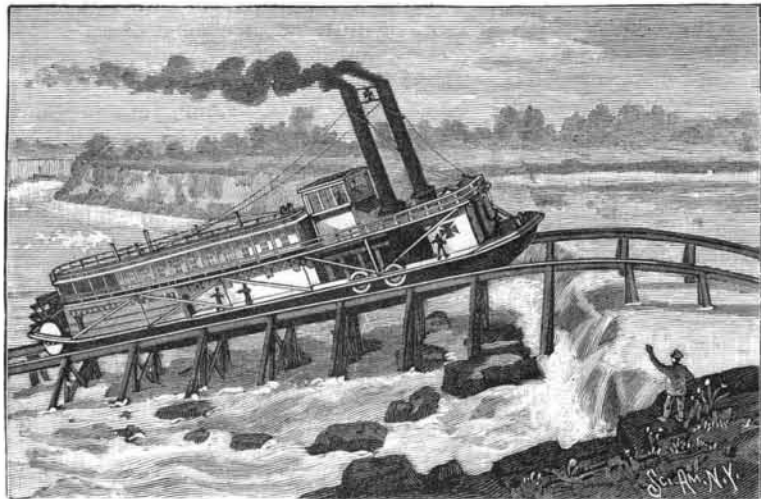


APPARATUS FOR CARRYING VESSELS OVER OBSTRUCTIONS.

This apparatus is designed for carrying vessels over obstructions, such as rapids and falls in rivers, that would otherwise not be navigable, so that a continuous transport upon such rivers is rendered possible. The steamboat is provided with wheels mounted upon a truck placed near the bow. These wheels are arranged within a guard rail, that prevents them from being



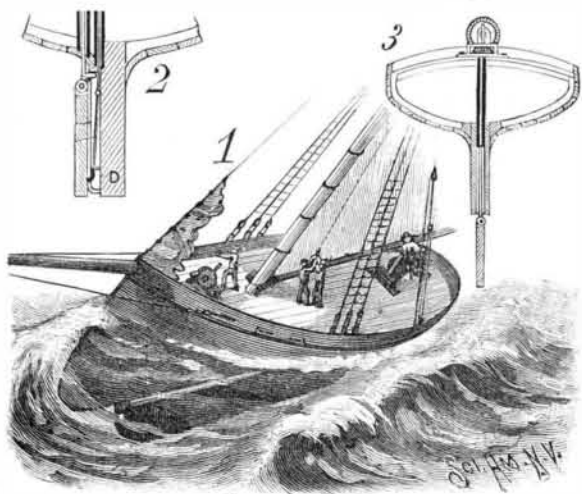
GRONDAHL'S APPARATUS FOR CARRYING VESSELS OVER OBSTRUCTIONS.

injured when the boat is lying against a wharf, and are designed to run upon rails carried by a suitable trestle. As here illustrated, the stern is supported by wheels carried upon the extended paddle-wheel axle; the necessary power to move the vessel along the track is here applied. Barges that are to be towed by the steamboat are furnished with suitable trucks and wheels to run upon the rails. In certain cases the barges might be towed over the obstruction by means of a stationary engine, which could, if needed, be employed to assist the steamboat.

This invention has been patented by Mr. W. A. Grondahl, of Portland, Oregon.

SWINGING CENTERBOARD FOR VESSELS.

The construction of this centerboard is clearly shown by the accompanying engraving. It is preferably made of metal, several tons in weight, and is hinged to the lower ends of rods, so that when lowered it is free to maintain a vertical position in the water, no matter to what extent the vessel may heel over. This prevents leeway of the vessel, while the weight tends



DEERING'S SWINGING CENTERBOARD FOR VESSELS.

to right it; and as the centerboard always presents a vertical surface in the water, it causes the vessel to more readily answer the rudder. The upper parts of the rods are screw-threaded, and are provided with suitable gearing by which they may be raised or lowered. In the construction shown in the sectional view, Fig. 2, the side of the keel is provided with two bars, that stand out from the keel. On the lower ends of the lifting rods are eyes that run upon these bars. Provision is made for holding the lower edge of the centerboard against the side of the keel when it is raised.

The lifting rods are inclosed in tubes, which may be fastened by screwing them into the wood of the vessel or into a screw cap below, fitted for that purpose. This method saves the cutting of floor and timber and the cost of building walls, while additional space is obtained for the carrying of cargo. There is no danger of the cargo being shifted against the sides of the centerboard well and causing a leak. This swingboard may be used the whole length of a vessel's bottom. When a vessel is rolling, the great resistance offered by the common centerboard sometimes causes trouble by breaking the board or opening the vessel. This centerboard obviates this danger, as the vessel simply swings each side of it, like a buoy riding to an anchor.

