

No. 685,696.

H. A. SEYMOUR.

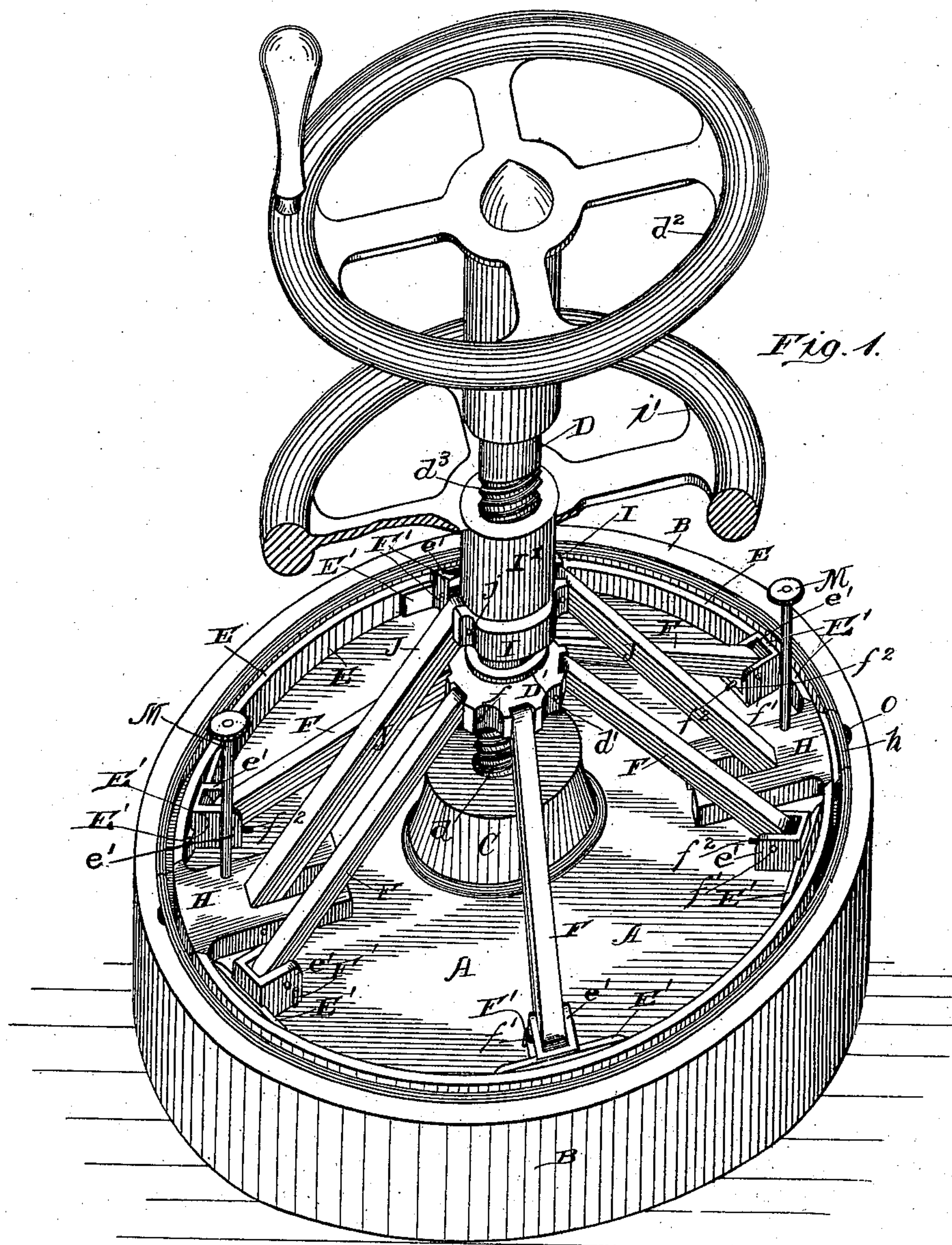
Patented Oct. 29, 1901.

CHUCK.

(Application filed June 15, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

Chas E. Gordon
G. A. Adams.

Inventor:

Harry A. Seymour

By Charles Turner Brown,
Att'y.

