The Testing of Boiler Iron.

A number of Eastern boiler plate manufacturers, with the manufacturers of this and other States, lately met at the Continental Hotel, Philadelphia, to reconcile the differences of opinion existing between them and the officers of the Steamboat Inspection Service, and to decide upon some satisfactory method of testing the qualities of boiler iron. The result of the meeting was the adoption of the following:

Resolved, That, in the judgment of this meeting, plates which show a contraction of area of less than 12 per cent shall not be used in a steamboat boiler. We therefore recommend that all boiler plate stamped with a tensile strain of under 45,000 lbs. should show a contraction of area of 12 per cent; 45,000 lbs. and under 50,000, should show 15 per cent; 50,000 lbs. and under 55,000, 25 per cent; 55,000 lbs. tensile strength and over should show 35 per cent.

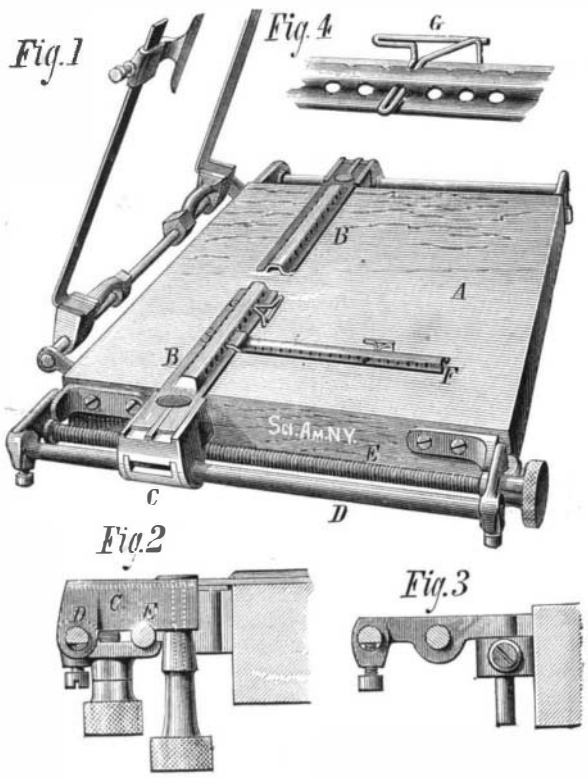
Whereas, The question was raised before the meeting of the Board of Supervising Inspectors at a meeting last January, in regard to the form of test piece that they had adopted; and

Whereas, The Board, in order to meet the views of the manufacturers, adopted two modes of preparing the test piece, with a view to ascertain which was right; therefore

Resolved, That the thanks of this meeting be extended to the Board for that act of courtesy which has resulted in the fact that there is no practical difference in showing the two modes, and that we respectfully suggest to the Secretary of the Treasury that test pieces cut from the plate to be used in steamboat boilers should all be tested at some central location by a person appointed by the Secretary of the Treasury, to be under the direction of the Supervising Inspector General of Steamboats.

A NEW PLATEN GAUGE.

The accompanying engraving shows, in perspective and in detail, a novel gauge applied to the platen of a printing press for holding and guiding the paper that is printed upon. The platen, A, is of the usual form, and has upon



HALLECK'S PLATEN GAUGE.

one of its edges a shaft carrying the usual grippers. Adjustable finger bars, B, are clamped by their slotted ends to split nuts, C, that slide on the rods, D, and are moved by the screws, E, which, together with the rods, D, are supported by removable brackets (Fig. 3) at the sides of the platen. The split nut, C, is capable of being tightened by means of the nutted screw, as clearly shown in Fig. 2. When the finger bars, B, are attached to the adjusting nuts, C, they extend along the face of the platen parallel to its longer sides. The finger bar has a raised middle portion, having a series of side perforations for receiving the shanks of the side and end gauges, and also the supplementary finger, F, which is also designed for receiving the gauge pins. The finger bars may be instantly removed when it is desired to clear the platen for a fresh blanket.

The gauge pins, G, are made of wire in the form shown in Fig. 4, and they are readily inserted into or removed from the fingers. They form a reliable guide for the edges of the paper, and facilitate the adjustment of the press, while pin holes in the blanket are avoided.

This improvement was recently patented by Mr. Samuel P. Halleck, of Oriskany, N. Y., from whom further information may be obtained.

