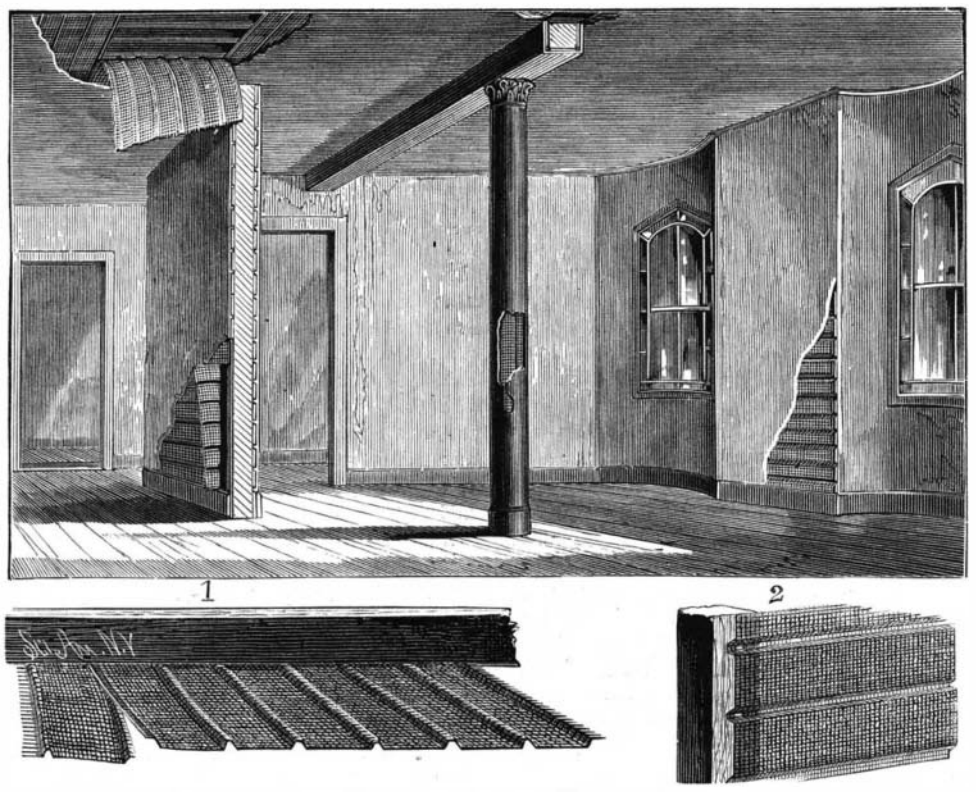
METALLIC PLASTERING SURFACE.

During the last few years there has been considerable attention directed to the use of wire cloth for plastering purposes, and attempts have been made to obtain the requisite solidity of the cloth combined with strength, cheapness, and durability. By corrugating the wire cloth at intervals about six inches apart and applying it directly to the wooden beams, joist partitions, board partitions, columns, girders, etc., it is stiffened and made firmer. It is secured by staples passed through the cloth in the corrugations, which are placed in such a manner that they run transverse to the joist or studding. By this arrangement the whole body of the cloth is stiffened and for the most part it is set out away from the edges of the joists, so that when the plaster is applied it will key around and through the corrugations and close around the edges of the joists, perfectly sealing them and preventing fire from passing from joist to joist. The patentee claims that this method is cheap, since no wooden or wire furring is required, thereby saving in the cost of material and time. The increase in strength is apparent, as the ribs in reality form a series of small girders six inches apart which impart rigidity to the cloth. The durability of the plastering results from the fact that it will not crack since the foundation is free from the shrinkage accompanying the use of laths. It requires no skilled labor to put it in place, and as every beam or joist is sealed, the danger arising from fire spreading is greatly reduced. The cloth may also be used in place of deafening boards to deaden noise and also for interlathing in frame structures.

The large engraving shows the cloth applied to partitions, walls, ceiling, columns, etc., the plastering being broken away in order to show the position of the cloth on the beams and joists. Figs. 1 and 2 clearly indicate the position of the corrugations in regard to the timbers. In the left of Fig. 1 is shown the method of uniting two pieces of cloth, the joint being formed in one of the corrugations.

