New Method of Oil Printing.

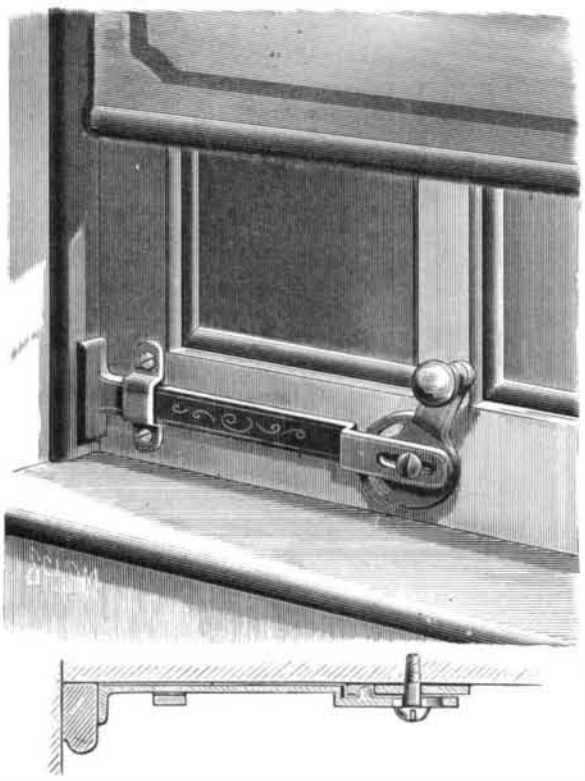
Bogaerts, of Herzogenbusch, has invented a new method of printing in oil colors, which is said to furnish a very close imitation of oil painting, far surpassing what was possible by means of chromo-lithography. It may be applied to painter's canvas, wood, or metal. The following description of his method is given in *New Discoveries and Inventions:*

The first thing to be done is to make a facsimile of the painting that is to be copied, in which the outline of each simple color is accurately reproduced. This copy is then transferred to a plate of zinc, which is cut up into as many pieces as the picture contains different colors, in such a way that each piece represents all the parts which in the original are of one color. Separate electrotypes are made from each piece, and from these the proper colors are printed in corresponding order upon prepared paper. (So far the process is similar to printing chromos.) At the end of this operation, when all the colors have been printed on the paper, the picture resembles an ordinary chromo-lithograph, and like that it is perfectly flat and smooth; the brush marks and roughness of surface noticed in oil paintings are wanting. In order to imitate this part, too, the original painting is covered with a solution of gelatine, in which are impressed with great accuracy the elevations and depressions of the painting. From this plastic copy of the surface another impression is taken in gutta percha, India-rubber, or other elastic substance, which will stretch so that it can be made larger or smaller, according as the copy is enlarged or reduced. This elastic impression is used for preparing a copper stereotype, with which a negative or depressed copy can be made in a suitable plate. This last plate, of course, will have depressions wherever the painting had elevations or raised spots, and these depressions are filled up with pigment of the same color as the raised portions of the original. The plate thus prepared is put in a press and the printed chromo laid on it, and then pressure and heat are applied to cause pigments in the depressions to unite with those already on the paper. The picture is now finished all but varnishing. To carry out the resemblance to oil painting it is afterward transferred from the prepared paper to canvas, wood, or metal. P. N.

IMPROVED SASH FASTENER.

The annexed engraving represents a novel sash fastener, recently patented by Mr. J. V. Risk, of Point Pleasant, W. Va. The invention consists of a bolt provided with a friction plate at the outer end and guided by a strap, and slotted to receive a screw which guides its inner end, and at the same time forms the pivot for the cam whose slot receives a pin projecting from the back of the bolt. The device is secured to the lower rail of the sash in such a position as to admit of pressing the friction plate at the end of the bolt firmly against the stop or side of the window frame.

By turning the slotted cam in one direction, the bolt is thrown outward against the frame with sufficient pressure to hold the sash in any desired position. By turning it in the opposite direction the bolt is withdrawn and the sash is free to move up or down.



RISK'S SASH FASTENER.

The friction plate at the end of the bolt not only holds the sash so that it will not move up or down, but it also prevents the window from rattling.

The smaller view in the engraving is a horizontal section showing the relation of the various parts.

