FRENCH AND ENGLISH WAR SHIPS COMPARED.

At the recent English naval exhibition a number of fine models of war ships of different nations were shown, which, according to the *Engineer*, were of their kind among the most beautiful models ever produced. The armor plates in the models were all made of iron, and being left unpainted, the eye at once takes in what parts are armored, except where covered over with wood. Our contemporary gives the following descriptions:

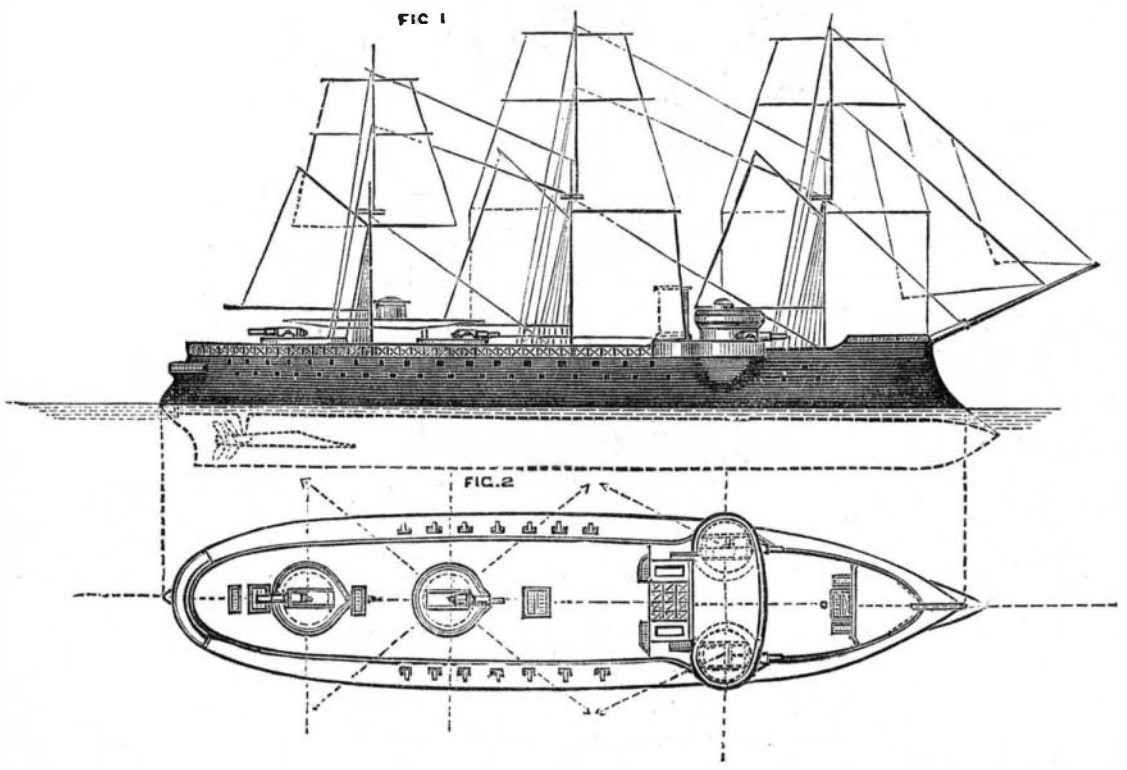
1. The Admiral Duperré—model nearly 6 feet long, the vessel being 320 feet long, Figs 1 and 2. Her chief artillery features are the great height above water of her heavy guns, viz., 27½ feet; the fact that they fire *en barbette*, being fixed on turntables; and, lastly, her broadside armament of 5½ inch guns. This vessel has a great power of all-round fire with her four heavy 46-ton guns, which are placed two in barbette towers projecting over the ship's side on each bow, and two in towers over the keel, one in the middle of the quarter-deck and one abaft the mizzen mast. She has fourteen broadside 5½ inch guns. As to armor, she is only armored vertically along her water-line and on her barbette towers, the thickness on the belt being 21·6 inches, and on the towers 12 inches. She has a horizontal armored deck flush with the upper edges of the belt and hurricane decks, protecting the barbette guns from the fire of machine guns in tops.

As to form, she has the two marked peculiarities of French armor-clad sea-going ships—an enormous knife-like ram and the narrowed upper deck due to the tumbling home of the sides. She is in the full sense a broadside ship, and fully masted.

