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Patented Feb. 13, 1900.

W. E. MOFFATT.  
APRON FOR ENGINE LATHES.

(Application filed July 27, 1899.)

(No Model.)

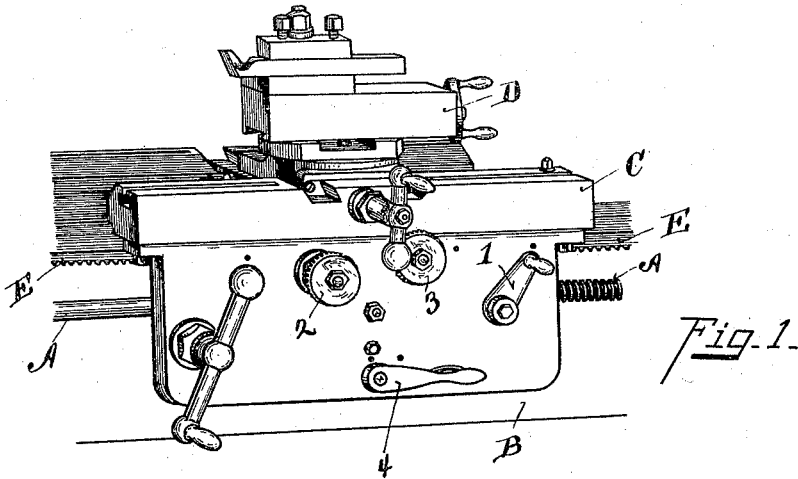


Fig. 1.

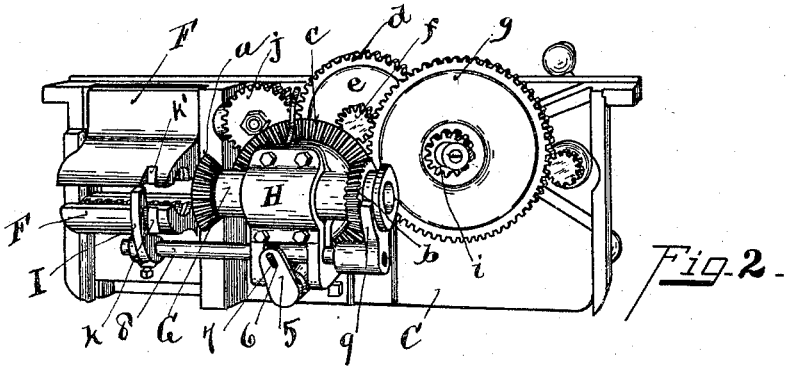


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## APRON FOR ENGINE-LATHES.

SPECIFICATION forming part of Letters Patent No. 643,194, dated February 13, 1900.

Application filed July 27, 1899. Serial No. 725,278. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ERSKINE MOFFATT, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Improvements in Aprons for Engine-Lathes, of which the following is a specification.

My invention relates to certain improvements in the apron mechanisms used in engine-lathes.

The object of my invention is to provide mechanism which will effectually lock the apron-feed mechanism from possible engagement when the lead-screw is in use, and, vice versa, which will lock the half-nuts from engagement with the lead-screw when the apron-feed devices engage the rack.

The features of my invention will be more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of the tool-stock of an engine-lathe, showing lathe-bed and apron. Fig. 2 is an inside elevation of the apron removed.

A represents the ordinary lead-screw used for screw-cutting; B, the lathe-bed; C, the apron; D, the tail-stock, and E the rack.

F represents the half-nuts operated by the usual cam-grooves in a wheel, not herein needing to be shown.

I represents the hand-lever for controlling the half-nuts.

G represents a sleeve interiorly keyed upon the splined screw-shaft. (Not shown in Fig. 2.) This is supported in journal-bracket H and carries the bevel-gears *a b*, which constitute the reversing mechanism for the apron-feed.

As the sleeve is thrown to one end or another one of these gears *a b* engages with bevel-gear *c*, which has a pinion on it (not shown) engaging gear-wheel *d*. Gear *d* has on its shaft friction-wheel *e* and pinion *f*, fixed to the apron-plate and meshing with gear-wheel *g*, to which is keyed pinion *i*, which meshes with the rack on the lathe-bed. *j* represents the gear-wheel, also in mesh with gear *d*. There is also a friction plate or clutch connected to this wheel for transmitting power to the transverse feed. The longitudinal and transverse feeds are operated, respectively, through knurls 2 3, which control the said friction-

clutches. These parts are of ordinary construction.

