with the drying chamber between the ends, and means for circulating air through the drying chamber and return flue, from a point at or near the end opposite the moist air outlet; an air inlet at or near the other end, both inlet and outlet being located at or near the bottom of the chamber, and means for supplying the place of air escaping from the moist air outlet, substantially as shown.

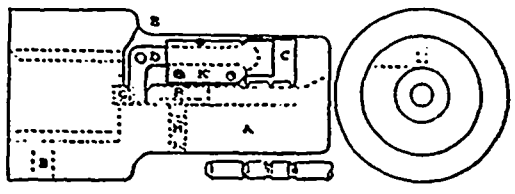
W. S. Brande and Frank J. Root, of Binghampton, N.Y., have been granted a patent in Canada for a process of making wood alcohol. It consists of subjecting wood to destructive distillation, maintaining upon the gases so produced a substantially fixed pressure slightly less than that of the atmosphere by means of a steam exhaust acting directly upon the gases not readily condensed and regulated by the tension of such gases, recovering the gases readily condensed in primary condensers, subjecting the gases not readily condensed to a definite proportion of steam, such proportion being regulated by the tension of said gases, and recovering the acids freed by the steam in a secondary condenser.

Among other patents recently granted were the following: No. 81,174, to Charles E. Evans, of Paducah, Kentucky, for a log loader; No. 81,362, to H. E. Moffatt, Woodstock, Ont., for a steam boiler; No. 81,956, to Emil Hanssler, of Webster, Iowa, for a saw mill; to E. J. Moore, of Windsor Mills, Que., for a device for cutting saw teeth; No. 81,441, to W. T. Synnot, of Philadelphia, for a match-making machine; No. 81,276, to James Cutadel, of Dallas, Texas, for band saw mechanism; No. 81,600, to Joseph E. Queen, of Queens, West Virginia, for saw mill mechanism; No. 81,520, to Edward F. Smith, of DuBois, Pennsylvania, for apparatus for leaching tan bark; No. 82,175, to G. C. Gale, of Hartford, Conn., for a machine for edging and matching lumber; No. 82,065, to Pollard & Metcalf, of Silsden, York, Eng., for a machine for grooving lumber; No. 82,115, to Ashland Iron Works, Ashland, Wis., for a drag saw frame.

TOOL FOR GROOVING DOWELS.

The device shown in the sketch was made for cutting three equidistant grooves around several thousand 15-64-inch round birch dowels. The tool was made to be used on an old speed lathe that had been laid aside. We got the head of the lathe fastened to a bench and a temporary countershaft put up and all belted so as to run our tool at a high speed.

The tool was composed of the main part A, of cast iron, threaded to fit the nose of the



TOOL FOR GROOVING DOWELS.

lathe spindle, with radial holes B for a wrench. The body, after being fitted to the spindle and turned on the outside, was bored a little larger than the dowels and turned out bell mouthed, and then was cut away almost one-quarter section for the working parts.

These parts consist of the cutter C, that is caused to slide in and out by the lever D pivoted on pin E. The tool rotates rapidly and continuously; the operator inserts the dowels one after another, pressing them against the sliding piece F, which engages with the end of lever D, forcing the cutter in and turning the three grooves simultaneously. The cutter is made from 3-32-inch sheet steel, hardened, and the points sharpened with an oilstone. The screw G is an adjustable stop to regulate the depth of the grooves. The headless pointed screw H secures part F in place, besides permitting it a free sliding movement. The plate K, fastened by three screws, serves as a strap to hold the lever and cutter in place without clamping them tight. The tool will groove dowels just as fast as the operator can handle them, the large bell mouth allowing a quick insertion of them. The tool was very successful altogether, a run of 10,000 being permissible before sharpening the cutter. The lever D is so proportioned that a slight movement of F will throw the cutter in sufficient to make the grooves. We first used a small helical spring to force the cutter out, but a few trials convinced us that this was unnecessary, as centrifugal force would do this, and its presence only made more work for the boy grooving the sticks.—Correspondence American Machinist.

TRADE OPENINGS.

The August report of the Department of Trade and Commerce contains the following enquiries relating to Canadian lumber and manufactures of wood:

INQUIRIES FROM THE HIGH COMMISSIONER OF CANADA, LONDON.

Inquiry has been made for names of a number of small joinery mills in Canada who might be willing to enter into negotiations for the supply of doors, moulding, etc. (Reference No. 92.)

