(No Model.)

G. HOLSTEIN.

DIE FOR CUTTING SCREWS.

No. 350,366. Patented Oct. 5, 1886.

Fig. 1

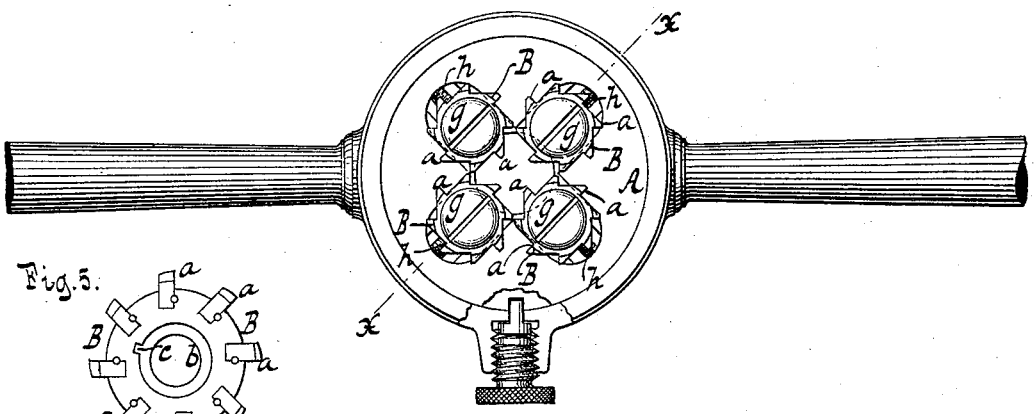


Fig. 5.

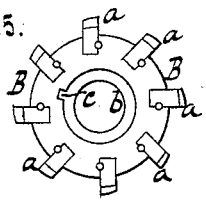


Fig. 6.

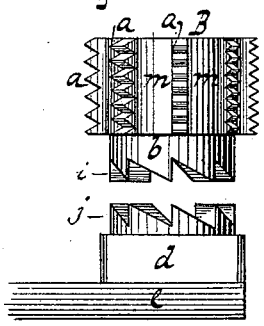


Fig. 2.

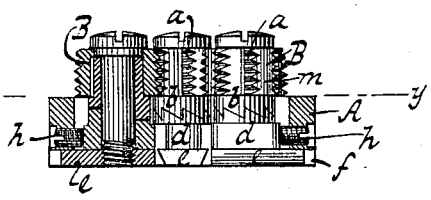


Fig. 3.

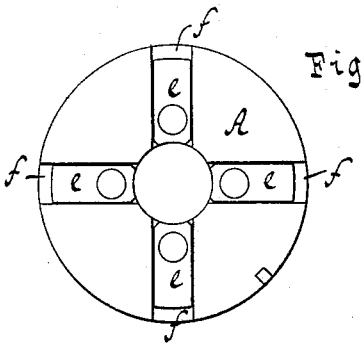
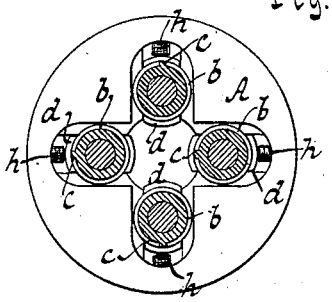


Fig. 4.



WITNESSES:

Otto Hufeland

William Miller

INVENTOR

George Holstein

BY

Van Santvoord & Hauff,

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE HOLSTEIN, OF SPUYTEN DUYVIL, NEW YORK.

DIE FOR CUTTING SCREWS.

SPECIFICATION forming part of Letters Patent No. 350,366, dated October 5, 1886.

Application filed June 17, 1886. Serial No. 205,447. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HOLSTEIN, a citizen of the United States, residing at Spuyten Duyvil, in the county of New York and State of New York, have invented new and useful Improvements in Dies for Cutting Screws, of which the following is a specification.