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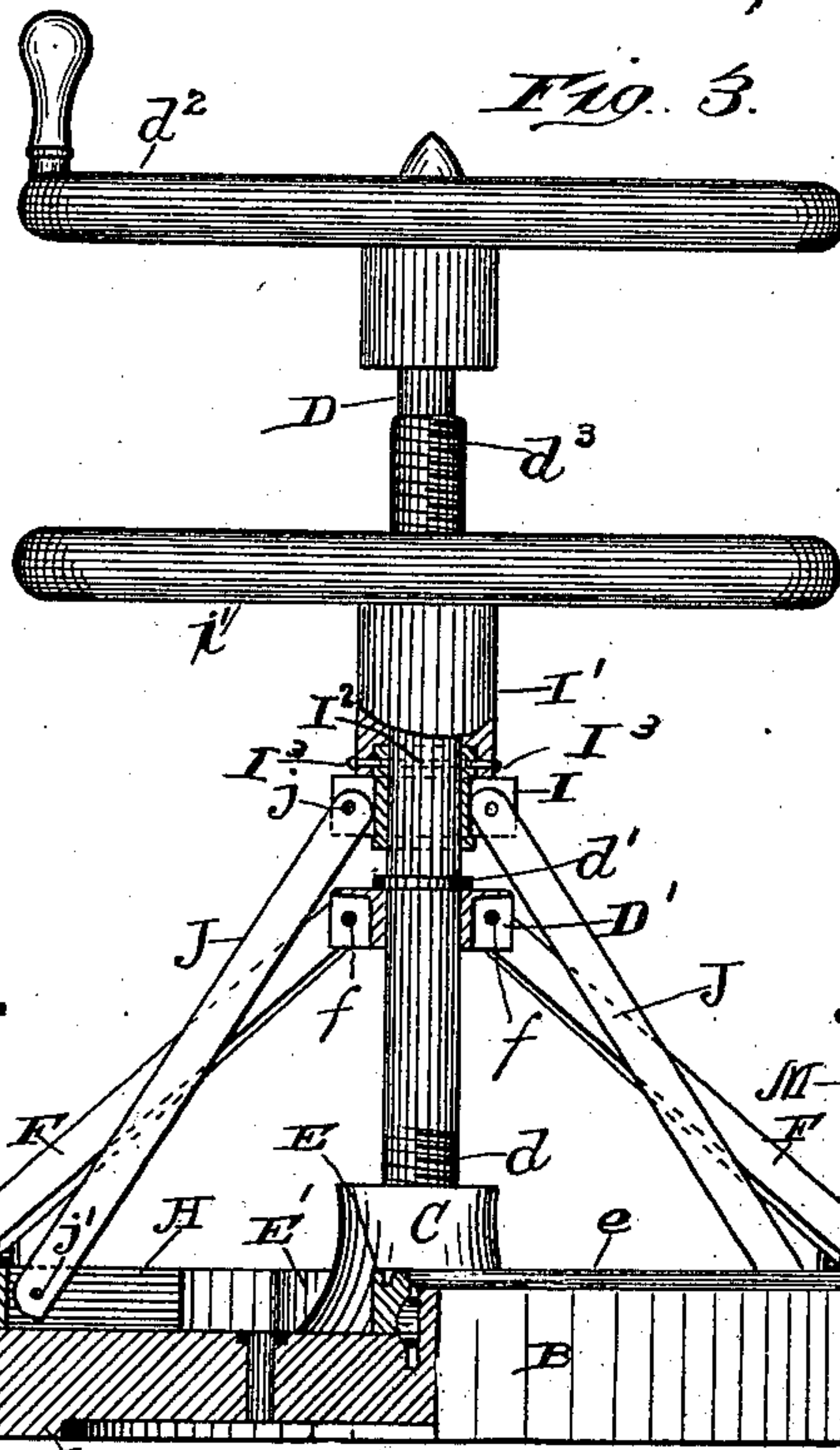
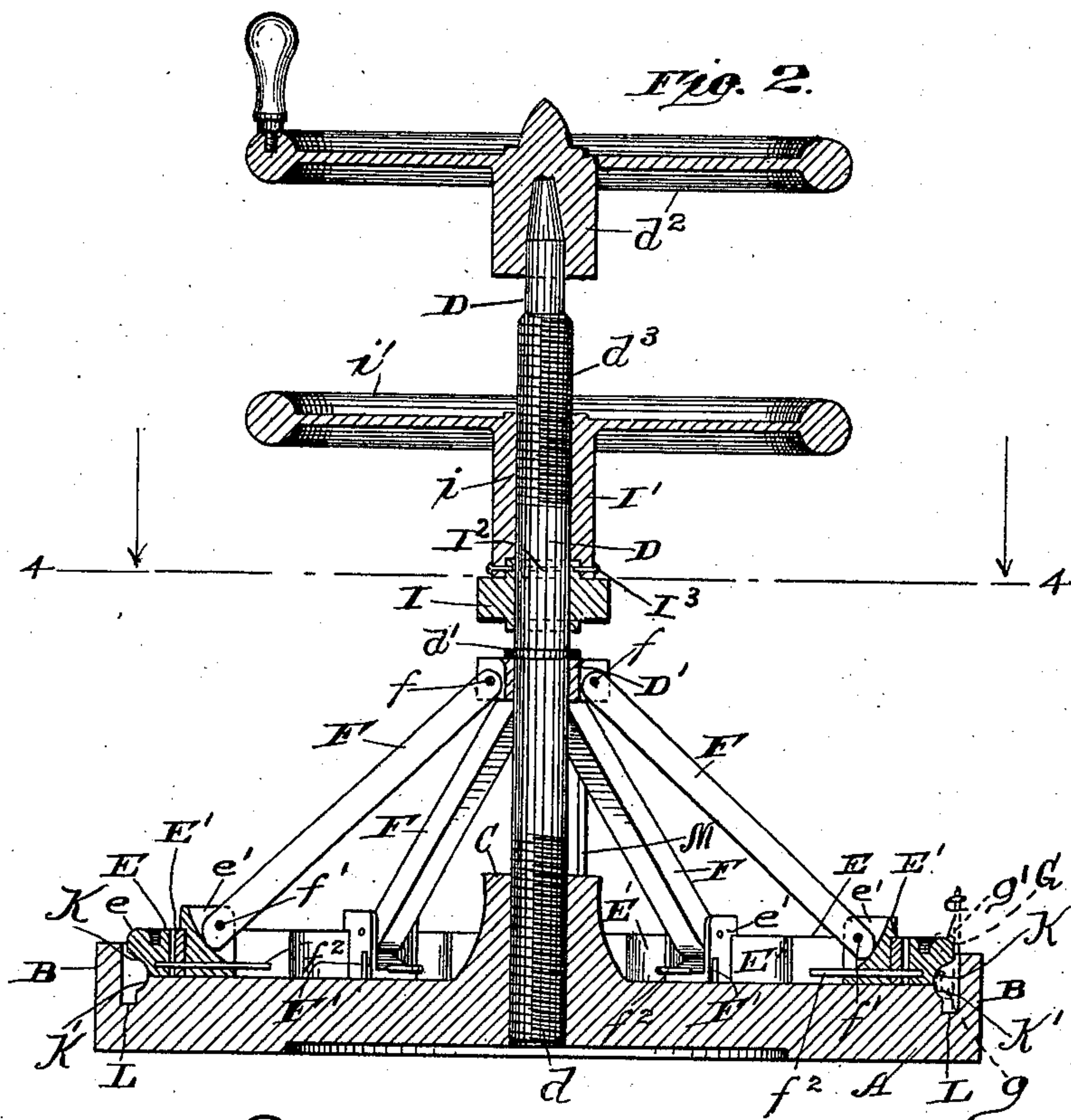
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CHUCK.

