

K. P. ALLEN.

HUB CENTERING MACHINE  
AND

SPOKE GUIDE. PATENTED JUL 11 1871

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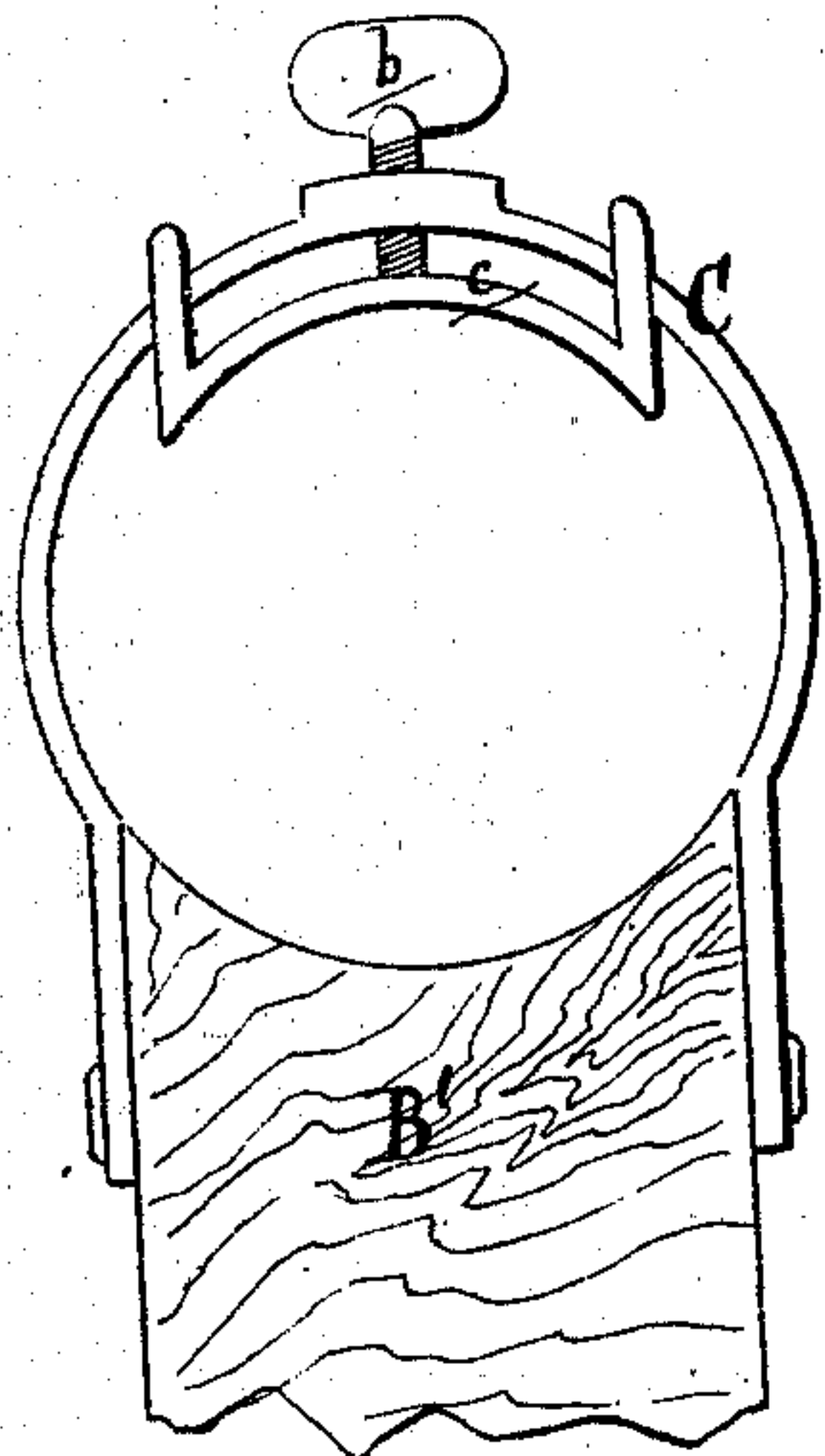


Fig. 2.

