# Scientific Museum.

### Ventilation on Board of Ships.

A report has been submitted to the U. S. Senate by Senator Fish, on the subject of "Health on Board of Emigrant Ships," which contains a great mass of information relative to the causes of mortality on board of some ships and the healthiness of others. From the statistics presented, it appears that while some ships from Liverpool had not a death on board the whole voyage, others had between 70 and 80, and that with fewer passengers, and shorter voyages by some days. This occurred at the same season of the year, and the passages were made on nearly the same lines of latitude. The great cause of so much disease, in the cases referred to, is attributed to bad ventilation, and we conceive that the report has struck the true nail on the head. It is our opinion that the inhalation of impure air is the cause of nine-tenths of all the diseases in the world. What is Malaria but impure air; and is not every epedemic principally caused by a peculiar state of the atmosphere? Far too little attention is paid to having a supply of pure, fresh air—that food of our lungs, without which we cannot exist for two minutes.

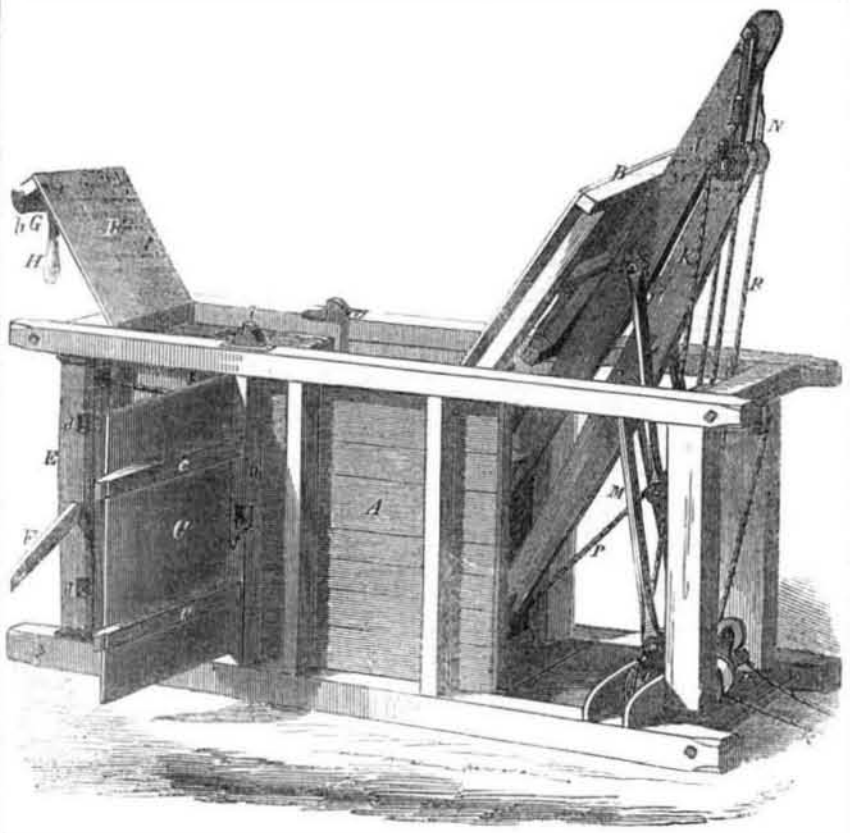
### Improved Hay Press.

This engraving is a perspective view of a press adapted for packing hay, cotton, hops, hemp, &c., for which two patents have been granted, one on the 6th and the other on the 16th of Junelast, to Levi Dederick, of the city of Albany, N. Y. One patent is for an improvement on the doors of the press, and the other is for an improvement in operating the follower—giving it a parallel motion, while pressing, by toggle levers.