4 represents the lever for controlling the position of sleeve G. The inner end of this lever (shown in Fig. 2) has the upturned end 5, with slot 6 engaging a pin 7 on the tripping-rod 8. This rod carries a yoke 9, engaging the sleeve, so as to throw the sleeve in the proper direction when the rod is tripped. The other end of this lever is projected under the half-nuts and has an upturned finger I, the inner portion of which is thickened to form a lip which is normally interposed between the half-nuts, as shown in Fig. 2, constituting a lock against the closing of the same.

The half-nuts are cut away, forming grooves *k k'* of sufficient depth to allow the half-nuts to be clamped down together when the finger is brought opposite these grooves by the movement of the tripping-rod. Careless or inexperienced handling of the lathe is apt to engage the rack mechanism in the apron and the half-nuts and lead-screw at one time, which would manifestly wreck the parts or some of them. It is therefore obviously of great importance to provide mechanisms which will prevent them from engaging otherwise than independently. The tripping-rod and finger above described accomplish this result. When the power is transmitted to the apron-feed through the gear mechanism and rack above described, the sleeve G must be thrown to its extreme position at one end or the other, according to whether direct or reversing feed is to be given the apron, and in either position the lip portion of finger I will be between the half-nuts, so that they cannot be clamped down upon the lead-screw, and the only position in which they can be brought together is when the finger is brought opposite the grooves *k k'* by the movement of the tripping-rod, and this position is obtained only when sleeve G is centrally located in its journal-bracket, with gears *a b* out of engagement with gear *c*, and hence the apron-feed thrown out. It is equally clear that if the half-nuts are clamped down upon the lead-screw it would be impossible to throw the apron-feed into engagement with the rack, for the finger I would lie in grooves *k k'* and be locked thereby against lateral movement, preventing any movement

of either the tripping rod or sleeve G until the half-nuts are unclamped, and then the least lateral movement of the tripping-rod would again lock the half-nuts apart.

5 Having described my invention, I claim—

1. In an engine-lathe, in combination with the apron employing half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack, a sleeve movably mounted in a journal-bracket, means for revolving said sleeve, a gear mounted on said sleeve adapted to be brought into engagement with the rack gear-wheels, a tripping-rod connected to said sleeve, a lever for  
10 said rod, a lug carried by said rod interposed between said half-nuts, means for automatically interposing said lug between said half-nuts when the rack mechanisms are engaged releasing the same when they are disengaged,  
15 substantially as described.

2. In an engine-lathe, in combination with the apron employing the half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack, a sleeve movably  
25 keyed upon the lead-screw, a gear-wheel mounted on the sleeve adapted to engage one of the said apron-driving gears, a tripping-rod mounted in journal-brackets parallel to said sleeve, a lever for said rod, connections  
30 between said sleeve and rod adapted to move them in unison, a lug carried by said rod, one end of which is interposed between the half-nuts, means for automatically interposing said lug between said half-nuts when the rack  
35 mechanisms are engaged releasing the same when they are disengaged, substantially as described.

3. In an engine-lathe, in combination with

the apron employing half-nuts, adapted to engage the lead-screw, and driving-gears adapted to engage the rack on the lathe-bed, a sleeve movably mounted in a journal-bracket and keyed upon the lead-screw, a gear-wheel mounted on said sleeve, a tripping-rod movably supported by the apron, parallel to said sleeve and connected to said sleeve, a lever for said tripping-rod, a lug carried by said rod interposed between said half-nuts and notches formed in said half-nuts adapted to pass over the interposed end of said lug when the lug  
40 is brought opposite to them, substantially as described.

4. In an engine-lathe in combination with the apron employing half-nuts adapted to engage the lead-screw, and driving-gears adapted to engage the rack on the lathe-bed, a sleeve movably mounted in a journal-bracket keyed upon the lead-screw, a gear carried by said sleeve, a tripping-rod movably supported by said apron parallel with said sleeve, and  
55 connected thereto, a lever for shifting said rod, a lug carried by said rod having one end interposed between said half-nuts, notches formed in said half-nuts adapted to pass over said interposed end of the lug, the notches  
60 being so located on the half-nuts that the lug will be brought opposite to them only when the gear-wheel carried by the sleeve is out of engagement, substantially as described.

In testimony whereof I have hereunto set my hand.

WILLIAM ERSKINE MOFFATT.

Witnesses:

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