A Paris firm wishes to be placed in communication with producers of Canadian wood pulp desiring to be represented in that city. They are also willing to do business in other classes of Canadian goods, and to act as buyers of French goods for Canadian houses. (Reference No. 93.)

INQUIRIES FROM THE CANADIAN COMMERCIAL AGENT AT BIRMINGHAM, ENGLAND.

Large quantities of spruce and ash are wanted by a firm in Great Britain. (Reference No. 5.)

A large dealer in basswood, pine and spruce broom handles, and poplar rake and hoe handles, ash and hardwood D-shovel handles; would like to open up correspondence with manufacturers in Canada. (Reference No. 6).

A firm in Great Britain wishes to communicate with manufacturers in Canada of wooden wash boards, not metallic faced, and also clothes pegs. (Reference No. 6.)

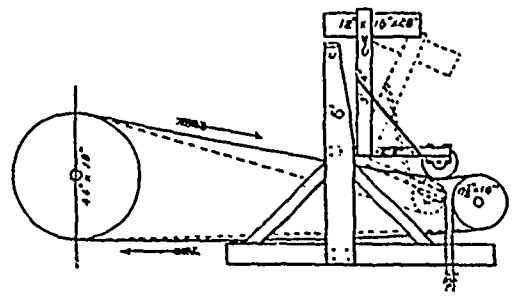
A firm in Great Britain are prepared to handle wooden products, handles, etc. (Reference No. 7.)

A firm in Great Britain wishes to communicate with manufacturers of best spruce deals, 2½ in. wide preferably, cut to thin stuff or supplied in deals, say 11 in. If not 11 in. wide, will take them any width, free from sap knots, etc. Price per standard (St. Petersburg) equalling 60 deals 12 ft. long, 11 in. wide and 3 in. thick, delivered Glasgow or Liverpool. Also pine wanted to the same specification. (Reference No. 8.)

The firm of Haley & Sons, box manufactures, St. Stephen, N. B., are building an addition to their mill, 25x65 feet. They have also purchased the old Short ship-yard containing 2¼ acres for storing their logs.

AUTOMATIC BELT TIGHTENER.

A correspondent of Power says: I am now using a tightener arranged in the manner shown by the sketch, which I believe is doing all that could be reasonably expected of a belt of this size. The belt is a 10-inch four-ply rubber belt, 49 feet 10 inches long, running off a 44-inch driver onto a 17¼-inch driving pulley. It drives a 54-inch rotary saw, 625 revolutions, cutting Alaska red spruce. Frequently the saw is buried the whole cut without the least sign of slipping of the belt. When the saw is out of the cut, the weight that the tightener



AUTOMATIC BELT TIGHTENER.

applies to the belt is about 20 pounds. When the duty required brings the top and bottom sides within 4½ inches of each other under the tightener pulley, the weight applied to the belt by the tightener equals about 130 pounds.

Of course, the length of the tightener frame, the standard that carries the weighted box, and the weight placed in the box, governs the proportion of weight placed on the belt at different points. I find it is useless to overload with weight, and very often belts are too tight. I place my belt loose enough to give 4 to 5 inches sag in 10 to 12 feet to center, or, in other words, 5 inches sag to a belt when the centers of the two shafts are 24 feet apart.

I have seen tighteners placed on or under a belt, then a lever used to pry up and block up until the belt would almost ring if hit. Such tension takes the spring and life out of a belt, and its only friend is the belt manufacturer; it never gives a belt a rest. Place your belt tightener right, run your belt loosely, and you will get lots of work and a long life. Give your belt a rest whenever you can; it needs it.

This form of tightener may be placed on horizontal, vertical, or belts at any angle, and if properly proportioned and properly loaded will surely give satisfaction every time. Construct your tightener frame so that if the belt doesn't run squarely on the pulley the frame can be moved slightly one way or the other, and the belt will run true.

There are right and wrong ways to run a tightener on a belt. For instance, take the tightener shown and turn it around, and the first time it goes down it will be very liable to break something—that is, if it is fastened properly. By placing the tightener about 4 inches from the driven pulley and having belt slack so there will be about 5 inches sag in the center of the belt in, say, 10 to 12 feet, when the strain comes on the belt the tightener drops, as shown by the dotted lines. This gives a greater percentage of belt grip on the pulley just at the time it is required, and when the load is thrown off the tightener is at once brought back and the strain released.