2. The Redoubtable has, in a less degree, the characteristic features of great command, narrowed upper deck, and knife-like ram. She is very flat bottomed, and has three keels. She is a central battery ship, armored with 9½ inch plates on her central battery, and her water-line 14 inch plates, and having a horizontal armored deck—2⅛ inches. She has four powerful guns—12½ inches—in her central battery; three—10½ inches—in turntables on barbette towers on the upper deck; two light guns on her poop firing ahead; and six—5½ inches—broadside guns on the upper deck. The tumble home of her sides causes her citadel to project, and enables her heavy guns to have a great sweep of fire, shooting nearly fore and aft if necessary. This is again a fully masted broadside ship. The flaw in her is that she has a single screw, which puts her at a certain disadvantage in turning and ramming.

3. The Devastation. This is another central battery and broadside ship. She has 15 inches of armor on her belts, and a horizontal armored deck of 2¼ inches. The battery has 9½ inches. She carries four heavy 13⅜ inch guns—query, 46 tons—in her central battery; two heavy guns—10½ inches—on her upper deck; and six medium guns—5½ inches—of which two are on the poop and four on the broadsides. The chief features in this ship appear to be the great power of her six heavy guns and the special power of depression, coupled with the high command of her two 10½ inch guns, which are considerably exposed, but receive some protection from a steel shield which moves on the traversing platform, beautifully shown on the model. There are also the usual features in this class of French ships of the tumbling home of the sides and projection of the citadel, with consequent wide sweep of guns, knife-like ram, etc. This vessel is, in our opinion, greatly in advance of the Redoubtable, which she resembles in many respects. She has twin screws.

4. The Tempête. This is a first-class coast defender. She is protected with 11¾ inches of vertical armor, and 2 inches of deck armor, all beautifully shown in the model. She has one turret, with two 10½ inch guns. The peculiar form of turret adopted in the French navy with central conning tower is well seen in this model.



THE FRENCH WAR SHIP ADMIRAL DUPERRE.

The French ships are shapely and imposing compared with ours. Their high decks and formidable armaments of guns contrast strongly with the heavy low structure seen, for example, in our Devastation, where, if the turret ports happen to be turned away, not a gun is visible. We recollect seeing some army officers arrive at Chatham, who were shown the Glatton, but who failed to see any man-of-war till it was explained to them that the structure that they mistook for a steamboat pier was the then notable ironclad. How the French and English ships would stand in war is another question. The French offer a large target to artillery, and the men are greatly exposed. Our ships are not in a position to take full advantage of this, because they have only a very few guns, which are so heavy that their powers would be wasted in firing at anything except the vital parts of their adversaries. As we have on other occasions pointed out, the great need of the English ships is a second armament of medium guns. Speaking generally, the French ships are calculated to obtain great offensive results with their large armaments of guns, but are very vulnerable.

