

**No. 607,037.**

**Patented July 12, 1898.**

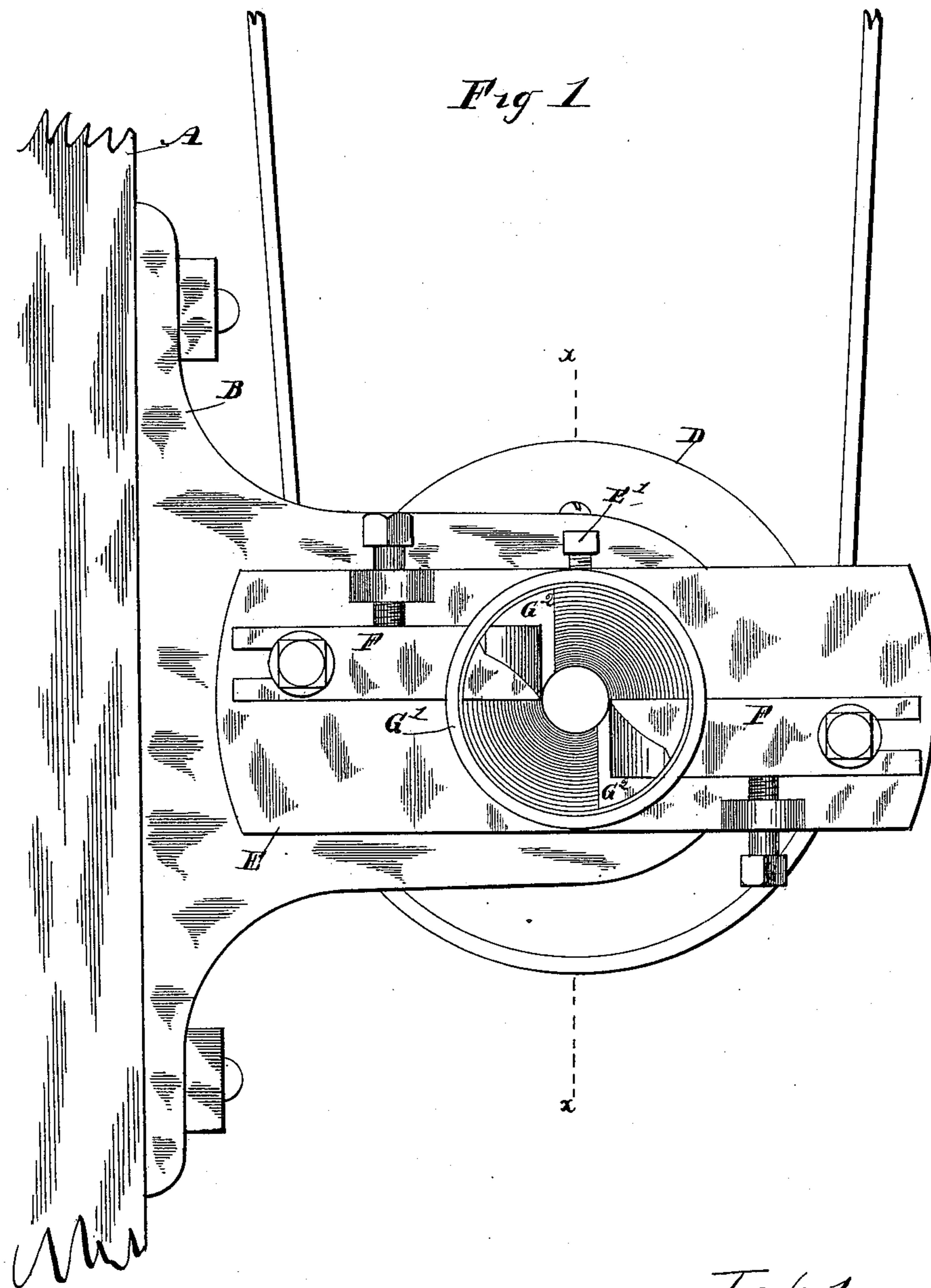
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## ROD GUIDE FOR DOWEL MACHINES.

