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Propulsion of Ships and Aquatic Animals.

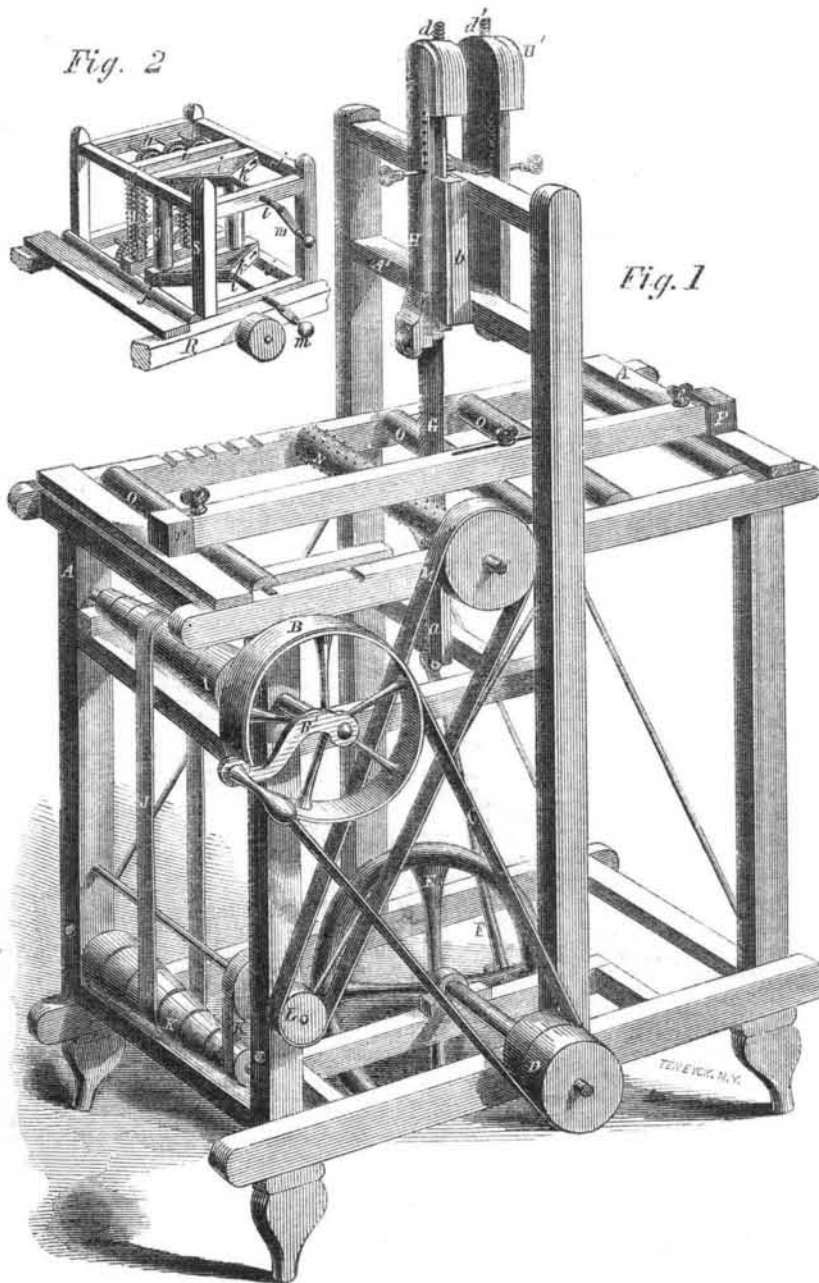
In a paper recently read before the Society of Arts of London, by J. MacGregor, on the paddle wheel and screw propeller, it was observed that in the modes of propulsion employed by aquatic animals may be found almost every plan which has been used by man with machinery. Thus, water is ejected for propulsion by the cuttlefish and "paper nautilus;" sails are used by the veleva and water birds; punting and towing by whelks and some others; a folding paddle by the lobster; feathering paddles by ducks; and oblique surfaces by fish of all kinds. A screw-like appendage is found in the wings of an Australian fly, but it is supposed to be shaped thus only when dried after death. These are well known instances of similarity of natural and artificial means of propulsion; but the author of the above-named paper mentions a remarkable animal which propels itself by a rotary movement, acting on the water by means very similar to those of the paddle wheel and screw propeller combined. This is the infusorial insect "paramecium," which is of an irregular oval or egg-shaped form, with a sulcus or furrowed groove or depression running obliquely round its body. A wave-like protuberance passing along this sulcus (with or without cilia) causes the body to rotate on its longer axis, and thus propels it by the fore and aft stroke of the paddles which the cilia on its surface form, as well as by the screw-like progress induced by the spiral groove.

Method of Preparing Kid Leather.

Yolk of egg is largely used in the preparation of kid leather for gloves in France and on the continent of Europe, in order to give it the requisite softness and elasticity. The treatment of the skins with yolk of egg, which is called by the French glovemakers *nourriture*, is daily becoming more costly, in consequence of the large consumption and increased price of the material used. It has recently been proposed to substitute for the yolk of egg the brains of certain animals, which in chemical nature closely resemble the yolk of egg. For this purpose the brain is mixed with hot water, passed through a sieve, and then made into dough with flour and alum, and used in the same manner as yolk of egg. The inventor of this substitute states that the quality of inferior skins may be so much improved by this treatment as to be fit for making gloves.

