FARMERS' CLUB.

The Farmers' Club of the American Institute held its regular weekly meeting at its rooms at the Cooper Institute, on Tuesday afternoon, Oct. 31st, the President, N. C. Ely, Esq., in the chair.

ENGLISH AND AMERICAN HOPS.

Mr. Collins, of Otsego County, N. Y., being called on to give an account of his recent visit to the hop fields of England, said that hops are raised only in the eastern portions of England, the climate of the western parts being too bleak and rainy. He called on a London firm of hop growers who have a large estate at Maidstone, and they told him that they had begun to adopt the American system of training; last year they tried five acres and liked it so well that this year they had ninety-five acres trained on the system. They requested Mr. Collins to go to Maidstone and see if the plan was correctly carried out.

Mr. Austin inquired, what is the American system.

Mr. Collins replied that he gave a full description of it to the Club last winter. The old plan of training hops was on upright poles twenty feet high; but within a few years the hop growers of Otsego county have practiced the plan of setting a stake in each hill seven and a half feet high, and leading strings from the top of each stake to the top of the next, the vines growing horizontally along these strings. This enables the hops to be picked without cutting down the vines—the cutting causing the vines to bleed, which injures the root.

Mr. Collins said that the hop fields in England, like all other fields there, are cultivated far more highly and thoroughly than with us, but, notwithstanding this, he was suprised to find that the yield was much less than in this country. This he attributed to the difference in the climate—that of England being more cloudy and rainy. Alsop, and other large brewers, told him that American hops were much superior in quality to the English. The average yield of the hops in England for twenty years, as shown by the very accurate excise returns, was 6 cwt. 3 qrs. 4 lbs. to the acre. Mr. Collins thought that the yield in this country could not average less than 800 or 900 lbs. to the acre.

GAS-HOUSE LIME FOR MANURE.

Mr. Robinson read an inquiry in relation to the value of gas-house lime for manure, and replied that if the inquirer had Canada thistles, or any thing else that he wanted to kill, he had better cover it with gas-house lime.

Mr. Quinn did not agree with this opinion. He had used, in the last ten years, more than 500 bushels of gas-house lime, and if previously exposed to the air, and applied in proper quantities, say twelve bushels to the acre, he thought it a very valuable manure.

[One step in the process of purifying illuminating gas is to pass it through thin strata of quicklime. The lime absorbs several impurities, but the principal one is sulphureted hydrogen—a chemical compound of sulphur and hydrogen. When this is brought in contact with lime, both substances undergo decomposition, the metal calcium of the lime combining with the sulphur and forming sulphide of calcium. On exposure to the air, both the sulphur and the calcium absorb oxygen—the sulphur forming sulphuric acid, the calcium forming lime, and the compound becoming sulphate of lime, which is the same as plaster of paris, the well known fertilizer. Gas-house lime should, therefore, be spread thinly upon the surface, where it may be acted upon by the atmosphere. —Eds. Sci. Am.

EFFECT OF PUMPKIN SEED ON DUCKS.

Mr. Robinson, in reply to a correspondent, said that it is generally supposed that pumpkin seed, given to cows, increases the secretion of urine and diminishes that of milk.

Dr. Trimble remarked that the effect of pumpkin seed on ducks is very extraordinary. He had watched them feeding repeatedly, and the effect is a sudden paralysis. The duck on attempting to walk away falls down and is unable to get up.

One of the buoys left by the *Great Eastern* to mark where the Atlantic cable parted, was lately seen by a vessel in longitude 34° 48', over 500 miles east of the point where it was planted.

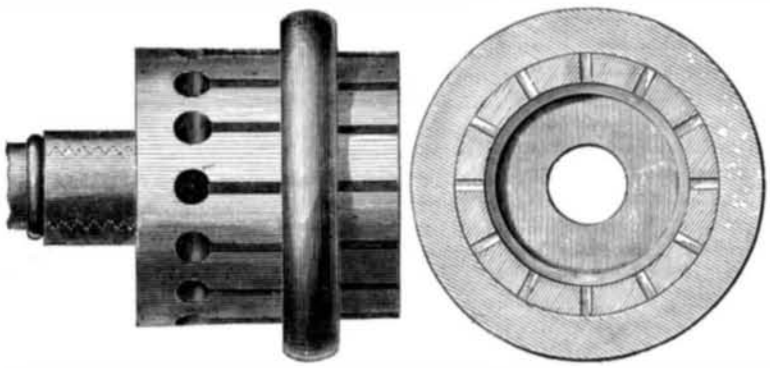
Correspondence.

Smiling, and Sandpaper Finish.

Messrs. Editors:—I, too, could not "repress a smile," as I read M. L. B.'s criticism, in your number of Oct. 21st, on the description of my "solder chuck," which you deemed worth insertion in your number of Sept. 30th.

Your correspondent asserts that I use sandpaper as a "finisher." I had no such idea, and my words must be greatly distorted to bear any such interpretation.

I commenced the article alluded to by stating that it was difficult to turn a disk of sheet metal, and mill its edge on the lathe by the usual process; and I then described my plan of doing it. I added—"To disconnect the finished disk from the washer, you heat it over the lamp, and separate the two while hot, rub off most of the tin with a piece of newspaper, and when cold, the rest of it with sand paper."



