No. 614,853. Patented Nov. 29, 1898.

W. H. FAUBER.

CRANK AXLE LATHE.

(Application filed Dec. 10, 1896.)

(No Model.) 3 Sheets—Sheet 1.

Fig-1

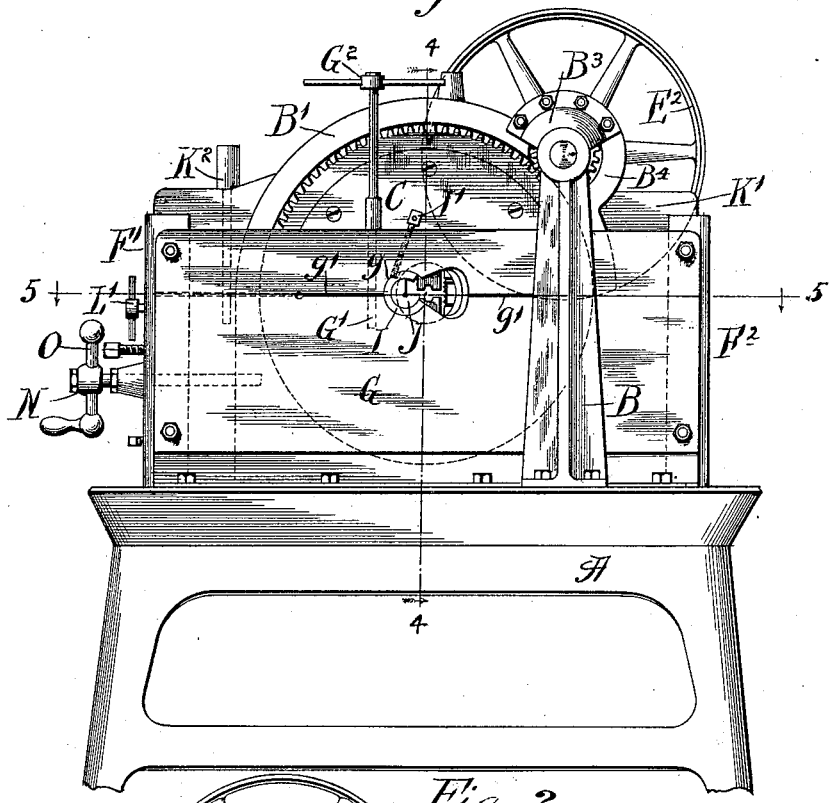
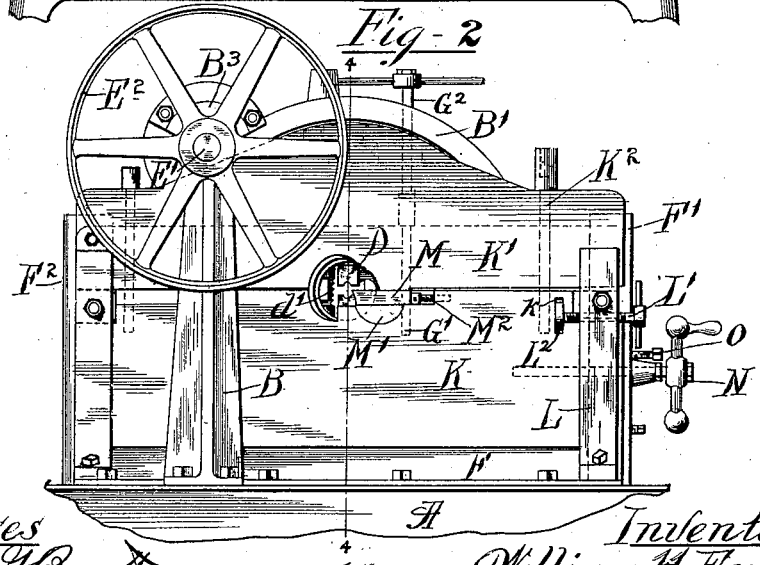


Fig-2



Witnesses
Harold G. Barnett
L. Clinton Hamelink

Inventor
William H. Fauber
by Poole & Brown
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,853. Patented Nov. 29, 1898.

