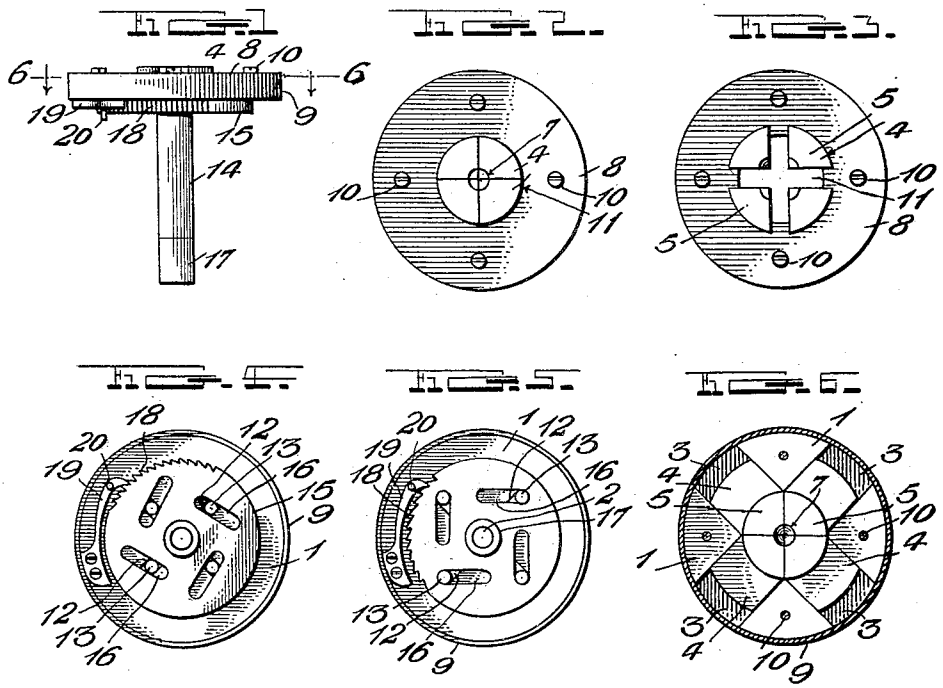
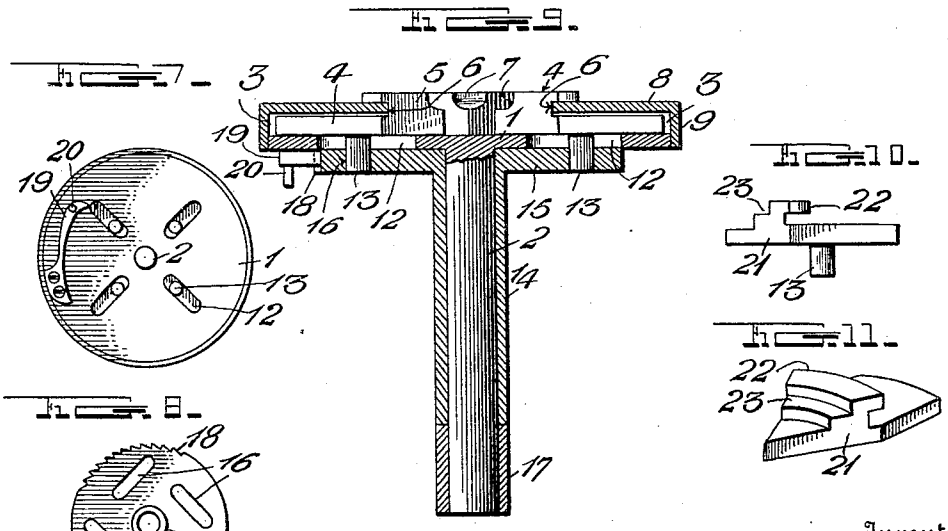
J. W. WOODARD.

WATCHMAKER'S TOOL.

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WATCHMAKER'S TOOL.

