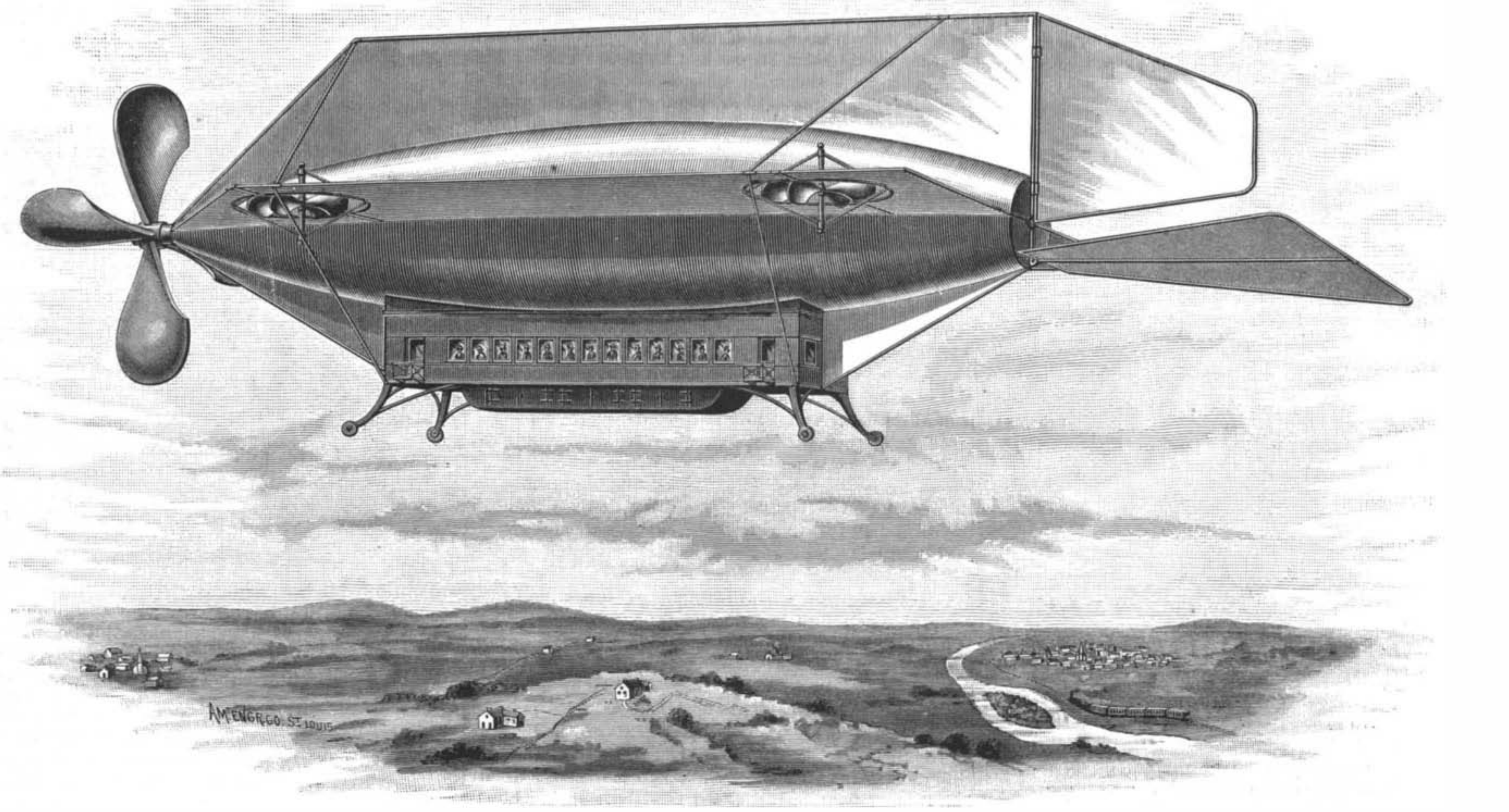
THE PENNINGTON AIR SHIP.

The rapid strides which of late have been made in the practical applications of electricity have prepared the way, in the public mind, for the ready acceptance of almost any new and striking proposal. In the popular belief the flying machine is next to an accomplished fact, and no very great surprise probably would be occasioned if the announcement were to be made to-morrow morning that a line of air ships had commenced to run between Chicago and New York. We are sorry, however, to be obliged to dash the hopes of a confiding public by the cold, unfeeling statement that the art of flying in the air by mankind has not yet been learned nor the means thereto invented. Looking at the subject from a practical point of view, our glorious people are likely, for some time to come, to be confined in their locomotion to the actual earth's surface, and to railway cars that make only from fifty to seventy-five miles an hour. But there are various schemes for air flying, and they look fine on paper. One of these paper enterprises has been widely made known in Chicago. It is styled the Pennington air ship. Twenty millions of dollars is the modest amount of the capital. A few of the shares have been reserved for sale to a hungry public. Those who have a dangerous surplus of cash on hand can promptly reduce it by investment in this deceptive and visionary scheme.



THE PENNINGTON AIR SHIP.

