(No Model.)

J. L. HUTCHINSON.

JEWEL CHUCK.

No. 513,931. Patented Jan. 30, 1894.

Fig. 1.

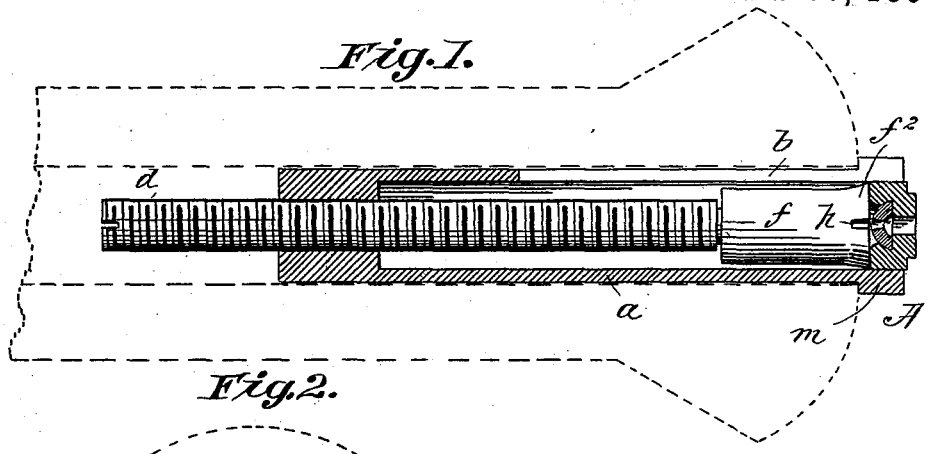


Fig. 2.

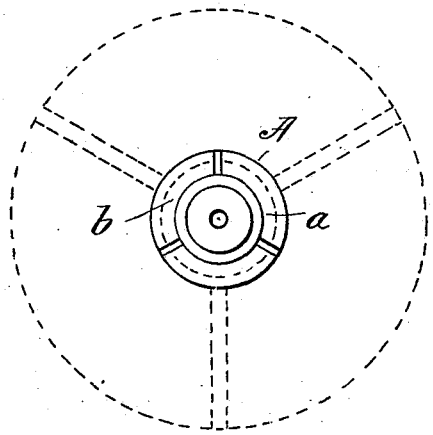


Fig. 9.

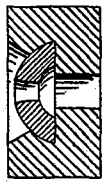


Fig. 10.

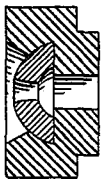


Fig. 3.

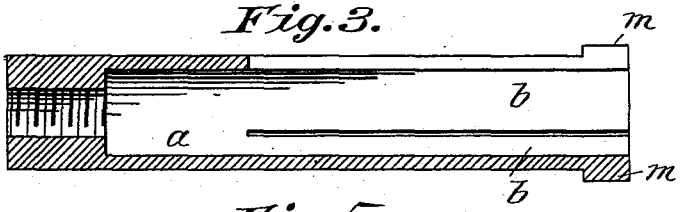


Fig. 4.

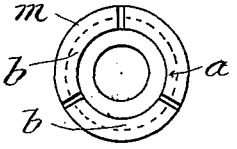


Fig. 5.

Fig. 6.

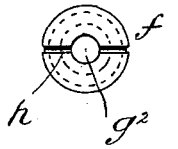


Fig. 7.

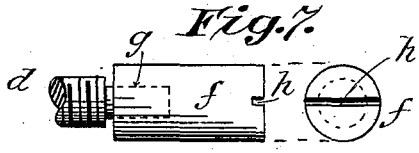
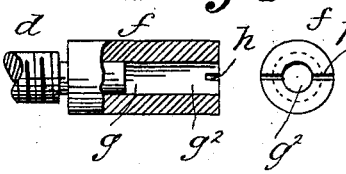


Fig. 8.



Witnesses

Fred W. Lunis

K. L. Clemons

Inventor:

J. L. Hutchinson

per Chapin & Co

Attys.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN L. HUTCHINSON, OF LA PORTE, INDIANA, ASSIGNOR TO EZRA F. BOWMAN, OF LANCASTER, PENNSYLVANIA.

JEWEL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 513,931, dated January 30, 1894.

Application filed March 17, 1893. Serial No. 466,550. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. HUTCHINSON, a citizen of the United States, residing at La Porte, in the county of La Porte and State of Indiana, have invented new and useful Improvements in Jewel-Chucks, of which the following is a specification.

The chuck of this invention is especially designed for holding jewels which are mounted in the usual annular settings therefor, so that the end of the settings may be given the shoulder or step-form of any depth, as required, by turning. As well known in watch-making the jewels are placed with their settings suitably deep in the plate to allow for that degree of "end-shake," or slight axial vibration, of the arbor set between two of the jewels, as conduces to the most advantageous mounting of the arbor for free running, and if the freedom of the "end-shake" is to be increased the base of the shoulder of the setting is accordingly deepened.

