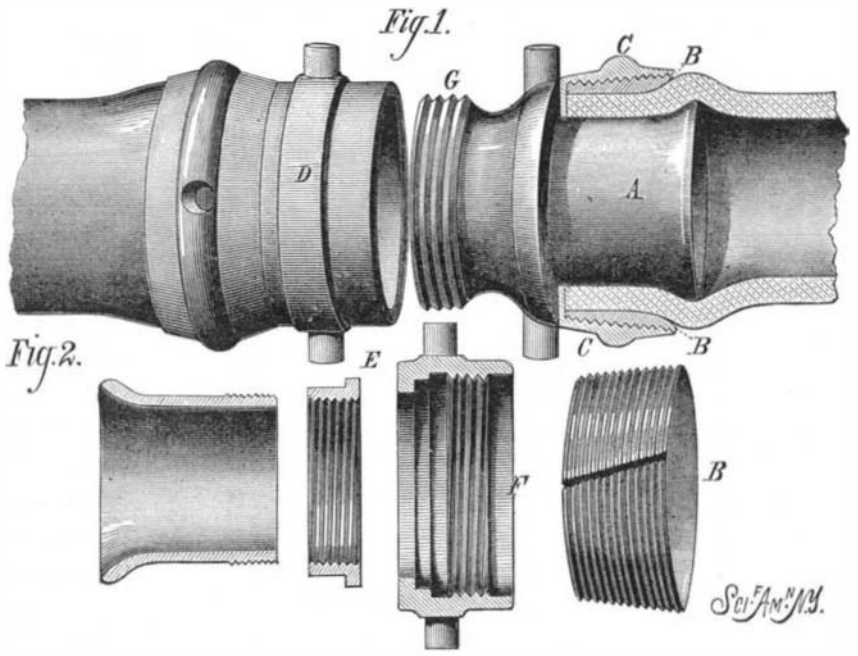
IMPROVED HOSE COUPLING.

We illustrate herewith an improved hose coupling, so connected with the hose ends as to be drawn tighter as the pressure to which it is subjected augments. The interior sleeve, A, Fig. 1, is made with a slight taper, and the hose end is secured upon it by a diagonally split and tapering band, B, having a screw thread on its exterior, and also on outer sleeve, C, threaded inside as shown. The screwing up of this sleeve closes the split in the band, B, and compresses the same tightly over the hose. The opening in the band, it will thus be seen, allows the latter to accommodate itself to different thicknesses of hose. The female coupling, D, turns loosely on the inner sleeve, being connected by a short intermediate collar, E, Fig. 2, that is screwed by an inner thread on the threaded end of the inside sleeve, so as to retain coupling, D, on the circumferential shoulder of the same. The female coupling, D, has a recess, F, which acts as a guide to steady it in making the connection with the threaded part, G, of the male coupling. The outer sleeves are applied by a suitable wrench that enters recesses in them.

The device is strong and durable, and excellently well suited to the uses of fire departments. It has also, we are informed, been successful under severe tests.

Patented through the Scientific American Patent Agency, Sept. 25, 1877. For further information address Mr. Frederick Stewart, Engineer No. 8, cor. 12th and Salisbury sts., St. Louis, Mo., or O. F. Scudder, Engineer No. 9, cor. Broadway and Mound st., St. Louis, Mo.



IMPROVED HOSE COUPLING.

Poisonous Candy and Beer.

It appears that though magenta made by the arsenic process is no longer used for coloring confectionery, sirups, liqueurs, etc., yet these articles are still found to contain traces of the poison. According to Ritter, of Rouen, the source of this evil is to be sought not in the magenta or other colors employed, but in the glucose or starch-sugar so often used. This substance is obtained by the action of dilute sulphuric acid upon starch; and the acid, being made from arsenical pyrites, contains traces of arsenic, which thus finds its way into articles of food. As in Germany the brewers employ little malt and very much starch-sugar, the beer is thus liable to be contaminated.