(Application filed June 15, 1901.)

(No Model.)

3 Sheets—Sheet 2.



Witnesses:

Chas. E. Gorton.

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Patented Oct. 29, 1901.

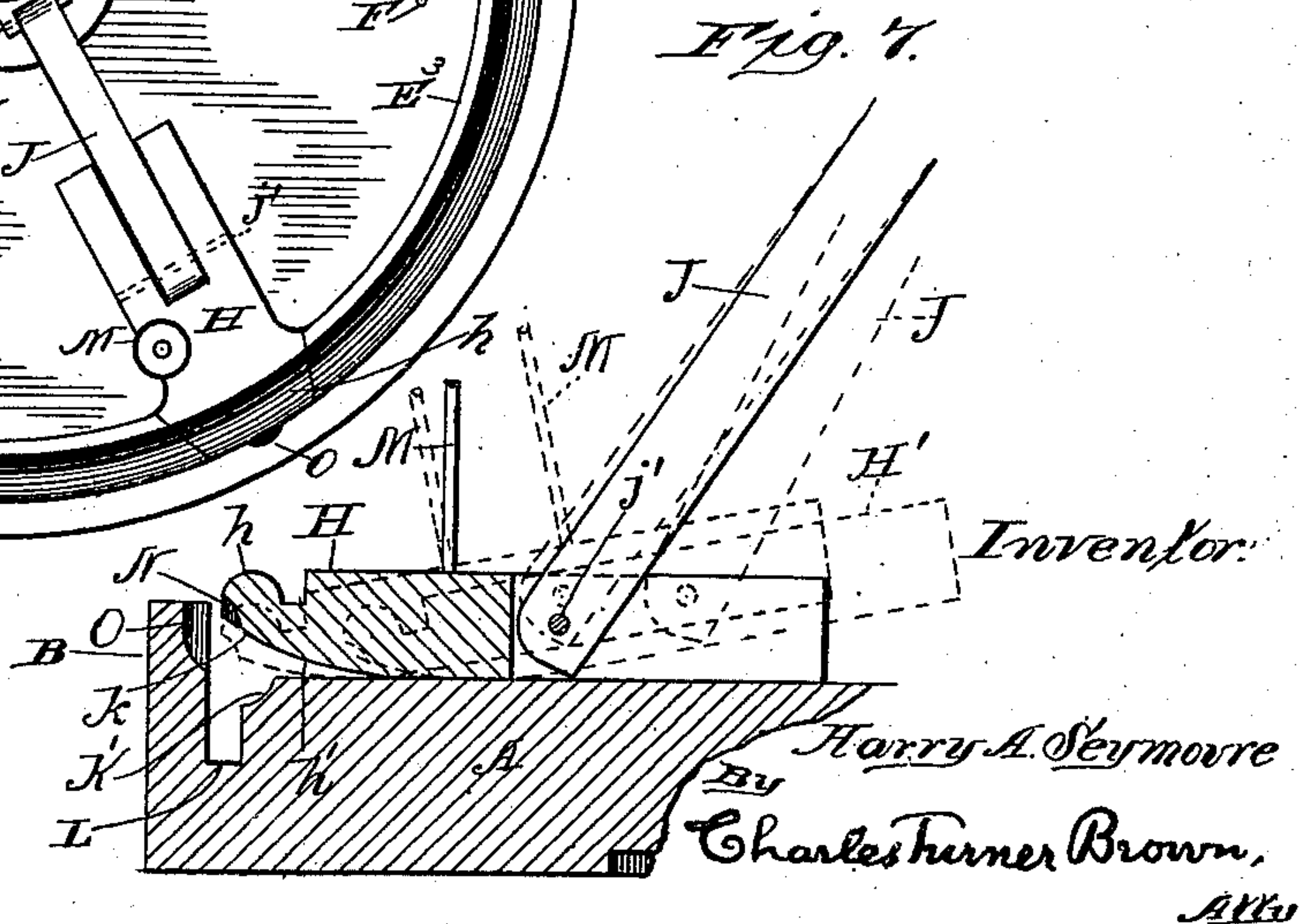
