

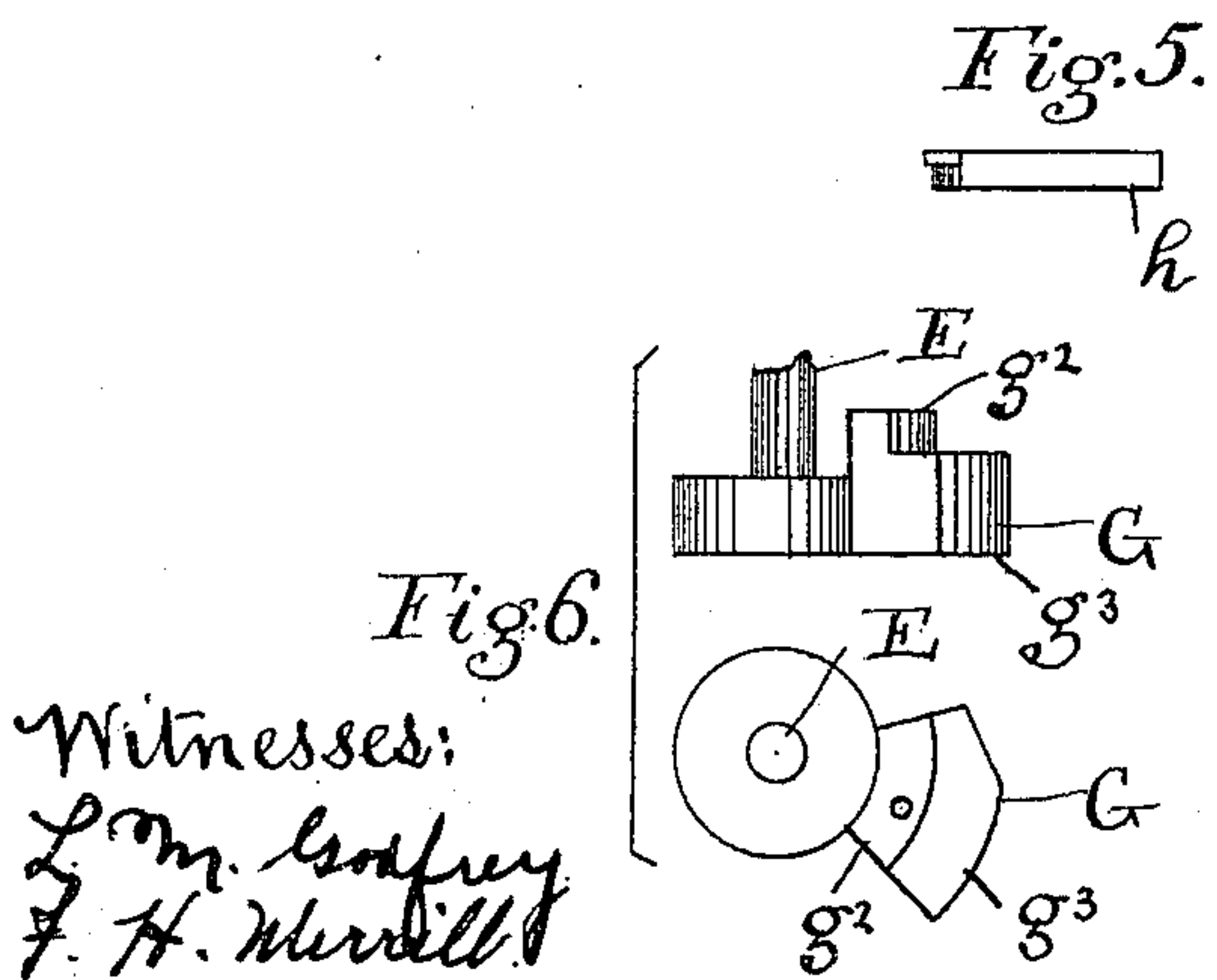
