### Dr. Isaac Hays.

Dr Isaac Hays, for fifty-two years editor of the *American Journal of Medical Sciences*, died at Philadelphia, April 13. Although eminently successful as a practitioner, Dr. Hays' reputation rests almost exclusively upon his connection with medical periodicals and his contributions to transactions of the numerous learned societies of which he was a member, at home and abroad.

Dr Hays joined the Academy of Natural Sciences in early life, and was always an active member, serving as president from 1865 to 1869. He was also one of the original staff of Willis' Hospital, filling the position of surgeon in that institution from its organization until about 1857. In 1830 he was elected a member of the American Philosophical Society, and subsequently curator, and up to the time of his death was a member of its Board of Councils. He was the oldest living member of the Franklin Institute, of which he was one of the founders, and for a number of years its secretary, and was also prominent in the foundation of the American Medical Association, of which he was the first treasurer, serving in that capacity for a number of years. Dr. Hays was chairman of the Building Committee of the College of Physicians, and it was principally through his efforts that the present building at Thirteenth and Locust streets was erected.

Besides contributing to the periodicals with which he was connected, Dr. Hays was also a contributor to the Transactions of the American Philosophical Society, one of his latest being a paper on the occasion of its recent centennial anniversary, and the author of the Code of Ethics adopted by the American Medical Association in 1847, and since adopted by every State and county medical association in the United States. Among his principal literary labors was the editing of Hall's edition of Wilson's "American Ornithology," Philadelphia, 1828; Hoblyn's "Dictionary of Medical Terms," etc., 1846; a new edition of the same, from the last London edition, 1855; Lawrence's "Treatise on the Diseases of the Eye," 1847, and successive editions; and Arnott's "Elements of Physics," 1848.

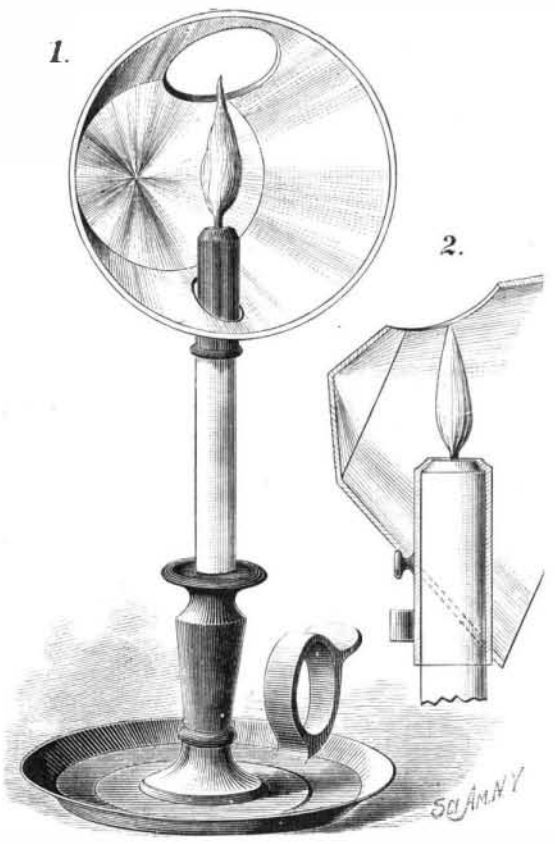
Dr. Hays was born in Philadelphia, July 5, 1796, and was the oldest living editor in continuous service in America.

### Five Thousand Dollars to find out the Distance of the Sun from the Earth.

At the meeting of the National Academy of Sciences in April last, a resolution was adopted authorizing the appointment of a committee to consider a plan proposed by Professor Newcomb for determining the distance of the sun by measuring the velocity of light. The members of the committee were: President F. A. P. Barnard, Professors Wolcott Gibbs, Henry Morton, George F. Barker, and E. C. Pickering. Their report was so favorable to the plan proposed that it was sent to the Secretary of the Navy for transmission to Congress. An appropriation of five thousand dollars for the required purpose was thus secured, and the work of constructing the necessary apparatus will be commenced as soon as the appropriation is available. The expenditure of the funds is intrusted to the Secretary of the Navy. In the act of Congress establishing a National Board of Health, which became a law in March last, the Academy is requested and directed to coöperate with this board, and report to Congress at the next session. A communication was received from the president of the board April 15, inclosing a certified copy of the act, and requesting the Academy to appoint an agency with which the board will confer to carry out the provisions of the law.