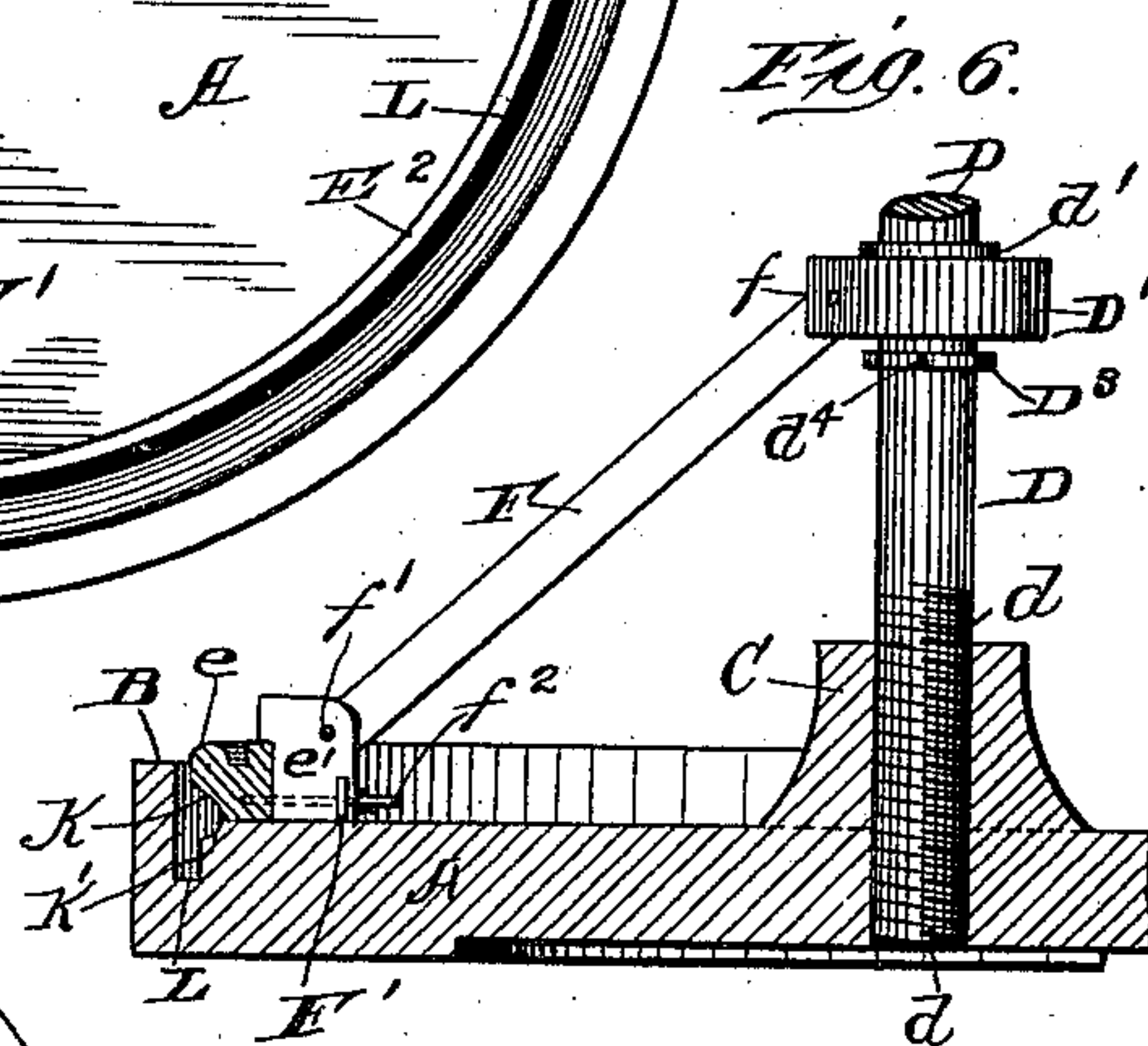
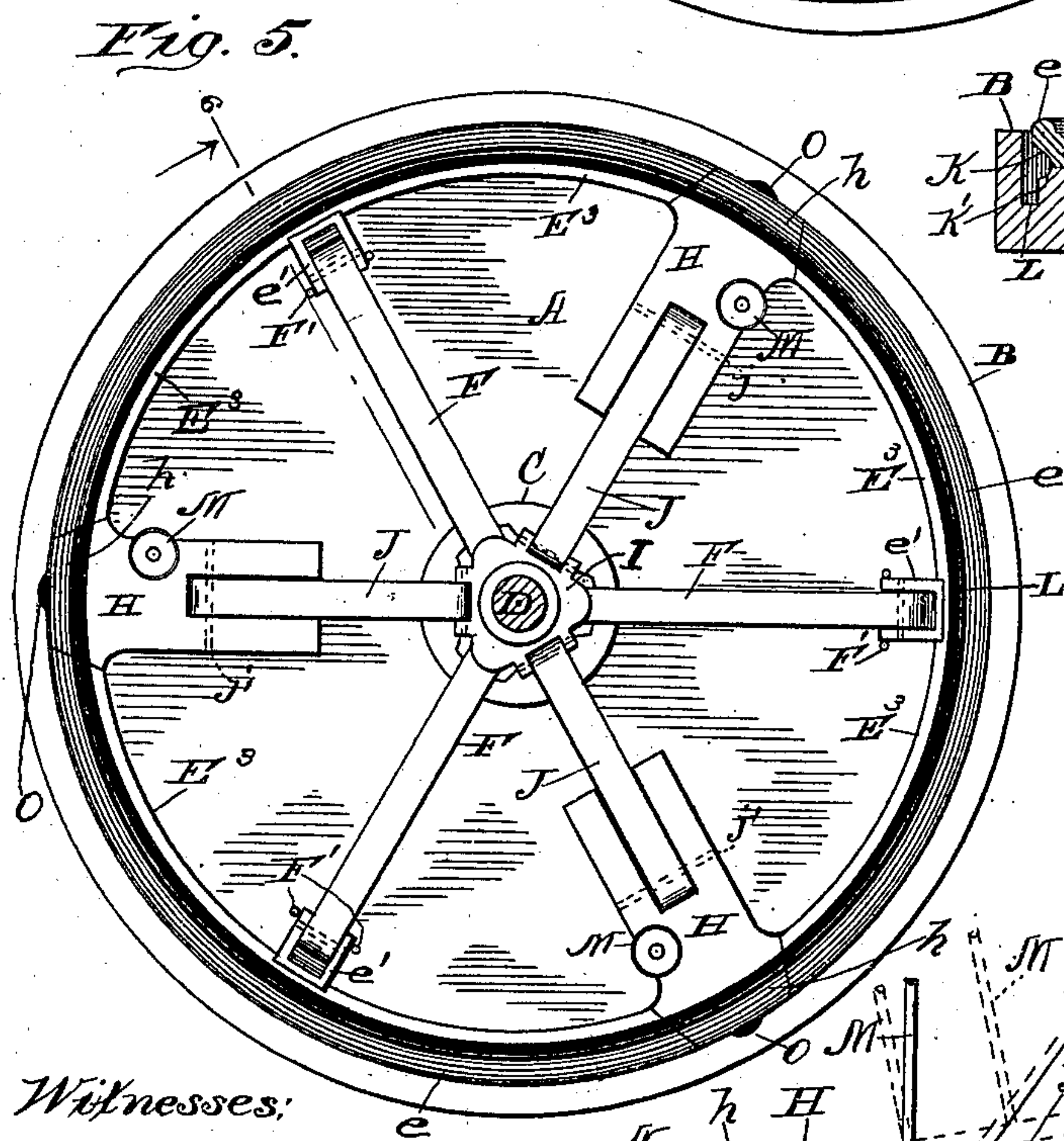
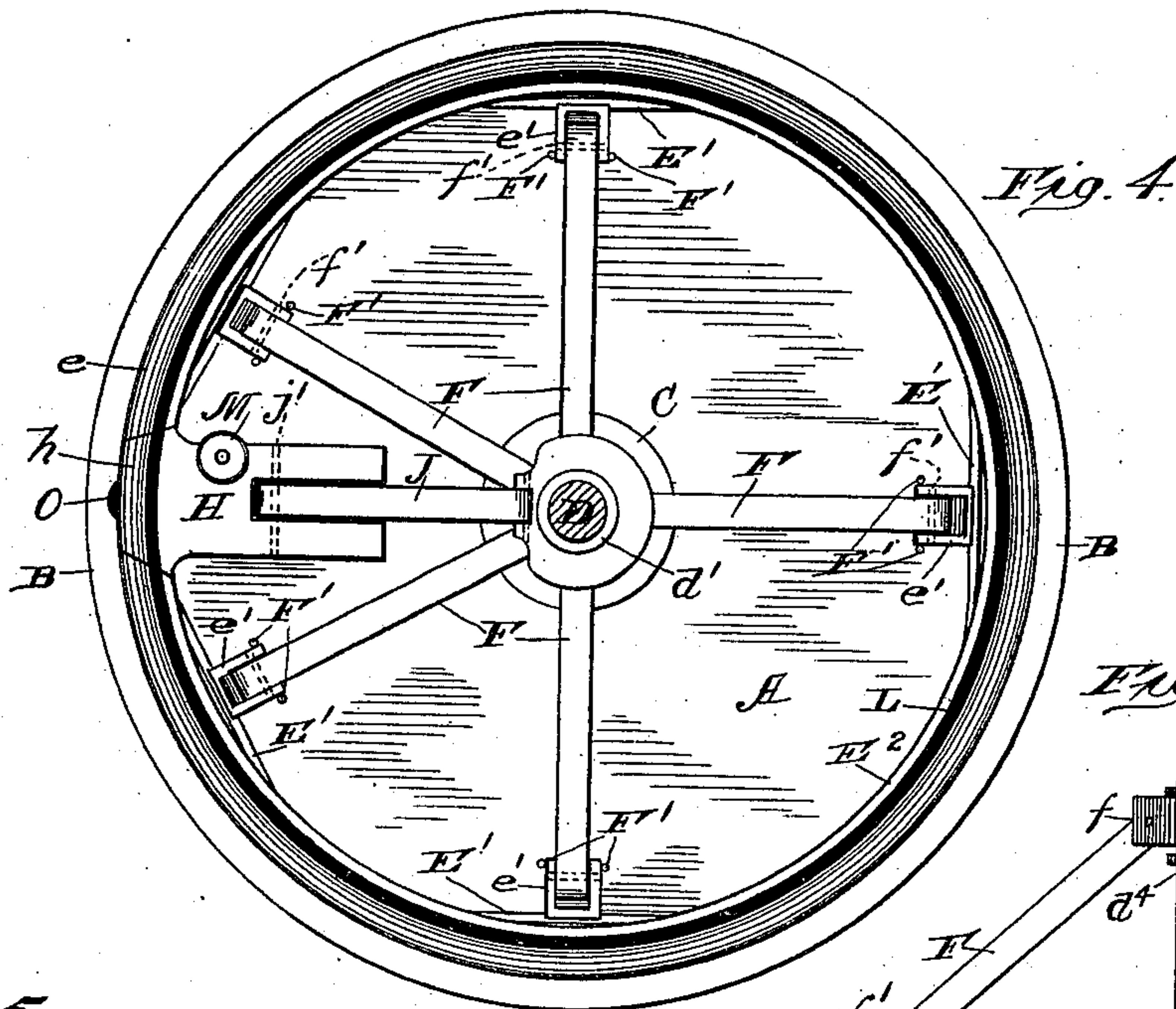
H. A. SEYMOUR.

