

(No Model.)

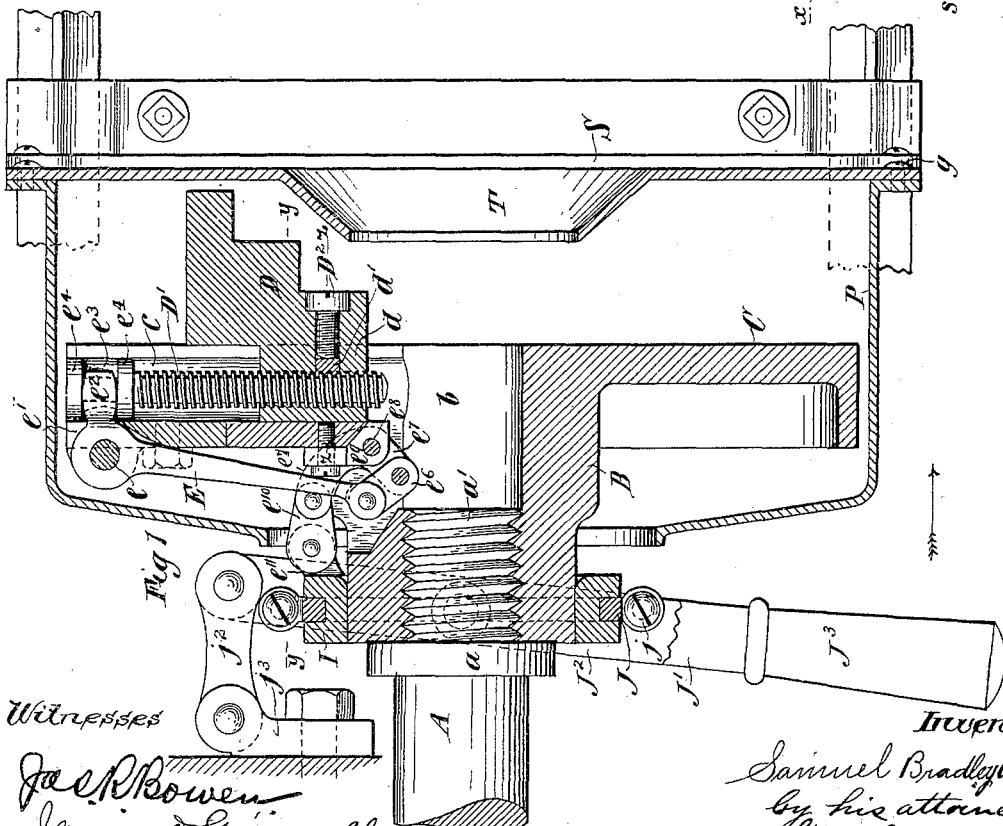
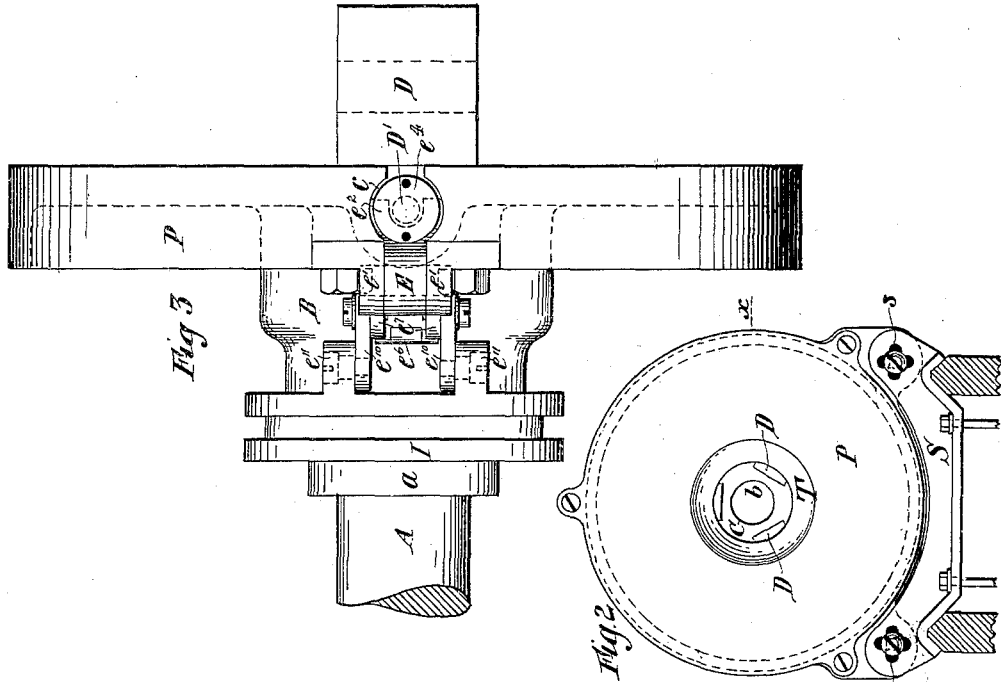
2 Sheets—Sheet 1.

