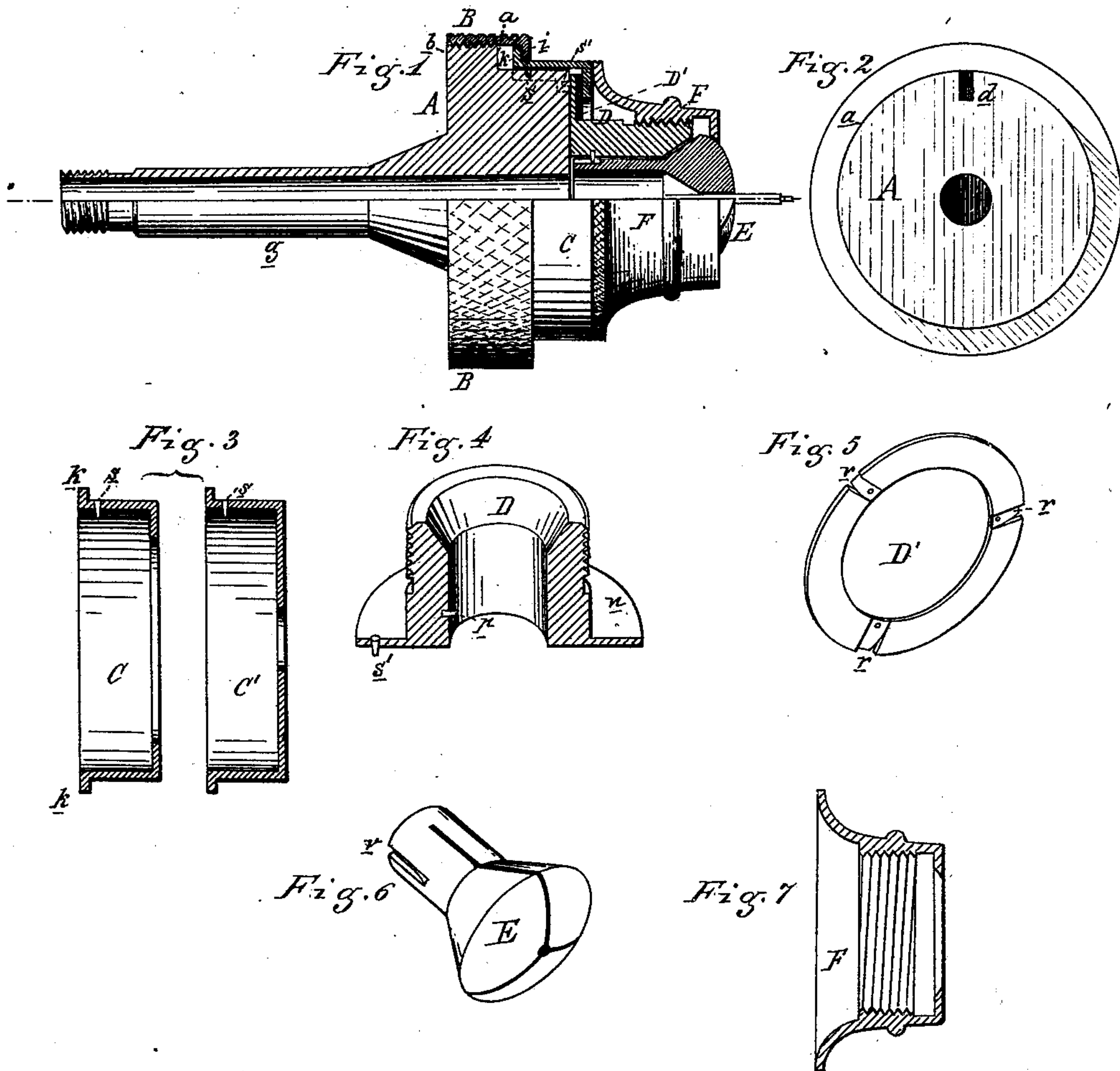


C. J. OLIN.
Chuck.

No. 235,283.

Patented Dec. 7, 1880.



