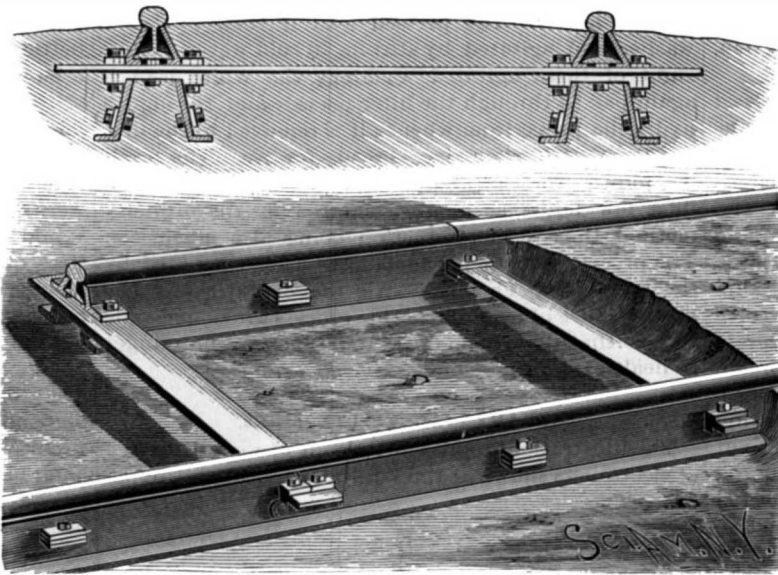


**AN IMPROVED RAILROAD TRACK.**

The accompanying illustration represents a railroad track which is designed to be easily laid and repaired, and is so constructed as to prevent the spreading of the rails. It has been patented by Mr. Stewart J. Morse, of St. James, La. The track is wholly of metal, and has two longitudinal sleepers supporting the rails, the heads of which only project above the sleepers. Each of the sleepers, as shown in the sectional view, is made of two upright plates slightly inclined toward each other to form a narrow slot, and to engage the under side of the head of the rail, the lower edges of the plates having outwardly bent flanges or feet. At suitable distances apart in each sleeper are transverse openings to admit a key plate having downwardly extending bosses on its outer ends abutting against the outside of the sleeper plates. On this key plate rests the tie, projecting beyond the sleepers, lugs being formed on each of the sleeper plates directly above the lugs or bosses of the key plate, and the tie being secured in position by bolts passing through the top and bottom lugs and the tie. To further hold the sleeper plates in position, short plates and key-plates are employed between the ties, and secured by bolts, by which means the ties can be placed farther apart. At the junction of two sleeper sections a tie is used preferably double the width of the others and fitting into slots formed in the adjacent ends of the sleeper plates. Tracks thus made are designed also to prevent the easy tearing up or misplacing of the rail by mischievous persons, as to do this it would first be necessary to remove the earth in which the sleepers and ties are embedded.

and in war vessels the sides would be strengthened on the truss plan all around the ship, the construction being thus designed as a protection against torpedoes and ramming. It is claimed that with this construction the capacity of the ship will not be materially



MORSE'S RAILROAD TRACK.

end of the spring by a strap and buckle, the strap passing through an elongated slot in the spring. The rear end of the spring is attached to the depending arms of the shoe by means of ferrules or clips. This device, as will be seen, can be readily attached to any back bow, and by its use the weight of the top is thrown so far back as to entirely prevent damage to any of the parts when the top is thrown down. The device also improves the looks of the carriage, particularly when the top is down. Although the improvement has been but recently patented, it is said that some large orders have been already received for sets of these supports.

