THE SEVERO AIRSHIP.

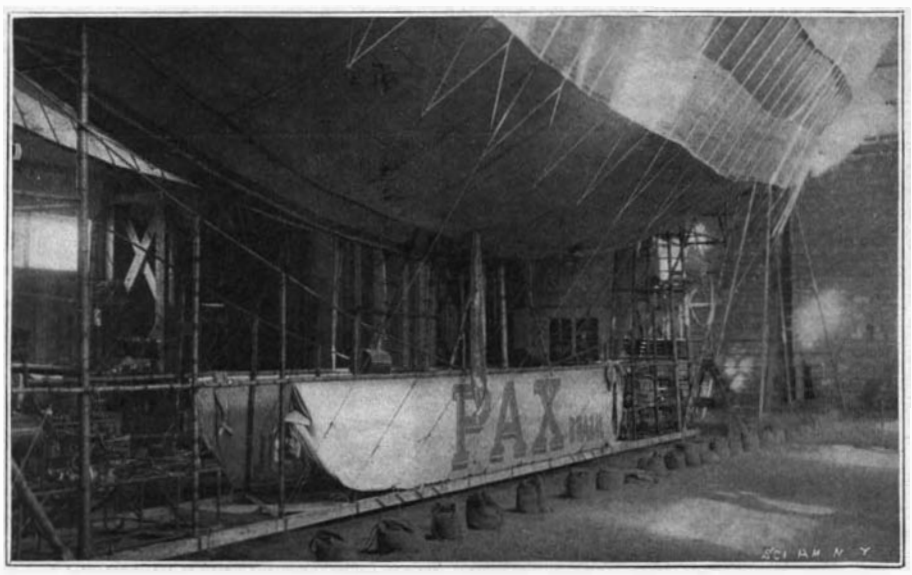
BY OUR PARIS CORRESPONDENT.

One of the most remarkable and seemingly the most practical of the different airships which are now being constructed in Paris is that of M. Severo, a Brazilian aeronaut. In the ordinary type of airship where the car is suspended from the balloon by wires, the screw, fixed at one end of the car, propels the latter and the balloon is dragged after it against the resistance of the air. M. Severo proposes to overcome the objections arising from this construction by arranging the car so that the screws will drive the balloon directly in its axis and make the balloon, so to speak, self-propelling. He carries this out by adopting the form shown in the diagram in elevation and section; the framework has the form of a trapezoid with its long side uppermost, and the latter lies in the axis of the balloon which partly envelops the frame. This framework is supported from the balloon by wires which are attached to its lower part.

The details of M. Severo's airship present many points of interest. The balloon proper measures 93 feet long and 38 feet at the greatest diameter; it is not, however, symmetrical in form, but has a considerably larger diameter toward the front than in the middle. It has a capacity of about 2,600 cubic yards and can carry a net load of 3,500 pounds. In the middle it has a large slot-like space in which is lodged the upper part of the car.

A view of this framework before mounting and another showing it joined to the balloon are presented in the engravings. The lower part, which forms the platform of the car and contains the apparatus, is 46 feet long. At each end is a gasoline motor with its appliances. The framework is relatively narrow, and measures but 3 feet at the base and 2 feet at the top. Most of it is constructed of bamboo poles of various diameters, while the flooring is of light wood. Aluminium has been used in a few cases, and the frame is well braced with steel wires. The whole has the appearance of extreme lightness, in spite of its size, combined with rigidity, and the construction has been well carried out. The car is suspended by an auxiliary covering which surrounds the balloon, composed of strips of canvas joined together by cords. This arrangement will be noticed in one of the engravings. From the lower part of the envelope is suspended the frame by a series of wires.

The system of screws and the steering device are also of a novel character. The position of the screws will be best solved in the diagram, where *A* is the main propelling screw placed in the rear and is the largest of all. It has two branches and measures 20 feet across; it is built of a steel framework and wood blades covered with cotton. The second screw, *B*, is placed in front, also in the axis of the balloon, and measures 13 feet across. It has the same general form as the front helice, but has a different pitch. Its object is to diminish the resistance of the air in front of the balloon and combat the wind, which may be opposed to the forward movement. A third and smaller screw is shown at *C*; it is placed below at the end of the platform. The object of this screw is to overcome the resistance offered by the lower part of the framework, which projects out of the balloon by 6 feet or more. As the platform contains the motors with their gasoline and water reservoirs, the mechanism and the aeronaut, and as this part is out of direct line with the propelling screw, it might offer a considerable resistance which would hinder the movement of the airship. To counterbalance the air-resistance offered by this portion of the car the small screw is provided, which measures 10 feet across. The steering apparatus is another novel feature. M. Severo considers that the different



