NEY'S POCKET FIELD GLASS.

The instrument represented herewith (devised by Commandant Napoleon Ney) is not designed so much for the theater as for military maneuvers, in which the view of the officers must be applied to definite and remote points, and in which the impedimentum of the equipment cannot easily be increased by the weight of an ordinary field glass. It is especially adapted for the use of those who go touring upon the bicycle, in a horseless carriage, or even upon foot (and who always select the lightest and least cumbersome accessories that they can find), and also for use upon the race track.

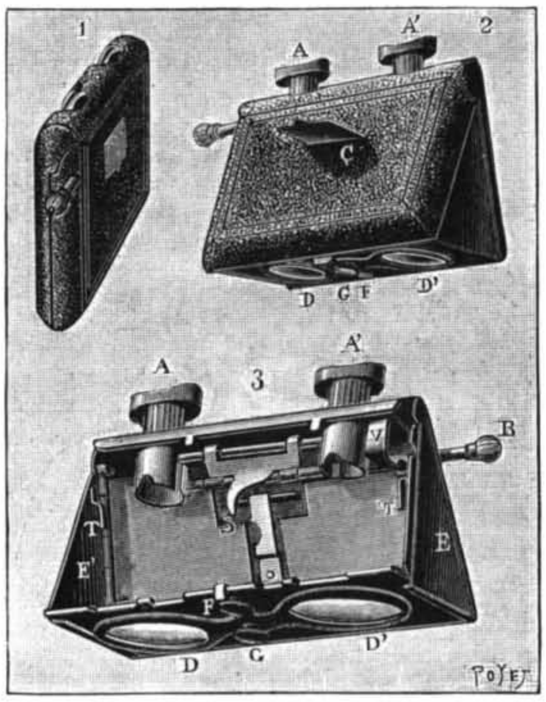
The mounting of this instrument, which weighs but about eight ounces, consists almost entirely of aluminum. A few of the parts, such as the springs and those employed to give the instrument strength, are made of steel.

Fig. 1 represents the glass closed. It measures 4¾ inches in length, 3¼ in width, and ¾ inch in thickness. To the left, a button with a milled edge permits of moving the eye pieces so as to adapt the instrument to the vision of anybody. To the right there is a ring through which may be passed a chain or cord to prevent the apparatus from falling or getting lost. In the center, upon one of the flat sides, there is a metal escutcheon that may be raised at will and be grasped by the fingers in order to prevent the instrument from slipping. Finally, at the bottom, there is a push button for causing the apparatus to open instantaneously.

Fig. 2 shows the apparatus ready for use. The person employing it looks through the oculars, A and A', which are adapted to his sight through the button, B. The escutcheon, C, is here seen raised. The objectives, D and D', are in a plane exactly parallel with that of the oculars, and two lateral shutters, E and E', maintain the spacing of the two flat sides. In order to close the apparatus, it suffices to press upon the nickel plated button, F. The objective carrier will then yield to the pressure, and, at the same time that it lowers the lateral shutters, will cause the eye pieces to enter the case. A pressure upon the cover of the case will close the instrument precisely as we close a simple portemonnaie. Let us remark, besides, that if we unscrew the button, G, the two objectives will come off so that the glasses may be cleaned, or even be used for the reading of a map or document.

