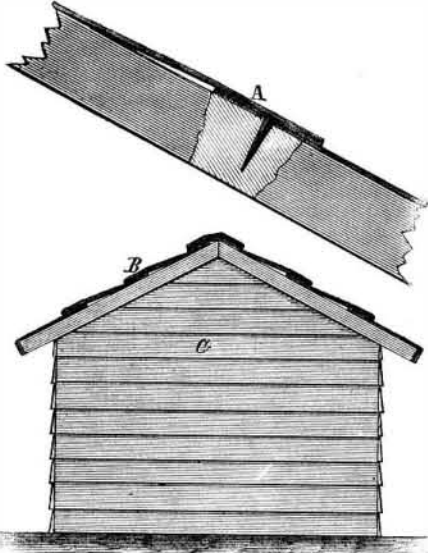


FAY'S ROOFING, FLOORING AND WEATHER-BOARDING PAPER.

Those oldest manufacturers of paper, the Chinese, have adapted this substance to many uses for which we employ other and more costly materials. Clothing, the soles of boots, household utensils, coverings for houses, etc., are among the varied uses to which paper is adapted by this ingenious people. We have not yet equaled them in diversity of employments for paper, but the engraving herewith given shows a use for paper specially prepared for the purpose. It is a paper made of manilla, hemp, or grass according to a process which makes it perfectly air and moisture proof.



The improvement is the subject of a patent issued through the Scientific American Patent Agency to C. J. Fay, in January, 1867, and includes the method of attaching the paper to the roofs, sides, flooring and ceiling of buildings, and to the decks of vessels, to awnings and carriages. The paper is manufactured in strips of proper width for the purpose required, and creased at regular intervals for folding and

marked for the insertion of the nails or tacks which secure it to the surface on which it rests. The plan protects the nails from oxidation by covering them with the impervious paper. This method may be seen at A, where the tack is driven through the paper into the board and the paper is then folded over it. It is used on the siding or roof of a house in the same manner, as seen at B and C.

It is claimed that for weather boarding, half-inch lumber is as good where this paper is used as inch stuff, where it is not used. The boards, even for the roof, need not be tongued and grooved, only matched by the saw. For floors, it is tacked down, and then painted if the floor is not to be carpeted. No moths will attack a carpet laid on this paper. For walls and ceilings it is intended to supersede laths and plaster, and it can be painted as desired, will wash clean without injury, and is said to be far superior for warmth to any plaster.

It is cheap, efficient, and easily applied, greatly reducing the cost of building. For more detailed information our readers are referred to C. J. Fay & Co., S. E. corner of Front and Vine streets, Philadelphia, Pa.

Tests of the Potter Rail.

In No. 4, current volume we illustrated a rail made of Bessemer steel and iron at the Wyandotte Rolling Mills, at Wyandotte Mich. The heads are of steel and the web and bottom of iron. A few weeks ago a test of the security of the weld was made, an account of which we copy from the *Journal of the Franklin Institute* :—

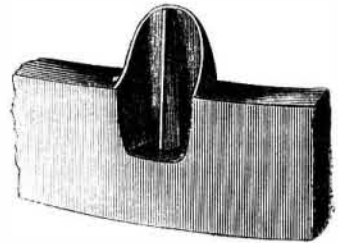
"A weight of sixteen hundred pounds was allowed to fall four feet upon a piece of Doddized rail five feet long; it broke at the first blow. A piece of the steel-headed rail made at Wyandotte was then put under the drop, and subjected to four blows as follows: For the first blow the weight was raised five feet; for the second, ten feet. The rail was then turned over, and received the third blow with a fall of fifteen feet; and the fourth blow with a fall of twenty feet, bent the rail almost double. The rail was then taken to the steam hammer whose weight was eight thousand eight hundred pounds, and received ten or twelve blows."

"When the bar was nearly straightened out, it broke, but the iron and steel remained perfectly welded together. One of these pieces was then subjected to one hundred blows from the eight thousand eight hundred pound hammer on the head

on the rail, as follows: Fifty blows at two feet fall, and fifty at three feet fall. This crushed the rail without breaking the weld of the iron and steel."

CUSTER'S IMPROVED TOE CALK FOR HORSES' SHOES.

This calk is formed with a ribbed projection produced by a displacement of its metal. The bar, when hot, is placed upon a die and with a blow the recess and central projection is formed. The ordinary calk is made by one end being drawn to a point and turned up at a right angle. This entails more labor and by being forced into the shoe weakens it, while the welding of the projection on this improved calk to the shoe adds to its strength. It is claimed that this calk has



advantages over both the ordinary and the two pronged calk, in greater durability of the shoe and greater economy of labor and material.

These calks can be made upon the anvil or from the bar under a drop, which for this purpose may be made very cheaply. The union between shoe and calk is very perfect, partaking of the nature of a dovetail, as the toe of the shoe is driven into the recess of the calk while the projection of the calk is welded into the shoe.

This device was patented Feb. 12, 1867, and rights of territory or manufacture may be obtained of Custer & Tull, Monroe, Mich.

ANÆSTHESIA has been tried by two French surgeons, on the track of the tri-facial nerve, in the external ear, to produce local insensibility under the extraction of teeth. Twenty four out of thirty-two operations were painless and three doubtful. A tonsil was removed without the slightest pain.

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J. F. LAWTON.

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