

UNITED STATES PATENT OFFICE.

WILLIAM H. COXON, OF WORCESTER, MASSACHUSETTS.

STOP MECHANISM FOR ENGINE-LATHES.

SPECIFICATION forming part of Letters Patent No. 286,786, dated October 16, 1883.

Application filed April 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. COXON, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Stop-Motion for Engine-Lathe Feed Mechanism; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The object of my present invention is to provide a practical and convenient mechanism for throwing off the feed on engine-lathes and stopping the action of the cutting-tool at any given position on the work; also, to provide means for the adjustment of the devices to accommodate different positions of the tool-supporting carriage and to give facility of action at all positions of the friction-gear. These objects I attain by mechanism constructed and operating substantially as herein shown and described.

In the drawings, Figure 1 is a front view of my improved automatic stop mechanism, showing its arrangement in combination with the lathe. Fig. 2 is a plan view of the devices. Fig. 3 is a side view of the trip-arm and bracket. Fig. 4 is a front view of the knob for operating the friction of the lathe-feed. Fig. 5 is a section through said knob.

My automatic stop is adapted to be applied to the feeding mechanism of lathes of ordinary construction. It consists of a bracket or arm, A, having an adjustable rod or finger, *a*, adapted for attachment to the ways or front of the lathe-frame at any convenient position, so that the finger *a* will reach to the hand-knob B at the face of the carriage-apron C, and by turning said knob the friction-clutch of the feed apparatus is thrown into and out of action.

The friction-clutch and feed-operating devices are not shown in the drawings, as such parts may be of the well-known constructions ordinarily employed in engine-lathes, the clutch being inside the apron C at the inner end of the spindle F, which latter extends through to the front of the apron and supports the hand-knob B, the said clutch being adapted to be thrown into and out of engagement in

the usual manner by partial rotation of said spindle, effected by the aid of the hand-knob B. The knob B, I provide with a projecting stud or lug, *b*, which comes into contact with the end of the bunter arm or finger *a* as the tool-carriage C moves forward, and said stationary bar *a* arrests the lug *b*, so that the continued forward motion of the carriage causes a partial rotation of the knob B and the feed-friction spindle F sufficient to disengage the clutch, and thus throw off the feed when the carriage C has arrived at the given position.

The bunter-bar *a* may be arranged with an eye, *a'*, adjustable on the bracket A, so that said bar can be raised and lowered or set at any required position for striking the stud *b*, or engaging the knob in other suitable manner.

The knob B is made in such manner that the outer portion carrying the stud *b* can be moved or adjusted by rotating it about the central part or spindle, F, whereby the stud *b* can be accurately adjusted in relation to the friction-spindle F and finger *a* for giving contact and action at the proper position and time. In the present instance the knob is formed, as shown in Figs. 4 and 5, with a central piece, B', and outer portion, B², with conical friction clutch-surfaces at *f*. The part B' is fixed on the spindle F, and the part B² turns loosely on the hub B³ of the part B'. A nut or smaller auxiliary knob, B⁴, is fitted with screw-thread on the outer end of the hub B³, by means of which the friction cone-surfaces at *f* can be tightened or loosened for locking or releasing the parts to and from each other. By loosening the screw nut or knob B⁴ the stud *b* can be adjusted by turning the part B² about the part B' to any desired circumferential position, so that the lug *b* will meet the end of the bunter-finger *a* at a position directly above the axis of the knob without regard to the position of the carriage and feed-friction, as may be desired.

For use on lathes in which the frictional feed throws off by turning the knob or handle B in opposite direction from that herein illustrated, a small lever, I, may be fixed on the front of the apron (see dotted lines, Fig. 1) to serve as an intermediate between the end of the finger *a* and the stud *b*, for changing the direction of motion and swinging the knob toward the left instead of toward the right, the

bunter-bar *a* being adjusted to strike the upper end of said lever instead of directly against the stud *b*.

5 The bracket A can be adjusted to any position on the ways, it being secured by set-screws, as indicated. The form of the parts and the bracket and bar *a* may be modified from that here shown without departure from
10 my invention, the method of stopping the feed being substantially the same.

This invention is of great convenience and utility on a lathe when turning a number of pieces of similar length, or with a shoulder at a certain part of the piece, as the stop mechanism can be adjusted to throw off at the given
15 position on all the pieces alike, thus giving the proper length without the necessity of measuring each piece separately. It is also of service when turning long pieces of shafting
20 or other work where the lathe is started, and then left by the attendant while he is attending to other work, as the feed will be automatically thrown out of action when a given distance has been passed, and liability of damage
25 in case the machine has been too long neglected is thus avoided.

In lieu of the stud *b*, the parts may be arranged so that the finger *a* will engage the knob by a notch or depression, or in any
30 equivalent manner for operating the knob.

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

1. The combination, with an engine-lathe, of an adjustable stop-bar adapted to engage
35 with the hand-knob on the carriage-apron for automatically throwing off the clutch and stop-

ping the feed or carriage movement at a given position, as set forth.

2. The combination, with the spindle F on an engine-lathe, of an operating-knob having
40 a rotary adjustable rim provided with means for securing the same at any position of circumferential adjustment, substantially as and for the purposes set forth.

3. The combination, with the spindle F on
45 an engine-lathe, of an operating-knob having a rim or portion provided with a projecting stud adapted for circumferential adjustment, and an arm or bar arranged for engagement therewith for automatically turning said knob
50 and releasing the feed-friction by the forward movement of the carriages.

4. The handle or knob for the feed-friction on engine-lathes, composed of the central piece,
55 B', with screw-threaded hub B³ and rim-piece B², having the conical friction-surfaces *f*, and the nut or auxiliary knob B⁴, substantially as and for the purposes set forth.

5. The combination, with an engine-lathe, of the bracket A, bunter-rod *a*, and knob B,
60 provided with the stud *b*, substantially as and for the purpose set forth.

6. The lever I, in combination with the arm or bar *a*, and the knob B, having the stud *b*,
65 as and for the purpose set forth.

Witness my hand this 16th day of April, A. D. 1883.

WILLIAM H. COXON.

Witnesses:

CHAS. H. BURLEIGH,

M. L. FRENCH.