A. E. NEWTON & F. K. HENDRICKSON.

LATHE.

APPLICATION FILED FEB. 27, 1915.

1,242,583.

Patented Oct. 9, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

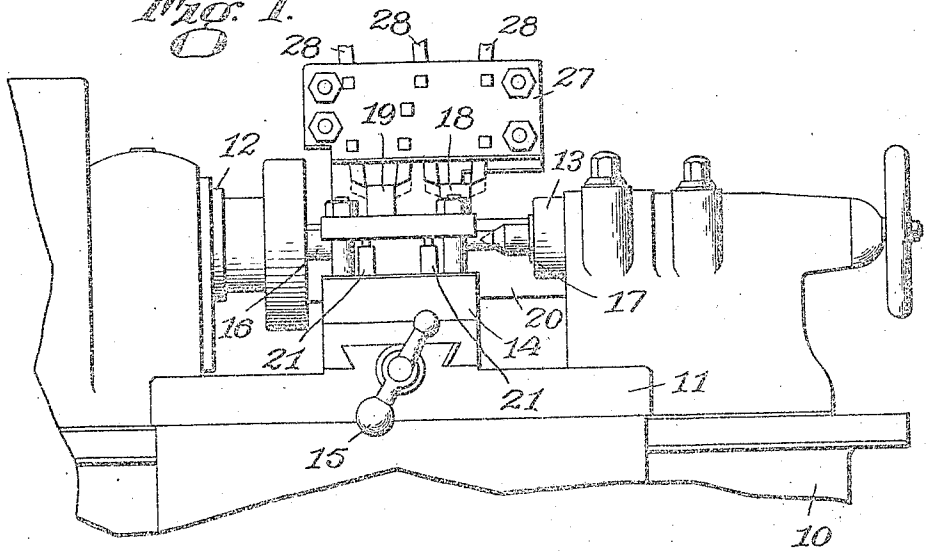
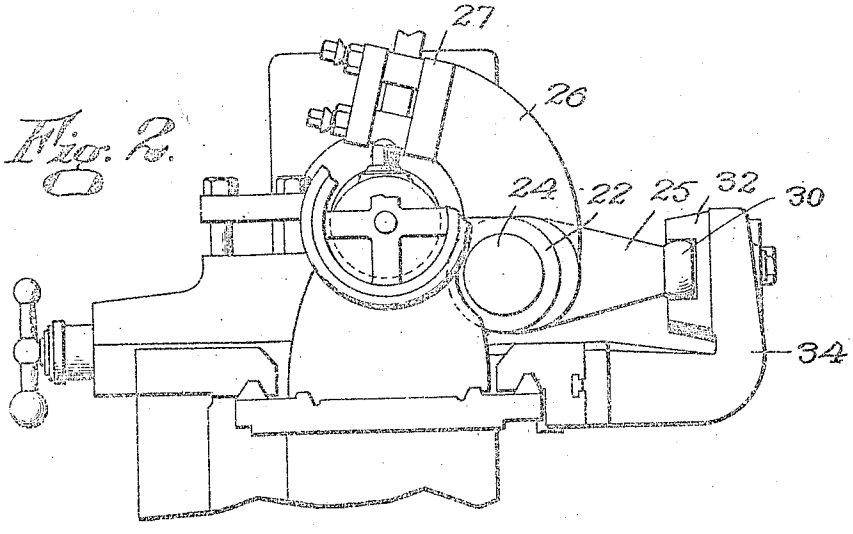


Fig. 2.



Witnesses

R. D. Tolman.

H. M. Kennedy.

Inventors.

Albert E. Newton.

Fred K. Hendrickson.

By Attorney

Harding W. Barnes

A. E. NEWTON & F. K. HENDRICKSON.

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2 SHEETS—SHEET 2.

Fig. 3.

