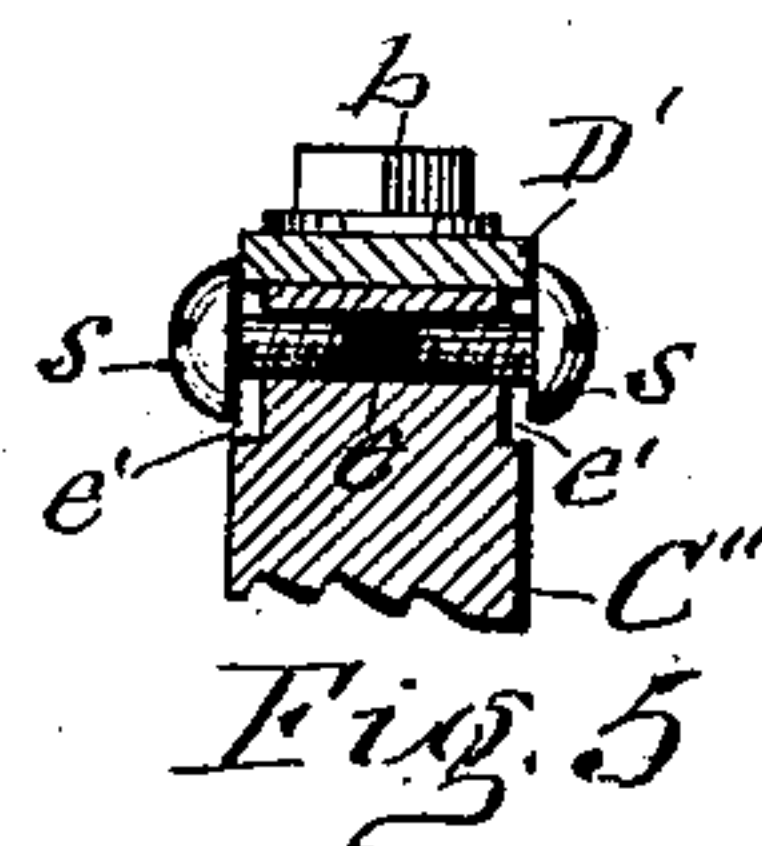
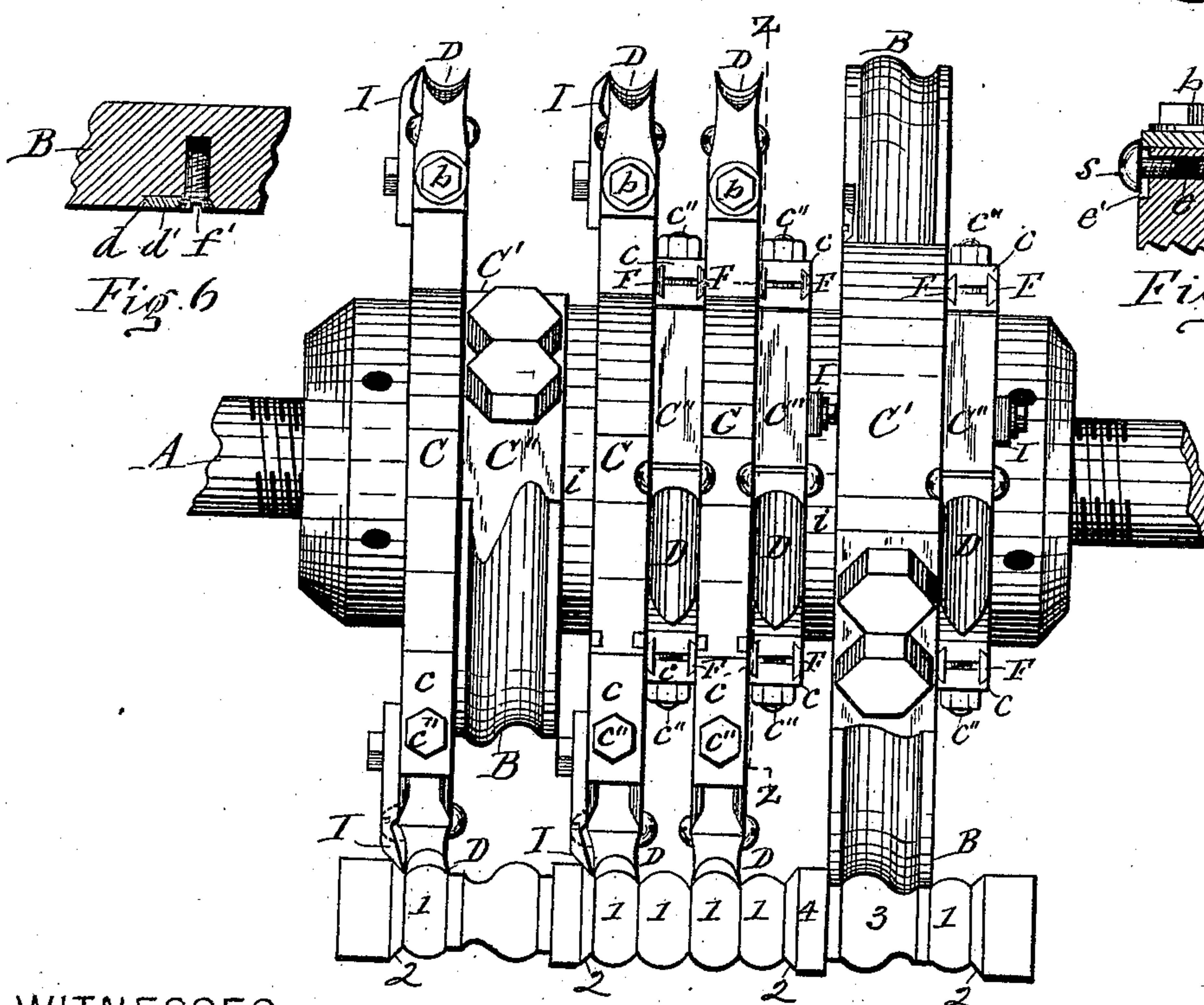
