

No. 631,080.

Patented Aug. 15, 1899.

A. C. H. KRAFT.
TURRET LATHE TOOL HOLDER.

(Application filed May 15, 1899.)

(No Model.)

2 Sheets—Sheet 1.

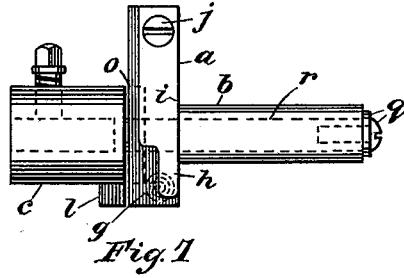


Fig. 1

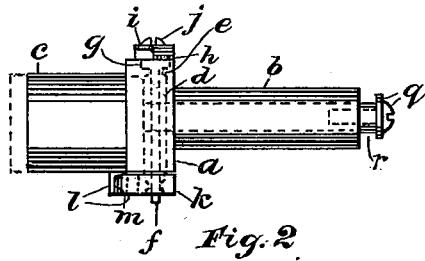


Fig. 2

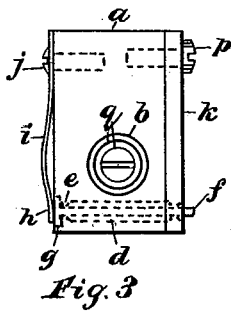


Fig. 3

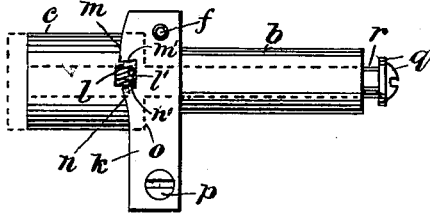


Fig. 4

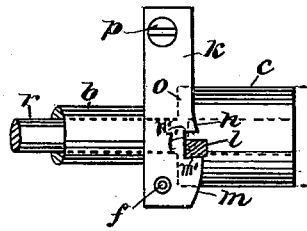


Fig. 5

Witnesses;

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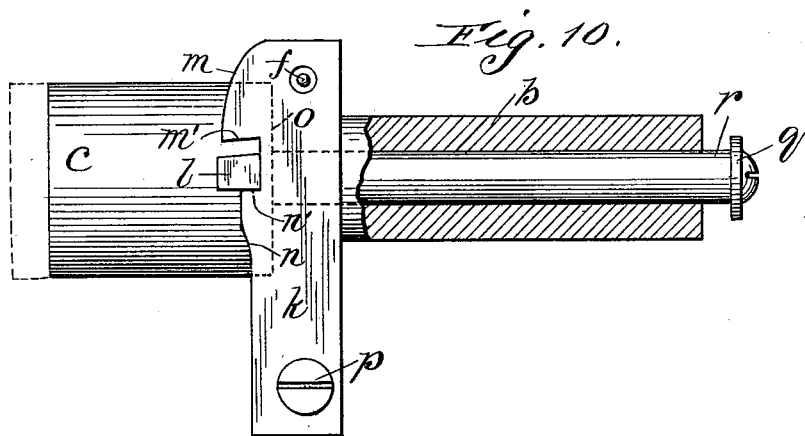
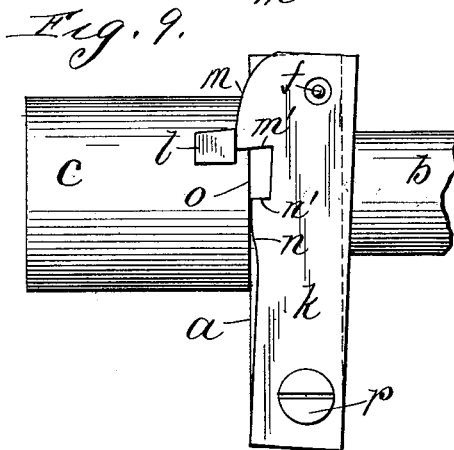
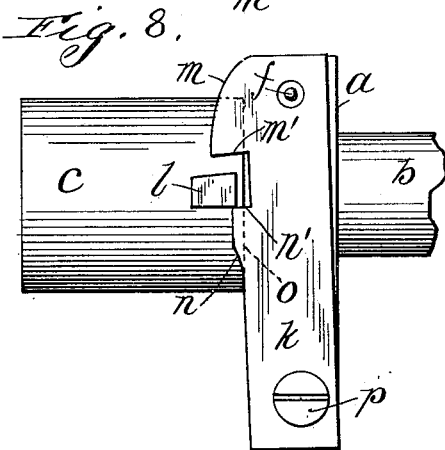
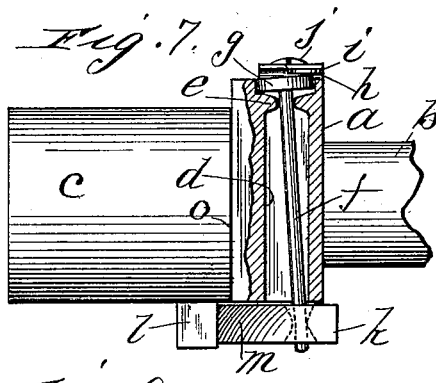
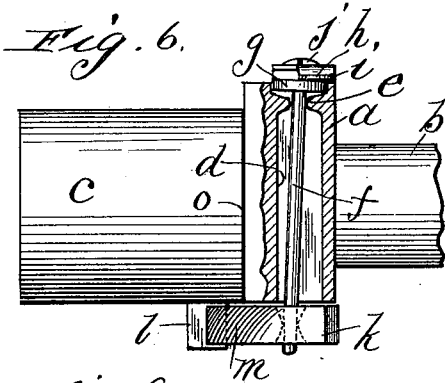
By W. J. Zimmerman.
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(Application filed May 15, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