S. B. ARDREY.

CHUCK.

No. 358,916.

Patented Mar. 8, 1887.



Witnesses
Ja. R. Bowen
James D. Griwold

Inventor
Samuel Bradley Ardrey
 by his attorneys
Gifford Brown

(No Model.)

2 Sheets—Sheet 2.

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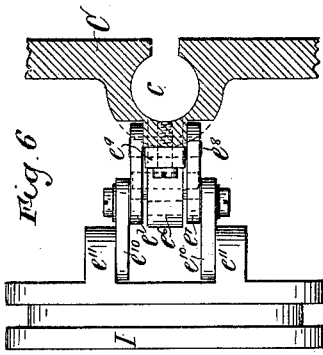


Fig. 6

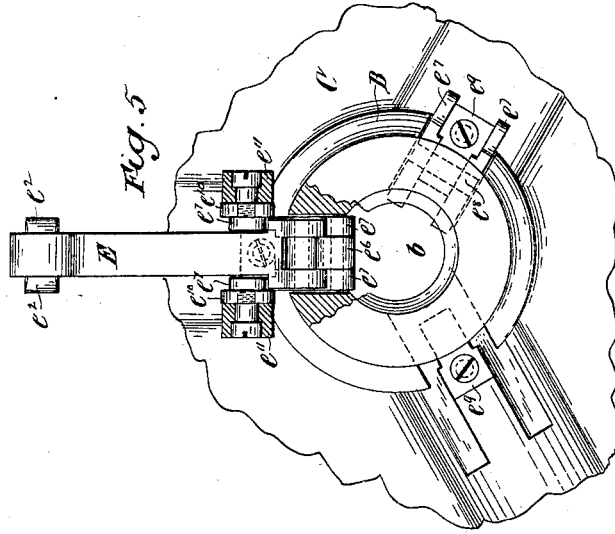


Fig. 5

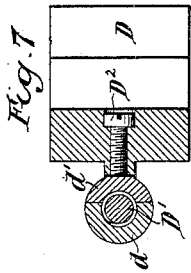


Fig. 7

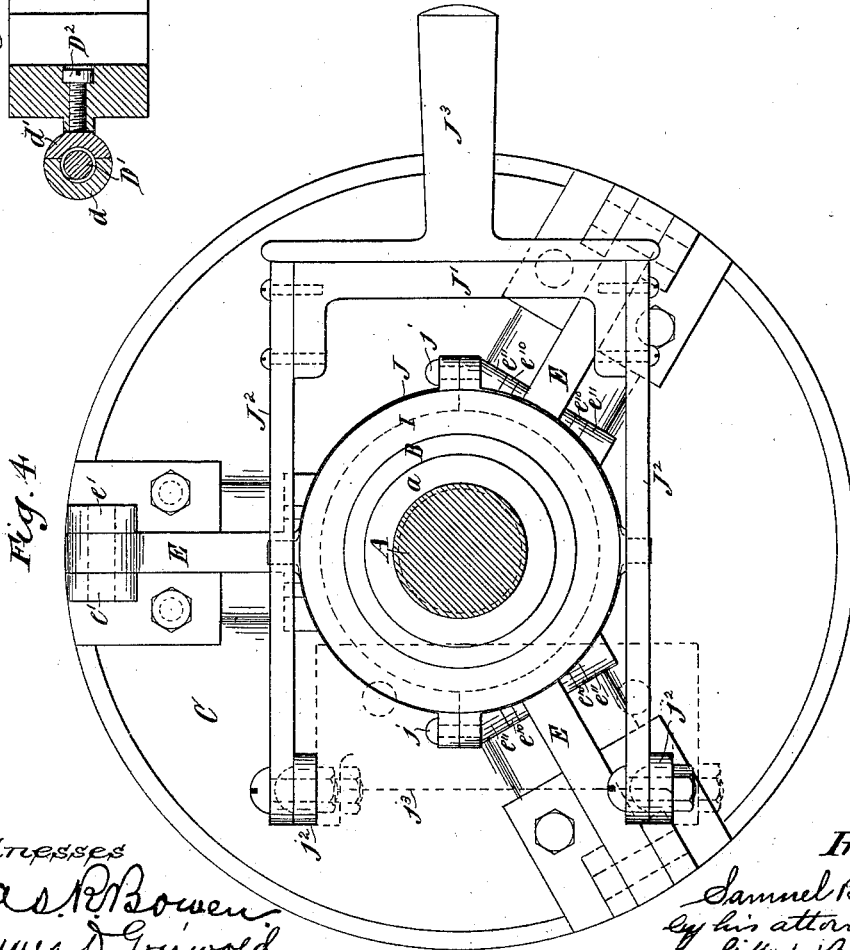


Fig. 4

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UNITED STATES PATENT OFFICE.

SAMUEL BRADLEY ARDREY, OF BRISTOL, PENNSYLVANIA.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 358,916, dated March 8, 1887.

Application filed July 29, 1886. Serial No. 209,415. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL BRADLEY ARDREY, of Bristol, Bucks county, Pennsylvania, have invented a certain new and useful Improvement in Lathe-Chucks, of which the following is a specification.

I will describe a lathe-chuck embodying my improvement in detail, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a horizontal section of a lathe-chuck embodying my improvement, taken on the plane of the dotted line *x x* Fig. 2. Fig. 2 is a face view of the same on a smaller scale. Fig. 3 is a side view thereof, a certain shell employed in conjunction therewith being removed. Fig. 4 is a rear view thereof. Fig. 5 is another rear view thereof, partly broken away and certain parts shown in Fig. 4 being removed. Fig. 6 is a detail, partly in section, taken on the plane of the dotted line *y y*, Fig. 1. Fig. 7 is a transverse section of one of the chuck-jaws taken on the plane of the dotted line *z z*, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates the lathe-spindle. It is provided with a collar, *a*, and a screw-threaded portion, *a'*, by which the chuck may be secured to the spindle, as is usual.

