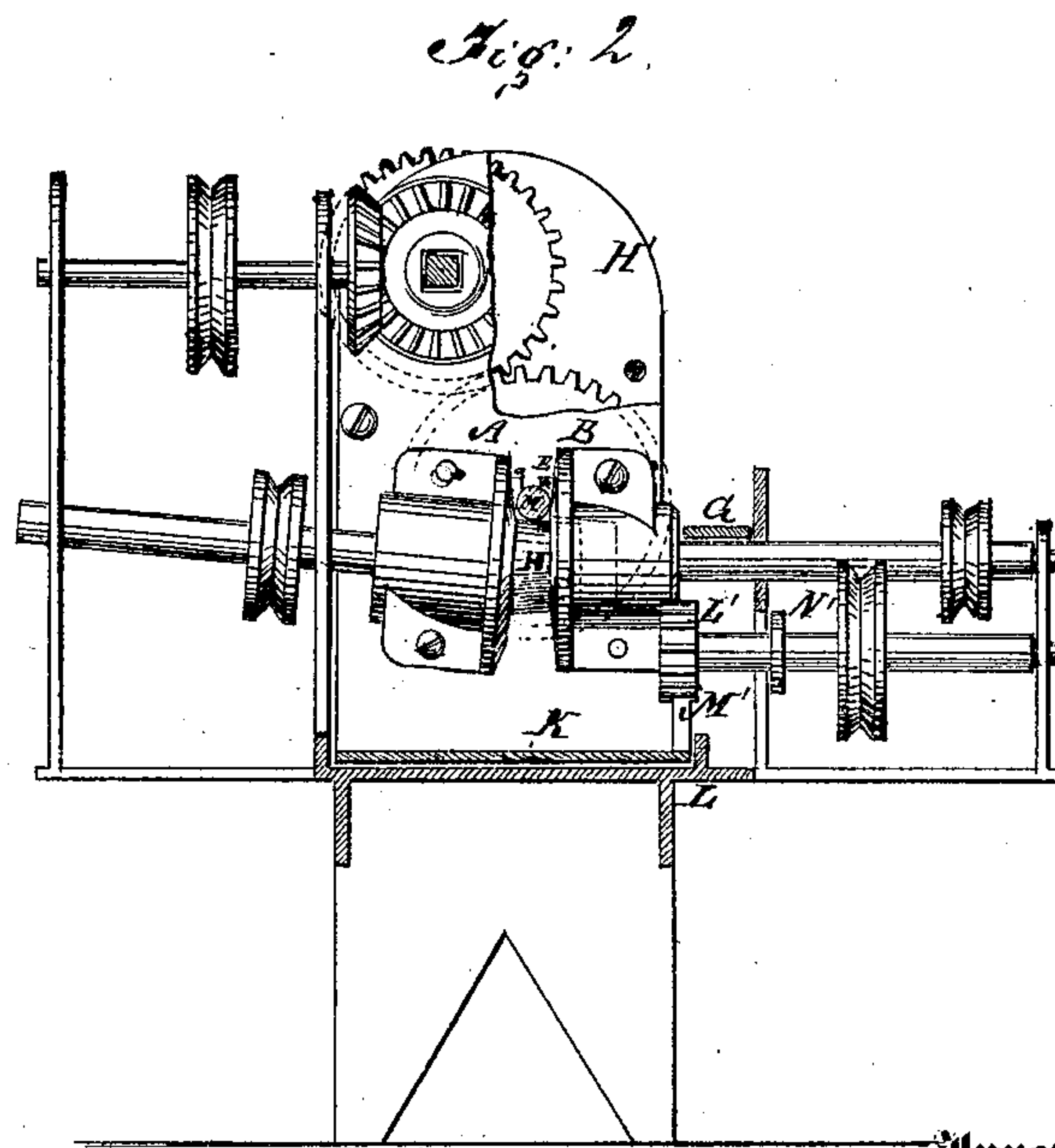
