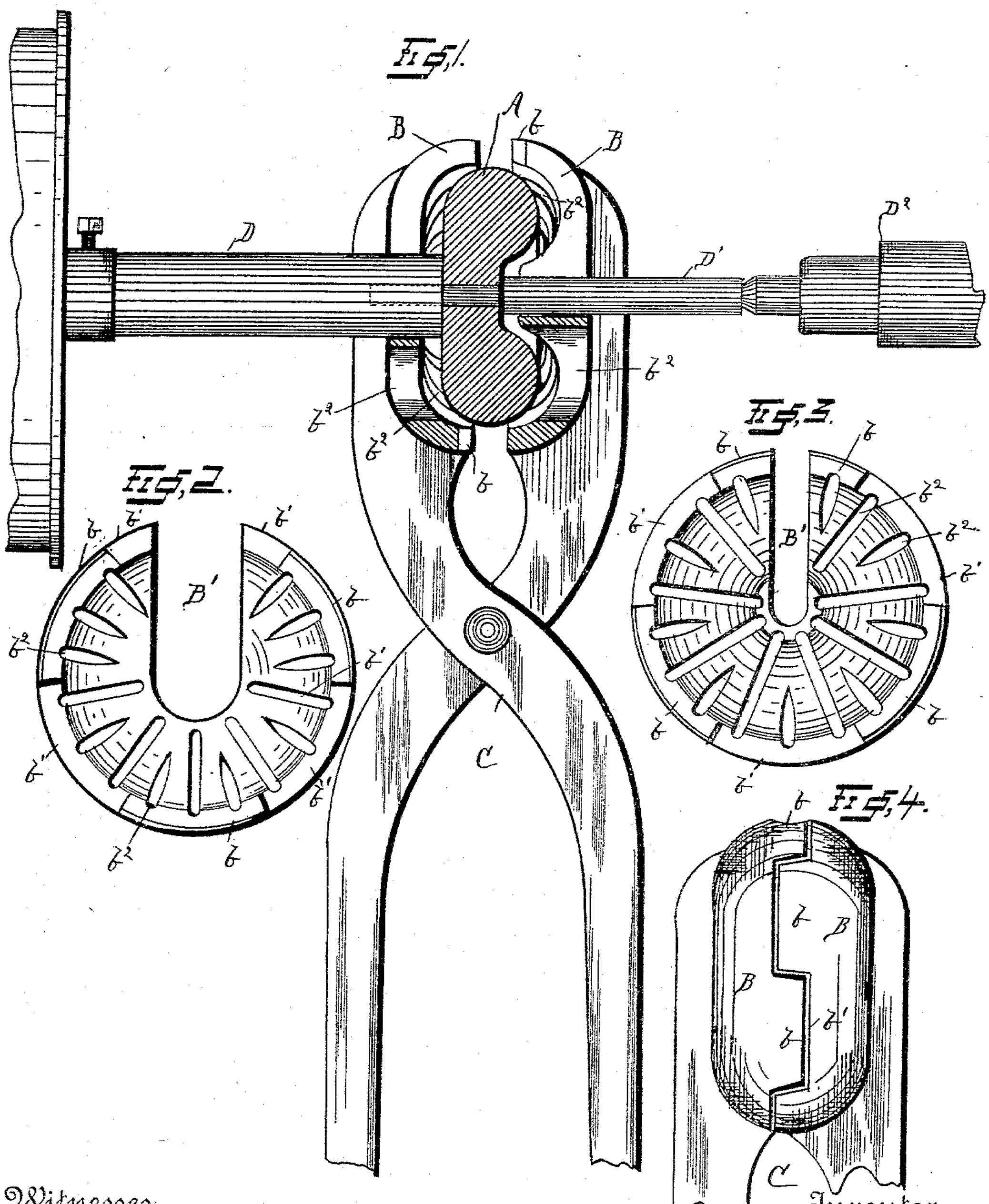
(No Model.)

F. P. OLDS.

PROCESS OF FORMING TURNED ARTICLES AND DIE FOR SAME.

No. 531,805. Patented Jan. 1, 1895.



Witnesses

Wm. Marley Jr.

Inventor

Frank P. Olds

By Attorneys

Hallock & Hallock

UNITED STATES PATENT OFFICE.

FRANK P. OLDS, OF HAMMETT, PENNSYLVANIA.

PROCESS OF FORMING TURNED ARTICLES AND DIE FOR SAME.

