

**ELECTRIC ARC LAMPS FOR SUBMARINE WORK.**

The new Yale submarine lamp, which we are enabled to illustrate through the courtesy of the Electric Marine Manufacturing Co., of New York, has satisfactorily solved the difficulty of securing a powerful electric light, efficient and safe, for use in diving operations. Hitherto a cluster of incandescent lamps has been the only possible method of obtaining light either under water, or in an explosive

a most brilliant, clear light, better than the best average street arc lamp. When in use the diver may carry the lamp by means of the circular guard handle, set it down, or suspend it in a convenient manner directly by the cable, no ropes being required. Its weight under water is only a few pounds—just enough to keep in position in a current or tideway.

An outfit for general use, shown in Fig. 2, gives an idea of its compactness when stowed in chest ready for shipment or instant service. The lamp, submarine cable, switch, con-

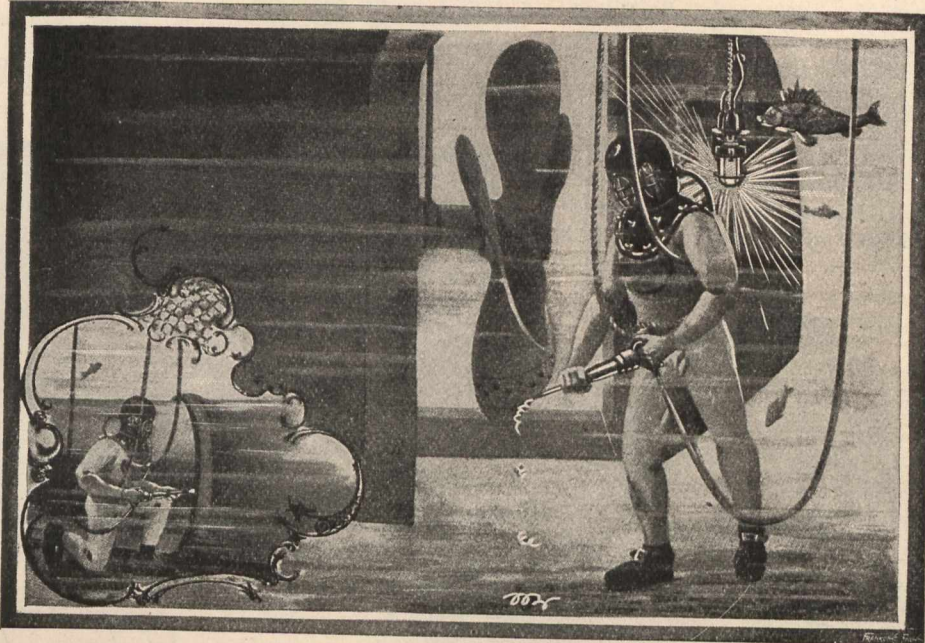


Fig. 1.—Yale Submarine Lamp and 'Boyer' Chipping Hammer Operating 20'-0" Under Water.

atmosphere, but the illuminating power of this arrangement has been far from satisfactory. Until the invention of the Yale submarine lamp many efforts had been made to produce an arc lamp for work under water, but no satisfactory high candle power lamp has been constructed, the condition being such as to make it difficult to obtain efficient operation.

Comparatively few persons have ventured to put on the

section box, wrenches, spare parts and supplies are all included in one chest. The Yale submarine electric lamp consists of water-tight metallic case enclosing a mechanism and regulator arranged so that when the lamp is submerged it will give forth from the glass chamber at its lower end perfect ease, for it will light up a space the size of a large room, making it as light as day.



Fig. 2.—Submarine Electric Lamp and Accessories: Packed for Transport.

diver's armor, and descend below the surface, consequently an air of mystery has come to enshroud the work of the diver. In the shadow of a ship's hull, an obstruction, or at depths of fifty feet or over, there exists an impenetrable gloom even with fairly clear water, while in the usual dirty harbor the sun's rays never reach the bottom. The Yale submarine lamp enables the diver to explore, or work in

The submarine cable conducting the current to the lamp leads to the surface and thence to a combined junction and switch-plate controlled by the diver's attendant. From this plate connection is made to a neighboring electric circuit, storage battery, or small generator outfit supplying the electric power. Compact, of few parts and simple in operation, these submarine outfits afford means for use aboard