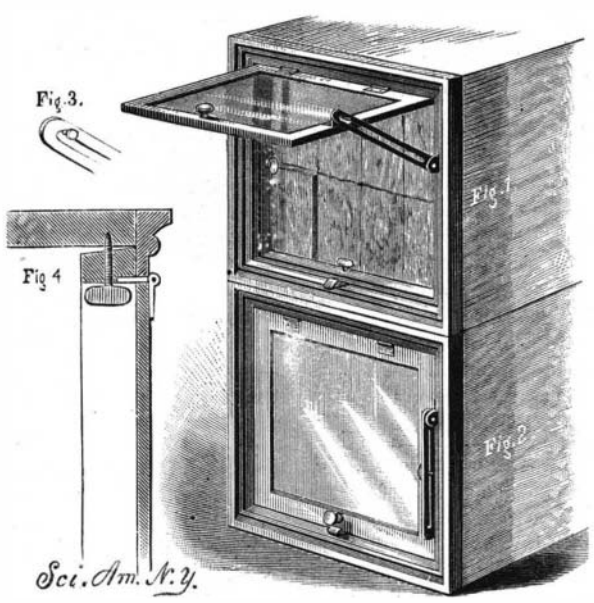
This invention has been patented in this and foreign countries by Mr. James Stanley, of 114 East 83d Street, this city, who may be addressed for further particulars.



STANLEY'S METALLIC PLASTERING SURFACE.

SHOW BOX COVER.

The object of an invention recently patented by Mr. John G. White, of Pensacola, Florida, is to provide a hinged cover that can be secured on tobacco boxes after the usual cover has been removed, so that the box is kept properly closed, the removal of the tobacco facilitated, and the contents of the box exposed to view. To a frame made of either plain, stained, or painted mouldings, is hinged a second frame which fits into the opening in the first, and in which is a pane of glass. On the inner sides of the large frame are fastened strips a short distance from the outer edge, so that when the frame is placed on the end of a box, the outer surfaces of the strips will rest against the inner surfaces of the



WHITE'S SHOW BOX COVER.

sides of the box, and the outer edges of the moulding will be flush with the sides of the box. Thumb screws pass through the strips and into the box to hold the frame in place, as shown in the section, Fig. 4. The inner frame has a handle knob at its swinging end, and is held shut by a spring catch. It is held open, as in Fig. 1, by a brace pivoted to the large frame and provided with a longitudinal slot, terminating in a notch at its free end as shown in Fig 3. A stud projecting from a jaw on the movable frame passes through the slot and is furnished with a head to prevent the brace sliding off. The cover prevents the entrance of dirt, and prevents the obacco from drying out or becoming too moist and mouldy.

Natural Gas Fuel.

While the use of natural gas economically and safely is still a problem in Pittsburg, according to the *Telegraph*, a company at Kittanning seems to have gone much farther toward practical success. The association was formed some months ago, and has pushed the fuel into general use. The well which supplies the gas is situated about two and a quarter miles from the town. The flow is steady and strong. The diameter of the tubing is five and three-eighths inches. The conduit pipe is three and a half inches, laid to a depth of a little over two feet, to the borough limits, where connections are made in various directions. These pipes are buried deep in the soil, to prevent injury from the effects of either heat or cold; but to make this important matter doubly secure, curved pieces of pipe are used along the line at different points, fixed in movable sockets, which allow room for all contraction or expansion of the pipes. Before the town is reached, two pipes are affixed to the main pipe from the well, a large and a small one, with two regulating valves, which are used to divide the pressure, so that one pipe may supply the iron works, grist mills, water works, and other places where a large amount of gas is consumed. The smaller pipe furnishes the gas for private houses, stores, public buildings, etc., where but a small amount of gas is needed. The pressure on both pipes is always shown at the main office by the gasometers attached to them. The high pressure pipe has a pressure of 80 pounds, and the low pressure 1½ pounds to the square inch. Small pipes connect with the main pipes, and are run into houses, stores, and all places where the gas is consumed. In all, over 100,000 feet of pipe have been laid by this company, besides that put by private parties into offices and residences; but so far, no breakage or rupture has been found in the pipes at any place in the numerous lines.

The iron workers at Kittanning say that in the puddling furnaces the fuel meets every want. Any degree of temperature needed can be obtained and kept at a fixed height. Atmospheric burners are used, by which the proportions of air and gas can be so regulated as to give the greatest or least amount of heat. The aperture through which the gas is conveyed into the burner is never more than one-eighth of an inch in diameter and the mixed proportions of air and gas enter an iron tube about two inches in diameter and perforated with small holes, through which the gas escapes and burns. This iron tube is placed in furnaces, heaters, stoves, and grates, where the effects of the best heat are produced with little trouble.