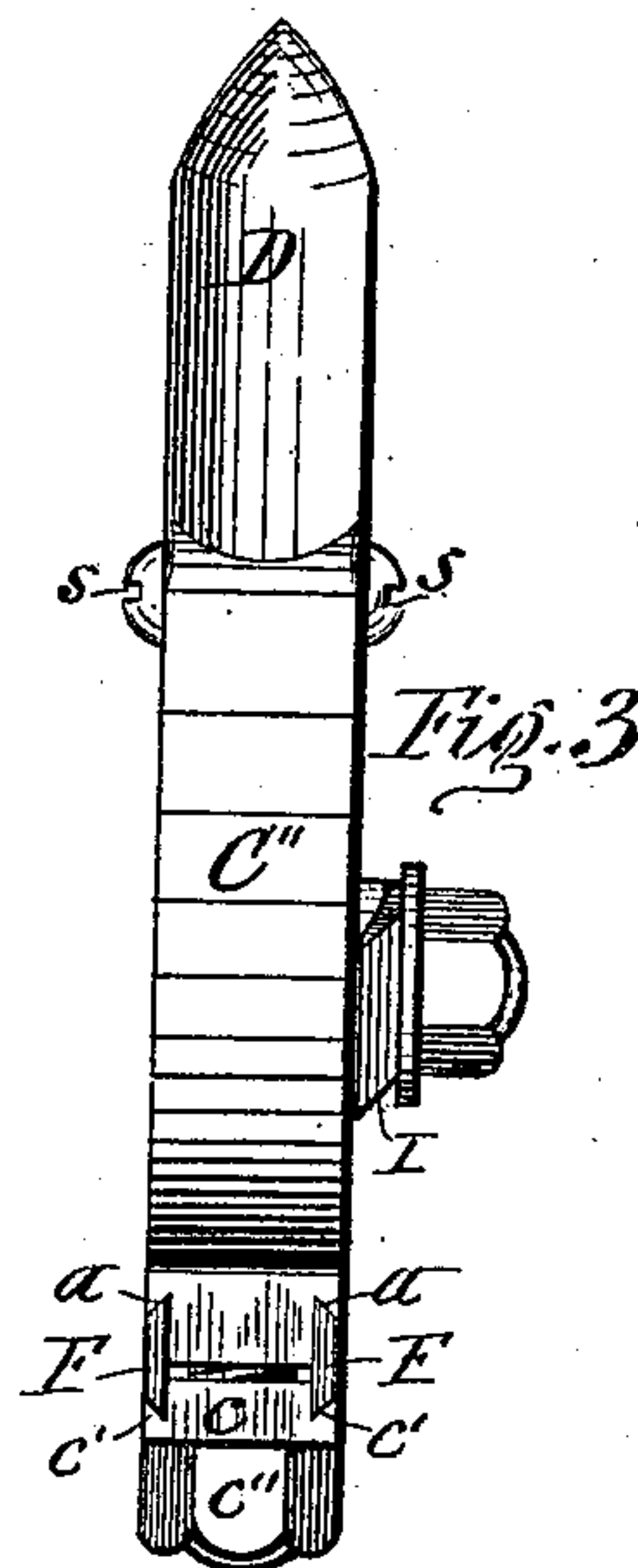
