

Science and Art.

Scientific Notes.

To Detect Adulterated Mustard.—At a late meeting of a sanitary committee in London, to inquire into the adulterations of food, Richard Gay said he was superintendent of the mustard department in her Majesty's victualing yard at Deptford, and had been so for 18 months. He had been a master manufacturer for several years. The government established the manufactory on account of the impossibility of obtaining pure mustard. There was a very easy and simple process by which the public might at once detect adulterated mustard. By dropping spirits of ammonia on the mustard, if there was adulteration it would turn red, but if genuine, the color would remain unchanged.

[This test will answer for turmeric, with which English mustard is adulterated, but we do not believe it will answer for yellow corn meal, with which American mustard is commonly mixed. Many of our people purchase English mustard under the mistaken notion that it is better than the American; whereas it is worse.]

Curious Poisoning Accident.—A curious event lately occurred in the University of Leipsic. Dr. Reclam professor of legal medicine, was lecturing on nicotine; and, to show the deadly effects of the poison, he administered a large dose of it to a big dog. The animal, which was lying on its back, was immediately seized with convulsions, and ejected a considerable portion of the poison with great violence in the professor's face, and some of it entered his mouth. He was at once taken with all the violent symptoms of poisoning, and had not remedies been very promptly administered he would have fallen a victim of forcible poisoning by a dog, in self-defence.

The Platina Coil in Diluted Gas.—Dr. Jackson, Liverpool, lately exhibited some interesting experiments with gas. In the first place, he diluted the carburetted hydrogen contained in a receiver with 20 per cent. of atmospheric air, in which state it was not explosive; the gas, in this deteriorated state, when lit at an ordinary burner scarcely rendered "darkness visible," but on the introduction of a slightly coiled platinum wire into the light, the gas expanded into a broad and vivid flame, the fullness and strength of the light greatly exceeding that obtained under like circumstances from the pure gas.

Sir Humphrey Davy was the discoverer of the illuminating properties of platina in a dull flame, but whether it would be economical to use it in a diluted gas flame, or not, we cannot tell. The experiments to decide this can easily be made by any person who wishes to test the matter.

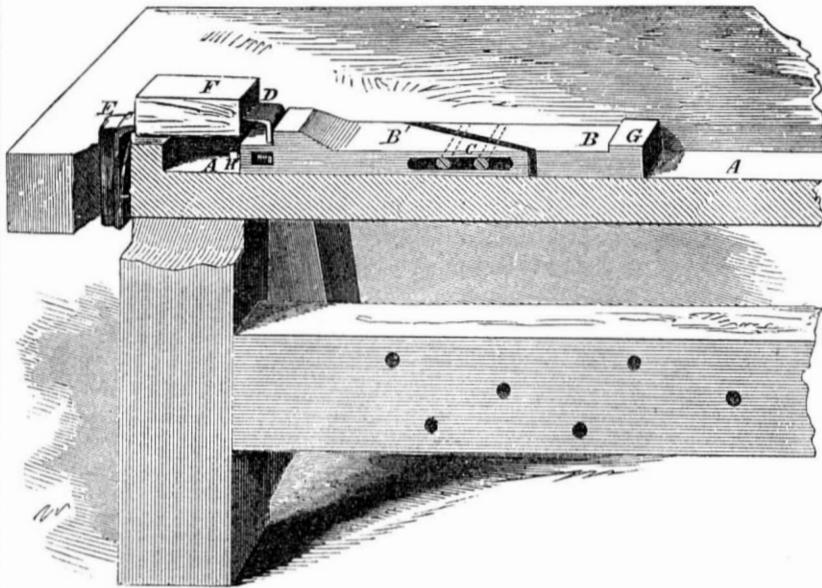
To Detect Strychnine Poison.—The *Medical Times and Gazette* says, "The finger of science points to the detection of the murderer by strychnine, and dissipates his visionary hopes; the grain of white powder, which he anticipates will carry his victim silently to the grave, excites, on the contrary, the most violent and characteristic convulsions; a minute fraction of a grain, lying on the animal membranes after death, will exhibit, under appropriate tests, a series of resplendent and iridescent rings of color to the chemist's view; and a portion of fluid from the intestines introduced into the tissues of a living animal will again excite the identical convulsions which followed the first administration of the poison."

