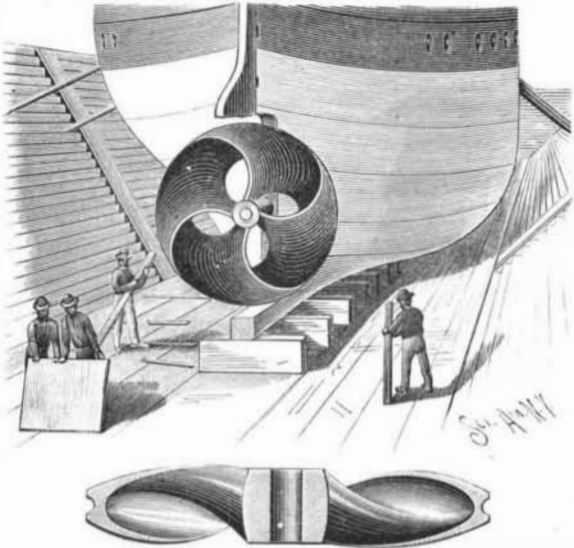


AN IMPROVED SCREW PROPELLER.

A propeller wheel for water, wind, or steam, and adapted for use as a ventilator wheel, or for similar

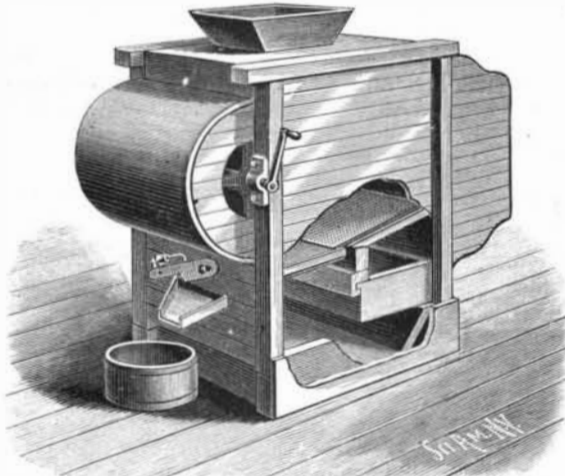


HODGEMAN'S SCREW PROPELLER.

purposes, has been patented by Mr. Henry D. Hodgeman, of Laramie City, Wyoming Territory, and is illustrated herewith, the small figure showing a central vertical section. The blades radiate in a diagonal line from the central hub, and turn as they approach the periphery to lie in a plane at right angles with the hub, being merged at their outer extremities into a peripheral band or ring, while being thickest at the point of intersection with the hub and thinnest at their intersection with the periphery. This arrangement affords a series of substantially circular openings between the hub and periphery, projecting diagonally through the wheel in a double curve, the blades presenting at the proper point an efficient bearing surface, while, owing to the peculiar curve of the apertures, the wheel may be made light and yet strong.

AN IMPROVED FANNING MILL.

An attachment for fanning mills by which the grain and chaff are gathered in convenient receptacles, and



RISSE'S FANNING MILL.

thus prevented from falling on the floor, is illustrated herewith, and has been patented by Mr. John C. Risser, of Paris, Ill. The bottom of the mill is made into a receptacle with an inclined board on its rear end, for

conveniently removing the chaff, which only falls there when the chaff box above is removed, for emptying or other purposes. The screen and the chaff box are of any approved construction, but the screen, instead of discharging on the usual chute, discharges on a gathering chute having at its upper end a downwardly turned edge fitting over the upper edge of the usual chute. The gathering chute passes a short distance through the front board, and is provided on each side with upwardly extending flanges, which diverge from the bottom upward, so that the upper ends fit on the ends of the screen. A gate is held in the lower end of the gathering chute, pivoted at one end to the front board, the gate having an inclined bar on which is held to slide a weighted ring or collar. When the gate is swung upward, as shown in the illustration, the weight slides to the back end of the bar, and thus holds the gate open, the weight moving forward as the gate is closed, to hold the gate down, and prevent grain from passing out of the chute.

