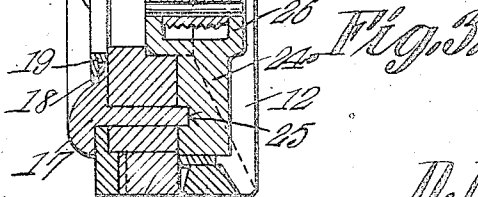
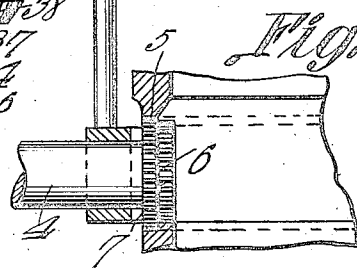
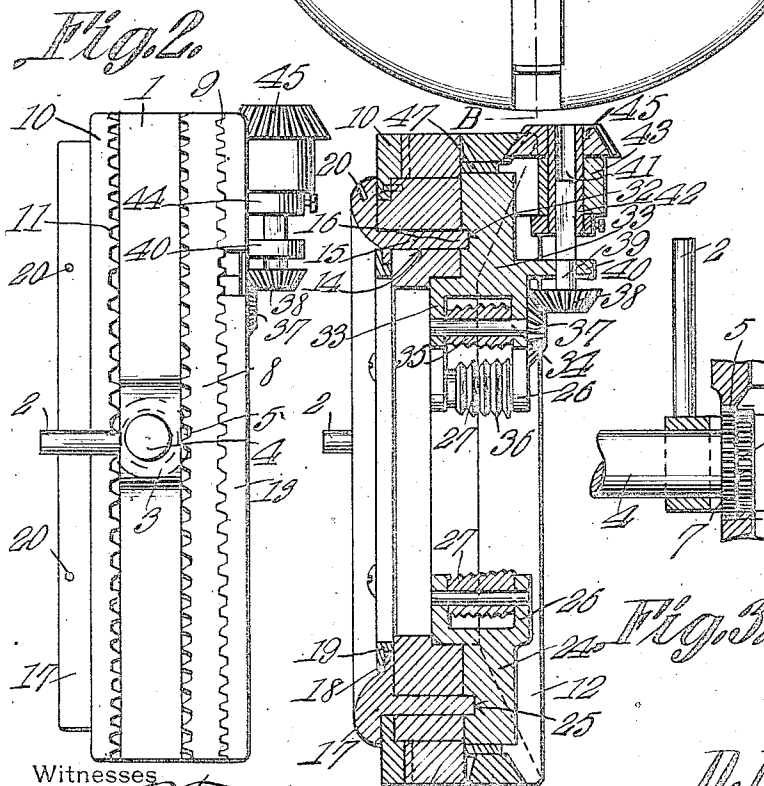
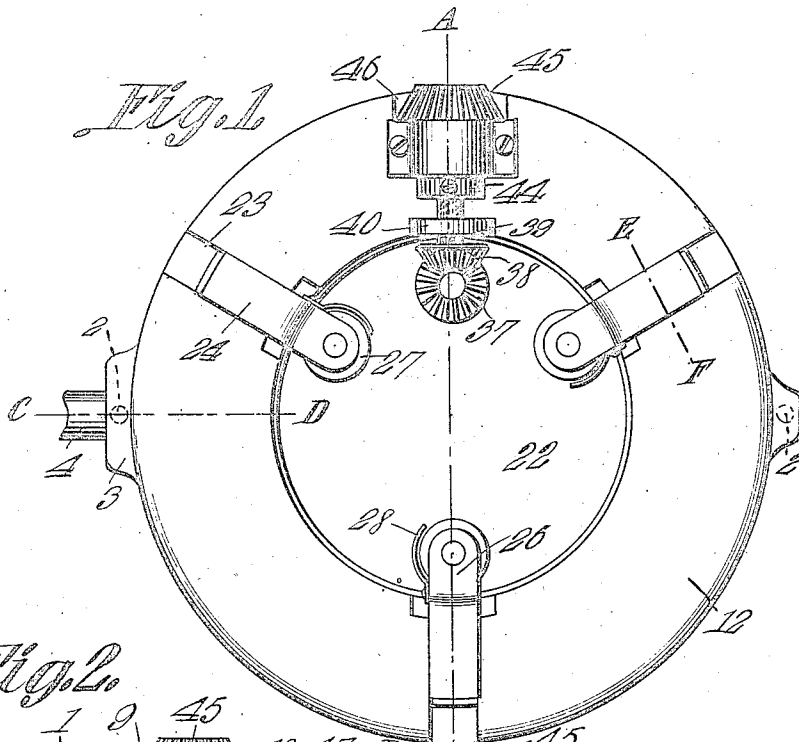


D. DREIER.
MILLING THREAD CUTTER.
APPLICATION FILED JULY 19, 1912.

1,064,198.

