(No Model.)

E. EARLE.

STOP MECHANISM FOR ENGINE LATHES.

No. 590,736. Patented Sept. 28, 1897.

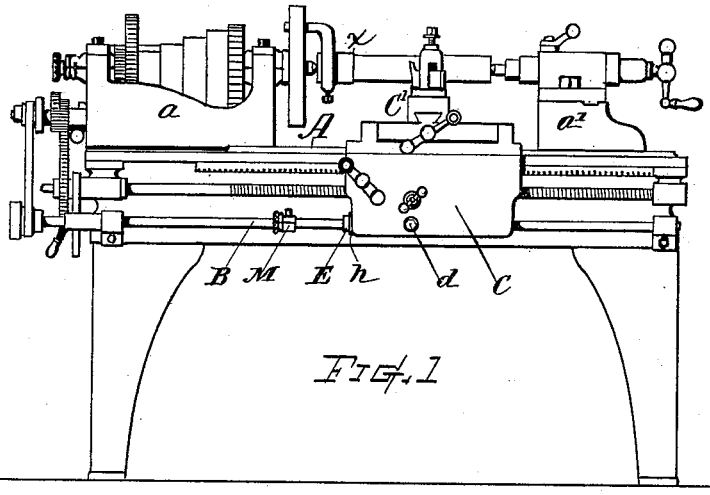

FIG. 1

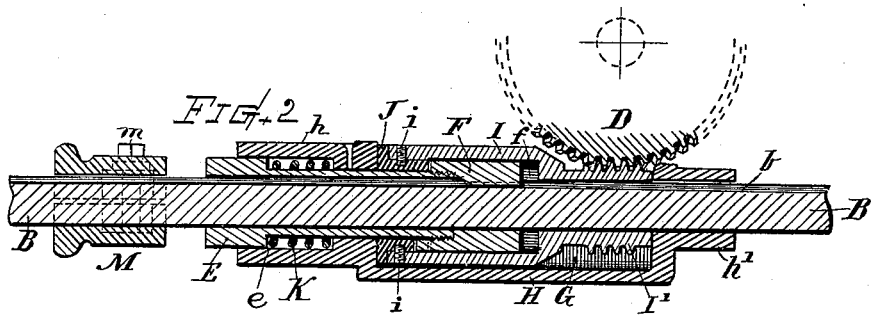

FIG. 2

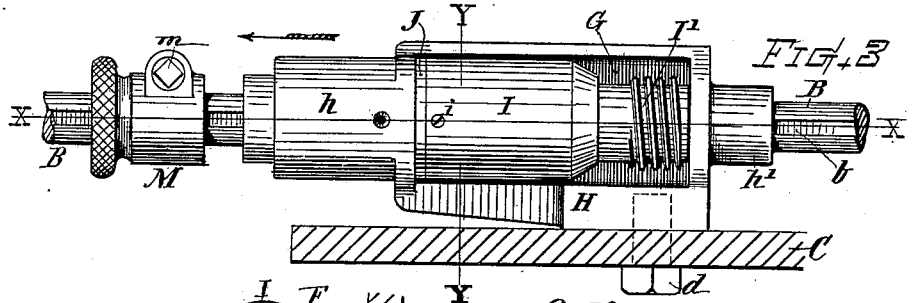

FIG. 3

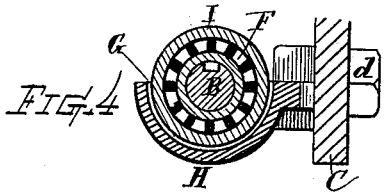

FIG. 4

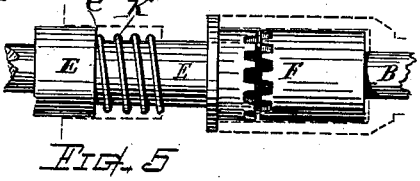

FIG. 5

Witnesses.
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UNITED STATES PATENT OFFICE.

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STOP MECHANISM FOR ENGINE-LATHES.

SPECIFICATION forming part of Letters Patent No. 590,736, dated September 28, 1897.

Application filed June 1, 1897. Serial No. 638,872. (No model.)

To all whom it may concern:

Be it known that I, ENOCH EARLE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Stop Mechanism for Engine-Lathes, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide in an engine-lathe a simple and efficient means for stopping the feed of the tool-carriage accurately at any given position, so that the cutting of the tool can be checked instantly and exactly at any desired point on the work. This object I attain by the mechanism illustrated in the drawings, wherein—

Figure 1 is a front view of an engine-lathe having my invention applied thereto. Fig. 2 is a longitudinal section of my improved stop mechanism at line X X, Fig. 3. Fig. 3 is a top plan view of the same. Fig. 4 is a transverse section at line Y Y, Fig. 3; and Fig. 5 is a side view of the internal parts.