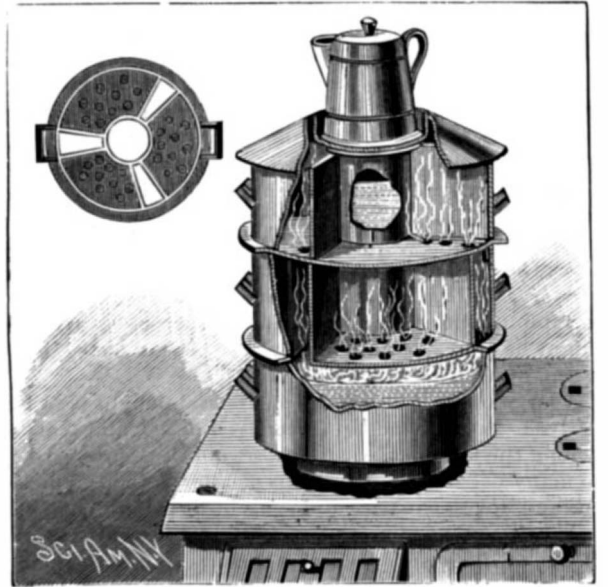
**IMPROVED STEAM FOOD COOKER.**

We give an engraving of a new steam food cooker recently patented by Olive C. Christin, of Bodie, California.

In the engraving portions are broken away to show the interior construction. This invention is designed to cook several different varieties of food at one operation, without imparting the flavor of one to another.

The invention consists of a boiler and two or more cooking sections arranged one above the other on the top of the boiler. The lower section is provided with passages leading through it and arranged to deliver steam to the upper section without communicating with the lower section. Each section is divided into compartments, the steam entering the lower compartment separately through the perforated bottom. Steam is admitted to the compartments of the upper section through the passages referred to and through apertures in the bottom.

The central compartment, which extends downward through the sections and projects a short distance into the boiler at the bottom, forms a soup vessel. The cover of the soup vessel is made flat and adapted to receive a coffee pot or other cooking vessel. By means of the conical cover the steam of the upper section is



CHRISTIN'S STEAM FOOD COOKER.

deflected so as to strike the coffee pot resting on the cover of the soup vessel. The passages leading through the lower cooking section are clearly shown in the detail plan view.

By means of this improved cooking vessel, six or eight different kinds of food may be cooked at once without interfering one with the other, thus greatly economizing space, time and labor.

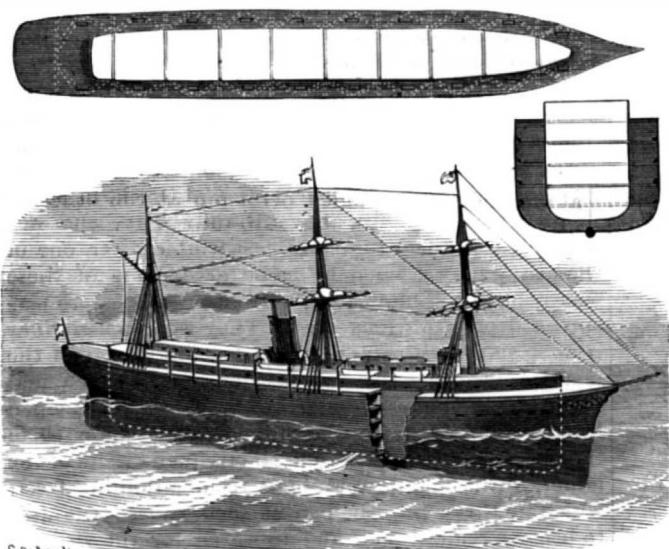
**Mortuary Gold.**

The French scientist, Mr. Victor Mennier, as the result of careful inquiries, asserts that the American dentists insert in American teeth, each year, the enormous amount of 800 kilogrammes (about 1,800 pounds) of the precious metal, which represents nearly \$450,000. This gold is never recovered, of course, but is buried with the person in whose mouth it is placed. Making allowance for the rapid increase of the population of the United States and for the continued deterioration of American teeth, it appears that in less than one hundred years the American cemeteries will contain a larger amount of gold than now exists in France.

CHIMNEYS, to be safe from fire and draw well, should be not less than sixteen inches square inside and built up from the cellar. Use good brick with clay, instead of mortar, up to the comb. Plaster it inside with clay mixed with salt. Top with the best brick well wet and laid in cement. Do not let wood come too close to the brick, and don't let the stovepipe come nearer than eighteen inches to the ceiling.