W. H. FAUBER.

CRANK AXLE LATHE.

(Application filed Dec. 10, 1896.)

(No Model.) 3 Sheets—Sheet 2.

Fig. -3

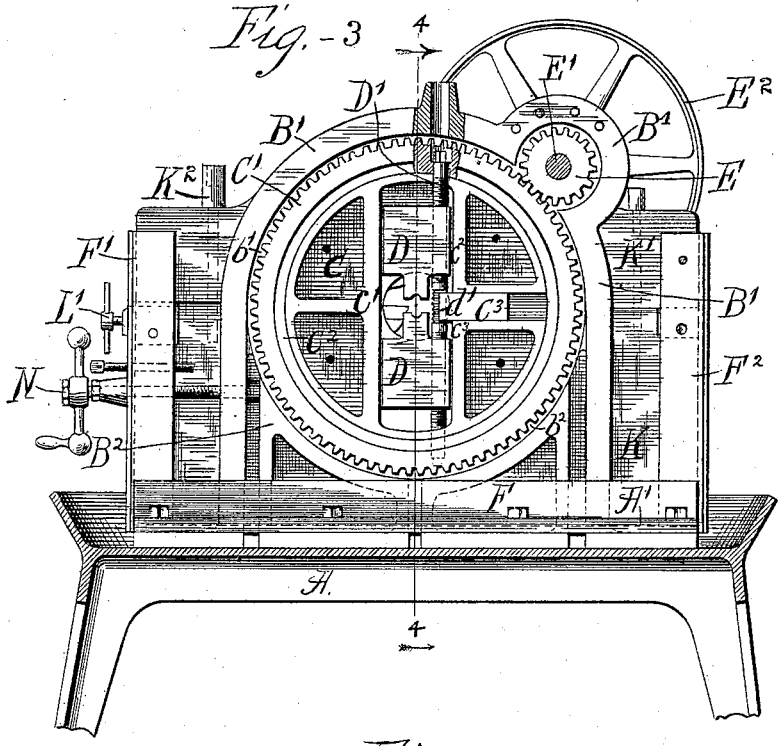
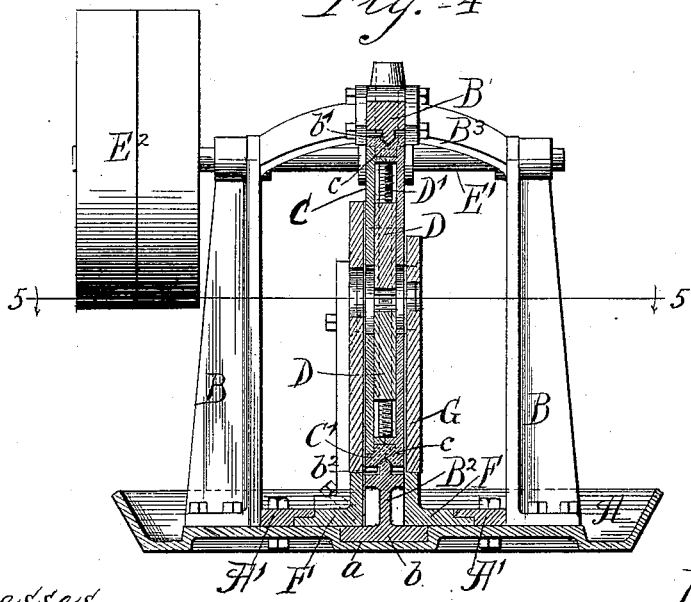


Fig. -4



Witnesses
Harold S. Barrett.
L. Clinton Hamblick

Inventor
William H. Fauber
by Poole & Brown
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,853. Patented Nov. 29, 1898.

W. H. FAUBER.

CRANK AXLE LATHE.

(Application filed Dec. 10, 1896.)

(No Model.) 3 Sheets—Sheet 3.

