

(No Model.)

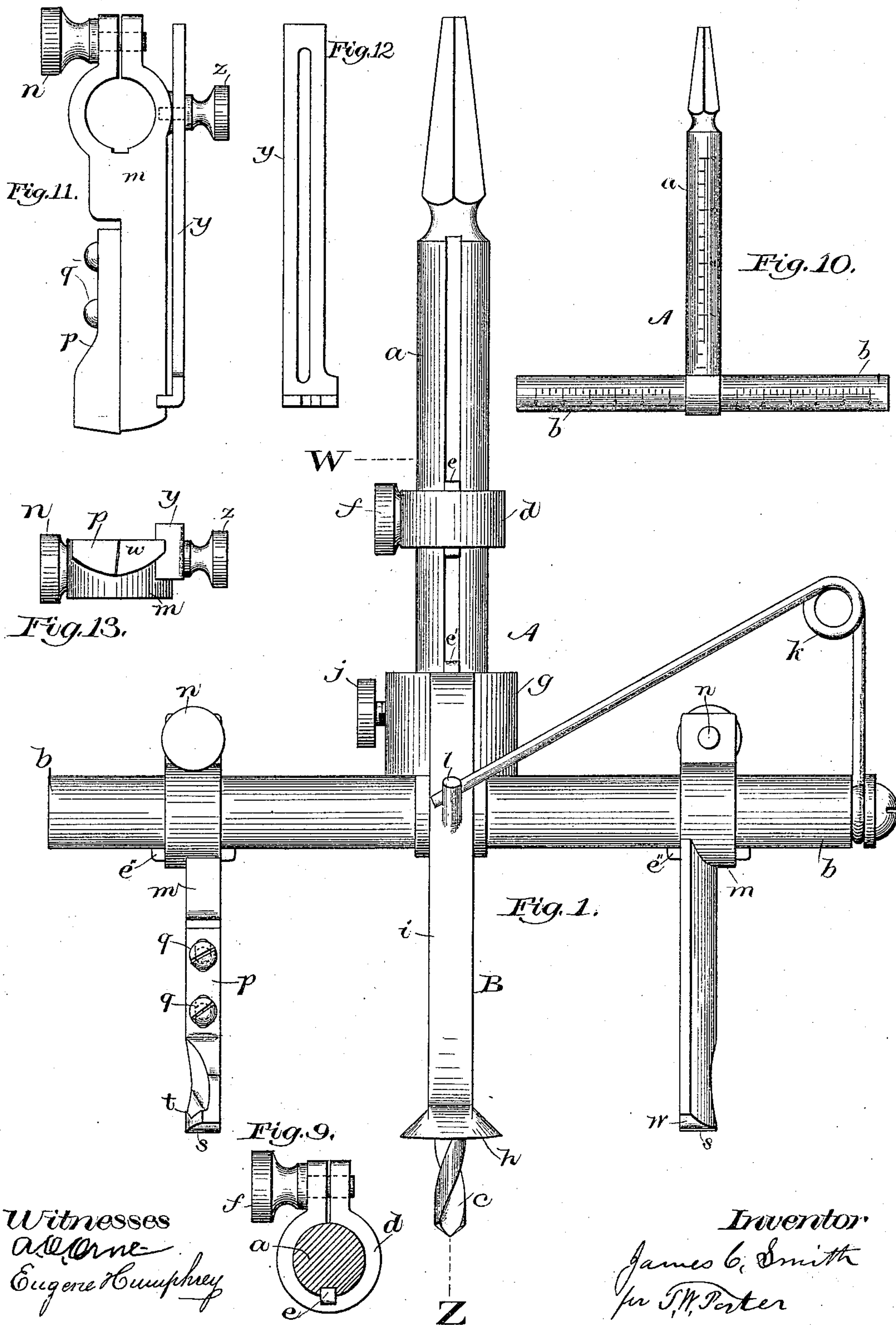
2 Sheets—Sheet 1.

