

(No Model.)

H. C. BRADFORD.
ADJUSTABLE TAP.

No. 423,409.

Patented Mar. 18, 1890.

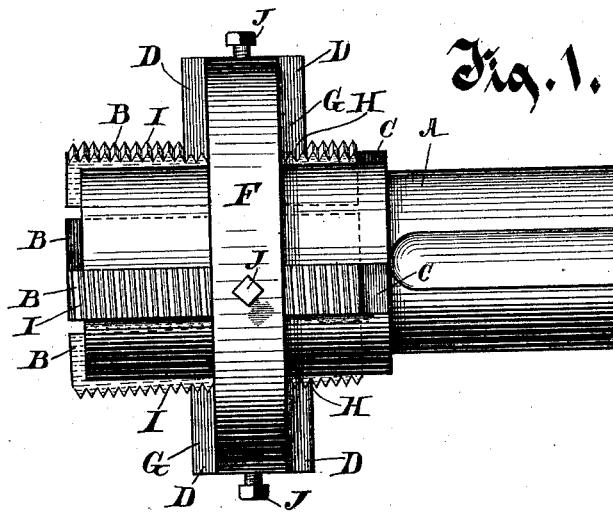


Fig. 1.

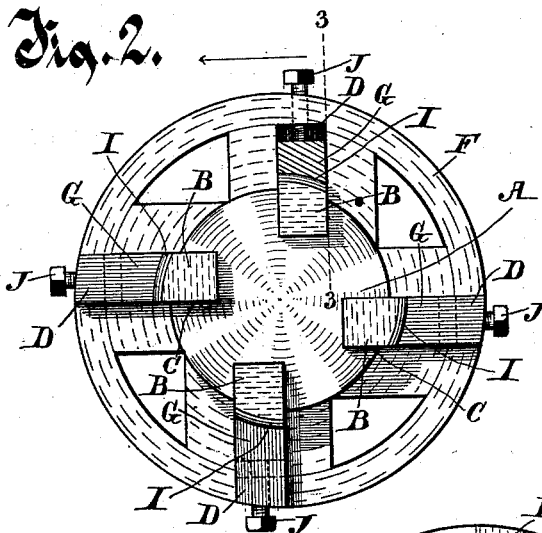


Fig. 2.

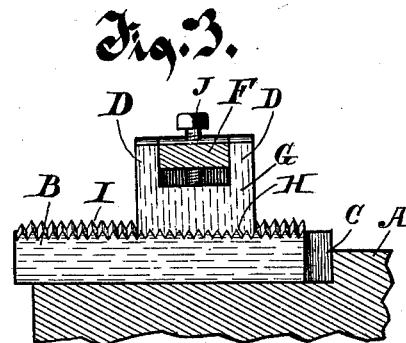


Fig. 3.

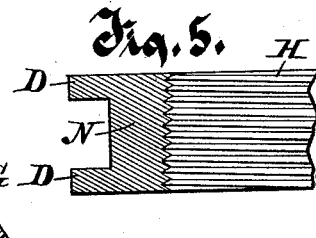


Fig. 5.

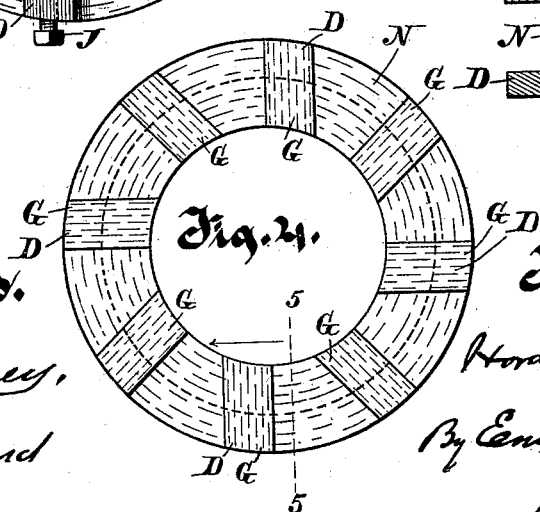


Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

HORACE C. BRADFORD, OF MILWAUKEE, WISCONSIN.

ADJUSTABLE TAP.

SPECIFICATION forming part of Letters Patent No. 423,409, dated March 18, 1890.

Application filed October 26, 1889. Serial No. 328,318. (No model.)

To all whom it may concern:

Be it known that I, HORACE C. BRADFORD, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Adjustable Taps; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in adjustable taps for cutting the interior screw-threads of pipes, screw-threaded nuts, &c., and it pertains more especially to the mechanism by which the taps are adjusted forward from time to time as their front ends become worn away.

