THE MARÉORAMA AT THE PARIS EXPOSITION.

The amusement section of the Paris Exposition has occupied the serious attention of some of the cleverest mechanics Europe has produced. At many places in the Champ de Mars and Trocadéro sections are panoramas and side shows of all kinds which vary greatly in merit. Some of them are highly interesting even from a scientific point of view. The Maréorama is one of the most attractive of the many panoramas, and is located on the Champ de Mars near the Quai. Here the spectator may enjoy a trip in the Mediterranean from Marseilles to Constantinople, touching Algiers, Sfax, Naples and Venice on the deck of a steamer worked by a contrivance which causes it to roll and pitch as at sea. Nothing is wanting to complete the deception. There are smoking funnels, steam whistles, etc., while varied scenes of sea and shore pass in review as the spectator steams along the coast. He experiences the zigzag lightning and the crashing thunder of the tempest; he views the sunrise, and later sees a night effect.

The Maréorama has required the exercise of peculiar mechanical talents of a high order. In its construction two problems had to be solved: first, that of effecting the unwinding of two canvases each 2,460 feet long and 42½ feet high, and also giving a double swinging motion to the platform carrying the spectator. The problem was at last finally solved in a very ingenious manner by M. Hugo d'Alesi, a painter who has made a specialty of painting well-colored and realistic landscapes for railway and steamship companies' advertisements. He is also well known as a poster artist. Many decorative and scene painters worked under his direction for eight months to transfer his sketches to the 215,000 square feet of canvas which is unwound for the spectator. The visitor to the Maréorama stands on the deck of a ship, which is made to pitch and roll mechanically. The wind whistles in the rigging as it grows to a tempest. As the voyage progresses, the rocking of the ship becomes more violent, there is the usual sound of the screw and of the steam siren. Even the smell of tar is detectable. To add to the illusion, deck hands are hurrying about the deck, ostensibly to help any who may suffer from *mal de mer*.

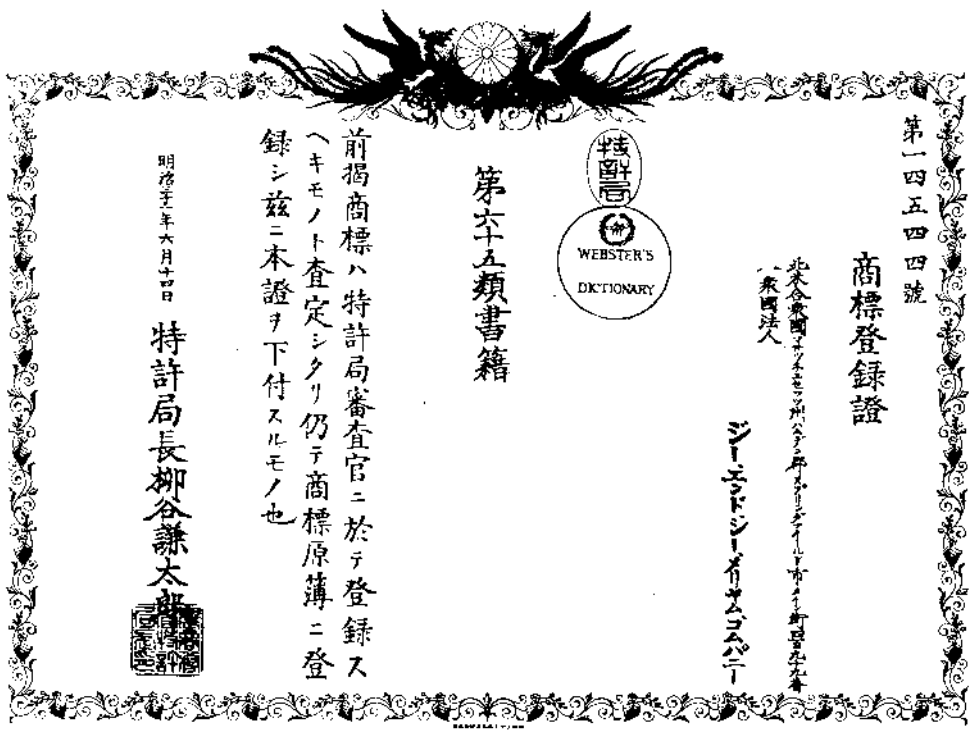
One of the canvases unwinds to the starboard and the other to the port side. Both are wound on cylinders at the ends of the vessel. The latter are concealed by curtains and decorative motives. The same system is used in both canvases. The problem which confronted the builders of the panorama was that the canvases, each of which comprises 107,500 square feet, must be made to pass from one cylinder to the other end of the vessel and be wound on another cylinder. The cylinders being vertical, it was, of course, necessary to sustain the great weight of canvas at various points, in order to prevent it from sagging. M. d'Alesi adopted a very ingenious arrangement for surmounting these difficulties. Each cylinder ends at the top in a truncated cone, of which the large base points upward, and upon the entire surface of which are arranged hooks according to a helicoidal curve.