**A PROPOSED PLAN FOR NON-SINKABLE SHIPS.**

The illustration represents a plan of building vessels with practically two hulls, one within the other, the



SHONE'S DOUBLE HULLED VESSEL.

space between the inner and outer hull being sufficient to receive a portion of the cargo, but so proportioned to the whole capacity of the vessel that the total filling of the outer hull with water, as it might be in case of collision, would not cause the vessel to sink. It is a patented invention of Mr. George Shone, of East St. Louis, Ill., and our engraving shows plan, sectional, and perspective views. In a 10,000 ton boat the difference in beam from present standards is designed to be about twenty feet, ten feet on each side separating the inner from the outer hull, while in length the difference would be from thirty-five to forty feet, the greater portion of this intervening space being at the bow. The bottom of the central hull is also raised above that of the outer one, and its top is carried above it. Bulkheads are used partly to strengthen the ship and partly to divide it into compartments, these bulkheads also extending across the space between the hulls, but here they are preferably not made water-tight, but have small openings by which the side compartments will be connected with each other, so that any water admitted into one of these compartments may flow gradually, not rapidly, into all the others. This provision is made so that the ship, if the hull is stove in, will not be dangerously depressed at the point where damaged, but may be kept trim. By means of suitable water-tight decks the space between the hulls can be divided horizontally, freight being introduced thereto by means of suitable water-tight hatchways. The decks are braced with diagonal beams, by means of which the structure is considerably strengthened,

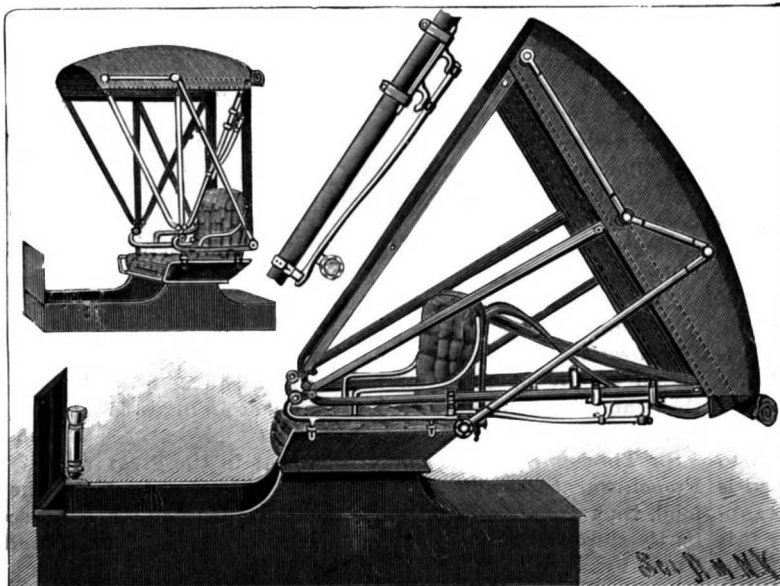
diminished, while, should the vessel become water-logged throughout its whole outer chamber, it would still be kept afloat.

**Labyrinthine Deafness.**

Mr. G. P. Field, M.R.C.S., Aural Surgeon to St. Mary's Hospital, communicates to the *British Medical Journal* a paper on the treatment of this form of deafness with hypodermic injections of pilocarpine. The results (told in most cases in the patient's own words) are of a remarkable character. Persons who had been deaf for long periods, 20 years and even more, and had to rely upon ear trumpets for anything they did hear, gradually, under the influence of the pilocarpine, recovered their hearing, and that in so marked a manner as to cause comment by those who were unaware of their being treated. Mr. Field hesitates to explain how the pilocarpine acts, but there seems to be little doubt of the correctness of his suggestion that it stimulates secretion by the membrane, and maintains this so well as to help the absorption of any solid waxy matter which may be lodging in the ear cavity.

