

warehouses, carriages, fences, agricultural implements, and household furniture. The millions require it in fashioning the implements of toil; three-fourths of the products of the earth, and of all human industry, are inclosed in wood for preservation or transportation; the masses, in all countries, warm their dwellings and cook their food by its combustion, and the whole vast commerce of the world still rides on every ocean and sea in vehicles of wood.

The new process is equally applicable to wood in all its uses except for fuel. But we have no data from which a reliable estimate can be made of the immense saving which would result from its universal adoption.

In the engravings accompanying this lengthy article on preserving wood, the same letters of reference indicate the same parts as are referred to Mr. Robbins's patent, the specification of which we publish entire.

To any of our readers who may like to know Mr. Louis S. Robbins's address, we would state that he has an office at No. 68 Broadway, New York.

#### FARMER'S CLUB.

The Farmers' Club of the American Institute held its regular weekly meeting at its rooms at the Cooper Institute, on Tuesday afternoon, Jan. 30th, the President in the chair.

#### THE WAY TO RAISE PEACHES IN COLD CLIMATES.

W. H. Sanborn, of Vandalia, Ill., sent a communication describing his method of raising peaches in latitudes too high for their successful culture in the usual manner. He had tried his plan for several years in New Hampshire with success. On setting out his young trees he cuts off the trunk one foot above the ground, and paints the wound with a stiff water-proof paste, made by dissolving gum shellac in alcohol. He then trains the branches out horizontally like the spokes of a wheel, and the vertical branches that rise from these he cuts back one-half in midsummer. During the winter he keeps his trees covered with straw or bog hay, allowing the covering to remain till the buds begin to swell.

#### TO KEEP MILK SWEET.

Mr. Kavanah, in reply to a question by a correspondent, said that milk may be kept sweet by keeping it in a clean room in company with fresh water. In some places it is customary to set tubs of water along the middle of the cellar, cave, or milk house, with an arrangement of pipes by which the water can be readily changed twice a day. It is found that this arrangement prevents the milk from being soured even by lightning.

#### THE BEST WAY TO MAKE A HOT BED.

Mr. Quinn described at length the latest and most approved plan among market gardeners of constructing hot beds. Some horse manure is moistened and piled up to heat about the 1st of January, and the hot bed is formed in the month of February, from the 15th to the 20th. A site is selected with a southeast exposure, and a trench is dug 3 feet in depth, 6 feet in width, and of any length desired. This trench is filled with horse manure—first, 18 inches in depth of cold manure, then 18 inches of hot, then 8 inches of cold, next a thin layer of hot, and finally a thin layer of cold; the whole being thoroughly trodden down, and just about filling the trench. A frame of rough boards is made of the same width and length as the trench, 2 feet in height on the northerly side and 15 inches on the southerly side. This is set into the trench before the filling is completed, so as to bring the top of the frame just above the level of the ground. Fine, rich, mellow soil is filled into the frame on top of the manure to the depth of 8 inches, the seed is sown on the surface of this soil, and is covered by sifting fine earth upon it through a sieve. The frames are crossed at intervals of 3 feet by bars to support the sash—the bars having raised pieces in the middle, between which the sash slides up and down. The bars for the glass are laid in only one direction—across the frames—the glass being laid in the manner of shingles. Formerly 8x10 glass was used, but now the preference is given to 4x6—the sash bars being placed only 4 inches apart. The speaker thought it well to have the glass cut with the lower end rounded, in order to lead the dripping water to the middle of the panes. Tomatoes, cabbage and lettuce, requiring about the same temperature, and germinating in about the same time—from 48 to 60 hours—may be planted in the same frames; but peppers and egg plants demand more heat, and take some ten days to sprout; they must, therefore, be placed in different frames.