The cylinders are supported by floats, which permit them to move in a vertical direction a distance equal to the height of the truncated cone. They are revolved by hydraulic motors situated at the very top of the construction. The upper edge of the canvas is reinforced with a thin band of steel, containing apertures at regular distances, which are adapted to engage hooks attached to short horizontal iron rods, secured to the lower extremity of small trolleys, which are connected with each other and which run upon a rail. The housings of the trolley wheels are connected at the top by rods, so that when the mechanism is started one trolley wheel follows the other on the rail at a foreordained distance, thus carrying the canvas with it. Yokes are attached to the superstructure which carries the rail, and at the bottom of the yokes are rollers which are adapted to press the canvas into contact with the hooks secured to the trolley. The result is that a positive motion is imparted to the canvas without any danger of the canvas slipping or sagging. At the beginning it is unwound for the entire length of the vessel, and the steel band at the top is engaged with the first hook at the small base of the cone of the winding cylinder. When the latter is set in motion by the hydraulic motor, the band detaches itself from the nearest trolley hook, and the apertures with which it is provided present themselves opposite the hooks of the cone, our small inset diagram showing the path of the canvas, the trolleys moving in a curve as they approach the cone. As the canvas winds by the ingenious mechanism, its weight causes the sinking of the float that carries the cylinder, and the hooks of the cone situated at different points present themselves in succession at the level of the point at which the steel band detaches itself from the hooks of the carriages of the trolleys. Naturally the adjustment of each of the hooks to the winding drum, or cone, was a delicate piece of work, because the exact point was dependent upon the weight of the canvas, and as the latter is not entirely homogeneous, its weight is not the same at all points. It varies likewise with the size of the painting. These differences were corrected by weighting the lower edge with small plates of lead placed in pockets. After the apparatus was once adjusted, there was no further difficulty.

The spectator stands upon a platform which represents the deck of a transatlantic steamer. In order to give the deck on which the visitor stands a rolling and pitching motion, the well-known Cardan suspension system is used.

The vessel proper is mounted centrally upon an iron frame which is 16 feet square, and which is journaled in such a manner as to allow a longitudinal or pitching motion to be imparted to the body of the vessel. The journal rests upon two trunnions, which, in turn, are mounted upon another frame which is journaled at the center in such a manner as to allow a lateral or rocking motion to be imparted to the body of the vessel. The trunnions carrying the lower frame are mounted upon masonry piers. At each end of the platform of the vessel are two pistons which operate in hydraulic cylinders which are connected by means of a conduit. A chain is attached to the extreme end of the main platform of the vessel. By means of this chain the pitching motion may be imparted to the body of the vessel by an electric motor.

By means of a Stephenson link-motion the amplitude of the movement can be varied. For the pitching, it is possible to proceed to a maximum of 20 inches on each side of the horizontal plane, say 40 inches of the total displacement for the extremities. For the rolling, it is possible to have 8 inches. An electric motor actuates the pumps designed for the hydraulic motors and elevators employed in the construction annexes. Two other and smaller electric motors actuate the sectors that effect the traction upon the chains for the displacement of the platform.



A JAPANESE TRADE MARK FOR WEBSTER'S DICTIONARY.

German Mask Industry.

