

AN IMPROVED AIR SHIP.

An air ship designed to have large carrying capacity, to be strong and yet light in construction, and be susceptible of easy and perfect control, is shown in the accompanying illustration. It has been patented by Mr. B. F. Barnes, of Circleville, Ohio. The balloon

portion is of elongated cylindrical shape, and the cab is suspended therefrom by rods extended from the frame of aluminum bands encircling the balloon, the frame of the car also consisting of aluminum rods covered by oil cloth, in which are windows and doors. On the underside of the car, as shown in Fig. 2, is a storage battery compartment and an electro-motor, the latter adapted to operate a main shaft running parallel with the balloon. The raising and lowering wings are arranged in pairs at the front and rear ends of the car, these wings being operated from the main shaft, as are also two sets of propelling wheels mounted on a frame at the front of the machine, as shown in Fig 3, the frame being capable of lateral swing, through a mechanism connected with a lever in the car, to facilitate the steering or guiding of the ship. Both sets of these wings vibrate on a single vertical rod, the crank shaft at its lower end carrying a bevel gear which meshes with a bevel gear on the front end of the main shaft. The lifting and lowering wings at the ends of the car are designed to be inoperative when the propelling wings are working, and the main shaft, which operates both, is accordingly arranged to be longitudinally movable, to effect the engagement or separation of bevel gears. To aid the flotation of the apparatus, horizontal extensions are arranged opposite each other upon the balloon, and rigidly supported therefrom by a suitable framework, and to the rear end of each extension is pivoted a horizontal rudder, capable of being moved vertically, the rudders being connected to operating levers in the car. At each end of the car is an auger, to be screwed into the ground to anchor the ship, and springs, carrying rollers at their ends, are extended like feet from the bottom to lessen the shocks or jar on the descent of the car to the earth.

NOTABLE SKILL IN CLOCK MAKING.

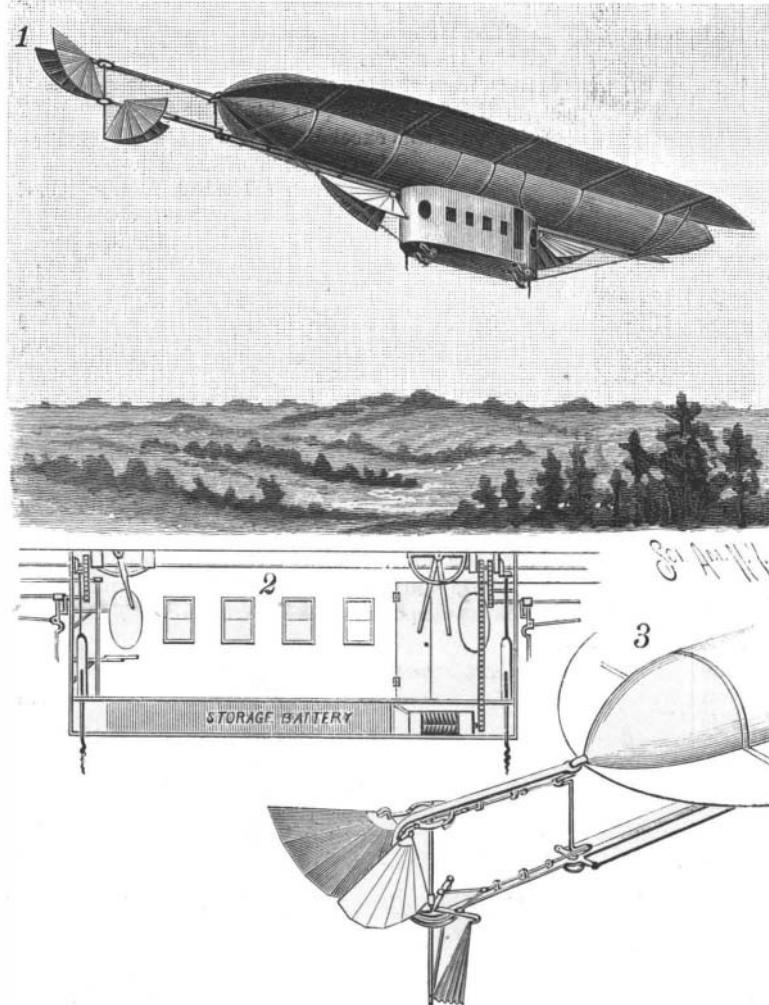
The clock shown in the accompanying illustration, made by Mr. W. R. Smallwood, of Gowanda, N. Y., required two years for its construction, and was finished September 1, 1885. It gives, in addition to standard local time in both the 12 and 24 hour systems, the day of the month and that of the week, and the true sun time at many important points on the earth's surface.