CHUCK.

(Application filed June 15, 1901.)

(No Model.)

3 Sheets—Sheet 3.



Witnesses:

Chas. E. Gorton,
C. A. Adams.

Inventor:

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UNITED STATES PATENT OFFICE.

HARRY A. SEYMOUR, OF CHICAGO, ILLINOIS.

CHUCK.

SPECIFICATION forming part of Letters Patent No. 685,696, dated October 29, 1901.

Application filed June 15, 1901. Serial No. 64,695. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. SEYMOUR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Chucks for Making Frames, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to the making of a chuck wherein a strip of sheet metal having the ends joined or not joined, as preferred, may be placed and securely held while one of the sides thereof is turned over to form a crowning bead or torus; and the object of this invention is to obtain a chuck of the kind named wherein first one and then the other of the side edges of a strip of sheet metal may be turned into a crowning bead or torus and the completed article obtained thereby—to wit, a frame for pictures, photographs, mirrors, and other articles—may be taken from the chuck without crinkling, bending, or other injury to such frame. I find it necessary in making a frame of the kind obtained by the use of this chuck to arrange the frame so that it will be expansible—that is, so that the frame can be opened to admit the placing of the same over a glass, a mat, a backing, and a picture, photograph, or other article, or over a mirror and the backing thereof—and to obtain the expansibility required the ends of the strip which is formed up to make the frame must be detachably connected together, and therefore I have sought to obtain a chuck in which a strip of metal may be held and the sides turned over to form a bead or torus, whether the ends of the strips are secured together permanently or whether they are simply brought together in proper position in the chuck and there held by the chuck while the operation of turning the side edges over is being performed.

In the drawings referred to as accompanying and forming a part of this specification, Figure 1 is a perspective view of a chuck embodying this invention; Fig. 2, a vertical sectional view of such chuck; Fig. 3, a side ele-

vation of such chuck, partly in section. Fig. 4 is a view of a modification of the chuck illustrated in Figs. 1 to 3, both inclusive, on line 4 4 of Fig. 2 viewed in the direction indicated by the arrows. Fig. 5 is a like view of an additional modification of the chuck illustrated in Figs. 1 to 3, all inclusive; and Fig. 6 is an elevation of the vertical shaft in the modification illustrated in Fig. 5 and a sectional view of a portion of the bed-plate, the hub thereof and parts adjacent to such bed-plate on line 6 of Fig. 5 viewed in the direction indicated by the arrow. Fig. 7 is a detailed view of the element, hereinafter termed a “locking-plate,” common to all the constructions shown and forming a part of the chuck embodying the invention.

A reference-letter applied to designate a given part is used to indicate such part throughout the several figures of the drawings wherever the same appears.

A is the bed-plate of the chuck.

B is a peripheral rim to the bed-plate A.

C is a hub to bed-plate A, and D is a screw-threaded shaft rotatably mounted in the hub C. The screw-threads d d on the shaft D fit corresponding screw-threads in the hub C, so that as such post is turned it is moved longitudinally.

E E, Figs. 1, 2, and 3, are spring-metal half-circles loosely resting on the bed-plate A.

D' is a collar loosely fitting on shaft D, and d' is a shoulder on such shaft D, pressing against collar D' to force such collar down with the longitudinally-downward movement of the shaft as such shaft is turned by the rotation of hand-wheel d^2 through the engagement of the screw-threads d with the corresponding screw-threads in hub C of the bed-plate A.

d^3 represents screw-threads on shaft D.

E' E' are spring-abutments also resting loosely on the bed-plate A and against the spring half-circles E E. Spring-abutments E' E' are provided with sliding abutments e' e' .

F F F are connecting-links loosely attached, as by the pivots f f f , to the collar D' on shaft D and also, as by pivots f' f' , to the sliding abutments e' e' of the respective spring-abutments E' E'.

F' F' are guide-pins in bed-plate A adjacent to the abutments E' E' at the center of

spring half-circles E E—that is, midway between locking-plates H H, hereinafter described.

$f^2 f^2$ are guide-pins passing through spring-abutments E' E', sliding abutments $e' e'$, respectively, and into half-circles E E, respectively. (See Fig. 2.) When the post or shaft D is turned, as by the hand-wheel d^2 , to bring such shaft longitudinally toward the bed-plate A, the spring-abutments E' E' are thrust outwardly against the half-circles E E by the sliding abutments $e' e'$, and such half-circles are thereby forced against the strip of metal G, Fig. 2, placed around and against the inner cylindrical face of the peripheral rim B and between such peripheral rim and such half-circles.

H H are locking-plates fitting between the ends of the half-circles E E and against the strip G. Strip G is held firmly in place by the forcing of the half-circles E E and locking-plates H H outwardly on the bed-plate A against such strip G.

I is a collar fitting loosely on shaft D to move longitudinally thereon, and I' is a collar on such post or shaft D, provided with screw-threads $i i$, fitting over corresponding screw-threads d^3 on such post or shaft D. Collar I has an annular projection on the upper face thereof extending into a corresponding recess at the lower end of the collar I', and I² is an annular groove in the upper part of the collar I, into which groove pins I³ I³ extend, such pins thereby connecting collars I I' together, so that rotation of collar I' on shaft D will not produce rotation of collar I; but the longitudinal movement of collar I' (caused by screw-threads i in collar I' engaging with screw-threads d^3 on shaft D) will produce corresponding longitudinal movement of collar I on shaft D. The collar I' is provided with the hand-wheel i' , by which it may be turned on the shaft D.

J J are connections loosely attached, as by the pins $j j'$, to collar I and to the locking-plates H H, respectively. When the collar I' is turned on shaft D, so as to be moved longitudinally on the shaft toward the bed-plate A, such collar I' forces collar I toward the bed-plate A, and the locking-plates are thereby forced into contact with sheet-metal strip G.