Referring to parts, A denotes an engine-lathe of usual or any desirable construction to which the stop mechanism is applicable. *a* and *a'* are the usual head-stock and tail-stock for supporting the work.

B denotes the longitudinally-grooved feed-rod passing through the apron C of the movable rest or carriage C' on which the tool-post and cutting-tool are arranged. The movement of the carriage is effected in the usual manner by mechanism within the apron C, which it is not necessary herein to illustrate further than to show the worm-gear D, which receives motion from the rotation of the feed-rod B, as all such mechanism is of well-known construction and operation.

My invention consists in the following-described mechanism and in the combination thereof with the feed-rod and apron of an engine-lathe. Upon the rod or shaft B, I arrange a tubular endwise-movable slide E, having secured to its inner end a clutch-sleeve F, with teeth which face toward the outer end of said slide. A shoe or supporting-box H is provided therefor, having at one end a chambered bearing *h*, that fits the shouldered end of the slide E, and at its other end a bearing *h'*, in which the feed-rod turns, while the central portion is preferably formed as a semi-circular shell, affording a hollow or cavity G suitable for containing oil. The front of the box H is properly fitted and secured to the apron C by the bolt *d*. The worm I', which engages the worm-wheel D, is formed upon the end of a hollow sleeve I, a portion of which fits on the feed-rod and a portion of which is chambered at *f* and extends over the clutch-sleeve F and has secured in its end a clutch-ring J, the teeth of which are faced inward and are formed to engage with the teeth on the sleeve F. Said ring J is fixed in the worm-sleeve I by the screw-pins *i* or in other suitable manner. The worm-sleeve is loose on the shaft or rod B, so that the latter can turn freely within it, while said worm-sleeve and clutch-ring fit between the inner ends of the bearings *h* and *h'* and are thereby sustained against endwise movement. The clutch-sleeve F is permitted sufficient endwise movement within the chamber *f* to release and engage the teeth, and said clutching parts are normally pressed toward their engaged position by an expanding coil-spring K, disposed within the chambered bearing *h* and acting against a shoulder *e* on the tubular slide E, as indicated in Figs. 2 and 5. The clutch-sleeve F has a spline or key that slides in the groove *b* and causes said sleeve to rotate with the feed-rod B. The end of the tubular slide E projects from the bearing *h*, as indicated. An adjustable collar M is fitted on the shaft or rod B and provided with a suitable clamping bolt or device *m*, whereby it can be rigidly set at any desired position along the rod. The end of said collar is fitted to contact against the end of the slide E.

In the operation when the apron C and tool-carriage are away from the collar M the sleeve F and ring J are held normally in clutch, and the worm I' is thereby rotated with the feed-rod B and operates the feed mechanism through revolution of the worm-wheel D. When it is desired to stop the cut of the tool at any desired point on the work, as *x*, the collar M is adjusted at a corresponding position and clamped on the feed-rod. Then as

the carriage moves up toward the head of the lathe the end of the slide E strikes the collar and is thereby resisted, the further advance of the carriage forcing back the clutch-sleeve F and disengaging its teeth from those of ring J. The instant the teeth become separated the worm I′ stops rotating, as the rod turns free within it. This stop is instantaneous and can be effected with accuracy at any position on the work, as desired. When the carriage is moved down to take a new cut, the spring K automatically throws the clutch into reëngagement.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination with the shaft or feed-rod and the supporting-box having the bearings thereon; of the tubular slide having the clutch-sleeve thereon, the worm-sleeve extending over said clutch-sleeve and carrying the inwardly-toothed clutch-ring, the spring pressing outward on said slide, and the adjustable collar adapted for contact with said slide, substantially as set forth.

2. The combination, with the carriage-apron in an engine-lathe, its feed-rod, and worm-gear that operates the feed mechanism; of the support-box attached to the apron and having bearings through which the feed-rod passes, the tubular endwise-movable slide and clutch-sleeve splined to rotate with said rod, the worm arranged on a worm-sleeve rotatively loose on said rod, and carrying the clutch-ring, said worm-sleeve and clutch-ring supported against endwise displacement, the expansion-spring acting to normally engage the clutch, and the collar adjustably held on said feed-rod, for the purposes set forth.

Witness my hand this 27th day of May, A. D. 1897.

ENOCH EARLE.

Witnesses:
CHAS. H. BURLEIGH,
CHARLES S. BACON.