

THE SWEEPSTAKES PLANER AND MATCHER.

Good judges of mechanical design will appreciate the well-balanced, light, yet strong construction of the efficient planer and matcher illustrated in the accompanying engraving. With a weight of from 2,100 to 2,500 lbs., according to capacity, it contains all that is essential to a first class machine. It offers also several novel features of great merit, among them its solid forged steel head and steel matcher spindles, running in the Ellis patent journal boxes shown in the lower right hand corner of the engraving. By means of this improvement the journal can be kept central and tight until the box is worn out, thus preventing any tremble and jar of the shaft, a very important gain where smooth work is required. The machine can be quickly and easily changed to a surfacer, simply by loosening two nuts and removing the matcher head, when the spindles will swing below the surface of the table. When required again the spindles can be swung into position without measuring or other delay. A shaft, crossing the machine behind the matcher heads, carries a head with cutters, to be used in making California rustic siding, beaded ceiling, small mouldings, and the like.

The machine has four $4\frac{1}{2}$ inch feed rolls, connected with expansion gear, securing a powerful feed of 45 feet a minute. It has two pressure bars, one in front and one back of the head; and the rolls are held down by forged steel coil springs. The long table makes room for the long gauge indispensable in a good flooring machine. The countershaft is heavy, and is fitted with tight and loose pulleys 10 inches in diameter and 6 inches face. It should run 900 revolutions a minute.

Further information, if desired, may be had of Messrs. Rowley & Hermance, Williamsport, Pa., who also manufacture a large variety of other wood-working machinery.

An Educated Seal.

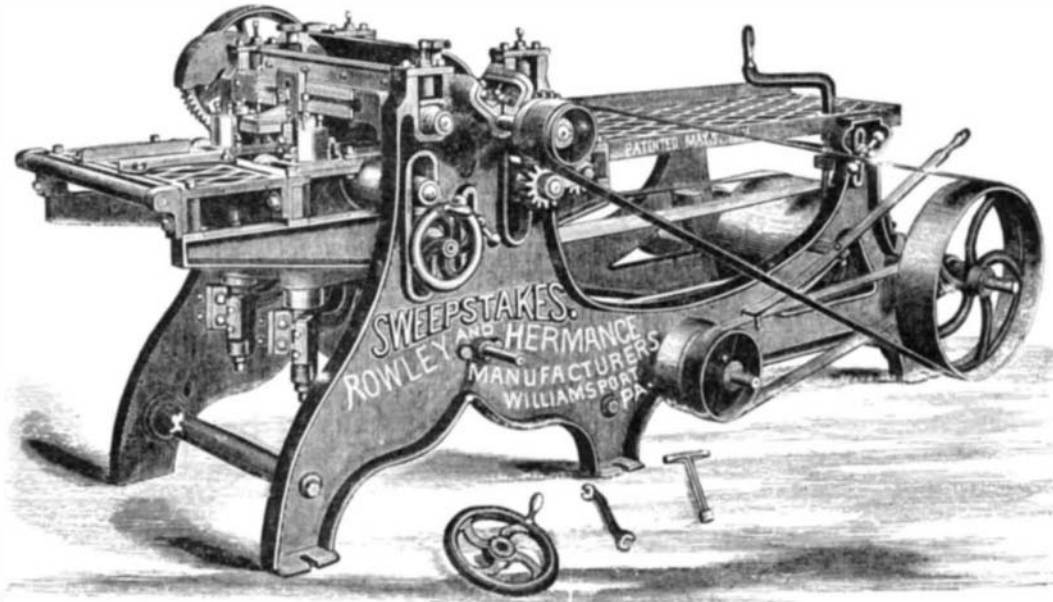
The naturalist of the Westminster Aquarium has been experimenting on a young seal, training it to perform many curious tricks. A London exchange says the seal now goes through a performance which includes plucking the strings of a guitar, beating a tambourine, climbing a flight of steps, taking a "header," smoking, or pretending to smoke, a pipe, firing a revolver, and drawing a boat to which it is harnessed.

The performance to meet public taste is made more sensational than anything M. Leconte did, who had some trained

possesses more than ordinary interest. The engraving shows the dock carrying one of the Russian circular ironclads, the Novgorod. This ironclad is 101 feet in diameter, and weighs 2,450 tons. The dock has also been successfully used for raising the other ironclad, the Vice-Admiral Popoff, which is 121 feet in diameter, and weighs 3,850 tons.

