivalents for giving rotary motion to the shaft, but who would decide that James Watt's "sun and planet" wheels to accomplish the same result, was a mechanical equivalent? No good mechanic.

The claim of Mr. Terry will be found on page 139, Vol. 9, SCIENTIFIC AMERICAN, and it embraces *a combination of devices* to accomplish a certain result.

Pension for Propeller Improvements

The British Government has granted a pension of £200 per annum to F. P. Smith, in consideration of the efforts made by him, and the expense he incurred in the introduction of the screw propeller into the British Navy and mercantile marine. The screw has completely superseded the paddle wheel in the Navy, and the whole war fleet of that nation is now almost exclusively composed of screw steamers. If F. P. Smith had been some Lord's son, he would have received a pension of thousands, instead of hundreds of pounds. Two hundred pounds is a paltry sum, indeed.