

No. 855,320.

PATENTED MAY 28, 1907.

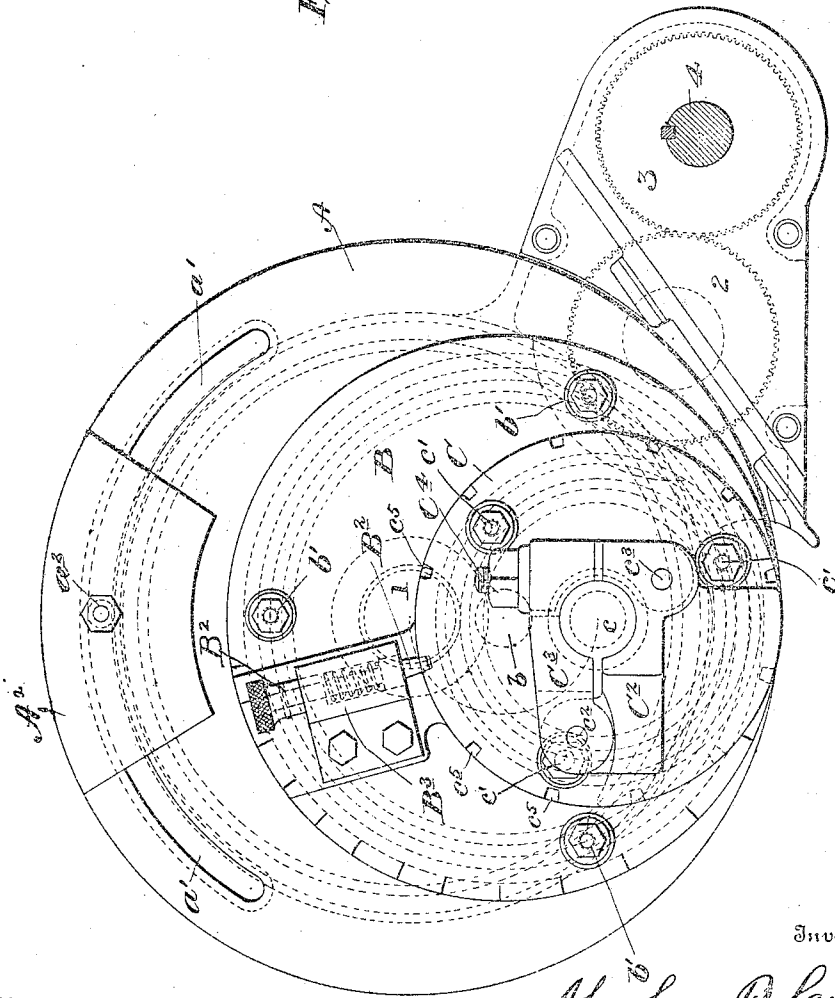
A. B. LANDIS.

ECENTRIC WORK HOLDER FOR GRINDING MACHINES.

APPLICATION FILED NOV. 18, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

W. H. Ourand
M. W. Darg

By

Inventor

Abraham B. Landis,

Attorney

No. 855,320.

