(No Model.)

B. J. COATES.

MACHINE FOR TURNING CROSS HEAD PINS.

No. 376,235. Patented Jan. 10, 1888.

Fig. 1.

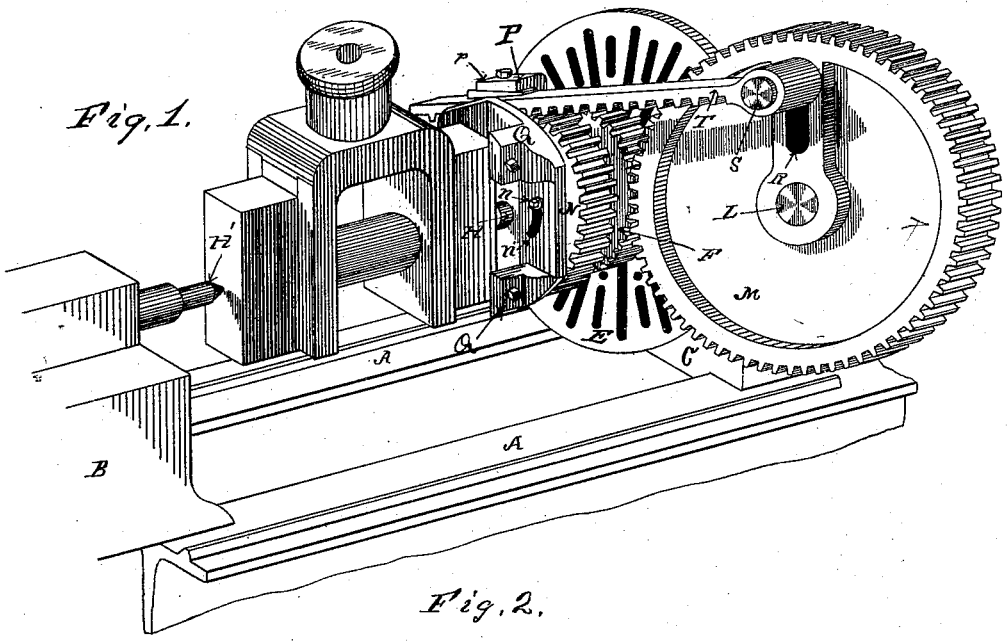
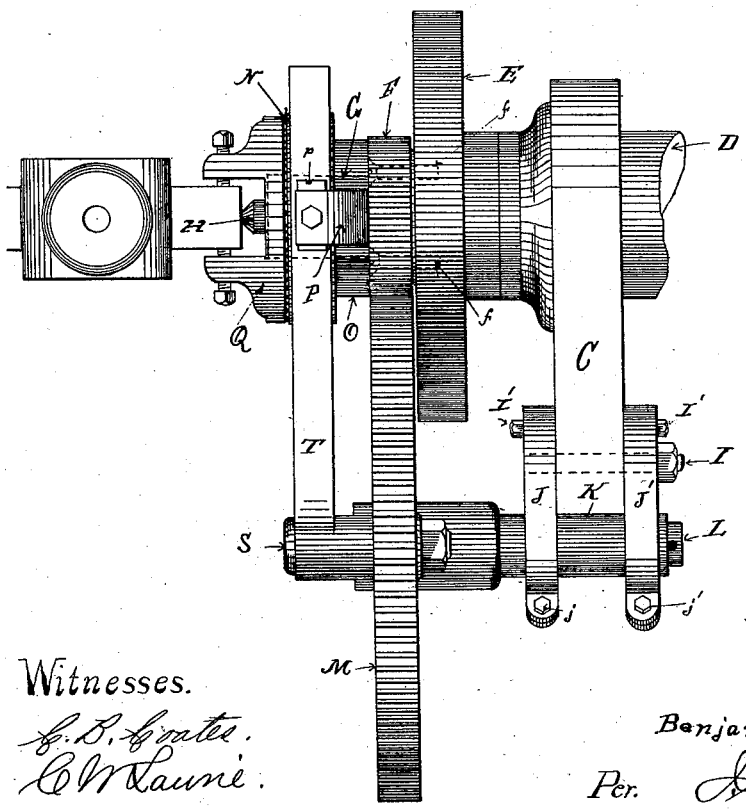


Fig. 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN J. COATES, OF ERIE, PENNSYLVANIA.

MACHINE FOR TURNING CROSS-HEAD PINS.

SPECIFICATION forming part of Letters Patent No. 376,235, dated January 10, 1888.

