New American Ships of War.

Under the recent act of Congress the plans for the three new battle ships are being rapidly developed and prepared. When Secretary Tracy issued his circular on the 1st of July inviting proposals to construct the ships, further details were promised for the information of bidders. The promptness with which the call was published and the general plans were announced has given much satisfaction.

The act provided that the three vessels should each have about 8,500 tons displacement. The actual plans contemplate about 9,000 tons displacement, with the same limit of cost, which is $4,000,000 each, exclusive of armament and speed premiums. This will allow a length of 332 feet on the load water line, an extreme beam of 69 feet, and a mean draught of 24. The hull is to be of steel, unsheathed, with bracket framing, and double bottom from armor shelf to armor shelf fore and aft.

The armor at the water line is a belt of steel seven feet in breadth and eighteen inches thick, with an added one and a half inches behind the wood backing. The transverse armor at the ends of the belt will be fourteen inches thick, while from the belt to the main deck there is five and a half inch armor on the side, backed by a broad bunker of coal. A curved three inch armored deck extends fore and aft from the ends of the water line belt over the engines and boilers, its edges meeting the ship's sides below the water line. Above this deck come the heavy redoubts and barbette turrets, protecting the loading positions of the guns. It is clear, therefore, that these vessels are to be heavily armored, in the true modern sense.

The battery of each vessel will mark a great advance over anything yet attempted in our navy, consisting of four 13 inch, four 8 inch, and four 6 inch breech-loading rifles. The 13 inch guns will be in barbette turrets, 17 inches thick, and with the armor inclined so as to offer a resistance of 19 inches to horizontal fire. The barbettes and shields of the 8 inch guns will be 6 inches thick, and those of the 6 inch guns 4 inches thick. The secondary batteries will include twenty-eight guns, consisting of twenty 6 pounder and six 1 pounder rapid-fire guns and two Gatlings. Twelve torpedoes will be carried.

The speed will be at least fifteen knots, maintained for four consecutive hours, and produced by twin-screw triple-expansion engines of 7,000 indicated horse power under natural draught and 9,000 under forced draught. At least 400 tons of coal will be carried, and the act of Congress requires a coal endurance of about 5,000 knots at the most economical rate of speed. There will be a single military mast, with two tops, and there will be an armored conning tower. The bids for these vessels may be on plans provided by the Navy Department or on those submitted by the bidder.

Not less interesting in its way is the protected cruiser of 7,300 tons, in which speed is the chief object aimed at. Although the act of Congress calls for the very high rate of twenty-one knots, Chief Engineer Melville has been planning to secure twenty-two knots, although only twenty-one will be guaranteed by the contractor. For this purpose no less than 20,500 horse power, or much more than double what is required of the new battle ships, will be needed. Coil boilers have been thought of for a part of her boiler equipment, and the new device of three screws, each connected with a separate triple-expansion engine, as in some of the latest French and Italian ships, is relied upon to aid in producing the expected speed. The chief protection for this vessel, in addition to its great supply of coal, which is 750 tons, arranged in bunkers so as to shield the machinery, will be an armored deck of about four inches maximum thickness. The armament of this cruiser is inferior to that of some smaller but less swift vessels, the main battery consisting only of four 6 inch rifled breech loaders and eight 4 inch rapid-fire guns. Like the three battle ships, and the two other large vessels recently contracted for, she will have a belt of woodite or an equivalent material on the slopes of her protective deck.

Taking together the three battle ships, this very fast protected cruiser, the fast 8,100 ton armored cruiser, whose construction was awarded to Cramp & Sons two months ago, and the 5,500 ton unarmored cruiser, whose construction was at the same time awarded to the Union Iron Works, the work of the present summer will be represented by half a dozen of the finest vessels of their class in the world, whose completion may be looked for in 1893, or in 1894 at the furthest.

THE National Library in Paris is the largest in the world. It contains 2,500,000 volumes.

JAPANESE PORTIERE OR CURTAIN.

There is a certain delicacy in a curtain made of long lashes formed of straw or bamboo and beads which is not found in a fabric of any kind. Curtains of this sort have been largely introduced into this country of late, some of them being simple, plain, and cheap, while others are really very elaborate, and, of course, correspondingly expensive. It is a very simple matter to make a curtain of this class, provided the materials are at hand; but where neither bamboo nor straw nor beads are available, it becomes more difficult. But a very presentable curtain may be made from paper, which is obtainable everywhere. The large engraving shows a very simple pattern made of straws of different length, and glass beads of different colors, strung on strong thread or fine, strong twine.

