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SPOOL BLANK ROUGHING MACHINE.

Our engraving illustrates a new and improved machine for making spool blanks, round wood boxes, and other similar articles. Fig. 1 is a perspective view taken from the rear of the machine, and Fig. 2 gives a front view of the same. The improvements consist in the following additions to the regular cutting and sawing apparatus which constitutes the ordinary spool blank rougher: namely, the reciprocating shaft, A, the rotating shaft, B, and the standard, C, with their various attachments.

The shaft, A, can either rotate or slide longitudinally in its bearings, and carries an upwardly projecting arm, D, to which is attached the V shaped carrier, E. In this carrier, which is adjustable to varying sizes of wood, is laid the square stick to be operated upon. A bent lever is pivoted to the arm, D, above the carrier, as shown in the engraving, and is actuated by a spring in such a manner as to firmly hold, by means of an adjustable clamp at its end, the square stick in the carrier while it is being cut, bored, turned, or sawn off. On a stud projecting horizontally from the end of the shaft, A, is placed a roller which engages with the cam seen in the end of the shaft, B; and on a stud projecting from the arm, D, is placed a roller which engages with an inner cam on the shaft, B, as shown. The effect of the first cam is to move the shaft, A, and carrier, E, inward during a portion of the revolution of B, and of the second to rotate the shaft, A, and to press back and hold in the requisite positions the arm, D, and the carrier. A helical spring surrounds the shaft, A, as shown through the part broken away in Fig. 2, and is attached by one end to the shaft, and by the other to a fixed part of the machine. It is thus made, by its recoil, to return the shaft and the carrier to their original positions after they are released by the cams.

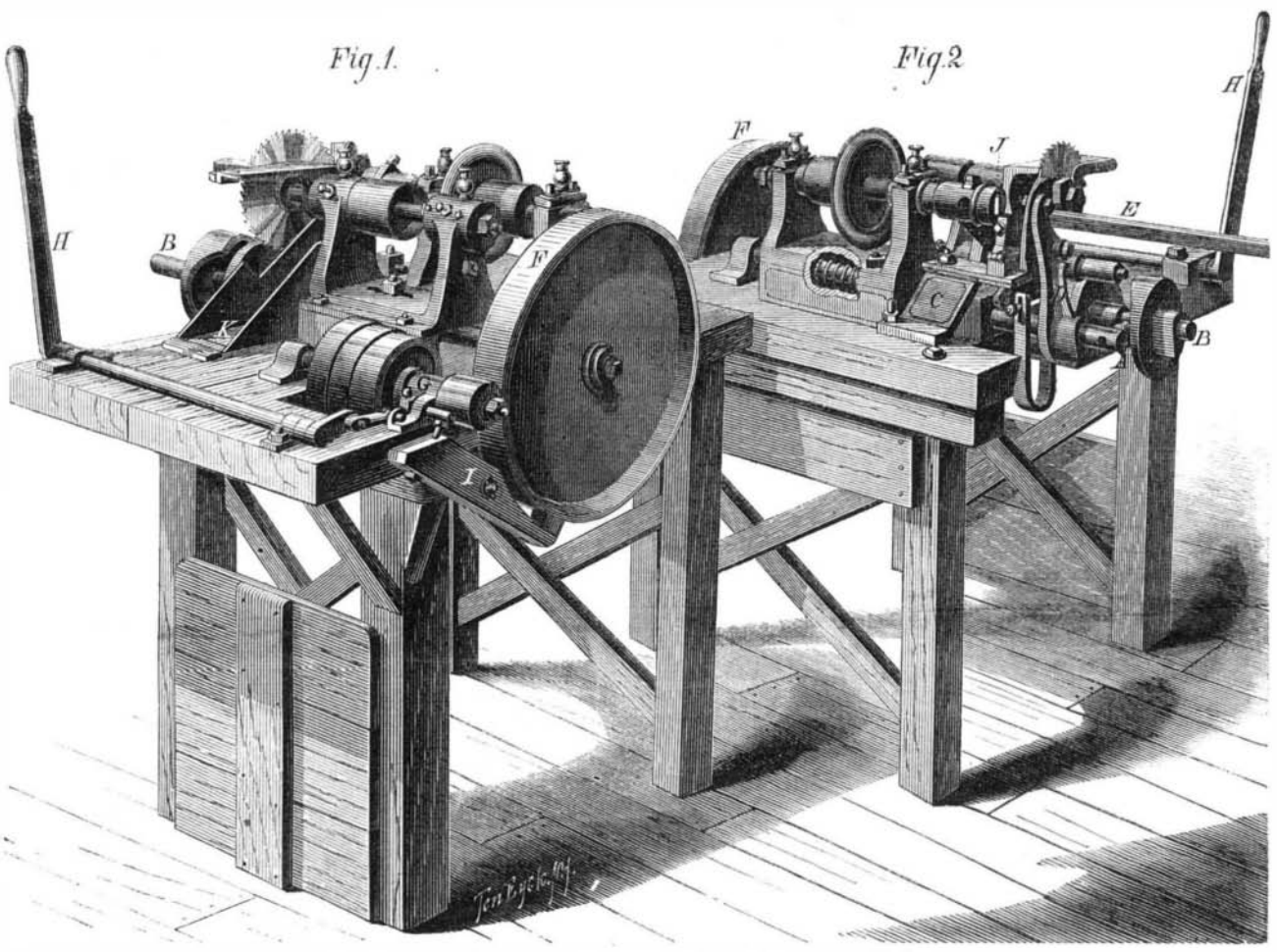
The standard, C, carries a stop, against which the bent lever of the arm, D, is made to strike by the action of the inner cam, so as to compress the spring and release the stick at the moment when it requires shifting in the carrier. The shaft, B, carries upon its rear end the friction pulley, F, and is driven by the friction pinion attached to the shaft, G. This shaft runs in movable bearings, and the friction pulleys are made to engage or disengage at the will of the operator by means of the toggle joint, shaft, and handle, H, shown distinctly in Fig. 1. At I is a friction brake, by means of which, in disengaging the friction pulleys, the pulley, F, is brought to rest at any point, and as quickly as desired.