Attest:

A. Barthel
Charles F. Hunt

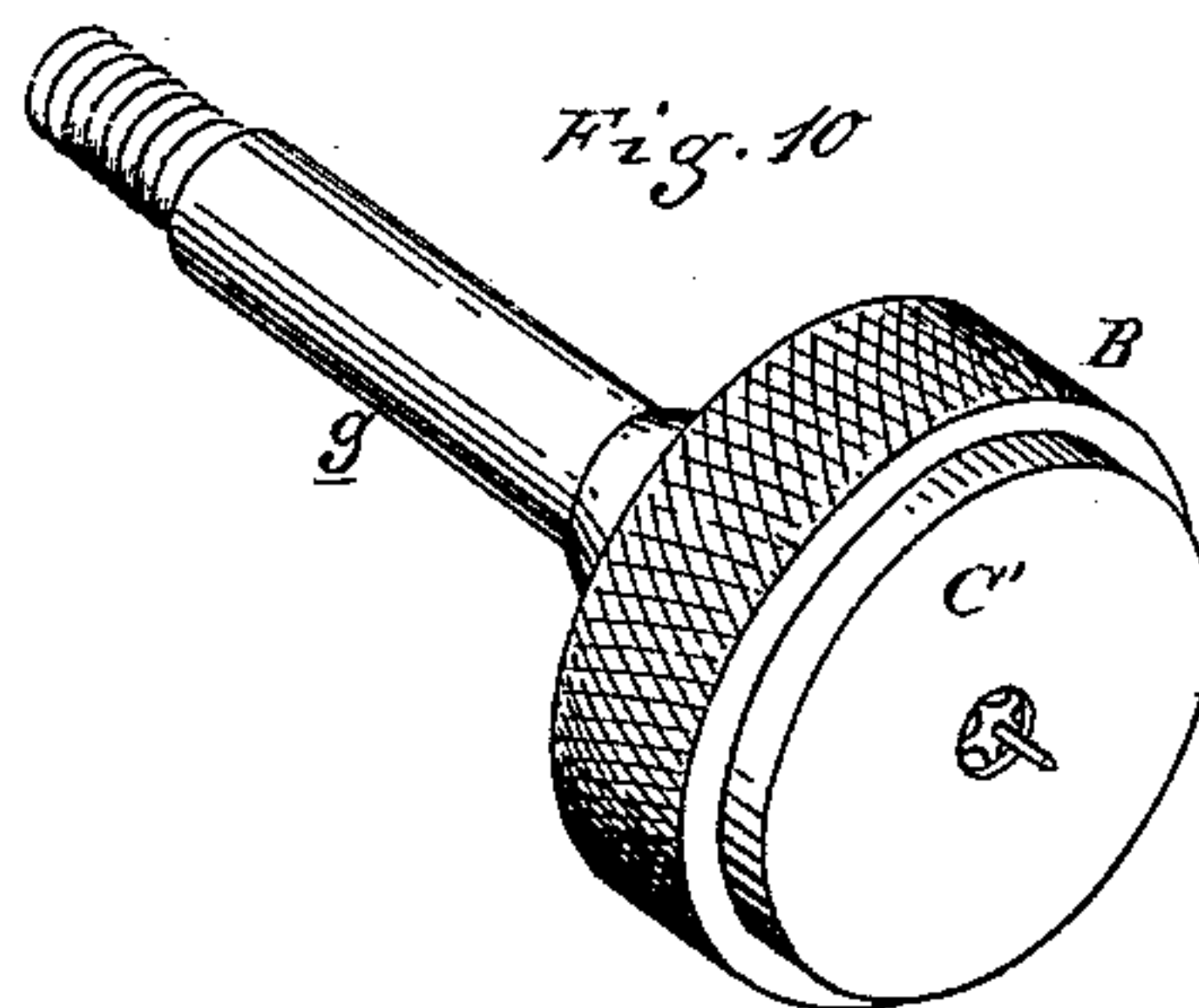
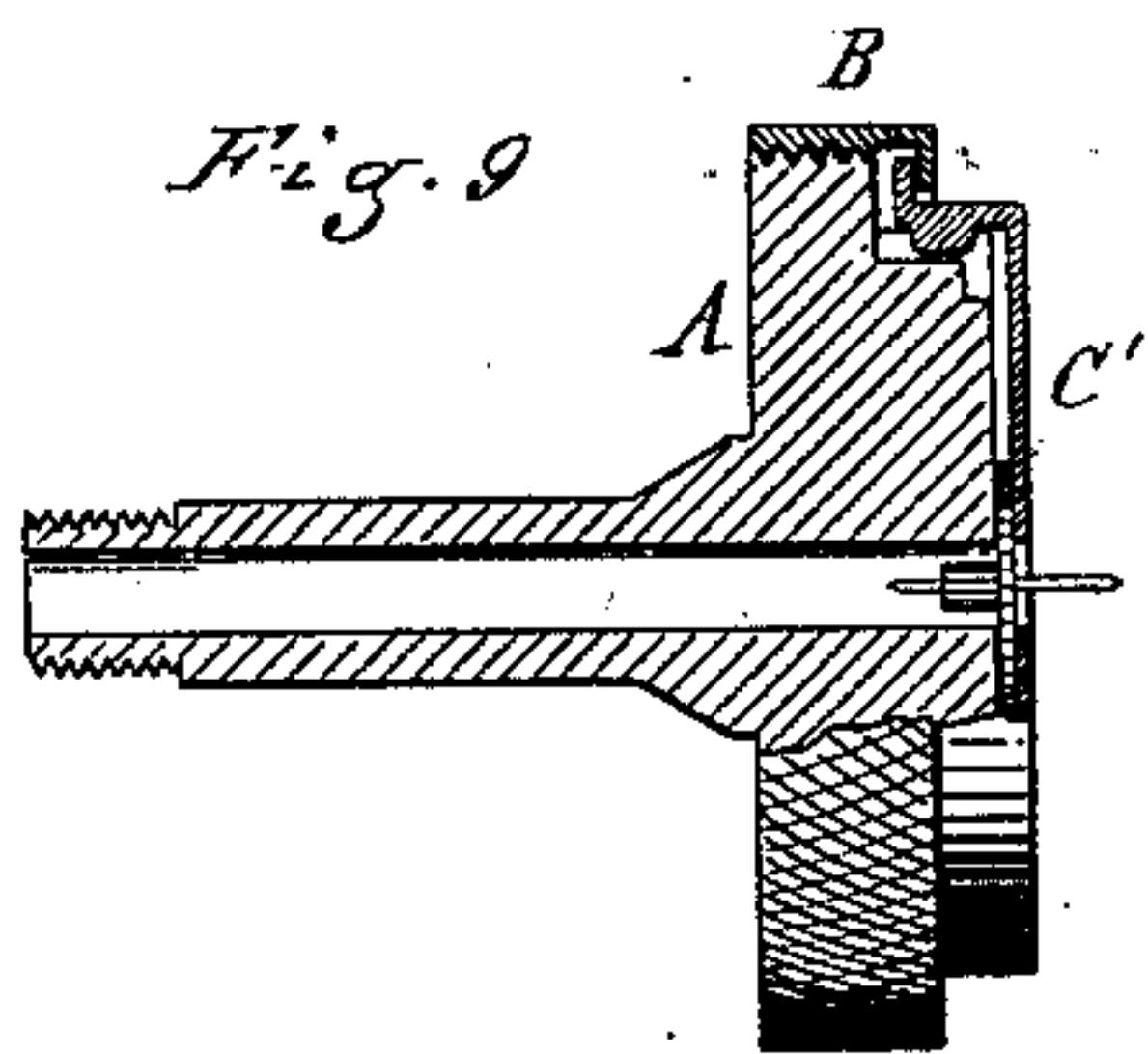