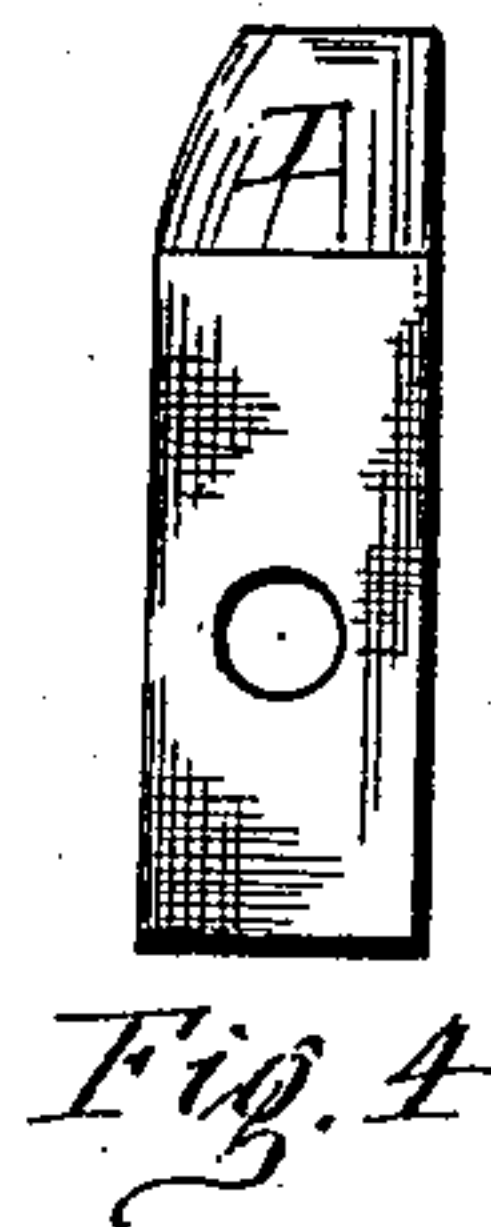
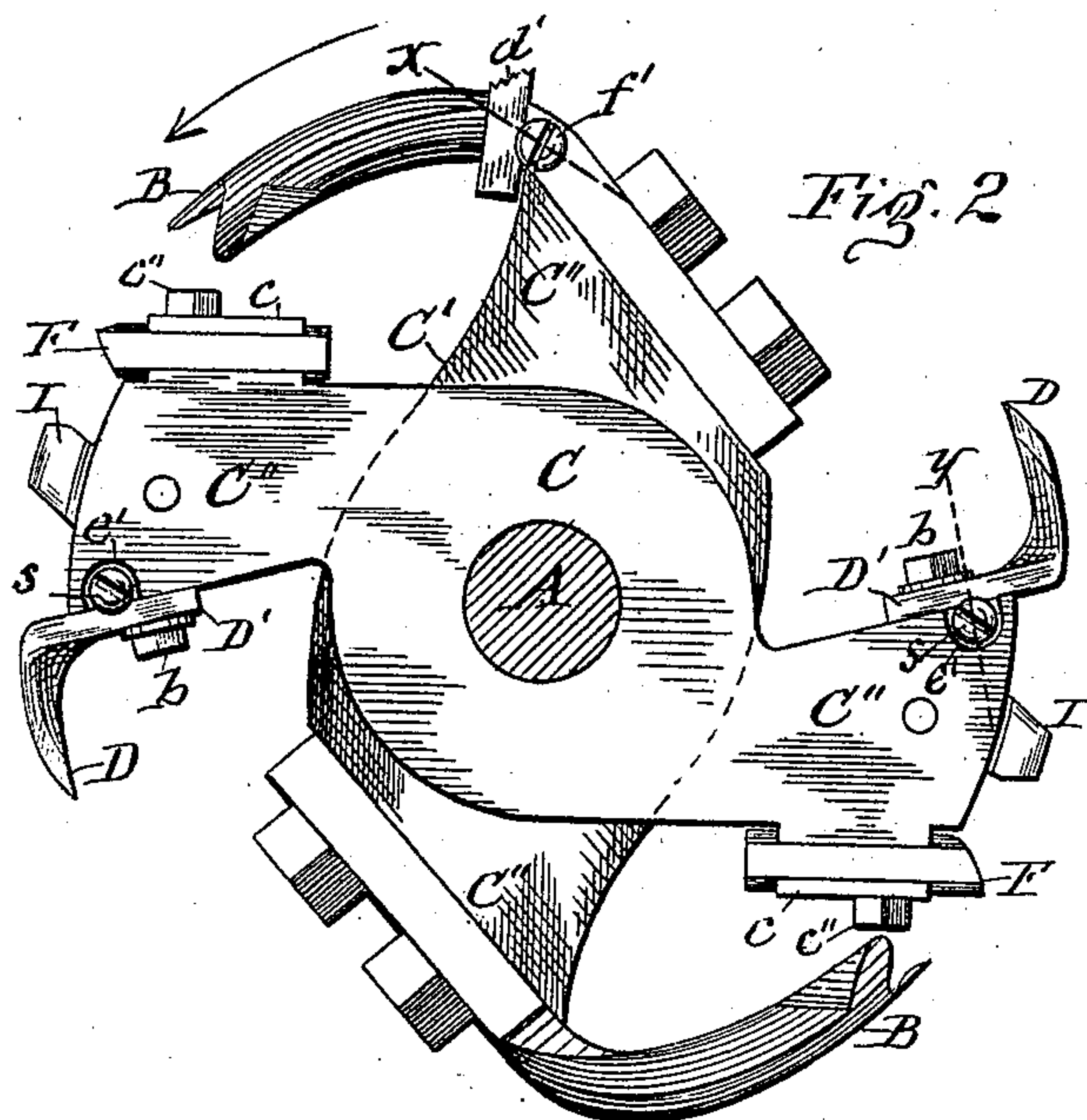


