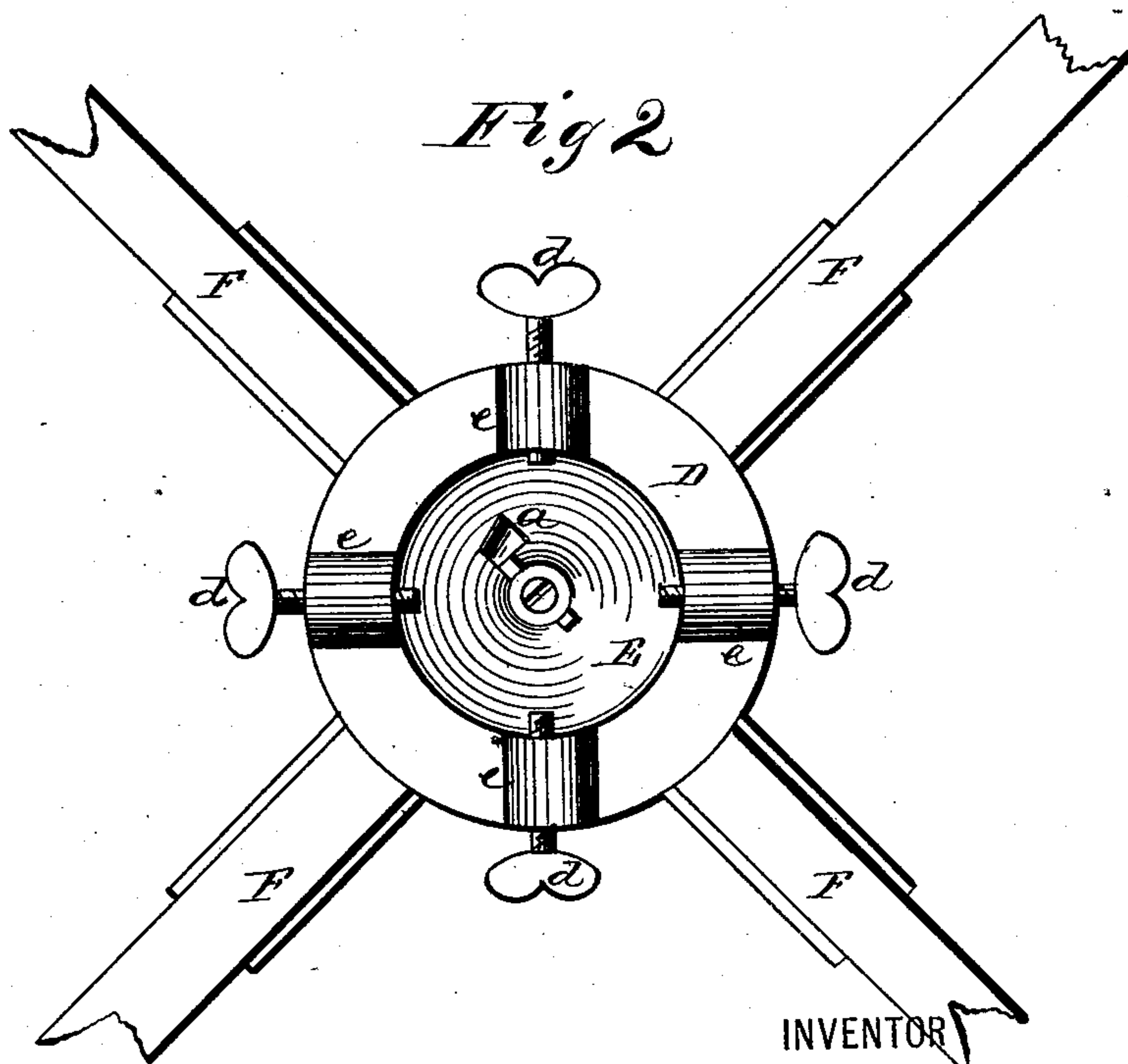
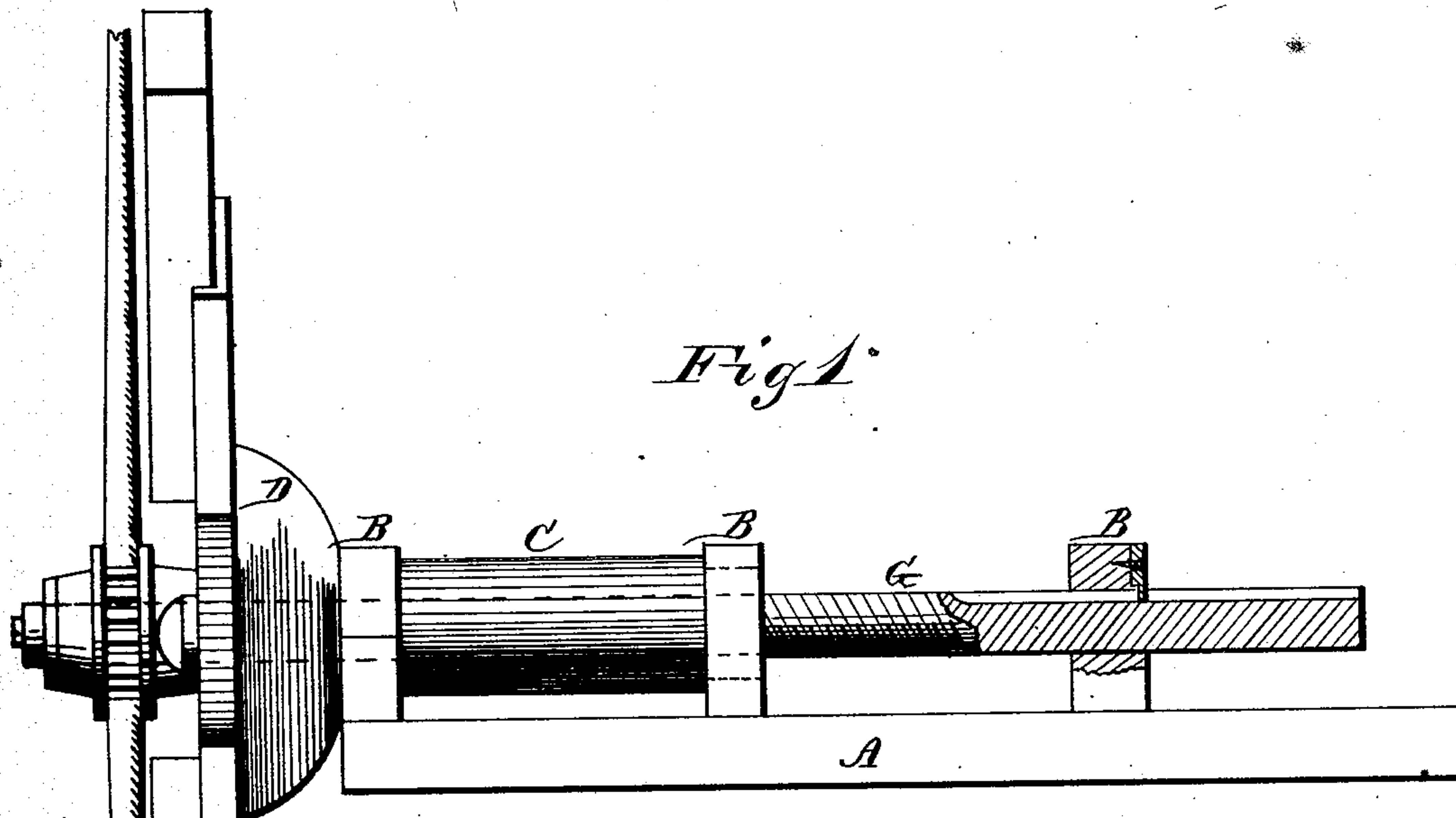