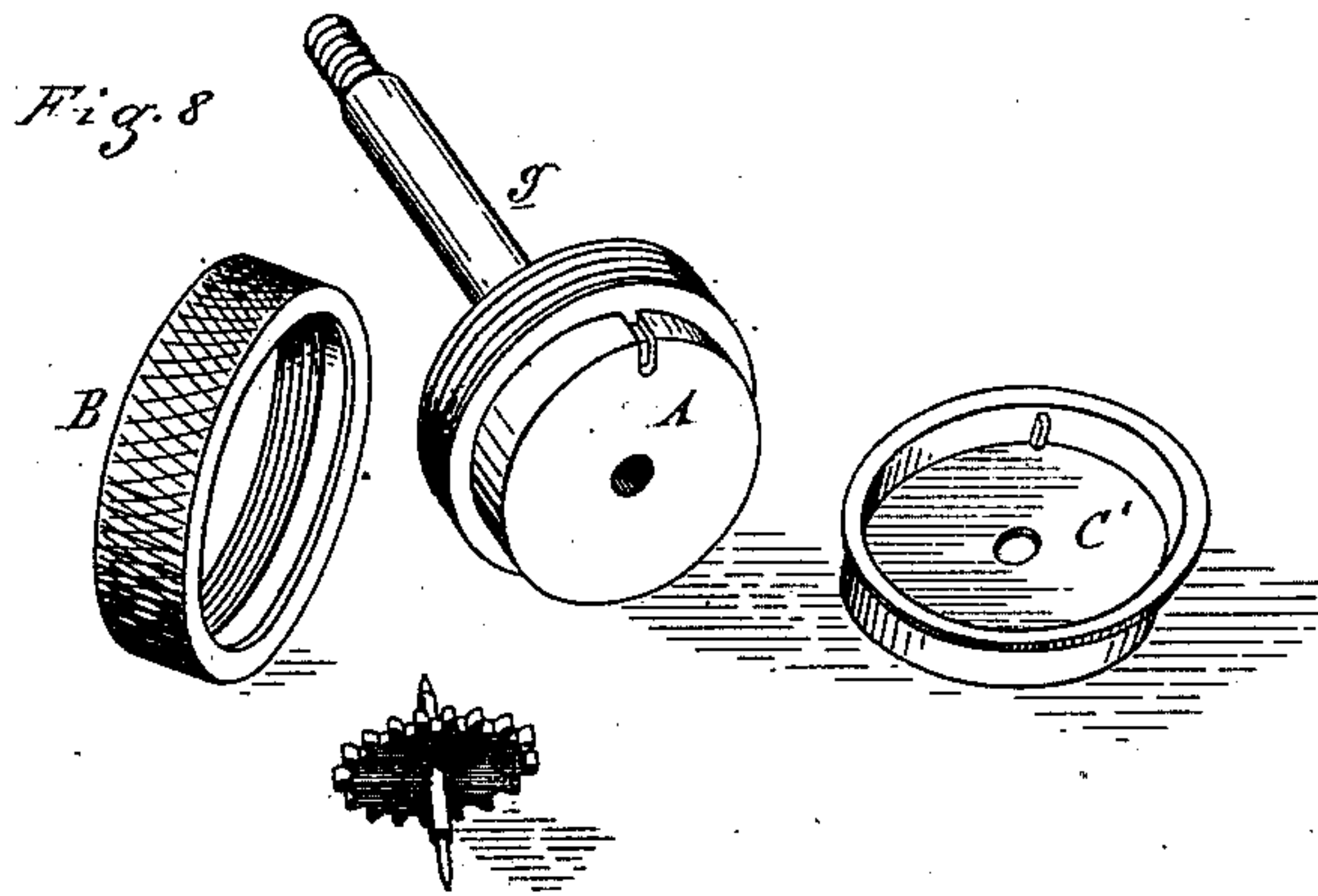
Inventor:

