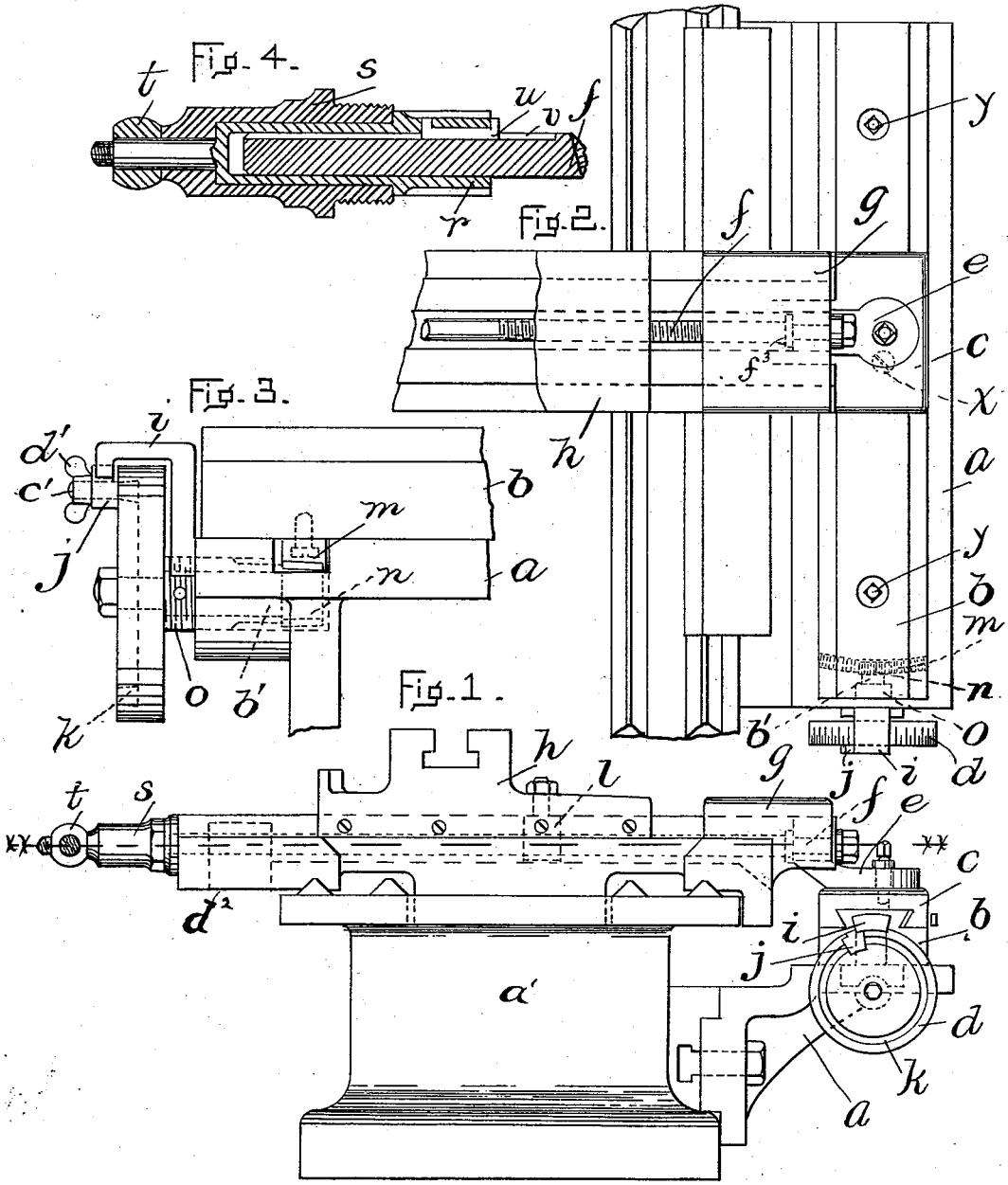
(No Model.)

J. FLATHER.

TAPER ATTACHMENT FOR LATHES.

No. 509,212. Patented Nov. 21, 1893.



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TAPER ATTACHMENT FOR LATHES.

SPECIFICATION forming part of Letters Patent No. 509,212, dated November 21, 1893.

Application filed May 19, 1893. Serial No. 474,733. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FLATHER, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Taper Attachments and Methods of Constructing Cross-Feed Screws, of which the following is a specification.

My invention relates to an improvement in taper attachments for lathes, and to the construction of and means for operating a cross-feed screw used in connection with said taper attachment. Said taper attachment can be applied to any metal-turning lathe.

The objects of my improvements are to provide a quicker and more accurate adjustment of the adjustable bar at the back of the lathe than has been possible heretofore, also to eliminate the necessity of the handle used to operate the cross-feed screw moving to and from the front of the carriage in a horizontal direction when the taper attachment is being used.

It has been the usual practice in the construction of cross-feed screws for lathes having a taper attachment, to allow the end of the screw to project through the bearing at the front of the tool-carriage a sufficient distance to admit of the necessary longitudinal movement of the screw without the handle coming in contact with said bearing. This construction is objectionable, as said projecting portion is liable to become bent by having work dropped upon it when removing the same from the lathe.