### REFLECTOR FOR CANDLES.

The accompanying engraving shows a novel device, recently patented by Mr. M. C. Meigs, of Washington, D. C., for utilizing the light from a candle. The invention consists in a cap, or partly closed tube, carrying a small reflector; the cap being of the proper size to receive the end of the candle. As the candle burns down the metallic cap settles down and keeps the reflector always in the same position in relation to the flame.




MEIGS' REFLECTOR FOR CANDLES.

The reflector is supported in such a position as to throw the whole or greater portion of the light in parallel rays in one direction.

### NEW HYDRAULIC GRID.

We annex illustrations of a new arrangement of hydraulic grid, which has been lately brought out by Messrs. Clark and Standfield, of Westminster. This grid is especially suited for use on the banks of tidal rivers and other places where there is a large rise and fall of tide, and also for use in wet docks and tidal basins, provided it can be constructed before the water is let into the dock. In such cases Messrs. Clark and Standfield consider that it may be constructed at about one half of the cost of an ordinary graving dock. It can also be advantageously used in deep water, but at a somewhat increased cost, and whereas floating and other docks require 10 feet or 15 feet extra depth below the bottom of the vessel, the grid requires only an additional depth of 2 feet, and is thus especially useful in shallow docks and places where the depth of water is limited. In the arrangement now illustrated, the vessel is raised by a row of hydraulic presses sunk in the ground directly under the center of the grid and the keel of the vessel, with a few additional presses at the sides under the shoring frames to keep the grid level and give transverse stability. They are divided into three groups, with an equal number of presses in each group; one group supports one third of the length of the vessel, and the other two groups support the remaining two thirds, one of them controlling the port and the other the starboard side, so that the vessel may either be maintained level or put on an uneven keel at pleasure. The grid is a strongly built longitudinal wrought iron girder directly under the keel of the vessel, with ribs projecting from each side to carry a working platform. Some of the central ribs carry side shoring frames, which are used in conjunction with the sliding keel blocks.

In using the dock the grid and presses are lowered to the bottom, and the keel of the vessel is brought directly over the center and secured in position by the bilge blocks and side shoring frames, the presses are then worked and the vessel lifted till the grid is above high water mark. When in this position a number of struts or swinging frames (which were previously held up in a horizontal position under the grid) are liberated and allowed to hang in a vertical position. The grid is now lowered a few inches until the whole of these struts rest on raised bearings cast on the head of the presses, and the whole weight of the vessel and grid rests on them. The rams are now allowed to sink down into the presses, where they remain in fresh water, and are consequently not exposed to rust. The supports are hinged or swung at the top so as to fall accurately into their places, and suitable means are provided for raising and lowering them simultaneously by means of chains and shears. These frames are of considerable breadth, and some of them swing transversely and others longitudinally, so as to obviate any tendency of the grid to move in either direction. There are also, in addition, strong cast iron columns, with guides, against which the grid slides as it rises and falls. The pumps, pipes, and valves are similar to those used in ordinary hydraulic docks, and the method of working them is so well understood as to require no description.

The advantages of the hydraulic grid arise from its economy in first cost and the small weight of material required. The rams are applied directly beneath the vessel, and in consequence of this the transverse girders which carry the pontoon and vessel, the lifting chains, the tall guide columns, and the pontoon can be dispensed with, and their place supplied by a simple pontoon girder or grid and a few guiding columns. Perhaps the most important of the new features in the dock is the automatic safety valve for insuring that the grid shall at all times remain perfectly level. The action of this arrangement is such that it is impossible to raise or lower one corner of the grid without equally raising or lowering the others.

This dock is, of course, perfectly well suited for the use of pontoons of the usual character, and the only objection to their introduction lies in the fact that the pontoon would cost as much as an additional dock. Fig. 1 shows an end elevation, Fig. 2 a side elevation, and Fig. 3 a plan of one of these grids erected on the side of a tidal river.—*Engineering.*