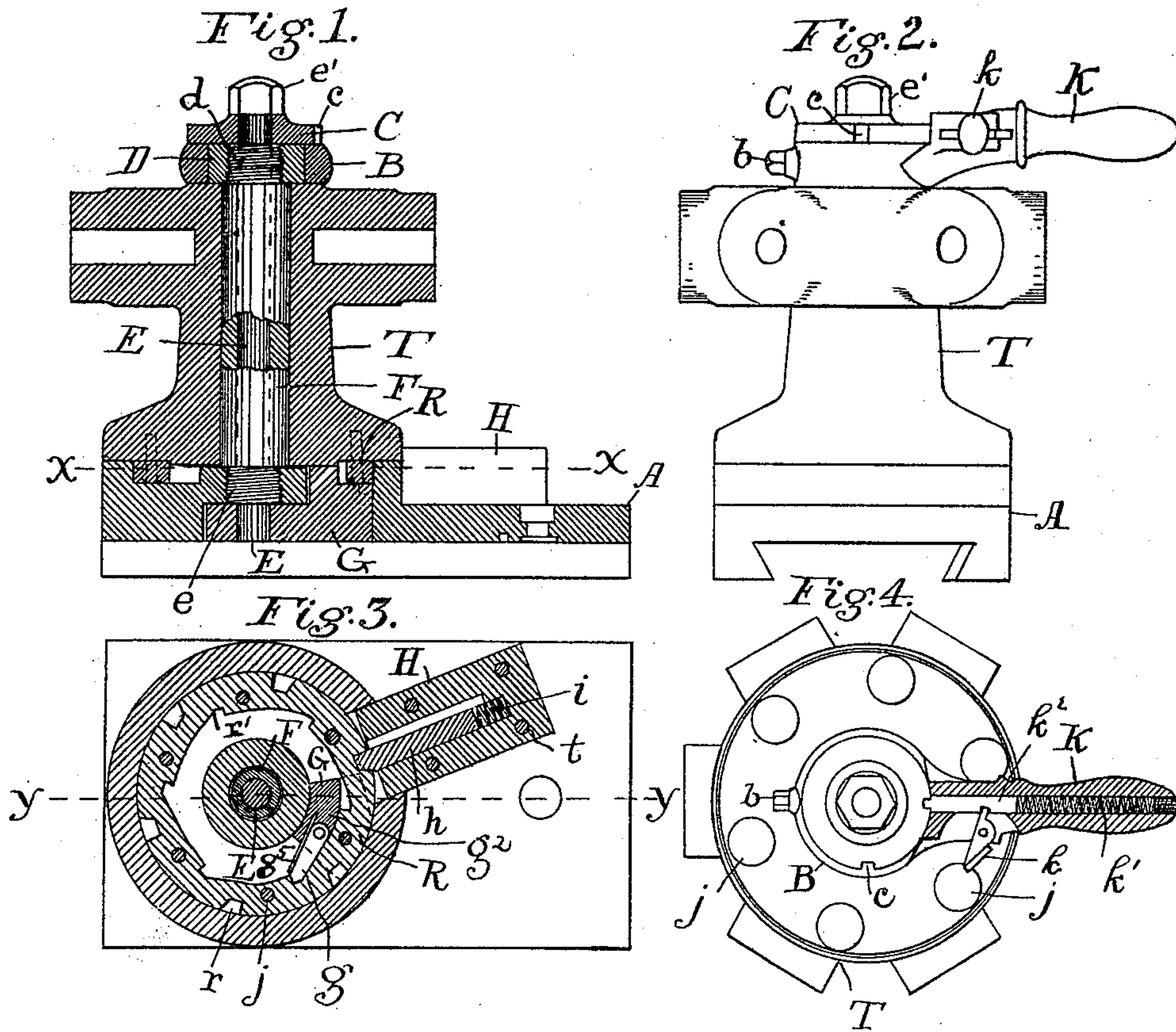
No. 639,892.