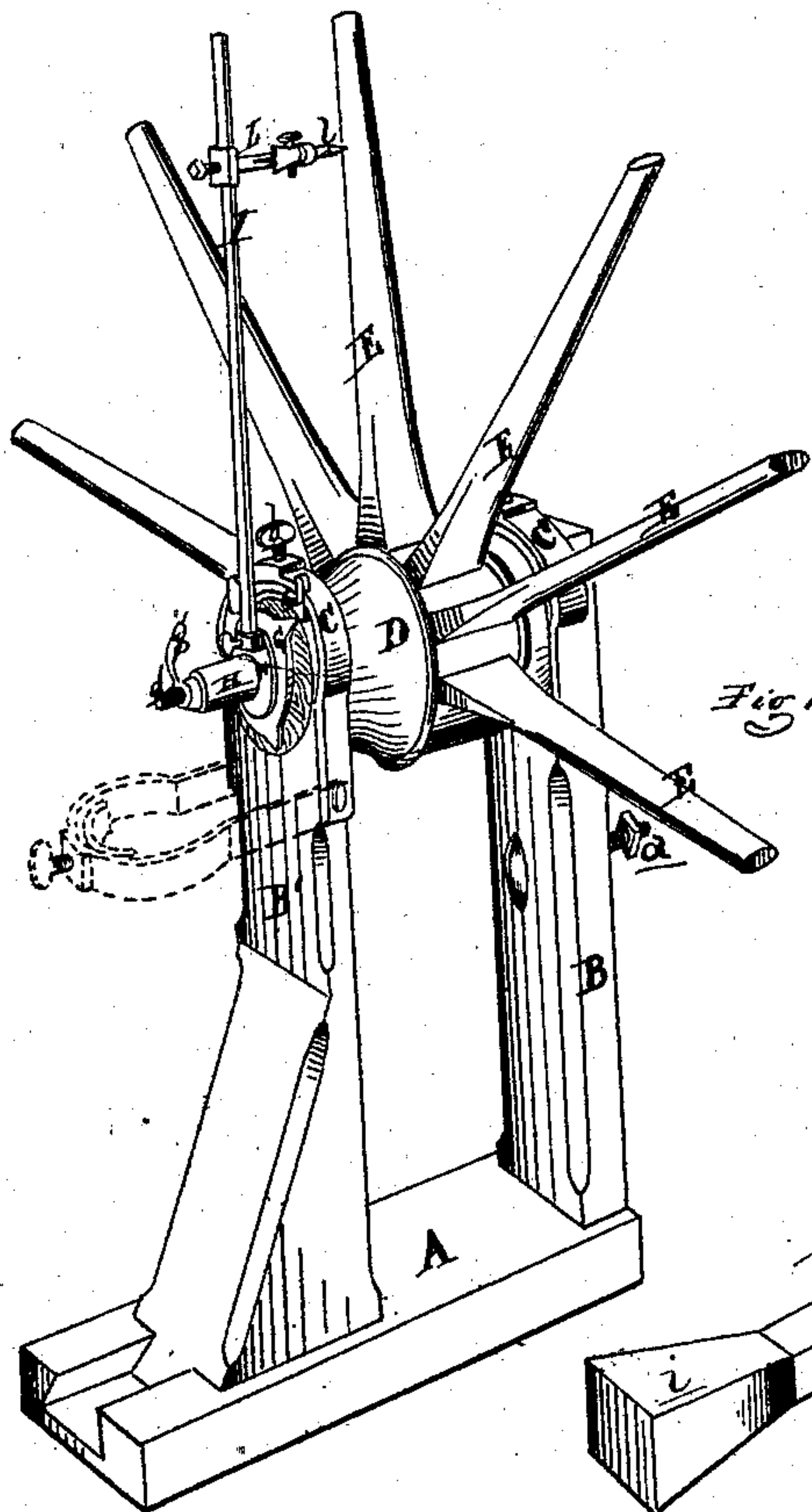


Fig. 1.

