

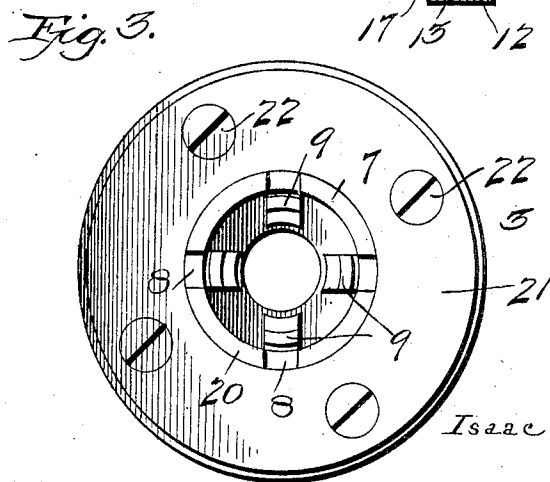
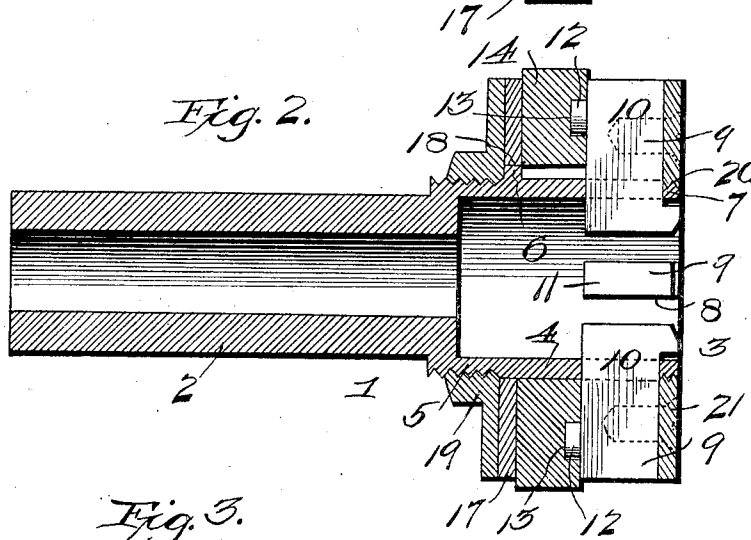
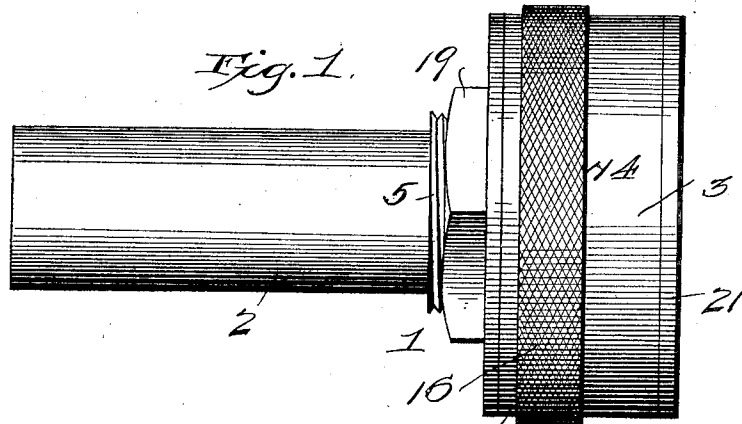
No. 828,632.

PATENTED AUG. 14, 1906.

I. W. SPRINK.
HOLLOW MILLING AND BURNISHING TOOL.

APPLICATION FILED AUG. 29, 1905.

