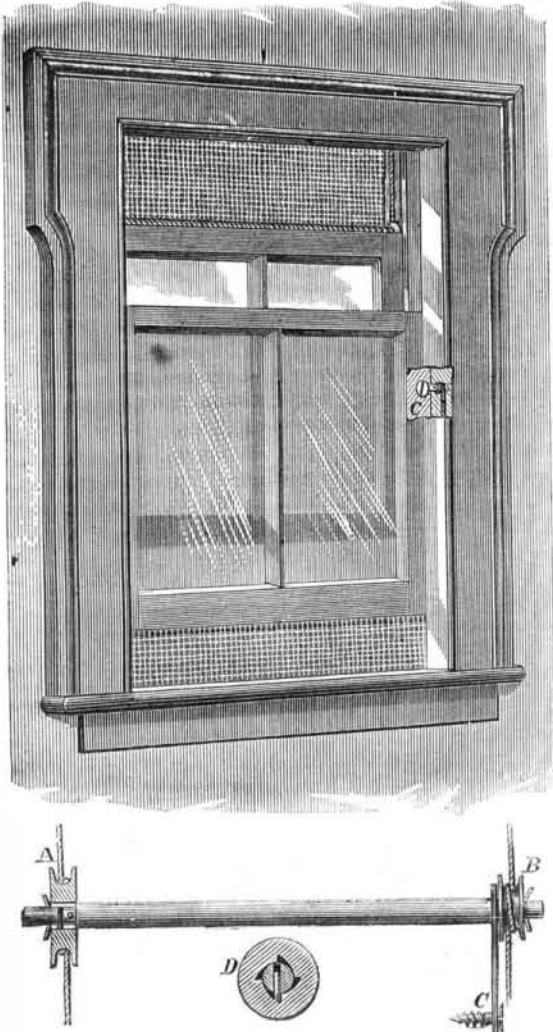


WARREN'S PATENT AUTOMATIC MUSKETO BAR.

The accompanying engraving represents a musketo bar for windows, applicable to either the upper or lower sash. It not only prevents the entrance of flies and musketoos, but adds greatly to the comfort of rooms by allowing the upper sash to be lowered and the lower one raised, which is always essential to ventilation. The contrivance is simple, durable and effective. It can be applied to any window, whether actuated by spring or weight. Its cost is slight, and its construction does not necessitate the change of appliances according to the season now demanded by the devices in common use. With this appliance a room can be kept free from insect pests without the costly and smothering nettings over beds and berths now required, while ample room for the admission and exit of air is afforded. Thus, it will be seen, that while it is adapted to use in dwellings, it is specially convenient for steamboats, sleeping cars, etc., adding much to the comfort of the traveling public.



In the transverse rail of the upper and lower sash a semi-circular groove is made for the seating of the roller. The netting is wound around the roller, one edge being fastened to the frame of the window by tacks. On each end of the roller is a pulley operated by a stationary cord, which is fastened at the top and bottom of the sash. When either sash is closed no part of the machinery or netting is visible; but when the bottom sash is raised or the upper sash lowered the netting fills the space otherwise left open.

For convenience of opening the window to adjust outside blinds, the lower edge of the netting connected with the lower sash, may be secured to the window ledge by hooks and loops, or hooks and a wire stretched across, so as to be readily unfastened as desired, and as easily secured again to place.

The pulley, A, being as large as the roller when filled by the wound netting, will not let the netting over-issue, but keeps a tension sufficient to secure a perfect plane surface. The small pulley, B, runs loose when the roller issues the netting, and being as small as the roll when the netting is delivered, keeps a tension upon the netting and tends to take it up. If the cords should get slack they can be tightened or taken up by turning a screw, C, having a hole through its shank for the reception of the cord, as seen in the engraving, similar in operation to the screws on a violin, harp, or pianoforte. The action of the roller, A, can be readily understood by reference to the section, D. The design is well worthy the attention of housekeepers.

Patented through the Scientific American Agency June 30, 1868. All orders for State and County rights and all communications for information should be addressed to Warren & Co., No. 54 Pine street, New York.

PHILOSOPHY OF THE USE OF BLUEING IN THE STARCHING OF LINEN.

It is often worth while to think upon and discuss those things which are apparently of small importance. The laws of nature apply to small as well as to large operations, and the explanation of phenomenon of great importance may frequently be found in the investigation of trifling occurrences.

Mr. Ruskin, should this meet his eye, would no doubt smile, while he would acknowledge the truth of the statement, that the same natural principles, by the observance of which the great Turner (who he asserts was the only artist who ever did paint water true to nature), obtained his effects, include

the one by which a washerwoman makes a bosom assume a whiteness of snowy purity.