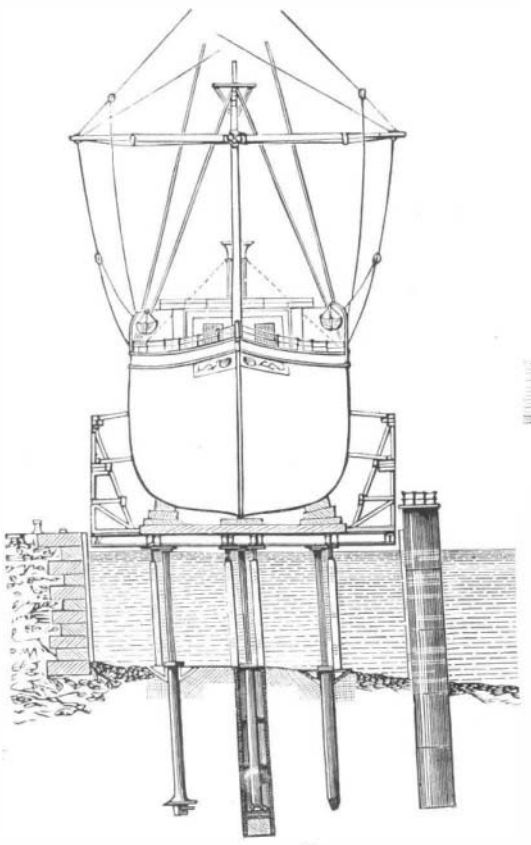


FIG. 1.

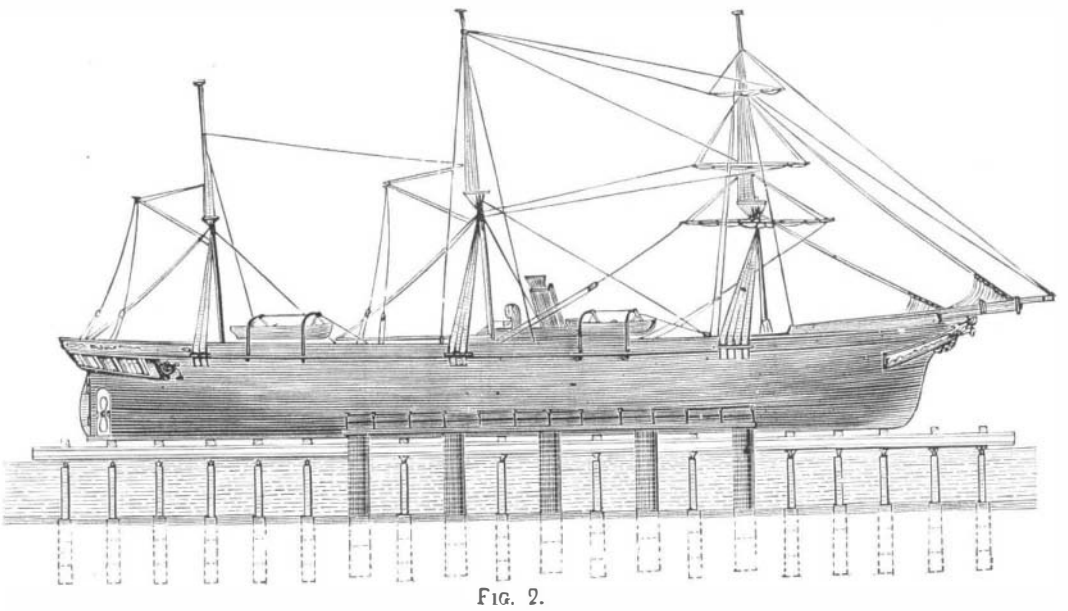


FIG. 2.

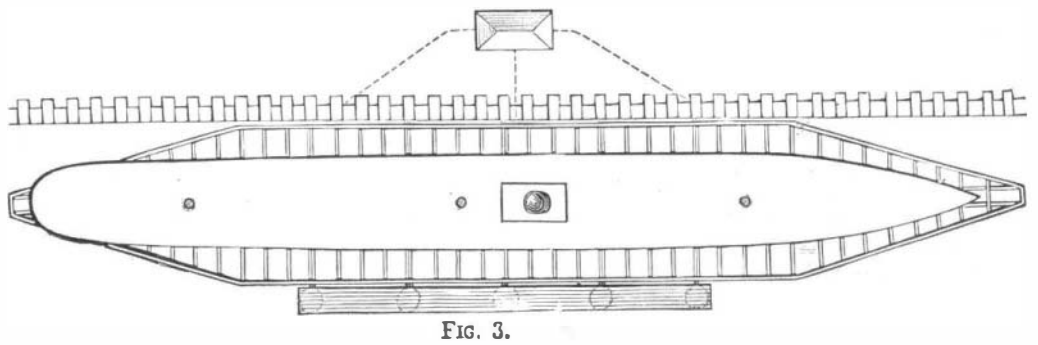


FIG. 3.

NEW HYDRAULIC GRID.