Paper masks are made by doubling one sheet of a specially prepared paper, wetting it, and moulding it by hand over a face form; it is then dried by artificial heat and cut off of form. Openings are cut for eyes, nose, and mouth, and it is painted and decorated by hand as desired. The paper used by Sonneberg manufacturers is made in Oeslau and Schleusingen, and costs at present about 33 cents per 480 sheets. One sheet makes three of the common masks. The painting of cheap masks costs about 12 cents the gross; the moulding of face costs about 14 cents per gross. Packing is figured at about 3 per cent, as the masks are rolled in brown paper, the ends being folded in to save string. The expenses are estimated at about 15 per cent, leaving the net profit 20 to 22 per cent, as the complete article sells at present at about 42·8 cents per gross. The cash discount varies from 2 to 5 per cent, according to the size of order and reliability of purchaser. Last year the masks sold for about one-third of a cent each, says Consul O. J. D. Hughes, of Coburg, and next year's price is expected to be 43 cents per gross. The cost of raw paper next year, it is estimated, will be higher, and there will be an increase in the cost of painting. The hair used for mustaches, etc., cost last year 15·5 to 17 cents per pound. Manufacturers have no trouble in getting good prices, and are making handsome profits. These calculations are on the cheapest staple goods; on specialties the gain is considerably more.

Wire masks are made by stamping a piece of wire netting about one foot square over a face mould in a large machine, inclosing the rough wire edges in a narrow strip of lead, and painting. The latter is done by hand in oil colors. The prices of these masks have undergone little change during last year, but an increase of about 4·7 cents the dozen is looked for next season. The present selling price of the cheaper masks is 47·6 cents the dozen. The wire is at this date selling for $8.33 per 220 pounds, but this is an extraordinarily low price.

Gauze masks are made by moulding over a clay face form a doubled piece of cheap linen gauze that has previously been soaked in a starchy paste. The sticky linen is made to adhere to the form, and this is set on a stove and dried for about twenty minutes. The linen is then taken off and openings cut for the eyes, mouth, and nostrils. It is painted as desired, and makes one of the most practical masks known. The gauze mask is used considerably in the United States, but the larger portion of them are made therein by machines owned by two firms, one in New York and the other in Findlay, O.

A JAPANESE TRADE MARK.

Of all the patent documents published throughout the world, it is doubtful whether any possess for us a more curious interest than the specifications, copyrights and trade marks issued by the Japanese government. Some idea of the oddity of these papers, with their characteristic script extending after the Japanese fashion up and down the page and the artistic ornamentation not always found in legal documents, is conveyed by the accompanying fac-simile reproduction of a certificate of registration for a trade mark for Webster's Dictionary, obtained through our agency. Translated the paper reads:

CERTIFICATE OF REGISTRATION.

Registration No. 14,544. Class No. 65, Books. Proprietor, G. & C. Merriam Company, 499 Main Street, Springfield, Mass.

The trade mark represented in the fac-simile having been decided by the examiner of the Patent Bureau as permissible of registration, the same has been this day entered in the Register of Trade Marks, with the register number above written, and this certificate hereby issued.

KENTARO YANAGIYA, Director,
Imperial Japanese Patent Bureau.
Tokio, June 14, 1900.

Panama Hats.

The hat for summer wear which is termed "Panama" does not really come from Panama; Ecuador is its real home, but the industry extends to Peru and even to Yucatan. The hat is known all through Latin America as "jipijapa," in honor of the city where its manufacture was first started. It is only outside of the countries which produce it that the hat receives the name of "Panama." In its fabrication the leaf of a small plant is used which grows abundantly in the country. The leaves have the shape of a fan and the plant is known as the Carludovica palmata. In buying one of these hats it is necessary to find out two things: first, if the straw is whole, and second, if it is not stiffened. The weavers split the straw with such perfection that unless the purchaser is accustomed to such examination, it is very difficult to tell the difference between a hat made of whole straw and one made of split straw, although the former is worth several times one of the latter. Good torquilla is white and stiff enough not to need any gum, and only the ordinary hats are treated.

The finest hats ever made were by a native named Palma, and were exhibited at the Paris Exposition when Napoleon III. was Emperor. The best two were bought by a French gentleman for 1,000 francs ($193) and presented to the Emperor and Marshal MacMahon. Palma is now dead, but there are two or three others who possess equal skill.

Monotony in shape has been, perhaps, one of the chief causes why the hats have not been more popular, but if dealers would take up the matter the natives could easily make any style desired. Ladies' hats may be worn a number of successive seasons; cleaned and retrimmed, they appear perfectly new.