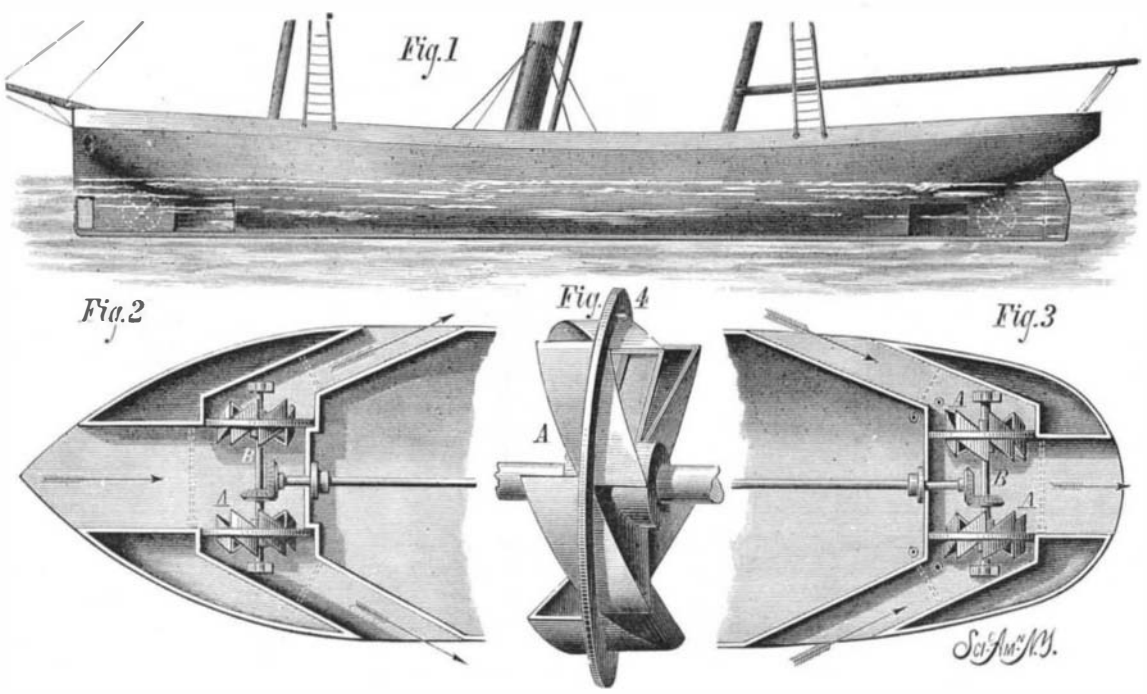
CURTIS' PROPELLING AND DRY DOCK ATTACHMENT FOR VESSELS.

The inventor of the new propeller illustrated in our engraving considers that the losses due to the screw propeller, as now placed thwartships a vessel, may be summed up as follows: The bending strain causes bending and loss by friction in the bearings, and causes the breakage of the shaft; the loss by unequal action of the various parts of the screw's surface, necessitating the dragging of the lagging portion by the most active; the loss by the opportunity and tendency of water to escape from pressure; the loss incurred by the paddle-like action of the screw dragging the vessel out of her course, entailing great labor on the helmsman; the rudder has to be obliqued and has to be dragged, and causes a pressure of water all along one side of the vessel; the loss incurred by friction of the end thrust of the main shaft which receives the force of the screw and imparts it to the ship by end-thrust pressure in its bearings, causing a useless waste of power. To avoid these difficulties is the object of the device herewith represented, for which it is claimed that there is no end thrust on either shaft, nor bending strain; the screw cannot race, as it never loses its hold of the water, and as all the water leaves in a straight line, the vessel steers easy and straight; all parts of its surface perform the work due to them and no part retards another. If any of the machinery needs repairs, it can be done whenever and wherever needed, while in the old-style propeller the ship would be buffeted about till she reached shore, and incur the expense of being dry docked. In shallow water this screw can be arranged to use a wheel of the required power, independent of the depth of the water.

The invention consists of balanced propelling wheels, A, one of which is shown in Fig. 4, that are attached to the ends of a lateral shaft, B, Figs. 2 and 3, which shaft is rotated by suitable gearing from the main shaft. The wheels balance each other as they draw the water from opposite sides under equal pressure. They may be arranged at the stern of the vessel or at the center of the same, or at both stern and bow, Fig. 1, the draw blades of the bow wheels, Fig. 2, being turned inside and the packing arranged outside. Their effect is to draw in the water in front and expel it at the sides, while the stern wheels draw in from the side and expel from the stern, as indicated by the arrows. End pressure is thus given to the column of water in the same way as in the case of ordinary propellers, but, it is claimed, with the advantage that the water column does not cause a loss of power. When the wheels are amidships, as for canal and river boats, longitudinal inlet and outlet trunks are arranged, which may be depressed to take up and discharge the water at the lowest possible points. The trunks are closed by suitable gates, which are shut when any injury occurs to the wheels. The water is then pumped out of the chamber so formed, and the latter thus becomes a submarine dry dock, which may be entered through a man-hole from the vessel.