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To all whom it may concern:

Be it known that I, JOSEPH W. WOODARD, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Watchmakers' Tools; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in watchmakers' tools and more particularly to a jeweler's chuck for holding watch jewels and other parts of a watch when working thereon, and the primary object of the invention is to provide a chuck which may be quickly and readily adjusted to accommodate jewels and other parts of a watch of various sizes.

A further object of the invention resides in providing a chuck which will be automatically locked in any position to which the same is adjusted, and a still further object resides in providing a chuck of such construction that the jaws thereof may be quickly and readily removed and other jaws interchanged therewith with little or no difficulty.

Still another object of the invention resides in providing a device which is simple and durable in construction, inexpensive to manufacture, and one which will be very efficient and useful in operation.

With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts, as will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawing forming part of this application: Figure 1 is a side elevation of a chuck constructed in accordance with my invention; Fig. 2 is a top plan view thereof disclosing the jaws in their closed and effective positions; Fig. 3 is a similar view showing the jaws in their open or inoperative positions; Fig. 4 is a bottom plan view of the device positioned as in Fig. 2; Fig. 5 is a similar view of the device positioned as in Fig. 3; Fig. 6 is a horizontal section through the device as seen on line 6—6 of Fig. 1; Fig. 7 is a bottom plan view of the device with the operating member for the jaws removed; Fig. 8 is a similar view of the operating member removed from the device; Fig. 9 is an enlarged vertical section through the complete device disclosing the jaws in their closed positions; Fig. 10 is a side elevation of a slightly different form of jaw adapted to be substituted for the jaws shown in the other views; and Fig. 11 is a perspective view thereof.

In describing the invention, I shall refer to the drawing in which similar reference characters designate corresponding parts throughout the several views and in which—

1 indicates a head member of disk-like formation provided with a central depending shank or stem 2, the upper face of said disk-like head 1 being provided with a pair of diametrical intersecting grooves 3. These grooves extend in plates at right angles to one another and provide substantially radial channels or grooves in which jaws are adapted to operate, as will be hereinafter and more particularly set forth.

Mounted to slide in the substantially radial grooves 3 are the jaws 4 which are plate-like in formation, fitting well between the walls of said grooves 3, and the inner opposed ends or the engaging portions thereof are increased in thickness or provided with projections on the upper faces thereof, as shown at 5. The outer edges or faces of the increased portions 5 of said jaws are grooved as shown at 6 for a purpose to be hereinafter set forth, and the inner opposed ends of the jaws have the side faces thereof beveled, whereby to fit snugly and firmly against one another when disposed to their innermost positions. The upper face of each jaw at its effective engaging end is somewhat offset to provide a seat 7 for the reception of a jewel setting or jewel proper to be held between said jaws. In order to retain these jaws 3 in position in the grooves of each head 1, a cap member 8 is provided, the same being of disk-like formation to entirely cover said head 1 and the same is provided with a depending annular flange 9. This flange encircles the head or base 1 and when said cap is properly applied, the lower peripheral edge of said flange fits flush with the under face of said head 1. This cap member is secured in position on the head by means of set screws 10 which extend through openings in said cap member and engage threaded openings in the base or head 1. In order to ac-

commodate the upwardly projecting portions or the increased portions 5 of the jaws 4, this cap member 8 is provided with a central opening 11 which is of such diameter as to enable said cap member to be applied when the jaws are in their innermost and closed positions on the head member. When the cap member is properly applied, the upper face thereof is arranged in the same horizontal plane with the horizontal plane of the grooves 6 in the outer faces of the projections 5 on said jaws, so that when said jaws are disposed to their extended or open positions, these grooves will receive the inner peripheral edge of said cap member therein. By so constructing the device, the same will not alone be neat appearing, but will afford close connection between the parts, so as to prevent dust, dirt and all extraneous matter from entering the grooves in the head in which the jaws operate. I have provided an improved means for the operating of these jaws in the grooves of the head 1, and to this end, the bottom wall of each groove is provided with a slot 12, while the under face of each jaw member is provided with a depending stud or pin 13 which operates in the adjacent slot. Thus, radial slots are provided in the head member, while studs carried on the jaws are disposed in these slots so that the jaws are guided and limited in their movement in the grooves 3.

