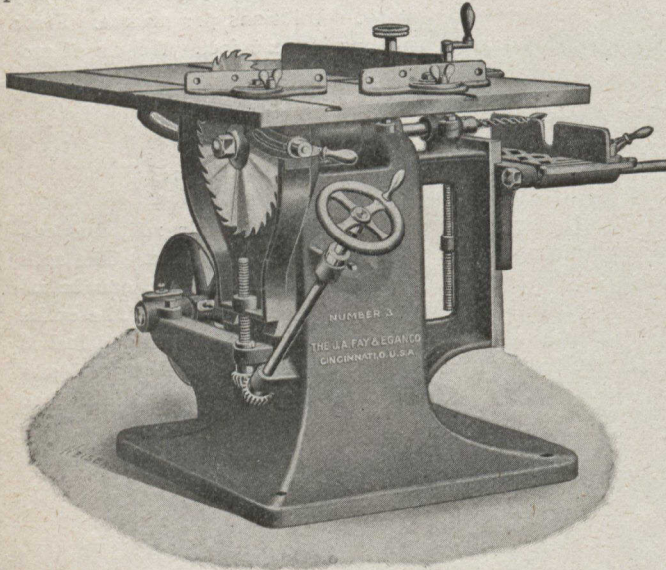


### A VARIETY SAW.

The machine shown herewith is manufactured by the J. A. Fay & Egan Co., 153-173 W. Front Street, Cincinnati, Ohio. It will be found a most valuable tool for any wood-working shop, as it will do a variety of work that usually requires several different machines, and at the same time it does the work much better, quicker and cheaper.

The manufacturers claim special merit for this machine because of its accurate work in ripping, cross-cutting, boring, bevel sawing, cropping, grooving, mitering, etc.

The table is 30 x 48 inches, and angles 45 degrees, and has a vertical adjustment of 5 inches. It has wooden throat-plate so as to enable the use of gaining heads or grooving



**No. 3 Improved Variety Saw, manufactured by J. A. Fay & Egan Co., Cincinnati, Ohio.**

saws, and is provided with an adjustable ripping fence and two mitre or cut-off fences, which can be used in the grooves on either side of blade. The boring table is 19 inches long and 9 inches wide; has vertical adjustment of 9 inches, and horizontal movement of 7 inches. The fence is adjustable for angle boring.

For detailed information, write the manufacturers, who will be pleased to send you full description by return mail.

### BURNING SAWDUST AND MILL REFUSE.

When starting a sawdust fire, shavings or wood are necessary, and after it is well under way and the walls are heated up, green sawdust can be made to produce a good fire. I have seen sawdust burned that the water could be squeezed out of very readily. Sawdust most always burns from the top down. What I mean by this is, the top of the pile will be covered with a mass of flame, but if this same pile is stirred up from the bottom it will be found to be green sawdust.

Care must be taken that too much draft is not used for the purpose of conveying the sawdust to the fire. If too strong a blast is used it will blow out at the fire door or over the bridgewall, and thus in a very short time will fill up the rear combustion chamber with ashes, making frequent cleanings-out necessary. It is also liable to burn out the blow-off pipe.

There is great virtue in sawdust, 140 cubic feet of which approximately equal a cord of wood. Grates having  $\frac{1}{4}$ -inch

air spaces are the best to use, as by using a wider grate the sawdust is liable to fill the ash-pit, and in a very short time, if not attended to, will burn out the grates.

The bridgewall should not be more than nine inches from the shell of the boiler, and I have found it to be an improvement to have a long bridgewall. This method conducts the heat and flames along close to the shell and keeps it where it is necessary to do the most good. I have seen boilers rigged up in a positively criminal way for burning sawdust and shavings, one firm in particular having installed a battery of four boilers exactly the same as if coal were to be used. In this case all the sawdust and shavings had to be shovelled in, and, notwithstanding that the fireman had a wooden shovel nearly as large as the grate, it was one continual session of shoveling. Added to this was the inability to produce steam on account of so much cold air being admitted to the fire. Fireman after fireman was hired, but all to no purpose. As a last resort a blower was installed in the mill to pick up the dust and feed the fire. Even this was a failure, as it was conducted into the furnace over the furnace door. This gave the chute an angle that delivered the sawdust at the base of the bridgewall at the back end of the grates, and after a short time it filled up to a certain extent, and most of the dust went into the combustion chamber, filling this and burning out the blow-off pipe.

It is also essential that a good draft be obtained. This was evidenced by an accident that occurred in a plant of which the writer had charge. In this particular case the sawdust and shavings were pushed into the furnace, the grates being level with the floor. The fireman gathered a large pile of fuel in front of the fire door, and, opening the door, pushed it into the furnace, filling it. Volumes of smoke and gas arose from the pile, but no flame. This state of affairs existed for a few minutes, when there was a violent explosion, the fire door being thrown open and a mass of flame bursting forth, severely burning the fireman and shaking the whole battery. The combustion chamber, tubes, etc., had become filled with gas and the moment the fire began to blaze it ignited the gas, resulting in the explosion.

—The Norton Company, Worcester, Mass., for whom the agents in this country are the Canadian Fairbanks Co., Limited, Montreal, Toronto, etc., are sending out a little booklet called "Helps-Don'ts for All Who Grind." It contains a wealth of suggestions as to the selection of wheels, mounting, trueing, speed, etc. It refers also to some of the good features of alundum, which is the abrasive used by the Norton Company.

—It does not appear wise to all people to trust a feed belt to draw a broken board out of a machine. The principle of drawing out is all right, but the method of doing it is often far from practicable. In the first condition we must notice that the difference in the length of a twist belt and a straight one is quite considerable, and if the straight belt is moderately tight, unless it is in perfect condition, the chances are that the instant it is tried on that same instant it will be a broken belt. Generally speaking, belts that have passed their usefulness as cylinder or side-cutter belts are put on as feed belts. The reasoning is that they are out of first-class condition, hence it is safe to say changing from a straight to cross belt would break them. The only proper way is to have a three-pulley motion, so the belt will either pull or push.