Application filed October 27, 1887. Serial No. 253,572. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. COATES, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Lathe Attachments for Turning Cross-Head Pins and for Grinding Keys in Plug-Cocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in lathe attachments for turning cross-head pins and for grinding keys in plug-cocks, hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of a portion of an engine-lathe with my improvement thereon. Fig. 2 shows a top or plan view of same.

Like letters refer to like parts in all the figures.

In the construction shown, A is the lathe-bed, B the tail-block, C the lathe-head, D the lathe-spindle, and E the face-plate, of the lathe. These parts being common in engine-lathes form no part of my invention.

In the construction of my improvement I make a pinion, F, provided with a sleeve, G. (Shown in dotted lines in Fig. 2.) This pinion I secure to the face-plate E by means of screws *f f* or other convenient means. Through the center of the sleeve G, I make a suitable opening for the lathe-center H, this center H being made long enough to pass through the sleeve G and pinion F into the hole in the end of the lathe-spindle D, so as to form a common center for the spindle D, the pinion F, and the sleeve G.

From the lathe-head C, I remove the back gear-shaft of the lathe, and by means of the bolt I, inserted in the bearing of the back gear-shaft, and the bolts I', tapped into the head-block C, I secure arms J J' thereto, these arms J J' forming a support for a sleeve, K, clamped therein. Through this sleeve K, I place the shaft L of the gear-wheel M, which shaft L rotates therein, the wheel M intermeshing with and being driven by the pinion F, secured to the face-plate E.

Upon the sleeve G, I place a loose pinion, N, which has on its inner end a sleeve, O, on one side of which is secured an arm, P, projecting radially therefrom, as and for the purpose hereinafter set forth. On the outer end of the pinion N, I secure a chuck, Q, adapted to hold the work to be operated upon, the chuck Q being preferably secured to the pinion N by means of set-screws *n*, operating in slots *n'* in the chuck, so that the chuck can be adjusted so that a cross-head placed therein will not strike the turning-tool. (Not shown.)

In the wheel M, I make a radial slot, R, in which is adjustably secured a wrist-pin, S, upon which is secured a rack-bar pitman, T, which intermeshes with the loose pinion N for operating it back and forth, the rack-bar pitman T being held into mesh with the pinion N by means of the overhanging arm P, which is provided with an adjustable friction-plate, *p*, operating on the upper side of the rack-bar pitman T.

In operation the wheel M is rotated by the pinion F, secured to the face-plate E of the lathe, which operates the rack-bar pitman T by means of the wrist-pin S, so as to rotate the loose pinion N and the chuck Q, thereto secured, back and forth, as desired, the distance of the travel of the pinion N and the chuck Q being governed by the adjustment of the wrist-pin S in the slot R in the wheel M.

In the drawings, the cross-head of a steam-engine is shown secured between the lathe-centers H and H' ready to turn the pin thereof, the adjustment of the wrist-pin S for this work being such that the cross-head turns somewhat more than half around and back, so that the cutting-tool travels more than half of the circumference of the pin, so that when the cross-head is reversed and finished it is perfectly round.

For grinding keys in plug-cocks, the adjustment of the wrist-pin S is so made that the loose pinion will travel about once and one-fourth times around and back, this feature of adjustment being somewhat governed by the size of the loose pinion N and length of the slot R in the wheel M.

Having thus fully described my invention,

so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a lathe attachment for turning cross-head pins, the combination of a stationary gear adapted to be secured to the lathe-spindle and a crank-wheel intermeshing therewith, with a loose pinion and chuck mounted on a common center with said fixed pinion, and a rack-bar pitman intermeshing with said loose pinion and actuated by said crank-wheel, substantially as and for the purpose set forth.

2. In a lathe attachment for turning cross-head pins, the combination of the fixed pinion F, having a sleeve, G, thereon, with the loose pinion N and chuck Q, adjustably secured together, and adapted to be rotated on said sleeve G, substantially as and for the purpose set forth.

3. In a lathe attachment for turning cross-head pins, the combination of the crank-wheel M, carrying and actuating the rack-bar pitman T, with the loose pinion N, intermeshing with said rack-bar pitman T, and the clamping mechanism P, for retaining the rack-bar pitman T in mesh with the pinion N, substantially as and for the purpose set forth.

4. In a lathe attachment for turning cross-head pins, the combination, in the crank-wheel M, of the slot M′ and the adjustable wrist-pin S with the rack-bar pitman T, mounted upon and actuated by said wrist-pin S and intermeshing with and operating the loose pinion N on the chuck Q, secured thereto, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN J. COATES.

Witnesses:
WM. P. HAYES,
G. W. GUNDAKER.