This invention has been patented by Mr. James A. Deering, of 44 Wharf Street, Gloucester, Mass.

Yellow Light for the Dark Room.

For the covering of glass for dark rooms and developing lamps, Dr. Stolze, in the *Wochenblatt*, proposes an emulsion made by dissolving 10 parts of nitrate of lead in 100 parts of water. To this solution is added, constantly stirring, either 6 parts of neutral chromate of potash or 4 parts of the bichromate. This emulsion is cooled, chilled, reduced into nodules, and washed. After being liquefied, glass plates can be coated with it in the same manner as ordinary emulsion plates. Such a light acts exceedingly well, and can be used with great safety for the handling and developing of plates. The color is of a pure yellow, and appears very light to the eye. By giving a thinner or thicker coating, the color and opacity can be easily regulated. To protect these plates from moisture, it is advisable to coat with a crude collodion to harden them, or a chrome alum bath will do as well; and to prevent cracking or tearing when exposed to the heat of a gas or lamp flame, a little grape sugar is added to the emulsion; this will make the coating pliable. Another method for making red glass for the dark room was lately given by M. Cassau in the *Photographisches Archiv*. Five grammes of carmine are dissolved in 40 c. c. of ammonia

solution. Two grammes of picric acid are dissolved in 450 cubic centimeters of water, to which 7 grammes of glycerine are added. In this last solution 50 grammes of hard gelatine are allowed to soak one hour, and afterward dissolved in the water bath. When the gelatine is thoroughly dissolved, the carmine is added to the mixture. While warm, it is applied to an ordinary sheet of glass or window pane with a wide brush. As soon as the first coat is thoroughly dry, a second or third can be applied until the desired density is arrived at.

A SIMPLE METHOD OF INSULATING UNDERGROUND AND OTHER WIRES.

The illustration herewith shows an easily applied form of electrical insulation, whereby a great many wires may be placed in a small space, and all will be readily accessible at any point of the line. The insulation is formed of sheet material, such as rubber, bent into reverse pockets, as shown in Fig. 2, and supported in form for use by spring clasps, preferably made of wood, such as hickory, these clasps being light and thin enough to be easily bent to the desired shape. In combination with such insulation a covering of waterproof canvas is used, as shown in Fig. 3, inclosing the insulator and wires, strengthening the insulation and excluding moisture and dirt from contact with the conductors. The whole is carefully insulated, and constructed without the use of metal. The alternating loops or spring clasps of wood are secured to the insulating sheet at short intervals, say at a distance of about six inches from each other, and six conductors are preferably arranged in each insulating covering, as being about the number which can be most conveniently handled in manufacture and in placing in position for use. A cable composed of ordinary main line wires for aerial and underground purposes is thus quickly formed by hand. When applied aerially, it may be secured to the poles without cross arms and glass insulators. This cable may also be emptied, for repeated use.

This method of insulation will permit the easy tapping of any line, and making an outlet with connecting wire to any building or office where groups of wires pass. Compactly grouped, with canvas covering, the wires cannot be mixed and twisted; and the wires can be placed within the insulating covering when they are not absolutely straight, the clasps making them all parallel with each other. The illustration shows how this form of insulation can be used beneath a street pavement, by inserting a wooden box near the surface, which would hold, if one foot square, over 1,200 wires insulated according to this plan. The construction of this continuous insulation is simple and inexpensive, and it is designed for aerial and underground electric conductors, for telegraph, telephone, and electric light circuits.

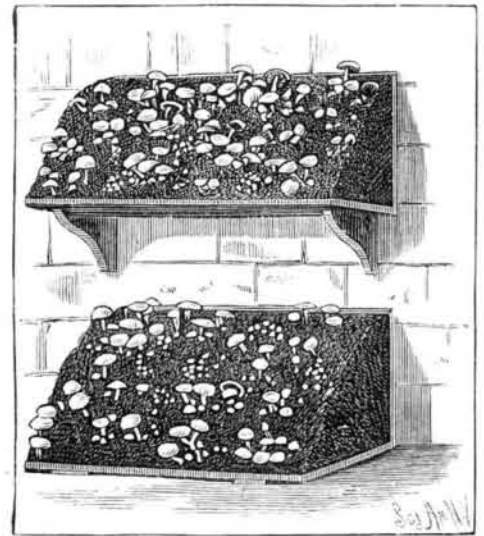
This invention has been patented by Mr. Samuel F. McGill, of Keene, N. H.