2 SHEETS—SHEET 1.



Witnesses

D. L. Knoch

R. C. Braddock.

Inventor

Isaac W. Sprink

By

S. T. Wolhaupter

Attorney

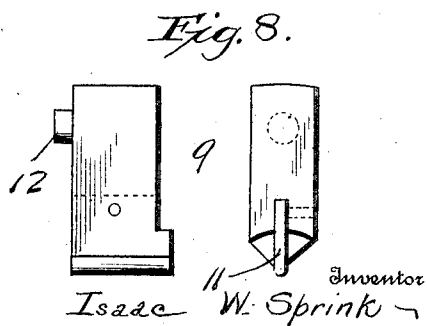
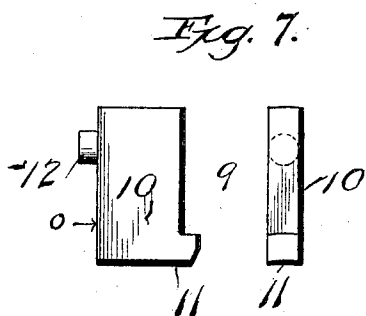
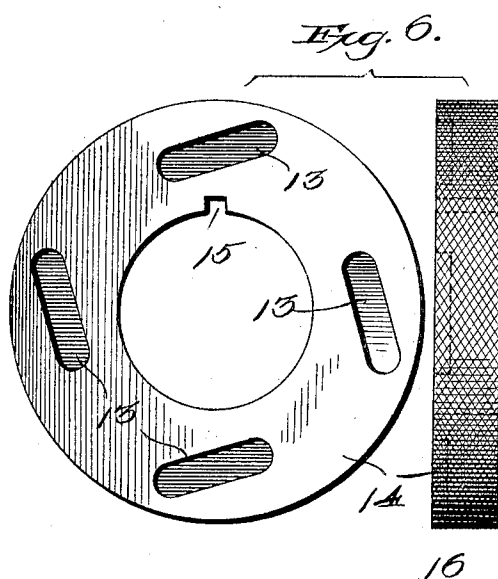
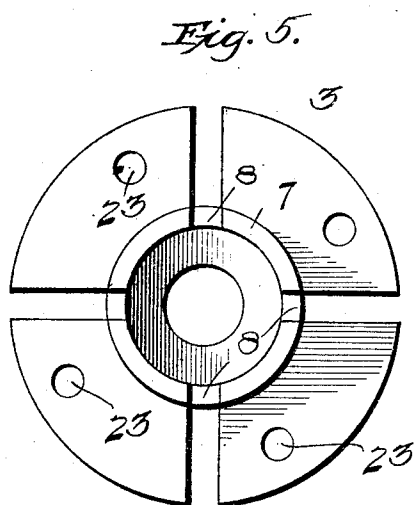
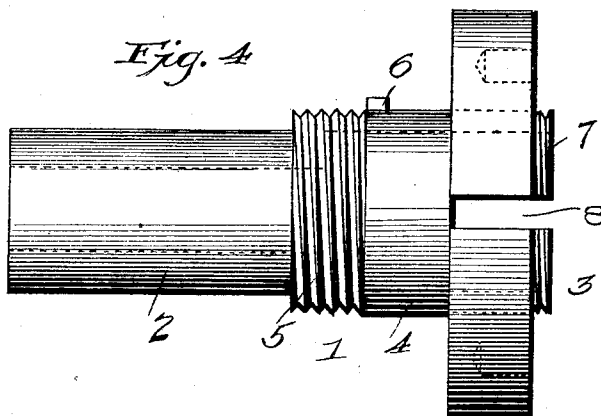
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2 SHEETS-SHEET 2.



Witness
D. L. Mocham
R. C. Braddock.

By *D. P. Wolhaupter*
Attorney

UNITED STATES PATENT OFFICE.

ISAAC W. SPRINK, OF SCOTTDAL, PENNSYLVANIA, ASSIGNOR TO JOSEPH R. STAUFFER, OF SCOTTDAL, PENNSYLVANIA.

HOLLOW MILLING AND BURNISHING TOOL.

No. 828,632.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed August 29, 1905. Serial No. 276,203.

To all whom it may concern:

Be it known that I, ISAAC W. SPRINK, a citizen of the United States, residing at Scottsdale, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Hollow Milling and Burnishing Tools, of which the following is a specification.

This invention relates to metal-working, and has special reference to that type of metal-working tools known as "rotary cutters."

To this end the invention contemplates a simple, strong, and thoroughly practical construction of tool designed for the accurate threading of interchangeable parts—such as pipe, bolts, and brass goods—and also designed for use as a hollow milling-tool. In this connection the tool when employed as a die or hollow milling-tool provides for an adjustment of three thirty-seconds of an inch over and three thirty-seconds of an inch under the standard size of the ordinary threaded chasers or hollow milling-cutters.

Another object of the invention is to provide a rotary cutter having such a compact arrangement of elements as to provide practically a solid die. Also the improved construction dispenses with all small set-screws, pins, and numerous other similar or weak contrivances now almost universally employed in tools of this general character.

A further object of the invention is to provide a construction of tool-head readily adapted for different forms of tool-bits, thus permitting the tool to be utilized as a burnishing-tool, in addition to the functions already ascribed to it.

With these and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts herein after more fully described, illustrated, and claimed.

The essential features of the invention involved in carrying out the objects above indicated are necessarily susceptible to structural change, but a preferred construction is shown in the accompanying drawings, in which—

Figure 1 is an elevation of a rotary metal-working tool embodying the present invention. Fig. 2 is a longitudinal sectional view

thereof. Fig. 3 is a face or end view of Fig. 2. Fig. 4 is an elevation of the body portion of the tool with the movable parts removed. Fig. 5 is a face view of the tool-head. Fig. 6 is an elevation and edge view of the oscillatory adjusting-ring. Fig. 7 is an elevation and projected edge view of one form of tool-bit that may be employed in the tool-head. Fig. 8 is a similar view of another form of bit that may be employed.