The details of the mechanism, shown in Fig. 3, are as ingenious as they are simple. The cover is here removed in order to show the interior. The objective carrier is held upright through two small spiral springs that rest upon the bottom of the case. If, pressing upon the button, F, we progressively lower this carrier, we shall see it reach, through its upper part, a small steel tappet, S, which forms part of the piece upon which the eye pieces move. This tappet, lowering under the thrust of the objective carrier, pushes the oculars backward. The carrier, continuing to lower, comes into contact, through its lateral parts, with two rods, T and T', riveted to the bottom of the shutters, and lowers them. The shutters, the objective carrier and the oculars thus enter the case. At this moment, the objective carrier, which covers the whole, is caught by a spring, V, so as to permit the cover of the apparatus to close. The operator may thus avoid pinching his fingers, without having to meddle with the spiral springs that tend constantly to raise the objective carrier. But a difficulty presented itself. Upon the case being reopened by the operator, it was necessary that the shutters and objective carrier should instantaneously resume their proper place; and yet the spring, V, the use of which is indispensable, as we have just seen, kept them fixed in their downward position. Commandant Ney, the inventor, and Mr. Huet, the manufacturer, have skillfully solved this little problem, the data of which are apparently so contradictory. They have rendered the spring, V, slightly convex, so that when the objective carrier engages with it, the cover of the apparatus, while closing it, rests upon this convex part and frees the carrier, which remains fastened only during the time necessary for the closing of the case. The objective carrier is, therefore, freed from the spring which retains it, and, controlled thereafter only by the two spiral springs, awaits a pressure upon the push button to cause it to stand erect and carry the shutters along with it.

Let us add to the credit of this instrument that it cannot get out of center, since, in its construction, there is used no screw that permits the lenses to play and present any of those disagreeable irisations that are common to so many field glasses.—La Nature.



NEY'S POCKET FIELD GLASS.

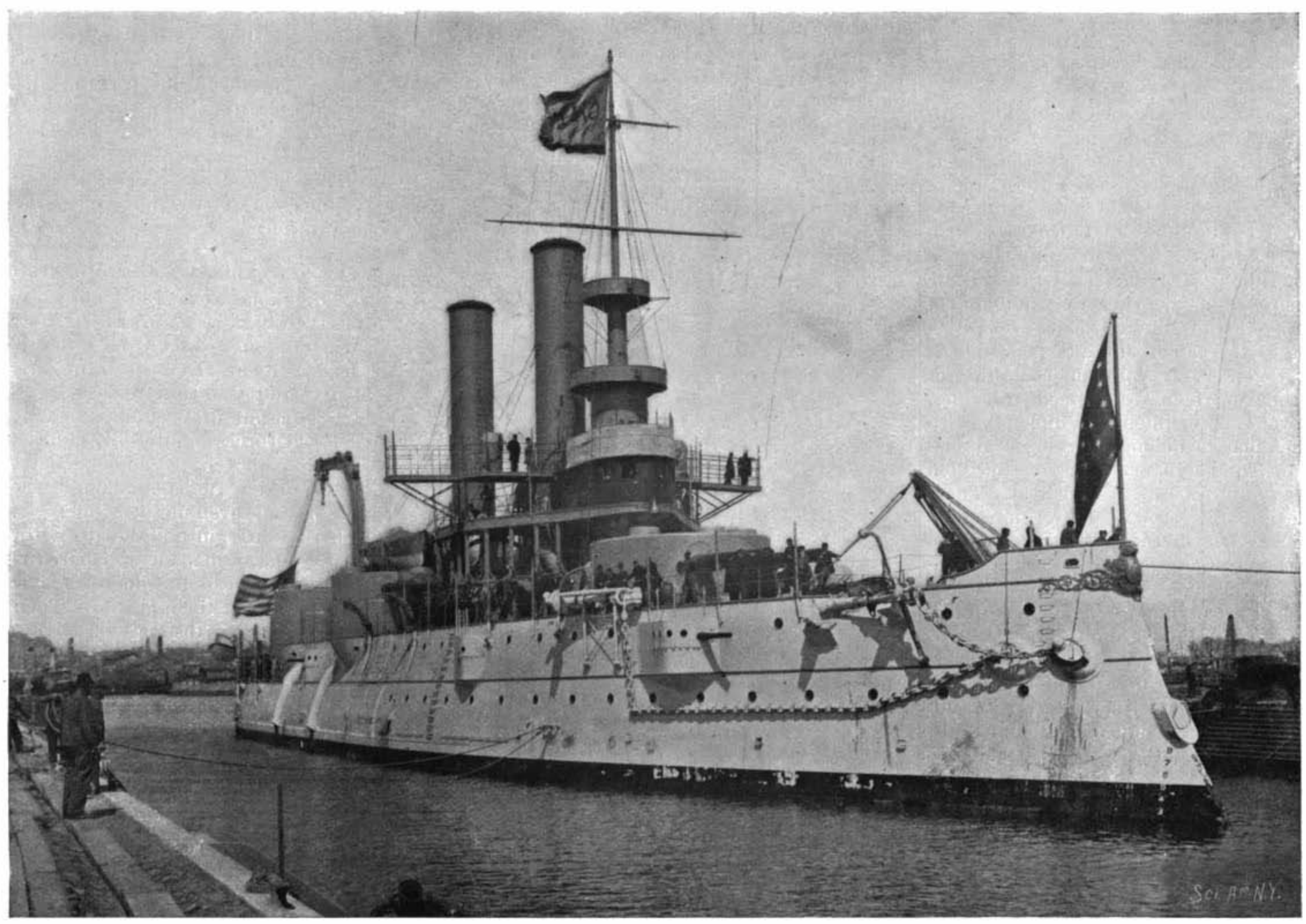
THE UNITED STATES FIRST-CLASS SEA-GOING BATTLESHIP IOWA.