THE DOORS.—A is the case or box in which the cotton, hay, or other article to be pressed is placed. It has a trap-door, B B, and a side door, C. The cotton, or hay is placed in the case through the top opening. The side door, especially, requires to be very securely fastened to resist the great pressure that comes upon it. This door is secured to a stile, D, having a small round tenon at each end. These fit loosely in recesses in the top and bottom pieces of the frame. To this stile, and also to the door, C, are secured two arms or battens, *c c*, the outer ends of which project a short distance beyond the edge of the door, C. E is a stile attached to the top and bottom pieces, like the one at D, but not to the door. This stile, E, has recesses, *d d*, which, when the door is closed, fit over the end of the battens, *c c*. F is an arm or lever attached to the stile, E, by a pivot, when the door is closed; the outer end of this arm or lever is fitted in a recess in the stile. The door, C, is thus made perfectly secure; the outer ends of battens, *c c*, fitting in the recesses, *d d*, and the outer end of the bar lever, fitting in the recess, *f*. To unfasten the door, raise the outer end of F, from the recess, *f*, and turn the stile, E, around till the ends of the battens clear the recesses, *d d*. This door is for discharging the compressed material—hay, cotton, &c. The top door, when closed, is secured by a bar, G, which is attached to a bridge, to the front edge of the door. The bar is provided at each end with a flange, *h*, to catch in the top side pieces, *i i*, of the frame, and this secures the top door on the hay or cotton, when the case is full for pressing. By raising the lever, H, to a vertical position, the bar, G, is turned so as to free the flanges, *h h*, from the caps, *i i*, and the door can be opened.

THE LEVERS.—The follower presses horizontally in the case, A; it is not seen, but suffice it to say, that the inner ends of the levers, J K, are secured to it—the one above the other. These levers are connected by rods, N, at their outer ends, and these have pivot joints passing through the levers. L M are other levers secured by pivots to J K, and to lugs, by like joints in the posts. There is a pulley attached to each side of the follower lever, K, below the ends of the connecting arms is a large roller O. A rope, R, is secured at one end on the bottom of the frame, then passes over the outside pulley, at N, then down around the roller, O, then up and over the nigh pulley, N, then down and around the pulley, on the bottom of the frame. By pulling on this rope—by winding it upon a windlass, &c., the upper ends of the levers, J K, are drawn down, and the follower thrust forward, pressing the hay, cotton, or other material with great force. The levers have a quick motion, and exert little power when they first commence to act, but have a slow motion, and exert the greatest power near the end of the stroke; this is the kind of motion required. The action of these levers is parallel, like that of the joints of a parallel ruler.

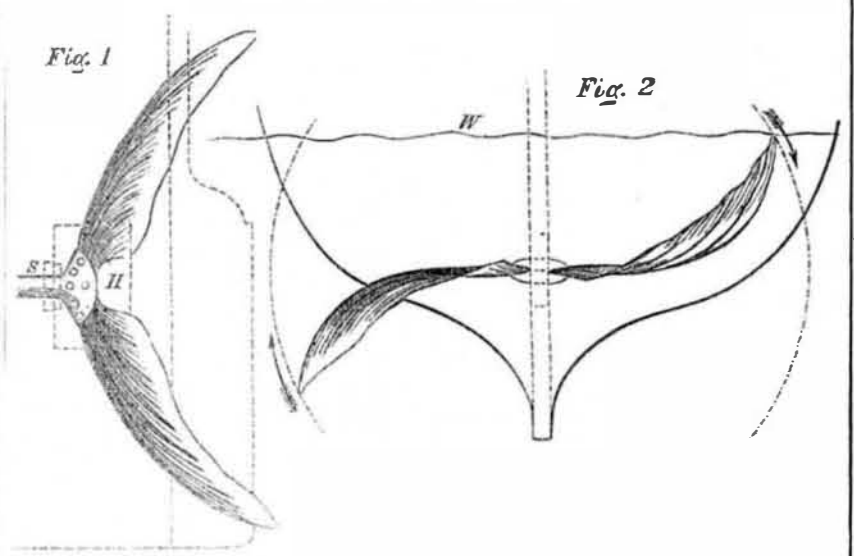
## DEDERICK'S PARALLEL LEVER HAY PRESS.