A Large Hat Manufactory.—The largest establishment in our country, or perhaps the world, for manufacturing gentlemen's hats, is that of Prentice & Co., in the city of Brooklyn. It employs not less than one thousand hands, of whom two hundred are apprentices, picked out of the humbler walks of society, and put in a position where they may make themselves useful and respected. The enormous quantity of four hundred and fifty dozen hats, mostly fur, are daily turned out, ready for immediate sale. To pack them, from 25,000 to 80,000 wooden cases are made annually on the premises, besides 100,000 paper boxes.

Phenomena connected with Vesuvius.—A correspondent of the London *Athenæum*, writing recently from Naples, states that Mount Vesuvius, is still in a very agitated state. In the month of February last, this volcano threw out a great quantity of ashes, which, being carried by the north wind in the direction of Bosco Trecase, produced that phenomenon which has of late been so much spoken of as

the ejection of fish from the mountain. The true explanation of this is, the ashes falling on the terraces of the houses in the village, destroyed and converted into so many mummies a great quantity of snails. The report immediately got about that fish had been thrown out. On the 1st of April, ashes of a dark color, and slightly magnetic, fell. They affected the magnetic needle.

IMPROVEMENT IN BENCH HOOKS.



Improved Bench Hook.

In many species of cabinet and carpenter's work it is necessary to have some good means of securing the stuff upon the bench, so that the tools may be brought to act upon it with accuracy. The improvement herewith illustrated is intended for the purpose named. It consists of a sliding bench hook so arranged as to be self-fastening.

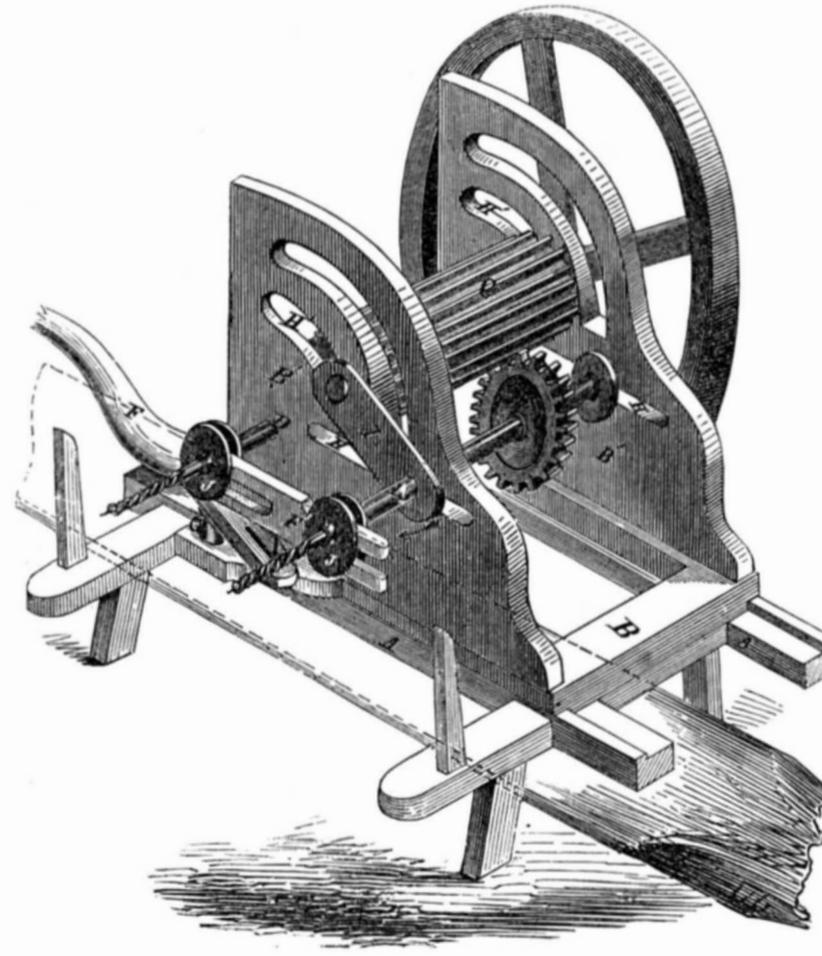
A is a groove in the bench, in which moves a slide made of two parts, B B', but connected loosely by the screws, C. The forward end of the slide is furnished with a hook, D. E is the common bench hook. The block of wood, F, having been placed against E, the operator pushes the slide piece, B', so as to bring hook D against F. The separation between B and B', it will be observed, is angular or wedge shaped, and, as before stated, the two parts are loosely connected by means of screws,

C. When the part, B', is pushed up by the hand of the operator, B is also moved, and its momentum causes it to press close up against B' and wedge the same tightly in the groove of the bench, thus holding hook, D, firm. The common method is to employ a screw, or some such contrivance to hold the slide. It must be obvious that this improved device, being self-fastening, is much more rapid and convenient for use. The slide is moved back by a slight tap on the projection, G. H is a set screw in the end of B', for adjusting the height and holding hook D.