AN IMPROVED WAGON BODY.

A wagon body designed especially for farm use, wherein the boards of one side may be thrown up on the opposite side, so that articles may be conveniently thrown in as the crop is gathered in the field, and having an adjustable end gate, designed to form a platform to facilitate unloading, is illustrated herewith, and has been patented by Mr. Thomas Tyson, of Mound City, Mo. One side of the wagon body consists of three boards and the other side of two boards, the lower board of the latter side being of a height equal to that of the top and bottom opposite boards, and the upper board of a height equal to the central board of the opposite side, the lower sections of both sides being secured to the wagon body. The front end gate is made in two sections, the upper section being recessed from the center outward, a block being inserted in the recess, hinged at the upper end, whereby the block may be folded upward. The rear end gate is hinged to the bottom of the wagon body, and adapted to extend upward a distance above the sides, side strips being attached to the inner face of the end gate, which, when the end gate is closed, are adapted to extend without the sideboards. The end gate is retained in vertical position by hooks engaging eyes screwed in the outer face of the end gate, and an additional fastening is afforded by an eye in the cheek section, to which a hook is pivoted adapted to enter an eye in one of the sideboards. For gathering potatoes, corn, or such articles in a field, the wagon body is arranged as shown in the illustration, with the lowest side next the operator. When the wagon has been filled as high as the upper edge of the first sideboard, the intermediate section is brought over to its normal position, and the filling goes on, the upper board being finally brought over. If it is desired to have a low wagon body, one central section may be removed, with the upper section on the opposite side, the upper section of the front end gate being also removed.

To adapt this improved construction to an ordinary farm wagon, having two permanent sideboards of equal height, two additional hinged sideboards may be used on one side to equal the height of one additional sideboard on the other side, or two hinged boards of equal height may be used on each side.

THE HOWELL TORPEDO.