The rope, P, is connected at one end to the follower, then passes over a pulley on the top scantling of the frame, and down over another pulley. This cord is for drawing back the follower and elevating the levers, when the cotton or hay is pressed and secured in bale. This press may have a door on one or both sides. It is a very simple press, indeed, and as we understand, it gives great satisfaction where it is used. As a cloth press, one of them is in use at the Harmony Mills, Cohoes, N. Y., and it is easy to perceive that it can be used for many purposes. It can be made very strong and durable. One that can press 500 lbs. of hay costs about $175, and one that can press a bale of 200 lbs. about $100.

More information may be obtained of Deering & Dederick, Premium Agricultural Hall, Albany, N. Y.

## SWORD FISH PROPELLER.




The annexed engravings are views of a Propeller for which a patent was granted to C. T. P. Ware, (dramatist,) of this city on the 4th of last October. Figure 1 represents the Propeller, which resembles the tail of the East Indian Sword Fish; and figure 2 is a transverse section of the stern of a vessel with the propeller, H; S is the shaft; W is the water line. The blades decrease in thickness from their junction at H, towards every point of their outer and inner boundaries. The inner boundary is stiffer than the outer boundary, and therefore yields less to the resistance of the water. The shaft is to be actuated by alternate partial revolutions, like the action of the fish tail, and the blades vibrate vertically on either side of the dead wood of a vessel; therefore the point of the outer extremeties of the propeller, when not opposd by any resistance will describe the arc of a circle, as shown by the dotted lines and arrows. The plane of this circle is perpendicular to the shaft. The resistance of the water, however, causes portions of the blade remote from the shaft to yield readily. The blades are made of india rubber, or any other substance of an elastic pliant nature, in combination with inflexible ribs, like the ribbed membraneous fins and tails of fish.

The inventor has expressed himself satisfied, from close observation, that the tail of the East Indian sword fish, as also the wings of the swiftest insects and birds, are moved in this manner—that is to say, in a plane perpendicular to the direction of flight. That the sweep of the blades is arbitrarily confined to that plane, although propulsion is by no means entirely effected by the constant screw-like pressure resulting from this movement, but chiefly by the backward throw of their extremities, consequent upon their being turned from one direction to its opposite, imparting a series of impulses which the intervening screw action preserves unceasingly to keep up—so that at the end of each stroke, instead of a loss, there is a gain of propulsive force.

These impulses he supposes are further increased in effect as the vessel advances, by the well known current which follows the upward or downward sweep of the blade (as in a screw) and which, taking place at its forward edge, leaves an almost unyielding fulcrum for the rear edge and extremity to act upon when whipped back in the opposite direction.

The advantages claimed for this propeller are, that, whereas a vessel of eight feet draught would be limited to a screw of eight feet, or less, it would admit of these blades being 16 feet from tip to tip, (with a throw of 1-6 of a circle) allowing her that extent of screw surface (of increasing pitch) independent of their main action as above cited. The throw can be increased or diminished according to the draught of the vessel while the same speed will result—the less throw admitting of more frequent impulses—the greater, less frequent but more effectual ones. The water leaves the after part of the vessel in a direct line, and without the least apparent disturbance or revulsion. If the vessel be under sail, there is no necessity of raising the propeller, its blades cutting the water edgewise when not in use. By a very simple device the position of the blades is reversed, and the vessel is backed.

During a recent experiment in this city with a hand power boat, it was shown that the most powerful oarsman was unable to pull against a very trifling movement of the propeller. The blades were made of Ryder's half vulcanized gutta percha, not 1-20 of an inch thick, and the back rib of whalebone.

More information may be obtained by letter addressed to Mr. Ware, at 505 Broadway.

### Orange Water Melon.

Mr. Peabody, of the "Soil of the South," has recently presented the Columbus "Times" a specimen of this vegetable curiosity. The rind peels off like the orange and leaves the whole of the rich, luscious pulp into a lobate mass, which also divides into parts, and is most delightfully flavored. This water melon is a native of China.