

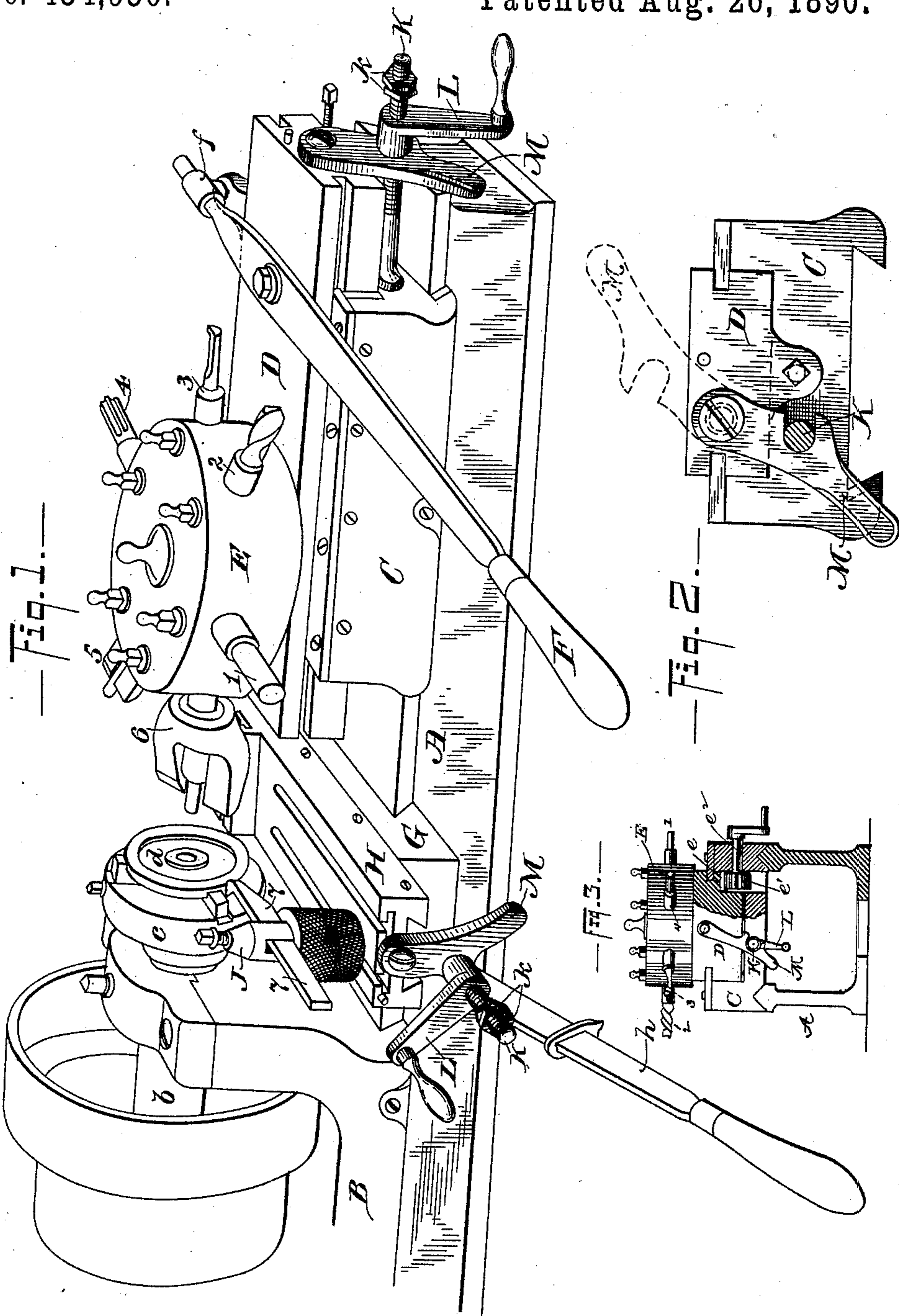
(No Model.)

