No. 795,420. PATENTED JULY 25, 1905.

W. L. SCHELLENBACH.

KEY SEATING TOOL.

APPLICATION FILED FEB. 6, 1904.

Fig. 1.

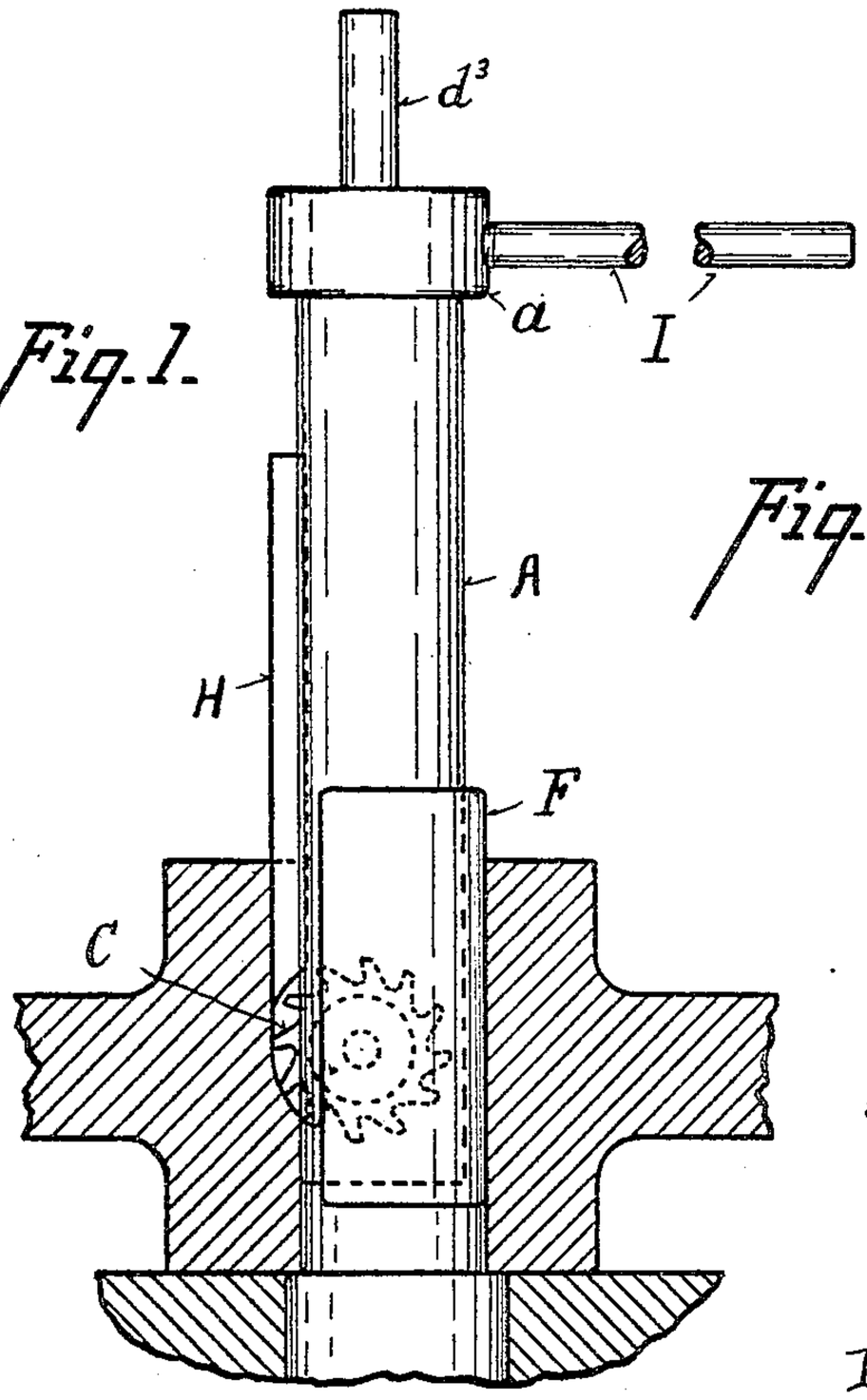
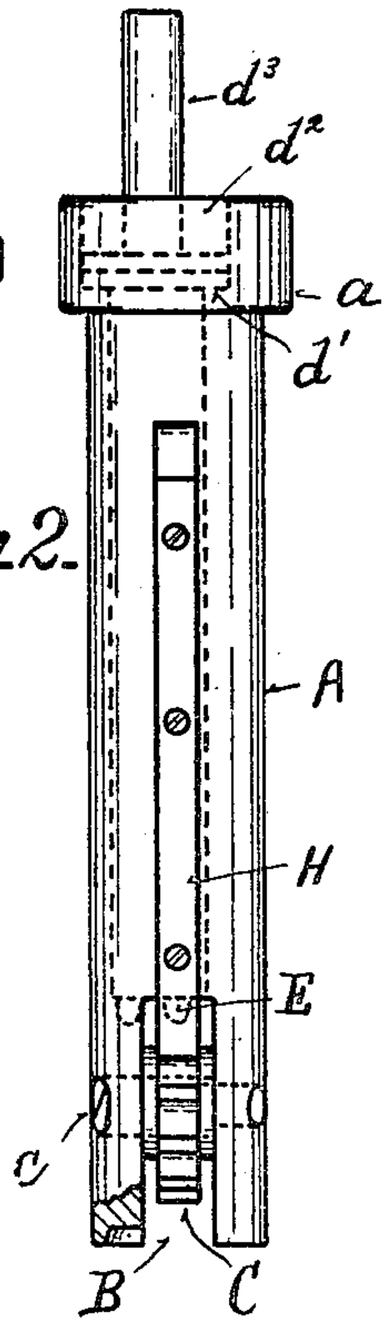