Like references designate corresponding parts in the several figures of the drawings.

In carrying out the present invention the various elements of the tool are associated with a body portion 1, essentially comprising a hollow stem 2, provided at one end with an integral and rigid tool-head 3. At one side of this tool-head the body portion is provided with a cylindrical bearing-hub 4, having a threaded section 5 and also provided at an intermediate point with a laterally-offset locking-lug 6, the function of which will presently appear. At the side of the tool-head 3 opposite the bearing-hub 4 the body is provided with a short projecting supporting-neck 7, which is exteriorly threaded and is pierced by a plurality of radial bit-slots 8. These bit-slots extend radially through the body of the head 3 from the center to the periphery thereof and are designed to slidably accommodate therein the radially-adjustable tool-bits 9. Each of the tool-bits essentially consists of a flat shank portion 10, freely sliding in the slot 8 accommodating the same, and a projecting cutting element 11, designed to operate on the work.

The flat shank portions 10 of the tool-bits are provided at what may be termed their "inner" edges with inwardly-projecting engaging studs 12, engaging the camming-slots 13, formed in the body of the oscillatory adjusting-ring 14. The oblique camming-slots 13 are arranged in regularly-spaced relation corresponding to the positions of the radial bit-slots 8, and the said ring is designed to snugly and loosely register on the bearing-hub 5 at the inner side of the slotted tool-head 3. To permit removal of parts, the ring 14 is provided in its inner edge with a clearance-notch 15, which clears the locking-lug 6 as the ring is put in place or taken off.

The adjusting-ring 14 is of slightly-greater diameter than the tool-head 3 and is provided with a heavily-knurled rim 16, which

affords a firm grip for the hand to permit of the adjustment of the bits without the aid of an extra tool. The said ring is properly held in working position through the medium of a bearing-washer 17, fitting against one side thereof and having in its inner edge a holding-notch 18, which interlocks with the lug 6, and the said washer is held up against the adjusting-ring through the medium of a flanged locking-nut 19, screwed onto the threaded section of the hub 4.

The projecting supporting-neck at the outer side of the tool-head is engaged by the threaded inner edge 20 of the ring face-plate 21. This face-plate is turned up against the outer side of the head 3 and also receives a plurality of fastening-screws 22, extending into the threaded sockets 23, provided in the tool-head 3. This construction—namely, the face-plate mounting in connection with the tool-head—makes this part of the tool as strong as though it were solid.

It will be obvious that by turning the ring 14 in either direction the bits will be moved toward and from the axis, thus decreasing or increasing the working diameter.

A feature of the construction to note is that the width of the bits or cutters at 0, Fig. 7, is a very small fraction of an inch wider than the width of the slots 8 in the head 3. Hence when the locking-nut is screwed home the bits are forced against the face-plate, thus holding them firm and solid.

The keyed washer takes all the friction caused by the locking-nut.

The form of tool-bit shown in Fig. 7 is what is commonly known as a "threaded chaser," while the form of bit shown in Fig. 8 has as its cutting element 11 an inserted hardened-steel burnishing-tool, which adapts the tool for use as a burnisher on straight cylindrical work, such as brass bolts, valve-stems, &c.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit

or sacrificing any of the advantages of the invention.

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

1. A metal-working tool comprising a hollow body portion having a tool-head provided with a plurality of radial bit-slots, radially-adjustable tool-bits mounted in said slots and provided with inwardly-projecting studs, an adjusting-ring rotatably mounted at the inner side of said head and having a series of camming-slots engaging the studs of the bits, locking means arranged to hold the adjusting-ring in place, and a face-plate arranged over the outer sides of the slots and having a fastening connection with the tool-head.

2. A rotary metal-working tool, comprising a hollow body portion having a tool-head provided with a plurality of radial bit-slots, said body portion being further provided at the outer side of the head with a threaded supporting-neck intersected by said slots, and at the opposite side of said head with a bearing-hub having a threaded section and a locking-lug, radially-adjustable tool-bits slidably mounted in said slots and provided with inwardly-projected engaging studs, an adjusting-ring mounted on the bearing-hub and having a series of oblique camming-slots engaging the studs of the bits, a bearing-washer arranged against the adjusting-ring and interlocked with the locking-lug, a locking-nut fitted on the threaded section of the bearing-hub, and a face-plate screwed onto said supporting-neck and having a separate fastening connection with the tool-head.

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

ISAAC W. SPRINK.

Witnesses:

JOHN D. SISLEY,
M. L. McFARLAND.