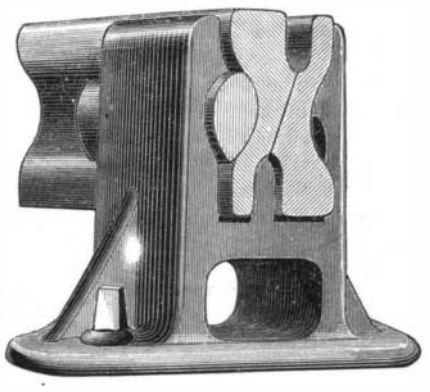
Polarized Light.

A correspondent of the Philadelphia *Public Ledger* calls attention to the circumstance that an extensive exhibition of polarized light is to be seen twice a week in the International Exhibition Building in that city.

When the electric lamps are in action on Wednesday and Saturday evenings, the light, passing obliquely, at an angle of about 56°, through the thick glass of the show cases (the plates stand at right angles), instead of throwing a faint shadow on the floor, as might have been expected, forms an exquisite appearance of irregular, bright, oval lines, like large lacework, surrounding spaces softly blended in shadow. This accidental exhibition is, to many persons, alone worth the fee to those evening entertainments.

TRAMWAY RAIL EXPERIMENTS.

Tramways are now becoming a subject of great interest to the engineering world and the general public. Improvements in detail are still being continually made; but much



remains to be accomplished, and in no direction can more effectual improvement be introduced than in the road and rails. Upon the durability and freedom from repairs of the road depends very much the financial success of the tramway. We may all easily understand the time and money constantly being expended in our streets in taking up large stretches of the roadway to relay tram rails. To minimize this outlay two objects should be kept in view in the construction of the road. In the first place the rails and road should be solidly constructed, and supported so as to offer the best resistance to wear and tear; and, secondly, the rails and attachments should be made so as to offer the greatest facility for removal of the rail without disturbing the roadway. Messrs. Aldred and Spielmann have introduced a split rail and chair. The running over this compound rail is most smooth, and puts an end effectually to many complaints which travelers in tramcars, railway trains, omnibuses, and even cabs are often ventilating. We may, with advantage, give a synoptical outline of the system here.

The rail is a compound split one, formed from two similar duplicate halves reversed to one another. So that the broad head of one is uppermost, while the narrow head of the other half forms a guard to the broad tread. The two halves of the rail meet one another on an inclined surface, so that the downward pressure on the one half is received and resisted by the other half. When one half is worn out, the rails can be reversed, and the worn half turned down and used for a guard. The split diameter of the rail enables the joint to be made only in one half at a time, so that in no place is the rail wholly broken and dependent only on fish plates for its continuity. The rail has the joint broken only in one half in one place, and always in a chair, the rails overlapping, and thus always forming a continuous and well supported line. The joint in the chair is secured by a wedge or key in the hollow chest of the rail, thus making everything secure at the joint, and entirely dispensing with fish plates and through bolts and punching of rails. This makes the road and metals very cheap, so that a much heavier and stronger road can be made for the same money than the light and flimsy patterns in use. The inventors have sample lengths of line giving great satisfaction in other parts of London and Great Britain, and are now carrying out some large orders. This rail seems to supply a want in tramway roads, and is now being adopted so freely as to in-

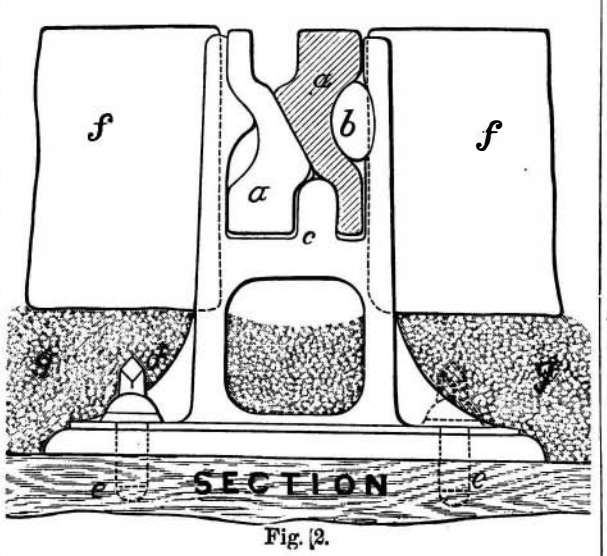


Fig. 2.

duce the belief that the owners of tramways recognize in it a remunerative successor to the old rail.

Gas and Water Tight Cloth.