We present a handsome engraving of the first modern first-class sea-going battleship built for the United States navy—the Iowa. It is reproduced from a photograph of this noble vessel which was taken immediately upon her arrival from Cramp's shipyard on the Delaware and just as she was floated into the new dry dock, No. 3, at the Brooklyn Navy Yard. Our readers will remember that we gave a full illustration and description of this dry dock in our issue of February 20, and from the record of its dimensions they will understand that it is fully equal to the task of accommodating a vessel of the size of the Iowa, in spite of the fact of her great draught and her loaded displacement of between 11,000 and 12,000 tons.

Our readers will doubtless observe that the Iowa bears a general resemblance to the Massachusetts and her class of ships, and they will ask why the Iowa should be designated as the first modern sea-going battleship of our navy. As a matter of fact, however, the Indiana, Massachusetts and Oregon are listed on the naval register as coast defense battleships, and, although they would be capable of crossing the Atlantic and giving a good account of themselves in a fight upon the high seas, they were not specifically designed for such service. Those elements of a battleship which make her a good sea boat in heavy weather have been somewhat sacrificed in these boats in favor of extremely heavy guns and massive armor plates, and it is this concentration of guns and armor which renders the Massachusetts and the vessels of her class the most powerful fighting ships in the world.

The design of the Iowa is based upon that of the Massachusetts, but with a view to giving her better sea-going qualities her freeboard has been raised about eight or nine feet, or about the height of one deck, from her bow back as far as the rear eight inch gun turrets. The forward pair of heavy guns with their turrets have been raised to the same extent, the axis of these guns being now about twenty-six feet above the water line at normal draught, and therefore well out of the reach of the heavy seas which would drown out the same pair of guns in the Massachusetts if she were steaming head to sea in heavy weather. The freeboard forward in the Iowa is about twenty feet and aft it is about twelve feet. The latter is about the greatest freeboard of the Massachusetts, which has a flush deck fore and aft for the whole length of the vessel.

The Iowa is 360 feet long, 72 feet in beam, and she has a displacement loaded of 11,410 tons. Three thousand tons of the weight is devoted to armor, which ranges in thickness from two and three-quarters inches to fifteen inches. The vitals of the ship are covered by a flat armor deck, which is two and three-quarters inches thick and reaches from side to side of the vessel, where it connects with belts of side armor fourteen inches in thickness which protect the vessel from penetration at the water line. Forward and aft of the ends of the side armor the steel deck is curved down to a connection with the stem and stern of the vessel. The



THE UNITED STATES FIRST-CLASS SEA-GOING BATTLESHIP IOWA IN THE NEW DRY DOCK No. 3 AT THE BROOKLYN NAVY YARD.