This dock consists of a series of pontoons, each 72 feet long, 18 feet deep, and 15 feet broad, placed 5 feet apart, and connected with a pontoon, 280 feet long, 44 feet 6 inches high, and 12 feet broad. The structure resembles a comb, the larger pontoon forming the back; the smaller ones the teeth. An outrigger connected with the larger pontoon opposes and counteracts the oscillations of the smaller ones. The smaller pontoons are submerged by allowing the water to enter, the vessel is floated over them, when the water is pumped out by machinery carried by the longer pontoon. The keel takes its bearing on the blocks, and the bilge blocks are hauled into place by chains in the usual manner. This dock appears to have met very successfully the difficulty of dealing with exceptionally broad vessels. It can deal with vessels of 150 feet beam, and the system upon which it is constructed is such that it can be very readily extended to take any greater widths or lengths required. It is capable of depositing the vessels lifted by it on fixed stages erected along the shore. In these days when there are decided indications of growth in the beam of our iron-

clads, this system of dock promises to be of much value, as when a dock of this kind is available, the restrictions in width which ordinary graving docks impose are at once removed. The facility with which this system of dock can be extended, and the manner in which the sections of which it is composed admit of variation of arrangement to suit different conditions, are also many points in its favor, and altogether the dock at Nicolaieff deserves to be the forerunner of many others.

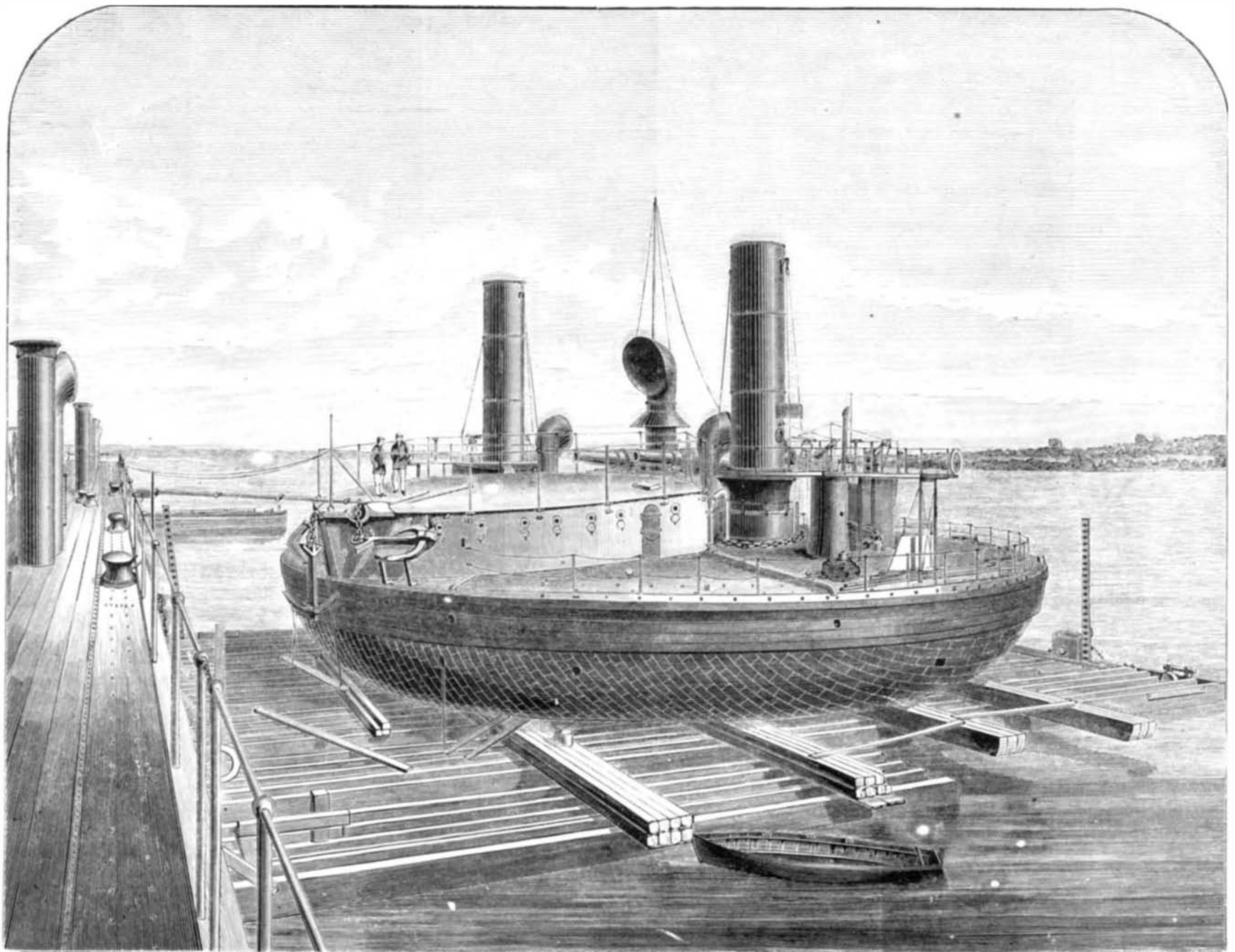


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seals at the Zoological Gardens; but the way in which the seal enters eagerly into the fun, with a keen eye on the fish given to it now and then in its performance, is a good illustration of how these animals can be educated.

NICOLAIEFF DEPOSITING FLOATING DOCK.

The accompanying perspective view, which we take from *Engineering*, represents the Nicolaieff floating dock, a structure which, from the novelty and boldness of its design,



THE NICOLAIEFF FLOATING DOCK.