(No Model.)

F. MINK.

CHUCK.

No. 568,985. Patented Oct. 6, 1896.

FIG. 2.

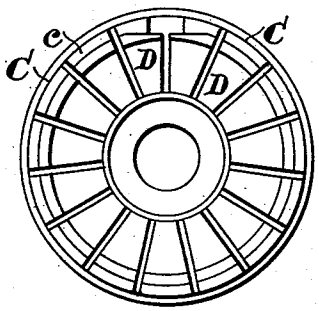


FIG. 1.

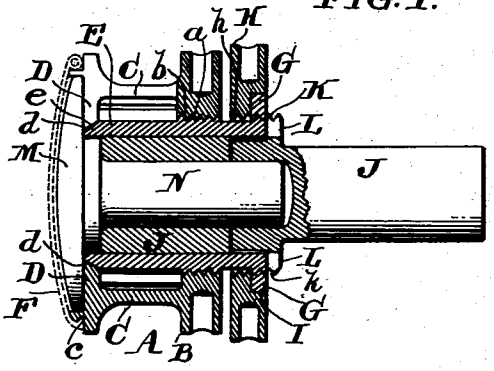


FIG. 3.

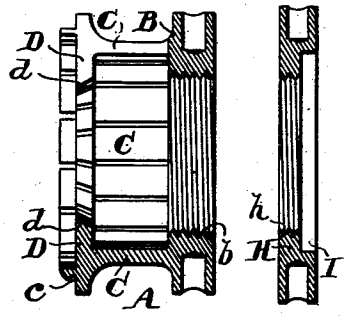


FIG. 4.

FIG. 5.

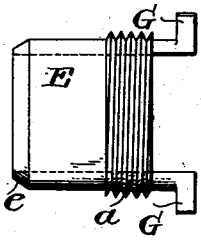


FIG. 6.

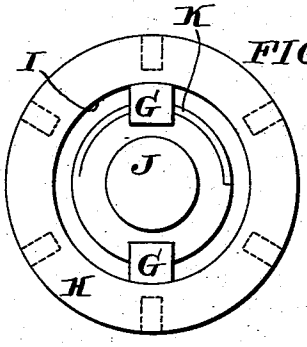


FIG. 7.

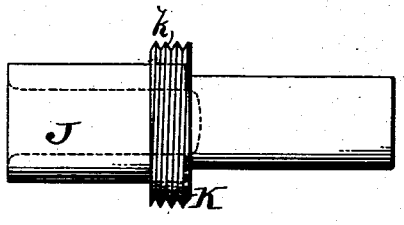


FIG. 9.

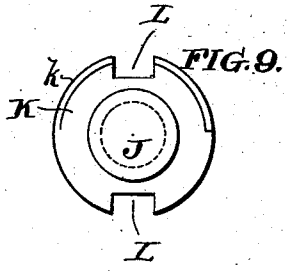
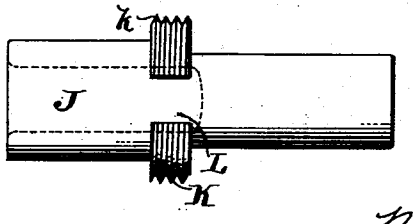


FIG. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

FRITZ MINK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE KEYSTONE WATCH CASE COMPANY, OF SAME PLACE.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 568,985, dated October 6, 1896.

Application filed November 13, 1895. Serial No. 568,813. (No model.)

To all whom it may concern:

Be it known that I, FRITZ MINK, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Chucks, of which the following is a specification.

My invention relates to chucks; and it consists of certain improvements which are fully set forth in the following specification and are shown in the accompanying drawings.