The company is now furnishing over 800 fires in the town regularly. The cost of using the gas is moderate. Eight months in the year the rate charged is $8 per fire. Public buildings, manufactories, and hotels are given special rates. This is a great reduction on the use of coal. So far, the consumers are well satisfied, and the practicability of the new fuel seems entirely settled in Kittanning.

The Micrometer.

A "standard" micrometer has been made for the American Society of Microscopists by the United States Bureau of Weights and Measures. The scale is engraved on platin-iridium, 20 per cent iridium. The examination as to the correctness of this standard was carried on through seven months of last year by Prof. Wm. A. Rogers, of Harvard College Observatory, and it has now been accepted by the society. It is to be kept in approved safe deposit vaults, and not to pass out of the hands of custodian except with the permission of the Committee, President, and Secretary of the Society, but other micrometers will be compared with the standard, and the result certified to, for a reasonable fee.

Testing Machines.

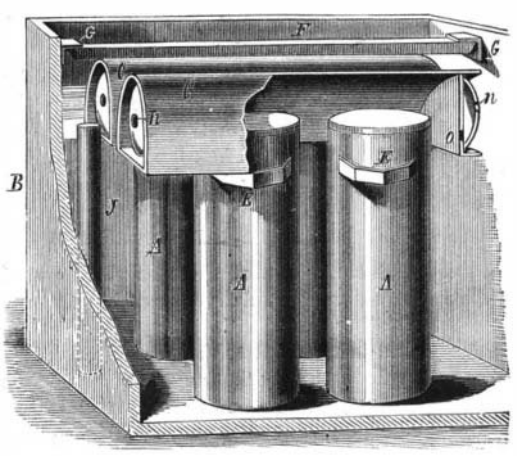
At a recent meeting of the American Society of Civil Engineers, a paper by Mr. A. V. Abbott, on "Some Improvements in Testing Machines," was read by the author, and illustrated by a stereopticon. A 200,000-pound testing machine was first described, its general construction providing for weighing the forces applied by means of platforms and levers somewhat similar to those used in ordinary scale work with special arrangements to reduce friction. To secure the direction of the pressure upon the test pieces in the axis of the machine, both ends of the piece are connected with segments of spheres moving freely in spherical sockets, which take the proper position upon the first application of the stress. Arrangements are also made by means of wedges to gripe and hold uniformly the ends of the test pieces. The machine is arranged to test in tension, compression, for transverse stress, for shearing, bulging, and torsion. In the machine illustrated, the action of applying stress is automatic, and at the same time the same power gives an autographic record of the stress applied and of any variations which may occur during the continuance of the stress, and with an instantaneous autographic record of the result at the conclusion of the test. The stresses are applied by means of weights which slide upon two parallel lever beams, the one registering up to 10,000 pounds and the other up to 200,000. By means of a remarkably ingenious electrical attachment connected with clock work, the movement of these weights is continuous and automatic, and the registering apparatus is also controlled by the same electric current. Diagrams automatically made by the machine were exhibited and described.

A number of broken pieces of steel were exhibited, and also specimens of woods which had been tested in various ways. Machines of smaller powers were also described, and a number of briquettes of cement were broken upon a small automatic machine which was exhibited.

MILK COOLER.

Two or more cans are placed side by side in a tank, and over each row is a trough-shaped cover, inverted and resting on the handles of the cans. The handles are located sufficiently below the upper ends of the cans for closing the cans by a water seal, when the tank is filled with water to about the height of the cans; and as the water rises under the covers the air therein is compressed, causing a pressure on the cream. The ends of each cover are provided with chambers, each having an outer convex wall and an inner straight wall. In both walls of the chambers are passages, *n o*, which are arranged in a vertical line. The upper passage, *n*, communicates with the open air, and the passage, *o*, is below the water line of the tank.

By this construction the ends of the cover are materially strengthened around the seal, so that the metal after constant use will not be liable to bend or twist, as is the case when a straight flange is employed. The inventor has found straight flanges uncertain, as they are liable to become bent or broken in use when not protected by a convex flange. The confined air under the cover is allowed to escape through



BRANDENBURG'S MILK COOLER.

the passages before the lower edge of the cover is raised above the water line, thereby permitting the cover to be more easily removed than if a single straight flange were employed. The covers are secured by bars, F, placed on them and under the brackets, G, attached to the inside of the tank, to prevent the covers being moved by the air pressure under them. The tank is provided with an overflow pipe, J, which keeps the water at the proper level. Any vapor arising from the cans or water will condense on the covers and flow down the sides into the water of the tank.

This invention has been patented by Mr. I. S. Brandenburg, of Peoria, Ill.