No. 790,312. PATENTED MAY 23, 1905.

J. C. POTTER & J. JOHNSTON.

LATHE TURRET ACTUATING MECHANISM.

APPLICATION FILED JAN. 7, 1901.

2 SHEETS—SHEET 1.

Fig. 1.

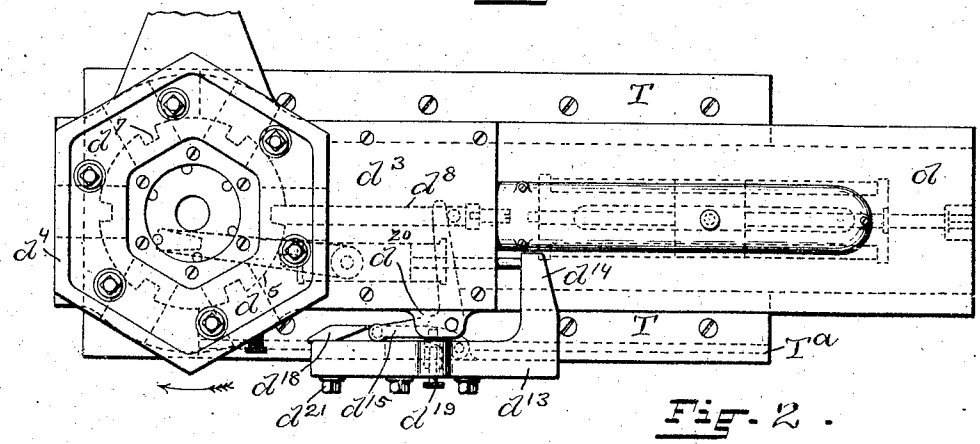



Fig. 2.

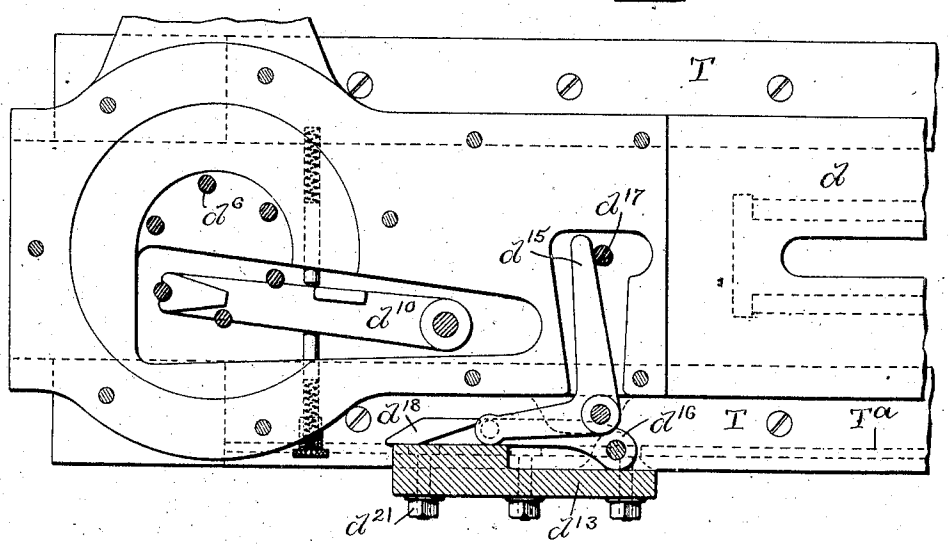
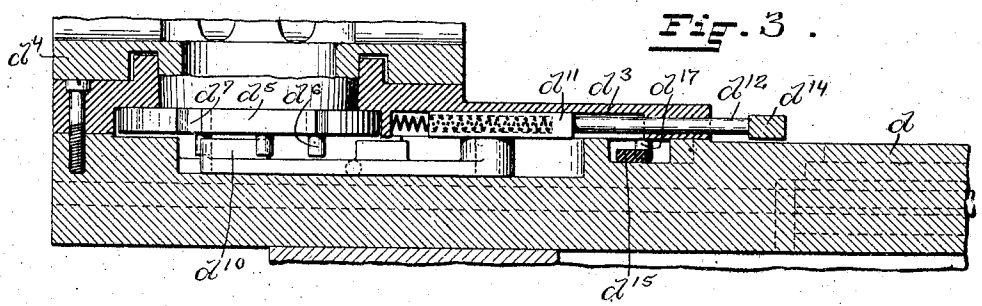



Fig. 3.




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Fig. 4.