The advantages of this improvement will be readily appreciated by all workers in wood. Mr. Clinton W. Clapp is the inventor. Patented March 11, 1856.

Address Messrs. Clapp and Nuttall, Wap-penger's Falls, N. Y., for further information. See advertisement in another column.

MACHINE FOR BORING FENCE POSTS.



Machine for Boring Fence Posts.

The common post and rail fence maintains a decided preference over all other kinds, in the estimation of many farmers. It is certainly cheap, since not a nail or screw is required,

and, if well put up, is very strong and durable; while for neatness it will compare with almost any species of farm enclosures now employed. The most difficult portion of labor required in their erection is the boring of the

posts for the reception of the ends of the rails. The present improvement accomplishes this work with great ease and rapidity.

The apparatus consists of a strong frame, A, on which slides, in ways, a carriage, B, and the pillar blocks, B'; the latter support the cogged main shaft, C. The auger shafts, D D, connect, by means of pinions, E, with the main shaft, C, and thus receive motion.

F is a lever mounted on a pivot, G, and connected at its lower end with the strap, F'; both auger shafts pass through the strap, F', near which they have bosses, J J, so that when the lever is moved in or out by the attendant, both augers will be also moved; two holes are thus simultaneously cut. The long cogs of the main shaft, C, permit the lateral movement of the pinions, E, and their shafts, D D'. After two holes have been cut, the attendant slides the carriage, B, along, so as to bring the augers opposite to another part of the post, and bores two new holes.

The pillar blocks, B', are slotted at H and H'. The auger shaft, D, passes through slot H, and the ends of shaft C, through slot H'. Shaft C is connected with shaft D, by the straps, I. Shaft D may therefore be pushed along horizontally, nearer shaft D', whenever desired, without interfering with the rotation of the augers, since the two shafts, C and D, will move simultaneously in their respective slots so as to accommodate each other, and thus always preserve their proper distances and connection. The distance between the holes bored may thus be changed, wherever desired, without the least inconvenience and without measuring. Turned by hand, one man does the work of four with common augers; if power is applied much more can be done. All kinds of mortise work may be executed with the apparatus.

This appears to be a very simple, easily managed, and cheap machine. It sells for \$16 to \$20, leaving a good profit to the maker. Mr. Israel W. Ward, of Birmingham, Pa., is the inventor, and will be happy to give further information. Patented March 18, 1856.



Inventors, and Manufacturers

ELEVENTH YEAR!

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This work differs materially from other publications being an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Mill-work, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Every number of the SCIENTIFIC AMERICAN contains Eight Large Pages, of reading, abundantly illustrated with ENGRAVINGS,—all of them engraved expressly for this publication.

REPORTS OF U. S. PATENTS granted are also published every week, including Official Copies of all the PATENT CLAIMS. These Claims are published in the SCIENTIFIC AMERICAN in advance of all other papers.

This publication differs entirely from the magazines and papers which flood the country. It is a Weekly Journal of ART, SCIENCE, and MECHANICS,—having for its object the advancement of the interests of MECHANICS, MANUFACTURERS, and INVENTORS. Each number is illustrated with from Five to Ten Original Engravings of new MECHANICAL INVENTIONS, nearly all of the best inventions which are patented at Washington being illustrated in the SCIENTIFIC AMERICAN. The SCIENTIFIC AMERICAN is the most popular journal of the kind ever published, and of more importance to the interest of MECHANICS and INVENTORS than anything they could possibly obtain! To Farmers it is also particularly useful, as it will apprise them of all Agricultural Improvements, instruct them in various Mechanical Trades, &c. &c.

TERMS:—\$2 a year; \$1 for half a year, Southern, Western, Canada Money, or Post Office Stamp taken at their par value for subscriptions. Letters should be directed (invariably post-paid) to

MUNN & CO.,
128 Fultonstreet, New York

CLUB RATES.

Five Copies for Six Months,	\$4
Ten Copies for Six Months, -	\$8
Ten Copies for Twelve Months, -	\$15
Fifteen Copies for Twelve Months,	\$22
Twenty Copies for Twelve Months,	\$28