Glycerine in Gastric Troubles.

Dr. Sydney Ringer calls the attention of the profession, in the *Lancet*, to the value of glycerine as a remedy in flatulence, acidity of the stomach, and pyrosis. He states that sometimes he finds all of these gastric troubles combined, but glycerine in nearly all cases relieves them. In some cases, too, it removes pain and vomiting, probably like charcoal, by preventing the formation of acrid acids, which irritate delicate and irritable stomachs. Glycerine does not prevent the digestive action of pepsin and hydrochloric acid; and hence, while it prevents the formation of wind and acidity, probably by checking fermentation, it in no way hinders digestion. He administers a drachm to two drachms either before, with, or immediately after food. It may be given in water, coffee, tea, or lemon and soda water. In tea and coffee it may replace sugar, a substance which greatly favors flatulence, as, indeed, does tea in many cases. In some cases a cure does not occur till the lapse of ten days or a fortnight.

IMPROVED CROSS TIE.

The engraving represents a light and durable cross tie made wholly of rolled iron or steel, and adapted to receive ordinary railroad rails, which are secured by a fixed and a movable clamp at each end. The body is made of steel or iron rolled in U shaped cross section, and having flaring sides of suitable depth to give it the required strength and rigidity. This form gives a broad top which affords a firm bearing for the rails. The body is attached to a base plate, B, by means of angled plates which are bolted or riveted. Angle plates are attached to the ends of the tie, forming a flange which extends downward and forms an additional safeguard against the end motion of the tie. This flange is usually applied only to ties used on curves to keep them from shifting or turning.

The rails are held in place by two clamps at each end of the tie. The inner clamps are formed with raised ends for receiving the flange of the rail, and are permanently attached to the tie by rivets. The outer clamps are similar to the inner ones, but they are attached to the tie by bolts and nuts, so that they may be removed to permit of changing the rails. The bolts may be readily inserted or removed, as they are accessible through the open end of the tie.

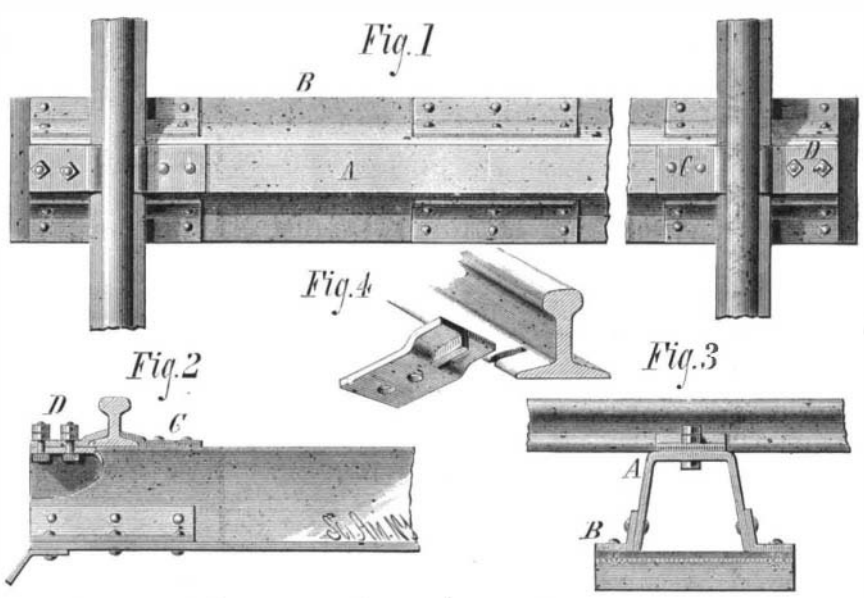
The ties will rest on the road bed, and the ballast can be tamped under it in the usual way.

To prevent the rails from creeping, the movable clamps may have lugs formed on them which may enter slots made in the rails as shown in Fig. 4. Only one tie in ten need be provided with this device.

Fig. 1 in the engraving is a plan view of the tie, Fig. 2 a partial side elevation, and Fig. 3 an end view.

The advantages of this tie over the wooden one and over other forms of iron ties will be readily seen by engineers and others familiar with the requirements. This construction secures strength, durability, cheapness, and facility of handling and application.

Further information may be obtained by addressing Mr. Louis Scofield, Chattanooga, Tenn.



SCOFIELD'S CROSS TIE.

AMERICAN MILLING AS SEEN BY AN ENGLISHMAN.

