

A SIMPLE ELECTRIC BICYCLE-LAMP.

In most portable electric lamps the battery-cells used are placed one upon another, and two inclosing conducting casings are employed in completing the circuit between the battery-electrodes and the lamp terminals. A lamp made by the United States Battery Company, of 258 West Twenty-third Street, New York city, is an improvement upon this form, in so far as it uses but a single tubular casing which acts as a support for the lamp and its reflector, and as a conductor from one electrode of the inclosed battery to complete the circuit.

As shown in Fig. 1, the tubular casing in question is provided with screw caps at each end, and with an insulated lining surrounding storage battery cells placed one over the other. The cells are each provided with a cylindrical copper casing constituting a negative electrode, and with a projecting button constituting a positive electrode. The upper negative electrode is in electrical contact with the lower positive electrode. The lower negative electrode is in contact with the outer casing. An incandescent lamp and reflector are secured within a metal ring surrounding the tubular casing. A screw-threaded knob is secured to the upper cap and is provided with an insulating washer.

By screwing the knob down to its lowermost position, the washer will press a strip of copper down upon the upper positive electrode and thus cause a current to pass through this upper electrode, the copper strip, the inner terminal of the lamp, the outer terminal of the lamp, through the metal ring, the tubular casing, to the outer casing of the lower cell, and finally to the starting point, thereby causing the lamp to give a brilliant light.

In the accompanying engravings various forms of this portable lamp have been shown, in which forms the principle of construction and operation remain in the main unchanged.

Among the merits of this lamp may be mentioned its compactness, its simplicity of construction, and its cheapness. The storage battery cells used can be readily obtained in the numerous electrical and bicycle supply stores of every city.

HIGH SPEED ATTAINED BY THE "FARRAGUT."

The twin screw torpedo boat destroyer "Farragut," authorized by act of Congress June 10, 1896, and the contract signed by the Union Iron Works for her con-

"Farragut" made successful trial run of one hour with one turn. Average revolutions, 419 $\frac{1}{2}$ per minute. Everything worked smoothly."

The Union Iron Works, builders of the vessel, telegraphed to the Secretary as follows:

"Farragut" made successful run yesterday. Speed, 30.18 knots."

Under the contract the "Farragut" was required to make 30 knots, and naval officials are greatly pleased to hear that she exceeded the requirement.

The armament of the "Farragut" will be powerful for a vessel of her size. It will consist of four 6-pounder rapid-fire guns and two 18-inch torpedo discharge tubes. Two of the guns will be mounted on the forward platforms surrounding the conning tower and two on the main deck. Her complement of men will be forty in number. The steering of the vessel, which was perfect in all her preliminary trials, is effected by a double cylinder engine secured in the bulkhead abaft the engines. There are altogether twenty-nine steam cylinders in the vessel. A test of the time required to raise steam in the boilers resulted very satisfactorily, and the easy maintenance of high pressure, even when at the highest speeds, was demonstrated.

No Restraint of Trade.

An attempt on the part of J. W. Goddard & Sons, manufacturers of Feder's Brush Skirt Protector, to retard the introduction of all similar articles, by securing a monopoly of the advertising, has been defeated by the Supreme Court of New York State.

The method employed by this firm consisted of efforts to make contracts with advertising mediums, in which it was provided that these publications should refuse to admit to their columns the advertisements of competing firms, thus securing for themselves the exclusive adver-

tising privileges for skirt protectors. Through a misunderstanding on his part, Mr. D. J. Kelley, manager of The American Queen, was induced last July to sign one of these exclusive contracts on behalf of his magazine, but as soon as he discovered the real nature of the agreement he at once refused to carry it out. The Goddards' advertisement was accordingly omitted from the September number of The American Queen, while an advertisement for a shirt protector manufactured by the Stewart, Howe & May Company appeared therein. The result was that the Goddards obtained a temporary injunction against the magazine and the Stewart, Howe & May Company. Their triumph was short lived, however, for, when the motion to make the injunction permanent was heard, Supreme Court Judge Dugro promptly denied it and dissolved the injunction.

This outcome of the affair indicates conclusively that the judiciary of the United States will not sanction any procedure on the part of publishers or advertisers tending to the restraint of trade. In fact, it is possible that the matter will go yet further, and publications



Fig. 1.—An Electric Bicycle-lamp in Partial Section.

Fig. 2.—An Electric House-lamp.

Fig. 3.—An Electric Carriage-lamp.