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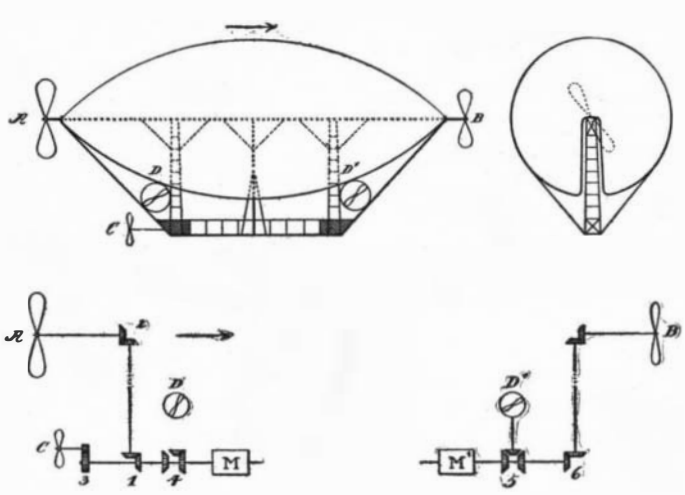
types of rudder which have been used heretofore present many objections and he has decided to suppress them altogether and use instead a pair of small screws at each end of the car. These are shown at *D* and *D'* in the diagram, and are placed crosswise of the balloon, mounted in a light framework. To turn the balloon to one side the front pair of screws are turned in one direction and the rear pair in the other, and when the angle is sufficient these screws are stopped and the balloon continues in a straight line. The screws have another advantage in overcoming to some extent the



DETAILS OF AIRSHIP SCREWS.

force of the wind when it comes at right angles to the balloon. By working all four screws in a direction contrary to the wind its effect is more or less counterbalanced. It is also expected that the balloon may be made to turn about its vertical axis while in one spot by means of these screws.

To operate all the different screws requires a number of mechanical transmitting devices, but the aeronaut has succeeded in reducing these to the simplest form. The main features of the mechanism will be seen in the second diagram, where *M* is the rear motor with its main shaft. The shaft carries a pair of friction cones, *1*, which transmit the movement to a vertical shaft carrying a pair of bevel gears, *2*, and these drive the horizontal shaft of the rear screw, *A*. The compensating screw, *C*, is driven by a pair of gear-wheels, 3, while the steering screws, *D*, are operated by a conical friction-clutch, *4*. By shifting the upper cone-wheel to one side or the other by means of a lever, the direction of its shaft is reversed and in consequence the steering screws turn in one or the other direction. In the forward part of the car is a somewhat similar arrangement. The motor, *M'*, operates the steering screw, *D'*, as above, and at the end is the transmission for the front screw. The framework, where it enters the body of the balloon, has a protecting covering of cotton cloth to prevent it from rubbing against the silk of the balloon and thus injuring it. The balloon will be provided with air-bags for keeping it filled out as the hydrogen escapes. The whole airship will weigh, when completed, about 4,850 pounds. The water and gasoline of the motor will serve as ballast and will be consumed instead of being thrown overboard, thus giving an economy to the weight. The airship has been built in the establishment of H. Lachambre, one of the principal balloon constructors of Paris. One of the views shows the balloon while filled out with illuminating gas in order to give it a preliminary test as to capacity and tightness. When finished it will be filled with hydrogen from a generator which has been installed on the premises, and M. Severo expects to try it first on the ground surrounding the balloon-shed, and then if successful to make a tour in the neighborhood of Paris.

The Jardin des Plantes, of Paris, has lately been presented with a specimen of the hyena-dog or *Lycaon Pictus* by M. L. du Mazel, a government official at Senegal. This is the first specimen of the animal which has been obtained in France. M. Oustelet, of the Zoological Gardens, has given some information pertaining to this animal. It inhabits especially the region south of the Sahara and is found in south and east Africa, at the Cape, at Kordofan, in the Somali country and Soudan, but seems to be wanting in the Congo region. It lives in holes, at least for a part of the time, and preys upon the antelope especially, which it attacks with ferocity. These burrows are, however, only a temporary shelter. The female retires to them to give birth to her young, but when these have been sufficiently reared, the burrow is abandoned. The lycaon has a greater resemblance to the dog than to the hyena but its coat is somewhat the same color as the latter, being irregularly mottled with black and white upon a yellowish ground. The hind legs and rear of the body are not of diminished size as in the hyena, nor is the dentition the same. In these respects it more closely resembles the dog. On the other hand, the paws have but four toes. The lycaon seems to have been known in ancient Egypt, and it could have been brought there from the Kordofan region. At least that is the opinion of M. Francois Lenormand, who thinks he is able to recognize it in a certain animal found in one of the Egyptian tomb-paintings.