J. C. SMITH.

### ADJUSTABLE CONCENTRIC CHANNELER.

No. 326,342.

Patented Sept. 15, 1885.



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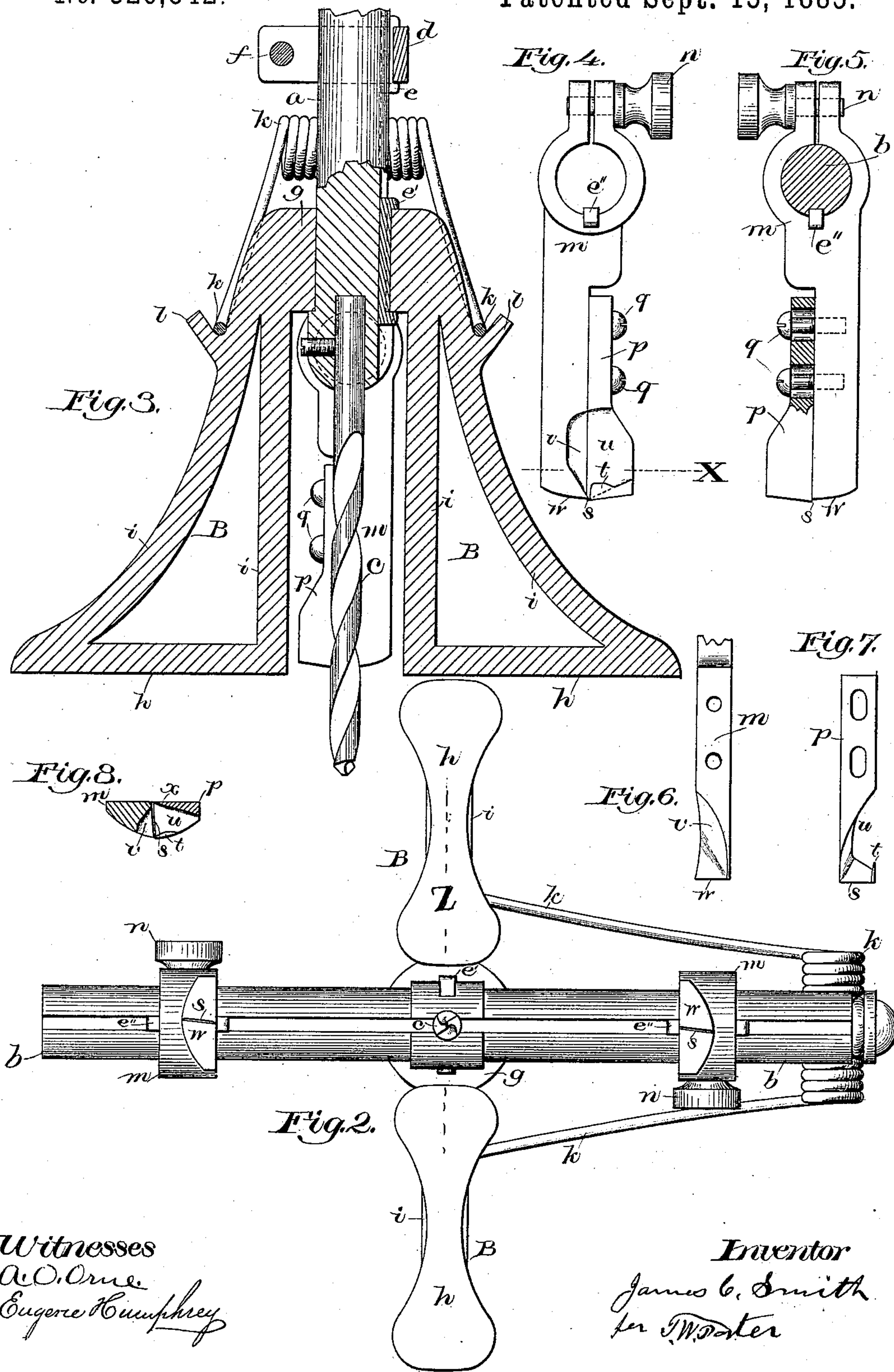
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ADJUSTABLE CONCENTRIC CHANNELER.

