magnet. This armature moves in a plane at right angles with the axis of the bobbins of the electro, and as near as possible to the extremity of the core.

The electric communications are established and the two proposed controls are made as follows: The cable consists of three conductors. One of these runs from the negative pole of the battery to the thermometer needle and one of the wires of the electro. Another runs from the index to the alarm bell, and from thence to the positive pole of the pile. The third runs from the positive pole of the pile to a galvanometer, then to a button or interrupter, and from thence to the second wire of the electro.

When a contact has been established by the button, the current, on traversing the galvanometer and causing it to deflect, indicates that the two wires and the electro magnet are in proper order. When the current traverses the electro, it polarizes the cores, and causes the armature, and consequently the movable index, to revolve around the barrel; and under the action of the armature, the index thus tends to move from the maximum point toward the needle, and, with it, to establish a contact that rings the alarm bell.

When the current is broken by the button or interrupter, the armature, as the current no longer traverses the electro, returns along with the maximum needle to its position of rest, under the action of the spring mounted upon the axis of the index.

Were the maximum index made to bear against a metallic rack, forming an electric interrupter in a special circuit comprising an electric counter, we might count the number of contacts between the maximum point and the needle, and thereby ascertain the latter's position.

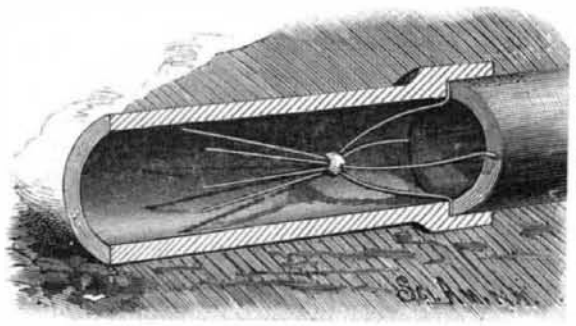
It will be seen from what precedes that the apparatus may be submitted to a permanent control that permits of making sure that it is ready to operate regularly. Such control is of prime importance, since this thermometer is designed to be used in inaccessible places (coal bunkes, silos, and so forth), the dampness of which might interfere with the contacts being kept in a proper condition. Besides, the motions of a ship on the sea might cause a breakage of the cable, notwithstanding that it is covered with steel. These two things cannot occur without attracting attention. —*La Nature.*

Sea Water as a Preservative.

The Vigo Bay Treasure Company, of London, lately received a curious collection of articles taken from the treasure galleons sunk in the harbor of Vigo, Spain, in 1702. There are specimens of logwood and mahogany that, in spite of their 184 years' submersion, are in a perfect state of preservation. Dyers who have experimented with the logwood state that it is even better for dyeing purposes than the wood now imported. The mahogany, too, is very fine and solid. One log has arrived 12 feet long and 22 by 32 inches square, which is now being sawed up to be used in the manufacture of furniture and walking sticks for mementoes. The chief curiosity, however, is an ancient pulley block, 4½ feet high by 3 feet broad, with four solid copper sheaves, 18 inches in diameter. It is of solid oak, and was probably used in hoisting heavy articles of merchandise or the anchors. The wood is perfectly preserved, but an iron band is completely corroded away, while the copper wheels are only slightly oxidized.

DRAIN TILE PROTECTOR.

This simple and efficient device, the invention of Mr. A. L. Shoults, of Bloomingburg, O., is for preventing the entrance of animals into drain tiles and pipes; it can be readily applied to or removed from drains of different diameters. The protector consists of a series of spring arms provided with right angled arms adapted to enter into the joints of a drain, and supporting in the