2 Sheets—Sheet 1.

W. HOUGHTALING.  
LATHE.

No. 434,930.

Patented Aug. 26, 1890.



Attest:  
Oscar A. Perrigo  
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Inventor:  
William Houghtaling

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

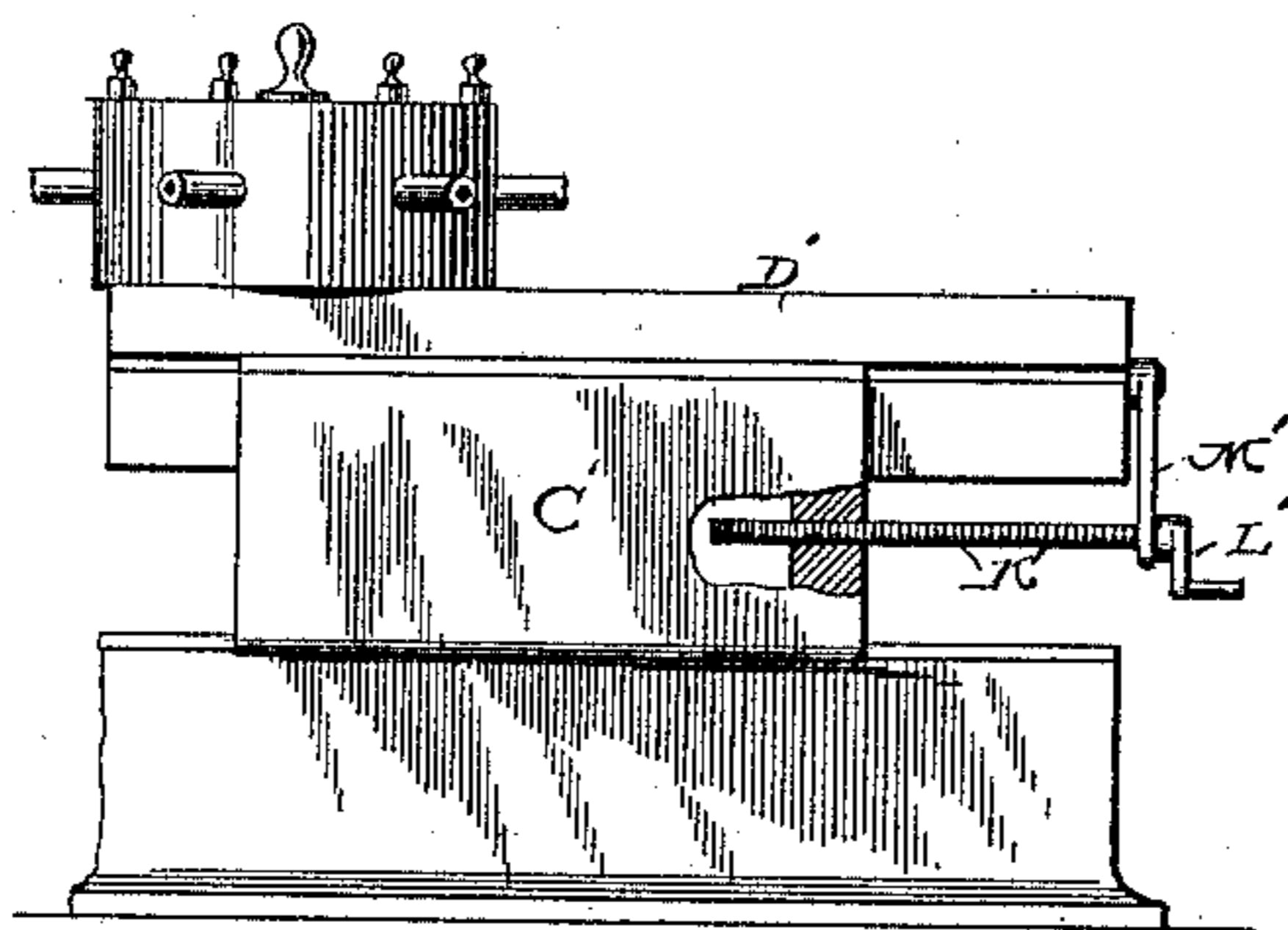
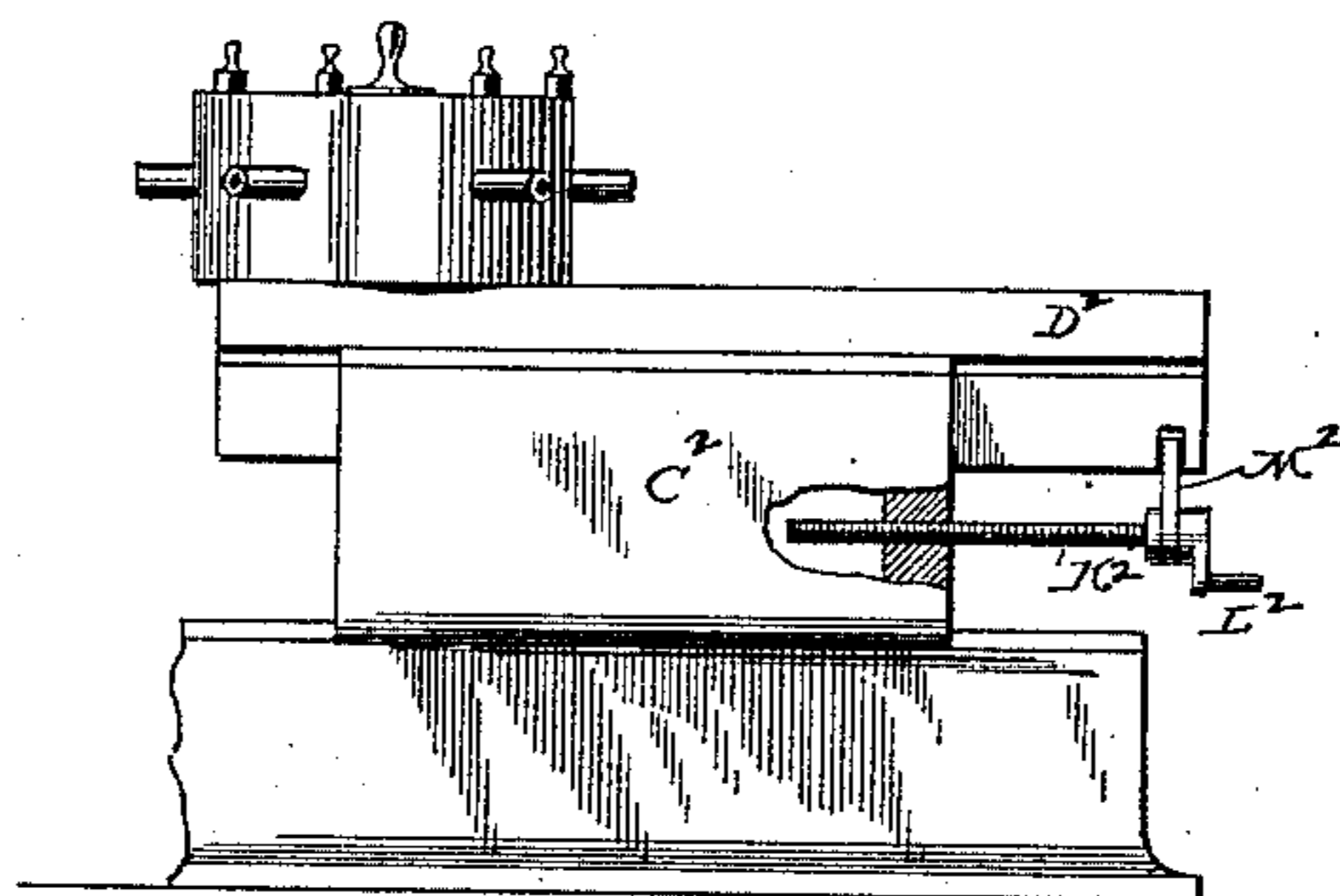


Fig. 5.



