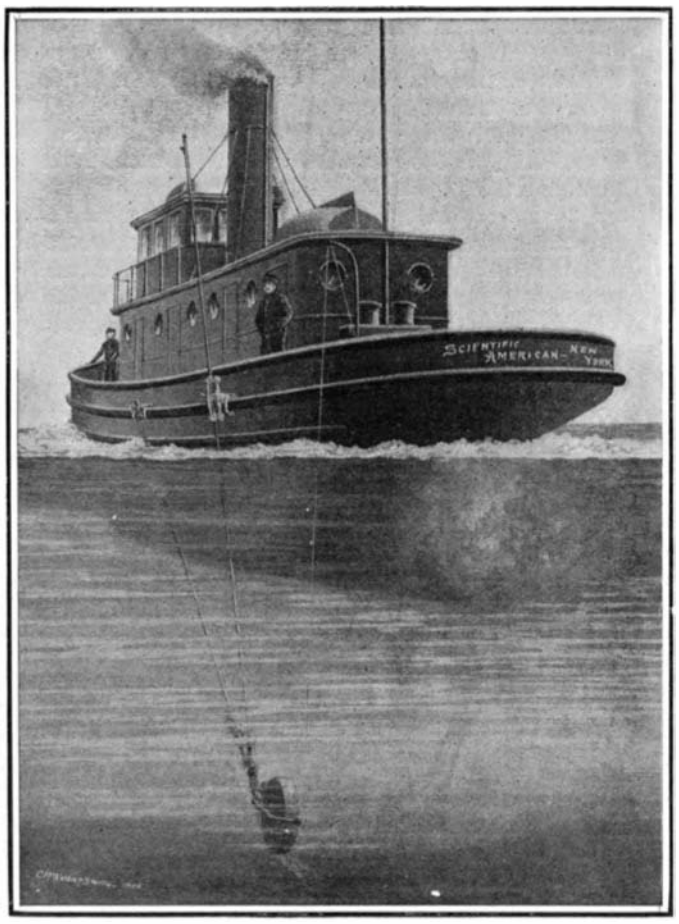
A NOVEL PROFILE TRACER.

The surveying and charting of our navigable waterways and our coasts cannot be performed with too much accuracy or care. Marine disasters within the limits of surveyed areas are often attributed to uncharted dangers within these areas, shoals, or ledges, for instance, which have escaped detection through the weaknesses or inadequacy of the devices now used in charting the waters of coast and harbor. Hydrographic surveying consists of two operations, the measurement of the depth of the water at a certain point and the determination of the location of that point. The latter operation can be performed with absolute accuracy and to any degree of precision necessary with the present means at the command of the surveyor; but the former, the determination of the depth, is rarely absolute in its results. In addition to the inherent defects of leadline or rod, there is the uncertainty due to an insufficiency of the soundings to develop fully the relief of the bottom, for the cost and labor of the requisite number are often prohibitive.

A continuous sounding apparatus, illustrated in the accompanying engravings, has recently been designed by Mr. Swepson Earle, of Washington, and has been protected by patents in the United States, Great Britain, France, and Germany. The inventor has had varied experience in hydrographic surveying, and is familiar with all its requirements. The machine is simple in character, said to be efficient in operation, and has been favorably received by hydrographers both in this country and abroad. By means of this apparatus the relief of the bottom is obtained, not merely by the determination of a series of depth measurements necessarily a certain distance apart, but by the accurate and continuous registration of the outline or contour of the bottom. In addition to its use in general surveys of harbors, channels, anchorages, and all dredged areas, it should prove of value to pilots in connection with a guide launch or tug entering or leaving harbors in advance of the vessels of deeper draft.

The apparatus is decidedly simple in construction and operation. A long, inclined rod, attached by means of a swivel connection to the side of the vessel, forward, extends downward and aft to a wheel in contact with and rolling upon the bottom. Another rod extends upward from the wheel to the rail at the quarter, passing through a guide bracket pivotally secured to the side of the boat at the rail. The latter rod is graduated to show the depth of the water when the wheel rests upon the bottom. When not in use the apparatus can be raised by means of a rope attached to the axle of the contact wheel, and carried in a position substantially parallel with the side of the vessel. An automatic bell signal, operated by two projections on the wheel which actuate a connecting arm to the bell, gives audible evidence that the contacting member is rolling properly upon the bottom of the waterway. An automatic recording device, registering the outline of the bottom upon a moving roll of paper, is part of the complete machine, though not at all necessary to its successful operation, for the depth at any instant is easily read directly from the graduated rod as the vessel traverses the surface of the river or harbor under investigation.