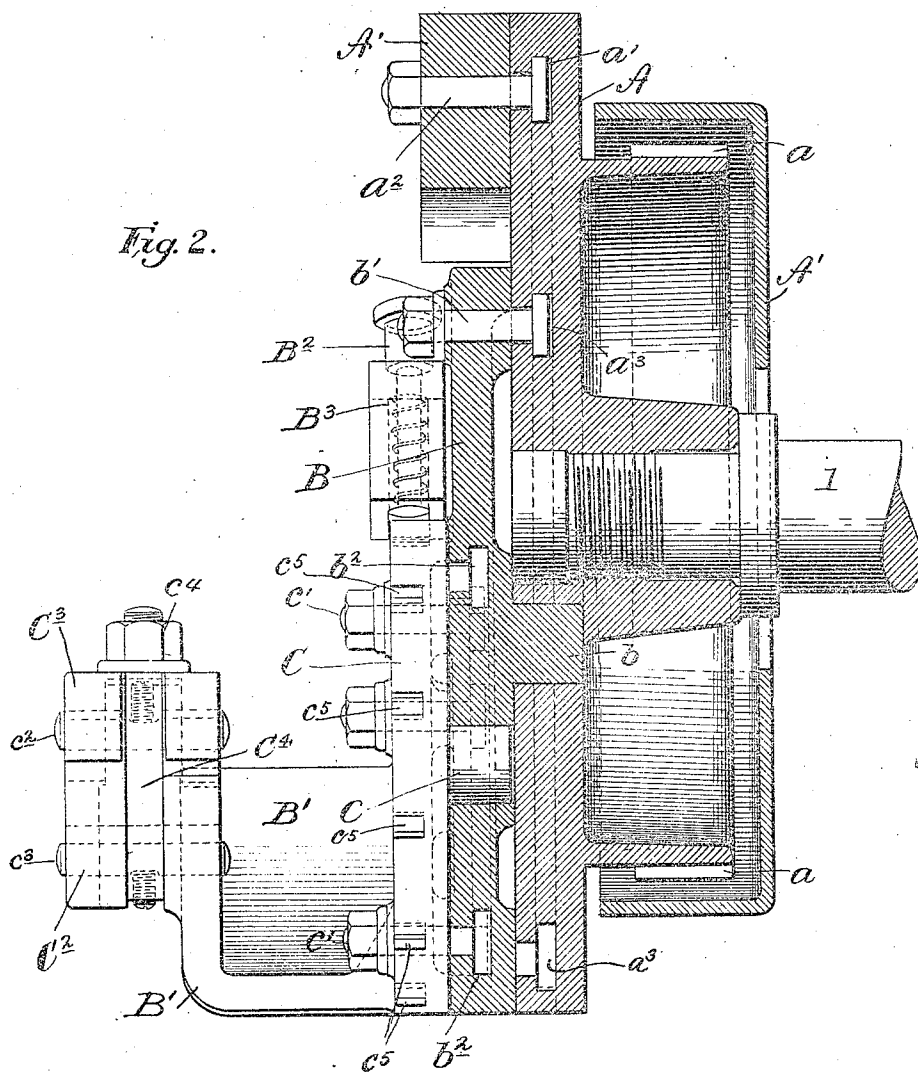
PATENTED MAY 28, 1907.

A. B. LANDIS.

ECCENTRIC WORK HOLDER FOR GRINDING MACHINES.

APPLICATION FILED NOV. 13, 1905.

3 SHEETS—SHEET 2.



Witnesses

W. H. Curand
M. W. Darg

Inventor

Abraham B. Landis,

By

Edward J. Darg

Attorney

No. 855,320.

PATENTED MAY 28, 1907.

A. B. LANDIS.

ECCENTRIC WORK HOLDER FOR GRINDING MACHINES.

APPLICATION FILED NOV. 18, 1905.