K is a peripheral groove on the lower outer corner of half-circles E E, and $k k$ are grooves on the locking-plates H H, positioned relative to the bed-plate A the same as are grooves K K.

K' is a corresponding groove on bed-plate A adjacent to groove K k .

L is an annular recess on the top face of bed-plate A, into which recess the lower side or edge of the strip G is placed when such metal strip G is put into the chuck for the purpose of turning or forming the first bead or torus g thereon, and in which annular recess the lower side or edge of the metal strip G remains while the upper side or edge is turned

or formed down upon beads $e e$ (on spring-circles E E) and $h h$, (on locking-plates H H.)

The metal strip G is shown in Fig. 2 with the bead g and also bead g' as turned thereon, and as in this machine first one and then the other of such beads are turned the bead g is illustrated as in the groove or recess formed by K, k , and K', and bead g' is shown as turned down on beads e and h of spring-circles or half-circles E E and locking-plates H H, respectively.

M is a handle on locking-plate H.

When a sheet-metal strip G is placed in position in the chuck and secured in place between the cylindrical inner face of peripheral rim B and the periphery of the half-circles E E and locking-plates H H and the upper side or edge is turned over and down on such beads $e h$, obtaining the crown-bead g , it will be found necessary in order to remove such strip from the chuck to first loosen the locking-plates H H from engagement with the bead of the metal strip. This is done by turning the hand-wheel i' of collar I' to move such collar and collar I longitudinally on shaft D away from the bed-plate A. When so moved, collar I by means of connections J J moves or rocks such locking-plates H H on the face indicated by reference-letter h' in Fig. 7, thereby simply lowering bead h from the position thereof illustrated by full lines in Figs. 1, 2, 3, 4, 5, 6, and 7 of the drawings into substantially the position indicated by dotted lines in Fig. 7, thereby releasing such bead h from engagement with the turned-down or formed bead of the strip G. Continued movement of the collars I I' on shaft D away from the bed-plate A will draw such locking-plate H away from contact with the metal strip G and out from between the ends of the spring half-circles E E, say, into substantially the position indicated by the broken lines H' in Fig. 7. After the locking-plates H H are released in the manner last above set forth the spring-metal half-circles E E may be released from strip G and the turned-down bead thereon by turning the hand-wheel d' , and thereby causing the shaft D to move longitudinally away from the bed-plate A. Having turned or formed the bead g on one side or edge of the strip G and having loosened the locking-plates H H and spring half-circles E E, as last above described, the strip G may be taken off the chuck and turned and again placed within the peripheral rim B, with the bead g thereon in the annular recess formed by the peripheral grooves K', K, and k , and such strip G is again secured in place by means of the spring half-circles E E and the locking-plates H H in the same manner as before. A second bead g' may be turned on strip G similar to bead g . As the manner of the turning of the beads $g g'$ on the side or edges of the strip G and the machine for doing the same form no part of this invention, the same are not herein illustrated or described, the purpose of this invention being

to obtain a chuck wherein strip G may be held firmly while such beads $g\ g'$ are respectively turned or formed and from which chuck the expansible frame obtained from strip G by turning the beads thereon, as described, (while the same is held in the chuck,) may be removed without injury to the frame, and when the bead g' has been obtained the frame (strip G, having beads $g\ g'$) may be removed from the chuck by first loosening the locking-plates H H in the manner hereinbefore described (by turning the hand-wheel $i' i'$) and afterward loosening the spring half-circles by turning the small hand-wheel d^2 , as hereinbefore described. The half-circles E E will automatically release from the bead on strip G as the post D is longitudinally moved, by means of the hand-wheel d^2 thereon, away from the bed-plate A. The frame so obtained from strip G may be taken from the chuck and a new strip G placed therein and a new frame made therefrom.

The ends of the strip G are preferably attached together while in place in the chuck, as by a common pin or bolt, and N O are recesses in peripheral rim B and one of the locking-plates H to respectively receive the head and nut of such bolt.

Although I prefer to construct the parts E of spring half-circles with duplicate locking-plates H H, as hereinbefore described, I have made an operative chuck in which I substitute a single spring-ring E^2 and a single locking-plate H therefor, as is illustrated in Fig. 4 of the drawings.

In other respects the construction illustrated in Fig. 4 is the same as the construction illustrated in Figs. 1 to 3, inclusive.

In the modification illustrated in Figs. 5 and 6 the three-part ring $E^3\ E^3\ E^3$ is substituted for the two-part spring half-circles E E of Figs. 1, 2, and 3, and the three locking-plates H H H (triplicates) are substituted for the locking-plates H H (duplicates) of such Figs. 1, 2, and 3. The collar D^3 is also placed on shaft D and secured in place thereon to move longitudinally therewith, (as by set-screw,) so that the collar D' is maintained in substantially the same place longitudinally on such post D, and thereby the necessity of constructing the three-part ring $E^3\ E^3\ E^3$ of spring metal is obviated. In other respects the modification illustrated in Figs. 5 and 6 may be constructed substantially the same as the construction illustrated in Figs. 1 and 3, inclusive, of the drawings.

The operation of the modification illustrated in Figs. 4, 5, and 6 is substantially the same as the operation of the construction illustrated in Figs. 1, 2, and 3.

The half-circles E E, the spring-pieces $E^2\ E^2$, and the three-part pieces $E^3\ E^3\ E^3$ severally constitute what I term a "segmental rim," resting on the bed-plate A within the peripheral rim B, such segmental rim being movable in a horizontal plane toward and away from the peripheral rim B, the position

of such segmental rim with reference to the peripheral rim being determined and controlled by the longitudinal movement of the post or shaft D, and the locking-plates H when forced between the ends of the segmental rim complete an inner ring, which is pressed or forced against the strip G at the time of the turning or forming of the beads $g\ g'$, respectively.

