Reduce the Postage.

The New York *Journal of Commerce* and a great many other influential newspapers, we are glad to see, are advocating the proposed measure for reducing letter postage to one cent. They justly take the ground that, with the large surplus in our treasury, the post office business of the country need not be made self-supporting. There are other branches of the government in which the people at large are not directly benefited, which do not earn anything for their support. They live on the money collected through the treasury and interior departments, of which the inventors of the country pay an unjust proportion. A great deal might be said in favor of free postage, as an educational factor, but what the public will be satisfied with for the present is a reduction of letter postage to one cent, which measure Congress should not stop to discuss, but put in train for early passage.

Trade Marks Prosecutions.

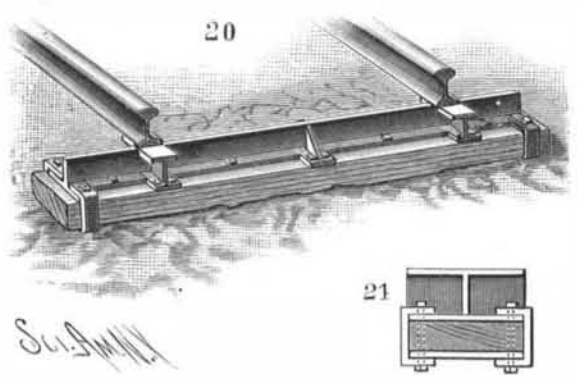
A very interesting trade mark case has just been considered judicially at Sheffield, England. A local firm of cutlery manufacturers were summoned by another firm for using "A 1," which they contended was their trademark. For the defense it was urged that "A 1" was merely a description of quality, and ought not to be registered as a trade mark any more than "First rate," "High class," or "Superior." The fact remained, however, that "A 1" had been registered. The firm who were summoned pleaded that when they struck "A 1," they never for a moment imagined it was a trade mark, until one day they read of it in a trade organ. They then immediately ceased striking it, ground the mark out of their blades, and destroyed the tool. A single specimen found on their premises must, they say, have been overlooked, for the police in their search failed to find any others, or to elicit any information which would indicate that they intended to strike the forbidden "A 1." The Sheffield stipendiary, exercising his common sense, accepted the explanation and dismissed the summons. It certainly would be intolerable, remarks our informant, if the merchandise marks act, which was passed to prevent fraud, were to be used as an engine of oppression against honorable firms who were in ignorance of the existence of the trade mark they were charged with using.

Prizes Offered for Hospital Furnishing.

The present ex-Empress of Germany last year placed at the disposition of the Red Cross Society the sum of $1,500, and three gold and nine silver medals, to be awarded for the most meritorious efforts in bringing forward something beneficial in the care of the sick and wounded. The society has determined to award these gifts in the form of prizes for the best interior furnishing for a movable hospital, indicating the articles most appropriate, and the best way of obtaining and putting them into use for the fitting up of a portable hospital barrack designed for a given number of sick and wounded patients. The articles designed for competitive prizes must be sent before August 15 to the executive committee of the General International Exhibition, Brussels, Belgium. Requests for further information may be addressed to J. B. Hubbell, Washington, D. C., or Judge Joseph Sheldon, New Haven, Conn.

The Secretion from Roots.

Recent investigations on this subject undertaken by Dr. Hans Molisch have shown that the acid secretion from the roots of plants attacks organic even more powerfully than inorganic substances, not merely dissolving them, but causing in them important chemical changes. It exercises both a reducing and an oxidizing

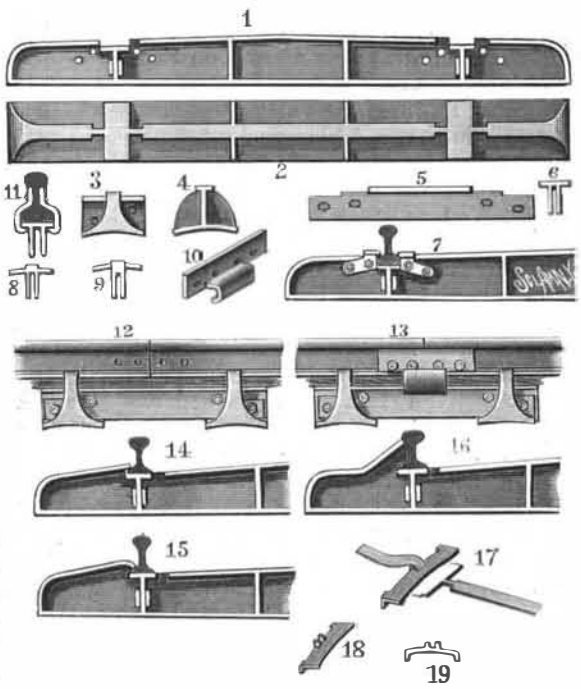


HAWLEY'S RAILROAD TIE, PART WOOD.

