LEE BOARD FOR SMALL VESSELS.

The lee board herewith illustrated is designed as a substitute for the center boards, lee boards, and movable keels heretofore used. It is of suitable length and depth, and may be placed at either or both sides of the boat. The board may be held to the boat by two arms, whose outer ends are bent down and inserted in tubes secured in the upper edge of the board, and whose inner ends are suitably attached to the boat. If desired, a single arm, forked at its outer end, so that the board will always be held parallel

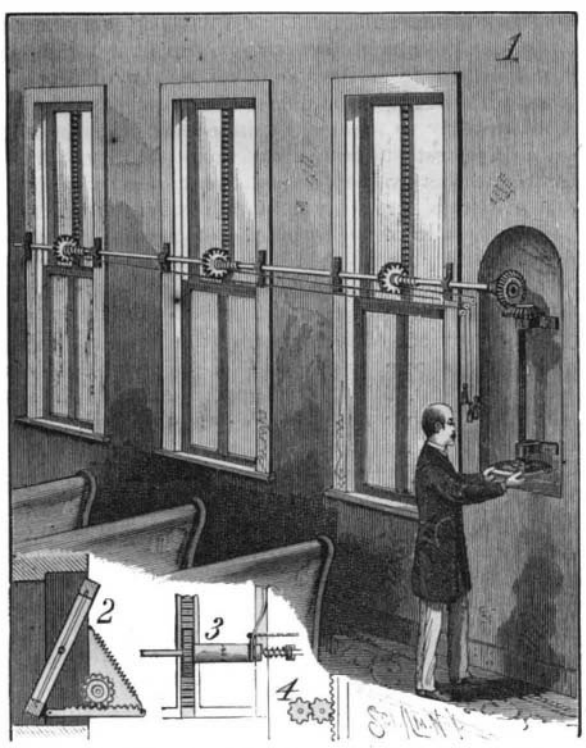
CLAPHAM'S LEE BOARD FOR SMALL VESSELS.

with the keel of the boat, can be used, as shown in the engraving. Guys hold the arms at right angle to the boat. This construction allows a free up-and-down movement of the board, which will be unaffected by the rocking of the boat, and will remain vertical, whether the boat be heeling to the force of the wind or be standing plumb, so that it will always be in the best position to secure a lateral grip or hold on the water to prevent leeway.

This invention has been patented by Mr. Thomas Clapham, of Roslyn, N. Y.

DEVICE FOR OPENING WINDOW SASHES.

This device is for raising and lowering a number of windows simultaneously and for locking them in any desired position. To the center stile of each window sash is secured a rack, engaging with which is a pinion, carried by a shaft journaled in suitable supports, and extending along the entire series of windows. The pinions are prevented from turning on the shaft, but are capable of sliding longitudinally. Each pinion, when in its normal position, is held against a stop pin by a spiral spring. To one end of the shaft is secured a bevel wheel, which engages a wheel on a vertical shaft, provided at its lower end with a hand wheel. To each pinion is secured a cord, which extends to near the beveled gearing and within convenient reach, so that, by drawing any one of the cords, the pinion with which it is connected may be moved out of engagement with its rack, so that that particular sash will not be moved when the shaft is turned. In case of a large or heavy window, or one having but a single glass, two racks are applied to the stiles on opposite sides, and two pinions used. In the case of a pivoted transom, the rack and pinion are arranged as shown in Fig. 2, the rack being held in engagement with the pinion by a spiral spring.



PAINE'S DEVICE FOR OPENING WINDOW SASHES.

In the construction shown in Fig. 3, the pinion is provided with a boss having clutch teeth formed on its end, and is capable of being turned independently of the shaft or of remaining stationary and allowing the shaft to be turned when disengaged from the clutch. The clutch is pressed into engagement with the boss by a spring, but may be drawn back by means of a properly arranged cord, as indicated in the drawing. Where the windows are deep, an intermediate or idle wheel connects the shaft pinion with the rack.