The arrangement of the double-balanced propelling wheels at any part of the vessel is claimed to render the motion of the same steadier, especially when the wheels are placed at both bow and stern. The dry dock attachment formed by closing gates furnishes a convenient means of repairing the screws in mid ocean in case of accident. The main bulkhead through which the driving shaft passes is removable by taking off the driving wheel and withdrawing the shaft. An opening large enough to pass all the propelling parts, including the wheels, is thereby obtained, so that a vessel can have her machinery renewed or put in when afloat, without going into dry dock. The wheels also, being inside the lines of the vessel and incased, are not exposed to damage by coming in contact with floating bodies, and are therefore less liable to injury than the ordinary screw propeller. The inventor submits a calculation for a pair of four-foot balanced wheels as follows: A pair of these wheels discharges a column of water 44 inches square, and 15 inches long, for every one sixth of a revolution. Each wheel discharges 36 times in one revolution; opening in buckets, depth 8 inches, width 20¼ inches, length 15 inches. Each wheel has six buckets. From these data it is determined that a column of water 73·47 miles long is discharged from the wheels per hour, or 1,763·28 miles in 24 hours. Definite results as to the speed of the vessel have not yet been reached.

Patented through the Scientific American Patent Agency, December 11, 1877. For further particulars address James Curtis & Co., Middletown, Montgomery county, Mo.



CURTIS' IMPROVED PROPELLER.

New Agricultural Inventions.

Mr. R. B. Thomson, of Dansville, Mich., has invented an improved Colter Holder for Plows. A flange upon the lower rear portion fits into a corresponding groove in the top of the standard. At the top of the holder another flange rests upon the plow beam, to which it is secured by an adjustable bolt. This arrangement holds the colter securely in place, and admits of easy adjustment of the latter to or from the land or vertically, as may be desired.

A machine for Sharpening Mower and Reaper Knives has been patented by Messrs. H. F. and M. L. Bush, of Douglassville, Pa. The improvements consist, first, in the mechanism by which reciprocating motion is imparted to the knife-supporting bed plate; and, secondly, of a fulcrumed and weighted lever, which regulates the pressure of a V-shaped grindstone upon the knife, and supports the swinging frame of the stone in raised position for adjusting the knife upon the bed plate.

Mr. J. J. Carey, of La Salle, Ill., has invented an improved Corn Planter, in which the axle is rearwardly curved to allow room for a third wheel, which actuates the dropping attachment. This drive wheel may be raised from or lowered to the ground by a hand lever. There is also a guide for planting in accurate check row.

A Reciprocating Churn Dasher, invented by Mr. M. R. Heliker, of Wauseon, O., has two sets of bifurcated arms with inclined sides, the sides of alternate arms being inclined in opposite directions.

Mr. J. H. Mudgett, of Camanche, Iowa, has invented a Fence Post for wire fences, which has clips so arranged in the re-entrant angles of flanges that their hooks are located back of a line intersecting the salient angles of two flanges. The head is hollow and of cylindrical form, so that it may be turned and drawn into the earth by a wrench or worm.

An improved Gate, patented by Mr. Jacob Kesselring, of Blissfield, Mich., is so constructed that it may be adjusted to swing at any desired height above the ground. A slotted bar, carried by the gate post, is secured to the latter by an adjustable bolt. Blocks upon the rear upright of the gate engage with this bar, and the height of the gate is thus regulated by it. There are two latches, upper and lower, connected by a link; and the handle is attached to the upper one.

Mr. Henry Barsalou, of St. Anne, Ill., has invented an improved Seeding Machine. A knotted check cord, stretched across the field, passes over pulleys on the frame of the machine and actuates the dropping mechanism in an original manner. Another novelty is the combination, with the seed dropping device, of a conductor plate fitted into the seed box, and provided with a feed slot having sharp edges to break up lumps.

Extensive Locomotive Works.

The North Staffordshire Institute of Mining and Mechanical Engineers paid a visit recently to the works of the Northwestern Railway Company, at Crewe, probably the largest of the kind in the world. They occupy 85 acres, the covered shops extending over more than 23 acres. About 150 new engines are made every year, and about 2,000 annually come into the shops for more or less extensive repairs. The visitors were shown a large locomotive that had been "erected" in 25½ hours by 10 men—a feat that has, however, been eclipsed recently in the United States. Among the most important features of the Crewe works are the furnaces and other plant for the manufacture and working of steel, which Mr. Webb, the engineer to the company, now uses in all locomotive boilers.

Costly Experiments.

The Titusville, Penn., *Herald* says: "A wealthy operator located eight dry wells last year. He is an 'oil smeller,' and costly experience will probably never rid his mind of the delusion that a hermetically sealed bottle held by a string near the ground will indicate the existence of petroleum one thousand or fifteen hundred feet below the surface. It is a species of mumbo-jumbo business that found favor in the early days of the oil excitement, and a few respectable and intelligent natives were fascinated by the craze and have never recovered from the affliction. The gentleman spoken of has more than one hundred thousand dollars' worth of dry holes to remind him of his foolishness."