In the operation of the machine, the outer cam of the shaft, B, moves the arm, D, inward, forces the stick into the cutter head, and afterwards releases it therefrom; at which time a depression in the inner cam allows the spring to throw the arm, D, to the right and carry the stick to the saw to have the finished piece cut off. After this is done, the further rotation of the inner cam throws the arm, D, to the left and brings its lever in contact with the stop on standard, C, as before described, and releases the stick. The stick is then advanced in the carrier by the operator, according to the nature of the work; the arm falls into its central position opposite the cutter head; the clamp again grasps the stick, and the operation goes on as before. A rest, J, the operating parts of which are not shown in the engravings, is provided to support and guide the stick to the cutter after it has become too short to lie unbalanced in the carrier. An inverted rest is attached near the saw, as shown, by which the workman cuts out imperfect parts of the lumber. K is a chute by which the finished pieces are conveyed to a receptacle below.

The mechanism described can be applied, the inventor states, to any of the ordinary spool blank roughers at a moderate expense; it saves, he estimates, not less than two thirds the cost of the old manufacture. It is adjustable in every way required to make articles of various lengths and diameters, and besides spools, cranks and boxes, any cylindrical goods may be made by it which are sufficiently well finished by the saw at the ends. Among the advantages claimed for it are: the correctness with which it does its work; its ability of using up lumber of any length to within a very short distance from the end—say, one quarter inch—and also of making perfect work from crooked lumber. It can be run by a boy. The machines, as made, are geared for different speeds, and produce from 150 to 175 gross of spool blanks per day. They are in operation at the spool manufactory of Holt & Hawkins, Salisbury, Vt., who may be addressed for further information on the subject. Application for a patent is pending in the name of John T. Hawkins.

Fig. 1.

Fig. 2



HAWKINS' SPOOL BLANK ROUGHING MACHINE.

