

THE DIRIGIBLE BALLOON OF DE SANTOS-DUMONT.

On the afternoon of September 20 M. De Santos-Dumont, a well known Parisian sportsman, made a highly interesting experiment with a balloon of his own invention in the Jardin d'Acclimatation.

The aerostat, a cylinder tapered at both ends, was made by M. Lachambre, a constructor of military balloons. According to L'Illustration, the gas-bag is 82 feet long, 11 feet 10 inches in diameter, has a capacity of 6,569 cubic feet, and is made of extra light Japan silk, rendered waterproof by means of a special varnish. This gas-bag is provided with a small compensating balloon having a capacity of 883 cubic feet, and with two automatic aluminium safety-valves, one controlling the gas, the other controlling the air supply.

On each side of the balloon and at a convenient height there is sewn to the material a horizontal gusset 53½ feet long, in which small wooden rods one foot long are secured. To the middle portion of each of these wooden rods thin cords are fastened, to which the rigging is secured. The rigging, by means of which the car is suspended, consists of cotton ropes running through box-wood thimbles, and dispenses with the usual network of cords and with a covering for the balloon, thus decreasing the weight and facilitating inflation. For further security, ropes sewn in the material and covering the upper part of the gas bag form a network which unites the two gussets by means of which the car is suspended.

The car itself is made of rattan and willow with a skeleton of chestnut wood, and is attached to the rigging by means of an intermediary steel trapeze bar. The weight of the entire balloon, including the engines and rudder, is 114 pounds.

The motor used by De Santos-Dumont is of the kind usually found on automobile tricycles, but is, however, provided with two superposed cylinders. This is said to be the first time that motors of this type have been used on aerostats. Firmly secured to the car and placed at a distance of 33 feet from the gas-bag, the motor drives an aluminium screw 32 inches in diameter at the rate of 1,000 to 1,200 revolutions per minute. The motor develops an energy of 3 to 3½ horse power, and with its accessories and with the screw weighs 154 pounds. In the perspective view of the car, A and B represent the superposed cylinders; C, the screw propeller; D, bobbins; E, escape pipes; F, the carbureter; G, the admission pipe; H, the fuel reservoir. After having been cast loose, the aerostat, driven by its screw, ascended rapidly.

As it rose, the aerostat several times encircled a captive balloon in the grounds, and finally took a course in the direction of the Bois de Boulogne at an altitude of 650 feet. M. De Santos-Dumont was, however, soon compelled to cease his experiments on account of a defective air pump that supplied the small compensating balloon; the aerostat, losing its rigid form, collapsed.

While at a height of 1,300 feet above the ground, the aeronaut opened the valve in order to hasten his descent and to avoid falling into the Seine River, toward which the lower currents of air were driving him. The descent was made without difficulty.

Berlin's Drug Stores.

The German drug store is always a mystery to the American when he first becomes one of its customers,

says The New York Sun. It is not nearly so comprehensive as the American institution of the same kind. The apothecary's department, which is only one feature of the American drug store, is an independent establishment in Germany and is devoted to the filling of prescriptions and the duties of the apothecary. The "droguerie," quite a separate place, provides half the articles customarily found here in the drug store. It is to the droguerie that one must go for soap, tooth-brushes, drugs in the pure, and all of the articles not dealt in by the apothecary. The division may be a convenient one after the mysteries have been mastered, but it is confusing at first.

Another peculiarity of the apothecaries is that most of them have names displayed. That custom dates from the earliest days of their history. One of the most famous in Berlin closed its doors the other day, and the incident recalled some interesting facts. The old names of the shops have survived to some extent, although the purely fantastic names have given place to others better suited to the commercial exigencies of modern times. The city to-day possesses 164 shops of apothecaries, and many have adopted names taken from the street, square, or region in which they are situated. There are fifty-six of these, and nineteen are known only by the names of their proprietors. Nineteen are named after birds, the eagle having ten named in its honor. There are all sorts of eagles among these ten, black, red, and white. Other names include wild animals, mythological names such as Minerva and Flora, and royal titles like Friedrich and Augusta Victoria. Most curious are those called after famous historical personages, such as Arminius, Roland and Siegfried. One difference between the early days in Berlin and the present is the practical disappearance of the French apothecaries. In 1780, when the first count was taken, three out of twenty-one were French. Twelve of these original places are known to-day by the names they bore then.

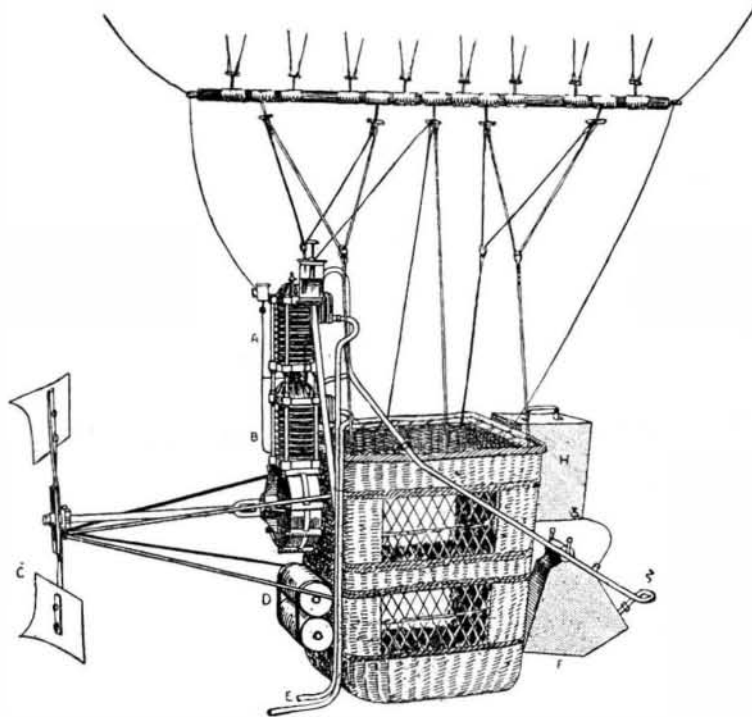
The "Alabama" Class of Battleships.