Applied to the stem or shank 2 is a tubular member or sleeve 14 which is provided with a disk-like head 15 at the upper end thereof, said disk-like head being adapted to abut the under face of the head or base 1. This head or disk 15 is also provided with a plurality of slots 16 which are arranged successively in planes at right angles to one another. When the sleeve 14 is properly applied to the stem, so that the disk 15 thereon abuts the under face of the head member or disk 1, the planes of the slots 16 intersect the planes of the slots 12 and the depending studs or pins 13, above referred to, are also received in said slots 16, the lower ends of said studs terminating flush with the under face of the disk 15. The tubular member or sleeve 14 with the disk 15 thereon, is properly held in position on the stem or shank 2 by means of a friction nut or collar 17 applied to the lower end of said stem or shank 2, as clearly shown in Fig. 2 of the drawing, and it will be seen that by merely turning the sleeve 14 on the shank 2 in one direction or the other, the jaws 4 will be disposed to their open or closed positions, as the case may be.

An important feature of my invention is the provision of a construction for the retention of the jaws in any position to which the same may be adjusted, and in carrying out this idea, the peripheral edge of the disk or head 15 is provided with ratchet teeth 18 at a predetermined point thereon. Secured at a predetermined point on the under face of the head or disk 1, is an arcuate spring pawl 19, the engaging end of which is designed for engagement with the ratchet teeth 18. Being normally engaged with these ratchet teeth, it will be seen that said spring pawl will securely retain the disk 15 in any position to which the same may be adjusted when turned in one direction, but in view of the inclination of the teeth 18, said disk may not be rotated in the opposite direction until such time as the pawl may be disengaged from said teeth. In order to admit of this pawl being readily disengaged, a depending stud or pin 20 is provided on said pawl adjacent to its effective engaging end.

In Figs. 10 and 11, I have shown a slightly modified form of jaw member, the same being indicated as 21. This form of jaw member is designed for use when it is desired to retain a watch wheel in the chuck, and this form of jaw may be readily substituted for the jaws hereabove described and shown in connection with the device. This jaw 21 is also of plate like formation and provided with a projection 22 on its upper face at the inner end thereof, the upper face of said projection being offset a plurality of times to provide the stepped projections indicated in the drawing as 23. Otherwise, this form of jaw is the same as the form described hereabove and shown in connection with the other views illustrated in the drawing.

In operation, assuming that the device is completely set up and the jaws disposed in their closed positions, should it be desired to apply a jewel to this chuck, the operator engages the nail of one finger with the depending stud 20 on the spring pawl 19, and draws outwardly thereon, to disengage this pawl from the ratchet teeth 18. With the fingers of the other hand, the sleeve 14 is partially rotated counter-clockwise on the stem 2. In view of the particular construction described above and clearly disclosed in the drawing, it will be seen that such movement of the sleeve will dispose said jaws to their extended or open positions. The jaws will be limited in their outward movement by the engagement of the inner peripheral edge of the cap member 8 with the inner walls of the grooves 6 in said jaws, and the jewel may then be properly applied in the space between said jaw members. When the jewel is properly positioned between the jaw members, the sleeve 14 is rotated clockwise, on the stem 2, which will cause the jaws to be disposed inwardly to grasp the jewel. As stated, the inward movement of the jaws will position the same for engagement with the jewel setting or jewel proper which is designed to be re-

ceived in the seats provided therefor in the upper faces of said jaws. When the jaws are effectively engaged with the jewel, the same will be securely held in position by the engagement of the spring pawl 19 with the ratchet teeth 18, and said jaws will not be adapted for casual disengagement. The chuck may then be applied in a vise or device for holding the same, and the jewel held in position to be operated upon by the watchmaker.

