

M. BROCHU.  
 DOWEL MACHINE.  
 APPLICATION FILED FEB. 15, 1910.

961,930.

Patented June 21, 1910.

2 SHEETS—SHEET 1.

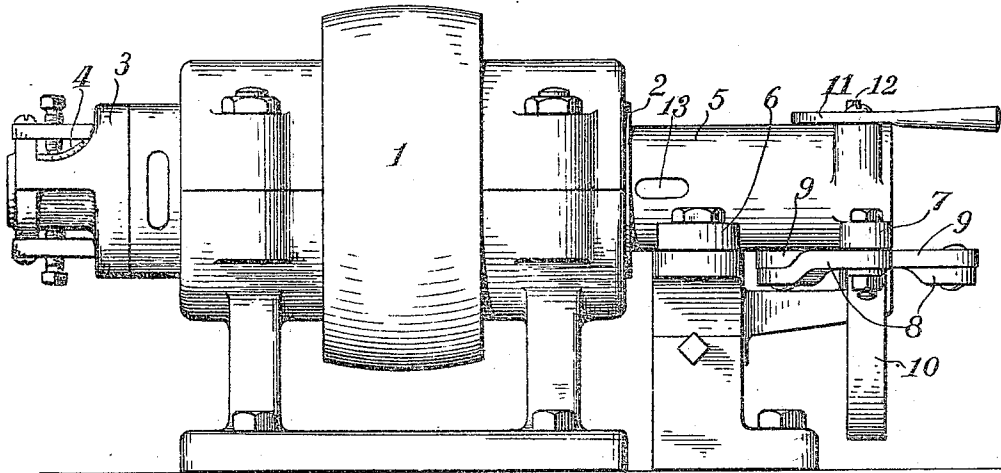


FIG. 1.

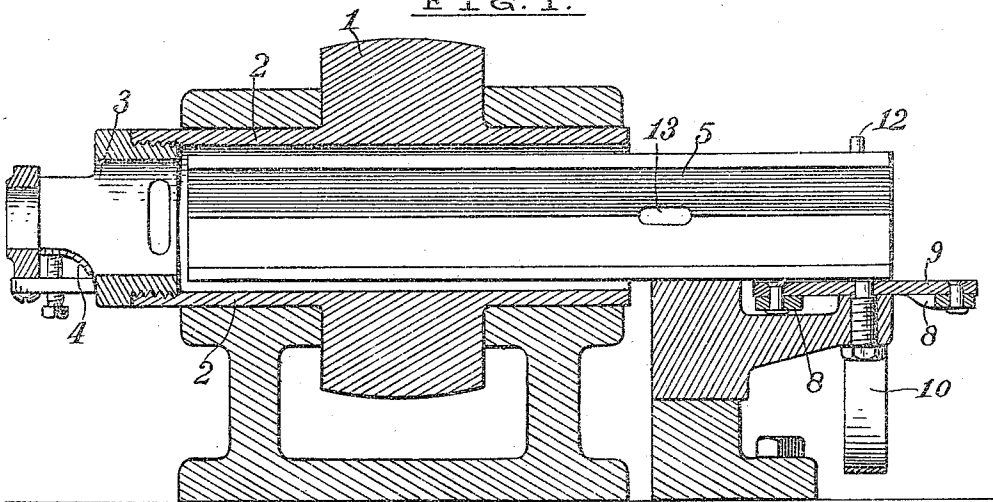


FIG. 2.

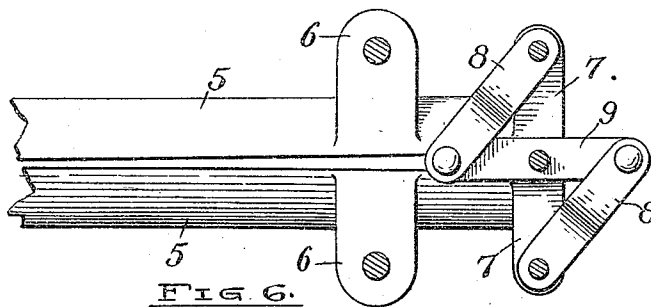


FIG. 6.