power. It stains guaiacum blue. It oxidizes tannin and humin substances, and hence greatly promotes the decomposition of humus in the soil. It transforms cane sugar into reducing sugar, and has a slight diastatic action. Plates of ivory are corroded by it. The root behaves in many respects like a fungus, especially in the fact that the fungus alters the organic constituents of the soil by definite excretions, and causes their more rapid decomposition. This root secretion does not merely impregnate the epidermis, as has been generally supposed, but is often excreted over its surface in the form of drops.

HAWLEY'S IMPROVED RAILWAY TIE.

A railway tie which can be quickly and securely placed in position, and with which the rail will be continuously supported throughout the length of the track, has been patented by Mr. Charles P. Hawley, of No. 510 West 153d Street, New York City, and is illustrated herewith. Figs. 1 and 2 show a side elevation and plan view of the tie, which has an inverted T-shaped body with horizontally flanged top, as shown in section in Fig. 4, the flange being recessed to receive the rails, and following the rounded ends of the vertical web of the tie to form a stay for its ends, as shown in Fig. 3. The ties are connected by a bridge, as shown in Figs. 12 and 13, consisting of two parallel and spaced plates having stepped ends, Figs. 5 and 6



HAWLEY'S METALLIC RAILROAD TIE.

showing side and end views of the bridge. In the recess of the tie in which the rail is supported is a transverse plate, on which rest wood beams, upon which the rails are laid and held by a spring clamp, as shown in Fig. 7, Figs. 8 and 9 being end views of the rail clamps, and Figs. 10 and 11 showing the fish plate and its method of attachment. Figs. 14, 15, and 16 are side elevations of the tie, illustrating modified forms of securing the rail, Figs. 17, 18, and 19 showing the spring plate employed in connection therewith.

As a modification or improvement of this tie, a construction is provided partly of metal and partly wood, so designed that when the wood becomes decayed the tie can be easily taken up and new wood substituted. By this invention a metallic tie is adapted to rest upon a wooden block or plank, and be bolted thereto, as shown in Fig. 20, Fig. 21 showing a form of clamping plates preferably used in connection with the ends of the tie.

In order that the tie may be easily withdrawn from under the track and replaced without disturbing the movement of the rolling stock, a supporting plate or bar, shown in Figs. 22 and 23, is adapted for use with the tie, Fig. 24 showing one of these rail-supporting plates in position, and Fig. 25 illustrating a track supported upon the improved tie, with one tie in position for withdrawal. These ties offer a perfect form for strength and lightness, and to be held securely by the ballast.

The Study of Science.

Nothing could well be more forcible than Sir James Paget's exposition of the advantages of the study of science, and his vindication of even "a little knowledge," so that it be real and true as far as it goes, and has been made the property of the mind by a process of self-verification. Sir James Paget claimed for the study of science that it included the teaching of the power of observation, the teaching of accuracy, and, lastly, the teaching of the methods by which we can pass from that which was proved to the thinking of that which is probable. The rarity of the faculty of sound and deep observation, and the difficulty of accuracy, were well stated. It is indeed one of the defects of our common systems of education that so little attention is given to the cultivation of a faculty of estimating evidence, such as is the chief and great advantage of the study and practice of law.