SPECIFICATION forming part of Letters Patent No. 531,805, dated January 1, 1895.

Application filed June 28, 1893. Serial No. 479,075. (No model.)

To all whom it may concern:

Be it known, that I, FRANK P. OLDS, a citizen of the United States, residing at Hammett, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in the Art or Process of Forming Turned Articles and Dies for Same; 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 the art of forming turned articles and dies for the same, and consists in certain improvements in the method and construction, thereof as will be hereinafter fully described and pointed out in the claims.

The invention is particularly adapted to the forming of turned articles of fibrous material, and especially to articles of wood having the grain across the axis.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows an article in a lathe and the dies in section in position to be operated. Figs. 2 and 3 are elevations of the dies showing their surfaces. Fig. 4 is a front elevation of the dies closed or in position to complete the forming.

A marks the article to be formed; D, the lathe spindle; D′, the mandrel, on which the article is carried; B B, the forming dies having their faces of the form desired to be given to the article, and C tongs attached to the dies and forming means of bringing the dies compressively against the article.

The dies have slots, B′ B′, to allow them to be passed over the mandrel to the center, and are provided with alternate projections, *b*, and depressing *b′*, on their inner edges, so placed on the dies with reference to each other as to pass in mesh, as shown in Fig. 4, so as to completely cover the article to be formed. The projections, *b*, are so placed as to equalize their opposing surfaces, so that the dies will center themselves.

The process or operation is as follows: The block is shaped in the rough in any of the usual methods, and placed on a rapidly revolving spindle. The dies are heated to a sufficient heat to readily char the wood or other material, and are then applied in the heated condition with pressure to the block. As the material becomes charred, it is removed by the movement of the block against the dies, and, thus, a fresh surface is brought against the dies, charred and removed, and so on until the article assumes the form desired.

This method will be found especially advantageous in turning wood articles in which the grain is across, or at right angles to, the axis of the turned article. It has been customary to turn such articles with knives shaped so as to give the desired form to the article. When the grain is across the axis, it is next to impossible to get the knives set at all points at the proper angle, and keep them sufficiently sharp, to cut the block clean and smooth. At certain points in the circumference, where the grain presents itself running in a direction toward the knives as the block is revolved, the knives invariably leave a rough surface, which when it is desired that the article shall be smooth, must be removed by means of sand paper or some similiar process. For these reasons, my device is particularly desirable for forming wooden disks of the shape shown in the drawings, which are adapted for use for valve wheels or handles, and in which, in order to get the proper strength, the grain is across the axis, and as they are usually given an ebony finish, the charring assists materially in the finishing, and the disks come from the lathe smooth and ready for polishing.

If but one side of the article is to be formed, but one dye will be necessary, the only requirement being that it be brought against the block in motion. As it is only necessary that there be a movable contact, the die may be sometimes advantageously revolved, and the blocks brought against it.

To facilitate the operation of the die, it has a grinding surface, formed by grooves or furrows, b^2, which preferably pass entirely through the die. By this means, as the material is charred, it is immediately ground off and removed through the passages b^2, so that there is always a fresh surface exposed to the charring action of the dye, and when the forming operation is completed, the article

presents a hard smooth surface, practically free of charred material.

What I claim as new is—

1. The method or process of forming turned articles, which consists in bringing a hot grinding die into revolving contact, under pressure, with the material to be formed, said die being so heated as to readily char the material to be formed and so applied as to simultaneously burn and grind the block to be formed to the shape desired.

2. A die having a grinding surface and adapted to be heated and having openings through it for the passage of waste material for the purpose set forth.

3. The combination of a die adapted to be heated for turning one surface of a block by charring and removing by revoluble contact substantially as described, a similiar die for forming the opposite surface oppositely placed, and means for bringing them compressively against said block.

4. The combination of a die adapted to be heated for turning one surface of a disk by charring and removing by revoluble contact substantially as described, projections at the edges thereof, a die for forming the opposite surface oppositely placed, projections at the edges thereof that mesh the projections of the opposite die, and means of bringing said dies compressively against said block.

5. The combination of a die for forming one surface of the block, substantially as described, having a slot, B′, therein to pass the block spindle or mandrel, and a similiar die oppositely placed for forming the opposite surface and having a slot, B′, for the purpose set forth, and means of bringing said dies compressively against said block.

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

FRANK P. OLDS.

Witnesses:
C. B. HAYES,
H. C. LORD.