Having thus described my invention and the construction and operation of a machine embodying the same, what I claim as new, and desire to secure by Letters Patent, is—

1. In the chuck described, the combination of a bed-plate provided with a peripheral rim, a longitudinally-movable shaft, perpendicular to the bed-plate, means to control the longitudinal position of the shaft relative to the bed-plate, a segmental rim on the bed-plate, means to force the segmental rim outward to contact with a metal strip interposed between such segmental rim and the peripheral rim, a locking member also on the bed-plate, means to force such locking member to contact with the metal strip between the ends of the segmental rim, means to retract the segmental rim and means to retract the locking member, such segmental rim and locking member provided with a crowning-bead; substantially as described.

2. In a chuck, the combination of a bed-plate provided with a peripheral rim, a shaft longitudinally movable on the axial line of the bed-plate, a segmental rim movable on the bed-plate toward and away from the peripheral rim, to hold in place and to release from such hold, a sheet-metal strip interposed between them, means for controlling the position of the segmental rim, mechanisms mounted on the shaft, a locking member, connections between such locking member and the mechanisms on the shaft, and means for moving such mechanisms longitudinally on such shaft whereby the position of the locking member relative to the peripheral rim and the ends of the segmental rim may be controlled by such mechanisms; such segmental rim and locking member provided with a crowning-bead; substantially as described.

3. In a chuck, the combination of a bed-plate provided with a peripheral rim, a shaft longitudinally movable on the axial line of the bed-plate, a segmental rim movable on the bed-plate toward and away from the peripheral rim, to hold in place and to release from such hold, a sheet-metal strip interposed between them, connections between the longitudinally-movable shaft and the segmental rim to control the position of the segmental rim relative to the peripheral rim by the position of such shaft relative to the bed-plate, a locking member, mechanisms mounted on the shaft to move longitudinally thereon and connections between such mechanisms and the locking member whereby the position of the locking member relative to the peripheral rim and the ends of the segmental rim

may be controlled by such mechanisms; such segmental rim and locking member provided with a crowning-bead; substantially as described.

5 4. In a chuck, the combination of a bed-plate provided with a peripheral rim, a shaft longitudinally movable on the axial line of the bed-plate, a segmental rim movable on the bed-plate toward and away from the peripheral rim, to hold in place and to release from
10 such hold, a sheet-metal strip interposed between them, means for controlling the position of the segmental rim, mechanisms mounted on the shaft to move longitudinally there-
15 on, a locking member and connections between such longitudinally-mounted mechanisms on the shaft and the locking member, such bed-plate, segmental rim and locking member respectively provided with peripheral
20 grooves, constituting a continuous annular recess adjacent to the peripheral rim and to the sheet-metal strip, and such segmental rim and locking member provided with a crowning-bead, whereby the position of the
25 locking member relative to the peripheral rim and the ends of the segmental rim may be controlled by such mechanisms; substantially as described.

5. In a chuck the combination of a bed-
30 plate provided with a peripheral rim, a shaft provided with screw-threads corresponding with screw-threads in the hub of the bed-plate whereby rotation of the shaft produces longitudinal movement thereof on the axial
35 line of the bed-plate, a collar loosely mounted on the shaft to move longitudinally therewith, a segmental rim movable on the bed-plate toward and away from the peripheral rim, to hold in place and to release from such
40 hold, a sheet-metal strip interposed between them, movable abutments on the bed-plate adjacent to the segmental rim, connections between such abutments and the loosely-mounted collar, a locking member, an additional collar
45 longitudinally movable on the shaft, connections between such additional collar and the locking member, such segmental rim and locking member provided with a crowning-bead, such locking member provided with a
50 recess and such peripheral rim provided with

a recess adjacent to the locking member and with a portion of the under side of the locking member adjacent to the periphery thereof taken away to provide a rocking face, whereby the bead on the locking member may be
55 retracted from the bead on the strip of metal adjacent thereto; substantially as described.

6. In a chuck, the combination of a bed-plate provided with a hub and with a peripheral rim, such bed-plate also provided with an
60 annular recess on the upper face thereof adjacent to the peripheral rim, a rotatable shaft provided with a hand-wheel rigidly attached thereto and also provided with screw-threads thereon, the screw-threads at the end of the
65 shaft opposite the hand-wheel fitting corresponding screw-threads in the hub of the bed-plate, a collar loosely mounted on the shaft to move longitudinally therewith and to not rotate, an additional collar loosely mounted
70 on the shaft, a screw-threaded collar provided with a hand-wheel mounted on the shaft with the screw-threads therein engaging with the screw-threads on the upper end of the shaft, a connection between the screw-threaded collar
75 and the additional collar adjacent thereto whereby the longitudinal movement of the screw-threaded collar is communicated to such additional collar, a segmental rim movable on the bed-plate toward and away from the peripheral
80 rim, spring-abutments movably mounted on the bed-plate adjacent to the segmental rim, connections between such spring-abutment and the first-named collar on the shaft, a locking member, connections between
85 the locking member and the additional collar such segmental rim and locking member provided with a crowning-bead and the locking member, the segmental rim and the bed-plate respectively provided with peripheral
90 grooves constituting a continuous annular recess adjacent to the peripheral rim; substantially as described.

Signed at Chicago, Illinois, this 3d day of June, A. D. 1901.

HARRY A. SEYMOUR.

In presence of—

CHARLES TURNER BROWN,
C. A. ADAMS.