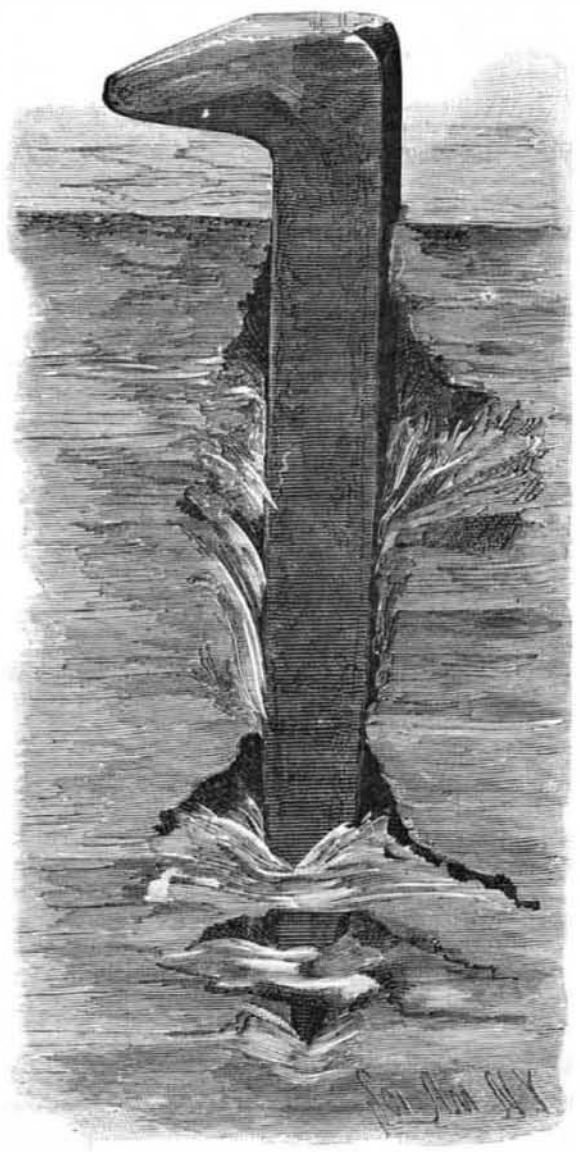
SHOULTS' DRAIN TILE PROTECTOR.

center of the pipe a number of diverging pointed wires, whose points lie in the direction of the open end of the pipe. The use of this protector does not interfere with the free discharge from the drain, while it effectually prevents small animals from entering by presenting a series of sharp points protecting the entire area of the drain. The device is applied by compressing the arms sufficiently to permit the fingers to be introduced into the mouth of the tile, when it is pushed along until the fingers enter the joint. The points of the wires are centrally held in the tile, and cannot be easily displaced.

RAILWAY CROSS TIES.

To the Editor of the Scientific American:

I noticed in your paper of January 16 a letter from Geo. H. Ford relative to railroad cross ties, and I would say that, from extensive observation and special examination, I fully agree with him that there are more ties destroyed by mutilation of the timber by the spikes than there is by natural decay. This is es-



SECTION OF WHITE CEDAR TIE WITH SPIKE DRIVEN IN.

pecially the case with soft wood ties, such as pine, chestnut, white cedar, cypress, and redwood. And the whole difficulty arises from driving a large, dull edged, wedge pointed spike into the tie without first making a hole for it, or else having a special point on the spike, which practically does the same thing.

It is imperatively necessary to good work that the fiber of the timber should be severed before the body of the spike enters it. The whole damage is caused by the point, and is caused in the following manner: The point being dull and nearly always imperfect, as at present manufactured, does not readily cut the fiber of the timber, and it doubles around the point, and is carried down and packed until it is sufficiently dense and hard for the dull edge to cut it; after which the same process is repeated until the spike is driven home.

I send you herewith a section of a white cedar tie with a spike driven in and split open, illustrating this theory, and I think you will agree with me that it is mechanical barbarism to continue such practice. The mode of fastening the rail to the tie and the link and pin coupler are the two twin relics of a past age, but I think from present indications that their days are numbered, and that something better will soon take their place. WILLIAM GOLDIE.

West Bay City, Mich.

"Can Imagination Kill?"