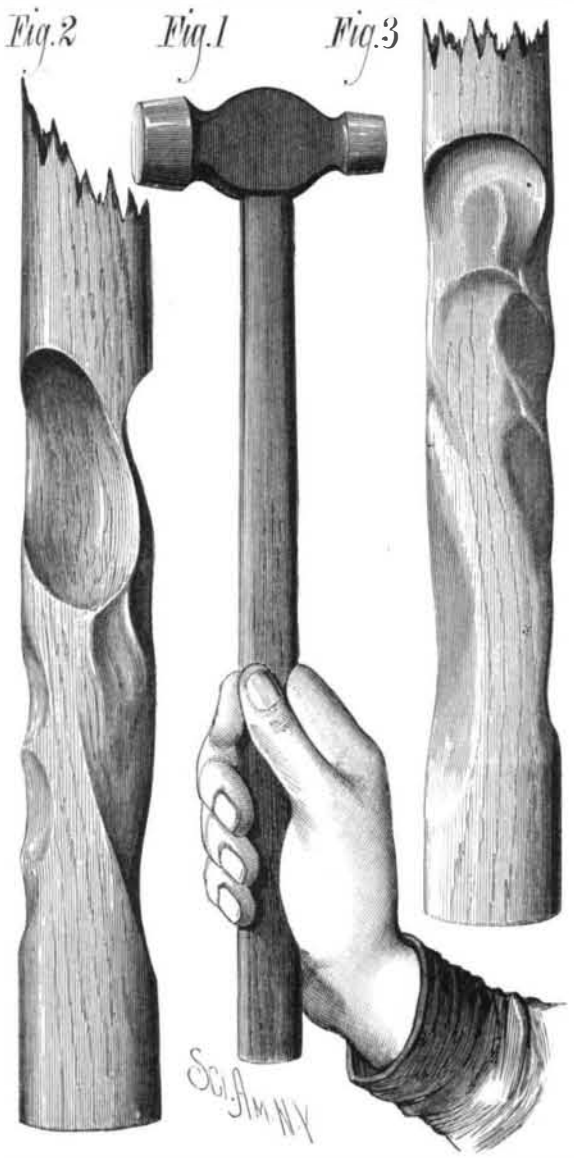
The Northwest Lumber Trade.

The Secretary of the Chicago Lumbermen's Exchange reported to the annual meeting, March 6, that the past year was one of the most successful ever experienced in the Northwest. The receipts of lumber were nearly 2,000,000,000 feet; shingles, 866,000,000; and lath, 104,000,000; while the coarse forest grades by lake aggregate 2,846,000 posts, 4,200,000 ties, and a large quantity of miscellaneous stuff.

A CURIOUSLY WORN HAMMER HANDLE.

The worn hammer handle shown in the engraving is noticeable as an example of rapid as well as curious abrasion of a hard substance by the human hand.

The hammer was used by Michael Collins, of this city, in welding the ends of iron tubes in steam radiators. The cutting of the handle, which is of hickory, was probably



A CURIOUSLY WORN HAMMER HANDLE.

done by the fine scale struck off from the iron and caught by the tough skin of the striker's hand. The hammer is held loosely in striking, and every blow is attended by a slight motion of the handle under a varying gripe. The constant attrition causes the muscles of the palm and fingers to bed themselves, so to speak, in the tough wood, with an impression as perfectly reproducing the inner surface of the hand as would be obtained by squeezing a roll of putty. The oval handle is one inch in its shortest diameter, and where it is worn deepest by the thumb and forefinger only three sixteenths of an inch of wood remains. We are informed that a handle is worn in this way in the short space of three months.

AGRICULTURAL INVENTIONS.

Mr. Norman Mereness, of Seward, N. Y., has patented an improved seed planter and drill. This machine embodies novel combinations which insure accuracy in planting and drilling seeds, and the proper distribution of fertilizers.

Mr. William Mustart, of Jacksonville, Fla., has patented a fruit-picker and tree-trimmer, adapted to the picking of oranges, apples, peaches, or other fruits without damage to the trees, and it may be readily adjusted to act as a tree pruner or trimmer.

Mr. James M. Diffendafer, of Green Center, Ind., has patented an improved hay-rack, having a longitudinal base frame carrying two detachable inclined side frames composed of a series of posts provided at the lower ends with tenons fitting in mortises in the cross bars of the base-frame, the posts being united by longitudinal rails fitting in recesses in the inner sides of the posts, and held therein by a strip pivoted to the inner side of the posts.