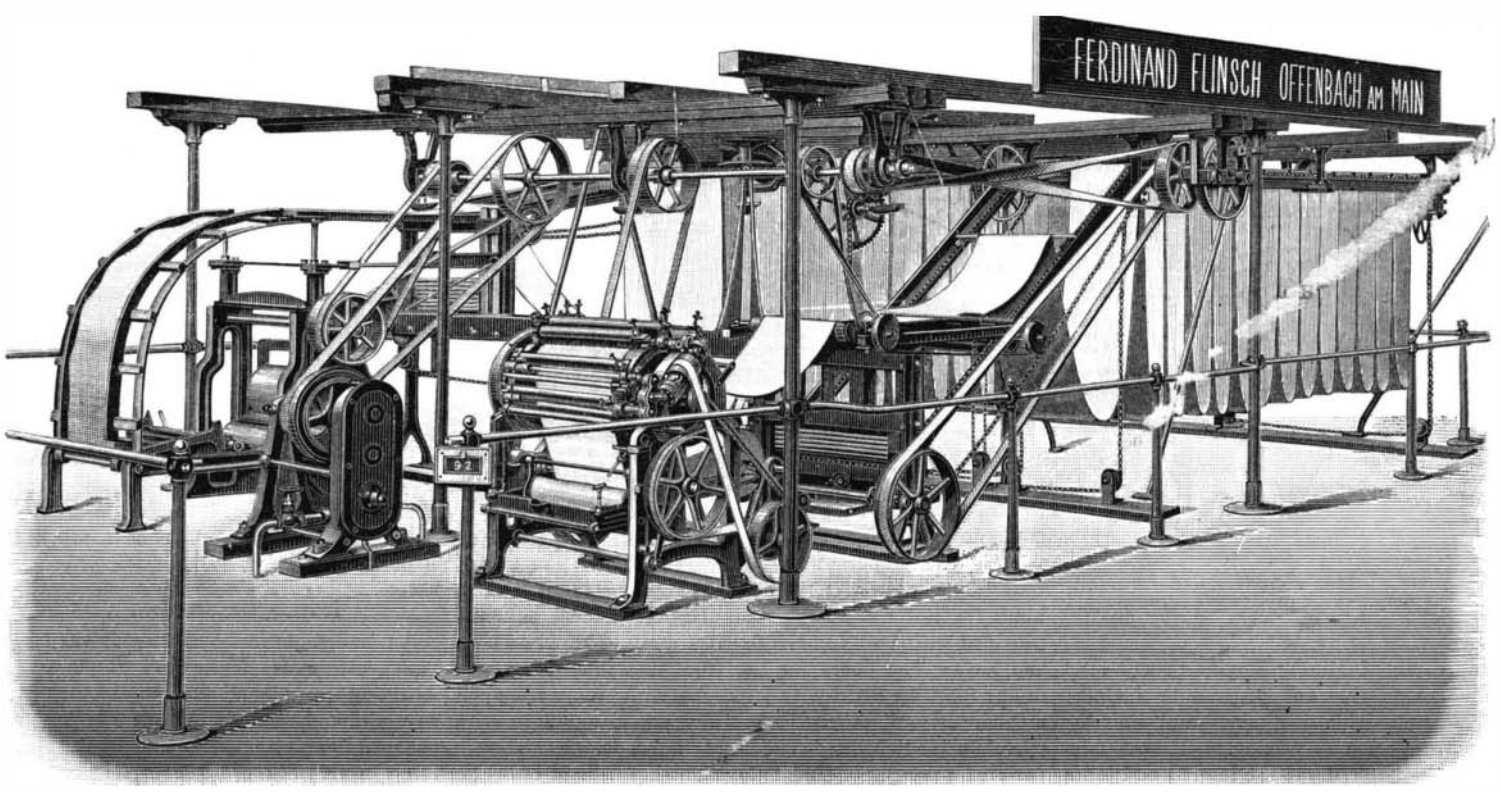
MACHINE FOR COLORING AND GROUNDING PAPER FOR PAPER HANGINGS, ETC.

In printing offices, book-binderies, paper hanging factories, etc., large quantities of colored paper are used which is generally colored on one side only. Formerly these colored papers were produced by manual labor, but of late machines have been used for applying the color, rubbing the same on the paper, drying the paper, and then smoothing the same.

Mr. Ferdinand Flinsch, of Offenbach a. M., Germany, is well known as a manufacturer of machines for coloring paper; and the machine exhibited at the patent exhibition in Frankfurt a. M. gives ample proof of his ability in constructing and manufacturing machines of this class. In the annexed engraving a perspective view of this highly interesting machine is shown. Into the machine the paper is placed in large rolls; it is then unwound by the machine, colored, dried, smoothed, pressed, and finally wound into a roll. The first machine in which the roll of white paper is placed is a coloring machine, and the same draws the paper through coloring mechanisms, and then takes it over a large cylinder, upon which the color is distributed on the paper by a series of rotating brushes. The moist paper is then conducted upon a second machine, which is used for drying it. In this second machine the moist paper is hung on a series of rods or shafts, and is moved backward and forward on the same a greater or less length of time until it is dry. This drying machine is very interesting, and is different from other similar machines inasmuch as chains are used to turn the rods, whereas heretofore belts or ropes were used, which produced irregular movement, as the ropes or belts contracted more or less, and thus some parts of the sheets were moved faster than others. These defects are avoided by the use of the chains. The paper is conducted through the space or room several times, and thus a very great length of paper can be dried within a very small space. After the paper has been dried it is passed to the winding machine, which winds it into a very solid and firm roll, the edges of which are as smooth as if they had been turned off. The fourth machine is an automatic adjuster for the rods or shafts on which the paper is hung while drying. A small steam engine of about one-half horse power is sufficient to drive all the machines.—*Der Practische Maschinen-Constructeur.*

Examination of Tallow at Paris.

The sample is first dissolved in chloroform, when gelatinous matters, fragments of skins, calcium phosphate of lime, and other non-fatty matters remain undissolved. The French stearine makers take 44° as the lowest permissible melting-point for tallow. In order to determine oleine and stearine portions are saponified, the soda-soap is decomposed with sulphuric acid, and the fatty acids set free are examined for their point of congelation.



MACHINE FOR COLORING AND GROUNDING PAPER FOR PAPER HANGINGS ETC.

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