My invention relates particularly to chucks designed for holding articles, such as backs, caps, and bezels of watchcases while they are being operated upon by an engraving-tool, and is especially designed for the purpose of more effectively and evenly bracing the back of the article. It is essential that the back of the article being operated upon should be properly braced throughout, otherwise the pressure of the engraving-tool would indent the metal and be liable to cut through. For this purpose it has been usual to employ a brace-piece having a surface conforming to the back of the work, and this brace-piece has been projected forward and pressed in contact with the back of the work. This moving forward of the brace-piece has not proved entirely satisfactory, owing to the fact that the adjustment was variable and the necessary extent of adjustment required could not always be determined, so that sometimes the work would not be properly braced and injury would result. In my improved chuck I overcome this difficulty by employing a brace-piece having a stationary seat or rest, and instead of adjusting the brace-piece forward against the work I move the work down upon the brace-piece. To accomplish this, I make the clamping-piece adjustable, or with provision for movement or adjustment independent of its movement for the purpose of clamping the work. I first place the work upon the clamping-piece, and after operating the clamping-piece to clamp the work I adjust it so as to move it rearwardly and draw the work down upon the stationary brace-piece. The brace-piece thus retains a permanent position and the proper bracing of the work is insured. The work is drawn down evenly and uniformly to the necessary extent and there is no liability of the brace-piece working loose under the pressure of the tool. I also construct the chuck so that the brace-piece may be removed at will without detaching or unclamping any of the parts when it is desired to change the brace-piece in use.

In the accompanying drawings, Figure 1 is a vertical sectional view of an engraver's chuck embodying my invention. Fig. 2 is a plan view of the clamping-piece. Fig. 3 is a vertical sectional view of the clamping-piece. Fig. 4 is a similar view of the clamping nut or ring. Fig. 5 is a side elevation of the chuck-expanding piece. Fig. 6 is an inverted plan view of the chuck. Figs. 7 and 8 are respectively a front and side elevation of the chuck-holding piece or stem, and Fig. 9 is a top plan view of the same.

A is the clamping-piece, which consists of an annular or tubular body B, provided with a series of projecting spring-arms C, notched at the outer edge, as at *c*, to engage the flat or flange of the watchcase or article to be clamped, and having inwardly-extending portions D, terminating in beveled faces *d*.

E is an expanding-piece, tubular in shape, and its upper edge beveled, as at *e*. This upper edge is in line with the inner ends of portions D, and when the expanding-piece E is moved forward its annular beveled face *e*, acting on the opposed beveled faces *d* of the spring-arms, forces the arms outwardly, enlarging the circle of their edges *c* and causing them to firmly clamp the cover or article F (dotted lines, Fig. 1) at its rim or edge.

The body B is internally threaded, as at *b*, and the expanding-piece E is externally threaded, as at *a*, so that when the expanding-piece is turned within the body B it will move forward by the engagement of the threads *a b*, and thus force its edge *e* upon the faces *d*. The expanding-piece E is provided at the rear with projecting lugs or arms G.

H is an internally-threaded clamping-ring having the same internal threaded diameter as the body B, so that its screw-threads *h* will practically constitute continuations of the threads *b* and are adapted to engage the

threads *a* of the expanding-piece E. The aperture in the ring H is enlarged at the rear to form an annular shoulder I.

The expanding-piece E is screwed forward into the ring H with the lugs G extending rearwardly and adapted to engage this annular shoulder I.

J is a stem, the upper portion of which is adapted to be inserted within the tubular body of the expanding-piece E, as shown in Fig. 1, and is provided at the portion which comes immediately in the rear of the piece E with a threaded ring K, of the same diameter as the threaded portion of the piece E, so that when the stem J and piece E are put together the threads *k* of the ring K will constitute continuations of the threads *a* of the expanding-piece.

The threaded ring K of the stem J is provided with notches L to receive the lugs G of the piece E, and the lugs are adapted to extend down into the notches L to such extent that when the rear of the piece E is resting upon the face of the threaded ring K they will not obstruct the threads *k*. The piece E is thus free to move longitudinally on the stem J, but is prevented from turning thereon by the engagement of the lugs G with the notches L.

M is the brace-piece which is adapted to bear against the back of the watchcase-cover or article clamped by the chuck. It is supported upon the face of the stem J and is shown provided with a stem N, extending into a tubular recess O in the upper portion of the stem J. The piece M is arranged within the clamping edges of the spring-arms C and its upper face is shaped to conform to the inner face of the article to be acted upon.