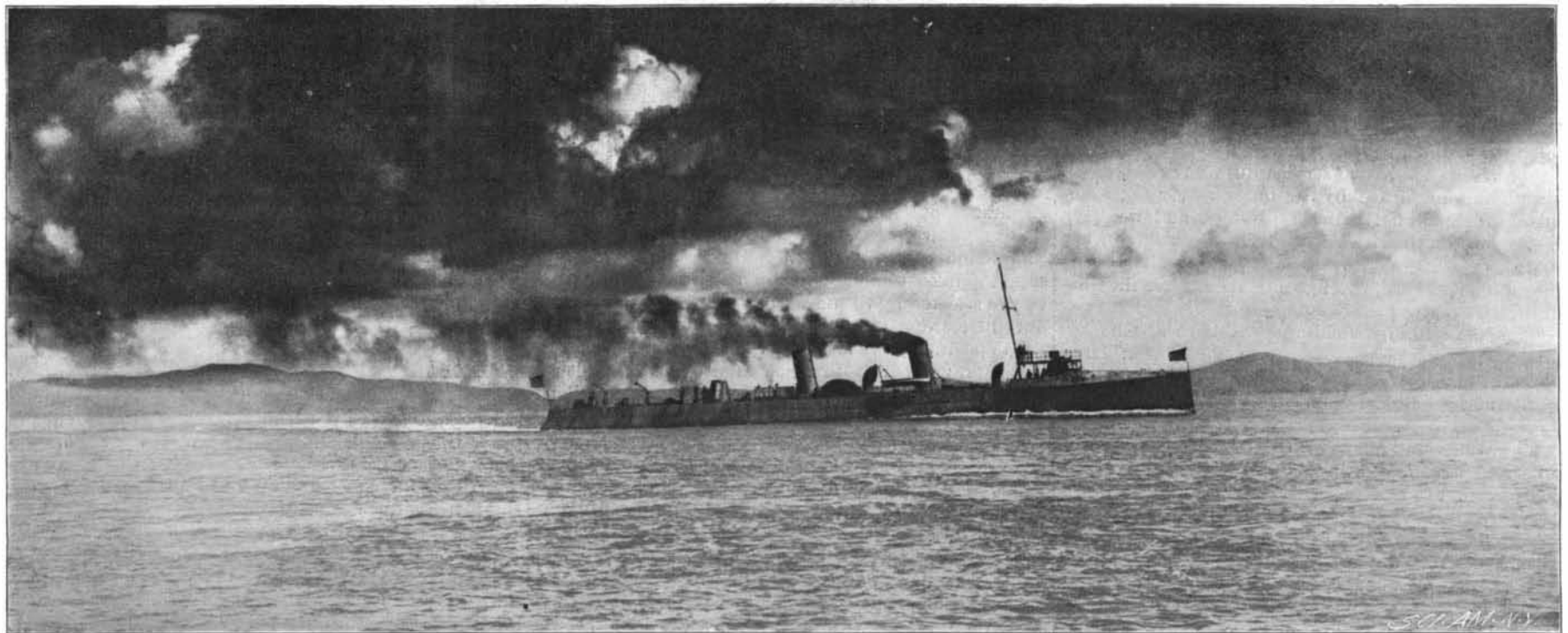
VARIOUS FORMS OF A SIMPLE ELECTRIC LAMP.

On her return, in places where the water was deep, she made over 32 knots.

The trials of the "Farragut" have been closely observed by the people of San Francisco, and the wonderful speed of the curious craft has been satisfactory to every one who loves the navy and who notes the addition of a new protective machine with great interest. Her appearance upon the bay, while tearing along at full speed, was highly interesting. She cut through the water like a razor, raising scarcely any wave and leaving only a moderate swell behind.

The "Farragut" was launched on July 16, 1898, and her cost to the government was \$227,500. She is the first destroyer completed and the speediest of her class yet built. The dimensions of the new torpedo boat destroyer are: Length over all, 213 feet 6 inches; beam, 20 feet; depth, 13 feet 4 inches; and her draught is 6 feet. Ordinary displacement is 240 tons; when in commission, her displacement is 270 tons. She will carry 85 tons of coal, sufficient for 2,000 miles at a speed of 10 knots.

The engines of the "Farragut" are four cylinder triple expansion and are rated at 5,600 horse power.



THE TWIN SCREW TORPEDO BOAT DESTROYER "FARRAGUT" ON HER TRIAL TRIP.

struction October 6 the same year, received her official trial on November 11, and is reported as having developed extraordinary speed. On the builders' preliminary trial trip of November 8 the "Farragut" made 31.76 knots under 404 revolutions of her propellers. The official figures are said to slightly exceed this achievement.

The Secretary of the Navy received a telegram on December 3 from Lieutenant-Commander F. J. Drake, president of the board appointed to conduct the trial of the torpedo boat "Farragut" in San Francisco Bay, as follows:

The cylinders are 20 and 29 inches in diameter respectively, with two compressors 30 inches each. The stroke of her engines is 18 inches and the speed of her propellers 400 revolutions. The propellers are of composition, with three blades each, and are 6 feet 9 inches in diameter, with a pitch of 8 feet 9 inches. The boilers are the Thornycroft tubular, three in number and 15 feet in length. Each has an area of 65 square feet and 4,020 square feet of heating surface, and are calculated for a pressure of 240 pounds. Amidships the sheathing is of 6-pound boiler plate, at the extremities of 4-pound.

making such exclusive contracts be excluded from second-class mail rates.

CAR couplings have perhaps as much attention paid to them by different inventors as any other apparatus. In a late invention, the coupling is of somewhat different pattern than usual, the old link and pin being done away with, as in the improved form of couplers, and so arranged that the striking together of the couplers serves to lock them securely together, and to separate them it is only necessary to pull a lever in an upward direction and the deed is done.