The Indians of our forests employ this very agent (brains of animals) for preparing their skins for moccasins, &c. They employ the brains of deer and buffalo, mixed with a weak lye of wood ashes, and after this they smoke the skins; the pyroligneous acid of the wood in the smoke accomplishes the same object as the alum used by the French skin dressers. Indian prepared skins stand the action of water in a superior manner to French kid. Furs dressed in the same manner resist the attacks of insects.

BARTHOLOMEW'S IMPROVED SAWING MACHINE.



The inventor of this machine—D. B. Bartholomew, of Lancaster, Pa.—has produced a compact arrangement of parts that will enable any one to have a good sawing machine in their workshop, not only at a low price, but also one which requires but little power, as he makes them from small enough to be operated by hand, up to any size required.

That it is more advisable to cut with a saw which has a regular and equable motion must be apparent to every one; and this machine gives this advantage without much more labor than if a hand-saw was used; besides, it will cut stuff much thinner than could be done by a hand-saw, and of greater thickness, that is, with the same precision.

Our engraving is a perspective view of one of these machines, Fig. 2 being an additional portion.

A is a framing of wood, well secured together, and having a supplementary framing, A', rising from it by two uprights. B' is a crank, by which the band wheel, B, is rotated; and C is a belt passing around it, and communicating motion to the pulley, D, on the shaft of a fly wheel, E. To this fly wheel, E, there is attached a pitman, F, that gives a vertical reciprocating motion to the saw, G. The saw, G, moves up and down in guides, a,

attached to the frame, A, and guides, b, attached to A'. To the guides, a, there are inclined coverers, that prevent the sawdust choking the guides, and throw it on each side. In the guide, b, there slides a piece, H, on the lower end of which is a roller, and from the upper end a screw, d, projects, to which a weight can be attached. There is also another piece, H', on the other side of the saw, provided with a screw, d', also for carrying a weight; these are kept up by pins, c and c', which being withdrawn, the bars press upon the stuff, and hold it down on the feed rollers while it is being sawed.

The feeding apparatus is operated by means of a cone pulley, I, on the shaft of B, and by means of the belt J, cone pulley K, belt K', pulley L, and belt M, the feed roller, N, is moved. This feed roller is provided with teeth, and as the machine is represented in Fig. 1, it is suitable for sawing stuff of general thickness. O, O, O, are rollers on which the stuff runs, and the bar resting in the ends P, P, is a gage bar that can be fixed to any gage by the set screws, e. For sawing thin stuff, the feed roller N, is removed and also the guide bar, and the frame, S R, is placed on in front of the saw instead. In this frame the stuff to be sawed is placed between the feed rollers,

g, which have a positive motion given them from the belt M, by gearing. The toothed rollers g, are pressed up to the stuff by the handles and gearing h, and they are mounted in pieces, i, which slide on the cross-pieces, j, and j', of the frame S. The other rollers, g, which press against the other side of the stuff are kept against it by springs, z, which are kept in the proper state of tension by the screw shafts, l, rotated by the crank handle, m.

This machine was patented by the inventor December 29, 1857, and any further information can be obtained by addressing him as above.

The novelty is chiefly in the feed rollers, for in other sawing machines the feed has been irregular and unsteady, but in this form of the feed apparatus, receiving positive motion from the same shaft as the saw, both are equally steady and reliable.

Culture of Fish.

Some very excellent information on the above subject, by Robert L. Pell, President of the American Institute, has been published in the New York *Evening Post* for the benefit of farmers. The following are a few extracts:—

Fish eggs may be transported to great distances, without fear of failure, particularly the salmon and brook trout, which require from sixty to ninety days to mature. When two black specks are seen through the membranous cuticle that covers the egg, they may be packed for exportation. The best plan is to place them between wet woolen cloths, about fourteen inches square, and pack in alternate layers in boxes, perforated at the top and bottom, so that the water used to moisten them at stated periods, may pass off, after having saturated them sufficiently.

If intended to be sent to a very great distance, you may place a layer of coarse sand, partially wet, in the bottom of a box four inches in depth; on this lay the prepared eggs separately, and cover them with an inch of sand—then eggs and sand alternately until the box is full; before the cover is screwed on, place the whole for two hours in water and ship it.

I once transported twelve hundred trout, of all sizes, to one of my ponds with perfect safety, from a distant brook, without changing the water, making four journeys, thus:—A large tierce was put upon a spring cart, and filled with pure spring water, into which an abundance of ice was placed. As the trout were caught by treading the brook, and thus driving them into a net, they were imprisoned in the tierce without handling, and arrived at the pond in safety; without ice, they would have perished in half an hour.

You may carry young salmon or trout in glass jars by railroad any distance without changing the water, by placing a few aquatic plants in with them.

I am convinced that with judicious care, and ponds suited to the purpose, a branch of industry might be formed that would increase the wealth of the party attending to it unparal- leled by any other business.

Let me, then, recommend all gentlemen living near the coast on Long Island and in New Jersey, wherever facilities offer, to make salt water ponds, by calling to their aid a portion of the sea, which may be carried inland by means of a short canal, and therein place fish to fat, besides breeding oysters.

It is possible to stock every stream in the state of New York with all the desirable varieties of fish in a single season, and all the waters in the United States in a single year.