B designates the hub of the chuck provided with an aperture, *b*, extending centrally through it. A portion of this aperture is screw-threaded to receive the screw-threaded end *a'* of the lathe-spindle.

C designates the chuck-plate. It is provided with radial grooves *c*, of which there may be any desired number, but of which I have shown but one. These grooves are shown as cylindrical and as having open ends, opening into the aperture *b* in the hub and also on the periphery of the chuck-plate. Longitudinal slots in the face of the chuck-plate opening into the grooves *c* are adapted to receive the necks of jaws D. The jaws D, of which I have shown but one, are provided with portions *d*, fitting within the grooves *c*, and adapted to be moved back and forth in such grooves.

D' designates a screw, by which a jaw D may be adjusted toward or from the center of the chuck-plate. This screw passes centrally

through a screw-threaded hole extending longitudinally through the portion *d* of the jaw.

D² designates a set-screw extending through the jaw D, and at right angles to the screw D'. At its inner end this set-screw bears against a segmental block, *d'*, which is screw-threaded upon its inner edge. This screw D' engages the screw-threads in this block. By loosening the set-screw D², the screw D' may be rotated to adjust the jaw D. By tightening the set-screw, the screw D' will be clamped by the block *d'* and the screw D', and the jaw D will be locked together. I have shown this arrangement of parts more clearly in Fig. 7.

I will now describe mechanism which I employ to cause the jaws D to grip and release an article to be turned in the lathe.