Fig. 2.



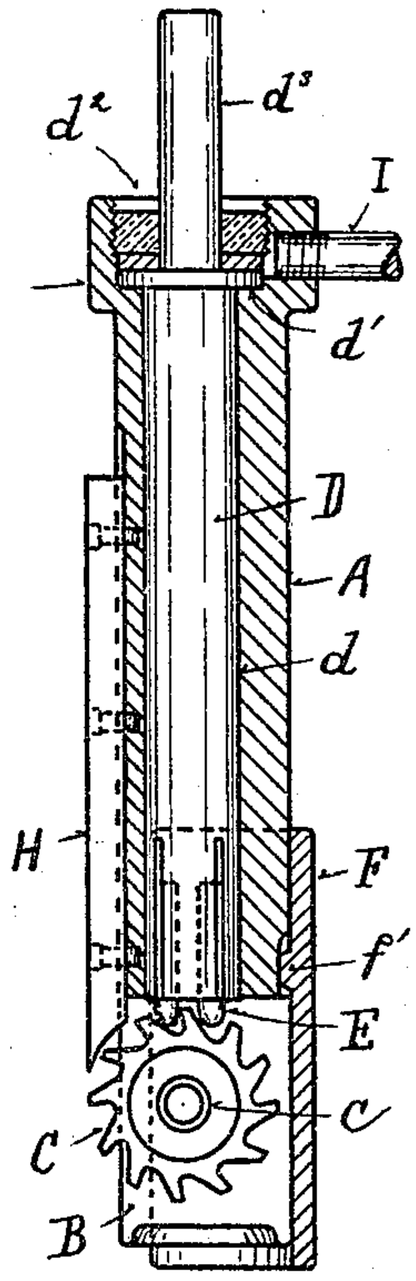


Fig. 3.

Fig. 5.

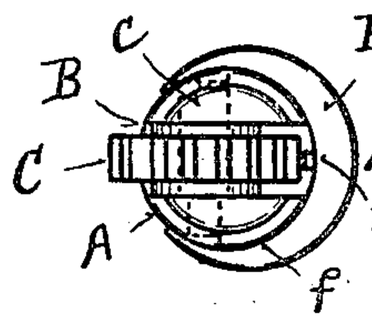


Fig. 4.

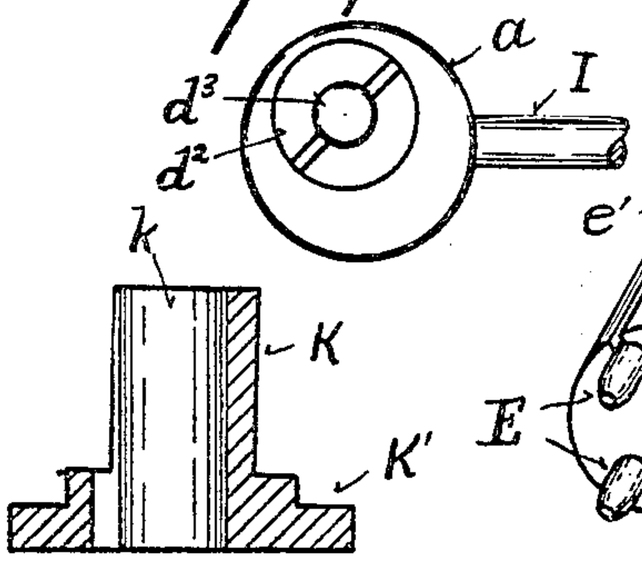


Fig. 6.