**AN IMPROVED VEHICLE TOP SUPPORT.**

In ordinarily constructed vehicles, when the buggy top is down, its weight is all far back from the bearing or prop, causing great strain on the back bow and also on the whole top and seat, which frequently bends and breaks the bow. The accompanying illustration represents the application of a top support, which has been patented by Mr. Samuel Sanders, of Montezuma, Iowa, designed to obviate this difficulty, and afford a good, easy rest for the top when down, and, even if the joints are thrown so that the top drops down hard, it will not be damaged in the least. Our view represents the improvement applied upon a carriage when the top is up, and when it is partly laid back, while the small figure is an enlarged view of the attachment in place upon the back bow. A shoe, preferably of malleable iron, is secured to the back bow by means of clips and a screw, and this shoe has depending arms, the lower ends of which are bent forwardly. A slightly curved yielding rod or spring, adapted to be supported by the rest or prop, is attached thereto at the forward



SANDERS' VEHICLE TOP SUPPORT.

**Making an Attractive Home.**

A farmer, whose years have scarcely reached middle life, and who owns a farm of moderate value, asks for a statement of the attractions of a useful character which he may connect with his home, which will make it a real home for his growing children, and without incurring heavy expense. He proposes to effect his object by planning, planting, and pleasing cultivation, and in-door allurements.

A proper answer to this request would fill at least one volume. But we may briefly allude to a few points. Of the out-door attractions, and among the best, are the elements which constitute a neat, well managed farm—neat fences, good crops, absence of weeds, and general success. Young persons have quick eyes, and they draw ready conclusions, and they at once appreciate the difference between pleasing success and slipshod failure. Those who see disorder around them through the year, and from year to year, will rarely find pleasure in the business that pervades the premises. On the other hand, neatness and skill, in connection with the growth of handsome crops, fruit-bearing orchards, and a few luxuriant shade trees, will present strong attractions. A well-selected, well-planted, and properly cultivated fruit garden should be connected with every country residence. Hardy and productive varieties, which can be relied on to give fine fruit throughout the entire year—the small berries in early summer, followed by late summer and early autumn stone fruit, and the abundant throng of the many larger ones in autumn, lasting through winter and into spring—constitute all together some of the strong charms of living in the country.

Among ornamental attractions are the well kept lawn and shrubs which more immediately surround the dwelling. While adding much to the beauty of the place, they need cost but little. The selection of shrubs may take in those only which are vigorous and hardy, and which will require but little care after planting, except an occasional training into proper shape. The hand mower will give the lawn the beauty of a green carpet. The cultivation of flowers in a few circular beds cut in the turf will depend on the taste and preference of the occupants. Some young people will have a strong predilection for botany—for a collection of native plants—and whenever this is the case, every facility should be afforded. Many native plants possess surpassing beauty, and have strong attractions to the mere florist. Others will be drawn to the culture of early bulbs, some of which will bloom annually year after year with little or no care, such as the crocus, snowdrop, Siberian squill, and early tulips.

All these plantings may be used at small expense to render country homes attractive, and by properly grouping all together, the residence which otherwise might be a very plain home, might be converted into a gem of neatness.

A large opportunity for pleasure and delight is to be derived from domestic animals—horses and cattle among the larger ones, and those not less interesting to many persons in the various smaller animals, chickens and doves, canaries and song birds generally.

Another point of great importance is the cultivation of the sciences and everything connected with them. Where young people are growing up, they should be provided with a room specially for this purpose, which might be termed a museum or library, for books, study, and reading; for drawing and sketching by those who desire; for minerals and plants, and specimens in entomology for young naturalists; for apparatus in chemistry and physics—all of which would be infinitely better than frequenting vapid parties. There is no difficulty in accomplishing all these, if the owner himself has a taste for them, and the expense will be comparatively trifling.—*Country Gentleman.*

