(No Model.)

J. C. WILLIAMS.

LATHE CHUCK.

No. 355,237. Patented Dec. 28, 1886.

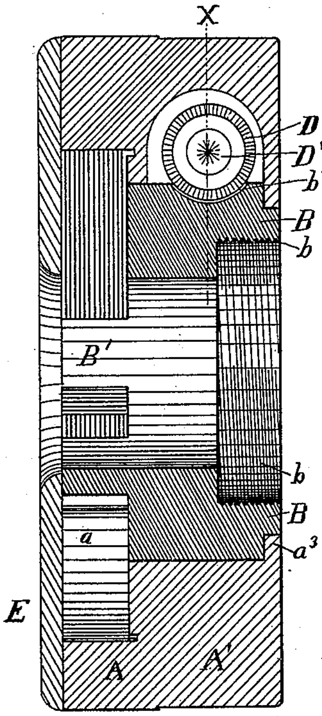


Fig. 3

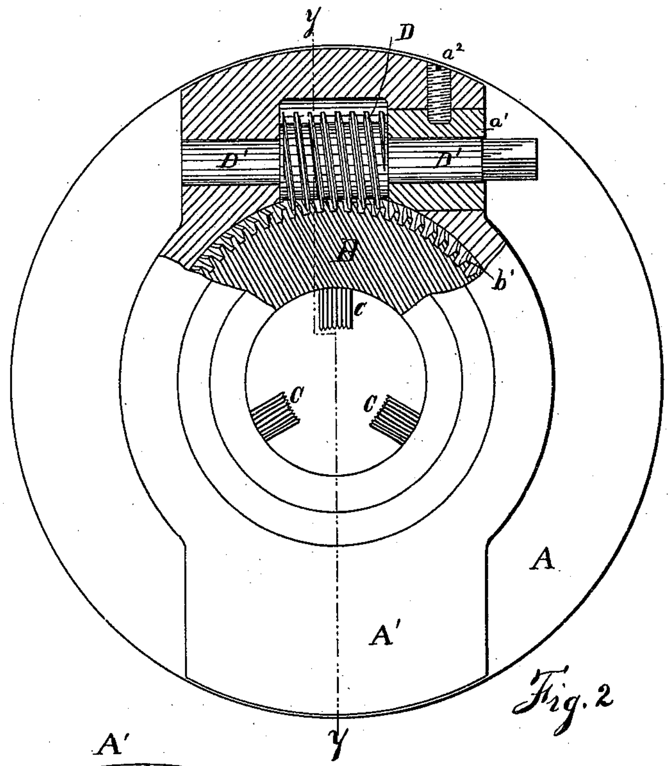
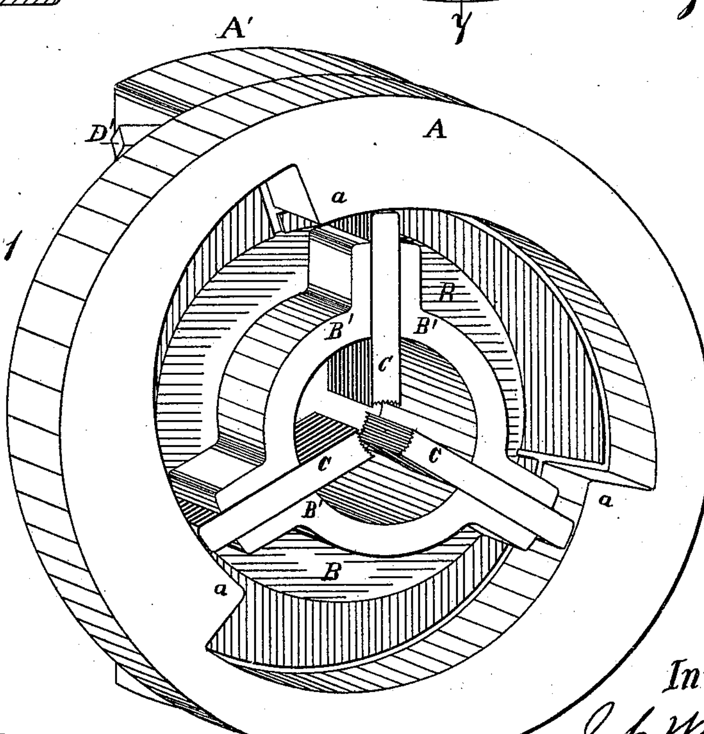


Fig. 2

Fig. 1



Witnesses.