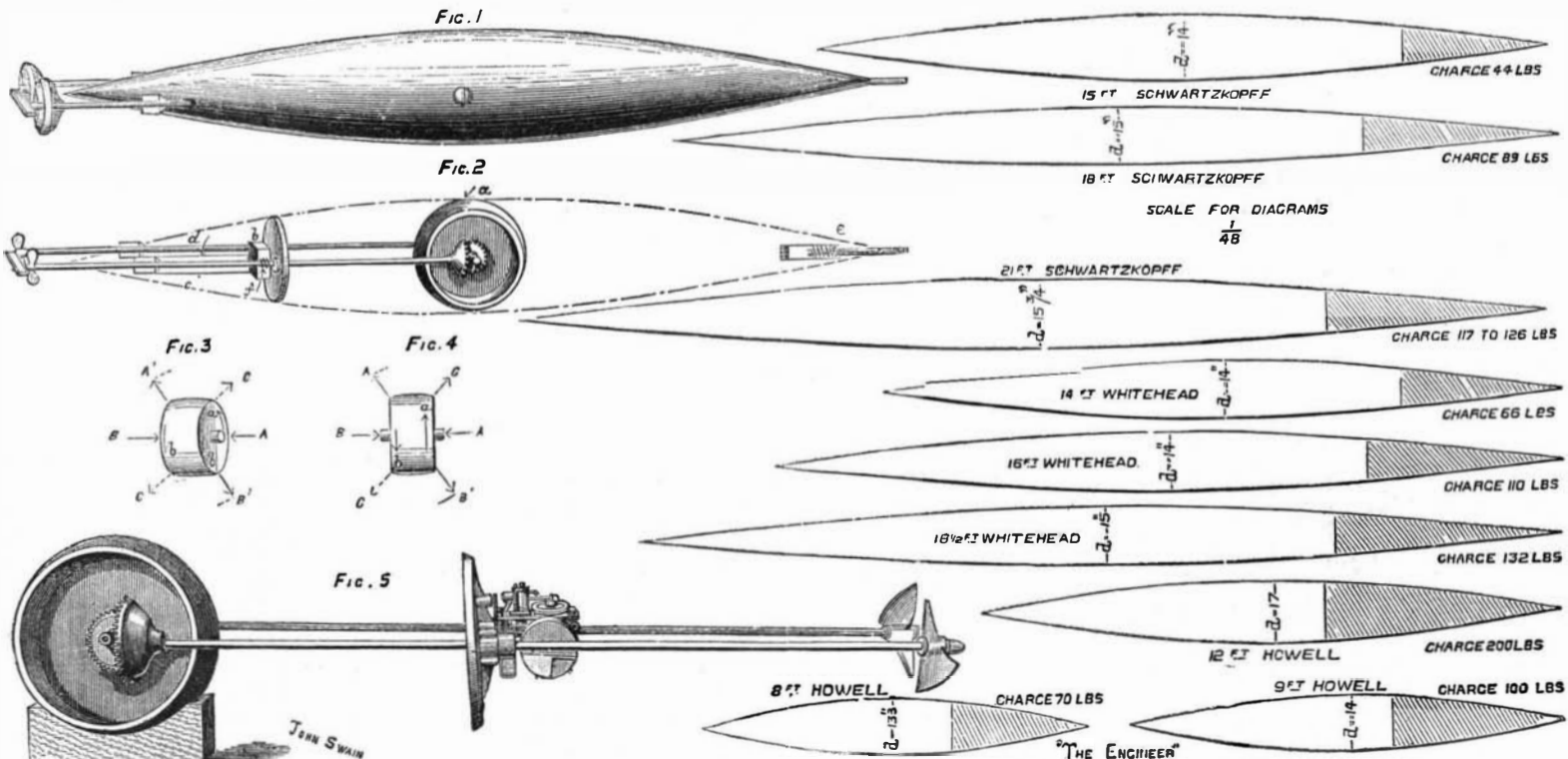
The Howell automobile torpedo is the invention of Captain Howell, United States Navy, whose patents thereon were first acquired by an American company formed for the purpose of developing the weapon. Motion is imparted to it by the momentum of a flywheel, set in rapid rotation before the torpedo is launched. On February 1, 1888, the Hotchkiss Ordnance Company, of London, purchased all of these patents, and have begun the manufacture of the torpedo in France and in the United States of America. The 8 foot Howell is 13.3 inches diameter, and carries an explosive charge of 70 pounds, the weight of its flywheel is 110 pounds, and the total weight of the torpedo is 325 pounds. Fig. 1 is a view of the torpedo, showing the firing pin; the axis of the flywheel, to which motion is given by means



TYSON'S WAGON BODY.

of a clutch and motor; the openings to the regulator chamber; the horizontal and two vertical rudders, and the tubes surrounding the twin screws. The shell is of brass. All other parts are of phosphor-bronze, except the flywheel and propeller shafts, which are of steel. Fig. 2 shows all the machinery in the torpedo, the shell and supporting rings being removed, and the outline of the shell indicated by dotted lines; *a* is the flywheel, to the axis of which are geared the two propeller shafts; *b* is the automatic immersion and steering regulator, which weighs 6½ pounds. It operates the tiller rod, *c*, connecting with the horizontal rudder, and two tiller rods, *d*, connected to the vertical steering rudders, power for this purpose being transmitted from the flywheel by a worm, *f*, on the propeller shaft and a gear wheel in the regulator.

The torpedo can be set to run at any depth from one yard to twelve yards. It is caused to stop at any desired distance on its range by an attachment to the propellers—not shown—and it rises to the surface, having a few pounds buoyancy. The torpedo can be made to sink at the end of its run, or float with the firing pin locked, as may be desired. Before launching, the firing pin is



THE HOWELL TORPEDO.