Mr. Samuel Smith, of Sheffield, President of the British and Irish deputation of millers to the late Cincinnati Exhibition, was called upon, at a reception given by the Utopian Club, to give some account of what he had seen in this country, and how the American milling industry stood as compared with the English. He expressed himself as follows:

"Among our competitors in the United States at Minneapolis, St. Louis, Milwaukee, Red Wing, and other places where the new process, or some modification of it, has been adopted, his voice would be like that of 'one crying in the wilderness.' (Laughter.) The millers in these places have thrown all that pertains to the old school to the 'moles and to the bats;' and although Mr. Z. might find some of them here and there using stiff irons, he would find few to adopt any other parts of the doctrine he expounded with so much ability at last meeting. As a rule, the organization of the American mills of the best class is perfect, and thoroughly automatic from top to bottom, every machine used in the process of flour-making being located in the right position relative to the work it has to perform. The bolting capacity of the dressing machines is much greater than that of ours, and where we use one middlings purifier, they use three at the very least. In new process milling they make all the middlings they can, which not only necessitates the employment of a larger number of purifiers, but a greater number of rollers, for softening middlings after purification, and while the entire system of machinery is worked at its highest capacity, no part of it is subjected to such a strain as to incur the risk of its doing the work badly.

"The conclusion I have come to, from all I saw in the best mills I had an opportunity of seeing, is that in order to compete with the American millers successfully there is no necessity for copying their system in anything like a slavish manner, but it is absolutely indispensable that we should adopt the thoroughness with which they do their work. They use at least four times as much silk as we are in the habit of doing in the dressing of their flour. They make more middlings than we do, and consequently use more purifiers and rollers, although in some cases stones are used for the treatment of middlings with highly satisfactory results, and if we are to hold our own we must reorganize our mills, increase our silk-dressing power, pay greatly more attention to our stones, than we have been in the habit of doing, both as regards dressing and balancing, the necessity of the latter being more than ever indispensable if the highest quality of work is required, and that, I need not say, under the conditions we are now placed, is a *sine qua non*. I certainly should not take the responsibility of recommending the adoption pure and simple of any of the specific systems which are in use in the United States in this country, partly because we cannot command to the same extent as is done in America a constant supply of the wheats that are used there. So far as our foreign supply is concerned, we must take what we can get. I noticed in an American milling paper that there was a chance of the millers of this country being able to make Minneapolis flour in consequence of the missionary efforts among us of milling experts from the other side of the Atlantic. I don't think it likely that we shall be able to accomplish that feat until we have the full supply of Minnesota spring wheat of the same quality as the Minneapolis millers have at their command. I am quite convinced, however, that by throwing our entire energies into the work, rearranging our mills upon principles which will secure for the different processes in the manufacture of flour the fullest manipulative efficiency, and adopting to the fullest extent the labor-saving contrivances which I saw everywhere in the States, and which so greatly reduces the cost of production, we could raise the quality of our own grades of flour to such a standard as would enable us to regard the competitive efforts of our American friends without any of that alarm which has been recently manifest in some parts of the country. I don't think I have anything more to say at present, but I may remark, in conclusion, that I will not readily forget the warmth of our reception in America, nor the hospitality that was so heartily extended to us."

A conversation here ensued on the remarks that had been made by the president, and the general impression seemed to be, that while there was no doubt that the reorganization of English mills to a greater or lesser extent upon principles approaching in some degree to those that had been adopted in the best mills in the United States—keeping in mind the special circumstances that controlled the action of the millers of this country, in order to deal effectively with American competition was indispensable—means must also be adopted to secure by means of special agencies under the complete control of the home trade of a fair proportion of the highest class of the wheats used with such beneficial results to their own interests by our American competitors.

Protection of Oil Tanks from Lightning.

To the Editor of the Scientific American:

Having never seen an oil tank, I can only gather by inference its mode of construction and surroundings. From the word supply, and from your statement that it is above the oil, I conclude that the pipe comes from a well at some distance, but I cannot learn that it is above ground or under it. If the pipe is underground and comes out of it a short distance from the tank, then, of course, the difference of potention between the pipe and the body of the tank will be nil, and consequently no current or spark will pass. The electro-motive force necessary to produce a spark in air, as you know, is enormous. From these considerations I think your remedy inapplicable. I should rather run a rod from the pipe up into the air, connecting it at the same time with both the top or cover and the body of the tank. This, I believe, would be more in accord with established electrical laws.