The parts are assembled in the following manner: The stem J is clamped in the vise or holder, the piece E is placed over the upper end of the stem J with the lugs G G engaged in the notches L, and the ring H is placed over the piece E and screwed upon the threads *a k*. The brace-piece M is placed upon the end of the clamping-piece A, and the cover or article to be clamped is placed upon it with the edge or rim immediately outside of the clamping-notches C. The clamping-piece is then placed upon the piece E and is screwed down upon it through the threads *a b* until the beveled edges *d* of the clamping-arms C are forced upon the beveled edge *e* of the expanding-piece and are expanded thereby, so that the notches *c* engage the rim of the cover F and securely clamp it. When the cover is thus clamped, further rotation of the clamping-piece A upon the piece E is prevented. The ring H is then screwed down upon the threads *k* of the stem J, and the shoulder I of the ring H, acting upon the lugs G G, pulls them down in the recesses L, thus drawing the piece E and with it the clamping-piece A rearwardly, while the brace-piece M, which is supported by the stem J, remains stationary, so that the work F is drawn down upon the face of the brace M. By this means the perfect bracing of the work throughout its surface is assured, and as the brace-piece is stationary and retains a permanent position there is no liability of irregularity of adjustment, which occurs when the brace-piece is moved forward to the work. The work being carried by the clamping-piece A is drawn down evenly throughout.

To release the work, the ring H is screwed forward to release the piece E, and the clamping-piece A is then screwed forward on the threads *a* until the clamping-arms C are released, when the work may be removed.

A further advantage of this construction is that the brace-piece, being free and independent of the clamping devices, may be removed, when desired, and another piece having a surface of different form may be substituted for it to suit work of different curvature or form.

The details of construction shown may be varied without departing from the invention.

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

1. A chuck, consisting of a stationary brace-piece for bracing the back of the article to be clamped, a clamping-piece having spring clamping edges to clamp the edge of the article, an expanding-piece acting in conjunction with the clamping-piece to expand the clamping edges thereof, and means to move both clamping-piece and expanding-piece together to draw the work held by the clamping-piece upon the face of the stationary bracing-piece.

2. A chuck, consisting of a stationary brace-piece for bracing the back of the article to be clamped, a clamping-piece having spring-clamping edges to clamp the edge of the article, an expanding-piece acting in conjunction with the clamping-piece to expand the clamping edges thereof, and provided with an extension, and means acting on the extension of the expanding-piece to move both clamping-piece and expanding-piece together to draw the work held by the clamping-pieces upon the face of the stationary bracing-piece.

3. A chuck, consisting of a stationary stem, a brace-piece supported thereby upon a stationary seat, a clamping-piece having spring clamping edges for clamping the edge of the work arranged about the brace-piece, an expanding-piece upon which the clamping-piece may be moved to expand its spring clamping edges, and provided with a lug or lugs G at the rear, and a movable piece carried by the stem and movable thereon engaging the lugs of the expanding-piece and adapted when operated to draw the expanding-piece and chuck rearwardly with reference to the brace-piece.

4. A chuck, consisting of the stationary stem having a threaded portion K, an expanding-piece E surrounding the stem and having an externally-threaded portion A, a clamping-piece having spring-arms adapted to be expanded by the piece E to engage the edge of the work, and provided with internal

threads *b* adapted to the threads *a* of the piece E, a brace-piece supported by the stem on a stationary seat, and a threaded ring H carried by the stem and engaging the expanding-piece E.

5. In a chuck, the combination with spring clamping-piece and expanding-piece acting in conjunction therewith, of the stationary brace-piece, and rotary ring H engaging the expanding-piece and adapted to move it rearwardly together with the spring clamping-piece.

6. In a chuck, the combination with the stationary brace-piece, and the clamping-piece having the spring clamping-arms, of the expanding-piece acting in conjunction with the clamping-piece to expand the spring-arms thereof, and provided with the lug or lugs G, the stationary stem having the threaded portion K provided with the notch or notches L to receive the lugs G and the threaded ring H on the stem having an annular shoulder I adapted to engage the lug or lugs G and draw the expanding-piece and clamping-piece rearwardly with reference to the brace-piece.

7. A chuck, embracing a brace-piece having a stationary support, a clamping-piece having expansible clamping edges, means to expand said edges to clamp the work, and means to move the clamping-piece rearwardly with reference to the stationary brace-piece, whereby the work clamped by said clamping-piece may be drawn down upon the face of the brace-piece.

8. A chuck consisting of a stationary stem, a brace-piece fitting loosely thereon upon a stationary seat, and a clamping-piece having expansible clamping edges for clamping the work.

In testimony of which invention I have hereunto set my hand.

FRITZ MINK.

Witnesses:
ERNEST HOWARD HUNTER,
R. M. KELLY.