A New Autographic Process.

In the Belgian *Bulletin du Musée*, M. Hannot describes the following new autographic process. The writing or drawing is made upon any kind of paper, which should, however, not be very thick. A special ink is used, composed of gum arabic or gelatine ⅜ ozs., water saturated with bichromate of potash 1 quart, and sufficient Indian ink to color the whole. The gum is first dissolved in the solution and the ink afterwards added. The preparation must be kept sheltered from the light, and when used a portion should be poured out in an inkstand of black glass. When the drawing is finished it is exposed to light, whereby the lines are rendered insoluble.

A plate of zinc or a stone is then prepared and polished with emery, and the drawing is placed upon it face downward. Above the latter is laid a sheet of paper covered with gum arabic, and above this two or three sheets of dampened blotting paper. The whole is then pressed. The moisture in the blotting paper reaches the gummed paper, and the gum, dissolved, traverses the autographic paper and affects the zinc or stone everywhere except where the insoluble lines of the design have prevented its passage. A roller of greasy ink may then be passed over the plate, and the grease will adhere only to the lines which are not covered with moisture. Printing is then done in the usual way.

Phosphorescence of Quinine.

If some sulphate of quinine is strewn over a sheet of smooth paper and exposed to a heat of from 120° to 140° Fahr., by means of a plate of metal, it becomes phosphorescent when stirred with a glass rod. Valerate of quinine exhibits the same phenomenon without heat being applied, if the crystals are rubbed in a mortar. It is said that the appearance is only noticed when the valerate contains an acid prepared directly from the root of valerian.

IMPROVED BORING MACHINE.

Machinery of some sort for boring is almost indispensable in all wood-working establishments, and some of the contrivances in every-day use for that purpose are no longer economical in view of the improvements now made in this as well as the other branches of wood-working machinery.

The boring machine illustrated herewith is one of several sizes and styles built by Walker Brothers, Philadelphia, and is a heavy and substantial, yet easy working machine, designed for straight and angle boring of all kinds, the spindle carrying bits up to 2 or more inches in diameter, and having a capacity for boring to the depth of 12 inches.

The frame or standard is a coned casting in one piece, having a broad base, and is quite firm and rigid throughout. The work remains stationary upon the table, which may be adjusted to the proper height or angle, and the bit is brought down and fed through by the foot of the operator on the lever or treadle below. This treadle is provided with a stop to regulate the depth of cut, and with the upward stop the travel of the spindle may be regulated for thick or thin stuff.

The spindle is balanced by means of the adjustable weight on the lever above, and will return when the pressure of the foot is removed. The table is provided with two adjustments for angle boring, and a gage that may be removed when not in use, the whole being raised and lowered by simply turning the hand wheel underneath.

The proper range of speed is given for large or small bits by means of cone pulleys, and the countershaft may be set so as to run the belt from any direction and not interfere with parts of the machine.

This boring machine is furnished when desired with a full set of auger bits, including a small universal chuck for holding all kinds of straight shank bits or drills. For further information address the manufacturers, Messrs. Walker Brothers, Nos. 73 and 75 Laurel St., Philadelphia, Pa.

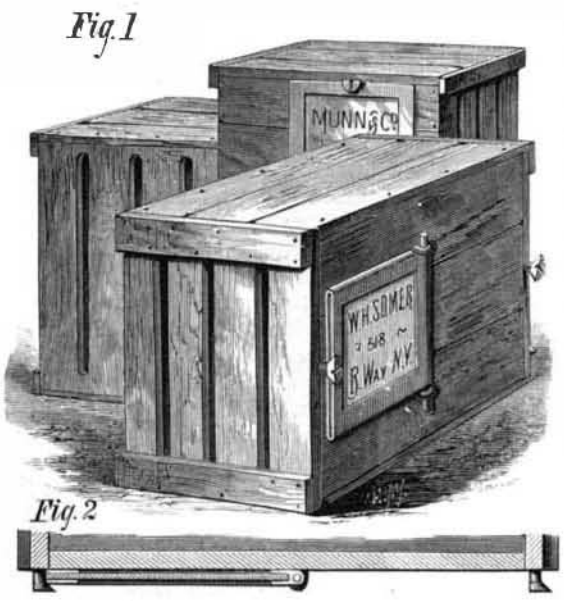
Preparation of Celluloid.

Paper is treated by a continuous process with 5 parts of sulphuric acid and 2 of nitric acid, which converts it into a sort of gun cotton. The excess of acid is removed by pressure, followed up by washing with abundance of water. The paste when thus washed, drained, and partially dried, is ground in a mill, mixed with camphor, ground again, strongly pressed, dried under a hydraulic press between leaves of blotting paper, cut, bruised, laminated, and compressed again in a special apparatus suitably heated. It is said to be hard, tough, transparent, fusible, becoming plastic and malleable at 125°. It ignites with difficulty, is decomposed suddenly at 140° without inflammation, and gives rise to reddish fumes. It is inodorous, and does not become electric on friction.—*English Mechanic.*

IMPROVED LABEL HOLDER.

