

**AN ANTISEPTIC BROOM FOR HOUSEHOLD USE.**

A broom which will contain in itself the means for destroying moths and disease germs is evidently an article which will be of no little value in the household. Such a broom has been invented by Mr. Oscar S. Kulman, of Savannah, Ga.



A DISINFECTING BROOM.

Referring to our illustration, it will be observed that the antiseptic substances are contained within the broom-straws in a bag held in place by the initial wrap of steel wire and transverse rows of stitching. The penetration of the bag by these rows of stitching opens up numerous outlets for the antiseptic material, in addition to the meshes of the cloth. The action of sweeping causes the antiseptic material to be distributed in limited but sufficient quantities for the thorough deodorizing and disinfecting of the carpet and of the room.

The broom itself, ordinarily a fertile breeding-place for bacteria, is constantly kept in a sterilized condition by reason of its antiseptic properties.

The bag is so perfectly inclosed and covered by the outside wrapping of straws that the broom presents the appearance of an ordinary broom without any hard external projections to scratch and mar the furniture of an apartment.

**THE "REINA MERCEDES."**

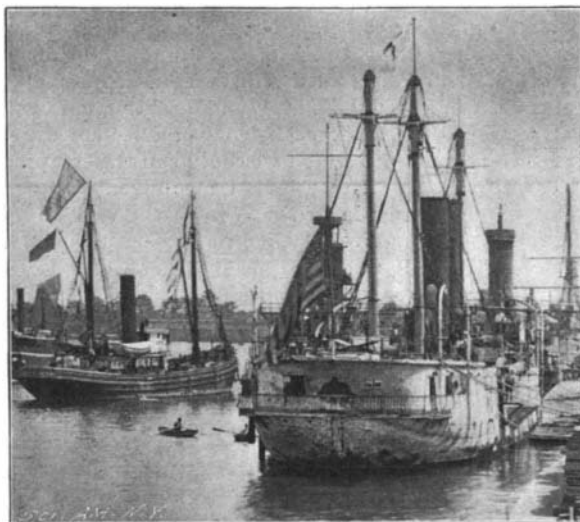
In all the literature of the Spanish war there is nothing of greater interest and value than the work entitled "Battles and Capitulation of Santiago de Cuba," by Lieut. José Müller y Tejeiro, second in command of naval forces of the province of Santiago de Cuba, a translation of which was published some time ago by the Office of Naval Intelligence of the United States Navy. To this work we are indebted for particulars of the very important part played by the "Reina Mercedes" in the defense of Santiago.

The "Reina Mercedes" is a protected cruiser of 3,090 tons displacement, and a speed of 17½ knots an hour. She was built at Carthagena in 1887, at a time when the Spanish navy was being reconstructed, largely under the direction and with the professional assistance of Great Britain. Her armament during the operations of the late war consisted of six 6.2-inch Hontoria guns; two 2.7-inch, three 2.2-inch, two 1.5-inch, and six 1.4-inch rapid-fire guns, with two machine guns. She carried the large number of five torpedo tubes, all located above the water line. Her coal supply is 600 tons. At the time of her construction she was comparable in speed and powers of offense and defense with the average cruiser of similar displacement of other navies.

Lieut. Tejeiro tells us that on account of the very bad condition of her boilers at the outbreak of the war, it was impossible for the "Reina Mercedes" to proceed to Havana, as most of the Spanish vessels cruising in that neighborhood did, and it was determined to make what use of her was possible in the defense of Santiago Harbor. She was anchored near the Socapa battery, which is located on the hills west of the entrance to Santiago Harbor. Her yards and top masts were sent down and her starboard side (the one she presented to the mouth of the harbor) was protected by covering it with light cables, with the object of keeping the enemy's shells from entering the torpedo magazine. Her boats assisted in laying the lines of torpedoes which guarded the entrance channel. Four of her 6.2-inch Hontoria guns were dismounted, leaving the two forward guns, which are carried on the main deck in sponsons (one of which is visible in the accompanying illustration), to protect the mine fields. Two of the dismounted guns were dragged up the hill to the Socapa battery and mounted