Witnesses  
*J. O. Van Antwerp*  
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 BY *Luther V. Moulton*  
 Attorney

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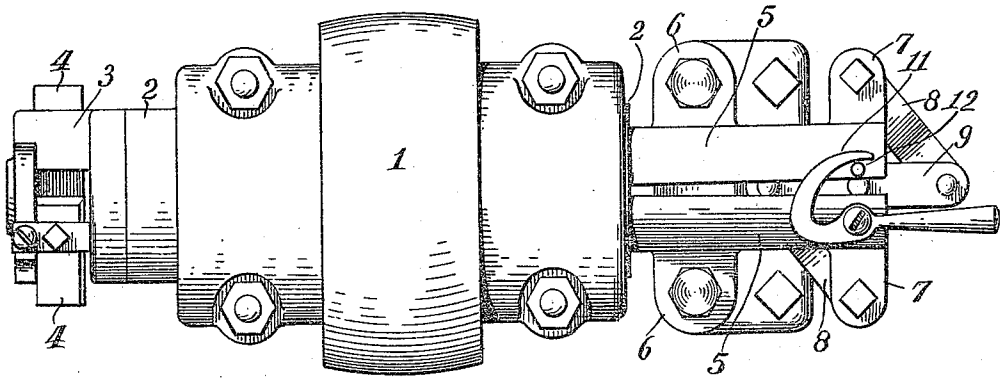


FIG. 3.

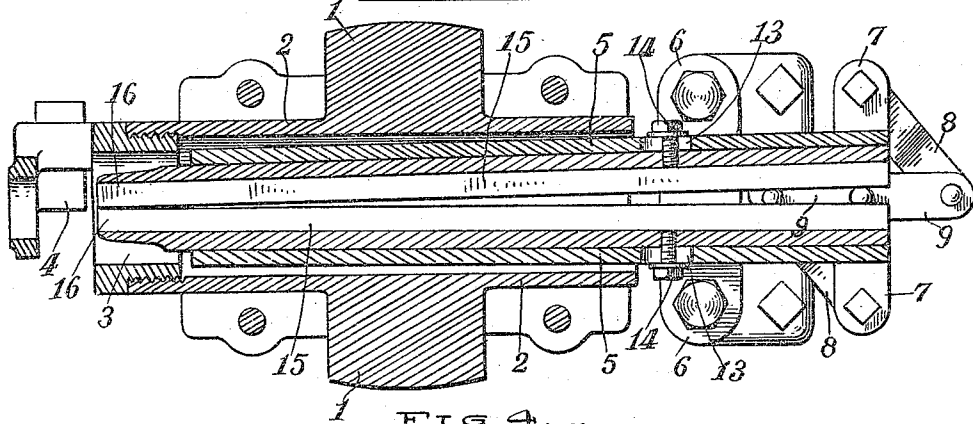


FIG. 4.

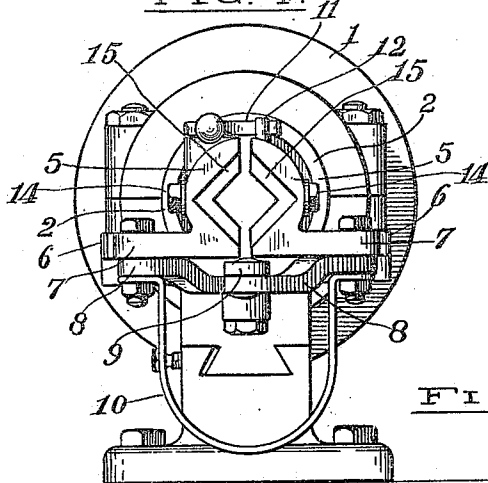


FIG. 5.

Witnesses  
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# UNITED STATES PATENT OFFICE.

MICHAEL BROCHU, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO VALLEY CITY MACHINE WORKS, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

DOWEL-MACHINE.

961,930.

Specification of Letters Patent. Patented June 21, 1910.

Application filed February 15, 1910. Serial No. 544,070.

*To all whom it may concern:*

Be it known that I, MICHAEL BROCHU, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Dowel-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in dowel machines, and its object is to provide the same with guiding mechanism that will yield to variations in the transverse dimensions of the rod or strip of material; that will automatically and accurately center the same within the mandrel and cutter head of the machine; that will prevent vibration of the stock, and to provide the device with various new and useful features, hereinafter more fully described and particularly pointed out in the claims.

My invention consists essentially of two pivoted opposing members having an angular passage therethrough between the same and adapted to move toward and away from each other at the end adjacent to the cutter; a hollow mandrel surrounding the same and carrying the cutter; connecting means to cause simultaneous movement of these members on their pivots toward and from each other; a spring to yieldingly close the inner ends of these members toward each other, and in various features of combination and arrangement, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a device embodying my invention; Fig. 2 a vertical longitudinal section of the same; Fig. 3 a plan view of the same; Fig. 4 a horizontal longitudinal section of the same; Fig. 5 a front elevation of the same; and, Fig. 6 a detail of a portion of the guide mechanism shown in inverted plan view.

Like numbers refer to like parts in all of the figures.