The advantages aimed at by the exercise of this invention are to improve the chuck, as to its adaptation for the reception and firm retention of the jewel and setting to be turned; to secure a base or bottom of the jewel receiving aperture within the jaws of the chuck which may be variable or adjustable at pleasure to accord with the thickness of the jewel setting so that the latter may, while having its one axial side or end turned down, be firmly and positively supported opposite the surface at which the turning tool is presented; to enable a workman to adjust the jewel-chuck to accord with the thicknesses of different settings, or different degrees of "end-shake" for jewel settings of a given thickness without removing the jewel-chuck from the lathe; to render the chuck generally adapted to a quite wide variety of work, with appreciable efficiency and convenience to the workman; and to these ends the invention consists in a chuck having its parts formed and combined all substantially as will hereinafter fully appear and be set forth in the the claim.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a central longitudinal section of the improved jewel-chuck with a jewel therein, and the ordinary chuck of the lathe, indicated by dotted lines as grasping the jewel-chuck. Fig. 2 is an end view of the parts shown in Fig. 1. Fig. 3 a sectional view of the tubular jaw-provided chuck-body, Fig. 4 being an end view thereof, while Fig. 5 is a side view of the screw and head or end-plug,—Fig. 6 being an end view thereof. Fig. 7 is a side view (with end projection) of the screw-rod having its outer portion solid; while Fig. 8 is a side view and partial longitudinal section (with end projection) of "centered" head. Figs. 9 and 10 are sectional views of the jewel and its setting the one view showing the setting unturned and the other having its axial end turned down in the step-form for the "end-shaking."

In the drawings the views are much enlarged; in the actual construction the length of the jewl-chuck, including the rearward projection of the screw, is about one inch, and similar letters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the jewel-chuck comprising the tubular body, *a*, longitudinally slit for a portion of its length to constitute the contractible jaws, *b*, and the longitudinally movable rod, *d*, with the removable plug or head, *f*, at its forward end which has its location slightly within the forward end of the chuck-jaws. The rod is preferably a screw as shown with screw-slot at its rear end whereby to turn it for its longitudinal adjustment, and the head, *f*, is a piece of a generally, or absolutely, cylindrical form having at its rear end, at least, if not entirely through it, an axially drilled hole, *g*, into which the forward necked down end of the screw-rod may have a friction tight fit.

By preference the body of the chuck is axially drilled with a bore of two diameters, the smaller and screw-threaded bore receiving the screw engagement of the rod and serving to support the latter, while the whole periphery, or a peripheral portion of the head is practically in concentric bearing against the forward inner walls of the chuck-jaws, *b*, *b*. In the use of the chuck the screw-rod is to be so longitudinally adjusted as to bring the forward end of the head far enough within the end of the chuck to permit the seating of

the jewel-setting with so much of its axial end portion protruding beyond the end of the jaws as to permit the workman to turn down the suitably deep circular rabbet or step,—as indicated in Figs. 1 and 10.

I prefer to form a cross-slot, *h*, at the forward end of the head so that, while the jewel-chuck is in the lathe, by use of a screw-driver or other proper tool, the head and rod may be turned for a new adjustment, as may become necessary or desirable in proceeding to work upon another set jewel.

It will be furthermore perceived that in the form of head shown in Figs. 5, 6 and 8, the head has an axial aperture, g^2, at its forward end (which may be the forward continuation of the rear socket for the reception of the forward end of the screw-rod, *d*) so that work which it might be necessary to center at back as well as the front, could be so axially sustained.

As will be perceived in Figs. 1 and 5 that the head is shown as cylindrical for the greater portion of its length, and of a diameter slightly less than the diameter within the chuck-jaws, while its outer extremity has the outwardly flaring enlargement, f^2, against which the chuck-jaws contact in closing;—the advantage thus gained is that the jaws will conform more closely to this enlargement, which has no axial length, thus permitting their truer and firmer constriction about the jewel-setting. The diameter of the body of the jewel-chuck is increased to form the external shoulder, *m*, for the purpose of preventing this chuck entering too far into the regular chuck of the lathe in which it is held.

These jewel-chucks may be constructed of steel, brass, or nickel, or of combinations thereof, or of other metals, as deemed desirable.

It is intended in placing these jewel-chucks on the market to sell them in series of a standard external size and with varying internal diameters for different sized jewels and with one or more of both the centered and solid interchangeable heads, *f*, *f*, for each chuck.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

A jewel chuck consisting of a tubular body longitudinally split at its forward end to form contractible jaws within which to receive the jewel, and having the bore at its rear end of smaller diameter than the opening within the forward part of the body, and internally screw threaded, and the axially bored head or plug within the jaws with the forward end thereof back from the forward end of the jaws, said plug forming a base or rest for the inner end of the jewel, the same having the greater portion of its length of smaller diameter than the opening within the jaws and having at its forward end the outward enlargement, f^2, and the screw rod, *d*, having a screw engagement within the rear threaded part of the chuck body, and having the forward necked down extremity on which the axially bored head has a friction tight fit, all substantially as described and shown and for the purpose set forth.

JOHN L. HUTCHINSON.

Wittnesses:
H. C. SHANNON,
W. C. ARMERS.