Witnesses:

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*William Houghtaling*  
*By his Atty*  
*Philip T. Dodge*

# UNITED STATES PATENT OFFICE.

WILLIAM HOUGHTALING, OF BRIDGEPORT, CONNECTICUT.

## LATHE.

SPECIFICATION forming part of Letters Patent No. 434,930, dated August 26, 1890.

Application filed November 11, 1889. Serial No. 329,918. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HOUGHTALING, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain Improvements in Screw-Machines, of which the following is a specification.

My invention relates to that class of machinery commonly known as "screw-machines," a form of lathe in which the work is held in a chuck and operated upon by various tools fixed in a rotary turret mounted on a carriage sliding in the bed of the machine in line with the axis of the spindle which carries the chuck, and also by tools fixed in tool-posts carried by a second carriage sliding at right angles to the first.

The object of my invention is to provide means by which sliding carriages may be speedily operated by hand or operated slowly and with a positive action, as circumstances require.

In order to operate the carriage in conjunction with the turret, it must necessarily be moved a considerable distance in order to cause the operation of the mechanism by which the turret is rotated, and it is obvious that a screw would operate too slowly for practical use. Therefore it is customary to combine with the carriages a hand-lever, a rack and pinion, or equivalent mechanism for imparting long and rapid movements thereto. The use of these carriage-operating devices is, however, attended with a serious difficulty, particularly when using tools having a broad cutting-edge, in that it is impossible to maintain a uniformly-steady pressure upon the work thereby. The result is that in forming a piece of work—such as a casting—having a hard scale upon its surface requiring a considerable degree of pressure to force the tool through the scale, the tool will, on passing beyond the scale, enter the softer portion of the casting with a shock which is very liable to injure either the work or the tool itself. It is desirable that the force necessary to carry the tool forward during the cutting action shall be slow and positive. I therefore combine with the carriage, having the usual lever or rack and pinion devices to advance the carriage and the tool to the point where the cutting action commences, a screw-feed of peculiar construction for continuing the advance

in a steady and positive manner, the screw-connections being adapted to be thrown instantly into and out of operation at will. 55

The essence of my invention rests in combining with the carriage a screw-feed of peculiar construction capable of being thrown instantly out of action, and an independent feed for imparting a longer and more rapid movement; and it will be understood that the invention is susceptible of embodiment in various equivalent forms, which will suggest themselves to the skilled mechanic after reading this specification. 60 65

In the accompanying drawings, Figure 1 is a perspective view of the operative parts of an ordinary screw-machine having my improvement applied thereto, the carriages being combined with the ordinary hand-levers. Fig. 2 is an end elevation of the turret-slide, illustrating the manner of throwing the screw-feed into and out of action. Fig. 3 is an end elevation showing my improvement applied to a machine in which a rack-and-pinion feed is employed. Figs. 4 and 5 are side elevations, illustrating my screw-feed in various equivalent forms. 70 75

Referring to Figs. 1 and 2, A is the bed or base of the machine, supporting the head-stock B, in which is mounted the main spindle b, carrying the chuck c, which carries the work to be operated upon—as, for example, piece d. 80

C is the turret-slide block, mounted on the main frame and giving support to the horizontal turret-slide D, upon which is mounted the rotary turret E, provided with tools 1 2 3 4 5 6, in the usual manner. The turret-slide D is moved to and fro through the greater part of its path, so as to cause the action of the turret-turning mechanism by a hand-lever F, pivoted to the slide D and fulcrumed in a swiveled piece f. 85 90

G is the cross-slide block, mounted on the main frame and sustaining the cross-slide H, carrying the tool-post J, in which the tool 7 is mounted. This cross-slide moves at right angles to the path of the turret-slide and is operated by a hand-lever h, connected thereto in the ordinary manner. 95 100

Thus far the machine is constructed and operates in the usual manner.