(Application filed Mar. 15, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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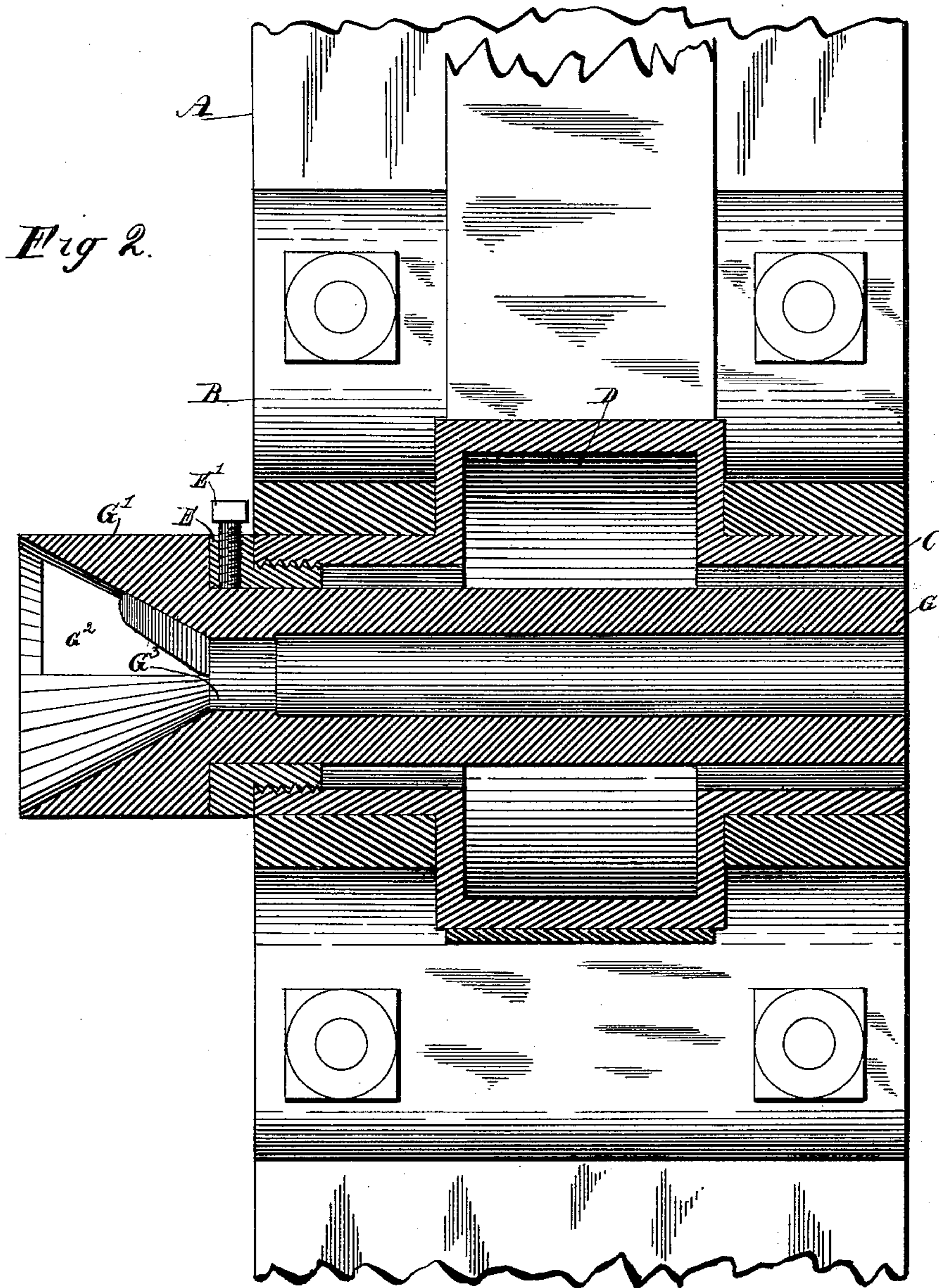
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# UNITED STATES PATENT OFFICE.

RUTLEDGE HARRIS, OF CEDAR FALLS, IOWA.

## ROD-GUIDE FOR DOWEL-MACHINES.

SPECIFICATION forming part of Letters Patent No. 607,037, dated July 12, 1898.

Application filed March 15, 1897. Serial No. 627,724. (No model.)