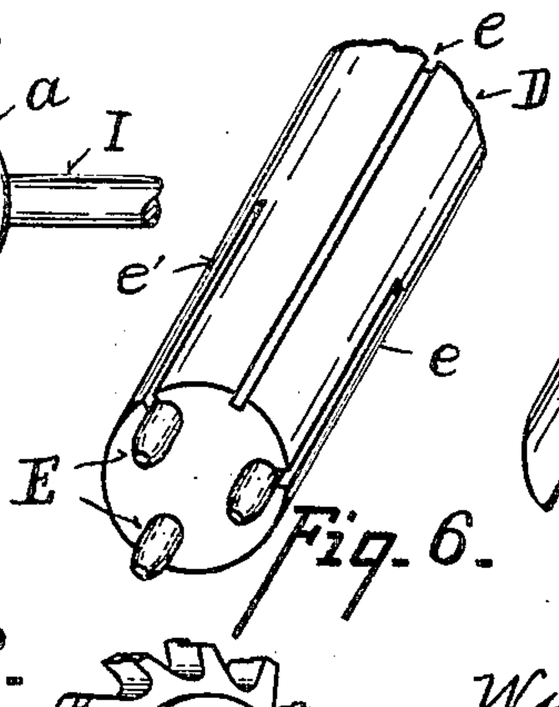


Fig. 7.

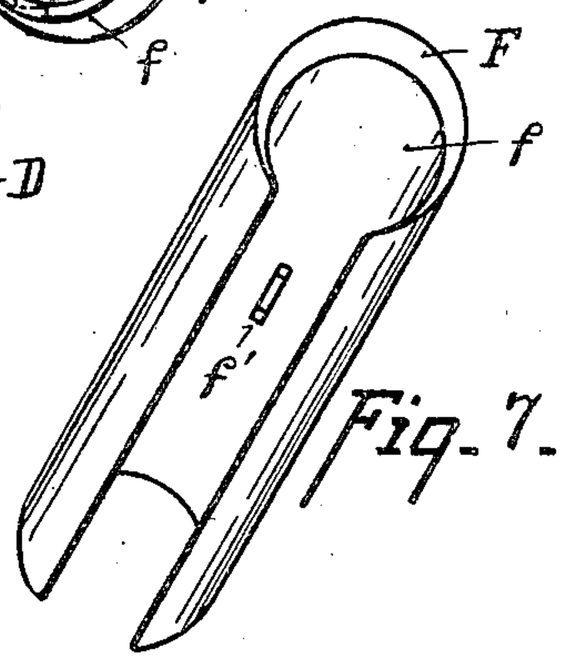


Fig. 8.

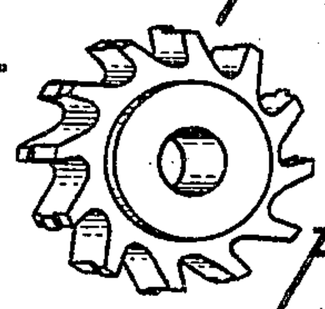


Fig. 9.

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KEY-SEATING TOOL.

No. 795,420. Specification of Letters Patent. Patented July 25, 1905.

Application filed February 6, 1904. Serial No. 192,316.

To all whom it may concern:

Be it known that I, WILLIAM L. SCHELLENBACH, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Key-Seating Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in key-seating tools.

One of its objects is to provide a simple and efficient tool for cutting the key-seat slots in the bores of pulleys, gears, and similar articles.

Another object is to provide a key-seating tool which can be operated by attachment to any rotating mechanism.

Another object is to provide a key-seating tool of great strength and durability, but occupying small space, so that it may be employed for slotting the bores of small articles.

It further consists in certain details of form, combination, and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which—

Figure 1 is a side elevation of my improved tool in position for use. Fig. 2 is a front elevation of the same. Fig. 3 is a central vertical section through Fig. 1. Fig. 4 is a top plan view. Fig. 5 is a bottom plan view. Fig. 6 is a perspective view of the cutter-driving mechanism. Fig. 7 is a perspective view of one of the eccentric sleeves. Fig. 8 is a central vertical section through a form of bushing or sleeve employed to cut tapered slots. Fig. 9 is an enlarged detail of the cutter-wheel.