C. J. Olin
By Atty
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UNITED STATES PATENT OFFICE.

CHARLES J. OLIN, OF MASON, MICHIGAN.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 235,283, dated December 7, 1880.

Application filed December 16, 1879.

To all whom it may concern:

Be it known that I, CHARLES J. OLIN, of Mason, in the county of Ingham and State of Michigan, have invented an Improvement in Chucks, of which the following is a specification.

The nature of my invention relates to certain new and useful improvements in the class of devices commonly called "frictional centering-chucks," so constructed as to enable the operator to shift the center of an article to be turned that it will coincide with the axis of the mandrel, and also to enable him to remove the article or replace it without the use of tools.

The invention consists in the peculiar construction and arrangement of the parts by means of which the chuck is adjustable upon the face-plate, and locked in position when the desired center has been attained, and also in the construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

Figure 1 is a vertical longitudinal central section of my improved chuck, showing all the parts as arranged for centering a post or pin which has no other part attached to it. Fig. 2 is an elevation of the face-plate. Fig. 3 represents the removable and binding caps. Fig. 4 is a detached perspective of the piece D. Fig. 5 is a detached view of the spring-collar. Fig. 6 is a perspective view of the elastic head. Fig. 7 is a vertical central longitudinal view of the piece F. Fig. 8, Sheet 2, is perspective view, in group, of the parts A, B, and C', and also showing a wheel and pinion upon a staff. Fig. 9 represents the parts A, B, and C' in position, holding the wheel between A and C' with the staff projecting through the opening in the part C'. Fig. 10 is a central vertical longitudinal section of the device, as shown in Fig. 9.

In the accompanying drawings, which form a part of this specification, A represents a circular face-plate, the rim of which is offset so as to form a shoulder, *a*, while the periphery of the plate is threaded to engage with annular flanged nut B. A slot, *d*, is cut in the shoulder *a* from the raised portion *b*, extending partially across its face toward the center of the face-plate, forming a recess for the re-

ception of the studs or lugs *s s* of the parts C, C', and D, as hereinafter explained.

The face-plate A is secured to a tail-stock or hollow mandrel, *g*, or other suitable means of attaching it to the lathe. This tail-stock is made hollow to admit of articles under treatment to extend back into it, while the opposite end will protrude through the center hole in the face-plate.

B is an annular thumb-nut, milled or knurled on its outer face, and with its inner face threaded to engage with the thread on the periphery of the face-plate. The front part of this nut is provided with an inwardly-projecting flange, which is designed to embrace the flanges *k* of the collars C and C', the bodies of said collars passing through said nut. This thumb-nut is employed to hold the several parts rigidly against the face-plate when screwed to place by embracing the flanges *k* on the collars C C'.

C' is a cap or collar, which fits the offset *a* of the face-plate A, and it has an outwardly-projecting flange, *k*, and a hole cut away at the center. It also is supplied with an inwardly-projecting stud or lug, *s*, which is made to fit the slot *d* in the face-plate, to prevent the cap from having any motion except perpendicular to the face-plate while the nut is being screwed up—that is to say, the cap will have no motion except a rotary one with the face-plate when the latter one is rotated. This stud or lug may be placed on the rim *a* and the slot in C', or there may be several lugs and slots placed around the rim with the same result, as the object is to prevent the cap C' from being displaced, and from rotating with the nut when the latter is screwed to place.

To understand the working and utility of the device, consisting only of the parts A, B, and C', as described, I take a staff with a pinion and wheel driven upon it, as shown in Figs. 8, 9, and 10. The end of the staff extends into the central hole in the face-plate A, which is coincident with the bore of the tail-stock or mandrel, and the wheel rests against the face-plate. Then the cap C' is placed in position, covering and inclosing the wheel, and allowing the opposite end of the staff to project through the central hole in the cap. The nut B is then slipped over the cap and lightly screwed to place, while the face-plate is prop-

erly secured in a lathe. The lathe is then put in motion, and the wheel being lightly held between A and C', may be driven to the center with any convenient tool by crowding against the staff as the latter is making its eccentric revolutions, until a desired center has been obtained. The nut B is then tightly screwed to place, rigidly holding the article between A and C', thereby enabling the operator to properly finish the end of the staff that projects through C'. Thus these three parts A, B, and C' form a perfect chuck, by means of which a very small shaft or pinion, too small to be centered and held by the ordinary devices in use, may be pivoted, turned, polished, &c.