3 SHEETS—SHEET 3.

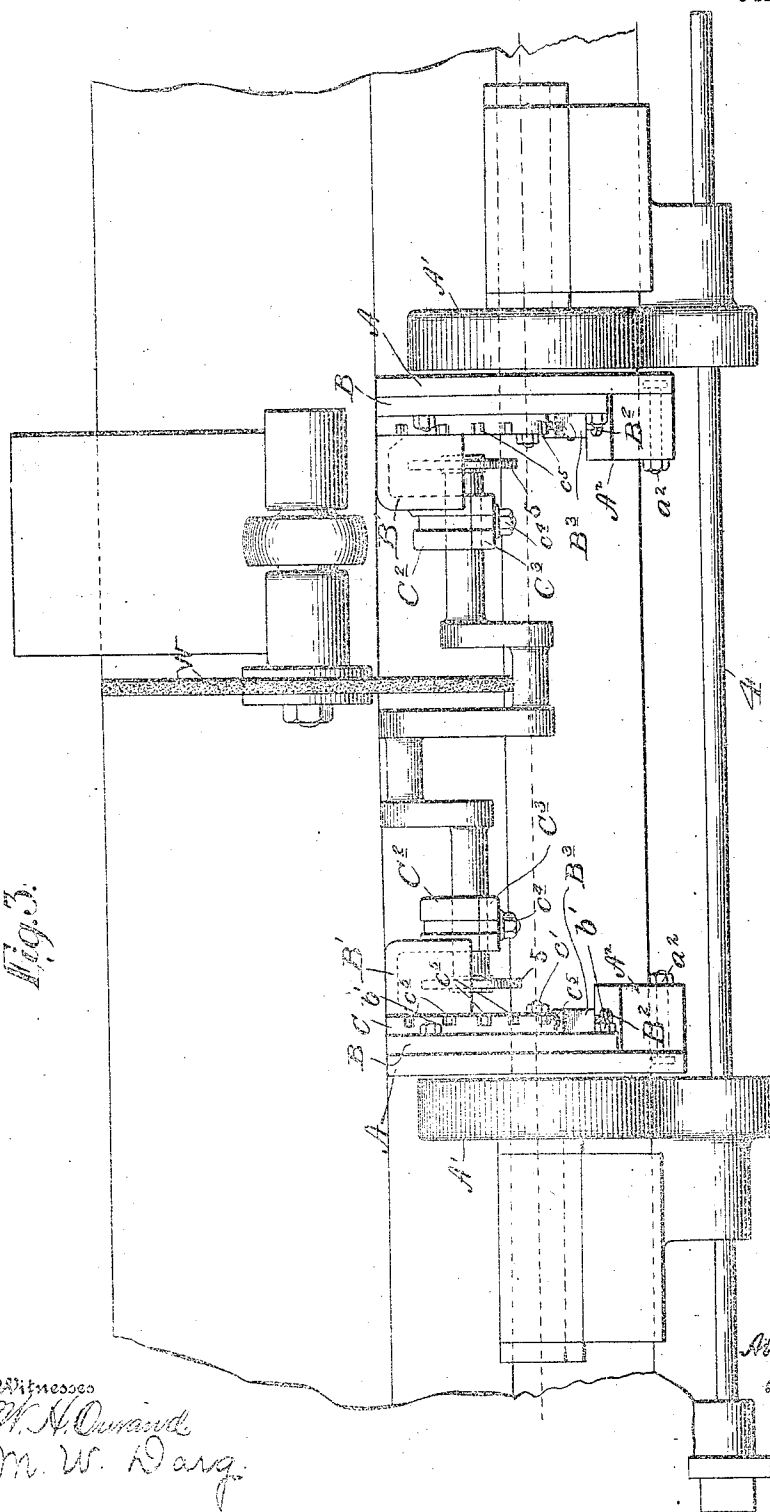


Fig. 3.

Witnesses
W. A. Durand
M. W. Darg.

Inventor
Abraham B. Landis,
By
C. W. Radford
Attorney

UNITED STATES PATENT OFFICE.

ABRAHAM B. LANDIS, OF WAYNESBORO, PENNSYLVANIA.

ECCENTRIC WORK-HOLDER FOR GRINDING-MACHINES.

No. 855,320.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed November 18, 1905. Serial No. 288,050.

To all whom it may concern:

Be it known that I, ABRAHAM B. LANDIS, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Eccentric Work-Holders for Grinding-Machines, of which the following is a specification.

My said invention consists in an improved construction of eccentric holding-mechanism for use on the head stocks of grinding machines for holding crank-shafts during the grinding of the wrists thereof, all as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a face view or elevation of one of the face-plates of a head-stock with my eccentric holding-attachment thereon, Fig. 2 a view partly in central section and partly in edge elevation of the same, and Fig. 3 a detail top or plan view of a portion of the table of a machine, showing the head-stocks with a crank-shaft mounted therein, in position to be ground.

In said drawings the portions marked A represent the main face-plate of the head-stock, B a swiveled plate mounted thereon and C a second plate, swiveled or pivotally mounted on said swiveled plate, carrying the work-holding clamp or parts.

The main face-plate A is mounted upon a spindle 1 and provided with a flange having a gear a formed thereon, with which a gear wheel 2, driven from a gear wheel 3, on a driving shaft 4, engages. A shield A' is mounted over said gear a as is usual. Said face-plate is provided with a segmental T-shaped groove a' extending concentric with its periphery on the side opposite that carrying the holding devices and a counter-balance weight A^2 is adjustably secured on this part of said face-plate by means of a clamping bolt a^2 the head of which engages with said groove and the bolt proper extends through a perforation in said weight and is provided with a nut on its outer end, thus permitting said weight to be moved as required to balance the other parts of the mechanism on the opposite side of the center of said face-plate and secured in the proper position. A circular T-shaped groove a^3 is formed in said face-plate eccentric to the axis of the spindle and one side extending nearly to the edge of said face-plate.

The plate B is swiveled on a stud-shaft b mounted in a suitable perforation in the face-plate A to one side of the spindle 1 in the center of the circular groove a^3 and is secured in any adjusted position by means of clamping bolts b' , the heads of which engage said T-slot a^3 and the bolts proper extend through perforations in said plate B and are provided with nuts on their outer ends. By this means said swiveled plate B may be turned on its axis b and secured as desired.