All tints are heightened by transmitted light. No artificial pigments or dyes whatever can approach the glory of the prismatic colors; but if artificial colors are laid upon a transparent surface, and light permitted to pass through them, the effect of transmitted light will at once be seen. The stained windows of churches are good illustrations of the increased beauty of color by the transmission of light.

The effect of transparency may however be produced in some degree by artificial means. Light in passing through transparent substances is more or less separated into its primary colors by differences in thickness and density, and the form of the surface. Moreover the color of the transparent body itself has effect in the absorption of other colors, so that light rarely passes through transparent bodies unchanged. It took a long time to discover a means by which the dispersion of light, when it passes through the lenses of optical instruments, could be obviated, so that the image presented to the eye should exhibit the colors of the object inspected by their aid. It is obvious then that if a tint be added to a color so delicately that the impression produced by it does not change the original tint essentially, something of the effect produced by the transmission of light will be attained. The less of admixture with other colors any tint possesses, the more easily will light be transmitted through it; or perhaps it would be proper to say, that unless the mixture be so perfectly compounded that a distinct new tint is produced without a muddy crude appearance, the transmission of light will be more or less interfered with. This perfect blending is what is called by artists purity of tint. It is seen in perfection everywhere in nature, in the clouds, in water, in flowers, leaves, and fruit. An absolute white has a dead, dreary appearance, caused by the utter absence of the effect of transparency. It is, therefore, rarely used in ornamental work unless it be so placed as to be enriched by delicate reflections from adjacent objects. What is generally called a pure white has more or less of a very delicate yellow, green, or blue tint, the absence of which would be very sensibly felt, although its presence, as a tint, is scarcely perceived. This is why blueing is used in the starching of linen, though we venture to say, that the reason for it has rarely been thought of sufficient importance to repay analysis.

MILITARY TELEGRAPHS.

The Military Telegraph system now used in the U. S. Army is probably the most perfect in the world. At the recent examination of Cadets, at the U. S. Military Academy, West Point, N. Y., the operation of the Telegraph Corps attracted great attention. Wires were laid, and the telegraph put in operation at the rate of a mile in ten minutes. The best wire for such purposes is a fine steel wire, covered with copper. This makes a splendid line wire, and only weighs twenty pounds to a mile. A soldier starts off on the run, carrying on his back a couple of reels containing two miles of wire, which he lays along on the ground; he is followed by others, who carry and set the insulating stakes, attach instruments, batteries, etc. But ordinarily the wire is laid from a wagon carrying the reels from which the wire is unrolled, followed by the insulator wagon, and the instrument and battery wagon. Reels are also provided for use on horseback.

CHEAP FIREPROOF COVERING FOR STEAM BOILERS.

Many complaints are made that the common felting used to retain heat in steam boilers sometimes becomes charred and burned above the water line, when the boilers are so arranged as to be able to carry dry steam, or steam superheated to a slight degree, and that this constitutes a cause of danger for fire on board of steamboats. Nothing is easier than to cover a boiler with an incombustible and cheaper substitute, such as paper pulp, or the pulp of prairie grass or pembo, mixed with equal parts of powdered soapstone and half the quantity of asbestos; when this is mixed with a solution of silicate of soda or waterglass, it may be made into a thick paint or paste, which being applied to boilers in several layers or coats, will adhere strongly, and form a nonconducting covering. Waterglass which once had the reputation of being waterproof, does not possess this quality, but is fireproof, and at the same time a nonconductor of heat.

A SCOTTISH "CRAN-NOG."

During twelve years past great archaeological interest has been centered in Scotland from the fact that in various parts of the country lake-dwellings have been discovered, which, though differing in size and structure from the Swiss and Italian lake-dwellings, are evidently sufficiently similar in idea, to form another link between the ancient populations inhabiting these widely-separated lands.