My improved method of adjusting the bar enables the same to be adjusted much more accurately and easily, thereby assisting the operator to produce more accurate work at a considerable saving of time. It also permits the operator to connect and disconnect the taper attachment, and adjust and clamp the same at the desired angle while standing at the front of the lathe.

In the drawings, forming a part of this specification: Figure 1 represents an end elevation of the bar and adjusting device and lathe-bed, and a side view of the tool-carriage, showing the cross-feed screw in dotted lines. Fig. 2 represents a plan of the bar, adjusting device, section of the lathe-bed and tool-carriage, showing the rack and pinion used to adjust the bar, center-bolt used to pivot the bar, and section of the cross-feed screw in full and dotted lines. Fig. 3 represents a side elevation of a section of the bar and adjusting device. Fig. 4 represents a section through line x—x of one end of the cross-feed screw, and the quill or sleeve in which the front end of said cross-feed screw slides, the handle used to operate said sleeve or quill, and the bearing attached to the front of the carriage in which said quill or sleeve revolves.

Similar letters refer to similar parts throughout the several views.

My improved taper attachment and cross-feed screw may be described as follows:

The lathe-bed a' supports the bracket a, on which is mounted a slide-bar b. A slide c fits said bar, and the position of the latter is governed by a graduated disk d, having a dovetailed slot k, to which, by means of a taper-headed bolt c' and nut d' is secured the adjusting-block j. The block j is adapted to encounter a stop-arm i, which is affixed to the lathe-bed and overhangs the disk d.

e represents the connection between the slide and cross-feed screw. One end of said connection is pivoted to the bar b, and the other is secured to a slide g, which operates on ways on top of the carriage. Said slide g on the carriage has a bearing in which the back end of the cross-feed screw runs.

f represents the cross-feed screw, which has a collar f^3 on the portion which rests in a bearing in said slide-block g to prevent play of the same in said bearing. The cross-feed screw f passes through the threaded nut l, which is secured to the tool-block h, thereby operating said tool-block when the cross-feed screw is revolved, or when a longitudinal movement is imparted to the same by means of the bar b.

In Fig. 2, x represents the pivot-bolt upon which the bar b oscillates, and y y the bolts used to retain the bar b in position after the same has been adjusted. m represents a segment of a bevel gear or rack, attached to the bottom of the bar b, and n a bevel gear that is attached to one end of the stud b' that runs in the sleeve c. Said stud b' has the disk d secured to its outer end. The sleeve o is screwed into a threaded hole in the bracket

a, and is held by friction so that it may be screwed in or out of said bearing, thereby permitting an adjustment of gears *m* and *n* to compensate for any wear that may take place.

In Fig. 4, *f* represents a section of the cross-feed screw, which has a longitudinal movement in the sleeve *r*, and is prevented from revolving in the same by the key *u*, which is secured to the inner surface of the sleeve *r* and slides in the groove or key-way *v* in the cross-feed screw. The sleeve *r* runs in the bearing *s*, which secured to the front of the carriage d^2.

When the taper attachment is not in use, the slide-block may be fastened in any suitable manner, thereby preventing any longitudinal movement of the cross-feed screw *f*, while said cross-feed screw *f* is revolved by means of the sleeve *r*, in the desired direction, either to cause the tool-block to advance to the work or recede from the same, as desired.

The adjustment and operation of the taper attachment are as follows: First loosen the clamp-bolts *y y;* then set the adjusting-block *j* at the desired graduation mark to give the taper required; then revolve the disk *d* until the block *j* comes in contact with the stop *i*, tighten the clamp-bolts *y y*, and the taper attachment is ready for use.

In operating my improved taper attachment, the slide *c* slides on the guides or ways on top of the bar *b*, thereby imparting a lateral movement to the cross-feed screw *f*, and the latter through the medium of the nut *l* imparts motion to the tool-block *h*. At the same time, the outer end of the cross-feed screw moves longitudinally in the sleeve *r*, but is prevented from revolving in the same by the key *u*, thereby allowing the operator to adjust the tool-block *h*, independent of the bar *b*, by turning the sleeve *r* which will be provided with a suitable handle as *t*.

What I claim is—

1. The combination with a metal-turning lathe, of a taper attachment, consisting of a suitable support, a guide-bar pivoted thereto, means for locking said guide-bar in position, a rack on the bar, a pinion in mesh with said rack and supported on a stud, a disk affixed to said stud and having graduations on its periphery, an adjustable block attached to said disk, and a fixed stop for said block to abut, substantially as and for the purpose set forth.

2. In a lathe, the combination with the transversely movable tool-carriage and cross-feed screw engaging the same, of an adjustable guide-bar, a slide thereon, a slide-block on the feed-carriage pivotally connected with said slide on the guide-bar and having a bearing in which the back end of the feed-screw revolves but is prevented from moving longitudinally, and a sleeve engaging a bearing at the front of the feed-carriage and rotatable therein and receiving the front end of the feed-screw and projecting beyond the same, said feed-screw being rotatively connected with the sleeve but movable longitudinally therein.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of April, A. D. 1893.

JOSEPH FLATHER.

Witnesses:
W. P. BLANCHARD,
R. P. ELLIOTT.