Fig-5

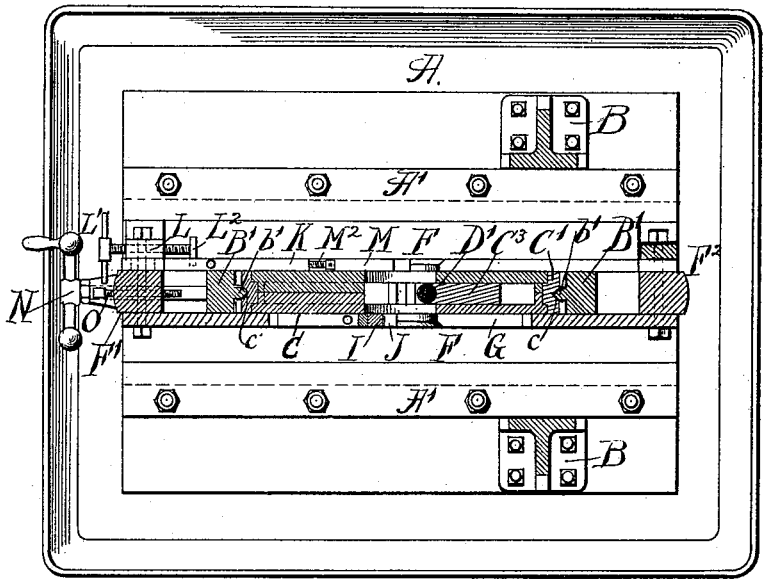
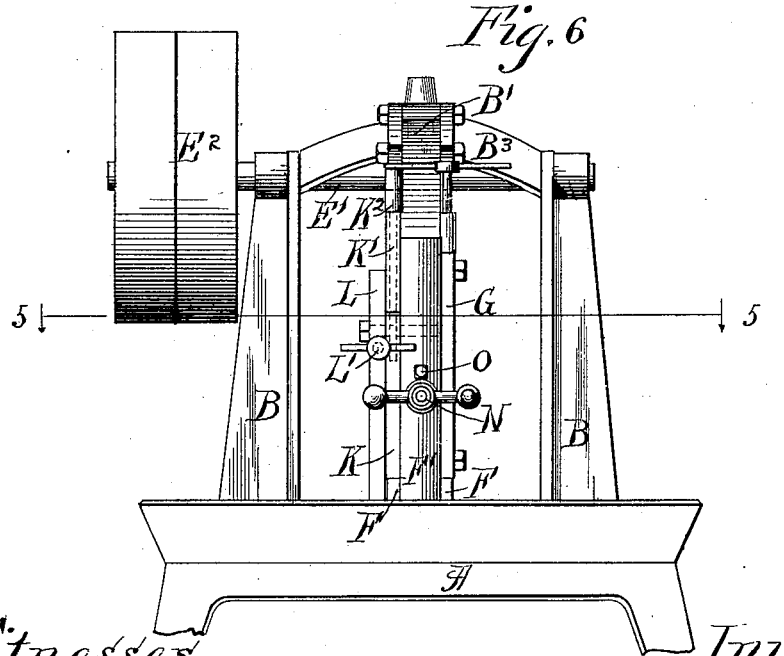


Fig. 6



Witnesses
Harold G. Bartlett.
L. Clinton Hamlink.

Inventor
William H. Fauber
by- Poole & Brown
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. FAUBER, OF CHICAGO, ILLINOIS.

CRANK-AXLE LATHE.

SPECIFICATION forming part of Letters Patent No. 614,853, dated November 29, 1898.

Application filed December 10, 1896. Serial No. 615,238. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FAUBER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Crank-Axle Lathes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to lathes of that class which are used in turning or finishing up shafts or other objects which from their configuration cannot be readily chucked at one end and sustained at the other by the tail center piece in the usual manner, but which must be chucked centrally. My invention may be used for turning many objects of this class; but I have shown a machine designed especially for finishing up crank-shafts in which the crank-shaft and pedal-cranks are made in one piece and the shaft is provided with cylindric surfaces adjacent to the crank-arms at both ends of the same.

The object of my invention is to produce a lathe of this class which shall be simple in its construction, compact and solid in its design, and capable of all adjustments necessary for rapid and accurate work.