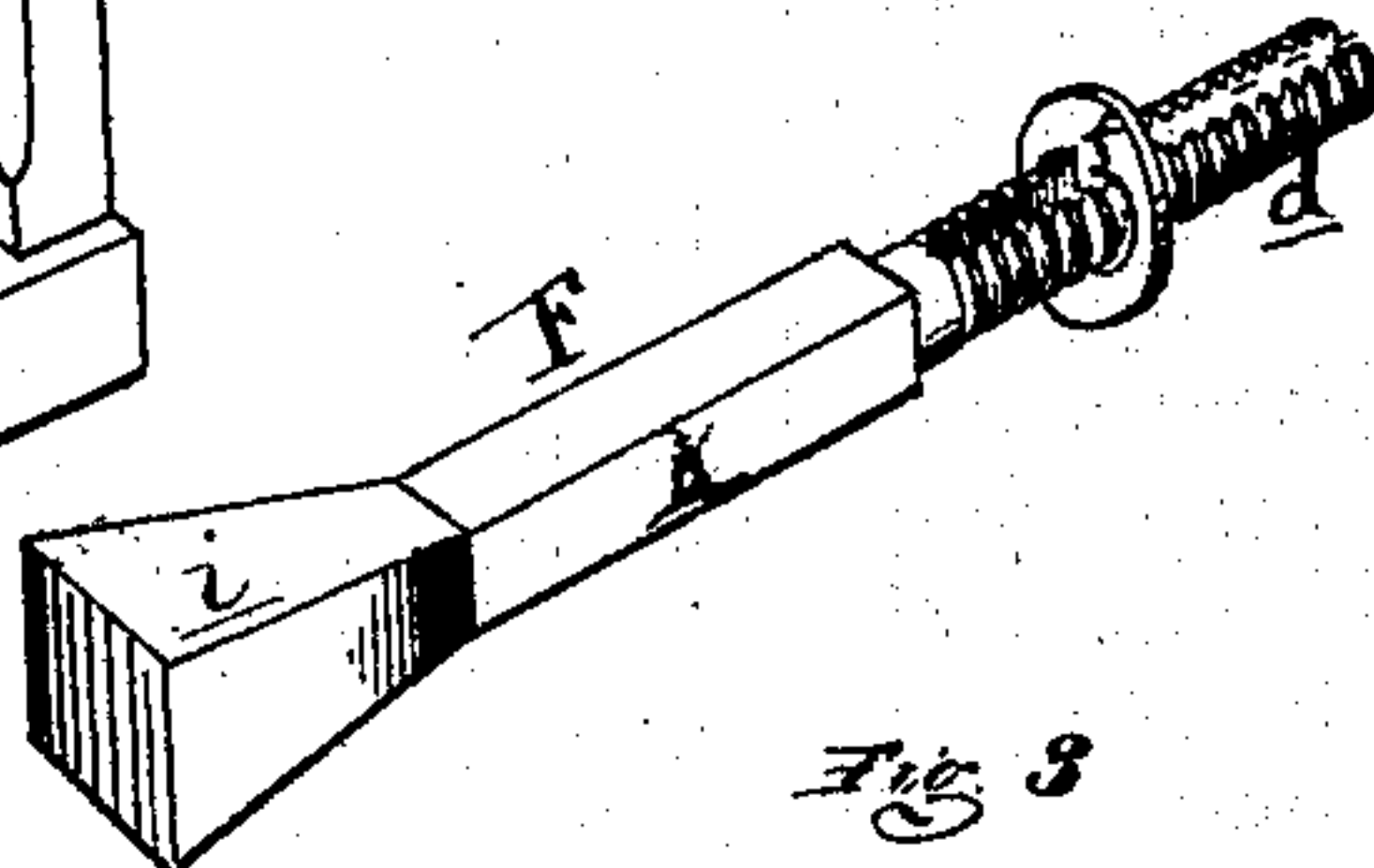


Fig. 3.