Of course, if the pipe is above ground for any distance from the tank in the direction of the well, your remedy will apply.

But another cause of the spark different from either of yours may be suggested. Oil is a well known non-conductor or dielectric, and may have a high specific inductive capacity and absorb a large quantity of electricity gradually from the earth. Being a dielectric, then, and allowing that the top or cover of the tank is insulated from the body by its style of construction, by a layer or coat of paint, thick oil, or any other way, we will have the body and the top or cover of the tank forming the plates of a condenser, with the oil or in the air or both acting as a dielectric. Under these conditions everything is very favorable for the passage of a spark between the top and body of the tank, or between either of them and the pipe, or in the reverse direction in a thunderstorm prevailing over the tank or at the distant well.

This may not be the cause, but examination in this direction should not, I think, be overlooked.

DAVID FLANERY.

Richmond, Va., July 26, 1880.

A Fast Locomotive for England.

The fast passenger locomotive lately built by the Baldwin Locomotive Works, and tested on the Bound Brook line between Philadelphia and New York, has been bought by Mr. F. W. Eames for brake trials and tests in England. It will be immediately fitted up with the Eames Duplex Automatic Vacuum Brake and shipped to London. Mr. Eames proposes, while showing the action of the Eames brake on railway trains at the highest speed possible to attain, at the same time to settle the vexed question of the relative superiority of American and English locomotives.

MECHANICAL INVENTIONS.

A device to be attached to lawn mowers for catching and holding the grass as it is cut by the mower, has been patented by Mr. Cyrus G. Baldwin, of Ripon, Wis.

Mr. Chester F. Allen, of Paw Paw, Mich., has patented an improved transfer truck for cars for transferring broad gauge cars over narrow gauge tracks without changing the truck of the broad gauge car. The invention consists in a narrow gauge truck constructed to carry a broad gauge truck, and provided with hooks for retaining the two trucks in position.

Mr. Charles F. Powers, of Sutherland Falls, Vt., has patented an improved tile facing and squaring machine, which will level and smooth by rubbing the faces and edges of several tiles at a time. It consists of revolving frames for holding and adjusting the tiles upon a rubbing bed or grinding plate or disk, and of novel devices for removing and replacing a tile without interfering with the work on the others.

Mr. Orville A. Wilson, of Bennington, N. H., has patented a cheap, strong, and durable fastening for uniting the handles and blades of knives and handles and tines of forks. The invention consists in combining a slotted handle having beveled annular shoulder, a bolster, a blade with slotted tank, and a screw bolt.

An improvement in calipers and dividers has been patented by Mr. William H. Warren, of New York city. This invention relates to measuring instruments, such as calipers, compasses, dividers; and it consists of revolving studs or pivots fixed at any convenient points on the instrument, and in combination with a slotted bar, whereby the legs of the instrument may be adjusted by means of screw and spring without loosening the clamping screws and nuts.

An improved baling press has been patented by Mr. Rufus P. Davis, of Monroe, N. C. The baling press is so constructed that the followers may be run down quickly while meeting little resistance, but slower and with great power as the bales become more compact, without forcing the bales out of shape.

Enlargement of New York Water Supply.

The works soon to be undertaken for the enlargement of the system of water supply for New York city includes the construction of a 15 foot dam at the outlet of Little Rye Pond, connecting both Big and Little Rye ponds, and forming a lake of 280 acres in extent, capable of storing 1,050,000,000 gallons. It is also proposed to build a dam on the Bronx, near Kensico, 45 feet high, making a reservoir of 250 acres, having a capacity of 1,620,000,000 gallons. A dam will be built across the Byram River 15 feet high, creating a lake with a capacity of 180,000,000 gallons. The Byram and Bronx rivers it is proposed to unite at this point.

From the Kensico dam the water will be conducted through a 4 foot iron pipe along the valley of the Bronx to a reservoir near William's Bridge in the upper part of the Twenty-fourth Ward, the elevation of which is 180 feet above tide-water and 65 feet above the Croton Aqueduct, and the capacity 100,000,000 gallons. The length of this conduit is 15 miles.

The Kensico reservoir will give the city of New York from 18,000,000 to 20,000,000 gallons more water daily. The contracts will be let August 4. It is estimated that the work will be finished in about two years, and cost about $2,700,000. By tapping the Bronx at Kensico there will be obtained not only pure water, but a remarkably good head. The country drained—over 13 square miles—is similar in geological character to the Croton Valley.