**A New White Lead Process.**

The evils attending the manufacture of white lead by the Dutch or stack process are too well known to require insisting on. They may be summed up as expensiveness, tediousness, and serious danger to health. Attempts have been made from time to time to introduce other methods of manufacture, which have been recorded by us. These, for the most part, have proved failures. Another process for attaining the desired end inexpensively, quickly, and safely has just been brought under our notice. This process is the invention of Professor McIvor, F.I.C., and has been in operation for the past nine months at the experimental works, 47 Clapham Road, London. In this process of manufacture, which was recently inspected, the litharge is first made from lead ore and then thoroughly purified by washing. It is then put in a vat which is fitted with stirring apparatus, and a solution of acetate of ammonia is run into the vat upon the litharge. The mixture is then agitated for six hours, so that the lead is absorbed into the solution, and it is allowed to settle. The supernatant liquor containing the lead is then pumped over into a second vat, in which it is submitted to the action of carbonic acid gas. By this means the lead is precipitated and the acetate of ammonia recovered for use over again. If the litharge is very pure, the carbonic acid gas is introduced into the

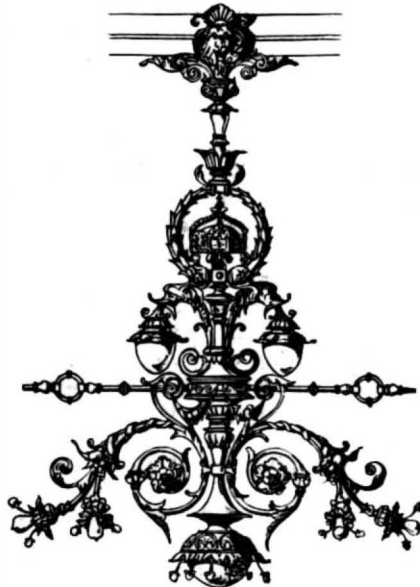
first vat, with the result that the white lead is produced direct and the acetate of ammonia separated at the same time for re-use as before. In either case, after the white lead has been precipitated, the mother liquor is drawn off and the unwashed white lead is passed through filter presses to extract from it all the mother liquor. The pressed lead is then put in a washer and agitated by stirrers in cold water. After eight of these agitated washings, the white lead is again passed through the filter presses and through a hydraulic press, from whence it is removed to the drying room, and, when dry, is ready for use. The result is a pure white lead, free from crystals and produced in a few hours, as against months by the ordinary method, the cost of production being also much less. The process and the products have been examined by several leading chemists. All the operations in the manufacture of lead under this process are done in the wet, so that there is no dust, and therefore no danger to health from that source.—*Chem. Tr. Jour.*

**ORNAMENTAL ELECTROLIERS.**

The illustrations represent two out of a great variety of electroliers shown at the Edinburgh, Scotland, expo-



sition. They are represented as showing the qualities and characteristics of Continental rather than English designs, and are in the Renaissance style. Both are handsomely done in gold lacquer, and the smaller one



has, in addition, a ruby center, which shows up well against the gold.

**The English Navy.**

Sir Thomas Symonds urges on the prime minister the weakness of our fleet, and its entire incapability of performing the duties which would fall on it in time of war, namely, the blockading of ports, the protection of our commerce, and the supply of coal to fleets and coaling stations, duties out of all proportion to those arising in war in former times, when our commerce was about one-twentieth part of its present dimensions, and when sailing vessels only were employed. In those days interruption of commerce meant commercial ruin. Now it means absolute starvation, if complete even for a few successive weeks.

Our desire is to indorse the general position taken by Sir Thomas Symonds, and, as far as we can, to support him in the most necessary and important work he has done and is still doing in pressing for increased strength in our navy, and increased protection to "England," for it is England herself rather than "English commerce" which is concerned. Half a dozen ships on one side or the other would not affect the question. England depends for her existence, her actual supply of food, on her trading ships. Stop them, and she must be starved, as surely as an invested fortress.

Sir Thomas Symonds points out that in the great French war it was only our commerce, not our actual food, that was at stake; and yet Britain then had 206 battle ships to 180 possessed by the rest of Europe, of which France had 60. Now we have 501, while France has 357; Russia 227—together, 584; while France and Italy have together 570; France and Germany, 556.