The invention herewith illustrated is particularly intended for use in sending butter, eggs, fruit, or other articles by return package or crate.

Attached to the box or crate is the card holder, A, made of sheet metal or other suitable material, in the shape of an



open frame, the frame being grooved in such a manner that a card may be slipped into it from the outer end.

At the inner end of the holder are pins projecting at top and bottom; or a wire may be fastened in the inner end of the frame, and its ends project to form such pins. These pins are held to the box or crate by means of staples driven into the same over said pins, thus hinging the card holder to the box in such a manner that the holder may be turned with either side outward, and it is held by means of half-headed screws or hooks. The card of any house to which the box or crate is to be shipped may be inserted in the holder, and on the obverse side of the card the return address is written. All the consignee has to do when he desires to return the package is to turn the screw or hook on one side, reverse the holder, and fasten it by the screw or hook on the other side. For further information, address W. H. Somers & Co., Hume, Alleghany County, N. Y.

WALKER BROS.' VERTICAL BORING MACHINE.

Dr. Isidor Walz.

Isidor Walz, Ph.D., died in New York city on October 25. He was born in Bavaria May 5, 1846. He emigrated to the United States in 1859, and graduated at Columbia College in 1864. He studied chemistry under Bunsen and Erlenmeyer at Heidelberg, and received the degree of Ph.D. in 1867. He practiced his profession in this city, and in 1870 became editor of the *Manufacturers' Review and Industrial Record.* He conducted this paper with marked ability until October, 1876, when his declining health caused him to undertake a trip to Europe. Last month on his homeward journey he contracted the disease, pneumonia, which terminated his life.

Recent Investigations on Hydrophobia.

Hydrophobia has of late been extraordinarily prevalent in in London. Hardly a day passes, says the *Lancet*, without some fresh cases being recorded, and the attention of the medical profession has been closely directed to the nature of this most terrible disease. The data thus far gathered are valuable, not so much as establishing new facts, but in corroborating and shedding more light on some which have hitherto received little notice. From the conclusions now reached it appears that a sharp distinction is drawn between mental hydrophobia and the genuine disease. An adult, when bitten by a dog supposed to be rabid, passes through a period of intense mental perturbation, suffering all the agonies of doubt, apprehension, and foreboding. These mental disturbances induce symptoms closely resembling those of the genuine disease. The manifestations of hydrophobia in man are perversions of the nervous centers, and disturbances of the reflex center and highest psychical organs. The former is tolerably uniform, the latter extremely variable. In one case reported by the *Lancet*, there was little mental disturbance, very slight wandering at the close, and none of the wild paroxysmal furor which is commonly so conspicuous and so terrible a feature of the disease. In another case the psychical disturbance was so predominant that the patient was taken to an asylum as a simple lunatic.

The symptoms of true rabies are not always alike. Its approach may generally be detected by some alteration in the manner and habit of the tainted animal. In some, which are naturally bright and lively, unusual dullness, whilst in others, which are of the opposite disposition, unnatural vivacity are occasionally the premonitory symptoms. There is a remarkable variation in the period of incubation. The disease may be latent in the system for as long as three years. This accounts for the outbreak of the disease in apparently healthy dogs. The popular idea that a person once bitten has a peculiar liability of developing the disease at intervals of seven years after the occurrence is sheer nonsense. Three years seems to be the longest period of incubation known.

The "respiratory spasm" is a conspicuous feature in every case. It is compared by one to the "hurried or intermitting gasping one sees in a child attempting to drink when sudden thirst has been induced by recent violent exertion," and by another to the inspiratory spasms witnessed "when a cold shower-bath is administered to an individual." It is excited not only by an attempt to drink liquids, but also by mental impression, and the sight of water, or sound of running water, will bring it on.

Underground Telegraphs.

Between Berlin and Halle an underground telegraph wire has been in use for one year, and underground wires are about to be laid between Berlin and the cities of Cologne, Frankfort, Strasbourg, Breslau, Hamburg, Kiel, and Königsberg, thereby dispensing with posts and insulators, and avoiding the cost of their maintenance. The copper wires which convey the electric current are enclosed in wrought iron pipes, and are hermetically enclosed by insulating material, which protects them from the action of air and water, and prevents oxidation.

A CHEAP vinegar consists of 25 gallons of warm rain water with 4 gallons of molasses and 1 gallon of yeast. The mixture can be used after it has been allowed to ferment.