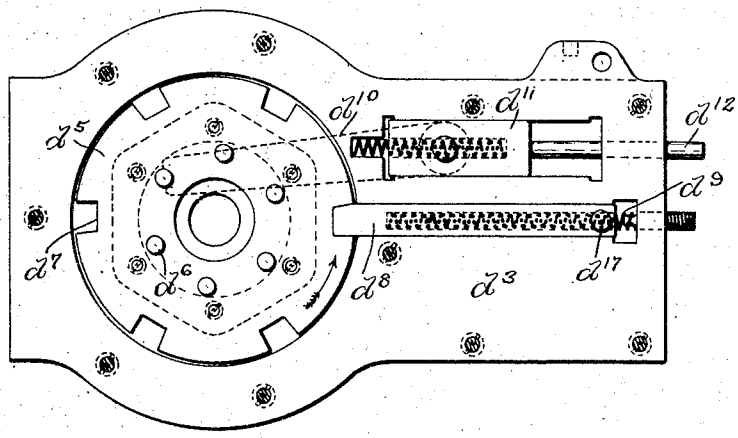



Fig. 5.

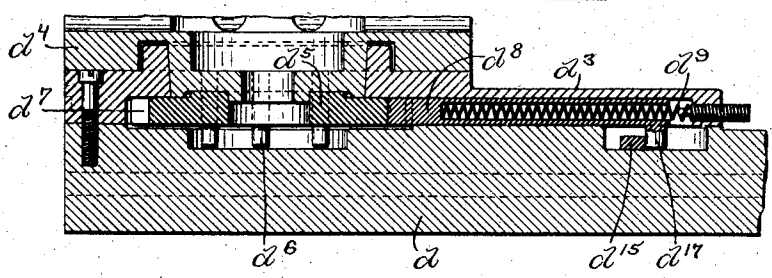



Fig. 6.

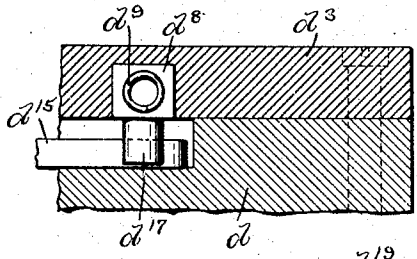



Fig. 7.

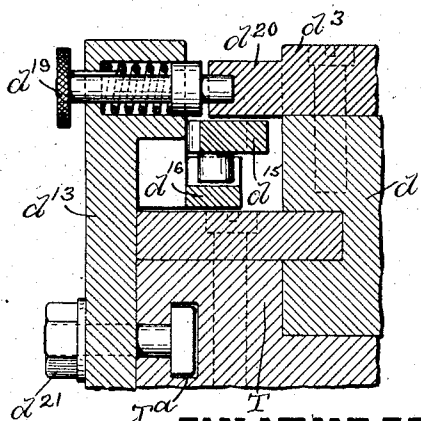
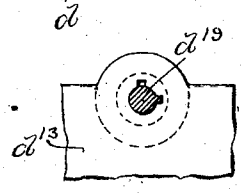



Fig. 8.




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# UNITED STATES PATENT OFFICE.

JAMES C. POTTER AND JOHN JOHNSTON, OF PAWTUCKET, RHODE ISLAND, ASSIGNORS TO POTTER AND JOHNSTON MACHINE COMPANY, OF PAWTUCKET, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

## LATHE-TURRET-ACTUATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 790,312, dated May 23, 1905.

Application filed January 7, 1901. Serial No. 42,367.

*To all whom it may concern:*

Be it known that we, JAMES C. POTTER, a citizen of the United States, and JOHN JOHNSTON, a subject of the Queen of Great Britain, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Lathe-Turret-Actuating Mechanism, of which the following is a specification.

This invention has reference to an improvement in mechanism for automatically rotating the turret of a lathe; and it consists in the peculiar and novel construction and the combination of parts whereby the turret is turned and locked at the desired part of its reciprocating movement and may be readily adjusted to any change in the length of travel, as will be more fully set forth hereinafter and more particularly pointed out in the claims.

In a turret-lathe the work is usually supported on and turned by the head-stock spindle and the tools are supported in the several sides of the turret, which is rotatably supported on the main tool-slide. As the turret recedes from the work and nears the end of the rearward travel the turret requires to be unlocked, partially turned, and relocked. As the length of the travel of the turret varies with the nature of the work, the point on the lathe at which the turret requires to be unlocked, partially rotated, and relocked changes with the change in the length of the travel of the turret and the main tool-slide.

The main object of this invention is to construct the turret-operating mechanism and the mechanism for actuating the turret-operating mechanism so that in changing the length of the travel of the turret the actuating mechanism may retain the position relative to the turret-operating mechanism.

Figure 1 is a plan view of the main slide, showing the same provided with a turret tool-holder and mechanism for operating and controlling the turret. Fig. 2 is a plan view, on an enlarged scale, of part of the main slide with the turret tool-holder removed, showing the mechanism for operating the turret. Fig. 3 is a longitudinal sectional view of part of the main slide and the turret tool-holder. Fig. 4 is a view of the base of the turret, showing the operating and locking mechanism viewed from below. Fig. 5 is a longitudinal sectional view of part of the main slide, the base of the turret, and part of the turret, taken on a central line through the axis of the turret. Fig. 6 is a detail showing the lever connection with the base of the turret. Fig. 7 is a transverse sectional view of the slide secured to one side of the machine shown in Figs. 1 and 2 for rotating the turret tool-holder. Fig. 8 is a detail view of the locking-bolt shown in Fig. 7.