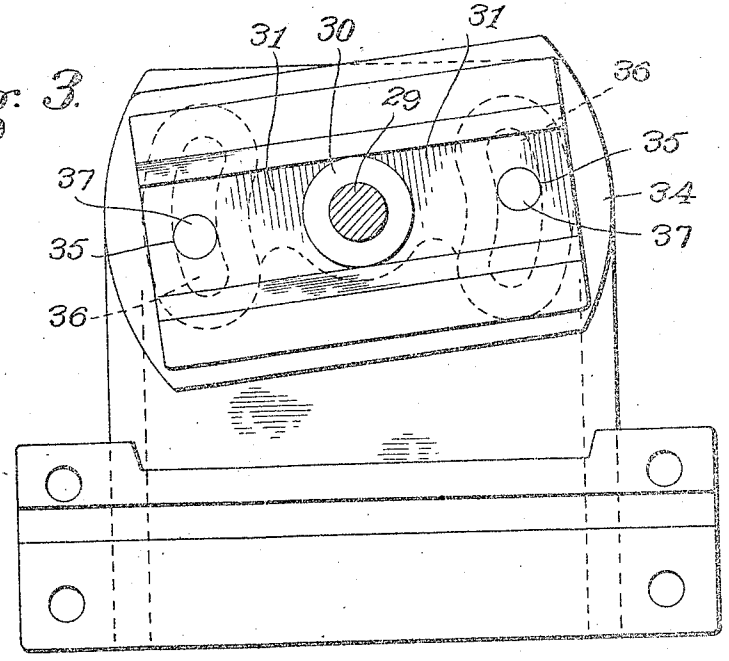
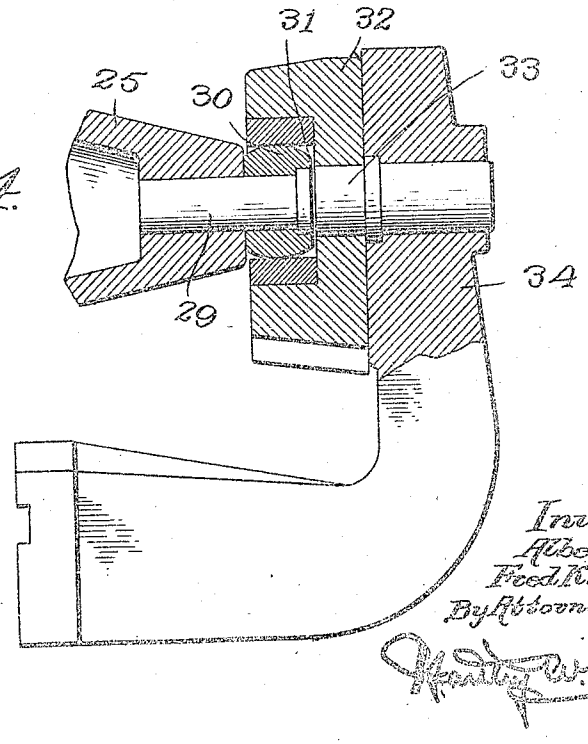


Fig. 4.



Witnesses.
R. B. Tolman.
H. M. Kennedy.

Inventors.
Albert E. Newton.
Fred K. Hendrickson.
By Attorney.

UNITED STATES PATENT OFFICE.

ALBERT E. NEWTON AND FRED K. HENDRICKSON, OF WORCESTER, MASSACHUSETTS.

LATHE.

1,242,583. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed February 27, 1915. Serial No. 10,946.

To all whom it may concern:

Be it known that we, ALBERT E. NEWTON and FRED K. HENDRICKSON, citizens of the United States, residing at Worcester, State of Massachusetts, have invented a certain new and useful Improvement in Lathes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to metal cutting machinery but more particularly to lathes and has for its object to provide a structure which is simple in construction and more efficient in operation than devices of a similar nature now in use.

The particular embodiment herein shown and described is intended for use in roughing and finishing the rim of a drum or pulley, though it will be readily understood that the invention is in no way limited to such an embodiment. It has heretofore been generally customary to perform the roughing or finishing of certain faces at one time and to perform the same operation on other faces at a different time. In the present invention it is possible to operate on a number of different faces at the same time, as will be fully understood from the following description.

One embodiment of the invention is shown in the drawings in which:—

Figure 1 is a side elevation of the invention complete.

Fig. 2, end elevation.

Figs. 3 and 4, detail views, as will be fully described hereinafter.

In the drawings the device is shown to comprise a bed 10 upon which is mounted a carriage 11 movable longitudinally of the bed in the usual manner. Upon this bed 10 is mounted the head stock 12 and the tail stock 13 and upon the carriage 11 is the usual transversely movable tool holder 14 operated by the feed screw 15 in the usual manner.

Between the live spindle 16 and the dead spindle 17 is mounted the work which here consists of two pulleys 18 and 19 supported upon the shaft 20 held between such spindles. In the present embodiment these two pulleys are operated upon substantially simultaneously, and the number is only limited by the size of the particular lathe.

The cutting tools 21 are mounted in the tool holder 14 opposite each piece of work to turn diameters in the usual way. In bearings 22 and 23 respectively, on the rear of the head stock and tail stock, is mounted a shaft 24 preferably substantially parallel to the axis of the lathe spindles and on this shaft is secured a rearwardly extending arm 25, and an upwardly and forwardly extending arm 26. At the upper extremity of the arm 26 is formed a tool holder 27 in which are here mounted four cutter tools 28, arranged in pairs to operate on the opposite side faces of the rim of the pulleys 18 and 19, as best shown in Fig. 1 of the drawings.

