

NEW WOODWORKING MACHINERY.

In the manufacture of doors, sash, furniture, and patterns, as well as in agricultural implement, wagon, and carriage shops, etc., a large number of different operations, performed upon the same material, require separate machines, which occupy much space and consume much capital.

The present invention, recently introduced by Messrs. J. A. Fay & Co., Cincinnati, Ohio, is an apparatus which combines the capabilities of several such machines, while embracing the essentials of convenience of adjustment, ease of operation, and rapid production. It is adapted for planing out of wind, making glue joints, surfacing straight, tapering, and beveling work, rabbeting, gaining, grooving, plowing, working circular moldings, panel raising, squaring up bed-posts, balusters, and newels, ripping, cross-cutting, etc., the only practical limit being the capacity of the operator for methods of manipulation. It is constructed on a strong substantial column of convenient height, and can be belted either from above or below; and the iron tables are supported on the column in planed gibbed ways. These tables have vertical adjustment by means of hand wheels and bevel gears, for regulating the depth of the cut, and lateral adjustment to make a larger or smaller opening between the tables, according to the size of the head or cutter being used. The tables have an arrangement by which the distance from the periphery of the cutter is maintained as they are raised or lowered. They are also arranged for receiving the slides of the gaining frame and other attachments, and for making a continuous table for sawing.

The bearings of the arbor are supported on the column, one of them being cast solidly to it, while the other is movable, being planed in a seat, the height of which, to the center of the arbor, is equal to one half the diameter of the largest head to be used. This movable bearing is held in place by a bolt which has a handle for convenience in loosening it, giving great facility in removing and replacing the different heads required for different kinds of work. The outside movable bearing is a very important feature in the machine, giving greater stability to the arbor, and obviating its liability to spring when dependent only on inside bearings, and thus rendering the machine capable of performing a heavier range of work.

The adjustable fence and bevel rest is fixed to and moves with the forward table, has adjustment for angles to 45°, and is arranged to receive stud springs, for holding down lumber, and the panel raising attachments.

When desired a boring and routing table is affixed to the rear end of the column, and this table has all necessary adjustments, gages, etc., to adapt it to a full line of that class of work. The belt for driving the machine is put on at such an angle as to leave the table level clear of obstruction.

This machine is the result of long experience in this line, assisted by practical tests, and is secured by letters patent. At the last Cincinnati Industrial Exposition, it attracted attention for its novelty, superior character, and variety of the work produced.

We have on our table a piece of hard wood about 14 inches long and 2½ inches wide, showing some eight or nine different kinds of work, all performed on this one machine, embracing planing out of wind, squaring up, rabbeting, cornering, chamfering, straight and angular gaining, beading, routing, boring, etc. This sample of work is in itself quite a curiosity. Two sizes of the machines are made, regarding which further information may be obtained by addressing the manufacturers.

The Telegraphic Value of Language.

A larger number and greater variety of ideas can be conveyed, with more exactness, in a given number of words in the English language than in almost any other. This is strikingly shown in the matter of telegraphy. It has been demonstrated that, for all telegraphic purposes, the English language is from 25 to 33 per cent cheaper than the French, German, or any other language.

A Safe Lamp Burner.

J. H. P. says: "Many lamp burners for use without chimneys have been invented, but none that I have seen is safe. The chief defect of all such burners is the shortness of the tube. There being no chimney to create a draft, so as to carry off the heat, the latter is conducted down the tube and the

surrounding brass network to the top of the lamp, thereby heating the oil and causing it to take fire or to explode.

"The tube of a no-chimney burner should be not less than 4 inches long, instead of 1½ inches, the ordinary length; and the fixture which surrounds the flame should be so made as to leave the cap exposed, so that any cinders or fragments of the wick falling down may be seen and removed. These cinders, falling upon the cap of the lamp, become saturated with oil, and frequently take fire and burn unseen, till the oil is heated to the flashing point, and the lamp is filled with explosive vapor. I have constructed a burner for my own use, which I regard as free from danger. The tube is 4 or 5 inches in length; and the fixture which regulates the flame

end of the horizontally sliding valve stem is provided with a slightly curved and grooved T bearing, D, over which and a similar bearing, D', in diametrically opposite direction from the former, a skein, E, of cotton is wound, of such thickness that the valve is firmly retained on its seat. The bearing or support, D', is applied to a stationary arm, C², of discharge pipe, A', and the cotton or other suitable inflammable material stretched tightly on the supports by means of a screw sleeve, C¹, that turns on a thread of the valve stem, and in a socket recess of bearing, D, so as to act on the same and secure the perfect closing of the valve. As soon as the flames reach the valve-holding cotton skein, so as to burn the same, the valve is forced open by the pressure of the water there-

on, and the water is discharged in all directions on the fire. The sprinkler may be tested at any moment by simply cutting the cotton skein, and instantly be readjusted by winding a new skein around the bearing, and adjusting the stretching screw nut.