It is a fact well known that the greater part of the work of a tap is performed by its front end, whereby such parts are first worn away and become inoperative, while the rear ends of the taps are comparatively but little worn. By my device for holding taps they may from time to time, as their front ends become worn or dull, be removed, and such worn parts may be ground away when the taps are adjusted forward, whereby the life of the tap may be greatly prolonged.

The construction of my invention is explained by reference to the accompanying drawings, in which—

Figure 1 is a side view of the device. Fig. 2 is a front view of the same device, part in section. Fig. 3 is a detail drawn on line 3 3 of Fig. 2. Fig. 4 is a front view of a cylindrical block of metal from which the gibs or clamping-pieces hereinafter described are cut. Fig. 5 is a cross-section of the block shown in Fig. 4, drawn on line 5 5 of Fig. 4.

Like parts are represented by the same reference-letters throughout the several views.

A represents the chuck or collet by which my adjustable taps are held in place and operated.

B B B are the thread-cutting taps, which are held in place in grooves C formed therefor in the collet or chuck.

Surrounding the collet A is a heavy metallic band F, which is shrunk upon and rigidly affixed to the periphery of the collet.

The several taps B are inserted in their respective grooves from the front end of the collet beneath the band F, when the tap-retaining gibs or clamps G G are inserted above the taps and between them and the tap-retaining band F. The lower or inner surface of the several gibs or clamps G are provided with a series of screw-threads H, corresponding in size and pitch with the threads I of the cutting-taps, whereby it is obvious that when the tap-retaining gibs are in place beneath the inclosing-band F the threads H of such clamps engage upon the cutting-threads I of the taps, whereby all the threads of the several taps are retained in their proper relative position to each other for work. When the several gibs or clamps G have been thus interposed between the inclosing-band F and the cutting-taps I, said clamps are forced centrally inward against the respective taps by the clamp-retaining screws J, which have threaded bearings in said inclosing-band F, whereby said taps are held rigidly and firmly in place. The tap-retaining grooves C are preferably tapered outwardly toward the front end of the collet, whereby the front ends of the taps are when secured in place given a slight taper outwardly from the center of the collet toward their front ends, by which arrangement, the tap being largest at its front end, the aperture cut thereby will be slightly larger than the rear part of the tap which follows, whereby the desired clearance is given to the tap. It is obvious that when the end threads of the several taps (or any one of them) become dull or inoperative said tap is readily removed by first unscrewing the set-screw J and raising the tap-retaining clamp G, which engages thereon. When the tap has been thus removed, the front or worn end may be ground away and the tap replaced beneath the retaining-clamp G.

To insure great accuracy in the construction of the tap-retaining gibs or clamps, as is required to secure the several taps in their proper relative position to each other for work, said gibs or clamps are all cut from a single screw-threaded cylinder in the following manner: A hollow cylindrical block of metal N (shown at Fig. 4) is first provided

with a tapered screw-thread H upon its interior wall of the desired pitch and size, corresponding in size and pitch with the thread upon the several taps, when said cylindrical block is then cut longitudinally in sections in the manner indicated in Fig. 4. It will be understood that by this method of construction the bearing-surfaces of the several gibs or clamping-pieces will form segments of the same circle, and that when these gibs or clamping-pieces are arranged in place beneath the retaining-band F and against the several taps the cutting-edges of said taps will be thereby brought into the proper relative position to each other for work, and when operated will form a continuous thread of the desired pitch and taper upon the pipe or work to be cut. The gibs or clamping-pieces G are each provided with outward-projecting flanges D D, which engage upon the respective sides of the retaining-band F and facilitate in holding said clamping-pieces in place.

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

In an adjustable tap, the combination of the collet A, provided with tap-retaining grooves C, cutting-taps B, located in their respective grooves C, inclosing-band F, surrounding said taps, tap-retaining gibs or clamping-pieces G, provided with outward-projecting flanges D, and adjusting-screws J, operating in said inclosing-band F and engaging at their inner ends against said tap-retaining clamps or gibs G, said gibs G being interposed between said inclosing-band F and the several cutting-taps B, the threads of said clamps G being adapted to engage in the threads I of the cutting-taps, while the outward-projecting flanges D D of said clamps engage upon the respective sides of said retaining-band F, substantially as and for the purpose specified.

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

HORACE C. BRADFORD.

Witnesses:

JAS. B. ERWIN,
C. T. BENEDICT.