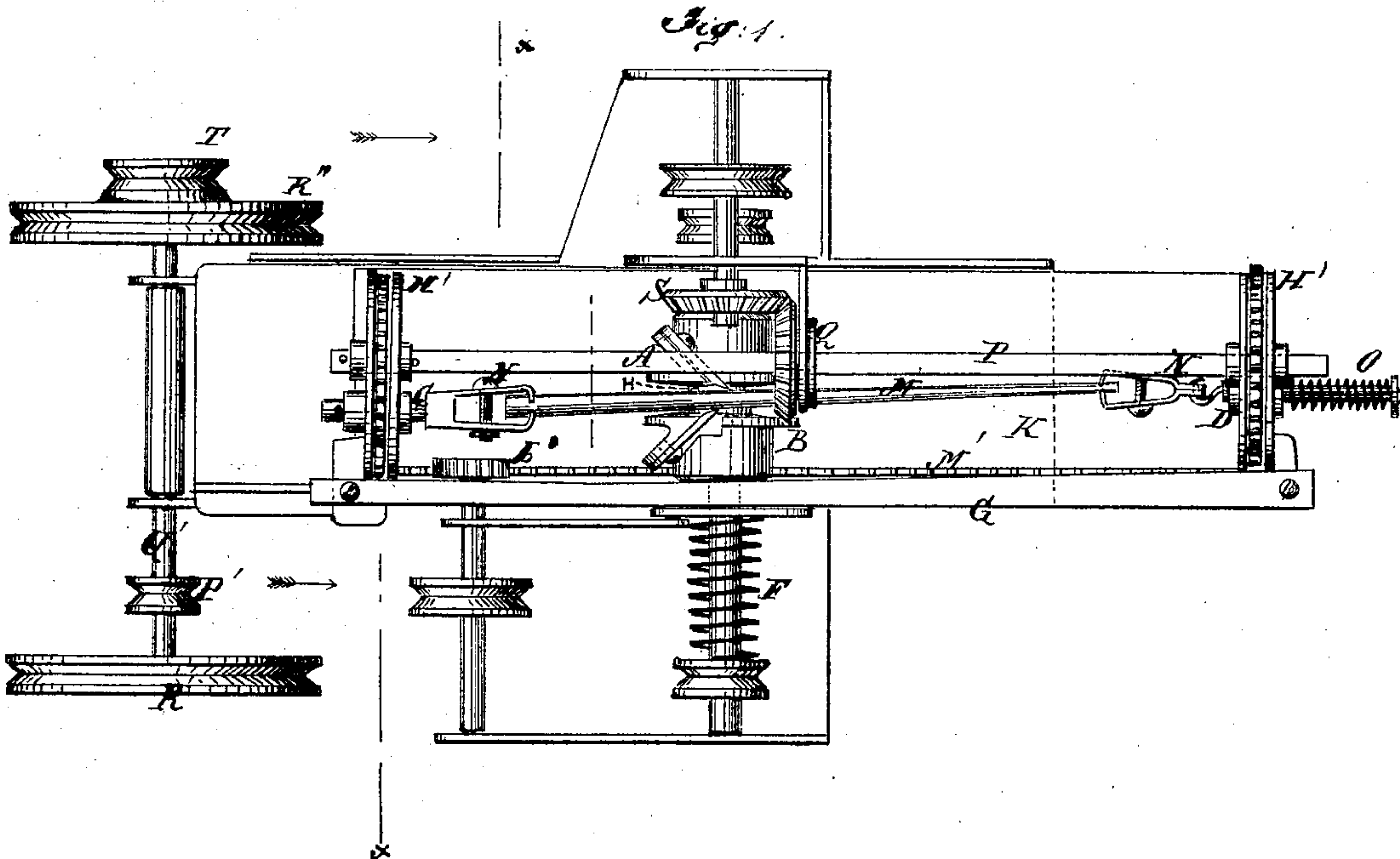