AUGUSTUS C. H. KRAFT, OF HIGHLAND PARK, ILLINOIS.

TURRET-LATHE TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 631,080, dated August 15, 1899.

Application filed May 15, 1899. Serial No. 716,819. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS C. H. KRAFT, a citizen of the United States, residing at Highland Park, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Turret-Lathe Tool-Holders, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows my said new device in side elevation, with the rear edge of the block *a* turned toward the front, and the position of the tool-holder in its advanced or unlocked position. Fig. 2 shows the top of said block turned toward the observer and the tool-holder in its locked position. Fig. 3 shows a rear view of Fig. 1. Fig. 4 shows the front and upright position of my device as it stands when fastened in the turret of a lathe. Fig. 5 shows Fig. 1 reversed end for end of tool-holder. Fig. 6 shows a portion of my said device in plan view, a portion of the part *a* being removed to show the pin *f* and its chamber, the several movable parts of said device being shown in their forward position. Fig. 7 shows Fig. 6 with its movable parts in the opposite position. Fig. 8 shows my said new device in side view, its movable parts in their forward position at ending of work, the spur *l* just leaving the notch-face *n'*. Fig. 9 shows Fig. 8 with its movable parts in the opposite position and the spur *l* on the striker-face *m* after work and still unreversed in its revolution. Fig. 10 shows the spur *l* fully on the notch-face *n'* and in its full working position, which is the opposite from that shown in Fig. 4, where the revolution of the lathe-head is reversed after the ending of the work.

Like letters of reference denote like parts.

The object of my invention is to improve the construction of turret-lathe tool-holders, whereby the tool and work shall be less liable to shock, and consequently injury to the tool and its work, and at the same time be more expedient and economical than the like class of tools now in use.

To attain said desirable ends, I construct my said new device in substantially the following manner, namely: I use the parts *a b c r* with but slight change, substantially as they now exist—that is, the block *a*, with its

attached sleeve *b*, into which is passed the reciprocable spindle *r*, provided with a tool-holding head *c*, held within its place by a washer and screw *q* in the end of said spindle *r*. The block *a* has a recess *o* to receive the head *c* when it is in its back or locked position, and the shaft *r* is long enough beyond the sleeve *b* to allow the entire withdrawal of the head *c* from the socket or recess *o*. To the front edge of the block *a* I attach a bar *k*, hinged on a pin or screw *p* in the lower end of the block *a*. The front edge of said bar *k* is provided with a deep notch *l'*, of which one side *n'* is only about half as deep as the opposite or upper side *m'*, and whereof the outer edge of the bar *k* recedes, as shown at *n*, on the lower part of said notch, and whereof the edge *m* of the bar above said notch is rounded to form a striker, whereby the bar *k* may be made to recede from the rotating spur *l* when it revolves in the direction of its working motion or from the head *c*, above its axis, toward the striker *m*, and the receding edge *n* is for the purpose of giving the required clearance to the spur *l* when it is released from said notch *l'* after its work is ended and it passes on in that direction or forward motion.