In the drawings, Figure 1 is a right-hand side elevation of the machine. Fig. 2 is a left-hand side elevation of the machine. Fig. 3 is a view similar to Fig. 1, but with the right-hand tool-carriage plate removed and some of the parts broken away and in section to disclose the interior mechanism. Fig. 4 is a vertical section on the line 4 4 of Figs. 1, 2, and 3, looking in the direction of the arrows. Fig. 5 is a plan view with part of the machine in horizontal section on the line 5 5 of Figs. 1, 4, and 6; and Fig. 6 is a front elevation of the machine.

A suitable stand A has bolted thereto the framework of the lathe, which consists of the two standards B and the two perpendicular plates or pieces B′ and B^2, the plate B′ being connected to the standards B by the curved pieces B^3. The plate B′, as most clearly shown in Fig. 3, is of a substantially inverted-U shape and has a cross-section, as seen in Figs. 4 and 6, the inner angular rib b' on the curved portion thereof, together with a similar rib b^2 on the inner curved portion of the plate B^2, forming a bearing and guide for the toothed disk C, having the peripheral groove *c* coöperating therewith. The plate B^2 has the general shape indicated in Fig. 3 and a cross-section, as indicated in Fig. 4, its base *b* being enlarged and fitting into a corresponding depression *a* in the stand to increase its stability. The two plates B′ and B^2 and their interior ribs b' and b^2 together constitute a circular bearing in the frame for the disk C. The toothed disk consists of the toothed annulus C′, having a cross-section, as shown in Figs. 4 and 5, and fitting into and resting against the shoulders formed on the interior of the annulus are two plates or disks C^2, having the interior ribs, as clearly shown in Fig. 3. These disks C^2 are firmly secured together, and as they fit closely into and are flush with the faces of the annulus C′ the parts make a rigid disk C, mounted to rotate in the circular bearing formed therefor in the framework or plates B′ and B^2. This rotating disk C corresponds to the live center or chuck of an ordinary lathe, and the jaws are formed by two pieces D, mounted to slide in ways formed by the ribs c', c^2, and c^3 on each of the disks C^2. The movement and position of these jaws D are controlled by a shaft D′, oppositely screw-threaded at its ends, which pass through and coöperate with the jaws D, which are interiorly screw-threaded. A series of annular grooves d' coöperate with a correspondingly-grooved block C^3, mounted and fastened between interior ribs on the disks C^2, as clearly shown in Fig. 3, to hold the shaft D′ in place, and when it is desired to adjust the jaws D a key is applied to the squared end of the shaft D′ through an aperture in the plate B′.

The chuck or disk C may be rotated in any desired manner; but I preferably employ a gear-wheel E, meshing with the toothed annulus C′ and conveniently mounted in a circular offset B^4 of the frame or plate B′ and carried by a shaft E′, having bearings in the standards B, together with the customary fixed and loose belt-wheels E^2, to which power is applied.

The tool-carriage consists of two angle-pieces F, which are mounted to slide back-

ward and forward in ways formed on the top of the stand A and by two tongued strips A′, bolted thereto, as clearly shown in section in Fig. 4. Rigidly fastened between the front ends of these angle-pieces is an upwardly-projecting block F′, (best shown in Figs. 5 and 6,) and rigidly fastened between their rear ends is a similar block F^2. Resting upon the right-hand angle-piece F and bolted or otherwise fastened to the blocks F′ and F^2 is a tool-holding plate G, rectangular in shape to accommodate itself to the parts to which it is attached. This plate has a circular opening *g*, in which is mounted a segmental tool-holder I, containing a segmental cutting-tool J, as clearly shown in Fig. 1. A set-screw I′, mounted in the plate G and bearing against the segmental-holder I, serves to adjust the angle at which the tool J shall operate. To clamp the holder I, and consequently the tool J, firmly in place, I make a slit *g*′, extending horizontally in both directions from the center of the opening *g*, and mount in the upper portion of the plate G a set-screw *g*′ (indicated by the dotted lines in Figs. 1 and 2) and engaging the portion of the plate-holder G below the slits *g*′, so as to bring the parts together and clamp the holder I and the tool J in place when the screw G′ is operated by its key G^2.