*To all whom it may concern:*

Be it known that I, RUTLEDGE HARRIS, a citizen of the United States, residing at Cedar Falls, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Rod-Guides for 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.

This invention relates to machines for turning rods or dowel-stock; and the object of the invention is to so construct the guide through which the turned rod passes as to impart to the rod a smooth and uniform surface.

The particular device which forms the subject-matter of this invention will be fully hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a machine embodying my invention, but without the front guide, which prevents the stick from turning as it passes through the cutter-head. Fig. 2, Sheet 2, is a sectional view of the same as seen from the right of line *xx* of Fig. 1.

Similar letters of reference indicate corresponding parts.

The machine to which my invention is applied is in common use, and its construction is simple and well known. On a suitable support, such as a post A, is mounted a head-block B, in which is journaled a hollow mandrel C, provided with a pulley D. In one end of the mandrel is screwed a cutter-head E, to which are attached one or more knives, preferably a pair, as F F. Through a central hole in the cutter-head extends a guide G for the turned rod, and this is secured in place by a set-screw E'. The head G' of this guide has a flaring mouth, with openings G<sup>2</sup> G<sup>2</sup> in the sides thereof to admit the cutting portions of the knives and allow for the escape of chips.

The tail portion, extending inside the mandrel, is of considerable length, so as to make a good bearing for the turned part of the rod and insure straightness therein. It will also be understood that the stick, which is sawed square in cross-section, passes through a square hole in a guide-block in front of the

cutter-head. This is commonly a wood or metal block suitably attached to the machine and is so simple and well known as to require no description or illustration.

My invention relates entirely to the guide G. A fine smooth finish may be given to dowel-rods turned in this kind of a machine by causing the rod to pass through a constricted portion of the guide—that is to say, a part of the guide somewhat smaller than the rod as the knives leave it. Accordingly I make the guide, with a constricted portion G<sup>3</sup> just at the bottom of the throat, enough smaller than the rest of the hole in the guide to burnish the rod as it passes through, but leaving the extended tail of the guide to perform its proper function and hold the rod straight as it is fed through. The length of this constricted portion, as well as its difference in diameter from that of the tail portion, may vary according to the size of the work produced. It should not be so much smaller than the rod as it leaves the knives to burn the rod by excessive compression or friction, nor so long as to pinch it and twist it off. The proportions shown in the drawings are approximately correct.

The cutters are set so as to cut somewhat larger than the hole G<sup>3</sup>, the amount of such difference varying with the size of the work, as above suggested. The effect of this construction is to greatly improve the product of the machine. Rods made by it even of comparatively soft and spongy wood, such as soft pine or poplar, come from the machine with a surface almost as smooth as though carefully sandpapered and with a distinct polish, as though burnished, and this result is attained without in the least diminishing the speed or capacity of the machine.

In practice the guides for different sizes of rods are all made the same size externally, so as to fit the cutter-head, but are bored to the size of the rod as desired.

I am aware that the principle of burnishing wood by the pressure of a smooth metallic surface upon it while revolving rapidly is not new; but I am not aware that the principle has been applied hitherto in the form of a solid unyielding die having a smooth short hole slightly smaller than the rod as it leaves

the cutters. An essential feature of this form of polishing or burnishing device is that it not only burnishes the rod, but accurately sizes it throughout its whole length and regardless of inequalities in the quality or character of the wood.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

- 10 1. A revolving rod-guide for dowel-machines, having a main, central hole for the rod, of substantially the same size as the rod as left by the cutters, for nearly its entire length, but with a short non-expansible portion thereof of a reduced diameter, and adapted to compress, size, and polish the rod, as set forth, in combination with a cutter adapted to give cylindrical form to the stick, and a

little larger than the constricted part of the said guide. 20

2. The herein-described revolving rod-guide for a dowel-machine, having a flaring mouth and a central hole for the rod to pass through, which hole is constricted and non-expansible for a short distance back from the mouth, so as to compress, size, and polish the rod without burning or otherwise injuring it, in combination with a cutter adapted to give cylindrical form to the stick, and a little larger than the constricted part of the said guide. 25 30

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

RUTLEDGE HARRIS.

Witnesses:

HUGH MCCARTNEY,  
N. H. HARRIS.