Patented Dec. 26, 1899.

N. H. FAY.
TURRET LATHE.

(Application filed Nov. 2, 1899.)

(No Model.)



Witnesses:
L. M. Godfrey
F. H. Merrill

Inventor:
Norman H. Fay
by S. W. Bates
his atty

UNITED STATES PATENT OFFICE.

NORMAN H. FAY, OF DEXTER, MAINE.

TURRET-LATHE.

SPECIFICATION forming part of Letters Patent No. 639,892, dated December 26, 1899.

Application filed November 2, 1899. Serial No. 735,567. (No model.)

To all whom it may concern:

Be it known that I, NORMAN H. FAY, a citizen of the United States, residing at Dexter, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Turret-Lathes; 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.

My invention relates to lathe-turrets of that class comprising a slide with a turret rotatably mounted thereon and provided with a handle-lever for turning it into several positions and locking mechanism for locking it there.

The object of my invention is to construct a turret in which by a single backward-and-forward movement of the handle-lever the turret is unlocked, turned one movement and locked, and I also make provision for clamping the turret by a further movement of the handle-lever.

The invention consists of the combination and arrangement of parts hereinafter set forth and claimed.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a vertical section on the line $y y$ of Fig. 3. Fig. 2 is a side elevation of the turret. Fig. 3 is a horizontal section on the line $X X$ of Fig. 1. Fig. 4 is a plan or top view with the handle-lever in section. Fig. 5 is a side elevation of the turret-locking bolt, and Fig. 6 shows two views of the cam.

A represents the slide on which the turret is mounted and which may be used on any form of lathe. On the slide is an upright hollow stud F , having a screw e cut on its lower end, by which it is secured to the slide. On the lower end of the turret is secured the ratchet-ring R , a recess being formed in the slide to receive it. This ring has internal ratchet-teeth r' , by which the turret is turned, and external locking-notches r , by which it is locked.

The turret is locked by means of a locking-bolt h , contained in a casing H , secured on the top of the slide at the base of the turret by bolts t . The bolt h is mounted to slide horizontally, and it has a spring i which tends to hold it in engagement with the notches r .

The bolt is released by the action of a cam G , which is secured to the lower end of a vertical rod E , journaled in the hollow stud F . As here shown, the cam has an inner portion g^2 , which lies inside and on a level with the ring R , and an outer portion g^3 , which extends under the ring and is adapted to act on the end of the bolt h , the latter being made sufficiently thick to project below the under surface of the ring, where it has a rounded surface. (Shown in dotted lines, Fig. 3.) The outer edge of the cam is so formed that as it turns it acts on the lower edge of the end of the bolt and pushes it back out of the locking-notches.

The turret is turned by the pawl g , which engages the notches of the internal ratchet when the handle-lever is pulled forward. The pawl is pivoted to the cam G and is provided with a spring g^5 . It will be understood that the notches g and r' are spaced the same as the working faces of the turret.

The turret is turned by means of a handle-lever K , which is adapted to engage and disengage with a disk C on the upper end of the rod E . The lever K is here shown as secured to or forming part of a ring B , which is interposed between the disk C and the top of the turret. The lever is made to engage the disk C by means of the notches c , formed in the edge of the disk, and with these notches the end of the lever-locking bolt k^2 engages. The bolt k^2 is contained in a recess in the handle-lever and is forced normally against the disk by a spring k' . The bolt may be withdrawn from the notch c and the lever released from the disk by a thumb-latch k . Two notches are here shown in the edge of the disk, so that the handle may be used in two different positions, according to the convenience of the operator.

The ring to which the handle-lever is secured has within and concentric with it a nut D , which is provided with a screw-thread which engages a screw-thread on the upper end of the stud F . The ring is prevented from turning freely on the nut by a set-screw b , which clamps them together.

When the handle is to be shifted from one position to another, the set-screw is loosened, and when set up the ring and the nut act practically as a single part for clamping the turret

after the same has been set in position. The nut is so adjusted that a slight movement of the handle-lever after it is released from its notch and disconnected from the disk and the mechanism which turns the turret will set the nut and clamp the turret in place.