Mr. Josiah L. Hughes, of Cleveland, Tenn., has patented a cotton chopper constructed with a carriage, gear-wheels connected with the rotary axle of the carriage, two shafts connected by a universal joint, radial arms being attached to the rear shaft and carrying the chopping knives. The machine has plows provided with colters for barring off the rows.

A novel aid binder attachment for harvesters has been patented by Mr. Mason Hedrick, of Oakland City, Ind. The object of this invention is to furnish an attachment for harvesters by the aid of which one man can bind grain as fast as a harvester can cut it. The improvement consists in adapting the driving mechanism of a harvester to compress the gavel.

An improvement in treadles has been patented by Mr. Thomas A. Parkinson, of York, Neb. This is a compound treadle used by simulation of walking, and adapted for driving corn shellers, printing presses, grindstones, and other machines. By means of this device a constant pressure is applied to the crank shaft, and, the whole weight and strength of the operator being utilized, the power is much greater than that obtained by the ordinary treadle.

Work Yielded by Various Substances.

In a recent lecture at the Crystal Palace, London, Prof. Sylvanus Thompson explained the theoretic work obtained by the consumption of one ounce of various substances as follows:

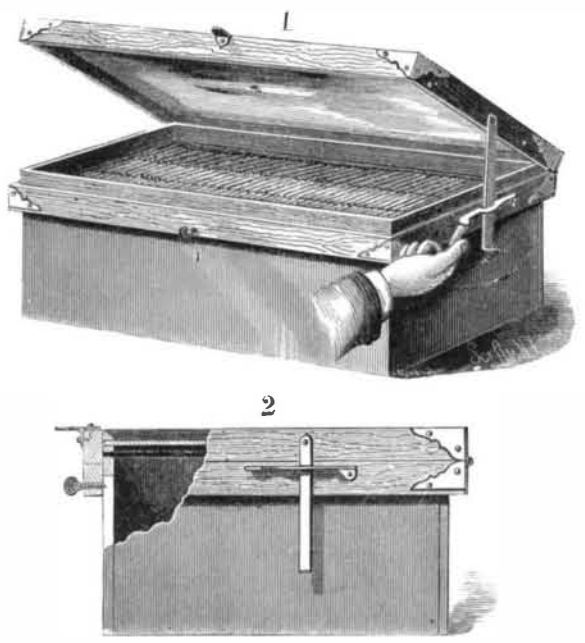
1 oz. of hydrogen	gives	2,925,000	foot pounds.
1 " " coal	"	695,000	" "
1 " " zinc	"	113,000	" "
1 " " gunpowder	"	100.000	" "
1 " " copper	"	69,000	" "

Optical Blindness to Red Light.

A curious effect of bright white light upon the vision is recorded in a recent number of the *Journal de Physique* by MM. J. Macé de Lépinay and W. Nicati. After passing some hours in a snow field brilliantly lighted up by sunshine, it was observed that at least eight hours afterwards all gaslights, candles, and artificial lamps appeared to be strongly colored green. In other words, the red rays of such lights were not perceived. The reason of this was supposed to be the fatigue of the retina for red, which partial effect lasts longer than a similar weariness of other colors. The truth of this supposition may be proved in a very simple manner by obtaining three colored glasses—red, green, and blue—of such relative depth of color that they could be seen through with about equal visual effect with a given power of light. An observer furnished with these glasses is then to place himself at a convenient distance before one of the sight-testing placards commonly used by oculists, and consisting of a white ground printed with black characters of various sizes. If the room is now almost darkened, the blue glass will still permit the observer to distinguish the medium sized characters on the placard, while through the red screen not even the white sheet itself is perceptible. After a time, however—the same degree of semi-darkness being continued—the visual acuteness through the red glass is increased so that the larger characters on the placard may be discerned. The visual perception through the blue glass remains as at first. It is therefore clear that color blindness, of a temporary nature, to the red rays, is more persistent than in respect of the blue rays. Hence may be assigned to physiological reasons the well known fact that a prolonged or even temporary exposure of the eye to the electric light renders it for some considerable time afterward incapable of fully estimating the illuminating power of a gas flame, which is so much richer in red rays.

NEW SHOW-BOX COVER.