(No Model.)

C. E. ZIMMERMANN.
ROTARY CUTTER FOR WOODWORK.

No. 486,269.

Patented Nov. 15, 1892.



WITNESSES:

C. L. Burdison
H. M. Seamans.

Fig. 1

INVENTOR:

Charles E. Zimmermann
By Dudley, Leass & Duell

his ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES E. ZIMMERMANN, OF SYRACUSE, NEW YORK.

ROTARY CUTTER FOR WOODWORK.

SPECIFICATION forming part of Letters Patent No. 486,269, dated November 15, 1892.

Application filed April 1, 1891. Serial No. 387,207. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ZIMMERMANN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Rotary Cutters for Woodwork, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention has reference to rotary planers designed for cutting ornamentations in the surface of wooden bars or boards crosswise of the grain thereof.

15 The object of the invention is to provide a planer which shall be capable of forming simultaneously a series of ornamentations in a broad strip across the surface of the wood and shall have its cutter-heads of such a form that by applying them to the arbor contiguously
20 side by side they become self-adjusting to their requisite positions for forming a series of contiguous ornamentations; and the object of the invention is also to render the several cutters conveniently accessible for grinding them individually; and to that end the invention consists in the novel construction and combination of parts hereinafter described, and specifically set forth in the claims.

30 In the annexed drawings, Figure 1 is a face view of a series of my improved cutter-heads mounted on the arbor of the planer. Fig. 2 is a transverse section on line *z z*, Fig. 1. Fig. 3 is an enlarged end view of one of the cutter-heads provided with a bevel-cutter. Fig. 4 is a detached plan view of said bevel-cutter. Fig. 5 is a sectional view on line *y*, Fig. 2; and Fig. 6 is a sectional view on line *x*, Fig. 2.

40 Similar letters and figures of reference indicate corresponding parts.

A represents the rotary arbor of the planer, and C and C' denote my improved cutter-heads, a plurality of which are rigidly mounted on the arbor and disposed contiguously
45 side by side. Each of said cutter-heads is formed with two arms C'' C'', to the free ends of which the cutters are attached. In order to permit said arrangement of the cutter-heads on the arbor and at the same time
50 bring the cutters of each in a path contiguous to those of the adjacent cutter-heads, the two arms C'' C'' of each cutter-head are dis-