A represents the tool-casing, which is preferably cylindrical in form and which is usually constructed with an enlarged head *a;* but where long slots are to be cut this head is omitted and the cylinder or casing is of one size throughout. The lower end of the casing is slotted at B and a cutter-wheel C journaled therein upon a screw or pin *c*. This cutter-wheel is driven by means of a shaft or spindle D, which is seated in a recess *d* in the casing, with its upper end d^3 projecting from the upper end of the casing. A collar *d'* and screw-threaded follower d^2 serve to take the end thrust of the shaft D and to provide for its endwise adjustment. The inner end of the shaft D is provided with a series of pins or teeth E, which successively engage the rear faces of the teeth of the cutter-wheel and serve to drive the same. These pins or teeth are preferably made removable, so as to be readily replaced if damaged, which is effected by providing slots *e'*, by means of which the pins may be driven out and replaced. A slot *e* serves to admit oil along the side of the shaft D for lubricating purposes.

In order that bores of different diameters may be slotted with the same tool, I provide a series of sleeves F of successively increasing diameter, each of which has an eccentric bore *f*, within which the tool-casing A seats, being preferably held in place by means of a lug or key *f'* engaging a slot in the rear of the casing A. A tongue or guide H, secured to the tool-casing above the cutter-wheel, follows the cutter-wheel into the slot in the bore of the pulley and acts as a guide to insure a straight and true slot.

I represents a detachable handle screwed into the upper end of the casing A, which is held by the operator to guide the tool in starting the cut and for detaching the tool from the work, as well as to prevent the casing from revolving while the cut is being made.

In operation the work is preferably placed upon the table of a drill-press or other tool having a vertical revolving spindle. The projecting stem d^3 at the upper end of shaft D is secured in the drill-chuck. The tool is then fitted with the proper sized sleeve F to fill the bore to be slotted or used without a sleeve in case the bore is the same diameter as the casing. The casing is then lowered into the bore to be slotted, being held in place by the handle I. The tool is then set in motion so as to revolve the shaft D, which by means of the teeth E engages and rotates the cutter-wheel C to cut the slot. The guide H follows the cutter into the slot and insures a true and straight slot. I preferably employ a cutter-wheel the cutting faces of which are staggered, as shown in Fig. 9, so that the strain on the cutter-wheel is reduced and the cuttings readily fall out of the way.

Where it is desired to cut a tapered slot, I preferably seat the work upon a sleeve of the character shown in Fig. 8, in which the sleeve portion K stands at an angle relative to the base K', while the tool descends vertically through the bore *k*, by which means the slot is tapered or cut deeper at one end than at the other.

It will be noted that while the shaft D may be driven at a comparatively high rate of speed the revolutions of the cutter-wheel are relatively considerably slower, and therefore the strain on the shaft D and driving-teeth is light and not liable to injure the same.

I am therefore enabled to provide a tool simple, strong, and inexpensive, which is of small compass and adapted for use in slotting either small or large bores and which can be readily employed as an attachment to drilling or other tools or separately driven, if desired.

Having described my invention, what I claim is—

1. In a slotting-tool, a casing, a toothed cutter-wheel journaled therein with its teeth projecting at one side of the casing, a spindle journaled in said casing in the direction of the casing-axis and provided at one end with teeth to engage the teeth of the cutter-wheel to drive the same.

2. In a slotting-tool, a cylindrical casing having a handle by means of which it can be guided by the operator, a toothed cutter-wheel journaled in a recess in said casing with its teeth projecting at one side of the casing, a spindle journaled in said casing with one end projecting from the end of casing, and the opposite end provided with teeth to engage the teeth of the cutter-wheel to drive the same.

3. In a slotting-tool, a casing, a toothed cutter-wheel journaled in a recess in said casing with its teeth projecting from one side of the casing, a spindle journaled in said casing in the direction of the casing-axis and provided at one end with teeth to engage the teeth of the cutter-wheel to drive the same, and means carried by the casing for holding the casing eccentrically within and in contact with that portion of the bore to be slotted.

4. In a slotting-tool, a casing, a toothed cutter-wheel journaled in a recess in said casing with its teeth projecting at one side of the casing, a guide mounted along the side of the casing to follow the cutter-wheel into the slot, a spindle journaled within the casing with teeth at one end to engage the teeth of the cutter-wheel to drive the same, and means for holding the casing in contact with the side of the bore to be slotted.

5. In a slotting-tool, a casing, a toothed cutter-wheel journaled in a recess in said casing with its teeth projecting at one side of the casing, a guide at the side of the casing to follow the cutter-wheel into the slot, a spindle journaled within the casing with teeth at one end to engage the teeth of the cutter-wheel to drive the same, and an eccentric sleeve embracing the casing at the point where the cutter-wheel is located.

6. In a slotting-tool, a casing, a toothed cutter-wheel journaled in the casing in a recess therein, a spindle journaled within the casing, means for resisting the endwise thrust of said spindle, teeth at the end of the spindle engaging the teeth of the cutter-wheel to drive the same.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM L. SCHELLENBACH.

Witnesses:
C. W. MILES,
A. L. WILLIAMS.