E. M. HENKLE.  
Machine for Boring Hubs.

No. 163,490.

Patented May 18, 1875.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ENOS M. HENKLE, OF SPRINGFIELD, ILLINOIS.

## IMPROVEMENT IN MACHINES FOR BORING HUBS.

Specification forming part of Letters Patent No. **163,490**, dated May 18, 1875; application filed August 8, 1874.

*To all whom it may concern:*

Be it known that I, ENOS M. HENKLE, of Springfield, in the county of Sangamon and in the State of Illinois, have invented certain new and useful Improvements in Machines for Boring Hubs; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the peculiar construction and arrangement of the several parts of a machine for the purpose of boring holes in hubs for boxing, as will be hereinafter set forth.

In the accompanying drawings making part of this specification, Figure 1 represents a side view, and Fig. 2 a front view, of my machine.

In the figures, A represents the bench which sustains the machine. Upon this bench are secured the guides B B B. G represents a mandrel, which has a screw-thread cut upon it for almost its entire length. At its forward end it has an opening cut through it at right angles, in which is inserted the shank of a cutting-tool, *a*. This tool is adjusted as required, and is secured in position by means of a suitable set-screw. C represents a cylinder, through which the mandrel passes, and which is provided with a female screw to correspond with the thread on the mandrel. At the forward end of this cylinder is formed a head, D, which has a concave opening in its face, made to receive the end of the hub to be bored. Near the outer edges of this face are formed the lugs *e e*, through which pass the set-screws *d d*, for the purpose of adjusting the hub in the center of the face, and of securing it firmly during the operation of boring. F F represent a series of arms, which extend out from the head D, and at right angles to it. These arms are for the purpose of resting the wheel against while the hub is being bored. The spokes of the wheel are confined to these arms in any suitable manner.

It will be seen that the head D, with its concavity, lugs *e*, the radial sockets for the arms F, and the sleeve C, are all cast in one piece.

In operating this machine the wheel is placed against the arms F F, and the end of the hub inserted in the concavity E of the head D. The end of the mandrel passes into the hole usually left in the hub when made. The hub being properly centered and confined by the set-screws, and the spokes being confined to the arms F, the wheel is revolved as rapidly as necessary; but in the meantime the tool is adjusted so that it will cut a hole just the size of the smallest end of the box. When the wheel is revolved the threads carry the mandrel through the hub, the cutter cutting its hole as it passes. The motion of the wheel is then reversed and the tool withdrawn, and then set to cut a hole of the size of the center of the box. After this hole is cut the tool is again withdrawn and set so that it will cut a hole the sixteenth part of an inch smaller than the largest part of the box. The tool is then withdrawn, the wheel removed, and the box driven into its place. It will then need no wedging, and will be permanent and secure in the hub. The mandrel may be stationed in any suitable manner.

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

The combination of the head D, with concavity E, lugs *e e*, and set-screw *d d*, the arms F F, and sleeve C, cast in one piece with the mandrel G and tool *a*, all constructed substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of July, 1874.

ENOS M. HENKLE.

Witnesses:

WM. MILES,  
WM. H. HENKLE.