Patented June 10, 1913.

2 SHEETS—SHEET 1.



Witnesses

J. F. Peacock
K. F. Peacock

by

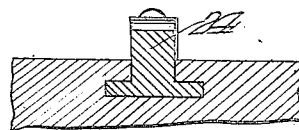
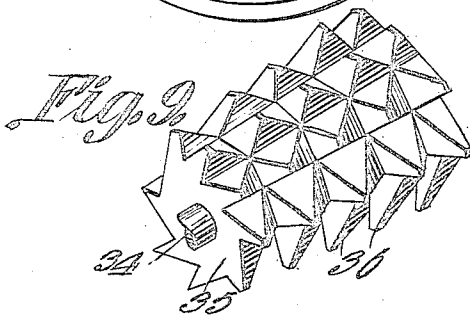
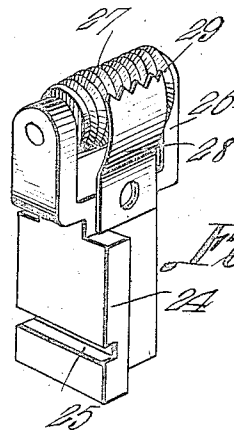
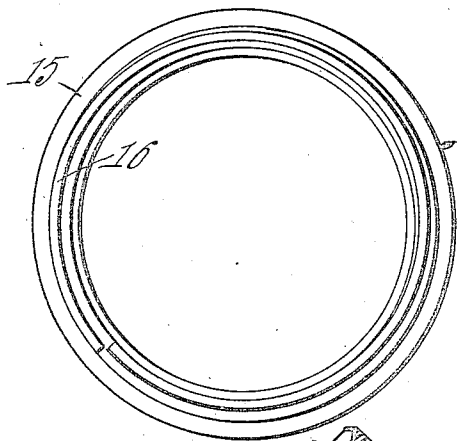
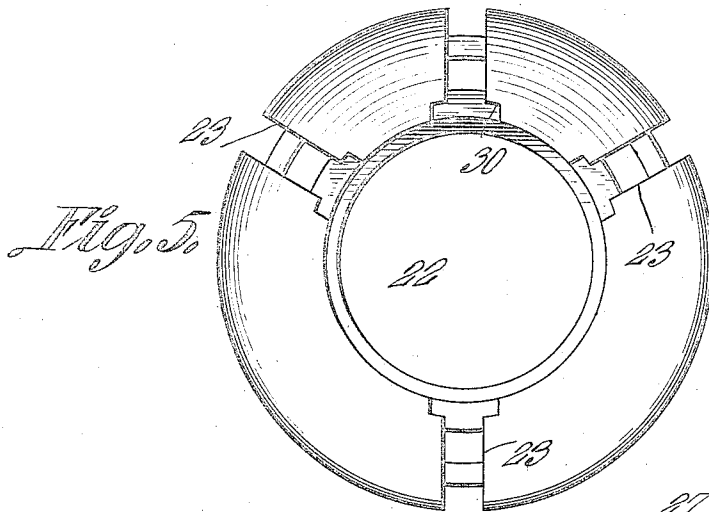
D. Dreier, Inventor
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Attorneys

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

DOMINICK DREIER, OF LIVINGSTON, MONTANA.

MILLING-THREAD CUTTER.

1,064,198.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed July 19, 1912. Serial No. 710,519.

To all whom it may concern:

Be it known that I, DOMINICK DREIER, a citizen of the United States, residing at Livingston, in the county of Park and State of Montana, have invented a new and useful Milling-Thread Cutter, of which the following is a specification.

This invention relates to devices for cutting and finishing threads on pipes and the like and is more particularly designed as an improvement upon the structure disclosed in Patent No. 981,624, issued to me on January 17, 1911.

One of the objects of the invention is to provide a die holder mounted for rotation within a stationary bearing ring, said ring carrying means cooperating with the die holder whereby said holder may be rotated at any desired speed.

