MANUFACTURE OF THE HARVEY TORPEDO.

The Royal Arsenal at Woolwich, England, in which ten thousand hands are employed by Her Majesty's Government to fabricate the artillery and ammunition for land and sea service, has lately been producing different kinds of torpedoes, among them the Harvey torpedo, the manufacture of which is shown in a series of engravings presented this week, which we select from the *Illustrated London News*. It might be used with good effect, during the chase of one vessel by another of superior force, to give the former a chance of destroying its pursuer. The torpedo is encased in a wooden chest, which is buoyant, and can be set afloat by lowering it from the ship's deck with a windlass; after which, by the aid of a rope and one or two cork buoys, if required, it can be placed so as to drift or keep in the position for coming into contact with the enemy's ship. There is a lever projecting from the top of the chest at one end, which will descend immediately on being struck or pressed by the hull of the vessel to be destroyed; this lever sets in motion, at once, the mechanical apparatus attached to the percussion bolt, which is charged with detonating powder. The torpedo charge of gunpowder is thereby ignited, and it is highly probable that a large hole will be made in the ship's side or bottom, causing her to sink without any more trouble. Our illustrations show only the processes which may be witnessed by ordinary visitors to the Royal Arsenal. The interior construction of the torpedo, and the machinery connected with its percussion bolt, are not revealed to public inspection. Workmen are seen engaged in making the outer case and its fittings, the metal cylinder of the percussion bolt, and the cork buoys to serve in the practical application of this maritime weapon. The last-mentioned operation is also illustrated by one of our engravings. The torpedo in question was invented by Commander Harvey, R.N.

Testing Beer for Starch Sugar.

It is sometimes desirable to ascertain whether to a given sample of beer there has been added, for the purpose of economizing the malt, a substance variously known as artificial grape sugar, starch sugar, or potato sugar, etc., which is made from potato starch. Some time since, Béchamp made the discovery that this starch sugar contained a peculiar substance, intermediate between real sugar and dextrin, to which he gave the name "amylin." Like real grape sugar, it turns the ray of polarized light to the right; but unlike it, it is incapable of fermentation.

Eugen Dietrich has recently made the discovery that amylin is a crystalloid, and therefore able to pass, when in solution, through a dialyser made of parchment. This furnishes a ready method of separating it from dextrin, which is a colloid and unable to pass through the dialyser, The method of analysis as applied to beer is as follows:

One liter (⅘ quart) of beer was subjected to dialysis for four days, water being frequently added. The dialysed liquid was evaporated to one quart, decolorized with animal charcoal, and filtered. Washed yeast was added to the filtrate, which was quietly left to itself at a temperature of 68° Fah., and in two days no further evolution of carbonic acid was perceptible. To make certain that all the sugar had been removed, fresh yeast was again added, left two days more, and the liquid filtered and polarized. According to Neubauer's experiments, commercial starch sugar contains 20 per cent of this non-fermentable substance. Hence we may conclude that the quantity of amylin found, when multiplied by 5, will give approximately the quantity of starch sugar employed. But 1 lb. of this sugar will replace on an average 2½ lbs. of malt, thus indicating the amount of malt saved.

Dyeing Cloth Black.

We dissolve for 50 lbs. of cloth, 2 lbs. of bichromate of potash; 1½ lbs. cream of tartar, and 3 lbs. of sulphuric acid in river water; we heat to a boil, and introduce the wool, which is let stop for one hour. The dye beck is composed of 35 lbs. of logwood, 2 lbs. of peach wood, 1 lb. of fustic; these woods are inclosed in sacks, and kept for 2 hours, before dyeing, in the necessary quantity of boiling water. The dye beck receives besides 2 lbs. of sulphate of indigo, and 1½ lbs. of sulphuric acid. We put the wool in this beck, which is raised afterwards to a boil for 1½ hours, washed and dried.—*Vict. Preston, in Dingler's Journal.*