A Grand Zoological Laboratory.

A magnificent zoological laboratory is to be founded in Naples, Italy, under the control of M. Dohru. It will consist principally of a large general aquarium, in which will be collected all the marine fauna peculiar to European waters, together with eighteen special aquaria for the preservation of specimens under natural conditions, for the convenience of those who may be prosecuting original investigations into the habits of the fish. A large library and anatomical collection will be added, and provision will be made for a number of

separate private laboratories, to be rented to universities or to governments. The subscription price is \$360 a year. Italy and Russia have each secured two places, Saxony one, and the Universities of Cambridge and Oxford each one. Other applications are rapidly being received, and it is believed that eventually the institution will be one of the largest and finest of its class in the world.

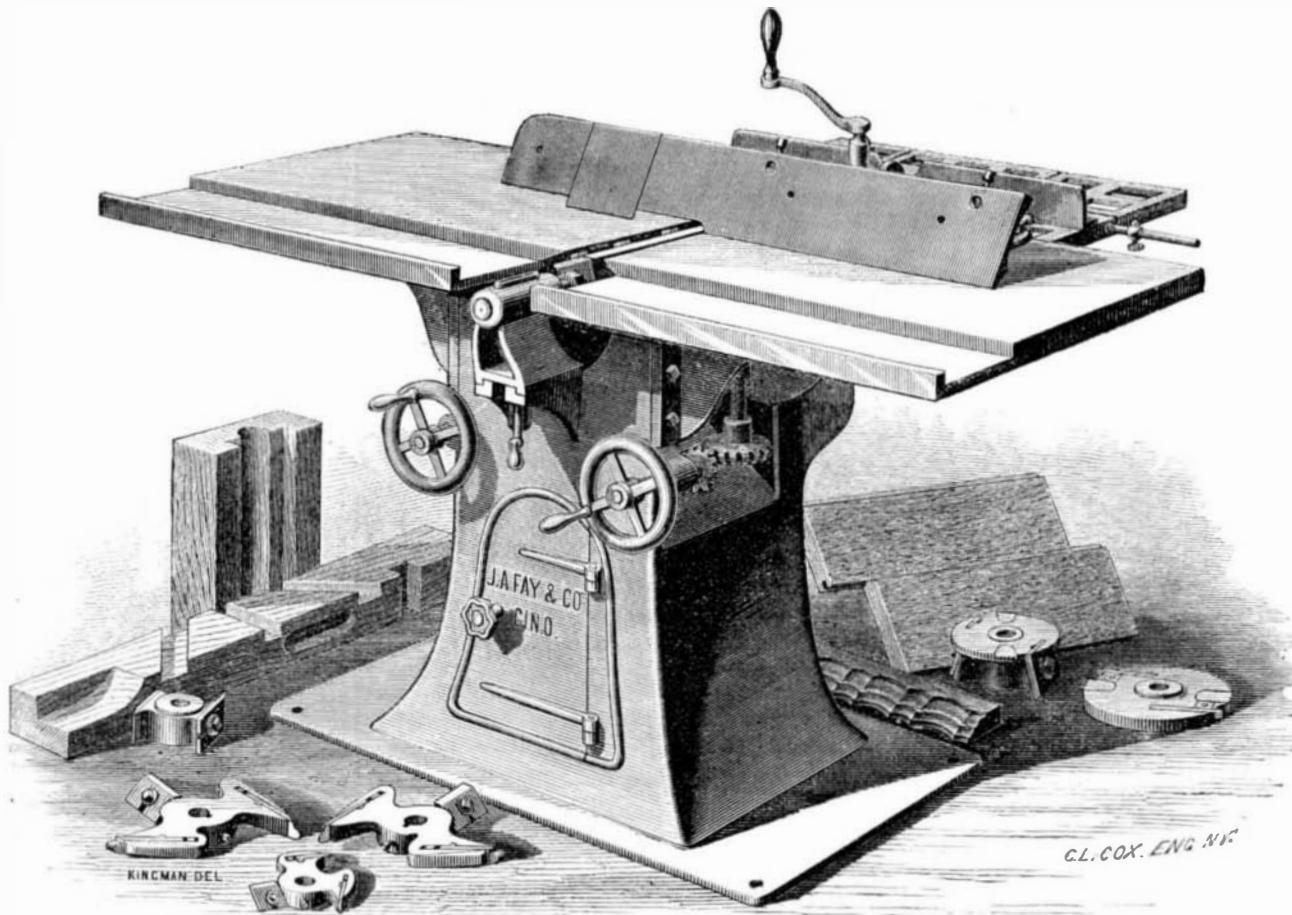
The Population of India.