Referring now to my improvement, K represents a horizontal stud fixed to the turret-

slide block and threaded at its outer end. On the threaded end of the screw-stud is mounted a nut L, fashioned into a crank, so that it may be readily turned by hand. Piv-  
 5 oted to the turret-slide D is a notched latch M, which may be turned downward over the screw-stud in position to be acted upon by the nut, as shown in Fig. 1, so that the turn-  
 10 ing of the nut will cause the latch to carry the turret-slide and the tool forward toward the work, or turned upward out of action, as shown in dotted lines in Fig. 2, so that the slide is left free to be operated by the hand-  
 15 lever, as usual. The end of the screw-stud outside of the crank is provided with check-nuts  $k\ k$ , to prevent the nut L from being turned backward any further than is neces-  
 20 sary to permit the latch to be thrown into action. These devices are intended to save time and labor in constructing parts in du-  
 plicate, and which admit of the carriage being always started by the screw from the same point.

The cross-slide block G and cross-slide are  
 25 provided with a screw-stud, nut, and latch similar to those above described.

In Fig. 3 I have illustrated the turret-slide D, provided with a rack  $e$ , actuated by a pinion  $e'$  on a crank-shaft  $e^2$ , as usual. My screw-  
 30 connections are used in connection with this slide in the same form and manner as in the preceding figures. The rack and pinion are in this case the equivalent of the hand-levers shown in Figs. 1 and 2. In Fig. 4 the screw  
 35  $K'$  is threaded into the turret-slide block  $C'$  and provided with a crank  $L'$  on its outer end by which to turn it. The latch  $M'$  is pivoted, as before, to the turret-slide  $D'$ , arranged to turn downward into engagement with an  
 40 enlargement in the end of the screw. In Fig. 5 a screw  $K^2$ , provided with a crank  $L^2$ , is tapped into the turret-slide block  $C'$ , as in the preceding figure; but the latch  $M^2$ , instead of being pivoted to the turret-slide  $D^2$ , is mounted  
 45 between collars on the screw and arranged to turn upward into a notch in the turret-slide.

It will be observed that in each of these forms the screw-connection may be instantly thrown into and out of action.

In operating a machine provided with my 50 improvement the latch stands normally out of engagement, so that the tool-carrying slide may be moved quickly backward by the hand-lever or the rack and pinion. At the proper time the carriage is moved forward by the 55 same means until the tool is near the point at which it is to commence its cutting action, whereupon the latch is thrown into engagement and the further advance of the tool effected by means of the screw. 60

Having thus described my invention, what I claim is—

1. In combination with the tool-holding slide of a screw-machine and the usual manual device for quickly moving the same, a 65 screw-feed comprising a threaded rod, a crank sustained by the rod in such manner that it will advance when rotated, and a co-operating latch adapted to be engaged by the crank when the screw-feed is in action and to be 70 moved free of the crank when the screw-feed is to be rendered inactive, substantially as described.

2. In combination with the tool-holding slide and the usual manual device for quickly 75 moving the same, the fixed threaded rod, the crank-nut thereon, and the co-operating latch adapted to be engaged by or disengaged from the nut, as desired, substantially as described.

3. In combination with the tool-carrying 80 slide, its support, the screw-stud fixed to said support, the crank-nut, the check-nut to limit the movement of the first-named nut, and the latch.

In testimony whereof I hereunto set my 85 hand, this 28th day of September, 1889, in the presence of two attesting witnesses.

WILLIAM HOUGHTALING.

Witnesses:

OSCAR E. BENIGO,  
 JNO. H. WHITE.