Another object is to provide a milling tool having mechanism whereby it can be rotated at any speed desired about its individual axis and during the rotation of the die holder.

Another object is to provide improved means whereby the dies can be adjusted radially.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings: Figure 1 is a front elevation of the tool. Fig. 2 is a side elevation thereof. Fig. 3 is a section on line A—B Fig. 1. Fig. 4 is a section on line C—D Fig. 1, parts being broken away and said view being on an enlarged scale. Fig. 5 is a front elevation of the die holder and with the dies and their brackets removed. Fig. 6 is a face view of the adjusting ring. Fig. 7 is a section on line E—F Fig. 1, said section being taken through a portion of the structure. Fig. 8 is a perspective view of one of the dies and its bracket or slide. Fig. 9 is a detail view of the milling tool.

Referring to the figures by characters of

reference 1 designates a bearing ring having fingers 2 extending from one face thereof at diametrically opposed points and adapted to be engaged by suitable supports whereby the bearing ring will be held fixed during the formation of threads. An enlargement 3 is formed upon the periphery of the bearing ring and has a drive shaft 4 journaled therein, said shaft having a large gear 5 and a small gear 6 secured to it; these gears being mounted for rotation within a recess 7 formed in the bearing ring and directly back of the enlargement 3. One of the gears, 5, meshes with gear teeth extending throughout the length of one face of a ring 8 bearing upon one side of the fixed ring 1, the other face of the ring 8 being also provided with teeth, such as shown at 9, and which extend throughout the length of said face. Thus ring 8 constitutes a two-faced gear, the teeth on one face meshing with the gear 5 while the teeth on the other face are for the purpose hereinafter set forth. A third ring 10 is provided and bears upon one face of the fixed ring 1, this ring 10 being provided, on its inner face, with an annular series of teeth 11. Thus it will be seen that three rings are provided, the fixed ring 1 being interposed between the gear rings 8 and 10.

A cylindrical die holder 12 is mounted for rotation within the three rings 1, 8, and 10 and is provided, at one end, with an annular flange 13 which laps the outer series of teeth 9. The other end of the holder 12 has an annular groove or channel 14 and mounted for rotation in this channel is an adjusting ring 15 having a spiral thread 16 upon its innermost face while its outer face is provided with an outstanding annular flange 17. This flange serves to lap the ring 10 and hold it against displacement relative to the ring 1. An inwardly directed flange 18 is formed within the outer portion of the ring 15 and is lapped by a retaining ring 19 which is secured in any suitable manner to the end of the die holder 12. Openings 20 are formed in the flange 17 of the adjusting ring 15 and are adapted to receive pins or the like whereby the said pin 15 can be rotated relative to the die holder 12.

That end of the die holder from which the flange 13 extends is dished or concaved and merges into the wall of the central circular opening 22 of the die holder. Radially disposed channels 23 are formed in the con-

caved end of the die holder at about 120 degrees apart and the side walls of these channels overhang the spaces therebetween so as to lap and retain slides 24 mounted in the channels and movable radially of the die holder. Each of these slides has a transverse groove 25 in its back face designed to receive a portion of the spiral thread 16, it being understood that the channels 23 open into the groove or channel 14 so that the slides 24 are thus in position to be engaged by the thread 16.

Each of the slides 24 has a yoke 26 at its inner end carrying the tapered or frusto-conical dies journaled therein, each die being provided with peripheral ribs. These dies have been indicated at 27 and are similar to those disclosed in my patent hereinbefore mentioned. A spring blade 28 is preferably connected to each yoke and is adapted to follow the die during the formation of threads, the free end of the blade being toothed as at 29 so as to clean out the grooves in which the dies travel.

Formed in the concaved end of the die holder 12 at a point midway between two of the channels 23, is another radially disposed channel 30 similar to the channels 23 and likewise communicating with the groove or channel 14. A slide 31 is movably mounted in this channel 30 and has a transverse groove 32 for the reception of a portion of the thread 16. A yoke 33 is formed at the inner end of the slide and journaled in this yoke is a shaft 34 to which is secured a frusto-conical milling tool 35 having an annular series of teeth outstanding therefrom. These teeth have been indicated at 36.