E designates bell-crank levers fulcrumed upon pins *e*, extending through said levers and through lugs *e'* upon the back of the chuck-plate C. The short arms of these levers are provided with bifurcated ends *e²* extending into circumferential grooves *e³* in heads *e⁴* upon the screws D'. The long arms of the bell-crank levers E likewise have bifurcated ends, which embrace one of the ends of links *e⁵*, to which links they are pivotally connected. The links *e⁵* are pivotally connected near their other ends to and between one of the ends of a pair of bell-crank levers *e⁷*. The bell-crank levers *e⁷* are fulcrumed upon pins *e⁸*, extending through said levers and through lugs *e⁹* on the back of the chuck-plate. The other ends of the levers *e⁷* extend backwardly and outside the long arm of the lever E. They are pivotally connected to links *e¹⁰*, which links are in turn pivotally connected to lugs *e¹¹* on a ring, I. The ring I surrounds the hub of the chuck and is loose on said hub, so that it may be moved longitudinally thereon.

J designates a collar surrounding the ring I and fitting loosely in a circumferential groove in the ring. This collar is, as shown, made in two sections secured together by bolts *j'*. The collar J does not rotate with the ring I; but it may be manipulated to move said ring longitudinally upon the hub of the chuck. This manipulation is accomplished by means of a yoke-lever, J', the arms J² of which are pivotally connected near one of their ends to links

j^2 , which links are in turn pivotally connected to brackets j^3 , secured to the head-stock of the lathe. About midway in the lengths of the arms J^2 of the yoke, they are provided with apertures, into which extend projections from the collar J. The yoke is also provided, as shown, with a handle, J^3 . When the handle of the yoke is moved in the direction of the arrow, Fig. 1, the ring I is caused to slide along the hub of the chuck toward the chuck-plate. This operation causes the bell-crank levers e^7 and E to be rocked through the intermediate links and the screws D' , carrying the jaws D, to be moved nearer the center of the chuck-plate and to grip an article to be turned. An opposite motion imparted to the handle of the lever J' causes the parts to operate in a reverse way, and the article to be released. By this arrangement and combination of parts, small articles to be turned up can be inserted in and removed from the chuck without stopping the rotation of the lathe, as is ordinarily necessary. By this means, therefore, a great saving is effected both in time and labor.

P designates a cylindrical case or shell, which may be of metal, and which incloses the chuck. The face-plate of this shell, as shown more clearly in Fig. 2, is detachably secured to the body of the shell by means of screws g' , and is provided at about its center with a funnel-shaped opening, T, through which articles to be turned may be inserted and removed. The shell P is secured to a plate, S, which plate is in turn secured to the shears of the lathe. The plate S is provided with horizontal slots s , and the case P with vertical slots s' , whereby the shell P may be properly centered upon the chuck.

It will be seen that when the jaws D are properly set and closed upon the article to be operated upon the fixed center of the levers

e^7 and the two centers of the links e^6 will be in alignment, whereby the jaws will be firmly locked.

Of course, instead of manipulating the yoke-lever J' by hand, it might be manipulated by any suitable mechanism operated by the foot.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lathe-chuck, the combination, with a chuck-plate provided with a hub, of clamping-jaws, screws engaging said clamping-jaws, levers for operating said clamping-jaws engaging said screws, a sliding piece surrounding said hub, connections comprising links and levers between said sliding piece and the levers first named, and a yoke-lever for manipulating the sliding piece, substantially as specified.

2. In a lathe-chuck, the combination, with a chuck-plate provided with a hub, of clamping-jaws, screws engaging said clamping-jaws, levers for operating said clamping-jaws engaging said screws, a sliding piece surrounding said hub, connections comprising links and levers between said sliding piece and the levers first named, a non-rotary collar surrounding the sliding piece, and a yoke-lever having a connection with said collar, substantially as specified.

3. In a lathe-chuck provided with a chuck-plate and a hub, the combination of jaws D, screws D' , levers E, links e^6 , levers e^7 , links e^{10} , ring I, collar J, and yoke-lever J' .

4. The combination of the jaws D, the screws D' , set-screws d^2 , and blocks d' , substantially as and for the purpose specified.

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