The plate C is swiveled on a stud-shaft c mounted in a suitable bearing in the plate B, to one side of its axis b , and is held in adjusted position by means of a series of clamping bolts c' projecting through said plate C and the heads of which engage in a circular T-slot b^2 in the plate B. A bracket B' of the form most clearly shown in Figs. 2 and 3 is formed upon or secured to the outer edge of plate C and has a work holding clamp on its outer end consisting of a fixed jaw or rest C^2 , a hinged jaw C^3 and a hinged latch-bolt C^4 . The rest C^2 is preferably formed integral with the bracket B' and has a suitable rest to receive the part of the shaft or crank to be clamped therein. The jaw C^3 is pivoted to said part C^2 on a pivot c^2 and has a suitably formed part to engage with the opposite side of the shaft or crank to be clamped therein. The latch-bolt C^4 is mounted on a pivot c^3 in the lower side of part C^2 and is adapted to pass through a recess in the front ends of said parts C^2 and C^3 and engage by means of a nut c^4 with the top of said part C^3 and clamp the work firmly between said jaw parts in said holding device. The recess between this clamping device and the plate C, within the horizontal bracket or arm B' , is adapted to accommodate the disks 5 which are usually formed upon the ends of the crank-shafts used in automobiles, and similar gas engine structures. Said disks C are each provided with a series of notches c^5 in the periphery arranged to determine divisions of a circle at which said disk must be set to accommodate the different throws of the crank-shafts, which may have two, three, four or six throws at various angles. Fig. 3 shows a two throw crank in position to grind one of its wrists. A spring latch-bolt B^2 , mounted in a socket in a bracket B^3 on the plate B, is adapted to engage with said notches and stop said C plate in the desired position which is then rigidly secured by the clamping bolts c' . Said plate B is positioned by the

graduation lines shown around the left side of its face at its edge in Fig. 1, which give the throw of crank required in half inches, or as may be desired up to the extreme throw, which can be reached with the size. It will be noted that these graduations are at increasing distances apart from top to bottom, an arrangement made necessary owing to the varied movement necessary to equal changes in the throws, as will be clear.

By this means the holding device may be readily adjusted to accommodate any throw of crank, or any number of cranks on a single shaft, to bring them on a line with the center of the spindle of the main face-plate and in position to be operated upon by the grinding-wheel W.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination, with the head-stock of a grinding-machine, of the face-plate, a plate swiveled thereon at one side of its center, a second plate swiveled on said first swiveled plate eccentric to the axis thereof, and a work holding device mounted on said second swiveled plate, substantially as set forth.

2. The combination, with the head stock of a grinding machine, of the main face-plate, a second plate pivoted thereon eccentric to the axis of said face-plate, means for adjusting said second plate and securing it in adjusted position, a third plate pivoted on said second plate, eccentric to the axis of said second plate and carrying the work holding device, and formed with notches at intervals around its periphery, and a holding detent on said pivoted plate for engaging said notches, substantially as set forth.

3. The combination with the head-stock of a grinding machine, the main face-plate formed with a circular groove in its face, the center of which is at one side of the axis of said face-plate, a second plate mounted on said face-plate and secured by clamping bolts engaging with said groove, and another plate mounted on said second plate, eccentric

to the axis thereof and carrying the work holding clamp, substantially as set forth.

4. The combination with the head stock of a grinding machine, of the main face-plate mounted upon a spindle and connected with the driving mechanism, a second plate swiveled upon said main face-plate eccentric to the axis thereof, means for adjusting said second plate and securing it in adjusted position and a third plate swiveled upon said second plate, eccentric to the center thereof, means for adjusting said third plate and securing it in adjusted position comprising graduated notches in its periphery and a holding detent, and the work holding device mounted upon said third plate, substantially as set forth.

5. The combination with the head stock of a grinding machine, of the face-plate, the second plate pivoted thereon eccentric to the axis thereof, clamping bolts for holding said second plate rigidly in position, a third plate pivoted on said second plate eccentric to the axis thereof, means for securing it in the desired position comprising notches around its periphery at stated intervals and a detent on the second plate to engage with said notches, and the work holding clamp mounted on said third plate, substantially as set forth.

6. The combination with the head stock of a grinding machine, of a face-plate mounted upon the spindle and connecting to the driving mechanism, the second plate swiveled upon said face-plate eccentric to its center, the third plate mounted upon said second plate eccentric to the axis of said second plate and a bracket extending out from the face of said third plate forming a U-shaped recess and having the work holding clamp, upon its outer end, substantially as set forth.

In witness whereof, I, have hereunto set my hand and seal at Waynesboro, Pennsylvania this tenth day of November, A. D. nineteen hundred and five.

ABRAHAM B. LANDIS. [L. s.]

Witnesses:

MERTA RUSSELL,
ALF. N. RUSSELL.