

Figure 1 is a side elevation of a machine embodying my invention.

Figure 2 is a plan of the same.

Figure 3 is an elevation showing that end of the machine which is at the right hand in Figure 1.

Figure 4 is a vertical transverse section, showing that those parts of the machine which are at the right hand of the line *x x* drawn across Figures 1 and 2.

A is the frame of the machine, which frame should be substantially constructed to resist the vibrations of the operating parts. B is the driving-pulley, which is hung on the main shaft C of the machine, from which latter motion is communicated to the operating parts. D is the shaft of the rotary cutters by which the lumber is planed. This shaft is made flat upon two of its sides, between its bearings, for the reception of the cutters E E, which are firmly secured to it by bolts *a a*, the holes through these cutters for the reception of these bolts elongated in the direction of the width of the cutters to allow the necessary adjustment of the cutters. The shaft D is hung in adjustable bearings, by which it may be elevated and depressed to regulate the thickness of the planed lumber. F is a pulley on the shaft D, which receives motion by belt G, from the band-wheel H, on the driving shaft. I I J J are the feeding rollers, each pair of which is connected by finger pinions *b b*, and the upper roller of each pair is hung in spring bearings, which allow it to yield slightly upward to pressure, to adapt it to any differences or inequalities in the thickness of the lumber. The lower roller of each pair is provided with a worm wheel *c*, which meshes into a worm or endless screw *d* on the shaft *k*, which is propelled by a bevel wheel *l* on the main shaft, working into the bevel wheel *f* on the shank *k*.

L M are cutters hung upon vertical shafts N O, one set of these cutters being adapted to form a groove, and the other to form a tongue upon the edge of the board to be operated upon. These cutters are attached to the shafts in the manner already described with relation to the cutters E E.

The shafts N O are provided with pulleys *g g*, and rotation is communicated to them by belts *h h*, from pulleys *i i* on the main shaft; rotation being given in the direction of the arrow to the driving pulley.