It is said that "goods neatly kept are half sold," and experience proves the adage true. The incursions of insects and idlers, the entrance of dust and moisture, seriously interfere with the profits of the retail dealer of many kinds of goods. Many contrivances have been tried to remedy these annoyances, but for one reason or another they have generally proved failures.



LANGLES' SHOW-BOX COVER.

We give herewith an engraving of a simple and efficient device for covering boxes of goods so as to protect them thoroughly while exposing their contents to view. This device consists of a case capable of fitting the goods box, and having a glass cover hinged to it and provided with a support that will hold it at any desired angle.

When the cover is raised it will stay where it is left until the holder is pressed upward by the finger as shown in the engraving.

This invention has been patented by Mr. Justin J. Langles, corner Common and Tchoupitoulas street, New Orleans, La.

Copying Drawings.

Tilhet's method of copying drawings in any desired color is thus described in the *Polytechnisches Notizblatt:*

The paper on which the copy is to appear is first dipped in a bath consisting of 30 parts of white soap, 30 parts of alum, 40 parts of English glue, 10 parts of albumen, 2 parts of glacial acetic acid, 10 parts of alcohol of 60°, and 500 parts of water. It is afterward put into a second bath, which contains 50 parts of burnt umber ground in alcohol, 20 parts of lampblack, 10 parts of English glue, and 10 parts of bichromate of potash in 500 parts of water. They are now sensitive to light, and must, therefore, be preserved in the dark. In preparing paper to make the positive print another bath is made just like the first one, except that lampblack is substituted for the burnt umber. To obtain colored positives the black is replaced by some red, blue, or other pigment.

In making the copy the drawing to be copied is put in a photographic printing frame, and the negative paper laid on it, and then exposed in the usual manner. In clear weather an illumination of two minutes will suffice. After the exposure the negative is put in water to develop it, and the drawing will appear in white on a dark ground; in other words, it is a negative or reversed picture. The paper is then dried and a positive made from it by placing in on the glass of a printing frame, and laying the positive paper upon it and exposing as before. After placing the frame in the sun for two minutes the positive is taken out and put in water. The black dissolves off without the necessity of moving it back and forth.

FRESH GRAPES FOR THE TABLE.

Our engraving is an actual representation of a vine grown by Herr Sage, gardener of Lord Brownlow. It was carried in October of last year to the Exposition at South Kensington, where it received the highest medal from the committee on fruit. A yet more beautiful and regular vine was carried to the Exposition at Ealing Park, by William Cole, in 1873. In both of these cases the vine was propagated according to the system of Mr. William Thompson, who has published a work called "The Practical Treatise on the Grapevine."

We can recommend the growing of fruit vines in pots to gardeners and amateurs, as being easily accomplished, and the nature of the vine is such that more satisfactory results may be obtained in a shorter time than from the propagation of fruit-trees in pots. By this means of cultivation fruit may be obtained from the rare southern vines. Nothing can be more beautiful than a natural centerpiece of this kind; it would be an ornament even for a royal table. England has set the example in this method of vine growing.

The cultivation of the vines designed for pot culture may be carried on for one or two years in baskets in the open ground. By this means the roots may be properly held together, and transferring the plants to pots may be successfully accomplished. This should be done in March, before the buds begin to start. With warmer weather a rich compost earth should be used, which, mixed with a small quantity of cow hair from a tannery, forms an excellent manure. The pot should be covered with moss, so that it will not dry up, and it is to be buried in the earth so that it may remain uniformly moist, the ground being sprinkled from time to time. When the strong table varieties of grapes are used for pot culture the vines must not be too much pruned. It is better to prune the plants in the autumn rather than in the spring, because then the sap will not escape, and the vines in baskets or pots may be protected from frost, so that there will be no loss of buds.

Among the varieties of grapes which are best adapted to pot culture the ordinary blue *Trollinger*, called in England the "Franconia Valley," stands at the head. Close to this comes the *Pariser gutedel*, also the *Chasselas fontainebleau*, which is a free bearer, having a beautiful large gold-colored grape, and is universally esteemed.

In 1879 the establishment of Van Houtte, in Ghent, in order to assist amateurs in the pot culture of vines, announced for sale (at from 5 to 8 francs) twenty different kinds of vines. They were placed in large pots, after the English method of culture, and were very strong plants, from which fruit might be expected. Among the varieties were the long clustered and very sweet *Black Prince* and the *Black Alicante*, which is worthy of recommendation. The last is a vine of strong growth, has broad, large clusters of grapes, nearly black, which will keep for a long time and neither decay nor shrivel up.