This is, perhaps, hardly the correct form of question that the *British and Colonial Druggist* puts to itself in discussing the death of the young woman at Hackney under circumstances in which Keating's insect powder largely figured. As the powder appears by Dr. Tidy's experiments to be perfectly harmless, the suggestion is not unnaturally made that the deceased, who was possibly of a hysterical, highly imaginative turn of mind, took the powder in the full belief that by its means her death might be accomplished. The writer of the article in our contemporary, we think wrongly, brings forward two remarkable instances of what may be regarded as practical jokes with melancholy terminations. In the case of the convict delivered up to the scientist for the purpose of a psychological experiment (the man was strapped to a table and blindfolded, ostensibly to be bled to death; a siphon containing water was placed near his head, and the fluid was allowed to trickle audibly into a vessel below it, at the same time that a trifling scratch with a needle was inflicted on the culprit's neck; it is said that death occurred at the end of six minutes), fear must have played no inconsiderable share in the fatal result, and we do not know whether all the vital organs were in a sound condition, though they were presumably so. The old story of the case of a college porter is also one in point. The students entrapped him into a room at night, a mock inquiry was held, and the punishment of death by decapitation decreed for his want of consideration to the students. It is small wonder that, under the dominion of fear and belief in the earnestness of his tormentors, the sight of an ax and block, with subsequent blindfolding and necessary genuflexion, a smart rap with a wet towel on the back of his neck should have been followed by the picking up of a corpse.—*Lancet.*

The Sleeping Disease.

There is a singular and invariably fatal malady, called lethargus, peculiar to the negroes of certain districts on the western coast of Africa, which has never, we believe, been noticed in the medical journals of this country except in the *Massachusetts Medical Journal*, from which we copy. But this is not surprising, when we consider that a knowledge of it is practically unimportant to the profession outside of the districts where it occurs. As a curiosity, however, in the form of a disease, it cannot fail, we think, to interest the medical faculty of our country, and we therefore present, in brief, the main facts concerning this singular disorder. As the name implies, the principal, and in fact the only, symptom that presents itself is lethargy; and one case is essentially a stereotype of all.

The patient, usually a male adult, is seized, without any premonitory symptoms, with a sensation of drowsiness, which continues rapidly to increase, in spite of all efforts to throw it off, until he sinks into a profound and seemingly natural sleep. This continues for about twenty-one days, when death takes place. Throughout the course of the disease, the patient preserves a quiet and peaceful countenance, may be easily aroused for a short time, will take nourishment, and generally answer a few questions in a perfectly rational manner. The pulse, respiration, and temperature remain normal throughout, the pupil is neither dilated nor contracted to any noticeable extent, and the urine and fæces are voided with comparative regularity. With the exception of the abnormal tendency to sleep, nothing exists to denote disease.

Many careful post-mortem examinations have been made by competent men, but nothing of an abnormal character has been found, while every remedy that could possibly be of any avail has been used without any apparent beneficial effect. They sleep on, and quietly glide into eternity in spite of professional skill.

CHILD'S CARRIAGE.

To the center of the axle of this carriage is attached a vertically arranged hoop, to which are rigidly secured two side standards, shaped as clearly shown in the engraving. The upper end of each standard is notched to receive the knife-like edge of brackets fixed to either side of the carriage body, which is thus supported by and is free to swing upon the ends of the standards. The range of motion of the body is defined by rubber or spring buffers fixed to the hoop. The front stop or

ENGLAND'S CHILD'S CARRIAGE.

wheel is carried by a bracket attached to the axle. To the rear of the hoop is secured a forked arm, having a handle. The sunshade may be moved to and secured at any desired position on the hoop. In moving the carriage, the forward stop or imitation wheel is slightly raised from the ground by depressing the handle, when the carriage can be moved as desired. When the fixed wheel rests upon the ground, it acts as a brake, preventing the carriage from moving forward by its own gravity when placed upon an incline.

This invention has been patented by Mr. William England, P. O. Box 374, Galveston, Texas.