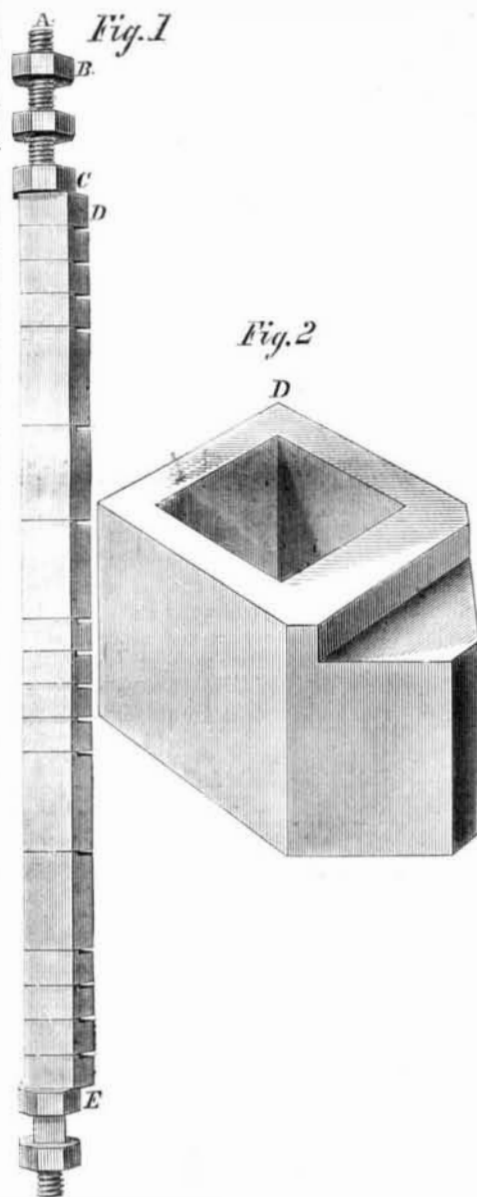
Mr. Bergen remarked that in his neighborhood it was not the practice to mix hot and cold manures, but to build up hot beds with one kind of manure.

Mr. Quinn, in reply, said that by using hot manure, and by transplanting three or four times, they were able to get tomatoes two weeks earlier than they could by using cold manure and by one transplanting. This is very important, as the earliest tomatoes bring \$3 and \$4 per basket, while he had sold thousands of baskets later in the season at from 10 to 18 cents per basket. Last year he sent to market 10,000 baskets of tomatoes.

#### TACEY'S IMPROVED GANG SAW GAGE.

Much time and care have been expended in the accurate adjustment of gang saws. Every change in the thickness of the lumber requires a new arrangement.

This invention is intended to facilitate the opera-



tion of setting. With the gage holders once fixed in line in the saw frame, a number of changes can be readily made by any workman in a few minutes.

A reference to the engraving will show the simplicity and utility of the apparatus. It is claimed that two-thirds of the time of the mill and of the workmen is gained over the old methods.

The inventor uses eight gage bars with movable gages of different lengths for each; four to be in use at a time, and four to be prepared in advance for a change of saws. A proper combination of the various sized gages enables the operator to saw any thickness from one inch upward, varying by one-quarter of an inch.

Fig. 1 is a perspective view of a gage bar with nuts and gages. A is the bar, one inch square.

B B B are nuts by which the bar is fastened in the saw frame. C is a nut which holds the gages firmly against the collar E. F is a collar fast to the bar, resting firmly against the gage holder in the saw frame. When the gage holders are once fixed in line, the collars, being of uniform thickness, will keep all the gages in line also. D is one of the movable gages which, sliding upon the bar, hold the saws in the gains in their beveled edges.

Fig. 2 is a perspective view of a movable gage for sawing inch boards, drawn full size.

For further particulars address James Tracey, Brewer Village, Penobscot Co., Maine.

#### Burning Smoke.

An apparatus for the consumption of smoke has been applied to the furnaces of the North British Rubber Works by a Huddersfield firm. The apparatus is easily managed; it consists of two sets of doors; the outer or closed door is in two halves, and opens from the center; the inner door, which works on the same hinge, is perforated with hexagon-shaped holes, and is meant to break-up the volume of air going into the furnace into a sort of blast. This blast is counteracted upon by an opening for air underneath the furnace dyke, the door of which is regulated by a check rod. When the fire is charged with coal the outer door and the one under the fore dyke are left open, while the inner door is kept shut until the coals are well kindled, when the outer and under doors are closed, and the furnace goes on burning as if no apparatus were there. A pipe about one inch diameter, and perforated with holes, passes along the front of the ash pit, from which small jets of steam spread along the under part of the furnace bars, supposed to generate air and keep the bars from overheating. The introduction of the apparatus causes little or no alteration in the ordinary furnace, except the taking away of the usual doors, and the putting in others of the construction described. This apparatus, as applied to the fire openings of one great furnace at the Rubber Works, proves its efficiency in burning the smoke; though, as in all cases, the efficiency depends on the apparatus being worked properly by the person in charge of the furnaces.—*London Mining Journal*.