The tool-holding plate on the left-hand side is conveniently constructed of two parts K and K′. The lower one K is rectangular in shape, resting on the left-hand angle-piece F, and is adjustably fastened to the rear block F^2 by bolts passing through elongated slots in the plate. It is adjustably fastened in front by means of a bolt or piece therein passing through an elongated slot in a post L, which is fastened at its base to the left-hand angle-piece F and, standing directly to the left of the plate K, affords, with the front block F′, a guide for said plate. A screw L′, passing through a threaded opening in the post L and having at its rear end a block L^2, entering a slot *k* in the block, serves to adjust the plate K relatively to the tool-carriage, and consequently relatively to the tool-carrying plate G. The cutting-tool M is located in cut-away portions between the plates K and K′ and rests upon a semicircular plate M′, mounted in a similarly-shaped bearing in the plate K, and by varying the position of the plate M′ the angle of the tool M is adjusted. It is also adjusted longitudinally by means of a set-screw M^2, whose head rests against the rear of the tool M and which has engagement with a screw-threaded socket in the plate K. I have made the upper plate K′ adjustable, so as to clamp the tool M rigidly in its place. This I accomplish by mounting the plate K′ pivotally upon a bolt or stud fastened to the rear block F^2 and by placing a set-screw K^2 in the forward part of the plate, which screw enters a screw-threaded socket in the plate K, as indicated by dotted lines in Figs. 1, 2, and 3.

To feed the tool-carriage forward or backward, I employ the hand-screw N, mounted in the front block F′ and coöperating with the frame-plate B′. To prevent the tool-carriage from being fed too far inward and to insure uniformity of work, I mount a set-screw O in the front block F′, which will come in contact with the frame-plate B′ and prevent any farther forward movement of the tool-carriage when the desired limit is reached.

The cutting-tools arranged as described are obviously adapted to act upon the parts of a crank-shaft within the crank-arms thereon, and as a crank-shaft with the arms attached may be easily and quickly inserted in the lathe it follows that the latter affords a desirable and convenient means of finishing each crank-shaft. Obviously a lathe thus made may be used for axles with only one crank-arm or in which both arms are detachable instead of integrally connected.

It will be seen that I have constructed a lathe for the purposes desired which is extremely simple, compact, and which contains all necessary adjustments.

I have shown my invention as embodied in the form which I at present deem best adapted for these objects; but it is capable of modifications, all clearly within the scope of my invention, and I do not desire to be limited to the exact form shown and described, but I desire to cover such constructions and modifications as are within the terms of the annexed claims.

I claim as my invention—

1. A lathe comprising a peripherally supported and actuated chuck having central chuck-jaws and tool-carrying plates located adjacent to the side faces of said chuck and movable in a direction at right angles to its axis of rotation.

2. A lathe comprising a peripherally supported and actuated chuck having central chuck-jaws, a tool-carriage and tool-carrying plates mounted on the carriage and located adjacent to the side faces of the said chuck.

3. A lathe comprising a stationary frame having a circular guide-rib, a circular chuck having peripheral gear-teeth, central chuck-jaws and a groove which engages with said guide-rib and a gear-pinion mounted on the frame and intermeshing with said gear-teeth.

4. A lathe comprising a stationary frame, a chuck-disk mounted to turn in a circular recess in the frame, and having central chuck-jaws and tool-carrying plates mounted on the carriage adjacent to the side faces of said chuck-disk.

5. A lathe comprising a stationary frame having a circular guide-rib, a chuck-disk having peripheral gear-teeth, central chuck-jaws and a groove which engages with said circular rib, a gear-pinion mounted on the frame and intermeshing with said gear-teeth, and tool-carrying plates mounted on the frame adjacent to the side faces of said chuck-disk.

6. A lathe comprising a stationary frame

having flat parallel side faces and a circular opening extending through the same, a chuck-disk mounted on said opening and having peripheral engagement with the frame, said disk having central chuck-jaws, means acting on the periphery of the disk for turning the same, and tool-holders located at the sides of the disk and movable in a direction parallel with the same.