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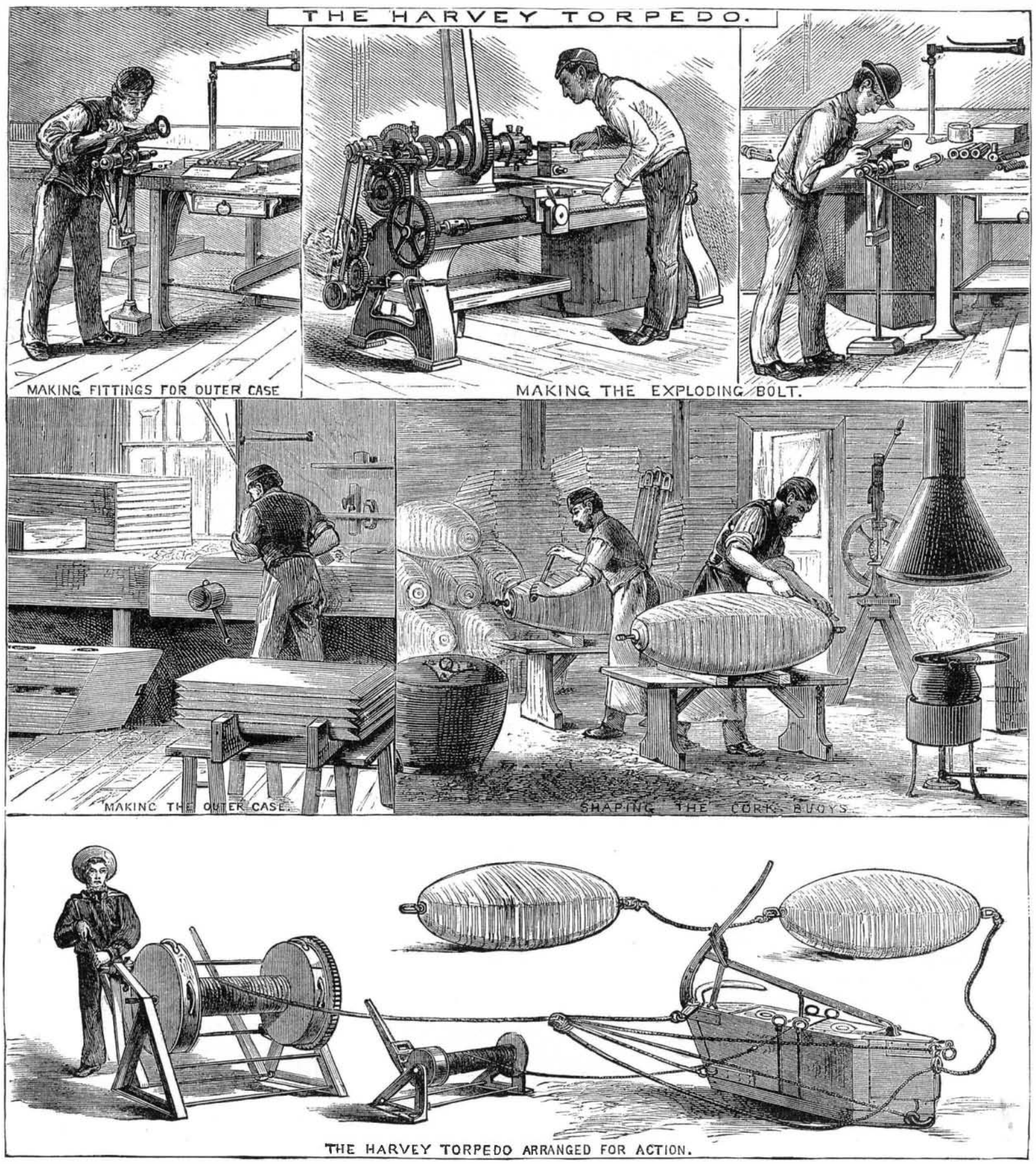
"The SCIENTIFIC AMERICAN, published by MUNN & Co., New York city, is without a rival as a scientific paper, and to the mechanic is simply invaluable, We honestly believe any mechanic would derive information from a year's reading of the SCIENTIFIC AMERICAN which any amount of money could not buy elsewhere. Some of our enterprising citizen mechanics, we hope, will try the experiment of reading this really valuable and practical journal one year. We know," says the Glasgow (Ky.) *Weekly Times*, "they would never give it up."



TORPEDO MANUFACTURE AT WOOLWICH, ENGLAND.