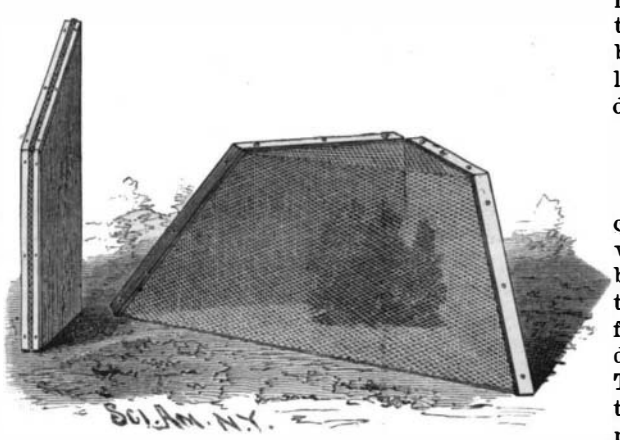
This device, which is the invention of Mr. George W. Paine, of Sullivan, Ill., is especially applicable to large factories, churches, halls, and railway cars, where it is desirable to have all the windows under one control and to secure uniformity in ventilation, and in all cases where it is desirable to do away with the annoyance arising from the usual manner of opening and closing windows.

A Whistling Barometer.

In the village of Meyrin (Canton of Geneva), Switzerland, some disused wells, it is said, have been hermetically sealed to serve as barometers to the people. An orifice about an inch in diameter is made in the cover of the well, by which the internal air is put in communication with the external. When the air pressure outside diminishes on the approach of a storm, the air in the well escapes and blows a whistle in connection with the orifice, and in this way notice of a storm's approach is given to the inhabitants. If, on the contrary, the pressure increases, a different sound is produced by the entry of the air into the well, and the probability of fine weather is announced.

PLANT PROTECTOR.

The device is designed to protect young plants from injury by frost, or insects, or fowls. It can be readily folded for transportation or storage, and easily unfolded and placed in position for use. A pair of trapezoidal boards are hinged together at their right angled ends, and connected by netting or oiled muslin, of sufficient size to permit them to be opened to approximately a right angle. The free edge of the netting is strengthened by a suitable binding. To use the device, the boards are opened until the netting is strained, when the protector is placed over the plant with the netting facing the south, to allow the sun to shine on the plant; but when the plant is to be shielded from the sun, the position is reversed. The protector may be folded compactly, as shown in the cut.



ZIMMER'S PLANT PROTECTOR.

This invention has been patented by Mr. Eugene Zimmer, of Mobile, Ala.

The American Association for the Advancement of Science.

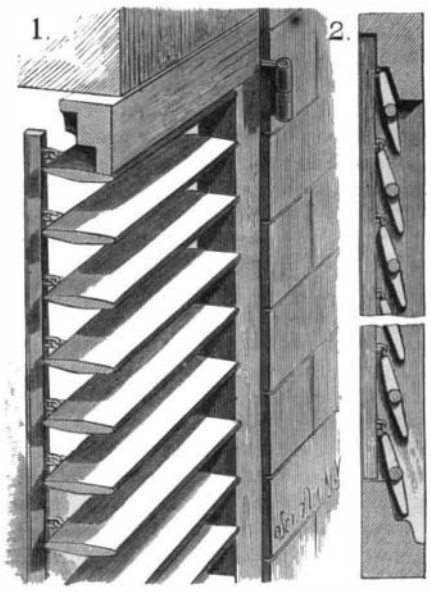
The thirty-fifth annual meeting of this large and influential society will be held at Buffalo, N. Y., where it has already met twice before. The date will be from August 18 to August 24. The daily sessions will be in the ample rooms of the High School, where the offices of the secretaries and committees will also be located. Reduced rates on the railroads will facilitate attendance, and arrangements have also been made for reduced rates at the principal hotels. Among special features already announced are the following:

The presidential address on Wednesday evening by Prof. H. A. Newton, of New Haven, who will resign the chair to Prof. E. S. Morse, of Salem. An illustrated lecture on Friday evening, by Prof. C. A. Ashburner, of Pennsylvania, on "The Geology of Oil and Gas." Special preparations have been made by the sections of mechanical science and anthropology; and delightful excursions are planned for the departments in botany and entomology.

