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NEW SERIES.

## Improved Planing Machine.

The machine here illustrated is a modification of the Woodworth planer, the modification consisting in arrangements by which the bed may be raised or lowered while the machine is running, so as to plane wedge-shaped forms, and in improvements in the feed rolls, by which wet, green or icy boards may be fed into the machine and planed.

The bed, B, rests in the frame, A, on the wedges, C, which are connected to a screw on the end of the shaft, *f*, of the hand wheel, W, in such manner that by turning this wheel the wedges are forced in or drawn out to raise or lower the bed. By means of the scale, V, the height of the bed may be adjusted to plane the stuff to any thickness required.

The stuff is fed under the revolving knives, *d*, by the two grooved rollers, *e* and *e'*, and the smooth rollers, *e''* and *e'''*, hold the board down as it leaves the knives, and thus prevent the end of the board bending or tilting up, and being cut thinner than the other portions.

In planing wet or green stuff the two friction rollers, one of which is shown at *o*, are raised by turning the two thumb screws, S S. These, in connection with the geared rollers, produce a powerful feed apparatus. The feed works may be stopped by means of the handle, I, while the rest of the machine is running.

Z is the main driving pulley, and it has upon the opposite end of its shaft the feed pulley, which is connected by belts with the pulley, *n*, and that with

*n'*, which drives the cone pinion, R, by a clutch. This pinion drives the four rollers, *e e' e'' e'''*, which are held down by weights suspended on levers shown under the machine.

The inventor says that this machine will plane stuff from one-fourth of an inch to four inches in thickness, at the rate of 10,000 feet in ten hours; and that it is particularly adapted to planing wagon shafts and other wedge-shaped pieces, as well as boards tapering like clapboards.

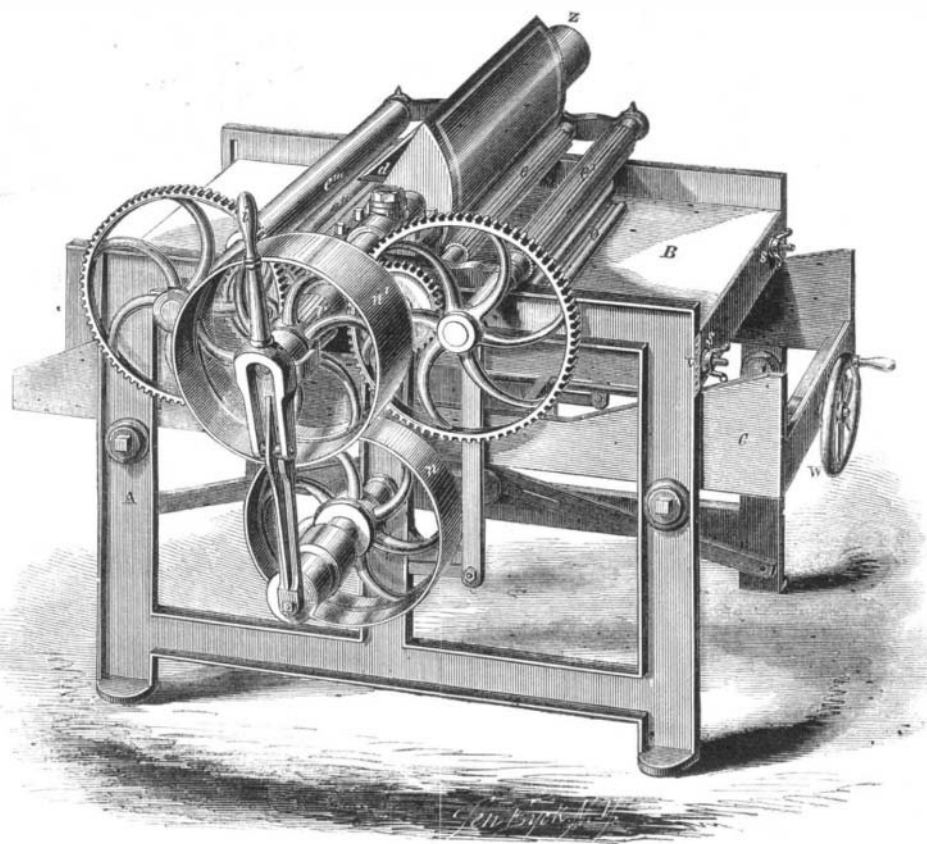
Any further information in relation to this machine may be obtained by addressing the manufacturer, C. C. Whittelsey, at Malone, N. Y.

