

(No Model.)

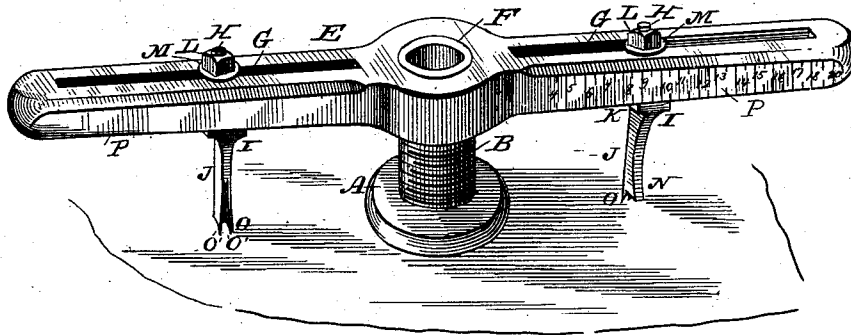
I. M. RHODES.

# APPARATUS FOR CUTTING CIRCULAR WOODEN PLATES.

No. 352,003.

Patented Nov. 2, 1886.

*Fig. 1.*



*Fig. 2.*

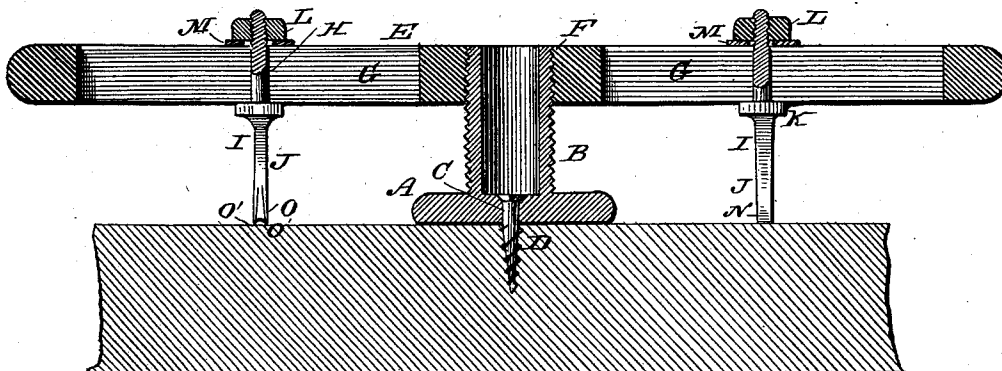
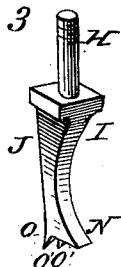


Fig. 3



**WITNESSES:**

Fred. G. Dieterich  
John Kemon

INVENTOR:

Isaac M. Rhodes  
BY Munn &  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ISAAC M. RHODES, OF HANCOCK, MICHIGAN.

## APPARATUS FOR CUTTING CIRCULAR WOODEN PLATES.

SPECIFICATION forming part of Letters Patent No. 352,003, dated November 2, 1886.

Application filed May 28, 1886. Serial No. 203,560. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC M. RHODES, of Hancock, in the county of Houghton and State of Michigan, have invented a new and useful Improvement in Apparatus for Cutting Circular Wooden Plates, of which the following is a specification.

My invention consists in the improved construction of an apparatus for cutting wooden wheels, circular plates, disks, and annular grooves, and which possesses advantages in the points of simplicity and cheapness of construction and rapidity and accuracy in operation, all as will be hereinafter fully described, and pointed out in the claim.

Referring the accompanying drawings, Figure 1 is a perspective view of my improved apparatus. Fig. 2 is a longitudinal vertical sectional view of the same adjusted in operative position, and Fig. 3 is a detail view of one of the adjustable cutters.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, A represents the base-plate, which is formed with the vertical upwardly-extending exteriorly-threaded hub B, which forms a central bearing for the operating-handle E, which carries the adjustable cutters. The base-plate A is formed with a central aperture, C, through which is inserted a wood-screw, D, which screws down into the wood and secures the base-plate thereto, this screw being short or long, according to the thickness of the wood being operated upon.