Through the upper end of the block *a* and from the side of the bar *k* is bored a chamber *d* (shown by the broken lines) to its thin bottom *e*, which is centrally pierced to pass the pin *f* loosely through it, while its large flat head *g* passes from the opposite edge of the block *a* into a recess deep enough to bring the top of said head flush with said face of the body *a*. By means of said chamber the point of the pin may oscillate from its central and normal position to the chamber sides. The point end of the pin *f* passes through a hole in the bar *k*, which may be countersunk from both sides of said bar, as shown by the broken lines in Figs. 2 and 3, thereby making but a small annular bearing-surface on said bar around said pin, which will now permit a free reciprocating motion of said bar and pin until the latter is arrested by the sides of the chamber *d*.

A flat bar-spring *i*, held by a pin or screw *j* in the lower end of the block *a* and having its edges parallel to the corners of the block *a*, extends over the top of the pin-head *g*,

whereof at said head a part is cut off, as shown at *h*, so that its outer edge extends over the edge of the pin-head and the inner edge thereof lies over the center of said pin-head. It is not absolutely necessary to so shape the spring, as its two narrow edges might be parallel throughout its entire length; but then it would have to be correspondingly thicker, and that would make such construction undesirable for obvious reasons. The pressure on said head by said spring tends to hold the pin *f*, and through it the bar *k*, each, to the normal position, which is central to the range of motion; but as it is obviously also desirable that the force which resists the abnormal position of the pin and bar in one direction should be about double that of the other and opposite abnormal position of said parts one edge of said spring lies over the center of said head *g*. If now the point of the pin *f* is moved toward the right, (see Figs. 1, 2, and 4,) the lower left-hand edge of the head *g* will form the fulcrum, and the spring-weight will be at its diametrically opposite extremity. If, however, said pin-point is moved in the opposite direction, the fulcrum of its head will be on the right-hand side and the spring-pressure will be at the center of the head *g*, and consequently there will be required but one-half the power to raise said spring, or, in other words, the action of said spring on the bar *k* will be only half as great in the said one direction as it will be in its opposite way. Supposing now that the sleeve *b* is fastened in a turret and a tap fastened in the head *c*, the work is pushed up until the advancing motion of the turret-stop checks it, the lathe-head or part or piece worked on will keep on turning, and thereby draw the tap and its head *c* toward it and with it will also move the bar *k*, as the spur *l* presses on the edge *n'* until the pin *f* is stopped by the side of the chamber *d*, after which the spur will pass off the edge *n* and the bar *k* will be thrown back to its normal position by the weaker action of the spring *v*, and thus the head *c* and its tap are set free to revolve, thereby stopping further action of the tap

and consequent injury to the work. The spur *l* now engaging the striker edge *m* at every revolution and being resisted by the long fulcrum of the head *g* yields to the spring *v*, the washer *q* now being in contact with the end of the sleeve *b*. When now the motion of the stop is reversed by reversing the motion of the lathe-head in the usual way, the spur *l* will slide over the edge *n* and be caught by the long notch edge *m'*, and thereby the head *c* and its tap will again be held from rotation and the tap and work relieved from each other. Owing to the quick reverse motion of the spur *l* and the cam shape of the face *n*, the bar *k* is thrown back with some force, and hence it is necessary that its spring resistance should be greater than that of the opposite direction. It will be observed that the edge *m'* is cut under and that the spur *l* has its contacting edge parallel to said edge *m'*, whereby sure and permanent contact is made and held in addition to said spring help.

What I claim is--

1. The combination with a sleeved block and a rotatable and a limitedly longitudinally reciprocable tool-holder provided with a radial spur, of a hinged doubly-spring-actuated and doubly-stopped and edge-notched bar adapted to engage said spur against forward motion and to release for and permit idle forward motion and to arrest backward motion of said tool-holder, substantially as specified.

2. The combination with a sleeved block and a rotatable and a limitedly longitudinally reciprocable tool-holder provided with a radial spur and a pin-holding chamber, open at one end, in said block, of a pin with a bifulcrumed spring-pressed head, an edge-notched hinged bar adjusted and actuated by the free end of said pin and a striker-face to the edge of said bar, substantially as specified.

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Witnesses:

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