Should it be desired at any time to interchange the jaws of the device, it is only necessary to dispose the jaws already in the device to their closed positions, whereupon the set screws 10 are disengaged and the cap or cover 8 removed. The jaws 4 may then be readily removed from the grooves in the head or disk 1 and the jaws 21 substituted therefor. The cap member may be then replaced to its position and the device is then ready for use. In view of the stepped projections 23 provided on the jaws, it will be seen that wheels of various sizes may be held therebetween and in addition thereto, these jaws are capable of the adjustments of which the first mentioned jaws are capable.

From the foregoing, it will be seen that I have provided a simple, inexpensive, and efficient means for carrying out the objects of the invention, and while I have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion, and in the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the principles of the invention.

Having thus described my invention, what I claim is:

1. A tool of the class described comprising a head member, jaws adjustable radially thereon, a rotatable disk applied to the under face of said head member and having connection with said jaws to actuate the latter, the peripheral edge of said disk having ratchet teeth thereon, a spring pawl carried on the under face of said head member and engaging the ratchet teeth on said disk to retain the jaws in any adjusted position, and a finger piece on said pawl to operate the same.

2. A tool of the class described comprising a head member, a plurality of jaws movable radially thereon and each provided with an upstanding projection adjacent to the inner end thereof, the inner opposed faces of said projections being offset in stepped arrangement to accommodate objects of various sizes therebetween, means for actuating said jaws on the head, and additional means for retaining the same in any adjusted position thereon.

3. A tool of the class described comprising a head member having a plurality of radial grooves in the top face thereof, the bottom walls of said grooves having slots therein extending through the bottom face of said head member, jaws slidable in said radial grooves and having depending studs thereon extending through the aforesaid slots of said head member, means for retaining said jaws in position on the head member, a disk member rotatably mounted on the under face of said head member and also having a plurality of slots and receiving said depending studs therein, whereby to actuate said jaws on the head member when the disk is rotated, and means for retaining said disk and correspondingly the jaws in any adjusted position.

4. A tool of the class described comprising a head member having a plurality of radial slots formed therein, jaw members operatively mounted on said head member and having depending studs thereon operating in said radial slots, a depending stem formed on the under face of said head member, a sleeve rotatably mounted on said stem and having a disk formed on the upper end thereof abutting the underface of said head member, said disk being provided with a plurality of slots arranged in planes intersecting the planes of the aforesaid radial slots, and also receiving said depending studs therein, whereby to actuate said jaws upon the rotation of said sleeve, and means in connection with the head member and disk to retain the latter and parts connected therewith in any adjusted position.

5. A tool of the class described comprising a head member provided with a plurality of radial slots, a plurality of jaw members slidably mounted thereon and having depending studs operating in said radial slots, a depending stem formed centrally on the under face of said head member, a sleeve rotatably mounted on said stem and having a disk formed on the upper end thereof abutting the under face of said head member, said disk being also provided with a plurality of slots arranged successively in planes at right angles to one another and having the planes thereof intersecting the planes of the radial slots, the slots in said disk also receiving the depending studs of the jaws therein whereby to adjust the latter upon the rotation of said sleeve and disk, and means in connection with said head member and disk to retain the latter and parts connected therewith in any adjusted position.

6. A tool of the class described comprising a head member, having a plurality of radial grooves in the top face thereof, a plurality of jaws slidably mounted in said grooves and having upstanding projections on the inner opposed ends thereof, a cap member applied to said head and having a

depending annular flange entirely encircling the latter, the top of said cap member being provided with a central opening receiving the projections of said jaws therethrough, and means for actuating said jaws on the head member.

7. A tool of the class described comprising a head member having a plurality of radial grooves in the top face thereof intersecting one another centrally of said head member, a plurality of gripping jaws slidably mounted in said grooves and having upstanding projections on the upper faces at the inner opposed ends thereof, the outer ends of said projections being provided with grooves, a cap member removably applied to the top face of said head member and having a depending peripheral flange entirely encircling said head member, the top of said cap member being provided with a central opening for receiving the projections of said jaws therethrough, the grooves in the projections of said jaws being adapted to receive the peripheral edge of said opening therein when the jaws are disposed to their open positions, and means for actuating said jaws on the head member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH W. WOODARD.

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L. O. HILTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."