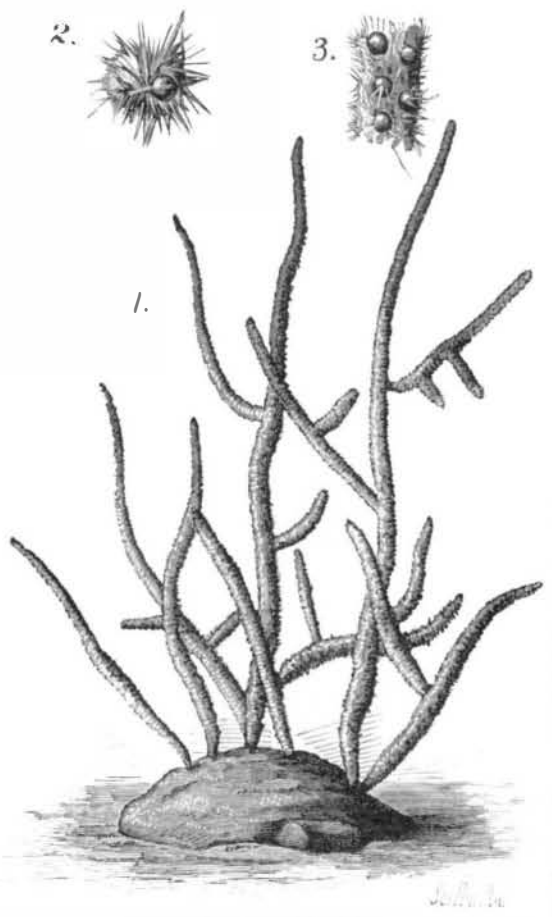
The novelties are somewhat more expensive. The *Muscat Derom* has large golden berries in beautiful clusters, with the delicious taste of the *Frontignan*. Mr. Pearson introduced an English novelty in 1876, a very large grape, of a greenish golden color, which will keep for a long time.

Robert's Gros Guillaume is also an English variety of 1877, with enormous clusters of very large black grapes. The Alnwick Seedling is a novelty of 1878, with broad clusters of oval black berries, which keep well and are of the best quality. Finally, the Muscat Charles Alberdienst is a novelty which cannot be surpassed, has a very large black berry, which has a very pleasant perfumed taste, and bears very freely. It is one of the best and most beautiful of existing grapes.—*Illustrirte Garten-Zeitung.*

GRAPEVINE GROWN BY HERR SAGE.

SPONGILLA FLUVIATILIS.—THE CAUSE OF CUCUMBER TASTE IN WATER.

Last fall note was made of the fact that the offensive cucumber odor and flavor of certain portions of the water supply of Boston had been traced by Professor Ira Remsen to a fresh-water sponge in one of the reservoirs. A full report of Professor Remsen's investigations has now been received in the



SPONGILLA FLUVIATILIS.

report of the Boston Water Committee. [City Document 143, 1881.]

As the cucumber disorder in public water supplies has caused much public discomfort and disquiet in Boston before, and also in several other cities, and, in the absence of proper precautions, is liable to be repeated, the discovery made by Prof. Remsen is of great importance. Our Croton water was affected much the same way two years ago; and several other cities have suffered from it, among them Hartford, Conn., in 1871; New Haven, Conn., in 1864–65 and 1872; Norwich, Conn., for several years in succession; Jacksonville, Ill.; Holyoke, Mass.; Lynn, Mass.; St. Paul, Minn.; Keene, N. H.; Albany, N. Y.; York, Pa.; Baltimore, Md., and others.

When the Baltimore water was similarly affected, in the winter of 1880–81, Professor Remsen searched in vain for the cause, in view of which fact, and the repeated failure of careful investigators to solve the mystery in other places, he attacked the problem in Boston in no very hopeful spirit. With great patience and skill, however, the source of the contamination was traced to a body of water called Farm Pond, and, in that, to certain organized masses, which Professor W. G. Farlow, of Harvard College, pronounced to be fragments of a fresh water sponge. A specimen was then submitted to Professor Hyatt, of the Boston Society of Natural History, who confirmed the judgment of Prof. Farlow. This sponge (*Spongilla Fluviatilis*), Prof. Hyatt says, is common in fresh water ponds, and in some places is very abundant. It has the cucumber odor while living, and the odor is intensified by decay. Masses of the sponge easily decompose, and are found part living and part dead.