1 is the driving pulley on a hollow mandrel 2, mounted in suitable journal boxes and carrying at one end a hollow cutter 3, provided with suitable cutters 4 to form a dowel from an angular strip of material fed through the same, so far the device being of the usual construction.

My improved guide mechanism consists of two similar members cylindrical on the outside spaced apart and having an interior preferably rectangular, one half of this channel being in each member. This guide mechanism is thus adapted to embrace a strip of material of the usual form, which is usually square or rectangular in cross section and thus prevents the same from rotating, and permits it to slide longitudinally. These members extend within the hollow mandrel to near the cutter head 3 and are externally spaced apart therefrom to permit of a limited movement toward and from each other within the mandrel. Outside of the mandrel these guide members are each provided with a lateral arm 6 pivoted to a suitable support to turn on a vertical axis. These arms are located a short distance from the rear end of said guide members, which are at the rear ends each provided with other lateral arms 7, each of which is connected by a rod 8 to the respective ends of a longitudinally extended bar 9 pivoted at the middle and moving about a vertical axis equally in opposite directions at its respective ends to which the rods 8 are connected. This mechanism thus insures equal and opposite movement toward and from each other of the members 5, about the pivots of the arms 6. To yieldingly move the ends of these members adjacent the cutter toward each other, a U-shaped spring 10 is connected to the end arms 7 and yieldingly forces the same apart. This yieldingly separates the outer ends and thus opens the same to readily receive the material to be operated upon, and also yieldingly engages the material as it is moved forward where it is guided into the cutter, the opposite angles of the material being arranged horizontally and engaging the angles in the guide members. The device will thus accurately center the material in the axis of the mandrel and cutter, and will also yield to variations of thickness of the material, thus insuring accurate and satisfactory work. To separate the inner end of these guide members, and hold the same apart for the purpose of withdrawing anything from between the same, a hook 11 is mounted on one of the said members and manually operated to engage a pin 12 in the other of said members, said hook being eccentric to its pivot, and thus adapted to draw the outward

ends of the said members together against the action of the spring 10 and separate the inner ends thereof.

To adapt the device to make various sizes of rod, I prefer to provide bushings 15 for the members 5. These bushings may be of various diameters to guide the various sizes of stock and are secured in place by cap screws 14, preferably extending through longitudinal slots in the members 5, whereby the forward extended ends 16 of the bushings may be closely adjusted to the cutting blades 4 to prevent vibration of the stock, which in the smaller sizes requires to be held closer to the cutters than the larger sizes.

What I claim is:—

1. A dowel machine, comprising a tubular mandrel carrying a cutter at one end, opposing yieldably movable guide members in the mandrel, and means for positively equalizing the movement of said members.

2. A dowel machine, comprising a tubular mandrel carrying a cutter at one end, rigid guide members at opposite sides of the axis of the mandrel internally angular in cross section and longitudinally divided, and means for yieldably and equally moving the parts of the guide toward the axis of the mandrel.

3. A dowel machine, comprising a tubular mandrel carrying a cutter at one end, two rigid guide members in the axis of the mandrel, said guide members having opposing longitudinal angular channels, a spring to yieldingly move the said members toward each other, and connecting means to compel the same to move equally and oppositely toward and from the axis of the mandrel.

4. A dowel machine, comprising a tubular mandrel carrying a cutter at one end, a guide extending within the mandrel at one end and consisting of two opposed members having opposing angular longitudinal chan-

nels, each member also being pivoted near the outer end to a fixed support, a spring connected to the outer ends of said guide members to move the inner ends toward each other, and means for causing said members to move equally and simultaneously toward and away from the axis.

5. A dowel machine, comprising a tubular mandrel carrying a cutter at one end, a guide inserted within the mandrel and extending outside the same, said guide consisting of two opposed members having opposing longitudinal angular channels, arms on the said members near the outer end and pivoted to a fixed support, a spring attached to the outer ends of said members to yieldingly move the inner ends toward each other, a longitudinally disposed bar pivoted at the middle, and rods connecting the respective ends of the bar to the respective outer ends of the guide members.

6. A dowel machine, comprising a tubular mandrel carrying a cutter head at one end, a guide in the axis of the mandrel having an angular longitudinal channel and extending to near the cutter head, a bushing secured in the channel of the guide, angular in cross section and extending beyond the guide toward the cutter, and means for detachably securing the bushing in place.

7. In a dowel machine, a tubular mandrel, a guide having pivoted and oppositely movable members, a pin on one member, a hook on the other member having a cam surface to engage the pin, and a spring yieldingly opposing the action of the hook.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL BROCHU.

Witnesses:

PALMER A. JONES,  
LUTHER V. MOULTON.