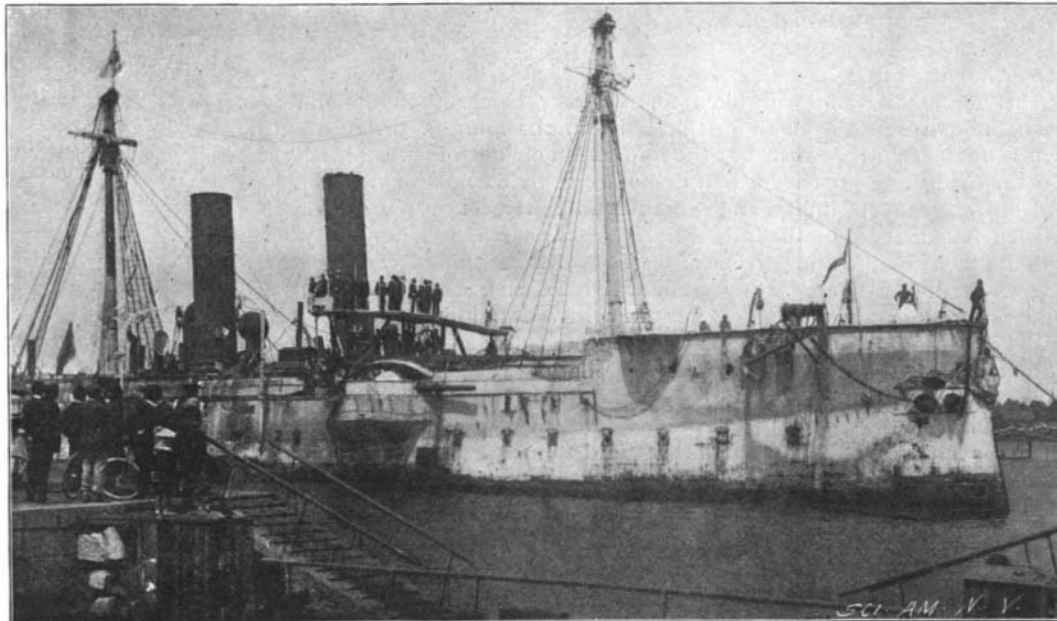
there, and two others were taken across the channel and mounted in the battery at Punta Gorda further up the entrance. "These four guns," says the Lieutenant, "were mounted for the purpose of directly attacking the hostile fleet," and it was a shell from one of the Socapa guns that entered the forward rapid-fire battery of the "Texas," putting it temporarily out of action. Our readers who will care to see what damage such a shell can effect will find the subject illustrated in the SCIENTIFIC AMERICAN of August 20, 1898.

The crew of the "Reina Mercedes," in addition to defending the torpedo lines from the attack of small craft that might attempt to countermine them, mounted at the lower battery of Socapa one 57 millimeter Nordenfeldt gun and four 37 millimeter Hotchkiss revolving guns, all of which were taken from the "Mercedes." All of the artillery that had been removed from this ship was served by the "Mercedes" men. During the long series of engagements between our ships and the battery the "Mercedes" was frequently struck, and several fatalities occurred among her men. After the final sortie of Admiral Cervera's fleet, it was decided to sink the vessel in the harbor channel in the endeavor to prevent our fleet from coming in, as Hobson had attempted with the "Merrimac" to prevent the Spanish fleet from coming out. In the words of Lieut. Tejeiro, "As the interior of the harbor did no longer have the safeguard of the fleet, as the Bustamante torpedoes had been taken up so that the fleet could go out, and had not yet been replaced, and as, finally, the first line of mines no longer existed, the commander of marine decided (General Toral being also of his opinion) to sink the 'Mercedes' in the narrow part of the channel. Hurriedly, for time was pressing, the wounded and sick from the lost fleet were transferred to the steamer 'Mejico,' which had been converted into a hospital and had hoisted the flag of the Red Cross. Important papers had been saved, memoranda, portable arms, etc., were taken off the 'Mercedes,' and at 8 o'clock P. M., with her commander, Ensign Nardiz, a few engineers and the necessary sailors and pilots, she started toward the entrance with her bow



STERN VIEW OF THE "REINA MERCEDES."

