

the seams are pointed with pure plaster applied with a small spatula, and any little imperfection or damaged spot is repaired in the same way.

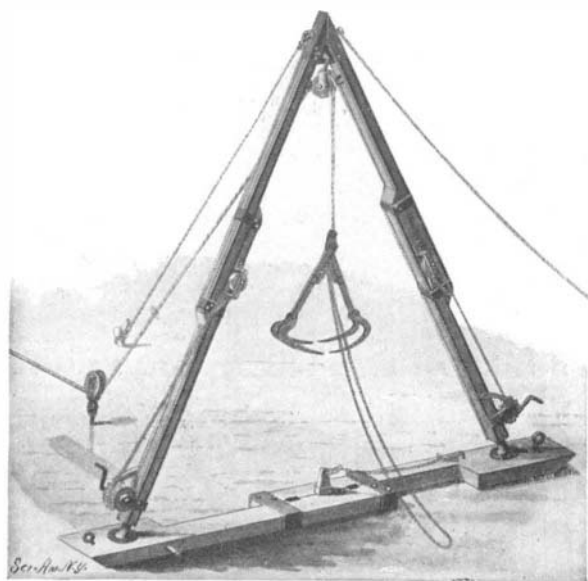
In placing the statue in its permanent place, an iron framework is constructed to give it strength in the same way as the wooden skeleton was used to give rigidity to the clay model.

The final touch is a coat of paint, to give protection from the weather. If the paint is renewed at proper intervals, the plaster statue should last for many years. Work done in this manner a century ago in Europe is still in good repair.

The monumental group "Peace," photographs of which illustrate the process described in this article, is the work of Richard W. Bock, of Chicago, and decorates the arcade of one of the commercial buildings of Minneapolis. The sculptural work on the Chicago, Burlington and Quincy depot at Omaha was also done by Mr. Bock.

A NOVEL HAYSTACKER AND DERRICK.

A patent has been issued to Marvin C. Hutchings, of Bozeman, Mont., which provides a hoisting device to be used as a haystacker, derrick and the like. As our engraving shows, the device consists of a base constructed in adjustable sections locked together by a key which is inserted in one of three recesses formed in the sections. In sockets at the ends of the base sections, side sections having ball ends are received. Thus universal joints are produced. The side sections are composed of sliding members, the upper of which are raised by a ratchet-drum and rope. Forked guy-ropes support the side sections, corresponding members of the forked



A HAYSTACKER AND DERRICK.

portions of the guy-ropes being connected at the same side of the side members and adjacent to each other. A pulley is suspended between the upper portion of the upper members of the side sections; and over the pulley a hoist-rope is carried. Our illustration shows a hay-fork attached to the rope and provided with a trip-rope extending to the ground. The end of the hoist-rope, if it be so desired, may be connected with a sling, a platform, or with any device necessary in hoisting material of different kinds.

A PEN WITH INCREASED INK CAPACITY.

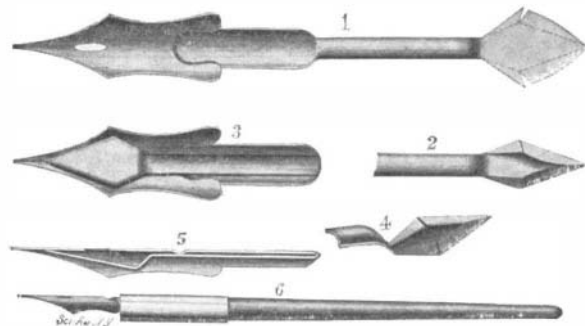
A pen which will hold, without danger of blotting, a much larger amount of ink than the ordinary pen, and which can be used in any holder, has been invented by Mr. Clarence E. Fowler, of 118 Center Market, Washington, D. C.

Fig. 1 is a bottom plan view of the blank form from which the pen is made. Fig. 2 is a bottom plan view of the blank bent into shape. Fig. 3 is a bottom plan view of a complete pen. Fig. 4 is a detail perspective view of a reservoir formed by the bent-up blank. Fig. 5 is a longitudinal section of a complete pen. Fig. 6 shows the pen attached to a penholder.