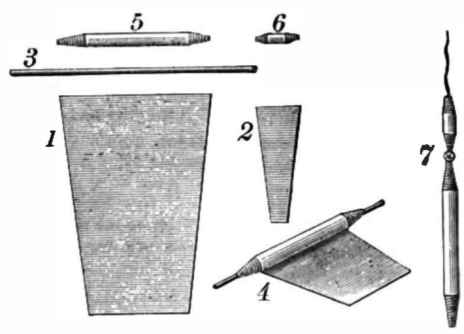

Fig. 2.—METHOD OF MAKING PAPER ROLLS.

The first thing to be done toward making the curtain is to draw a design roughly on a sheet of paper, then tie a thread in a bead which is to form the finish of the lower end of the lash. Then the bead is fastened in its place on the pattern by driving an ordinary pin through it into the board or table beneath. The stringing of the straws and beads is thus proceeded with according to the requirements of the pattern.

When one lash is finished, its upper end is fastened on the design by an ordinary pin driven through a knot tied in the thread. The next lash in order is proceeded with in the same manner, and so on until the entire series of lashes is done. A stout string is stretched along the series of pins by which the upper ends of the lashes are secured. Each thread is then tied around the transverse string. If desired, the threads may be spaced by beads arranged on the string between the lashes. As all the knots are necessarily trimmed close, it is well to touch each knot with mucilage. When this is dry, the curtain is finished.

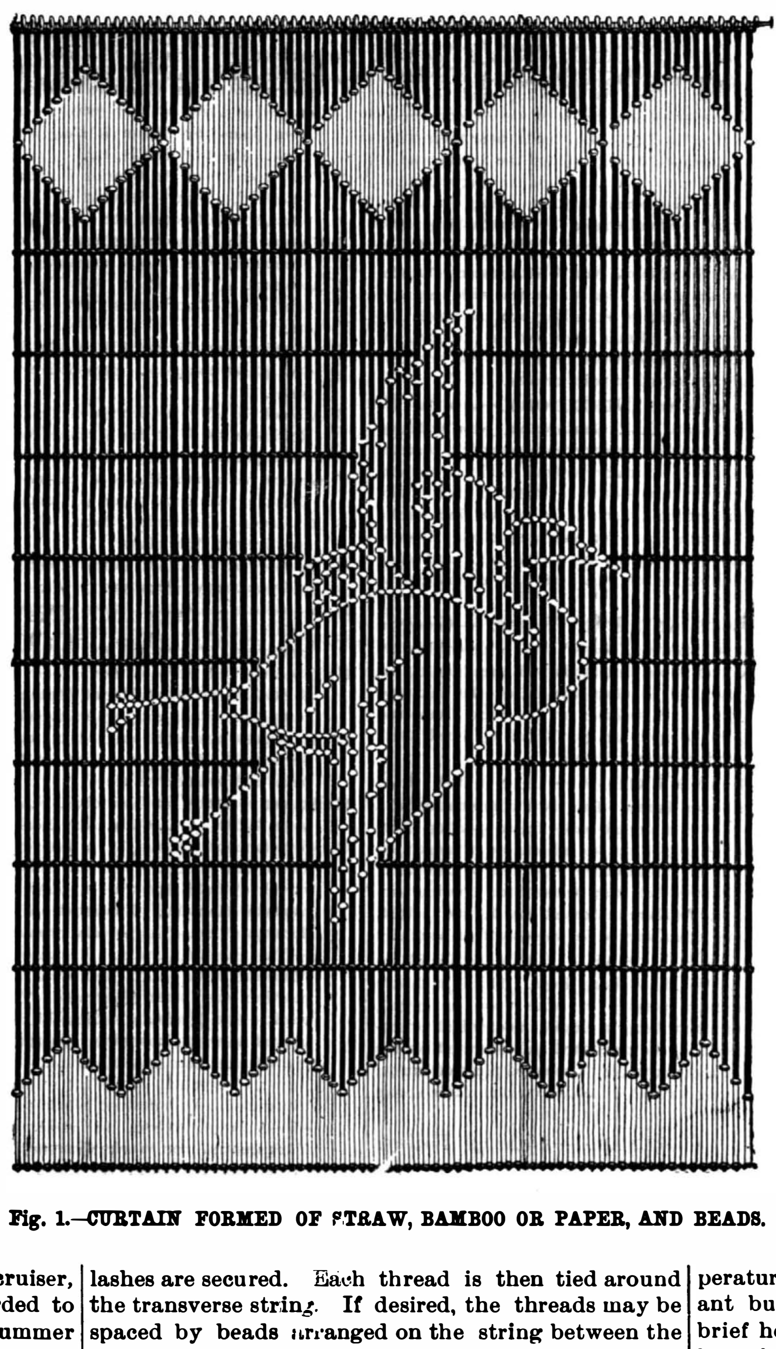

Fig. 1.—CURTAIN FORMED OF STRAW, BAMBOO OR PAPER, AND BEADS.