Similar marks of reference indicate corresponding parts in all the figures.

In the drawings the main slide $d$ is supported on the ways T T, formed on the supporting-frame of the lathe in the usual manner. The groove $T^a$, of T-shaped cross-section, is formed in the front of the lathe to receive the heads of bolts by which the slide supporting the actuating mechanism for operating the turret may be secured.

On the slide $d$ the bed $d^3$, forming the support of the turret $d^4$, is secured. On the bed $d^3$ an upwardly-projecting annular rim enters an annular groove in the under side of the turret. The locking-plate $d^5$, placed into a recess in the bed $d^3$, is secured to the turret by bolts and also by the pins $d^6$ $d^6$. With the sockets $d^7$ $d^7$ in the peripheral edge of the locking-plate $d^5$ engages the locking-bolt $d^8$, which slides in a groove formed in the under side of the bed $d^3$ and is held in the locked position by the coiled spring $d^9$. With the pins $d^6$ engages the pawl $d^{10}$, pivotally connected with the slide $d^{11}$, actuated against spring-pressure by the rod $d^{12}$. The locking-bolt $d^8$ is withdrawn and the pawl is actuated after each operation of a tool in the turret by the backward movement of the main tool-slide to unlock, turn, and relock the turret to present another tool to the work.

To operate the locking-bolt $d^8$ and the actuating-pawl $d^{10}$, the slide $d^{13}$ is adjustably secured to the front of the bed supporting the main tool-slide $d$. From this slide extends

the bracket $d^{14}$, which forms a stop against which the rod $d^{12}$ bears as the main tool-slide moves backward away from the work, thereby operating the pawl $d^{10}$ to turn the turret $d^4$ through a predetermined part of rotation, as shown in the drawings, one-sixth of a turn. The locking-bolt $d^8$ has previously been withdrawn from the socket $d^7$, with which it had been engaged by one arm of the bell-crank lever $d^{15}$. The bell-crank lever $d^{15}$ is pivotally secured on a bracket $d^{20}$, projecting from the bed $d^3$. One arm of the lever engages with the pin $d^{17}$ on the locking-bolt $d^8$, and the other arm, which is provided at its end with a pin, engages with the arm $d^{16}$, pivoted at one end to the slide $d^{13}$ and provided on its opposite end with the switch-block $d^{18}$. (Shown in Fig. 2.)

As the pin on the front end of one arm of the bell-crank lever $d^{15}$ slides over the forward inclined surface of the switch-block the bell-crank lever acts on the pin $d^{17}$ to move the locking-bolt out of the socket, and as the pin rides over the rear surface of the switch-block $d^{18}$ the locking-bolt is held in the unlocked position until the pin passes beyond the rear point of the switch-block. The coiled spring $d^9$ now pushes the locking-bolt into one of the sockets $d^7$ to lock the turret and moves the bell-crank lever into the position shown in Fig. 2.

To facilitate the accurate adjustment of the slide $d^{13}$ to the changes in the travel of the main tool-slide, the slide $d^{13}$ is provided with the locking-pin $d^{19}$, having a collar on which a coiled spring bears and a feather which when the locking-pin $d^{19}$ is drawn out and partially turned rides on the outer surface and holds the locking-pin in the unlocked position. The locking-pin enters a hole in the end of the bracket $d^{20}$, on which the bell-crank lever $d^{15}$ is pivoted. By loosening the T-bolts $d^{21}$, by which the slide $d^{13}$ is secured, and engaging the locking-pin $d^{19}$ with the bracket $d^{20}$, as is shown in Fig. 7, the slide $d^{13}$ will move with the main tool-slide $d$ and the turret-bed $d^3$ to the end of the backward traverse and may be secured in the required position to operate and lock the turret.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a turret-lathe, the combination of a turret, a reciprocating support therefor, turret-operating mechanism, means for actuating said turret-operating mechanism, adjustable to different positions, and means for detachably connecting said actuating means with the reciprocating support for changing the position of the same, substantially as and for the purpose described.

2. The combination with a turret tool-holder, a supporting-slide, a slidable pawl for rotating the turret, and a locking-bar, of a slide adapted to be secured to a fixed part of the lathe, an arm on the slide engaging with the pawl, means for operating the locking-bar, and a pin on the slide adapted to be connected with the reciprocating turret-support to carry the slide to the end of the reciprocation of the turret-support, as described.

3. In a turret-lathe, the combination of turret mechanism, a reciprocating turret-support, means for actuating the turret mechanism adjustable to different positions, and means whereby said actuating means may be moved by the reciprocating support for changing the position of the same.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES C. POTTER.
JOHN JOHNSTON.

Witnesses:
B. M. SIMMS,
J. A. MILLER, Jr.