Professor Remsen says in his report: "These masses [of sponge] growing upon the bottom easily become disintegrated, and undergo decomposition; and both the growing masses and the disintegrated parts must contribute to the taste of the water, though naturally the principal effect is due to decomposition. As this decomposition takes place the more readily the nearer the masses approach the surface of the water, the water near the surface has a stronger taste than that near the bottom." He adds, "I believe the presence of this sponge in Farm Pond furnishes a satisfactory explanation of every fact which has been observed in connection with the present condition of the water," and expressed the belief that the sponge would be found growing in the pond if the water were drawn off. The prediction was confirmed, large quantities being discovered on rocks at the bottom of the pond.

The cactus-like appearance of the growing sponge is shown in the accompanying engraving, one third natural size. The living sponge is green. It turns brown in decay. It possesses remarkable power of propagation, but seems to exhaust itself after a time, leaving the water in which it grew comparatively free from it, perhaps for years.

MISCELLANEOUS INVENTIONS.

Mr. Charles T. Christmas, of Lake Beulah, Miss., has patented an efficient and cheaply-constructed device by which the wires used for fences may be stretched in making the fence and held in place while being spiked to the posts. By the same implement the wire may be cut when desired.

A new apparatus for raising and lowering boats has been patented by Mr. Reginald H. Earle, of St. Johns, Newfoundland. This improved apparatus consists of a swinging frame and gravity cradle for carrying the boat bodily, and these are combined with davits in such manner that either can be used independently.

A novel packing fastener for furniture has been patented by Mr. Marion E. McMaster, of Shelbyville, Mo. The device consists of a plate formed with two or more points or barbs and two or more holes. In use the barbs are driven into the ends of the bars or pieces of furniture, and the fastener is further secured by nails passing through the holes.

A cigarette holder, made collapsible in order that it may retain its contents in good condition at all times, and also made waterproof to exclude dampness and perspiration, has been patented by Mr. Gabriel Rodriguez, of Matanzas, Cuba.

Mr. James Newby, of Paterson, N. J., has patented an improved device for stopping the rotation of the spindles of quilling-frames in case the silk thread that is being wound from the reel upon the bobbin breaks. This device consists of a lever held out of contact with a stop by the thread. When the thread breaks the lever drops and stops the spindle.

Mr. John Newkirk, of New York city, has patented a deflector for cuspidors, whereby the cuspidor may be entirely closed to prevent the escape of odors and the contents of the cuspidor deflected to the sides, entirely out of view.

Mr. Galen A. Peirce, of East Freetown, Mass., has patented an implement or tool for lasting the shanks of boots and shoes, adapted for rapid and easy application, and to be used in various ways or positions according to the position of the workman. The device is made so that the leverage will be continuous for drawing the upper to any extent desired at each grasp or hold upon the upper.

Messrs. Philip H. Sprague and Tobias A. Sprague, of Cornell, Ill., have patented an improved valve or plunger for pumps which is adjustable or expansible to take up the wear. The invention consists principally in the bucket or valve cup, formed of a single piece of vulcanized rubber, in combination with a metal cup placed inside the rubber cup, with a removable washer placed between the bottom of the metal cup and the bottom of the rubber cup.

Mr. George Van Dyke, of Skaneateles, N. Y., has patented an improved combined bag holder and truck. The truck is provided with handles at its upper end, and at its lower end are two wheels and a platform, which forms the nose of the truck and supports it in an upright position, and also serves for the bottom of the bag to rest upon. The back of the truck is provided with a slot in which works a sliding block to which is attached a hopper and a bag-holding device.

An improvement in fishing rods, patented by Mr. Henry Prichard, of Brooklyn, N. Y., consists in combining an elastic tube, cap, and thread with a wooden core. The rod section consists of a central core of wood and an outer tube of India-rubber or similar material, covering the lower end of the section. The covering will extend a suitable distance upon the wood, according to the style of rod, and is retained by a metal cap at the outer end, and a winding of thread around the wood at the inner end of the tube.