Dr. Hirzel, of Leipsic, has recently patented in Germany gas and water tight cloth, which he makes, according to the *Manufacturer and Builder*, by placing a large, smooth piece of so-called gutta percha paper between two pieces of a not too coarse and dense material, for example, shirting (undressed), and then passing the arrangement between heated rollers. The outer pieces of shirting combine in the most intimate way with the inclosed gutta percha to form a material which is impenetrable by gas and water. It may be made still denser and more resistant by being coated on both sides with copal lac. The substance is conveniently flexible, and will remain proof against variable influences of weather and external temperature. It can be applied to all those purposes for which waterproof material is used, and it is well adapted to form gas tight membranes for regulators of pressure of compressed gas, bags or sacks for dry gas meters, and also dry gas reservoirs.

The objection, however, is that gutta percha is an unstable substance, which cannot resist the ordinary atmospheric influences for more than a few years, during which time a gradual oxidation makes it at last hard, brittle, porous, and finally utterly worthless. India rubber is better in this respect, as it lasts longer, but this also gives out at last.

[If the above invention is applicable for gas tubes, or if any one can invent a flexible tube for conveying gas which will prevent the latter from extruding through the pores after short use, it would be very desirable.—ED.]

American Society of Civil Engineers.

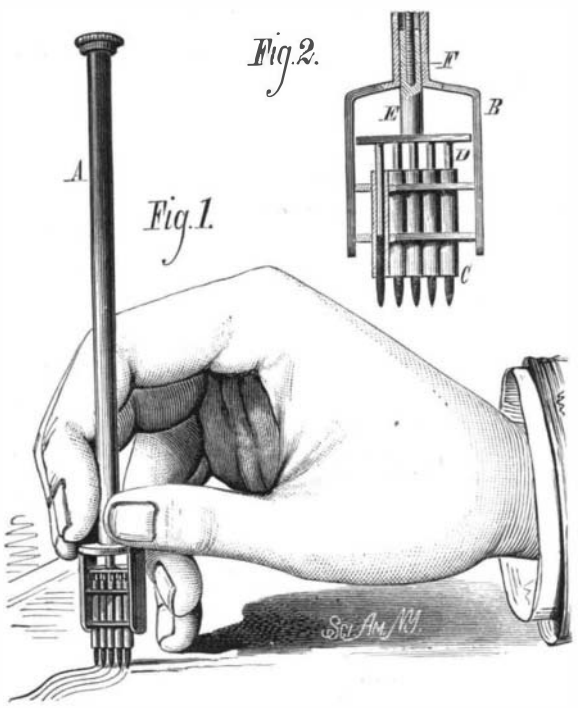
At the recent annual meeting, New York, the following persons were elected officers of the American Society of Civil Engineers for the year beginning November 6th, 1878:

President, W. Milnor Roberts, Vice Presidents, Albert Fink, James B. Francis; Secretary, John Bogart; Treasurer, J. J. R. Croes; Directors, George S. Greene, William H. Paine, C. Vandervoort Smith, Thomas C. Clarke, Theodore G. Ellis.

A NEW DRAUGHTING PENCIL.

The accompanying engraving shows in perspective in Fig. 1, and in section in Fig. 2, a novel draughting pencil, recently patented by Mr. F. W. McGee, of Rutherford, N. J.

It is especially designed for drawing parallel lines to represent the coast or shore in map drawings; but it is applicable to various other purposes.



McGEE'S DRAUGHTING PENCIL.

Its construction will be clearly understood by reference to Fig. 2. A is a tube, having at its lower end a fork, B, which supports a number of tubes, C, for containing the leads. Several wires, D, project into these tubes, and are attached to a rod, E, that slides in the tube, A, and is adjusted by the screw, F, whose milled head is at the top of the tube, A.

Lines of different shades may be produced by using leads of different degrees of hardness.

A New Use for Warts.

Dr. Charles A. Seale, of this city, announces in the *Medical Record* that warts of the hand can be used with better results than small pieces of normal skin, in skin grafting, in consequence of being easily separated, uninjured, into numerous cylindrical rods of great vascularity, and containing a large proportion of hypertrophied epithelium, which, when planted in healthy granulating tissue, readily adapt themselves to the new soil, receiving direct nourishment, and quickly growing as starting points for a new and smooth epithelial covering.

In one case, in which there had been complete destruction of all the skin on the dorsum of the foot, involving to a great extent the deep cellular tissue, and where for several weeks no healing advanced, grafts of freshly removed warts from the patient's hand immediately started little islands of new tissue, which rapidly increased, until they coalesced and met the margins of the border skin, thereby completely covering the foot by firm, protecting integument.