The local committee has promised for Thursday afternoon an excursion down Niagara River to Grand Island; and for Saturday, one to Niagara Falls and another to Chautauqua Lake. In the section of geology, special attention will be given to the various problems connected with Niagara Falls and its gorge.

WINDOW BLIND.

As ordinarily constructed, the slats in blinds are held in a horizontal position by the friction of the slats in their bearings; but when the blind becomes worn, the slats are no longer retained in this position. A recent invention by Mr. Charles W. Radford, of Oshkosh, Wis., obviates this difficulty in a very simple manner. The upper and lower rails of the blind are each provided with a rabbet, having a tongue which, in the case of the lower rail (Fig. 2), projects upward on the

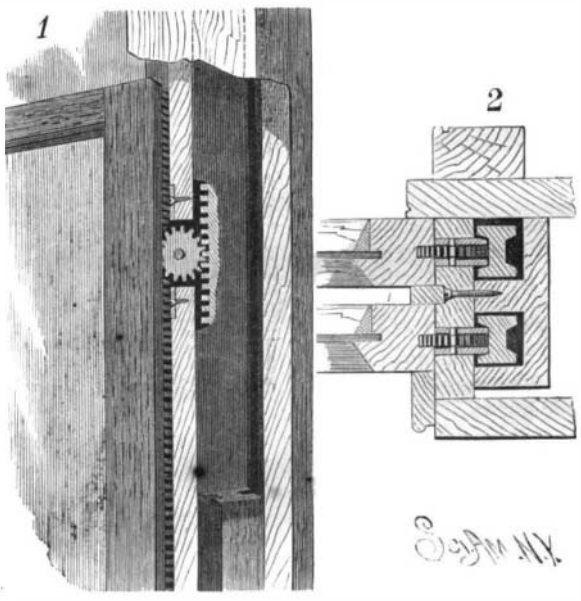


RADFORD'S WINDOW BLIND.

inner side of the frame to a point near the pivot of the lowest slat, which, when the slats are open, will rest upon the upper edge of the tongue; but the tongue formed on the upper rail extends along the outer side of the frame, so that the outer half of the top slat will rest against it (Fig. 1) when the slats are open. When the slats are closed, the rabbets receive the top and bottom slats, and the rod passes over the edge of the lower tongue, and prevents the slats from being accidentally turned.

SASH BALANCE.

The invention herewith illustrated relates to that class of sash weights in which each weight is formed with a rack, and is connected with a rack on the sash by an intermediate pinion. To the inner surface of the stile of the window casing is secured a false stile, formed with a central strip that separates the window weights, as shown in the sectional plan view. The inner stile is formed with two grooves, which, together with the main stile and the outside facing piece, form the weight channels. The weights are of metal, are about equal in length to the sash, and each is formed with a rack. In the back of each weight is a channel to receive lead or other heavy material to suit the weight to that of the window. The side edges of each sash are provided with racks. In openings formed in the stile are fitted boxes, in each of which is journaled a small pinion which meshes with the racks on the sash and weight, so that the movement of the sash up or down will communicate a reverse motion to the weights, which thus balance the sash. Guides on the weights prevent their lateral displacement. Weights constructed in this manner are not liable to get out of order, and by using the false stile no back lining is required in the frame, and the ordinary inside casing is dispensed with. When the fittings are all in place, they are invisible, nothing being seen to disfigure the window.



LENNON'S SASH BALANCE.

This invention has been patented by Mr. William F. Lennon, of 124 East 84th Street, New York city.