[The idea of generating air from steam jets is absurd.—Eds. SCI. AM.]

#### Official Report of the Cattle Plague.

The return published by the Veterinary Department of the British Privy Council, for the week ending Dec. 30th, gives an account of the loss of stock by the disease, from its commencement in June to the end of the year 1865, as reported by the local inspectors. In England 48,964 animals were attacked during the whole period, and of them 11,142 were killed as a preventive measure, 27,177 absolutely died of the disease, 3,655 recovered from the attack, and 6,990 diseased animals were remaining on Dec. 30th, whose fate will be recorded in subsequent returns.

In Wales the disease was confined to the two counties of Denbigh and Flint, and the total number attacked was 2,287; of these 93 were killed, 1,565 died, 218 recovered, and 411 remained under observation.

In Scotland 22,298 animals were attacked; 2,998 of these were killed, 12,749 died, 3,172 recovered, and 6,381 cases were undetermined.

In Great Britain, therefore, the aggregate numbers stands thus—attacked, 73,549; killed, 13,931; died, 41,491; recovered, 7,045; and 11,082 (or 15 per cent of the attacks) are brought forward into the account for 1866.

AN INVENTION WANTED.—The *London Times*' Paris correspondent says:—"A discovery has been made at Toulon, where the iron-plated frigate *Provence* is undergoing repairs, which shows the danger that menaces the entire iron-coated fleet of France. The *Provence* was fitted out for sea only 15 months since, and already a great number of her plates are nearly consumed with rust. The Director of Naval Architecture is of opinion that if a composition be not discovered to prevent the action of rust, the iron-plated fleet must be renewed every five years.

THE FIRST STEP.—In the House of Representatives, on the 5th inst., Mr. Allison introduced a bill fixing a standard of weights and measures corresponding with the French decimal system.

**Improved Connecting Link.**

This engraving represents a new and most useful fastening- which can be applied to a great variety of purposes. It is principally designed for teamsters' and farmers' use. It is intended to take the place of the old-fashioned lap-ring. This ring consists of an iron link, not welded at one end, but having the same flattened so that they pass each other. When this ring is used, the flattened ends must be pried open, the parts to be connected inserted, and the ring hammered together again. Of course, this is most troublesome; not only this, but from constant opening and shutting, the flattened ends get broken off so that the thing is useless.

With this link it is only necessary to swing one part past the other, and then shut them together when the pieces to be connected are in place. This holds all snug and fast, beyond the possibility of detachment. Fig. 1 shows the link in one form, both open and closed. Fig. 2, another kind, both opened and closed. Figs. 3 and 4 are views of all other kinds, all being on the same principle. The strength of this link has nothing to do with the pivot—that is merely provided to keep the two parts together, the strain coming on the ends of the hook.

The demand for these links, by farmers and others, has been very great, and the inventor, who is a Texan, was receiving many orders for them at the breaking out of the Rebellion. The troubles which followed, however, deprived him of all opportunity and means to prosecute his business. He now desires to sell the right to the patent. It seems to be a most useful article. For further information address the patentee, John P. Kirk, Leggett's Hotel, 46 Chatham street, New York.

**The Photo-Miniature.—Beecher's Formula.**

First: Take the whites of two eggs and two ounces of water, beat well to a froth, and let it settle for two hours and pour off the clear solution.

Second: Coat your white plate with this solution (as you would with collodion), and set away to dry. When dry take in your dark room and coat the plate with the "opal solution," which is made thus:—

Plain collodion 8 oz. (thinner than you would use for iodizing), then dissolve in as little water as possible 60 grains nitrate of silver, and add this to the collodion and shake well. Then dissolve 16 grains of strontium in as little water as possible, and add this to the collodion, and shake well. Then dissolve 10 grains citric acid in as little water as possible, and add to the collodion. Shake well, and you have the opal solution.