C is in every way like C', except that its center hole is larger to admit the body of the part D to pass loosely through it. It may be used in lieu of C' when the wheel on the staff is larger than the orifice in C. The head D is provided with the annular flange *u*, which, when the parts are in place, is inclosed between the face-plate A and the cap C. On the rear face of this flange *u* and near its outer edge is a small pin, *s*, which rests in the slot *d* in the face-plate A. The object of this pin is to keep the head D from turning on the face-plate, while it does not prevent its being shifted between A and C, and it saves the labor of recentering the work every time the article being turned is removed and replaced.

The outer end of the head D is threaded to receive the flange lock-nut F, while it is also recessed to receive the conical head of the elastic jaws E.

A pin or stud projects inwardly from the head D and engages with a slot, *r*, in the shank of the elastic jaws E, which prevents the latter from turning excepting with the other parts.

D' is an annular collar or ring, which slips over the cylindrical portion of the head D, resting upon the flange *u* thereof. This ring or collar D' is provided with two or more springs, *r*. This ring D' may be dispensed with by securing the springs *r* to the flange of the head D, while the same object will be accomplished. Again, these springs may be dispensed with entirely by being more careful about adjusting the nut B while centering the work.

While there is nothing new in the holding principle of the elastic jaws E, yet the adaptation of it to a center-shifting chuck and the manner of holding it so it may be shifted on the face-plate while yet it is holding firmly an article, I am not aware has ever been accomplished before.

F is a concave recessed flaring flanged lock-nut and cap, knurled on its outer edge, and threaded on its inner surface to fit the threaded portion of the head D. The center of the cap portion is countersunk on the rear of its face to fit the face of the elastic jaws E, for the purpose of driving said jaws back into the recessed portion of the head D by screwing F to place,

thereby compressing said jaws and firmly holding any article therein.

By referring to the above and the drawings, Fig. 1, it may be clearly seen that each and every piece of my device is held in line by the appliance of a pin, stud, or lug to each, as above described, whereby no part except the nuts B F can turn independently.

In order to operate this device, the parts are put together as shown in Fig. 1—that is, the head D is placed against the face-plate A, with its pin *s* entering the slot *d*. The spring-collar D' is then slipped over the head, and is followed by the cap C. The annular nut B is then screwed on till the parts are lightly held together. The elastic jaws E (in which has been placed the article to be turned) are then inserted in the outer end of the head D, and the cap or flange nut F is screwed to place, compressing the outer end of the jaws E, and securely holding the article to be turned, and the whole of the device is then properly secured in the lathe. The lathe is then put in motion, which gives the article held by E a crank or eccentric motion. The operator then holds some tool near enough to the article so that in each revolution it will come in contact with it. The article, being free to move, will be crowded a little each revolution. This operation is continued until the article is gradually shifted to the center and coincident with the axis of the lathe. When this is obtained the nut B is screwed on tightly, thereby drawing the parts firmly against the face-plate.

The object of the spring-collar D' is to hold the head D against the face-plate A when the thumb-nut B is loose enough to let the cap C clear it. The friction in centering is thereby greatly reduced, yet is sufficient to hold the head D wherever it is placed, thus adapting the device for centering very slender articles.

What I claim as my invention is—

1. In a frictional centering-chuck, the face-plate A and annular flanged thumb-nut B, with the cap C, constructed and operating substantially as described.

2. In a frictional centering-chuck, the face-plate A, provided with slot *d*, and annular flanged thumb-nut B, with the cap C, provided with stud *s*, substantially as described, and for the purposes set forth.

3. In a frictional centering-chuck, the head D, provided with a spring-collar, D', and with stud *s*, in combination with the face-plate A, thumb-nut B, and cap C, substantially as and for the purposes described.

4. In a frictional centering-chuck, the face-plate A, thumb-nut B, and cap C, with the head D, lock-nut F, and jaws E, constructed, arranged, and operating substantially as and for the purposes specified.

CHARLES J. OLIN.

Witnesses:

H. K. DEAN,

A. P. VAN DEUSEN.