7. A lathe comprising a stationary frame consisting of two frame-plates B′ and B², a chuck-disk provided with central chuck-jaws and having peripheral engagement with said frame and means for rotating said chuck-disk.

8. A lathe comprising a frame and a chuck-disk, said disk consisting of a ring, two disks secured within the ring, clutch-jaws mounted in the ways formed between the said disks and means for adjusting said jaws.

9. A lathe comprising a frame having an annular rib, a chuck-disk consisting of an external ring provided with an annular groove engaging said rib and with gear-teeth at opposite sides of said groove, disks located within said ring and attached to same, clutch-jaws mounted in ways between said disks and means for adjusting the said clutch-jaws.

10. A lathe comprising a frame, a chuck-disk having peripheral engagement with the frame, clutch-jaws mounted to slide in said disk, a screw-threaded shaft engaging the clutch-jaws for actuating the same and a movable block mounted in the disk and engaging the shaft to hold the same from endwise movement.

11. A lathe comprising a chuck-disk and means for actuating the same, said chuck-disk consisting of an external ring, two disks secured therein, clutch-jaws mounted to slide between the said disks, a screw-threaded shaft engaging both clutch-jaws and a movable block inserted between the disks and engaging the said shaft to hold the same from endwise movement.

12. A lathe comprising a frame having a circular chuck-recess, provided with an annular guide-rib, a chuck-disk provided with a peripheral groove engaging said rib and also with peripheral gear-teeth, a gear-pinion mounted on the frame and engaging said gear-teeth, sliding clutch-jaws mounted in said disk and a screw-threaded actuated shaft mounted in the disk and engaging said clutch-jaws.

13. A lathe comprising a frame provided with a circular chuck-recess, a chuck-disk having peripheral engagement with the frame, means applied to the periphery of the disk for turning the same, tool-carrying plates located adjacent to the side faces of the chuck-disk, said plates being movable on the frame and also being movable relatively to each other, adjusting means for moving both of said plates simultaneously on the frame, and adjusting means for moving one of said plates relatively to the other plate.

14. A lathe comprising a frame provided with a circular chuck-recess, a chuck-disk having peripheral engagement with the frame, means applied to the periphery of the disk for turning the same, tool-carrying plates located adjacent to the side faces of the chuck-disk, said plates being movable on the frame and also being movable relatively to each other, adjusting means for moving both of said plates simultaneously on the frame, adjusting means for moving one of said plates relatively to the other plate, and adjustable stops for limiting the advance movement of both of the said tool-carrying plates.

15. A lathe comprising a frame provided with a circular recess for a chuck-disk, a chuck-disk having peripheral engagement with said frame, a tool-carriage consisting of two angular pieces sliding in ways at the base of the frame and provided with a rigid post L, a tool-carrying plate K mounted on the carriage at one side of the chuck-disk and an adjusting-screw engaging with the said plate K and post L to adjust said plate relative to the carriage.

16. The combination with a rotating chuck-disk, of a tool-supporting plate containing a circular aperture, a split ring inserted in said aperture, a segmental cutting-tool inserted in said ring and means for adjusting the ring.

17. The combination with a rotating chuck-disk of a tool-supporting plate containing a circular aperture, a split ring inserted in said aperture, a segmental cutting-tool inserted in said ring and a set-screw I′ which passes through said plate and engages the ring.

18. The combination with a chuck-disk, of a tool-supporting plate provided with a semicircular notch adjacent to the chuck, a semicircular, tool-supporting plate occupying said notch, a tool carried by said semicircular plate, an adjusting-screw applied to move the tool longitudinally and means for clamping said tool in place.

19. The combination with a chuck-disk, of a tool-supporting plate provided with a semicircular notch adjacent to the chuck, a semicircular, tool-supporting plate occupying such notch, a tool carried by said semicircular plate, an adjusting-screw applied to move the tool longitudinally, a pivoted part connected with the said plate and adapted to bear on said tool and a set-screw engaging said pivoted part to clamp the tool in place.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 24th day of October, A. D. 1896.

WILLIAM H. FAUBER.

Witnesses:

C. CLARENCE POOLE,

C. A. NEALE.