The invention seeks to provide a pen having an integral underlying reservoir, so formed and arranged that it will in no wise interfere with the desired flexibility of the pen. The shank of the pen as shown in Fig. 1 is formed integrally with a second long shank carrying at its outer end a blank which is to be bent on the dotted lines of Fig. 1. When thus bent the blank assumes the form shown in Fig. 2. The reservoir thus formed from the blank is then bent down to lie snugly within the shank of the pen as shown in Figs. 3 and 5, the shank of the pen and the shank of the blank being oppositely curved so that one will lie within the other (Fig. 5). The double shank produced can easily be fitted within an ordinary pen-holder (Fig. 6). At its juncture with the reservoir, the long shank is given a downward bend (Fig. 4) which holds the rear end of the reservoir away from the body of the pen and affords space at either side of the rear end of the reservoir for the entrance of ink. The entrance of ink is also facilitated by

tapering the struck up portions of the blank as shown.

The apex of the diamond-shaped reservoir lies with the apex contiguous to the slit of the pen and extends just past the eye. Thus the reservoir operates to feed the ink to the point. The peculiar form of the reservoir exposes but a small surface of the ink



THE FOWLER PEN.

to the air. Experience has shown that the ink does not run out when the pen is laid down by reason of the adhesion.

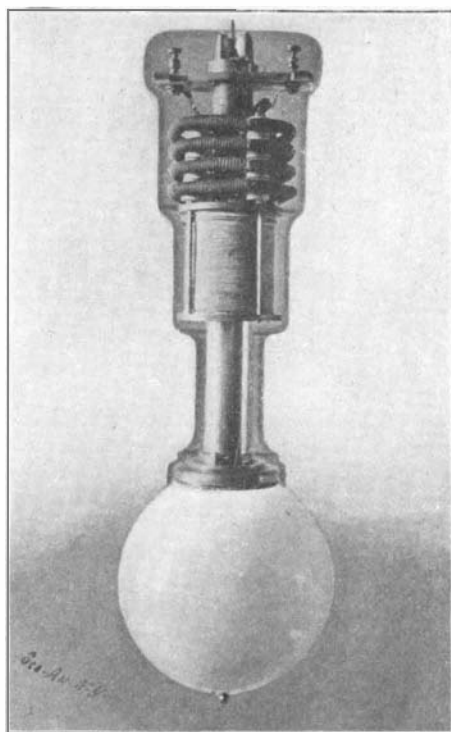
A COMPLETELY INCLOSED ARC LAMP OF SMALL SIZE.

A well-conceived, excellently designed lamp has been patented by Mr. Gustav Rasmus, of 239 Winan Street, Long Island City, N. Y., which is remarkable for its great efficiency and compactness.

The lamp comprises a frame supporting a resistance-coil, connected at one end with a leading-in wire and at the other end with a central metallic tube capped by a hood. Within the frame is a solenoid, comprised in the circuit and designed to operate the upper carbon. Extended through the solenoid is a brass tube in which a tubular core operates, which core is rigidly connected with an inner tube within which the upper carbon is located. The upper end of the carbon is held in a socket. The lower end of the upper carbon passes through two plates insulated from each other and carried by the outer brass tube. A central hub on the lower plate carries a threaded ring by which the globe is so supported that the carbons are completely inclosed, as our illustration shows. The lower carbon is mounted in a socket carried by the globe itself—a feature not to be found in other lamps.

When the current is cut out momentarily the upper carbon will move downward in contact with the lower carbon. Clamping devices by which the upper carbon is normally held will then momentarily release the carbon. When the current is closed, the solenoid is energized, drawing the core up and causing the clamping devices to engage and raise the upper carbon to form the arc.

The merits of this construction are obvious. Only one solenoid and one resistance-coil are used. An efficiency of 90 per cent is claimed for the lamp. No valve is used. The arc is entirely inclosed, so that when the oxygen has been consumed, the carbon burns slowly away in an atmosphere which is void of oxygen.



THE RASMUS ARC LAMP.