As to armorelads, England has 77; France, 48; Russia, 45 of some kind; and Germany, 40.

These actual numbers show England by no means equal to a combination of France and one other. But, even supposing it is urged that useless small vessels have been included in the lists of the foreign powers, and that in tonnage England stands far better than is here represented; suppose it were even conceded that she is equal or superior to any two others, is there any guarantee in this fact that we might not be starved? To attack commerce distributed over the world is far easier than to defend it. Are we to risk so great a danger without any guarantee? If we were starved into an ignominious, ruinous peace, it would be very little consolation to have it proved to us that our fleet, reckoned up in the proper and most scientific way, was more than as strong as any two powers, which was all that we had aimed at. Why do we aim at any such arbitrary standard, which has no particular meaning in it, unless we suppose the whole fleets of both belligerent sides to be drawn up complete and then and there to fight it out?—a proceeding which would no doubt simplify the question for England, but would be the last thing to be desired by her enemies. It may be asked, then, what standard can be taken? To this we should reply, that this must entirely depend on the task to be performed. Lord Charles Beresford gave us clearly to understand that not very long since—in fact, during the time of the present government—there was no settled plan as to what should be done if war broke out. This state of things is intolerable—it is madness.—*The Engineer, London.*

**How Deer Act in a Snow Storm.**

From a gentleman recently down from the mountains, the *Marysville Appeal* learns of the strange experiences of various sorts of wild animals during the winter. "Deer, when caught in a blinding snow storm, huddle together and tramp round and round in a circle, beating down the soft snow, so that when a very heavy fall occurs during say twelve hours, they find themselves in a snow pen, with walls above them; and if they commence to tramp on top of several feet of snow during a storm, they often find themselves in a corral of snow, with a wall surrounding them to a height of ten or twelve feet when the storm clears off, being virtually imprisoned in a snowy prison pen, from which escape is impossible until the spring thaw of the season.

"There lives an old miner on Cañon Creek, in Sierra County, several miles above Brandy City, who was taking a stroll near his cabin last winter after one of the heavy snows, when he came across one of these deer pens in the snow, and there imprisoned were seventeen deer of various sizes. They were in a circular pen of snow, with walls fifteen feet high. Upon the man's appearance the deer became quite excited, and huddled together and dodged from one side of the pen to the other. However, as hunger came upon them they became more docile, and the frequent visits of the miner, with boughs and buds from adjoining trees, which he threw into the pen as food, caused the deer to become regular pets, and to watch for the visits of their protector. After a while the man placed a ladder in the pit, and spent a great deal of time in handling his pets. Occasionally he would take one out for food, as meat became scarce, and in this way used several of the deer, but he had most of the deer yet in a state of domestication. It is said he has a deer ranch in his mountain home, much after the fashion of a cattle ranch on a small scale."

The *Appeal* is also informed that a similar band of deer was found in one of those deadly snow pits near Washington, Nevada County, and was likewise rescued. The streets of Downieville were enlivened last winter by the appearance of deer which were driven from the mountains down to the river towns by starvation, and domesticated by kindness and food. As the snow has been disappearing, many carcasses of deer have been found where they have perished in the deadly snow corral. The heavy and sudden snows of the past winter have caused fearful mortality among the deer which did not escape the lower altitude.—*Marysville (Cal.) Appeal.*

**The Phonograph as a Disseminator of Disease.**

It is reported that the Philadelphia park commissioners heretofore in use in Fairmount Park, on account of the danger of their serving to disseminate disease. This danger is doubtless very slight, like that of injury to the ear, and probably neither danger is worth consideration if the instrument is kept reasonably clean and used properly; but its promiscuous use in a public park does not seem to admit of perfect security in this respect, and the announcement that the phonograph company intends to substitute a plate ear piece for the penetrating one now in use, avowedly for the reason that there are persons who object to the present form, goes to show that the Philadelphia commissioners are not the only people who entertain the idea of danger in the phonograph.—*N. Y. Med. Jour.*