When dry, put your negative in the printing frame—lay the opal prepared plate on the negative, and print from 10 to 15 minutes in the sun, and print much darker than you would a photograph.

Tone and fix as you would a photograph, only you need not wash before toning—and wash but little before fixing. The "opals" tone in one-tenth the time of a photograph.

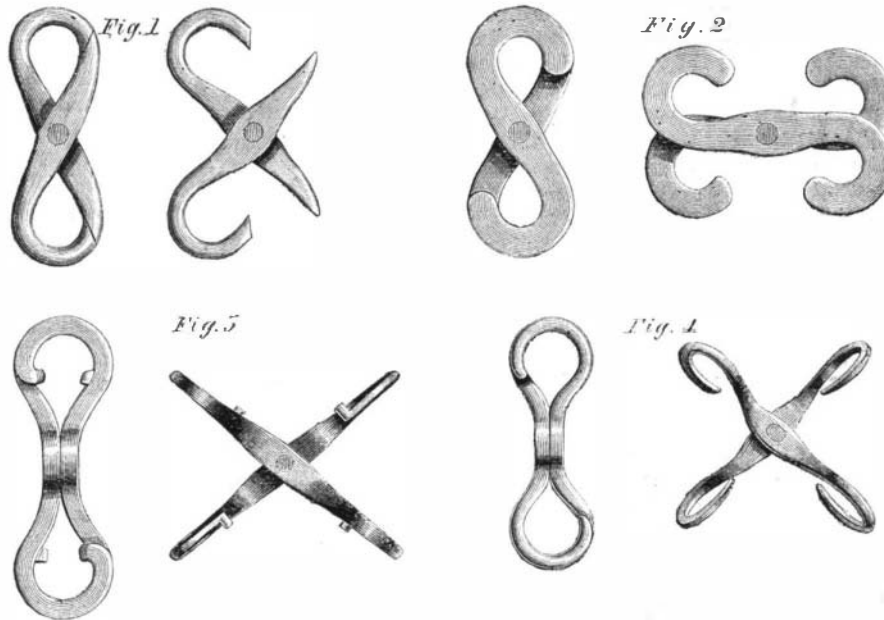
Keep the opal preparation in a dark room. Have your toning bath a little alkaline, and not as strong as for toning photographs.—*Humphrey's Journal.*

**Spider Silk.**

During the summer of 1864, the 55th Mass. Colored Volunteers were stationed at Folley Island, S. C. In August, Major Sigourney Wales was detached to command the outposts on the adjoining islands. There his duty obliged him to visit all parts of the island, day and night. During his rides he found great numbers of large spiders, whose webs, extending from tree to tree, often measured from six to ten feet, with threads of a silk-like texture, strong, elastic, and of a bright gold color. These webs were a source of annoyance, especially at night, when the most disagreeable sensations were experi-

enced by their tenacity and resistance to repeated attempts to brush them from the person. Speaking of this to the assistant surgeon, it led him to mention some curious experiments made by him the year previous, in which he reeled upon a pencil or quill many yards of web from a single insect.

Persons familiar with army life are aware that its leisure hours are many; these Major Wales had employed, at intervals, in carving mementoes, and in this connection it occurred to him, that if he could draw this golden thread upon a ring, it would make a valuable souvenir of war.



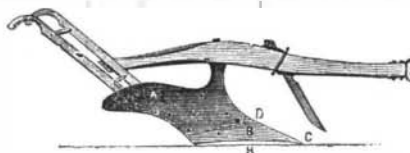
**KIRK'S CONNECTING LINK.**

Having satisfied himself of the practicability of his design, by securing several of the spiders and reeling their web upon an ebony reeler, he proceeded to carve out of hard rubber a ring, with raised rims on its outer surface; this he secured to a cork, through which a large shawl pin was thrust, forming a wheel and axle, and giving increased velocity.