Its dimensions are, length 34 inches, height 32 inches, and depth 13½ inches. The movement alone weighs 165 pounds, and is run by three weights aggregating 256 pounds—only half the weight usually required, as a double cord is used. The material used in its construction was principally brass, although some Norway iron, cast iron and steel were employed. The parts are nearly all plated with nickel, gold and silver. The gear wheels all told carry over 5,000 teeth, the largest being 9 1-10 inches in diameter and having 180 teeth, while the smallest has only a single tooth, and measures ¼ inch in diameter. The steel cables which carry the weights are 3-16ths of an inch in diameter, and each is 24 feet in length. The pendulum, of red cedar, is 57 inches long and oscillates 54 times per minute, bearing a 6 pound adjustable iron ball.

Three distinct trains are included in the works—the main strike, the quarter strike, and the running train, the latter provided with a pin escapement. The striking trains are composed of four bells and a large gong. One bell sounds the quarter, two

the half, three the three-quarters, and four the full hour, the latter being immediately followed by the gong. It also has a cuckoo attachment, giving a melodious tone with the main strike.

In addition to standard local time and the day of the month and of the week, the true sun time of the



BARNES' AIR SHIP

following places is given by its sixteen dials: Rio de Janeiro, Greenwich, Copenhagen, St. Petersburg, Mt. Ararat, Calcutta, Pekin, Melbourne, Sandwich Islands, San Francisco, Denver, and St. Louis, and these several dials can be set simultaneously by turning a single wheel. Connected with the running train is a retaining power to maintain its motion while winding. The arm of the main strike fly is of cut brass 2 feet long, and has polished cedar cams. The main running and strike wheels are 9 1-10 inches in diameter, 5/8 thickness, and are each provided with 180 teeth of 20

pitch. Brown & Sharp's cutters were used in cutting all the gear wheels, with the pinions, 115 in number. The weights fall about 8 feet in 7 days. To prevent dust from entering the oil holes, the main boxes or bearings are provided with imitation oil cups. All the pinions in the three trains are made from case-hardened Norway iron. The main barrels are 4¼ inches long inside of the ratchets and rims and 4 inches in diameter. The movement is covered with a glass case, so that every portion of the working parts is plainly visible, and the whole work is beautifully finished.

The attachment to the extreme right, with small weight, is an automatic fire alarm test, a special contrivance of Mr. Smallwood, who is the superintendent of the Gowanda fire alarm system. It is attached to the main strike and connected to the public fire alarm system, and every day at 12 o'clock the movement is released and all the fire alarm signals are rung five times as a test that all is well. It is proposed to exhibit this clock at the coming Columbian Exhibition. Those who are interested to obtain further particulars in relation to it may address the maker, at Gowanda, N. Y.