From the above description it will be evident how the turret operates.

In order to shift the turret from one working face to the next in order, the handle-lever is thrown back, this movement causing the cam to release the locking-bolt *h*. The pawl *g* will then snap into the next notch back. As the lever is brought forward the turret is turned until the next notch comes opposite the end of the locking-bolt, when this bolt snaps in and holds it fast. The thumb is now pressed on the thumb-latch *k* and the lever disconnected from the disk and the turret-turning mechanism, and a further forward movement tightens the nut and clamps the turret firmly on the slide. The lever is left in this position until the next shift is to be made, when it is snapped back into the position shown in Fig. 4. During the backward motion of the lever the nut *D* becomes loosened, but there is sufficient vertical play to the parts to allow this.

The turret is comparatively simple in construction and it is controlled entirely by the movements of the handle-lever.

It will be understood that the turret can be fitted for holding four, six, or any reasonable number of tools and that the ratchet-ring will be provided with the same number of notches both inside and outside as the turret has working faces.

I claim—

1. In a lathe-turret, the combination of a slide, a hollow stud thereon, a turret adapted to turn on said stud, a ratchet-ring on the lower end of the turret having an internal ratchet and external locking-notches, a spring-actuated locking-bolt adapted to engage said notches, a rod extending through said hollow stud having on the lower end thereof a cam adapted to throw said locking-bolt out of engagement with said notches, a pawl pivoted to said cam and adapted to engage said internal ratchet and a handle connected with the upper end of said rod for turning the same.

2. In a lathe-turret, the combination of a slide, a hollow stud thereon, a turret adapted to turn on said stud, a ratchet-ring on the lower end of the turret having an internal ratchet and external locking-notches, a spring-actuated locking-bolt adapted to engage said notches, a portion of said bolt extending below the under surface of said ring, a rod extending through said hollow stud, having on

the lower end thereof a cam, said cam having a portion extending beneath said ring and adapted to throw said locking-bolt out of engagement with said notches, a pawl pivoted to said cam and adapted to engage said internal ratchet and a handle connected with the upper end of said rod for turning the same.

3. In a lathe-turret, the combination of a slide, a hollow stud thereon, a turret adapted to turn on said stud, a ratchet-ring on the lower end of the turret having an internal ratchet and external locking-notches, a rod extending through said hollow stud having on the lower end thereof a cam adapted to throw said locking-bolt out of engagement with said notches, a pawl pivoted to said cam and adapted to engage said internal ratchet, a screw formed on the upper end of said stud, a nut fitting said screw, a handle-lever secured to said nut and means for connecting and disconnecting said handle-lever with the upper end of said rod.

4. In a lathe-turret, the combination of a slide, a hollow stud thereon, a turret adapted to turn on said stud, a ratchet-ring on the lower end of the turret having an internal ratchet and external locking-notches, a spring-actuated locking-bolt adapted to engage said notches, a rod extending through said hollow stud having on the lower end thereof a cam adapted to throw said locking-bolt out of engagement with said notches, a pawl pivoted to said cam and adapted to engage said internal ratchet, a screw formed on the upper end of said stud, a nut fitting said screw, a handle-lever secured to said nut, a notched disk on the upper end of said rod and a spring-actuated bolt in said handle-lever for engaging said disk.

5. In a lathe-turret, the combination of a slide, a hollow stud thereon, having a screw formed on its upper end a turret adapted to turn on said stud, a rod journaled in said stud and connecting at its lower end with mechanism for turning and locking the turret, a nut adapted to engage said screw, a ring outside of said nut, a set-screw for clamping them together, a disk on the upper end of said rod above said nut having notches in the edge thereof, a handle-lever secured to said ring, a locking-bolt in said handle-lever adapted to engage said notches and means for retracting said locking-bolt.

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

NORMAN H. FAY.

Witnesses:

C. M. SAWYER,
A. H. KNIGHT.