A NOVEL PROFILE TRACER.

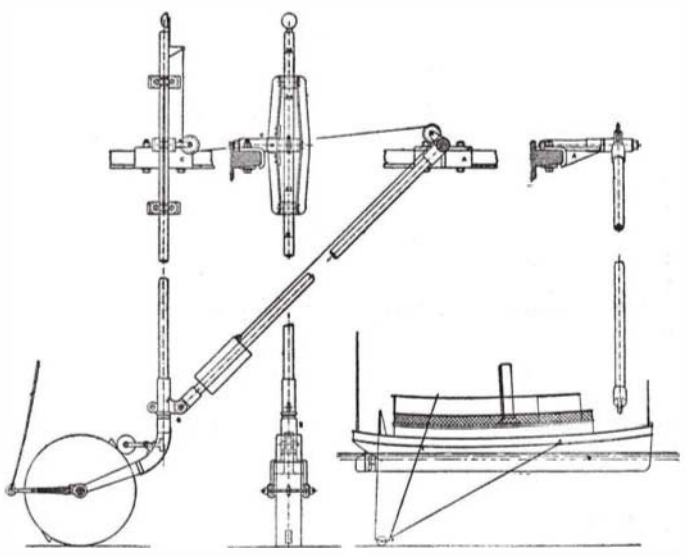
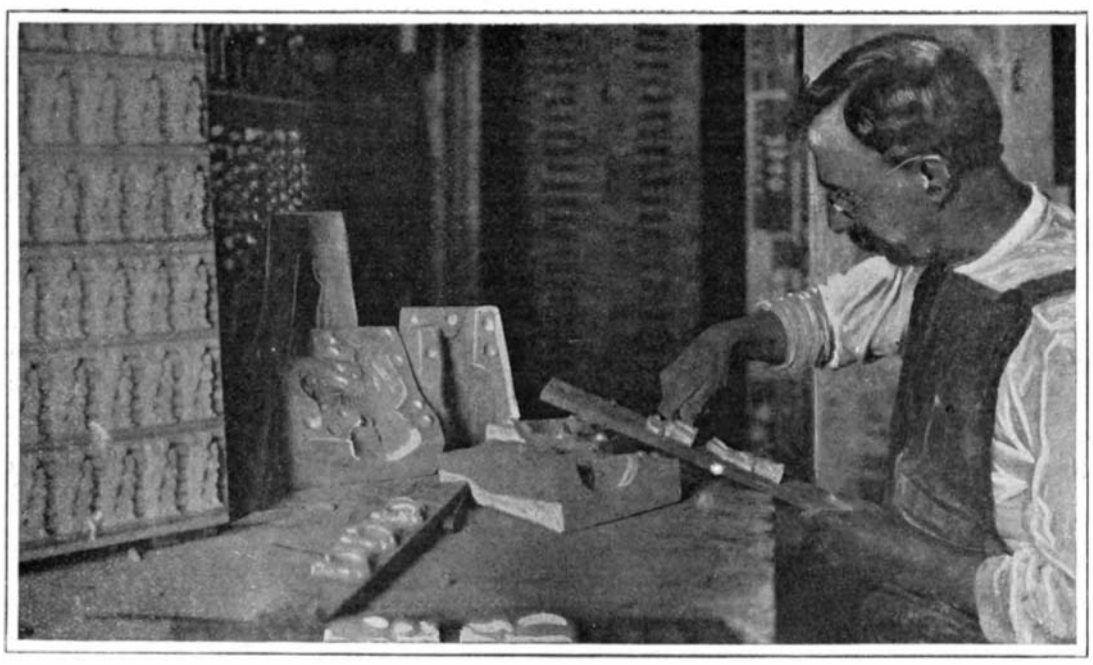


DIAGRAM OF PROFILE TRACER.

HOW EASTER EGGS ARE MADE BY THE THOUSAND.