Here are the results of the first census of the population of India, taken from the English documents, compiled by *L'Union Médicale*. India, with the vassal states of England and all their dependants, contains 238,830,958 souls, which is equal to the entire population of Europe. To every square English mile, there are, on an average, 211 persons. The largest city is Calcutta, and it possesses a population of 395,000 inhabitants. Bombay has 644,000; Madras, 398,000; Lucknow, 285,000. Their religious, in round numbers, amount to 140,500,000 Hindoos; 40,750,000 Mahomedans; 9,500,000 Buddhists, Jews, and Parsees; the Christians amount to 900,000, of which 250,000 are European, the other 650,000 are native. There are 23 different languages spoken in India; in the Western Provinces there are 300 different castes; in Bengal about 1,000 exist. There are employed by government 1,236,000 persons (the natives included); 629,000 (of which 819 are missionaries) are supported by religion; there are 30,000 religious medicants; 10,000 astrologers; 5 sorcerers; 465 exorcists; 518 poets; 1 orator; 33,000 jurists; 75,000 physicians; 218,000 artists, among whom are acrobats, serpent charmers, and monkey showers; there are 137,000 agriculturists; 950,000 elephant and camel drivers and shepherds; 22 professional gamblers; 5 pigeon trainers; 49 spies; 361 professional thieves; 30 highway robbers; 103,000 mendicant vagabonds.

Artificial Butter in Copenhagen.

It seems that our friends in Northern Europe are not to be outdone in the butter market by the French nor ourselves; and one of them, named Diderichsen, has devised a new method of making suet butter, which differs in some of its details from that employed in this city some two years since. The suet is first washed in cold water, and cut up in fine pieces; then it is placed in wooden vessels and melted by aid of steam heat. About 1 per cent of soda, dissolved in some water, is added to the melted fat, which is cooked for a few hours. Fresh soda is added, and the boiling repeated, after which the mass is washed with boiling water and pressed through flannel. To this mass, while still warm, but not above 140° Fah., 3 per cent of olive oil is added, and 3 or 4 per cent of sour milk, and the whole is then churned.

SALT of lemon is the best material for removing stains of iron mold, but it should be used very sparingly, as any excess will destroy the fabric.



J. A. FAY & CO'S. No. 3 VARIETY WOOD WORKER.

is attached to the upper end of the tube, and has no connection with the cap, but is 3 inches above it. When in use, the lower end of the tube is nearly as cold as any part of the lamp. It is to be hoped that the numerous inventors of burners will furnish us something of this kind, which we can use without fear of losing our lives."

AUTOMATIC SPRINKLER FOR EXTINGUISHING FIRES.

Mr. Hezekiah Conant, of Pawtucket, R. I., has lately (November 2, 1875) patented an improved fire extinguisher, which consists in a sprinkling pipe to which water is admitted as soon as a tightly stretched skein of cotton or other fibrous material is touched by the flame.

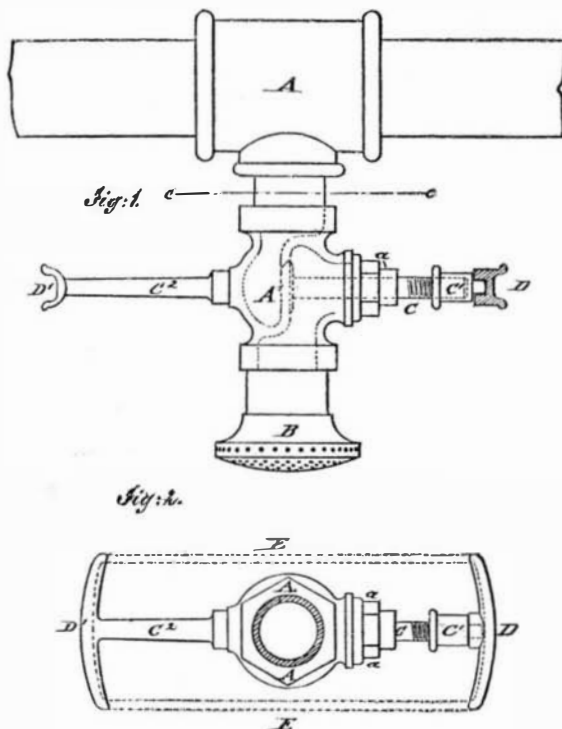


Fig. 1 represents a side elevation of the apparatus, and Fig. 2 a bottom view of the same. A represents the water supply pipe at the top or ceiling, which is provided, at suitable points and distances, with downwardly extending discharge pipes, A', according to the dimensions of the rooms. Each pipe, A', is provided with a suitable valve, whose stem, C, is extended in horizontal direction, and guided in a tightly sealing side bearing, a, of the discharge pipe. The lower part of the discharge pipe is arranged with a sprinkler, B, that distributes the water in different directions. The outer