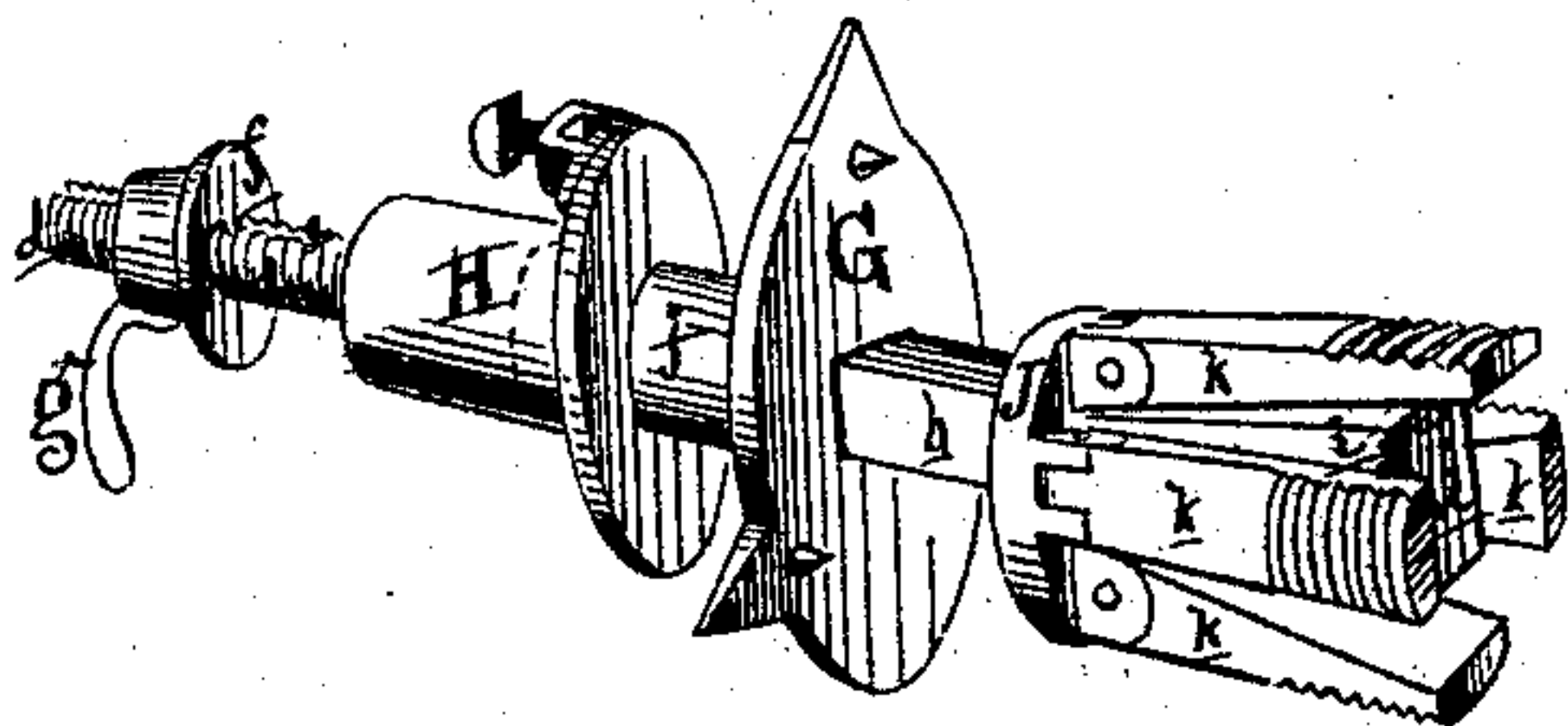


Fig. 4.

ATTEST.

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KING P. ALLEN, OF HOMER, MICHIGAN.

## IMPROVEMENT IN HUB-CENTERING MACHINES AND SPOKE-GUIDES.

Specification forming part of Letters Patent No. 116,790, dated July 11, 1871.

*To all whom it may concern:*

Be it known that I, KING P. ALLEN, of Homer, in the county of Calhoun and State of Michigan, have invented a new and useful Improvement in a Combined Hub-Centering Machine and Spoke-Guide; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a perspective view of my device with a hub centered therein. Fig. 2 is an elevation of the front standard and its clamp. Fig. 3 is a perspective view of the expanding mandrel and its washer, and Fig. 4 is the same with its attachments.

Like letters indicate like parts in each figure.