A gear 37 is secured to the shaft 34 and meshes with another gear 38 secured to or formed with a shaft 39 which is journaled in an ear 40 extending outwardly from the slide 31. The free end portion of this shaft is angular in cross sectional contour and is slidably mounted within an angular passage 41 formed in a sleeve 42 which is journaled in a bracket 43 outstanding from the die holder 12. A collar 44 is secured to the sleeve and serves to hold it against withdrawal from the bearing bracket 43 and a gear 45 is secured to the outer end of the sleeve and meshes with the teeth 9 of ring 8, there being an opening 46 in the holder 12 through which the gear 45 extends so as to engage the ring 8. If desired, and as shown in Fig. 3, a wear ring 47 may be interposed between the fixed ring 1 and the adjacent portion of the die holder 12.

In using the device hereindescribed the fingers 2 are connected to a suitable supporting structure so as thus to hold ring 1 fixed. Shaft 4 is then set in motion and the gear 5 thereon will operate to drive the ring 8 in one direction while the other gear 6 operates to drive the ring 10 in the oppo-

site direction. As the die holder is fixedly connected to the ring 10, preferably by means of screws 48 or the like, it will thus be seen that the die holder will rotate within the fixed ring 1 so that the dies will be caused to move around the stock which extends through the opening 22 in the die holder. During this rotation of the die holder, the rotating ring 8 transmits motion through its teeth 9 and the gear 45 to sleeve 42 and shaft 39 so that gear 38 thus operates to rotate gear 37 and shaft 34 and causes the milling tool 35 to rotate. The teeth on the milling tool thus operate to cut grooves into the stock and the frusto-conical dies 27, which follow the milling tool, operate to finish the grooves and thus complete the formation of the threads on the stock. The dies and milling tool can be easily adjusted toward or away from the axis of rotation of the die holder, simply by rotating the adjusting ring 10 so as to cause the spiral thread 16 to simultaneously shift the slides 21 and 31 toward or from each other. By changing the gears 5 and 6, the relative speed of rotation of the rings 8 and 10 can be varied as desired.

What is claimed is:—

1. In a device of the class described, the combination with a die holder, and revoluble dies mounted therein, of a revoluble milling tool mounted within the die holder, a shaft, and separate means operated by the shaft for simultaneously rotating the die holder and the milling tool about respective axes.

2. A device of the class described including a die holder, revoluble dies therein and movable therewith, a milling tool within the die holder, a drive shaft, separate means operated by the drive shaft for simultaneously rotating the die holder and the milling tool about their individual axes, and means for simultaneously adjusting the milling tool and the revoluble die radially toward or from each other.

3. A device of the class described including a die holder, said holder having an annular groove, there being radial channels extending in the groove, slides mounted in the channels, revoluble dies carried by certain of the slides, a revoluble milling tool carried by the other slide, an adjusting ring mounted for rotation within the annular groove and having a spiral thread engaging the slide, a drive shaft, and separate means operated by said shaft for simultaneously rotating the die holder and the milling tool about their respective axes.

4. A device of the class described including a die holder, said holder having an annular groove, there being radial channels extending into the groove, slides mounted in the channels, revoluble dies carried by certain of the slides, a revoluble milling tool

carried by the other slide, an adjusting ring mounted for rotation within the annular groove and having a spiral thread engaging the slide.

- 5 5. A device of the class described including a die holder, said holder having an annular groove, there being radial channels extending into the groove, slides mounted in the channels, revoluble dies carried by certain of the slides, a revoluble milling tool
10 carried by the other slide, an adjusting ring mounted for rotation within the annular groove and having a spiral thread engaging the slide, a drive shaft, means operated
15 thereby for rotating the die holder about its axis, and additional means operated by the shaft for rotating the milling tool about its axis, said means including an extensible shaft permitting the adjustment of the mill-
20 ing tool radially within the die holder.

6. In a device of the class described the combination with a die holder and an annular toothed member secured to the die

holder, of a toothed ring mounted for rotation on the die holder, a fixed ring extending around the die holder and between said annular toothed member and the toothed ring, gears mounted for rotation and engaging the toothed annular member and the toothed ring respectively, a telescopic shaft journaled upon the die holder, a gear thereon meshing with the toothed ring, a slide connected to the die holder and adjustable radially, a revoluble milling tool carried by the slide, a gear revoluble with said tool, and a gear revoluble with the telescopic shaft and meshing with the gear on the milling tool. 25 30 35

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 40

DOMINICK DREIER.

Witnesses:

E. M. NILES,
DOROTHY POLSON.