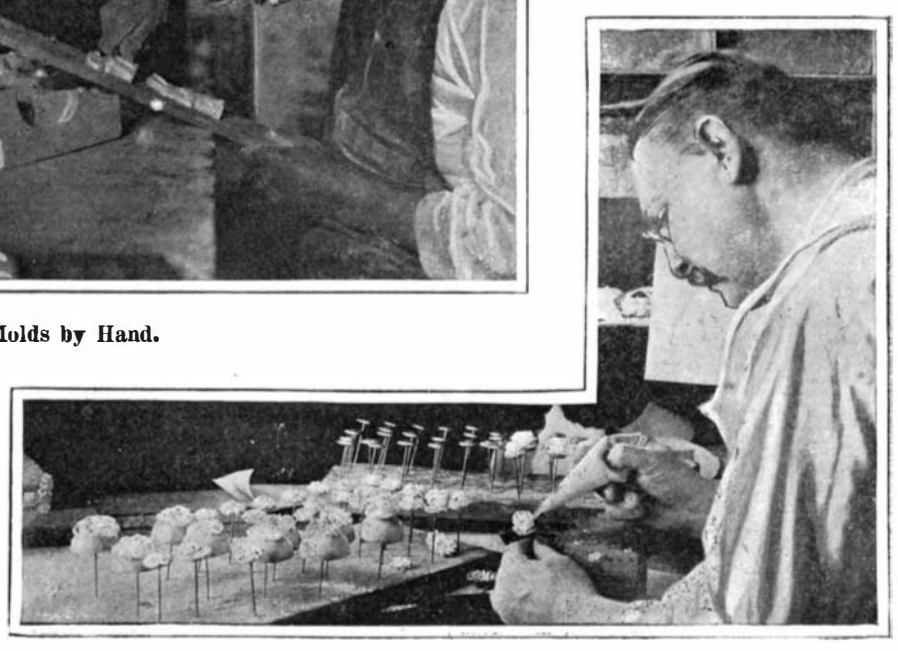
A remarkable development of modern manufacturing activity is found in the numerous industries, some of astonishing magnitude, which have sprung from popular customs, often national, though more frequently religious—practices which, while almost universal in scope, were nevertheless formerly largely individual or personal in character. Thus to-day we have in the manufacture of valentines or of Christmas tree ornaments industries producing countless novelties, involving the expenditure of millions of dollars, and, notwithstanding the numerous forms of ingenious labor-saving machinery which their growth has developed, necessitating the employment of thousands of workers. To a large extent this is also true of the manufacture of Easter eggs and Easter novelties, an extensive industry partly embraced within the field of the confectioner, and which is illustrated in the accompanying engravings. It is not possible to describe in this limited sketch the methods of making the manifold Easter toys, such as the plaster rabbit, beloved of the youth of the land, or the ocher-colored chick, with its wobbly wire legs, and consequently we shall deal exclusively with the more or less edible—at any rate they are eaten—confectionery novelties.

The major portion of those of marshmallow or other similar material is made in molds. The millions of little speckled and glossy eggs which each Easter reappear to the delight of the children, and it is to be feared, subsequently, that of the medical profession, are nothing more than somewhat glorified "jellybeans," a confection popular for the past twenty years. Molds for these eggs are made of plaster of Paris, and are placed in regular rows on printing boards to make impressions in powdered starch. A flat wooden form or open tray is filled with the starch, and placed in a machine underneath a heavy metal frame provided with a large number of these plaster of Paris molds. This frame descends upon the starch, is struck a few blows by a small trip-hammer, which is a part of the mechanism, and then rises, leaving in the starch a corresponding number of impressions from the molds. The tray is now inserted in another machine, which automatically drops into each depression the requisite amount of the jelly, and then the mold is set aside to allow this to harden. No upper mold is necessary for the small eggs, as in the cooling the upper portions contract and round off sufficiently to approximate an ovoid in form. The eggs are coated in great open revolving drums, into which from time to time melted or powdered sugar is poured, and where, as they are tumbled about, each gathers an even outside layer of smooth and glistening or crystalline character. The speckles of red, blue, or other colors are supplied in a simple manner. The eggs by the hundred are



Carving Plaster Molds by Hand.

Finishing Panorama Sugar Eggs.



Forming Flowers of Icing to be Used for Decorating Eggs.

HOW EASTER EGGS ARE MADE BY THE THOUSAND.