The nature of this invention relates to the construction of machine for receiving, holding, and centering wheel-hubs of any size, and which will furnish a guide for driving the spokes, giving them the required dish and length to shoulder and end. The invention consists in the novel and peculiar construction of a pair of standards—one of which may be a leg of the workman's bench—provided with clamps for holding the hub, one of said standards having a movement in its base to adjust it for the reception of hubs of varying length; in the peculiar construction and arrangement of a self-centering expanding mandrel; and, in connection therewith, a guide for driving the spokes by, giving them the required dish and length, the whole operating as hereinafter more fully set forth.

In the drawing, A represents a base or sill, from the rear end of which rises a standard, B, which may be secured to the leg of the workbench by a bolt, *a*. Another standard, B', has a longitudinal movement in a dovetail-slot in the base A, to adjust it to the length of the hub, the tops of both standards being hollowed, to receive it. C are circular clamps hinged to the tops of the standards, each having threaded through its top a clamp-screw, *b*, carrying or having swiveled to its point a segmental plate, *c*, which bears on the upper part of the hub-band and secures it to the standard. By referring to the drawing the manner of securing the hub D will be fully understood. E represents spokes driven in the sockets mortised in the hub. F is

a mandrel, on one part of which is cut a thread, *d*, for about one-third of its length. In this part is cut a longitudinal slot, *e*, with which engages a stud on the washer *f*. A hand-nut, *g*, is threaded on the screw outside of the washer. The central portion of the mandrel is squared, as shown at *h*, and the remainder is in the form of a rectangular truncated pyramid joined thereto by its apex forming the expanded head *i*. G is a plate having an externally-rounded hub, *j*, sliding on the squared part of the mandrel. On the inner face are studs or points which force into the end of the hub to prevent the plate from turning. H is a flanged cup or sleeve slipped over the hub *j* of the plate G, between it and the washer *f*, and is provided with a socket for the reception of the ordinate rod I. J is a disk sliding on the squared part of the mandrel, and having hinged to its inner face the expanding leaves or segments, *k*, which rest upon the faces of the head *i*. L is a movable arm on the ordinate rod I, adjustable thereon to any desired distance from the common center—*i. e.*, the center of the mandrel. To the arm is attached a clamp for the reception of a reversible guide and scribe, *l*, the blunt end serving as a guide in dishing the spokes as they are driven, and the other sharp end to scribe them for total length, and length to shoulder in the rotation of the wheel.

To operate my improvement, remove the ordinate rod from its socket; then, with the hand-nut run back, as also the other parts attached to the mandrel, the leaves or segments may be inserted into the bore of the hub, entering at the small end; then, sliding up the plate G and the other parts against the hub and screwing up the hand-nut, the mandrel will be drawn back and the inclined planes forming its head will press out the segments or leaves against the walls of its bore, which will bring the center of the mandrel concentric therewith, leaving the sleeve H free to turn on the hub of the plate G, whose studs, engaging with the end of the hub, hold it fast thereto. By throwing forward the clamp of the standard B' the hub may be now inserted between the clamp and top of the standard B, resting on the front one, when it is loosely secured by bringing up the other clamp and screwing down the clamping-plates to a bearing on the hub. The ordinate rod is now inserted in its socket and its arm carried up to about the ends of the

spokes, with the blunt end of the guide extended far enough to give each spoke the desired pitch. The spokes are now driven home, steadying each against the guide, the hub turning in its bearings as each is to be driven. After the spokes are driven the guide is reversed and its sharp point brought to the required distance from the common center to gauge the length of spoke and depth of tenon by rotating the wheel in contact therewith.

What I claim as my invention, and desire to secure by Letter Patent, is—

1. The construction and arrangement of the standards B B' on the base A, clamps C, clamp-screws *b*, and clamp-plates *c*, substantially as described, for the purpose specified.

2. The mandrel F, constructed as herein described, and provided with the disk J carrying the leaves *k*, the flanged sleeve H, plate G, washer *f*, nut *g*, ordinate rod I, arm L, and guide *l*, substantially as and for the purposes set forth.

Witnesses:

KING P. ALLEN.

FREDERICK EBERTS,  
M. STEWART.