We give a picture of the machine as it is intended to appear by its enterprising projector, Mr. E. J. Pennington, of Mt. Carmel, Ill. Any one at all acquainted with aeronautics can see at a glance that an uncouth, bulky device like this must be lacking in the essential elements of a successful flying machine. The inventor says:

"The main part of the machine is the buoyancy chamber. This in shape is an oblated spheroid, being large at the center and tapering symmetrically to a point at either end, and looks like a huge cigar. On the inside of this chamber are two compartments; one is a receptacle for gas and the other is used as an engine room. The engine that occupies this room is a three-cylinder rotary and propels the large wheel in front of the ship. The fuel that supplies this engine is gas and is fed direct. The main shaft on this engine is hollow, and the large propeller is keyed directly on to it. This shaft is made hollow to allow the air to pass through it in the cylinders to keep them cool. On the top of the buoyancy chamber is placed the sail. This extends its full length and can be manipulated so that the currents will act to propel the ship as it does a sailing vessel in water. Attached to this sail is the rudder that guides the ship either to the right or left, and underneath this rudder is the tail; this tail is patterned after a bird's tail, and is used to raise or lower the ship independent of the propeller wheels at the sides. On the sides of the chamber are placed the wings. These wings are so made that when the ship is descending they improvise themselves into parachutes, which makes the descent gradual. On each of these wings are placed two propeller wheels, for raising and lowering the ship.

"Underneath the chamber is hung the cabin, and underneath the cabin are placed the storage batteries. The weight of these batteries make them useful for ballast, and are used to keep the ship in the proper position. On the four corners of the cabin are the stands, or brackets; these are cushioned, and when the ship alights not the slightest jar is perceptible. To explain how the ship is started, we will suppose a trip is about to be made; enough gas is put into the buoyancy chamber to make the whole ship weigh nothing, the propellers are gradually started and the ship gently rises from the surface of the earth until a height is reached to clear the tree tops and buildings in the course to be traveled. If there were any mountains or hills to clear, a uniform height could be attained at the start, so that a straight course to the destination could be made. When it is desired to make a landing the ship's bow is headed to the wind, and the rudder set so that the current of air will place the ship at the desired point, the same way that a landing is made by a steamboat. The whole construction being of aluminum makes it lighter and stronger than any other material; that is, it will take less gas to raise it, and the great tensile strength of this metal will allow it to be rolled thinner than silk and still retain as much strength as steel three times as thick. The gas engine and all other mechanical devices on this ship are patented, which gives the company the exclusive benefit of their use for a long time."

The use of the storage batteries is not explained; probably, however, they are for lighting the cabin. Where the gas is to come from to work the gas engines is not set forth.

To assist in floating this stock-jobbing enterprise the promoters have made what they call a practical demonstration of the invention on a small scale, which is now exhibited in the exposition building, Chicago. This little side show consists of a thirty-foot cigar-shaped balloon, inflated and raised by gas, and worked by means of a fan propeller, operated by a small electric machine carried below the balloon, which electric machine is worked by means of a wire extending from a battery on the ground. This float is tied to a string, and when the current is turned on, the machine moves slowly around in a 50 ft. circle in the still air of the building. It is said to be interesting to see this cigar balloon move; but as a demonstration of anything new or promising in the way of aerial navigation it is without value.

New Batteries to Protect New York City.

The government has recently commenced the work of locating batteries at Sandy Hook, to take the place of the old fort at that point, begun in 1858. Between that date and 1867 it is said over $1,000,000 were expended on this fort, which was to have been one of the most formidable in the world, but has become obsolete by the vast development which has taken place in modern heavy ordnance. The new batteries are designed to have twelve-inch guns and sixteen-inch mortars, with a range of from nine to twelve miles.

The Economy of the French.

While the description by Eli Perkins of the French stove and its varied uses may be somewhat exaggerated, it none too forcibly illustrates the habits of the French people in their household economy.

"The stove is about the size of an ice-water tank in a Pullman car. It is loaded with two quarts of coal, the small three-inch pipe adjusted to the chimney and the coal lighted. After burning awhile the draught is shut off, and the stove is wheeled around the room. The room is warmed in sections. First it is wheeled up to the old man, who throws out his fingers, then across to the old lady, who embraces it, and then up to the baby. Then it is wheeled back to the chimney, the draught opened, and the fire rekindled. There are usually two chimney holes about the room. After one room has been treated to a fire, the stove is rolled into the hall or into another room, or taken by the handle and carried up stairs. The same stove is used in the bed room to dress by, rolled into the breakfast room like a baby carriage, then into the sitting room. It is *multum in parvo.* It is a cook stove, fireplace, and furnace. The American who burns ten tons of coal in a range, twelve tons in a furnace, and two tons in grates is amazed when he sees a whole house in Paris warmed with one ton of coal. The twenty tons used by the American would warm the Boulevard des Italiens. Such overstrained economy has, however, its disadvantage in loss of health, and occasionally of life itself."

The Illuminating Power of the Edges and Sides of Flat Oil Lamp Flames.

Mr. Alfred M. Mayer has contributed to the *American Journal of Science* a paper on the illuminating power of flat petroleum lamp flames in various azimuths. The experiments were conducted with two varieties of flat flames—one being the flame of a Hitchcock lamp, in which combustion is maintained by a blast of air driven against the flame by a fan moved by clockwork, and the other a flame of an ordinary flat wick lamp. The latter flame was surrounded by a chimney; the former was not so inclosed. The following results were determined photometrically for each flame at three of the azimuths for which observations were taken. The angles were measured from the plane of the flat flames, and the results are expressed in standard candle power.

Azimuth.	Hitchcock Flame.	Ordinary Flat Flame.
0°	9·8	6·6
50°	15·8	10·25
90°	15·6	10·6

It therefore appears from these experiments that the edges of the Hitchcock flame and of the ordinary flat lamp flames give respectively about 37 and 38 per cent less light than the flat surface. This observation favors the use of ground or clouded glass globes for all kinds of flat flames, whether of oil or gas, not only for the sake of appearance, but also for equalizing the light radiated in all directions.