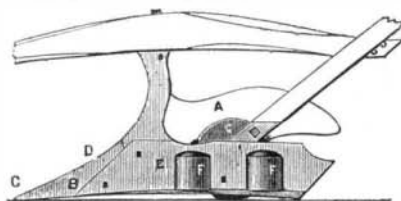
With a supply of spiders confined in a cigar box, he completed this ring; which, when finished, presented two black rims inclosing bands of gold, one-eighth inch in width, so much like gold as to be readily mistaken for the true metal.

**GREEN'S PLOWS.**

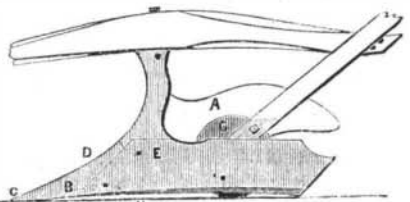
These plows, says the inventor, being constructed upon entirely new principles, are fast becoming the leading plows of the country. They are recommended



to work in a superior manner upon every variety of soil—sticky or otherwise. A friction-roller landside, F F, and center wheel, G, being attached for the pur-



pose of heavy sod plowing and easing the draft, which can be changed to plain, for plowing stubble, by the aid of an extra land side. The cutting angle of the



share, B, is about 28° or 30°, extending the entire length of the lower edge of the board, A, and in connection with the concavity, H, effects a quick and

easy entry. These plows are of light draft and easy control, turning the furrow in a superior style. They pulverize the soil finely, so that it is in a suitable condition to absorb fertilizing properties from the atmosphere.

A new subsoil plow is also manufactured with flat double-wing shares for the cultivation of all kinds of roots, corn, etc. A large size of this new plow is likewise made, with changeable share and flanges, for various purposes, such as under-draining, scarifying, and renovating old pastures and meadow lands.

Small plows are made which equal in size the Horton & Depiew—19 and 19½ inches.

These plows can be seen at Goodwin's, No. 31 Fulton street, or at E. H. Reeves's, Water street, New York; also at the Peekskill Plow Works, Peekskill, N. Y. For further information address L. Green, Peekskill, N. Y.

**Chloride of Lime for Vermin.**

Some years ago I read in a French scientific periodical, that chloride of lime would rid a house of all these nuisances. I treasured up the information until opportunity offered for testing its value, and this occurred some four years since. I took an old country house infested with rats, mice and flies. I stuffed every rat and mouse-hole with the chloride. I threw it on the quarry-floors of the dairy and cellars. I kept saucers of it under the chests of

drawers, or some other convenient piece of furniture; in every nursery, bed-room, or drawing-room. An ornamental glass vase held a quantity at the foot of each staircase. Stables, cowsheds, pig-sties, all had their dose, and the result was glorious. I thoroughly routed my enemies, and if the rats, more impudent than all the rest, did make renewed attacks upon the dairy in about twelve months, when, probably, from repeated cleansing and flushing, all traces of the chloride had vanished, a handful of fresh again routed them and left me master of my own premises. Last year was a great one for wasps; they wouldn't face the chloride; though in the dining-room, in which we had none—as its smell, to me most refreshing and wholesome, is not approved by all persons—we had a perpetual warfare. And all the comfort for eightpence!—*Cor. London Builder.*

**The New Cable.**

Birmingham (England) is again to have the credit of manufacturing the wire for the new Atlantic cable, and Mr. James Horsfall has commenced the work. Throughout the series of mishaps which occurred in laying the cable in August last, no fault has ever been found with Mr. Horsfall's homogeneous wire; and the new cable will be the same as the last in size, material and quality. We believe that the conducting copper wire will also be made by Birmingham manufacturers, and the hempen covering of the cable will again be made by Messrs. J. & E. Wright, of Garrison Lane. The manufacture of the cable will be undertaken by the Telegraph Cable Construction Company. The company intend to pick up the cable already laid, and complete it, and their engineers entertain no doubt whatever of being able to do so; and the new cable is intended for a second line of telegraph, the directors feeling convinced that one medium of communication between England and America will be altogether insufficient for the commercial requirements of the two continents. Both cables will be completed next summer.

A PARIS butcher has obtained authority to open a shop for the sale of horse flesh, on condition that he will construct a special slaughter-house for the horses, to be placed under the superintendence of an inspector. The opening of the shop is to be celebrated by a banquet, at which horse-meat will form the principal dish.