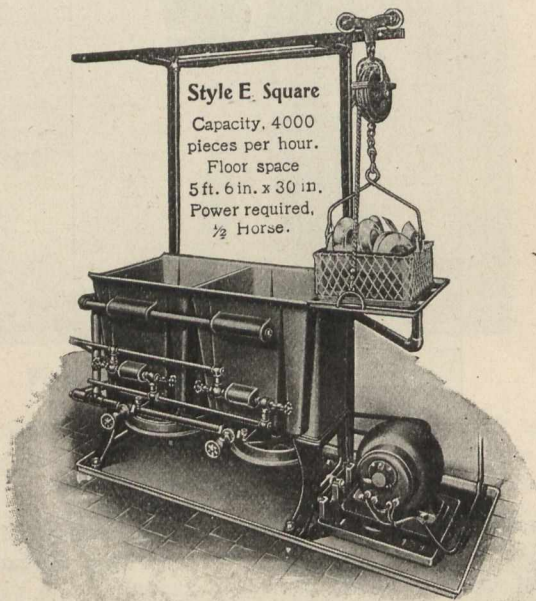


The washing action of the "Vortex" is secured by the rapid revolution of a peculiarly shaped propeller (in the bottom of the washing tank) by which the water is sucked down through a circular opening, and then forced outward and upward between an inside shell and the insides of the tank, to be deflected on top of the dishes, and again drawn down through them by the suction of the propeller.

The down-wash scouring action is an ideal one, as there is no dead body of water to obstruct. All the water is in constant, equal and harmonious motion, and, as both the weight of the dishes and the scouring force are in the same



The "Vortex" Dish-washing Machine.

direction (i.e., down), there is no shaking of the dishes—the lightest chinaware can be washed without fear of injury. The dishes are placed in wire baskets, containing wooden interiors, which prevent them from coming in contact with the metal. The basket is first lowered into the washing-tank and allowed to remain there for about twenty seconds. It is next raised and lowered into the scalding water of the rinsing tank, where a couple of plunges remove the soap-suds, and is then left on the draining board to drain and dry, while another basket is lowered into the washing-tank.

The dishes dry from their own heat, and present, without the use of towels, a polish which it is difficult, if not impossible, to attain by hand-work. It is also worthy of mention, that the dishes washed in the machine are hygienically cleaned and thoroughly deodorized; the first, because (it not being necessary for the hands to come in contact with the washing water) strong alkalies can be used to neutralize all animal fats, etc., and the second, because the plunge into the scalding water of the rinsing-tank takes away every taint, another result difficult to attain by hand-work.

This is, indeed, a notable invention, and, apart from its utility, is worthy of investigation by engineers generally, if only for its value under the law of association of ideas.

We are indebted for the above illustration and data to the Hamilton-Low Co., 145 East 42nd Street, New York.

MACHINE SHOP NOTES FROM THE STATES.

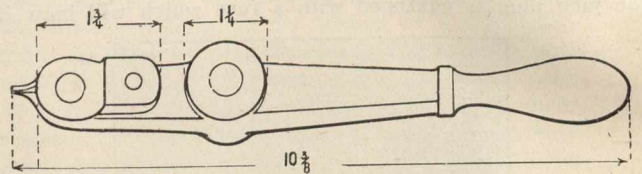
By Charles S. Gingrich, M.E.

XXXI.

The accompanying illustration shows a very interesting piece of jig milling—interesting because of the great simplicity of the jig, and the very satisfactory results obtained. The sketch shows the shape and gives dimensions of the pieces, which are malleable iron castings, and come to the milling machine with the holes all jig-drilled.

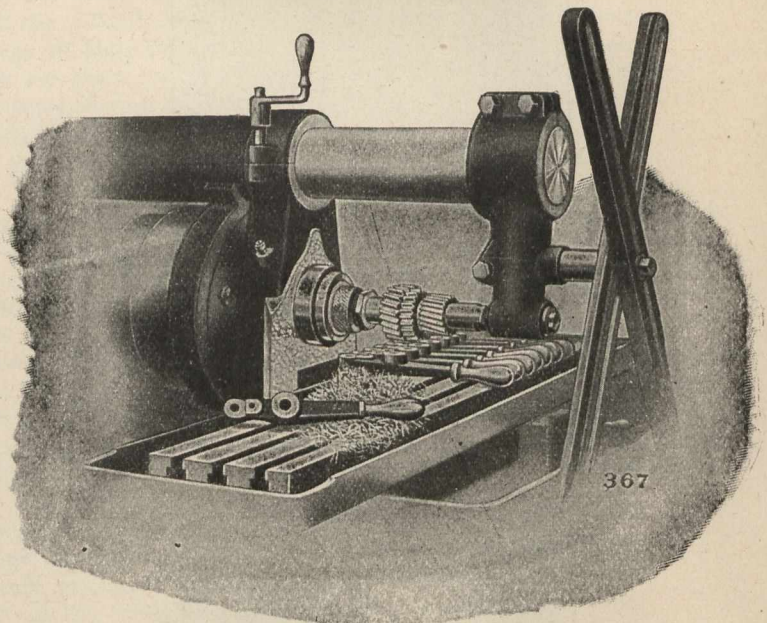
The milling operation consists of facing off the three bosses, which have faces of different heights. The jig

consists of a cast iron base, provided with pins correctly spaced and of proper size to snugly fit the two large holes drilled through the pieces, and the pieces are simply set over these pins. Since the cutter when in work has a tendency to push the pieces downward towards the jig, all that the pins are needed for is to prevent the pieces from moving sideways; and they are amply stout enough to do this.



This same plan can be carried out for a large variety of similar work, and has the advantage of very much simplified jig construction, and at the same time permits of filling and unloading the jig in the quickest possible time. In the present instance, the operator removes the pieces from the jig as fast as the cutter traverses them and refills it with new ones, so that the operation is practically a continuous one.

The cutters are $3\frac{1}{2}$ ", $3\frac{3}{8}$ ", and $2\frac{3}{4}$ " diameter, run 56 r.p.m., feed .033" per turn, giving a table travel of 1.8" per



minute. It will be noted that the cut is $1\frac{1}{4}$ " long and 3" wide, and is about 1-16" deep.

Because of the rapidity of this cut, and also the great amount of time saved because of the ease with which the pieces are handled in the jig, this machine (No. 2 Plain Cincinnati) in the hands of operator of ordinary ability mills 100 of these pieces in two hours, which is an average time of 1.2 minutes each, including handling and chucking.

Oxone.—The Niagara C. E. Co. has recently introduced a new product named oxone. This is made from a specially prepared form of sodium peroxide. Its value lies in its power of giving out free oxygen in presence of carbonic acid gas and water. By this means air in confined spaces may be kept fresh and supplied with O for breathing purposes for an indefinite period, provided, of course, that CO₂ is absorbed in the process.

It will be of great service in dissipating foul air in submarines; miners equipped with oxone will be able to go into drives or slopes without evil effects supervening; firemen at fires will, heedless of smoke and fumes, be able to enter burning buildings, whilst divers will carry their oxygen with them. Oxone should have a great future before it.—"Chambers' Journal."