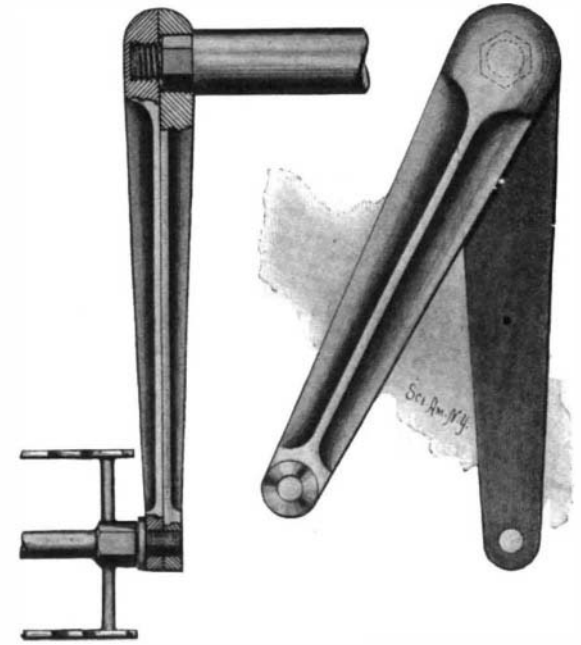
anchor and stern spring on the cable ready. At 11:30 o'clock the enemy opened a continuous fire on the ship. She was sunk at the intended place, but unfortunately she did not come to lie across the channel, because it seems a projectile cut the spring from the cable." During their work with the batteries on shore and while serving upon the ship herself, the personnel suffered the following casualties: The commander, Emilio Acosta, and five others were killed, eleven others of the crew



OUR MOST NOTABLE TROPHY OF THE SPANISH WAR. "Reina Mercedes" at the Norfolk Navy Yard.

were seriously wounded and sixteen were wounded more slightly.

Although the Spaniards looked upon the "Mercedes" as beyond salvage, she was subsequently raised and will now undergo reconstruction at the Norfolk navy yard. She will be reboilered, and thoroughly overhauled, besides receiving a new battery of six 6-inch



A NEW TWO-PART BICYCLE-CRANK.

long caliber rapid-fire guns, firing smokeless powder, and a new battery of smaller rapid-fire guns of standard pattern. In size and armament, speed and coal capacity, she will be practically a sister ship to the six new protected cruisers which were authorized by the last Congress. She will, therefore, prove a timely and serviceable addition to our fleet as well as a notable trophy of the Spanish-American war.

**A NEW TWO-PART BICYCLE-CRANK.**

A simple bicycle-crank has recently been patented which may be secured to the crank-shaft without the aid of nuts, the attachment being so effected that a smooth outer surface for the crank is provided, at its connection with the shaft.

One of the accompanying illustrations is a view of a shaft, crank, and pedal, embodying the improvements; and the other is a side elevation of the members of the crank separated at their lower ends.

The crank-shaft at each end is formed with a hexagonal surface and with a reduced, threaded extremity. The crank is made in two parts, the inner surfaces of which are flat and fit closely together. The inner part of the crank, at its upper end, has a hexagonal opening arranged to fit snugly upon the hexagonal surface of the crank-shaft; and the outer part of the crank has a threaded recess arranged to screw upon the reduced threaded extremity of the shaft, and to conceal the end of the shaft. At their lower ends the crank-parts have threaded openings, which, when in alignment, receive the threaded inner end of the pedal spindle.

It is evident that a crank thus constructed dispenses with the use of nuts, and offers no projections liable to become entangled with the rider's dress.

The patents on this crank are controlled by Messrs. Peerstone and Knudston, Room 500, Fisher building, Chicago, Ill.

**Waterproof Paper**

Is produced by Paul Dresen according to a French

patent in the following manner: Mix 28 parts of ordinary olive oil, 28 parts of rapeseed oil, and 28 parts of linseed oil, and add to the mixture a solution of 8 parts of wax in 8 parts of oil of turpentine. This mixture is applied on the paper on one side or both sides by hand or in machine. The paper thus prepared is said to remain waterproof longer than the waterproof paper now in the market.—Dampf.

**Kindling Composition.**

The *Städteutsche Apotheke Zeitung* gives the following formula: Melt 300 parts of resin or colophony and 15 parts of raw paraffine with 15 parts of a fat oil, and add to the molten mass cork-flower, 100 parts; and saw-dust, 75 parts. After the cooling press the substance into briquette-shaped pieces or narrow strips.