A very handsome curtain may be made from beads alone, or from beads and plain uncolored straws, or the straws may be dyed different colors by means of aniline dyes, or by dipping them into thin colored lacquers.

A curtain or portiere of bamboo and beads is made in the same way, but on a larger scale.

It is easy to make a good imitation of these curtains with paper tubes and beads, or the tubes alone. The manner of making these tubes is shown in Fig. 2. The paper from which the tubes are made should not be thicker than common writing paper. It may be either colored or white. The best results will be secured by using common white writing paper and coloring the tubes after they are formed, and dry by means of thin brown or white shellac varnish, colored with pigments or the anilines.

The pieces of paper from which the tubes are made are preferably cut in trapezoidal shape, as shown at 1 and 2, so that when the tube is finished it will have conical ends, as shown at 5, 6, and 7. The wire shown at 3 is used as a mandrel upon which to roll the paper. The larger end of the piece of paper is applied to the wire when the paper is rolled up in the manner illustrated at 4. The narrower end of the paper is gummed and pressed down closely, when the wire is removed and the operation is repeated. It is not advantageous to gum the entire surface of the paper. Fastening at the end is sufficient. The wire used as a mandrel should not be more than one-sixteenth inch in diameter, as too large a hole through the rolls allows them to arrange themselves irregularly. At 7 is shown a part of a lash formed of a long tube, a bead, and a short tube.

In stringing both the straws and the paper tubes a long, slim needle will be required. If this is not obtainable, a very good substitute for it may be made by forming an eye or loop on the end of a thin wire of suitable length.

There is scarcely any limit to the amount of labor that may be expended upon an article of this kind; but very pleasing results will be secured by the adoption of simple designs, which may be easily carried out.

Machine for Mounting Photo Prints.

It consists of a box of any required dimensions, divided in the middle and hinged at the back, so that one half forms a lid to the other. This is fixed firmly to the work table. On opening it, both top and bottom are found to be subdivided by partitions into as many reservoirs as are necessary for holding each a packet of mounts in the upper half and trimmed prints in the lower compartments. When loaded, and ready for commencing to mount, the box is thrown open, and the packet of prints is found to be pressed up from below, so that the upper one is level with the upper surface of the lower compartment, and having received an application of the mountant from a slab and brush, which are found adjacent, the lid is closed, and a stirrup or foot piece depending from the table is relieved from the pressure of the foot, by which certain springs are allowed to exercise their force, the result being that the starched prints are brought into firm contact with their respective mounts. On reopening the top the mounted prints fall out and are received into a receptacle lined with blotting paper, by which any humidity left on the face of the print is removed, after which they are dropped into a tray standing in readiness to receive them. The starch is then applied to the next set of prints, and the springs liberated by the action of the foot as before, and thus it goes on so long as any prints and mounts remain.

How to Destroy Germs in Water.

Dr. C. G. Currier says, in the *Medical Record*, that water is easily sterilized by keeping it at or near the boiling point for fifteen minutes. Five minutes' heat is sufficient to destroy all harmful micro-organisms. Still less time suffices to destroy the disease-producing varieties which are recognized as liable to occur in water. Thus merely raising to the boiling point a clear water containing the micro-organisms of malarial disorders, typhoid, cholera, diphtheria, or of suppurative processes, and allowing it to gradually cool, insures the destruction of these germs. They are also destroyed by keeping the water for from a quarter of an hour to half an hour at a temperature of 170° C. Occasionally, however, very resistant but harmless bacteria may get into water. The brief heating renders them safe for eating purposes; but when it is desired to destroy every micro-organism that may be present in a contaminated water, it should be heated for one hour and allowed to cool slowly. It may then be used for cleansing wounds, or for alkaloidal solutions, which will keep indefinitely if no germs be introduced after the solution has been heated.