This invention relates to dies for cutting screw-threads; and it consists in certain novel features of construction, which are fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my die, showing it secured in a wrench. Fig. 2 is a cross section of the same in the plane *x x*, Fig. 1. Fig. 3 is a bottom view. Fig. 4 is a horizontal section in the plane *y y*, Fig. 2. Figs. 5 and 6 are views of a modified form of cutting-hub.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the die-plate, which carries a number of radially-adjustable cutting-hubs, B, which are arranged around a central opening in said die-plate, which will permit the passage of the article on which the thread is to be cut. Each of the hubs B is provided with two or more available cutting-edges, *a*, and is firmly mounted on a hollow bushing, *b*, by means of a feather-key, *c*. In the lower end of this bushing is cut a series of ratchet-teeth, *i*, corresponding in number to the number of cutting-edges on the hub, and so arranged that the front face of each such tooth comes directly under one of the cutting-edges. (See Fig. 6.) The ratchet-teeth on the bushing *b* engage corresponding teeth, *j*, cut into the upper surface of a hollow guide-block, *d*. This guide-block rests on a slide, *e*, which is fitted into a groove, *f*, in the under surface of the die-plate A.

All the above parts are connected and held together by a screw, *g*, which passes through the hub B, the bushing *b*, and the guide-block *d*, and is tapped into the slide *e*, the whole being arranged to be radially adjusted by means of the set-screw *h*, which is threaded in the die-plate. When the proper adjustment for the cutting-hub and the parts connected to the same has been found, they can be firmly held in position by tightening the screw *g*, which serves to clamp the cutting-hub against the face of the die-plate. The threads on the screws *g* are, by preference, left-handed if the threads on the cutting-hub are right-handed, and vice versa.

The cutting hubs B may be either made of one piece of metal, in which the cutting-edges have been formed by means of grooves or recesses, as shown in Figs. 1 and 2, or the cutting-edges may consist of inserted cutting blades or "chasers," as shown in Figs. 6 and 7, the latter method of construction being preferred where the cutting-hubs are of a larger size and intended for heavy work.

The threads in the cutting-edges of the hubs are formed by placing the hubs B, into which grooves *m* have been previously cut, in proper position on the die-plates and tapping the same in the usual way by a tap or thread cutting hub, the advantage of this method being that the teeth thus formed on the cutting-edges of the various hubs will at once be in proper relation to each other, and will cut a perfect thread; but it is evident that the cutting-edges of the hubs may also be formed in various other ways. Each of the cutting-edges of the cutting-hubs B may be formed to cut a screw-thread of different pitch, and by this means a die is obtained by which various threads can be cut without removing any of the parts, it being only necessary to loosen the screws *g*, turn the hubs B until the cutting-edge for the desired thread comes opposite the cutting-point, and then again tighten these screws. To insure the proper placing of the cutting-edges during this operation, I have provided the above-described ratchet-teeth, both on the bushing *b* and the guide-block *d*, the relative position of these teeth and the cutting-edges being such as always to insure the most effective position for the cutting-edges.

When desired, all the cutting-edges on the cutting-hubs can be formed to cut the same thread, so that when one of these edges becomes dull or is broken it can be replaced by turning that hub and bringing one of the other cutting-edges thereon to the cutting position.

If it is found necessary to move all the cutting-hubs toward or from the center simultaneously, any of the devices generally used in what is known as "universal" lathe-chucks

may be applied to the slides *e;* but I prefer the form shown in the drawings.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the die-plate A and a series of radially-adjustable slides, *e*, of the tubular hubs B, each having a series of available cutting-edges, and the screws *g*, passing through the hubs and tapped into the adjustable slides, substantially as described.

2. The combination, with a hub for cutting screw-threads on bolts, said hub being provided with two or more available cutting-edges, of the ratchet-teeth *i*, formed on said hub, the ratchet-teeth *j*, and a die-plate, A, carrying the ratchet-teeth *j*, substantially as described.

3. The combination, with a hub for cutting screw-threads on bolts, said hub being provided with two or more available cutting-edges, of the bushing *b*, ratchet-teeth *i*, formed on said bushing, the ratchet-teeth *j*, and a die-plate, A, carrying the ratchet-teeth *j*, substantially as described.

4. The combination, with a die-plate, A, of three or more hubs, B, each of which is provided with two or more available cutting-edges, and means, substantially as described, for radially adjusting all the hubs on said die-plate, substantially as described.

5. The combination, with a die-plate, A, of two or more cutting-hubs, B, each of which is provided with two or more available cutting-edges, of the bushing *b*, ratchet-teeth *i*, formed on said bushing, the guide-block *d*, ratchet-teeth *j*, formed in said guide-block and adapted to engage the teeth *i* of the slide *e*, removable connections between said slide, the cutting-hub, the bushing, and the guide-block, and the adjusting-screw *h*, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GEORGE HOLSTEIN. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.