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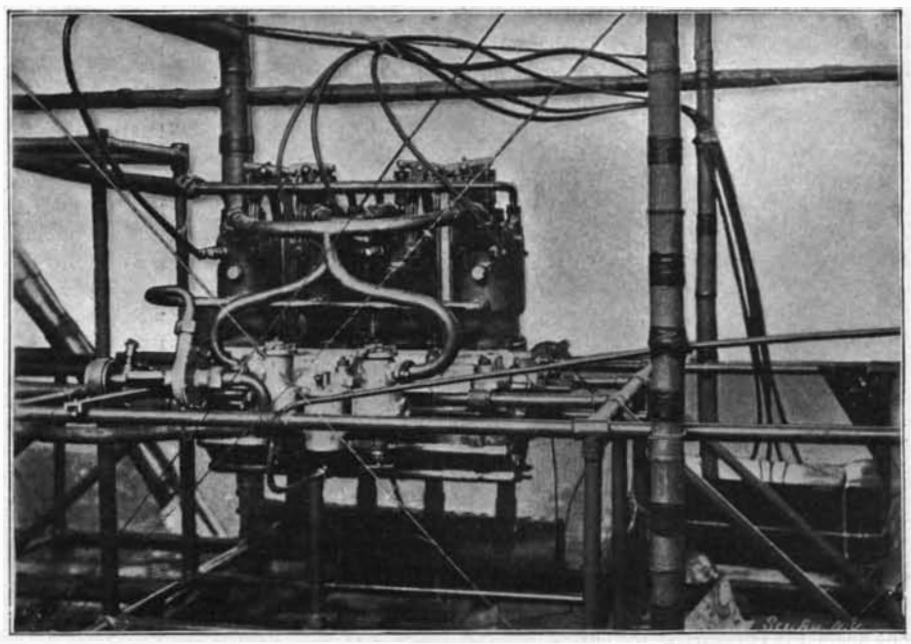
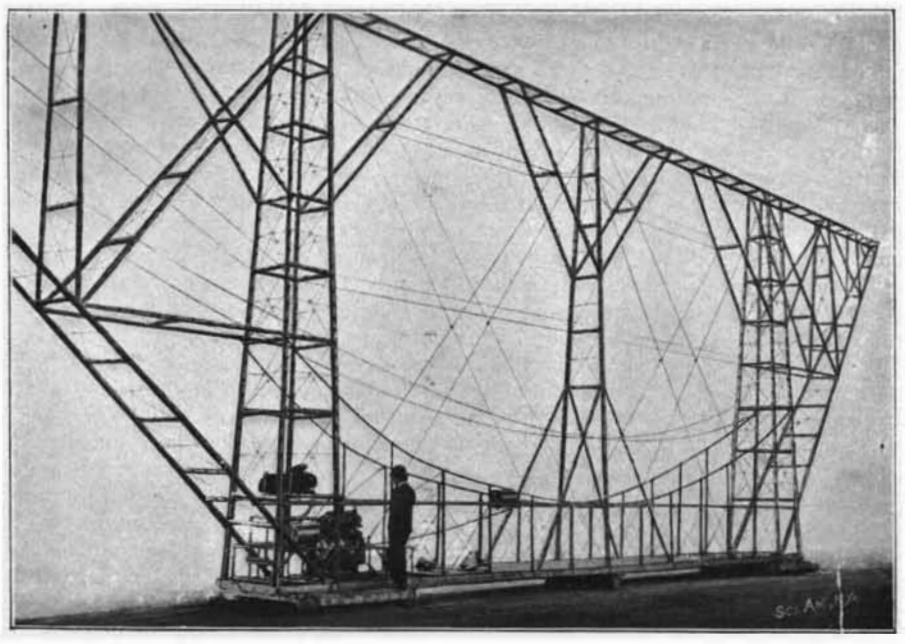


BUCHET MOTOR OF THE SEVERO AIRSHIP.



FRAMEWORK OF THE SEVERO AIRSHIP.