## Dangers of Benzine in Varnish Making.

In a late issue we noticed the explosion of benzine which had taken place at Wright's varnish factory, Philadelphia, by which the owner of the establishment lost his life. The Coroner has examined into the case, and his jury has rendered a verdict. Mr. Wright's father and brother were examined. For three months past experiments were made in introducing benzine as a substitute for turpentine

in the manufacture of varnish. At first the test was made in the yard, in open air, in small quantities. This was successful. The process was then commenced on a small scale inside the building. This, too, was successful.

A larger quantity was then tried, in a larger kettle, in which the proportion of benzine was five barrels to the rest of the ingredients. A batch thus made had not perfectly amalgamated, and afterward it was put back into the kettle to boil still further. It was to this batch that the accident occurred. Benzine



WHITTELSEY'S PLANING MACHINE.

reaches the point of ebullition at a lower temperature than turpentine, and necessarily at a much lower heat than linseed oil, which in varnish making is combined with it. It volatilizes at a very gentle heat, and forms an explosive gas, in connection with the air, scarcely less dangerous than gunpowder. In the present instance the room was nearly air-tight, and the force of the explosion was equivalent to that of a gunpowder magazine.

The contact of the gas with the fire was made by the gas passing between the sides of the boiler and the brickwork. The verdict was accidental death.

The iron-clad ship in course of construction at Philadelphia is being pushed forward with great rapidity. Over 400 hands are engaged in the yard, while at least 1,000 more are employed by the various machine shops throughout the city in planing the plates which are intended to cover the planking. These plates are four and a half inches thick, fifteen feet long, and thirty inches wide. In about two weeks the workmen will commence to put the lower tier of plates upon the hull, and the upper ones will not all go on until after she is launched.

## SAVING TEN PER CENT OF FLOUR.

The last number of *Le Génie Industriel* has a review of a pamphlet by M. C. Decharme, Doctor of Sciences and Professor at the Lyceum of Amiens, which was written for the purpose of advocating the hulling of grain before it is ground, which he calls the system of Poissant.

Dr. Decharme says that by the usual mode of grinding grain the yield of flour is only 78 to 80 per cent of the weight of the grain, while by Poissant's method

90 to 95 per cent is obtained. He states the increased product, as ascertained by M. Bénard, verifying chemist of Amiens, is for wheat, 11 per cent, for rye 10 per cent, and for barley 13 per cent. Nor is this all. By the experiments of Mège-Mourès it was ascertained that the most nutritive part of flour is that which is nearest the outside of the kernel and it grows gradually less nutritive toward the center. Consequently the ten per cent of flour that is lost by its adhering to the hull in the present mode of grinding is the portion which is most nutritive. M. Bénard found that the flour of unhulled wheat contained 28.80 per cent gluten, while that of the hulled wheat contains 29.20 per cent, in the first flour 1.1375 of nitrogen, in the second 1.1725 of nitrogen. M. Bénard also says that the bread made from the hulled grain is quite as beautiful and as agreeable to the taste as that made from ordinary flour.

The hulled grain is also found to keep much better

than grain in the hull. M. Hamon inclosed a quantity of the hulled wheat in a flagon, and at the end of several years it was found to have no bad odor, while unhulled grain exposed under the same circumstances became a brown and nauseous mass. The explanation suggested for this better preservation of the hulled grain, is, that weevils and animalcules which destroy grain deposit their eggs in the hull.

Some ten or twelve years ago we described an invention by Mr. Bentz, of Baltimore, for removing the hulls of wheat kernels by steaming them slightly and driving them through small apertures, but whether this plan is the same as M. Poissant's we do not know.

So great was the demand for the SCIENTIFIC AMERICAN which contained engravings of the *Monitor* and the *Merrimac* that we have been obliged to print an extra edition of nearly 5,000 copies, to meet the demand.

Our next issue will contain a splendid engraving of Capt. Ericsson, the inventor and constructor of the *Monitor*.