If the manger or feed box be so foul as to emit a sour smell from any cause, it should be carefully cleansed and washed with a solution of soda or potash until perfectly sweet again.—*Lewiston Jour.*

MUSHROOMS ON SHELVES.

Short horse droppings, partially dry, thrown in a heap and allowed to ferment, form the right kind of material for raising mushrooms artificially. A good way is to build shelves on the wall of a shed or cellar, as shown in the illustration; fill each full of this material; press the droppings close; cover with two or three inches of soil. Allow the bed a few days for the heat to rise, when it is ready for spawning. This spawn is sold by seedsmen in the form of bricks, which have to be broken up into small pieces about the size of a hickory nut, and set into the bed just below the soil.

If the bed is right, having a gentle heat and a little moist, not wet, the spawn will quickly spread through the whole mass, and in about a month the little white buttons will appear all over the beds, and in a very short time after the full-sized mushrooms. Any position that can be kept not warmer than 65° or 70°, and not colder than 50°, will grow them the whole year

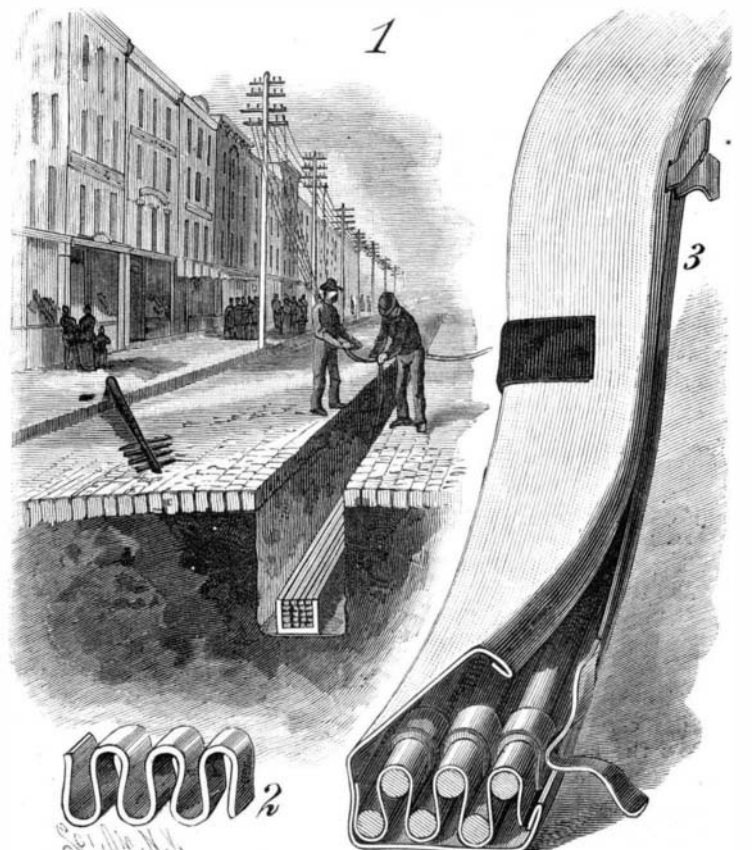


MUSHROOMS ON SHELVES.

through, but beds require to be renewed after a second crop, which can often be had from the same spawning. Any place light enough to work in will be light enough to grow mushrooms; indeed, some grow them without any light.—*Country and Town Journal.*

Sawdust for Cleansing Garments.

Mr. Scott proposes to cleanse garments by submitting them to a uniform friction produced by sawdust from hard wood, and in connection with benzine, naphtha, or analogous solvents. The garments impregnated with any of the above solvents are placed in a revolving apparatus along with sawdust of mahogany or any other suitable wood. By the employment of this wood powder it is stated that an economy is effected of 25 to 27 per cent of the cleansing material employed, and it is stated besides that the brightness of the colors is not impaired. The principle is not altogether a new one, since dyed skins, or rather skins the wool or fur of which has been dyed, are very often exposed with sawdust in a revolving cask, not only to remove any adhering particle of color which may not have been fixed on the fiber, but to give at the same time a kind of finish by the gentle rubbing action.



MCGILL'S INSULATOR FOR ELECTRICAL CONDUCTORS.