The driving shaft of the machine, as will be seen from the engraving, is centrally situated, and is worked by either a crank or treadle. The driving gear attached to this shaft plays into a small gear on the saw arbor, and thus imparts the power in a most direct and simple manner to the tool. It also meshes with a pinion on a lower shaft which carries a proportionate balance wheel, by means of which the power is stored up and equalized, and the easy action of the machine insured. The driving shaft is arranged to be operated with two handles, one at each end, so that two men can work, if necessary, when cutting very heavy stuff; but the treadle is stated to be sufficient for all ordinary work, as one man working an 8-inch saw by it can easily cut off 2¾-inch stuff.

The table on the top is hinged, and is raised by means of a screw and crank, so as to adapt the machine to the work of rabbeting, mitering, etc., as also for the purpose of changing the saws and wheels when required. To make these changes it is only necessary to unscrew a nut, and they can therefore be effected in very short time.

The boring attachment shown in the engraving can easily be applied to the apparatus at any time, and one man working the same by the crank can bore holes up to one inch diameter easily. To change the bits in the boring mandrel, it is simply necessary to operate a set screw, and no more time is consumed in so doing than in changing them in an ordinary bit brace. This is an especially useful attachment.

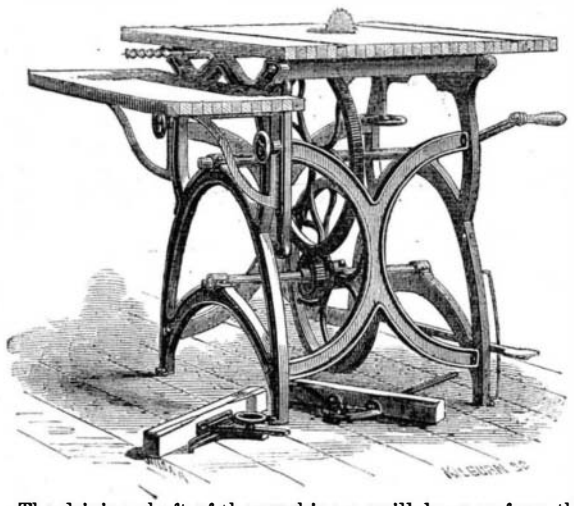
Two gages accompany the machine, one for splitting and the other for cutting off, the latter being used for mitering. Miters are also marked on the table. The saw, with gage, is said to cut perfectly square. Grooving is done by using a wabbling saw.

No belt being required in this machine. one cause of expense is avoided, while the power lost by their slipping is of course saved. It is claimed that the saw can do the work of four men, and in a more thorough manner than by the common handsaw, which makes it a valuable adjunct in the shop of any worker in wood. An emery wheel for grinding tools can be used with the machine if wished. It is a very simple and complete machine, occupying but little room, and will save its cost in a short time in any shop where the work it can be applied to is carried on.

Further particulars may be obtained by addressing Reed & Bowen, 36 Kilby street, Boston, Mass.

COMBINED HAND AND FOOT CIRCULAR SAWING MACHINE.

The annexed engraving represents Marston's combined hand and foot power circular sawing machine, which is an ingenious device that may be applied to a variety of uses.



Light of the Vapor of Iodine.

Vapor of iodine presents a number of curious properties, The following is one that does not appear to have been previously noticed: This vapor at a high temperature gives out rays but little refrangible, furnishing a continued spectrum. Place in a tube of Bohemian glass a small crystal of iodine, and heat the tube strongly at a certain distance from the fragment; when sufficiently red, leave it to cool until almost invisible in the dark; the iodine then vaporizes rapidly. The colored vapor, on arriving at the heated part, burns red in a very nice manner. By admitting an absorbing medium, the incandescence of this vapor can be produced in a very brilliant style. Seal in the interior of a glass tube a fine platinum spiral, which can be raised to a red heat by the electric pile; then introduce pure iodine into the tube, and seal the same after having expelled the air; volatilize the iodine, and establish the electrical communication. The incandescent platinum becomes surrounded with a vacillating flame, of which the color is modified by absorption. It is a very rich red, and gives a fluted spectrum. The author expects to draw from these facts some interesting conclusions, but, before publishing them, purposes to submit them anew to experimental verification.