H. LOMBARD.
Lathes.

No. 149,234.

Patented March 31, 1874.



Witnesses:

Chas. Nida
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UNITED STATES PATENT OFFICE.

HEZEKIAH LOMBARD, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN LATHES.

Specification forming part of Letters Patent No. 149,234, dated March 31, 1874; application filed March 24, 1874.

To all whom it may concern:

Be it known that I, HEZEKIAH LOMBARD, of San Francisco, in the county of San Francisco and State of California, have invented an Improvement in Lathes for Turning Whip-Stocks, &c., of which the following is a specification:

My invention consists in a pair of revolving disks, with planes or other suitable tools in the sides, which front each other, combined with revolving and sliding centers and a guide, in such manner that a whip or other limber and tapered stick which will spring away from ordinary cutters can be readily turned, all as hereinafter described.

Figure 1 is a plan view of my improved lathe, and Fig. 2 is a transverse section taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A and B represent a pair of tool-carrying disks, facing each other, a little distance apart on separate shafts, in nearly the same axis, at right angles to the centers C D of a lathe, and a little below the axis of the centers. These disks are slightly conical on the sides fronting each other, and their axes are inclined, so that above them said disks are parallel, or nearly so, to cause the cutters to have a slight movement horizontally to and from the stick being turned. E represents the cutters, which are arranged in the confronting faces of the disks, like planing-tools; but they may be of any other form or construction. The disk B is arranged so that it can move in the direction of its axis, and a coiled spring, F, is combined with it in such manner as to hold it against a guide-bar, G, parallel, or nearly so, with the lathe-centers. It also has a hub, H, which moves in and out of a socket in the center of the disk A, which is mounted so as not to move in the lengthwise direction of the axis, as disk B does. This guide is extended from one to the other of the center-stocks H', and the stocks are mounted on a slide, K, which moves along frame L to carry the stick M to be turned along the cutters between them. The centers are so adjusted in different vertical planes, as wide apart as the taper of the stick to be turned is to have, and in such relation to the disk A, that the stick will revolve against its cutters throughout its length; and the guide G is arranged to force the disk B toward the stick, while moving along it, as much as is nec-

essary to form the taper. The centers are provided with clamps N, for holding the ends of the stick; and center D is capable of moving endwise, and is provided with a spring, O, to strain the stick lengthwise, and keep it from bending or springing while turning. Both centers are geared with a shaft, P, for applying the turning force at both ends of the stick; and the shaft slides through the bevel-wheel, by which it is turned, as the stick is moved along the cutters. The stick rests upon the hub H, which prevents the cutters from springing it downward. The cutters are also adjusted in different horizontal planes, to allow the tapered stick to rest on this hub throughout its length. The sliding piece K, which carries the stocks for supporting the centers, is worked forward to feed the work to the tool by a pinion, L', which gears with a rack, M', on the said sliding piece or frame; and the shaft of this pinion is mounted, near the rack, in a bearing, N', capable of rising to lift it out of gear, to allow the stocks and centers to be shifted back quickly after each stick is turned. This feed-pinion is driven by a belt from the small pulley P' on the driving-shaft Q'; the tool-disks are driven by belts from the large wheel R' on the said shaft; and the shaft with the bevel-wheel S, for turning the centers by the wheel Q and shaft P, is driven by a belt from the small pulley T on the driving-shaft Q'.

I am aware that two cutters have before been used, and I do not therefore claim such device; but

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

1. The combination of the slide K, centers C D, and disks A B, substantially as and for the purpose herein specified.

2. The combination of the clamp N and a tension-spring, O, with the centers, one of said centers being movable in a lengthwise direction, substantially as and for the purpose described.

3. The slide K, centers C D, and disks A B, in combination with the clamp N and spring O, all constructed and arranged for operation as and for the purpose described.

HEZEKIAH LOMBARD.

Witnesses:

HENRY HAY,
B. R. HATHAWAY.