Robt. H. Porter.

Chas. B. Reckner

Inventor.

J. C. Williams

Per. Hallock & Hallock

Att's.

UNITED STATES PATENT OFFICE.

JAMES C. WILLIAMS, OF ERIE, PENNSYLVANIA.

LATHE-CHUCK.

SPECIFICATION forming part of Letters Patent No. 355,237, dated December 28, 1886.

Application filed June 26, 1886. Serial No. 206,300. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. WILLIAMS, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Chucks for Lathes, &c.; 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.

This invention relates to chucks for lathes, pipe-cutting machines, and other like purposes; and it consists in certain improvements in the construction thereof, as will be hereinafter fully described, and pointed out in the claims.

My invention is illustrated in the accompanying drawings as follows.

Figure 1 is a perspective view, looking at the face of the chuck, with the face-plate removed. Fig. 2 is an elevation of the back of the chuck with part in vertical section, on the line *x* in Fig. 3. Fig. 3 is a longitudinal vertical section on the line *y y* in Fig. 2.

The construction is as follows: B is the body or fixed part of the chuck. It is provided with flanges B′, which form ways for the gripping-dies C, and it has a screw-threaded socket, *b*, for attaching it to the spindle of the lathe, and on its upper side there are cut worm-gear teeth *b′*.

A A′ is a shell which slips over the body B, and it is provided in front with cams *a a a*, for moving the gripping-dies C. In the upper side of the part A′ of the shell A A′ there is a cavity formed to receive a worm, D, and its shaft D′, in position for the worm to engage with the worm-gear teeth *b′* on the body B′. It will be seen from the drawings that this cavity is made so the worm and its shaft can be inserted lengthwise from one side, and its large end is then filled with a bushing, *a′*, secured by a screw, a^2, and that this bushing serves as the journal-box for one end of the worm-shaft D′.

The parts are put together as follows: The shell A A′, which is one piece of metal, slips over the body B from the back end, and the lip a^3 on the shell engages or enters a rabbet on the body B. The worm D is then inserted and secured in place by putting in the bushing *a′* and screw a^2. Then the dies C C C are put into the ways and the face-plate E is then secured in place. The chuck is then complete and ready to screw onto the spindle.

In operating the chuck the operator will use a key-wrench applied to the squared end of the worm-shaft D′. It will be observed that as the worm is turned the shell will move on the body B, and the cams *a* will operate the dies C.

This chuck is of very simple construction, having few parts, and it is very powerful in its action.

I am aware of the construction shown in Letters Patent No. 310,303, issued January 6, 1885, to S. Moore, and what I shall hereinafter claim as new should be constructed as not including such a construction. My device may be considered as an inprovement on said construction, as it is more simple, easier constructed, and more efficient. It is more simple because there are fewer parts, the cap A being omitted. It is easier constructed because there are fewer parts, and because, if the "gearing" of the said device were properly made, it would be a worm-gear, and it is nearly impossible to cut a worm-gear on the inside of a flange as it is there shown, while by cutting the worm-gear, as I do, on the periphery of the port B, it is easily cut. In Moore's device the "gear *g*" is not a worm-gear, but a straight gear, and the worm-wheel is set diagonally. Such a construction is a make-shift, which was necessitated because of the difficulty in cutting a worm-gear on the inside of the "ring B," and it is imperfect, for there will either be lost motion or else binding, and there will be, if it binds, too much wear; hence my device is more efficient.

What I claim as new is—

1. In a chuck for the purposes named, the combination, substantially as set forth, of a fixed central body, holding radially-movable gripping-dies and having worm-gear teeth cut on its periphery, a surrounding shell journaled on the said body and having cams for operating the gripping-dies, and a worm journaled in said shell and engaging with the worm-gear teeth on the periphery of the fixed central body.

2. In a chuck for the purposes named, the

combination, substantially as set forth, of the fixed central body, B, having ways for holding the radially-movable dies C, and the worm-gear teeth b', cut on its periphery, the surrounding shell A A', having cams a, in position to act upon the dies C, and the worm D, contained within the shell A A' and engaging with the worm-gear teeth b'.

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

JAMES C. WILLIAMS.

Witnesses:
JNO. K. HALLOCK,
F. B. WHIPPLE.