At the rearward extremity of the arm 25 is set a pin 29 upon the outer extremity of which is a knob or ball 30 adapted to fit within the slot 31 in the plate 32 swiveled on the pin 33 projecting forwardly from the arm 34. These last mentioned parts are shown in detail in Figs. 3 and 4, and a portion of the arm 34 is broken away in Fig. 4 to show the pin 33. The plate 32 is adapted to be turned upon the pin 33 to cause the slot 31 to be set at any desired angle to the horizontal. In the plate 32 are oppositely disposed holes 35, and in the arm 34 opposite to the corresponding holes 35 in the plate 32 are curved slots 36. Through this slotted arm 34 pass bolts 37 which enter the tapped holes 35 in the plate 32 which are adapted to lock this plate to the arm at the desired angle. While this form of locking the plate 32 on the arm 34 has been found to be advantageous, the device is in no way limited to such a construction and any other well known form of locking means might be substituted therefor.

The arm 34 is preferably connected to the tool carriage 11 and movable therewith longitudinally of the bed. When the plate 32 is set with the slot 31 horizontal, the travel of the carriage will not rock the arm 25, but when this plate is set at an angle, as shown in Fig. 3, movement of the carriage in one direction will cause the arm 25 to swing upwardly and in the other direction downwardly, causing a corresponding rotation of the shaft 24 and swinging of the arm 26. Thus assuming the carriage 11 to be moving from the head stock toward the tail stock, if the plate 32 is in the position shown in Fig. 3, the upper extremity of the arm 26 will swing forwardly and downwardly an amount depending upon the angle at which the plate 32 is set, causing a corresponding downward movement of the cutters 28 carried in the holder 27 on this

arm. As these cutters 28 are moving downwardly, the drums or pulleys 18 and 19 are being rotated on the lathe spindle so that these cutters face opposite sides of the drums. The angle of the slot in the plate 32 is regulated to produce the required advance of the cutters 28.

As the cutters 28 are facing the side faces of the two drums, the cutters 21 in the tool holder 14 on the carriage 11 are turning diameters on these drums. As the travel of the carriage actuates the back arm facing attachment, the operation of turning diameters and the facing operation will be completed at the same time.

By turning the plate 32 upon the swivel pin in the opposite direction from that shown in Fig. 3, the slot or groove 31 will be arranged so that it will advance the cutters 28 when the carriage is moved from the tail stock toward the head stock. It is advisable to form the bearings for the shaft 24 integral with the tail and head stocks to insure absolute accuracy of facing. If no tail stock is used, that end of the shaft 24 may be supported by a bearing mounted on the bed or in any other suitable manner.

The applicants are aware that a considerable number of changes in the construction and arrangement of parts might readily be made by anyone skilled in the art without departing from the scope of their invention, and they do not care to be limited to the particular embodiment herein shown and described except as required by the claims.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In a machine of the character described, the combination of the bed, means for centering and rotating a blank, a carriage for supporting a turning tool to act along the longitudinal surface of the blank, a pivotally mounted tool carrier for supporting a tool to act transversely of the blank, a pivotally mounted guide connected to and movable with the carriage, and connections between the tool carrier and guide to cause the said carrier to turn and move the carrier tool toward the axis of the blank as the carriage is moved longitudinally.

2. In a machine of the character described, the combination of the bed, means for centering and rotating a blank, a carriage movable longitudinally of the bed and adapted to support a turning tool, a facing tool carrier, a guide adjustably connected to and movable longitudinally with the carriage, means for securing the guide in different inclined positions, and connections between the guide and facing tool carrier for moving the facing tool toward the axis of the blank as the carriage is moved longitudinally of the bed.

3. In a machine of the character described, the combination of the bed, means for supporting and rotating a blank, a carriage for supporting a turning tool, a carrier for supporting a facing tool, said carriage and carrier being provided the one with an elongated guide and the other with a part engaging said guide, means for adjusting the guide to different inclined positions, and means for moving the carriage longitudinally of the bed to cause relative movement of the guide and said part and the facing tool to be moved toward the axis of the blank.

4. In a machine of the character described, the combination of a bed, head and tail stocks for supporting and rotating a blank, a carriage movable longitudinally of the bed and provided with a guide movable therewith, means for adjusting the guide to different inclined positions relative to the carriage, a carrier having a universal and sliding connection with said guide to cause said carrier to be moved and carry its tool toward the axis of the blank as the carriage is moved longitudinally of the bed.

In testimony whereof we affix our signatures in the presence of two witnesses.

ALBERT E. NEWTON.
FRED K. HENDRICKSON.

Witnesses:
HARTLEY W. BARTLETT,
HANNAH M. KENNEDY.