THE Astrakhan electric tramway, which has recently been opened, has a single track with a total length of 12½ miles. The boilers for the power house are constructed for naphtha fuel.

SCIENTIFIC AMERICAN

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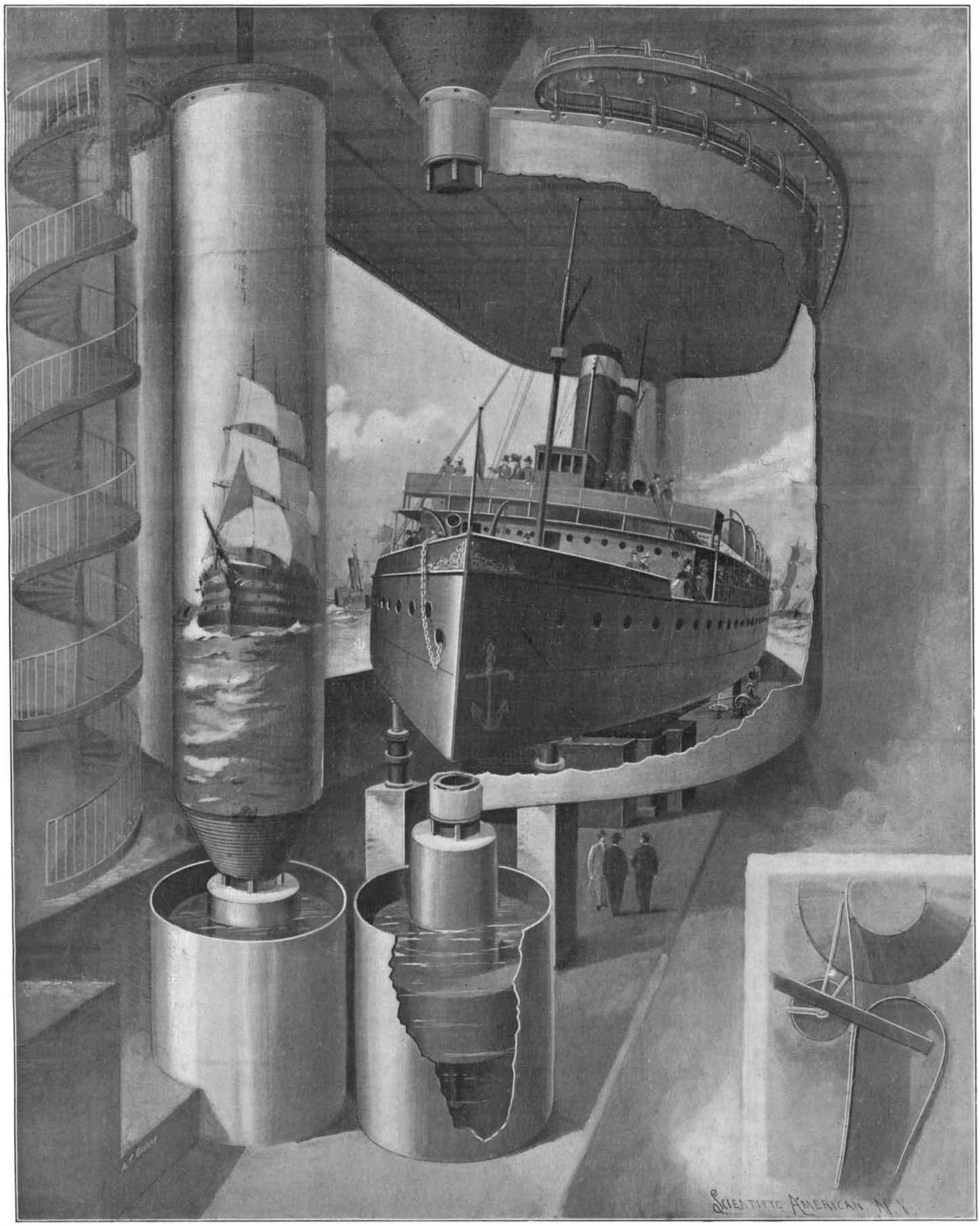

THE MAREORAMA AT THE PARIS EXPOSITION—A COLOSSAL PANORAMA VIEWED FROM THE DECK OF A SHIP.—[See page 198.]