In our article in the last issue of the SCIENTIFIC AMERICAN on the launching of the "Illinois" we instituted a comparison between the "Alabama" and the "Canopus" of the British navy. The "Illinois" is one of three identical ships, the "Alabama," "Wisconsin," and "Illinois," and, as is customary in naval matters, the class is named after the first vessel of the class to be constructed—in this case the "Alabama." Our readers will therefore understand that the comparison is made with the "Alabama," representing the class, and that everything that is said of this vessel applies equally to the "Illinois."

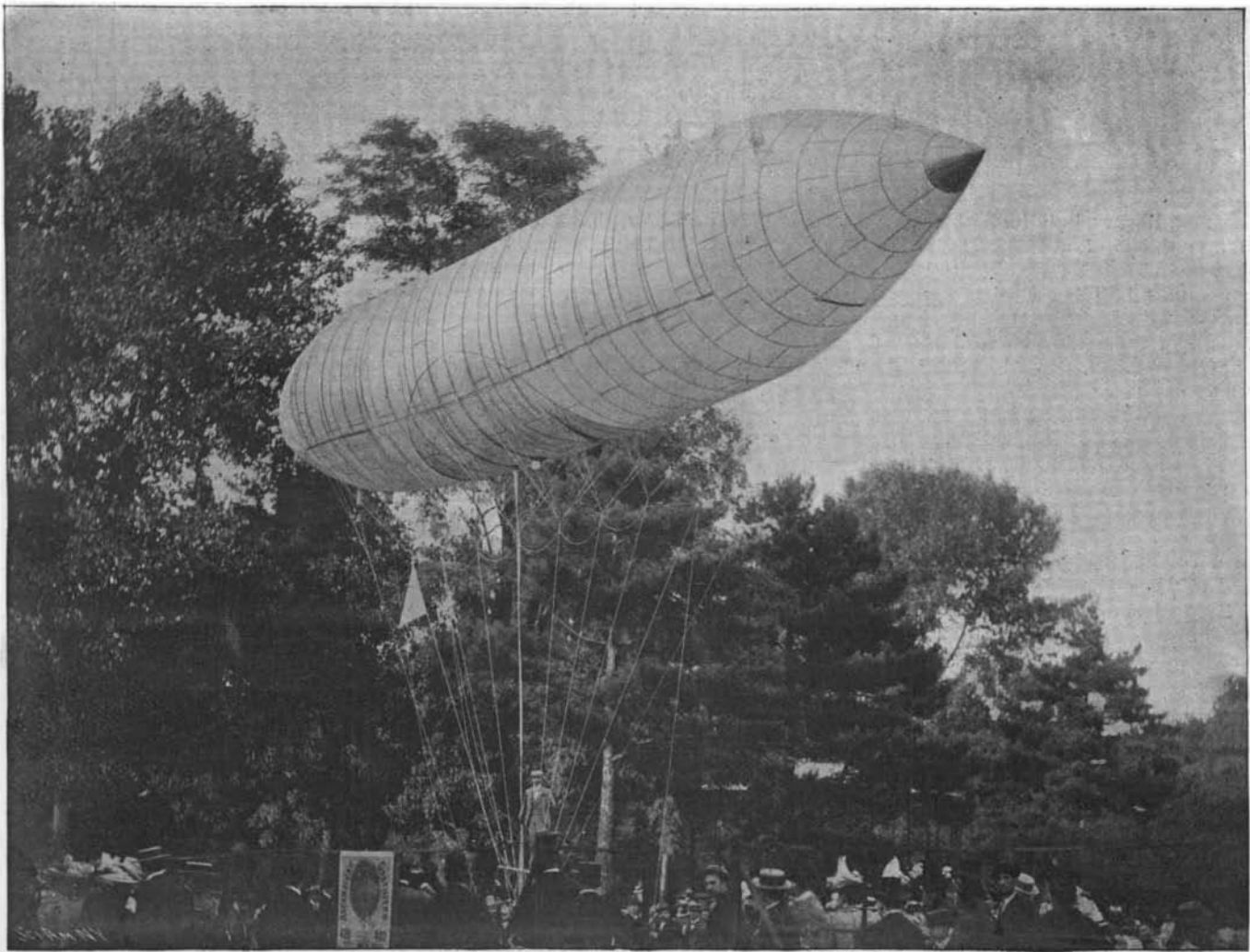
WOODEN vessels such as pails, barrels, etc., often become so dry that the joints do not meet, thus causing leakage. In order to obviate this evil, stir together 60 grammes hog's lard, 40 grammes salt, and 33 grammes wax, and allow the mixture to dissolve slowly over a fire. Then add 40 grammes charcoal to the liquid mass. The leaks in the vessels are dried off well and filled up with the putty while still warm. When the latter has become dry, the barrels, etc., will be perfectly tight. If any putty is left, keep in a dry place and heat if to be used again.—Der Seifenfabrikant.



THE BALLOON IN MID-AIR.



THE CAR AND THE MOTOR.



THE START FROM THE JARDIN D'ACCLIMATATION, PARIS.