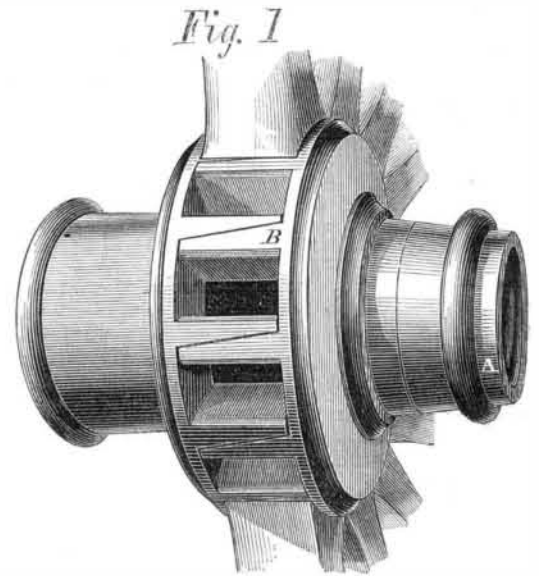
The first cran-nog was found upon draining a fresh-water loch in Arisaig. It appeared to have been placed in deep water, as the soft and wet mud around it is not fathomable by a long pole; the nearest point of land is about two hundred and fifty yards distant. It is formed of the trunks of trees, some of which are of very large size; one that was measured is twenty-eight feet long and five feet in circumference, at two feet from the base; another is thirty-nine feet long, and five feet eight inches at the base. The structure consists of several tiers or layers of these trees; two layers have been partially washed away by returning tides; four layers were exposed to view in examining the building, and a probe of eight feet long detected timbers at that further depth. Each layer in succession lies across the one below it, forming a strong, firm structure of rectangular shape; the sides are

forty-three feet by forty-one feet. On the floor were several flagstones in three or four places, which evidently had been the fire-places of the inhabitants. At a distance of about two feet six inches from the building was a rampart, formed of upright posts, inclined inwards and sharpened at the top, across which are placed large trees that were fastened at the corners by a hollow scooped out of the wood.

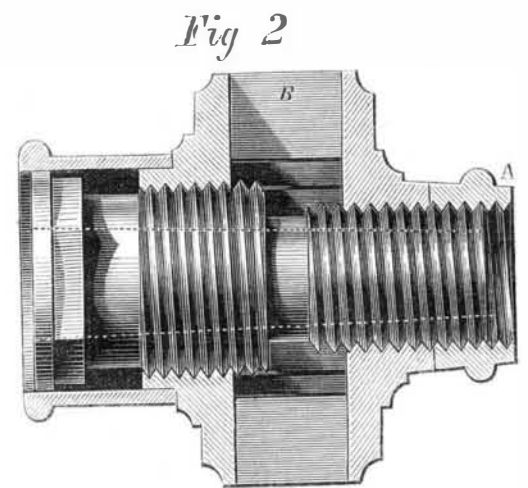
THE PATENT METALLIC WHEEL HUB.

The two engravings show a patent hub for securing the spokes in carriage wheels, which was patented through the Scientific American Patent Agency, May 9, 1868.

On the outside of the sleeve, which is of two different diameters, are cut screw threads, one engaging with one half of the hub and the other with the other half. On the outside end of the sleeve the cap, A, is screwed. Each half of the hub is finished with wedge-shaped radial projections, B, which, when screwed together, make a mortise for the spokes, holding them very firmly.



The engravings present very plainly the peculiarities of the device. The rims may be made of good cast or malleable iron, or gun metal. The back band—that nearest the stock of the axletree—may be shrunk on the sleeve or threaded to screw on, as may be desired. If required, the front band or cap may be dispensed with by casting that side of the hub long enough to cover the thread on the sleeve. The practical wheelwright will understand how the mortises should be tapered to give the proper dish to the wheel, and he can have his patterns made according to his judgment. To drive the spokes it is necessary only to remove the caps from the fin-



ished hub and turn the box back two or three threads, enough to open the space from one sixteenth to one eighth of an inch, then drive the spokes, with slips of leather on the tenons of the spokes, if desired. Then the parts of the hub may be screwed up by a wrench and the flanges will hold the spokes locked as though dovetailed. If the parts of the hub are properly finished and the rim true, the spokes and the rim of the wheel will also be true.

For other information relating to this invention, and for rights for all the states, address Henry Poth and E. Deckenbach, 73 Diamond street, Pittsburgh, Pa.

The Centrifugal Machine.

In our article on the balancing of machinery, page 9, No 1, current volume, we inadvertently neglected, in comparing the amount of power required to drive the old and new styles of centrifugal machines, to notice the constant friction of the engine and shafting, which absorbed 16.04 H. P. This being deducted from 32.27, the power required to drive the seven old style machines, would leave 16.23 total, or 2.32 H. P. for each machine; and deducting from 22.48, the amount required for the new style, would leave 6.44 total, or .92 H. P. for each self-balancing machine.

BLACK VARNISH.—An aniline black varnish, of recent Parisian production, is the following: In a liter of alcohol, twelve grammes of aniline blue, three grammes of fuchsine, and eight grammes of naphthaline yellow, are dissolved. The whole is dissolved by agitation in less than twelve hours. One application renders an object ebony black; the varnish can be filtered, and will never deposit afterwards.