With a current of $4\frac{1}{2}$ amperes and a difference of potential of 110 volts, a soft, uniform light of 1,000 C. P. is maintained. Although the lower carbon is 5 inches and the upper carbon 12 inches long, the full length of the lamp is not quite 20 inches. By mounting the lower socket directly in the globe, no shadow is formed. A sheet of white paper held horizontally

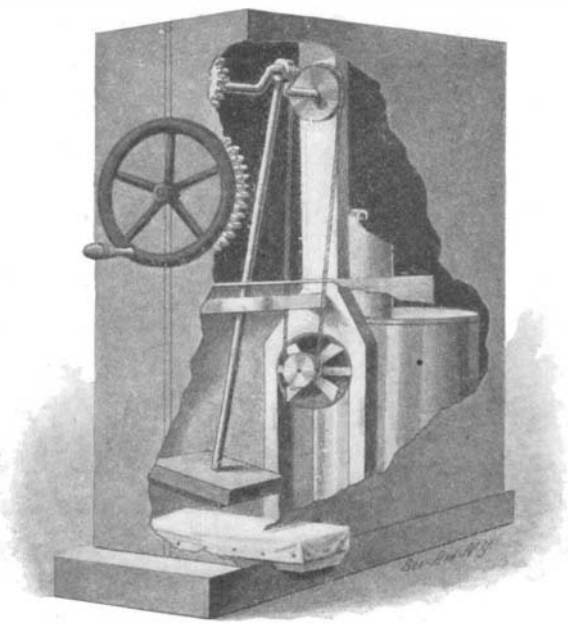
below the lamp at a distance of $1\frac{1}{2}$ inches or in any position beside the globe will reveal no shadow. The usual difficulty of securing a uniformly-distributed shadowless light being thus overcome, the inventor found that he could readily construct a compact arc lamp which had a life of 55 hours, and which could be readily fitted in an ordinary incandescent bulb socket. This miniature arc lamp is but ten inches long, has a candle power of 320, and uses the same current as four incandescent lights, which ordinarily give but 64 C. P.

A MACHINE FOR CLEANING BLACKBOARD ERASERS.

Among the patents recently granted in the United States is one issued to Terrence McSpirt, of 97 Beebe Avenue, Long Island City, for a machine for cleaning blackboard erasers.

In an inclosed upright frame a crank-shaft is journaled, which is turned by a crank-wheel through the medium of gearing. A rod is carried by the crank of the shaft, to the lower end of which rod a beater is secured. The rod and beater operate in a casing provided with a removable extension. A collar on the extension receives a fan driven from the crank-shaft by a belt and pulley.

The eraser to be cleaned is placed face upward in the base of the machine below the beater. As the handwheel is turned, the beater rises and falls and strikes the cleaning-surface of the eraser. The beater has also a lateral reciprocating motion, so that at each stroke of the rod the beater, after striking the cleaning-



A BLACKBOARD-ERASER CLEANING-MACHINE.

surface of the eraser, tends to force the eraser out from the machine a given distance. The dust beaten from the eraser is blown by the fan into the extension previously mentioned. When the extension is to be cleaned, the collar containing the fan is closed by a slide, and the extension, or that portion of the casing containing the extension, removed.

Acetylene Gas vs. Petroleum in Germany.

Up to the present time Germany has imported each year from \$25,000,000 to \$30,000,000 worth of American petroleum. This industry, however, seems to be threatened somewhat by the introduction of acetylene as an illuminant, in a convenient and safe form, for house, store, and other uses. This has resulted from the low price at which calcium carbide is being produced there, and also from the rise in the cost of petroleum in the German market.

The Current Supplement.

The current SUPPLEMENT, No. 1320, is unusually interesting. "The Function of Hand Work in the School," by Prof. Charles R. Richards, is elaborately illustrated by ten engravings made from the actual objects. "Grison Gearing" describes a new method of mechanical transmission. "The Influence of Submarine Cables upon Military and Naval Supremacy" is by Capt. Geo. O. Squier, U. S. A., and is a very full article. "Electrical Oscillation and Electric Waves," by Dr. J. A. Fleming, is concluded. "The Improved Hughes Printing-Telegraph" describes the latest form of this apparatus. The usual "Trade Notes and Receipts," and "Selected Formulae," etc., are given.

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