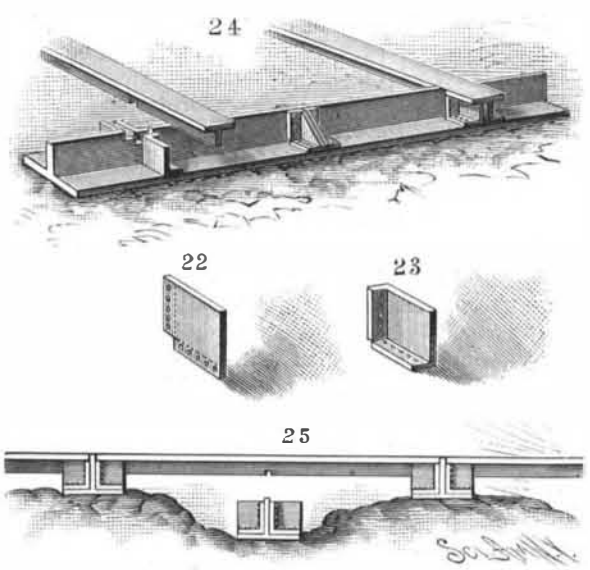
Another quality in which scientific men are apt to be deficient, according to Sir James, is that of enterprise. The love of truth is a fine thing for the sake of truth itself, but the enterprise that seizes truth for the sake of its uses, that takes hold of it at its practical point and applies it to great human and public purposes, is a great faculty, and was fitly praised at the Mansion House—that center of the enterprise of the world. Sir James evidently thinks that if the contagion of science could take effect on a few more of our City men as it has on Sir John Lubbock, great results would follow.

Scientific men want the enterprise of business men, and, according to Sir James, business men would lose nothing of their efficiency for an admixture of the scientific element. A little more push or enterprise on the part of Sir Humphry Davy and Mr. Faraday might have anticipated by a generation the discovery of anæsthetics, or on the part of Dr. Cummings, a professor of Cambridge, the discovery of the telegraph. It seems a trite occupation to go on observing and observing. But, trite as it is, it must be persevered in, and men of authority must speak it out plainly, though few can hope to catch that *felicitas verborum* which is such a gift in Sir James Paget, and of which the following sentence is an illustration: "We all of us know a considerable number of persons who would not for their lives tell a lie, but who, nevertheless, always seemed as if for their lives they could not tell the exact truth."

Loose observation of what is before us, and loose statement of what we think we observe, are the clogs of science. Better be like John Hunter, slow in articulation and embarrassed in public speech, than be superficial in observation and fluent in tongue. Our profession, perhaps, misuses the gift of speech and rhetoric less than all others. In some departments words seem to have taken the place of deeds. But in our calling, too, there is room for more care in observing and narrating facts. Let nobody begin this great discipline lightly. It cost John Hunter much. He slept less and worked more than any other man of his time. And this is the price of getting at facts. At least, this is what he had to pay who, according to Sir James, was "the master of all the science in his own profession—the greatest observer, the greatest thinker, on the whole, we have ever had." The extension of university teaching will be a blessing if it can spread the desire to imitate such men as Hunter and Darwin. It will, indeed, add to the happiness and usefulness of life.—*Lancet.*

Remarkable Discharge of Atmospheric Electricity.

A correspondent of the *Electrician* writes as follows: "A most violent discharge of electricity was observed on board the Danish steamer Constantin, coming from Newcastle and bound for Copenhagen, on Friday morning, February 10, when about 160 miles distant from the English coast. Although the thermometer was at freezing point, thunder and lightning began some way off, between 4 and 5 o'clock A. M. At about 6 a tremendous report was heard, sounding like thunder, and the captain describes the appearance of the vessel as if it were shrouded in a mass of bright red flames, which lit up the surrounding waves. The phenomena was all the more surprising as the thunder and lightning appeared to be at some considerable distance from the steamer, and it could not be compared to an ordinary thunder clap and lightning flash, being far too violent and no regular flash of lightning being seen. The shock was so great that several men in various parts of the ship were knocked down, and the first engineer was under the impression that a boiler explosion had taken place. The whole thing only lasted a moment, but it was attended by a violent wind, and St. Elmo's lights were seen on the tops of the masts and elsewhere. On arriving at Copenhagen, the captain



HAWLEY'S RAILROAD TIE—SUPPORTING RAIL FOR WITHDRAWAL OF TIE.

found his suspicions confirmed of alterations having taken place in the deviation of the ship's compasses. The alterations were greatest on S.S.E. and N.N.W. courses, where the deviation, from having been 7 degrees westerly, had become 5 degrees easterly. The vessel was, when the electrical discharge took place, steering E. to N."

THE export of breadstuffs from the United States in 1887 amounted in value, says the *Mechanical News*, to $158,301,708, against $148,123,020 in 1886.