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Witnesses

A. O. Orme  
Eugene Humphrey

Inventor

James C. Smith  
per J. W. Parker



# UNITED STATES PATENT OFFICE.

JAMES C. SMITH, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
TO THOMAS G. NEWGENT, OF SAME PLACE.

## ADJUSTABLE CONCENTRIC CHANNELER.

SPECIFICATION forming part of Letters Patent No. 326,342, dated September 15, 1885.

Application filed May 20, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. SMITH, of Boston, (Cambridge,) in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Adjustable Concentric Channelers, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

10 This invention has for its object the production of a tool adapted to either hand or power use, and by which concentric channels or grooves of any desired depth and radius may be rapidly formed in wood, or by which circular  
15 openings may be cut entirely through the body of the wood upon which the tool operates, as will, in connection with the accompanying drawings, be hereinafter fully described, and particularly claimed.

20 In said drawings, Figure 1 is a side elevation of my improved channeler. Fig. 2 is an inverted or under side plan view of the same. Fig. 3 is a longitudinal vertical section taken as on line Z, Figs. 1 and 2. Fig. 4 is an outside  
25 elevation of one of the cutters of my channeler, taken as viewed from either the right or left in Fig. 1. Fig. 5 is a reverse or inside view of the cutter shown in Fig. 4. Fig. 6 is an edge elevation of the lower portion of the cutter-  
30 holding stock, taken as viewed from the right in Fig. 4 and from the left in Fig. 5. Fig. 7 is an edge elevation of the cutter proper, taken as viewed from the left in Fig. 4 and right in Fig. 5. Fig. 8 is a sectional plan view of one  
35 of the cutters shown in Figs. 4 and 5, the section being on line X, Fig. 4, and the view from above that line. Fig. 9 is a sectional plan view, the section being on line W, Fig. 1, and the view from above that line. Fig. 10 shows the  
40 frame of my channeler as lineally graduated for convenience of adjusting both the radius of the channel to be cut and the depth thereof. Fig. 11 is a view like Fig. 5, but showing the cutter as provided with a gage thereto secured.

45 Fig. 12 is a detached side elevation of the gage shown in Fig. 11, and viewed as from the left therein. Fig. 13 is an inverted or under side plan view of Fig. 11.

In said views, A represents the frame or body  
50 of my channeler, the same being formed with

a stem, *a*, adapted to be secured in a bit-brace, arbor, or chuck, by which to rotate it, and having a bar, *b*, whose axis is perpendicular to that of stem *a*. A hole is formed in bar *b* axial to stem *a* to receive the boring-tool *c*, by  
55 which the channeler is held in proper position when operative. A set-collar, *d*, is arranged on stem *a*, it being locked by a pinch-screw, *f*, and held from rotation by gib *e*, which enters corresponding slots cut in the collar and  
60 stem. A gage, B, is secured to stem *a* by hub *g*, which is provided with a set-screw, *j*, and is interlocked with said stem by a gib, *e'*, inserted in a slot correspondingly cut in said hub and  
65 stem, as shown in Figs. 2 and 3. From said hub *g* depend arms *i*, which terminate in feet *h*. A coiled arm-spring, *k*, secured by a set-screw to one end of bar *b*, has its arms respectively  
70 seated upon ears *l* of the gage, and thus tends constantly to depress the same, as shown in Figs. 1 and 3. Upon bar *b* are arranged the  
cutter heads or stocks *m m*, each locked in position, when adjusted, by a pinch-screw, *n*, and  
75 each interlocked with bar *b* by a gib, *e''*, as shown in Figs. 1, 2, 4, 5. Upon each stock *m* is secured the cutter *p* by screws *q*, which pass  
through slots in the cutter and are threaded in the stock, as shown in Fig. 5, thereby rendering the cutter lineally adjustable upon the  
80 stock to vary the rankness of its cut. At the lower end of stocks *m* is formed a recess or throat, *v*, leaving a lower or end face, *w*, while a corresponding throat, *u*, is formed in the lower  
portion of cutter *p*, which terminates in the cutting knife-like edge *s*, upon the upper face of  
85 which, next the outer line, is the spur *t*, arranged to cut an outer peripheral path in the same manner as do the spurs upon augers and  
auger-bits.