E represents the operating-handle, which is usually made about twenty-four inches in length, and a handle of this length will, with the adjustable cutters, cut wheels of from four to twenty inches in diameter, as may be desired. The central portion of this handle, which is enlarged, is formed with a vertical screw-threaded aperture, F, which adapts the handle to fit and turn upon the threaded hub B of the base-plate A. Each end of the handle, to each side of the central aperture F, is formed with a vertical longitudinal slot, G G, and in each slot fits the shank H of one of the cutters I. These cutters are formed with the body portion J, formed at its upper end with the shoulder K, which fits against the lower side of the slotted handle, and the shank H,

which extends up through the slot and has screwed on its threaded upper end a nut, L, which serves to hold the cutter in its adjusted position, a washer, M, being placed between the said nut and the upper surface of the slotted handle. The lower end of each cutter is formed with the pointed toe N, having the inclined forward face and the bifurcated heel O, which forms the sharp cutting-blades O' O', the cutters being arranged in the handle, as shown, so that as the handle is revolved the cutting-heel of each cutter cuts into the wood and the pointed inclined toe of the other cutter operates to remove or take out the strip so cut, as will be readily understood; or, if one cutter alone is used instead of two, its toe, on its next revolution, will remove the strip cut by its heel. I prefer, however, to use two cutters, as they divide the labor, making the strip cut by each cutter only one-half as thick as it would be if only one cutter were employed; and, further, by using two cutters the annular groove is carried down straighter, or with a flatter bottom than if only one cutter were used, and the apparatus works steadily and is prevented from tilting to one side while in operation.

The front edge of each end of the handle is provided with the two scales P P, extending practically from the center of the handle to the outer end of each slot G, these scales being graduated into inches and fractions thereof, and the scales are secured, as shown, to the front edges of each end of the handle, so that their marks or gradations extend down into close proximity to the forward edge of the shoulder of each cutter, the said shoulder extending directly over the center of the heel and toe of each cutter, and it will be seen that by this arrangement the cutters can be instantly adjusted to the precise point desired. Each half-inch of real length on each scale is preferably marked as a full inch, the object of this arrangement being that when the operator wishes to cut a circle of, say, twelve and three-fourths inches in diameter he can rapidly adjust each cutter to the number 12 $\frac{3}{4}$  of each scale, without stopping for any calculations, and will then cut a circle of twelve and three-fourths inches in diameter, each cutter being six and three-eighths inches from the center of the handle. The bifurcated

cutting-heel O of each cutter extends down below the level of the inclined point or toe thereof, so that as the toe is removing the strip cut by the other cutter or by its own heel, when only one cutter is employed, the bifurcated heel is cutting a deeper strip, over which its toe passes in advance.

The operation of my improved apparatus is as follows: The cutters having been adjusted to the right points and the base-piece A secured to the wood by means of a wood-screw of suitable length, the handle is rotated by the operator, the cutters operating as described, and as the handle is rotated it works down upon the screw-threaded hub of the base-piece, so that the cutters cut on a spiral, lower and lower, until they cut entirely through the wood, and thus complete the wheel or disk, the rapidity with which the cutters cut the groove being regulated by the number of threads to the inch on the hub of the base-piece; or, if desired, the groove may be cut to the requisite depth and so left. It will be seen that this apparatus may also be used for cutting holes of any required diameter.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my improved apparatus will be readily understood. It will be seen that it is simple and cheap in construction, while at the same time it is very rapid, accurate, and efficient in its operation, and can be readily operated by hand by any person to cut wooden wheels, circular-plate disks, annular grooves, and holes.

I am aware that a tool for cutting holes has been formed of a bar carrying the adjustable

cutters, handles, and an intermediate sliding screw or bolt which is in operation to be screwed into a previously-bored hole in the material to be operated upon and then rotated. An imperforate disk cannot be cut out by this tool, as the bolt must travel entirely through the material. I am also aware that a tool for beveling the edges of barrel-heads has been formed of a slotted bar having handles at its opposite ends, one of which has a penetrating device on which the bar revolves but does not move vertically. The cutter is mounted in a holder adjustable in the slot of the bar; and I do not claim such as of my invention.

I am also aware that a machine for cutting circles has been formed of a base having a wood-screw on its under face and a screw-threaded post projecting vertically from its top. A threaded sleeve worked on this post, and a longitudinally-adjustable cutter-bar was secured to this sleeve by a removable block having loops and a set-screw; and I do not claim the same as of my invention.

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

The combination, with the hollow stationary externally-threaded hub having a base formed with an aperture in alignment with the longitudinal central axis of the hub, and a removable wood-screw passed through said aperture, of a rotary cutter-bar having a screw-threaded aperture through which the hub passes, substantially as set forth.

ISAAC M. RHODES.

Witnesses:

MICHAEL FINN,  
M. R. GOLDSWORTHY.