posed diametrically opposite each other, and said cutter-head is placed in such a position on the arbor as to bring its arms intermediate
55 of those of the adjacent cutter-head, as best seen in Fig. 2 of the drawings. The arms C'' C'' are of the same width in a direction parallel with the arbor as the hub portion of the cutter-head, and the cutters which are at-
60 tached to the ends of the arms C'' C'' are of the same width as said arms. Hence by slipping the cutter-heads onto the arbor and setting them contiguously side by side they adjust themselves in their requisite positions
65 to cause the cutters of each cutter-head to form an extension of the ornamentation produced in the surfaces of the wood by the cutters of the adjacent cutter-head, as represented in Fig. 1 of the drawings. The convex
70 portions 11 of the ornamentation are formed by the cutters D D, which project from the fronts of the arms, and are provided with attaching-shanks D' D' nearly at right angles to the cutters, by which shanks the cutters
75 are seated on the sides of the arms C'' C'', facing in the direction in which the cutter-head turns, as shown in Fig. 2 of the drawings. The shanks D' D' are each provided with an eye for the reception of the bolt *b*, by
80 which the cutter is secured to the cutter-head. To sustain the cutter in the line in which it is to operate, I provide the arm C'' with screw-threaded sockets *e e* in opposite sides and with recesses *e' e'* surrounding said sockets.
85 Into these sockets I insert set-screws *s s*, the heads of which engage opposite edges of the cutter-shank and are adapted to enter said recesses, and thus afford greater range of adjustment to the screws, as clearly shown in
90 Fig. 5 of the drawings. By the employment of the single attaching-bolt *b* the attachment and detachment of the cutter D are facilitated. The alignment of said cutter is effected by the set-screws *s s*, bearing with their heads
95 against the opposite edges of the cutter-shank.

To insure sharp outlines between the sections of the ornamentation produced in the surface of the wood, I attach to the back of the arm C'' chisels or knives F F, which are
100 formed with V-shaped longitudinal edge and are each seated by one of said edges in one of the correspondingly-V-shaped grooves *a*, formed in the back of the arm C''. Upon the

attaching-shank of said cutter is placed a cap
c, provided with similar V-shaped grooves *c'*
c' for the reception of the edges of knife-
 shanks, and through this cap and into the arm
 5 *C''* is inserted a tap-bolt *c''*. Said attaching
 devices permit the knives *F F* to be readily
 removed from the cutter-head when required
 for grinding or renewing the said knives.

For forming the bevels 2 2 in the surface
 10 of the wood I attach to the sides of the cut-
 ter-head arms *C'' C''* the knives *I I*, which
 are beveled from said sides.

B B represent the cutters which form the
 ogee-part 3 of the ornamentation.

15 I form the ogee-cutter in one piece to pro-
 duce a smooth cut, and I grind the cutting-
 edge thereof in such a manner as to cause
 the deepest-cutting portion to stand back of
 the other portions of the cutting-edge and
 20 emerge last from the wood, thereby obviating
 the liability of slivering the wood. To pro-
 duce a clean sharp cut at the opposite edge
 of the cutter, I attach to said edge a knife *d'*,
 which stands with its cutting-edge at right
 25 angles to the axis of the cutter-head and is
 set into a dovetailed groove *d* in the edge of
 the cutter *B*, so as to be flush therewith, as
 shown in Fig. 6 of the drawings. Said knife
 is held in the groove by the set-screw *f'*, which
 30 is inserted into a screw-threaded socket *f* in
 the side of the cutter adjacent to the groove
d. The back of the screw-head being bevel-
 ed and bearing on the beveled edge of the
 cutter crowds the said cutter laterally in the
 35 groove *d* and binds it therein, as clearly
 shown in Fig. 6 of the drawings.

In case the ornamentation to be produced
 in the wood is to have blank spaces 4 4 inter-
 spersed the spacing-collars *i i* are to be in-

terposed between the cutter-heads at said 40
 spaces.

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

1. The combination of the ogee - cutter 45
 formed in one piece and provided with the
 dovetailed groove *d* and a screw-threaded
 socket at the side of said groove, the knife *d'*,
 set into said groove, and the set-screw *f'*, in-
 50 serted in the socket and confining the knife
 in the groove, as set forth.

2. The combination of the cutter-head
 formed with the arms *C'' C''* and with the V-
 shaped grooves *a a* in opposite sides of the
 rear portion of the arms, the knives *F F*, 55
 formed with V-shaped edges and seated
 thereby in the aforesaid grooves, the cap *c*,
 provided with similar grooves *c' c'*, the bolt
c'', fastening said cap to the knives and cut-
 60 ter-head, and the cutters *D D*, projecting
 from the front of the arms, substantially as
 described and shown.

3. The combination, with the cutter-head *C*,
 formed with the arm *C''*, of the main cutter
D, formed with the shank *D'* and secured 65
 thereat to the front of said arm, and the sup-
 plemental cutter *I*, attached to the side of
 the arm *C''* and having its cutting-edge in-
 clined outward from the line of cutting of
 the aforesaid main cutter, substantially as 70
 described and shown.

In testimony whereof I have hereunto
 signed my name this 24th day of March, 1891.

CHARLES E. ZIMMERMANN. [L. s.]

Witnesses:

MARK W. DEWEY,
 C. L. BENDIXON.