The slight extension of cutting-edges *s* of cutter *p* below the end face, *w*, of stock *m* determines the thickness of chip cut by *p*, and the  
90 opening between *s* and *m* is, as shown in Figs. 2, 8, oblique to the axis of bar *b*, in order that the inner part, *x*, Fig. 8, of cutting-edges *s* may  
95 slightly precede spur *t*, as thereby a more perfect path or groove is formed in the wood than if the line of edge *s* coincided with a line radial from the axis of stem *a*.

In practice stocks *m* are secured on bar *b* at 100



an equal distance from the axis of *a*, (which is readily done when the bar is graduated as shown in Fig. 10,) and at such distance therefrom that the circular path cut by cutters *p* shall  
 5 be of the requisite diameter, and if, instead of cutting entirely away the portion of wood thus circumscribed it is desired to cut a channel of a certain depth, the gage B is either retracted the requisite distance and locked by its set-screw *j*, or else the gage-collar *d* is locked in  
 10 the proper position to arrest the hub *g* of the gage B, when it is forced back by the sinking of cutters *p* in the wood that is being channeled.

In some classes of work it is better to lock  
 15 gage B in the desired position, while in others the spring-enforced pressure of the gage upon the wood being cut is advantageous, in which event the depth of the channel is controlled by the position of gage-collar *d*; and when cutting entirely through the wood gage-collar *d* is  
 20 retracted, so as not to interfere with the action of the cutters, while gage B may be left to the action of its spring, or it may be sufficiently retracted and locked upon stem *a*.

25 Instead of having bar *b* extend from both sides of stem *a* it may extend from one side only, in which case the cutter thereon may, instead of gage B, be provided with a slotted gage, *y*, secured to stock *m* by a set-screw, *z*,  
 30 as shown in Fig. 11, the lower end of the gage being interlocked with the stock, as shown in Figs. 11, 13, and by its slot being lineally adjustable to allow any desired depth of channel to be cut. By interlocking stocks *m* with bar

*b* by means of gibs *e''* said stocks are held in 35 the same plane as boring-tool *c*.

I am aware that tools having blade-like cutters adapted to cut disks from leather by merely penetrating the same have been heretofore  
 40 used; hence I make no claim to such a tool, which would separate leather, but could not cut a channel in wood, while my cutters will channel wood, but could not be used for separating leather.

I claim as my invention— 45

1. The combination, with a concentric channeler, of a spring-advanced gage constructed and arranged to be adjusted and locked at will to control the penetration of the channel-forming cutters, substantially as specified. 50

2. The combination, in a concentric channeler, of adjustable set-collar *d*, and the sliding spring-advanced gage B, substantially as specified.

3. The channel-forming cutters consisting 55 of stock *m*, formed to be secured upon bar *b*, and having throat *v*, and face *w*, and cutter *p*, adjustably secured to said stock and formed with throat *u*, cutting-edge *s*, and spur *t*, all substantially as specified. 60

4. In a concentric channeler, the combination, with sliding gage B, of arm-spring *k*, secured on bar *b*, and connected with and arranged to depress said gage, substantially as specified.

JAMES C. SMITH.

Witnesses:

T. W. PORTER,  
 EUGENE HUMPHREY.