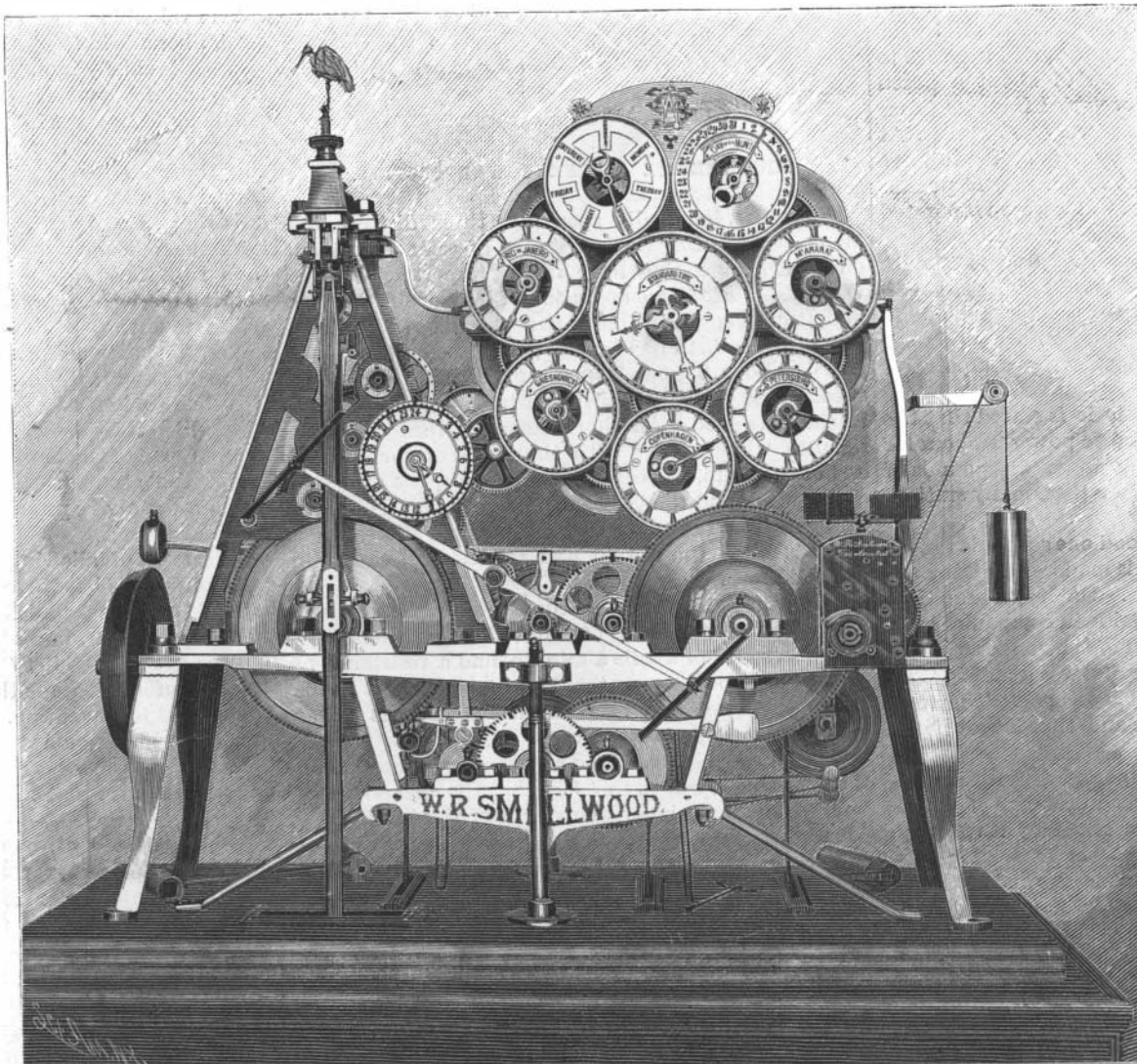
The New Cunard and White Star Steamers.

We have surely come very near the limits of size for the steamers that take the traffic of the Atlantic ferry, if the reported dimensions of the White Star steamer that is to be built to lower the record of the coming Cunarders may be accepted as correct. They are said to be 700 feet long by 70 feet beam; and the horse power is to be 30,000. Comparing this with the measurements of the new Cunard liners, they are understood to be 600 feet between perpendiculars and 65 feet breadth of beam, with a tonnage of 13,000 and a horse power equal to 26,000. The Teutonic and the Majestic, the largest hitherto of the White Star liners, measure 566 feet between perpendiculars and have a breadth of beam of 57.8 feet. The City of Paris and the City of New York measure 527 feet between perpendiculars, and are 63 feet in breadth of beam. The two White Star steamers are, therefore, already the longest afloat and have the least breadth of beam in proportion to their length of any first-class Atlantic liner, yet the proposed new White Star liner is to be 134 feet longer than the longest now afloat, while preserving the proportion of one in ten between the length and the breadth. When it is remembered that the Britannia, the first Cunarder, was only 207 feet between perpendiculars in her entire length, the jump of 134 feet all at once in the length of

the longest Atlantic steamer is something astonishing.—*Glasgow Daily Mail*.

Notwithstanding the interruptions to work which have at odd intervals taken place, the construction of the two new Cunarders, Campania and Lucania, has made such rapid progress, says the *Steamship*, that the Fairfield Company find themselves in a position to arrange for the launching of the first steamer in September, 24 feet in shipbuilding probably unequaled in the experience of the trade. The engines and boilers are even in a more forward state, both being ready for fitting up the moment the hull is in the water. As can be understood, the engines are stupendous pieces of workmanship, and are splendid specimens of the engineering skill of Mr. Andrew Laing and his staff. The parts of the engines for the second steamer are also ready, and only await the removal of the first set in order to be placed in position. There is no doubt that the boats will now be finished well within contract time.

DOCTORS say a healthy adult should eat at least ten ounces of meat each day.



SMALLWOOD'S EIGHT-DAY SIXTEEN-DIAL CLOCK.