The operation of cutting out the disk and of milling it, was "finished," but I certainly had no intention of saying that nothing else was to be done with the disk; this was an incipient step, and, had your correspondent read the next paragraph, he would have seen an instance of employing two metal disks, to make an ornamental match box. I send herewith a sealing-wax impression of the top and bottom of that box, for your correspondent, which will relieve his mind. He will hardly suppose [illegible] one who uses eccentric chucks, [illegible] cutters, to form loops, finishes his w[illegible]paper alone.

To clinch his conc[illegible] the writer of the article is no workman, M. L. B. asserts "he cannot do it in the lathe, for he has no means of holding it;" meaning, that a disk cut out of sheet brass cannot be sandpapered and finished in the lathe.

Here again our critic is at fault; nothing is easier than to hold the disk, when once cut out in the lathe, enabling the workman to sandpaper, polish, and ornament it. The chuck employed must be familiar to almost every turner who reads the Scientific American.

I have in my shop more than one hundred of such chucks; one series of them can hold disks of metal, beginning with five inches diameter, decreasing by one-twentieth of an inch down to one quarter of an inch diameter. They are called split or spring chucks, with rings. They are made of box-wood, brass, or steel. The chuck is turned hollow, the outside slightly tapering toward its end; holes are drilled through the chuck, near the female screw, and cuts are sawed longitudinally, to meet those holes, as shown in the engraving; a brass or iron ring, slightly tapering, slips on the outside of the chuck, and draws the jaws together. When the face of a very thin disk is required to be turned, you place a smaller disk behind it, resting against a shoulder in the jaws, and then push up the ring, until the disk is held as tight as in a vise.

Sandpaper is not the only abrasive material I use in finishing my work. Emery, sand, pumice stone, hematite, tripoli, Dutch reed, oil-stone powder, cuttle-fish, crocus, Venetian lime, chalk and tin putty, and, for metals, finished by steel and agate burnishers, will produce a polished surface on ivory, hard woods, brass, steel, and iron, equal to that which M. L. B.'s friends, "the English mechanics," ask at his hands; but, after all, a magnifying glass will show that even the polish on a telescope speculum consists of an infinite number of fine scratches. There are degrees of abrasive power in different sands, and the last step at the Paris mint, before bronzing their finest medals, is to "finish" them with fine sand and water.

E. J. W.

Lenox, Mass.

Negative Slip.

Messrs. Editors:—Referring to the articles copied into your journal from the London *Times* and other English papers on the peculiar development of what the writers term "negative slip" in the late trials of the new iron-clad British ship of war, *Bellerophon*, I think there is but one feasible, and, I believe it will be found, correct explanation of the phenomenon. It appears that this ship outruns her screw by about one and a half nautical miles an hour; that is, while the vessel herself is making thirteen and three-quarter knots—nearly sixteen English miles—an hour, the screw blades travel only twelve and a quarter. This difference, probably for want of a better term, is called "negative slip."

Now, the very idea of negative slip is a fallacy, and the peculiarity must be accounted for in some other way. We must look for it, I think, in the replacement of the water in the ship's wake. Those who have closely investigated the law of resistance, and the subject of displacement of the water by the ship's entrance, have, no doubt, observed that the displaced water is raised above the surrounding surface in the shape of a series of swells, which, in a smooth sea or river, are sent off to a great distance on each side. The replacement must, therefore, be effected largely by the water falling into the wake from behind. It, in fact, flows in from the sides and stem in converging currents, striking directly against the screw blades. These currents, so meeting the screw, are more or less strong, according to the velocity of the ship. The greater the so-called negative slip, the stronger the common current. This "set" of the replacing water in the direction of the ship's course, if she is going fourteen knots, and has a pretty full run, as most screw ships have, I estimate to be three and a half to four knots an hour. If we add this to the distance traveled per hour by the *Bellerophon's* screw, we have what is equal to sixteen knots, or two and a half knots of positive slip.

In high speed screws, which necessarily have fine lines, there will be a diminution of this peculiarity, for the reason that the replacement takes place more from the sides than from abaft the screw.

H. B. Willson.

New York, Oct. 30, 1865.

[Mr. Willson is the author of "Science of Ship-building," published in London in 1863. This work contains a great deal interesting to persons engaged in the business, and should be carefully read.—Eds.

Effect of the Sun on Fire.

Messrs. Editors:—Will you be kind enough to explain in your paper the reason why a heated stove loses much of its heat when the bright sun is shining upon it? The sun seems to deaden the air at the draft of the stove so as to prevent it from drawing well. It is a well-known fact that flat irons standing in the sun upon the stove will not become hot enough to use with much effect. I have been a constant reader of your valuable journal for several years, but I do not remember to have seen anything respecting this phenomenon.

John N. Clarke.

Chicago, Ill., Oct. 21, 1865.

[We strongly suspect that this is one of the numerous cases of careless observation. Has our correspondent measured the time required to heat a flat iron both when the sun was shining upon it and when it was in the shade? Or has he made any other experiment which demonstrates to a skeptical mind that the light of the sun diminishes the activity of a fire? Is not the effect merely physiological, the