

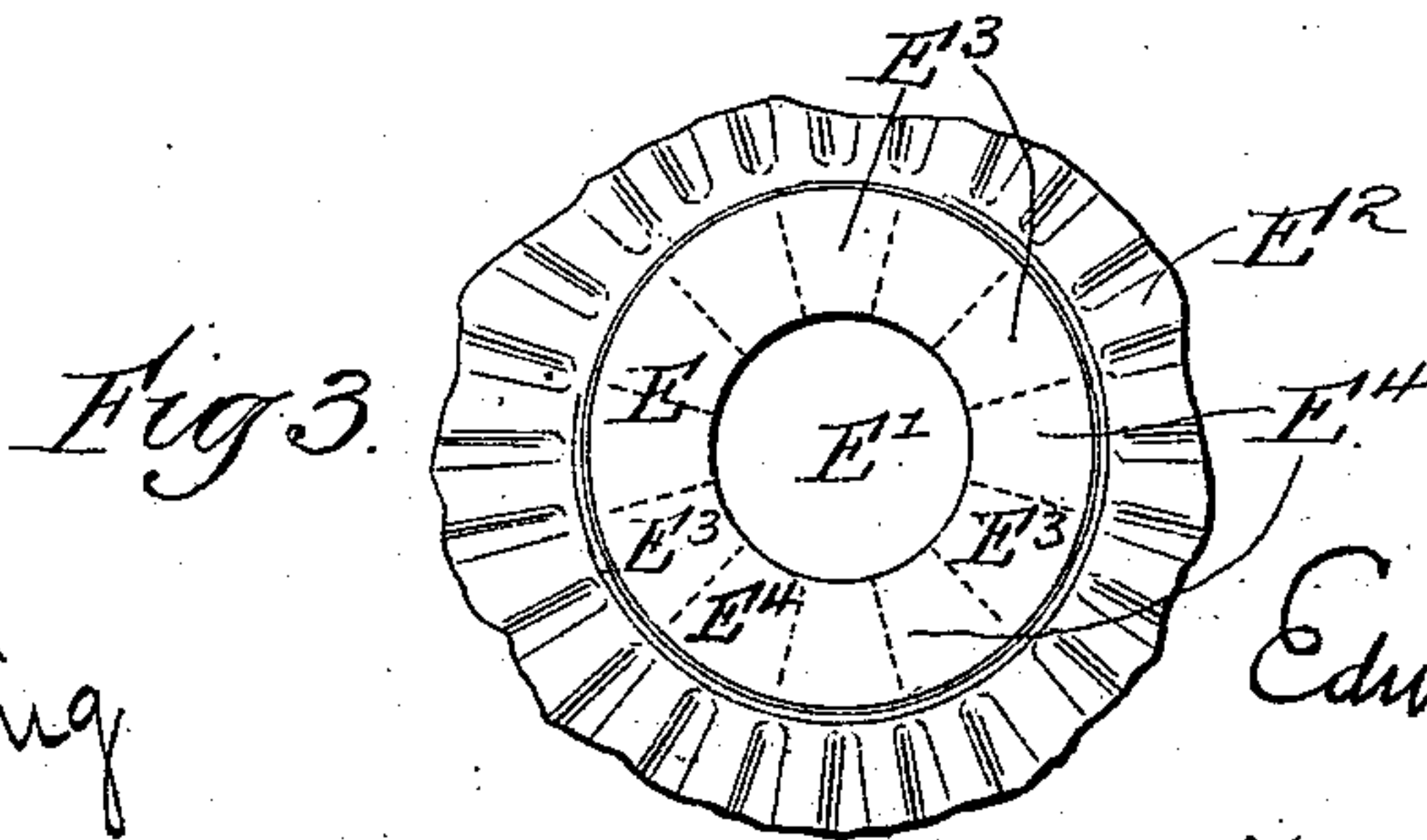
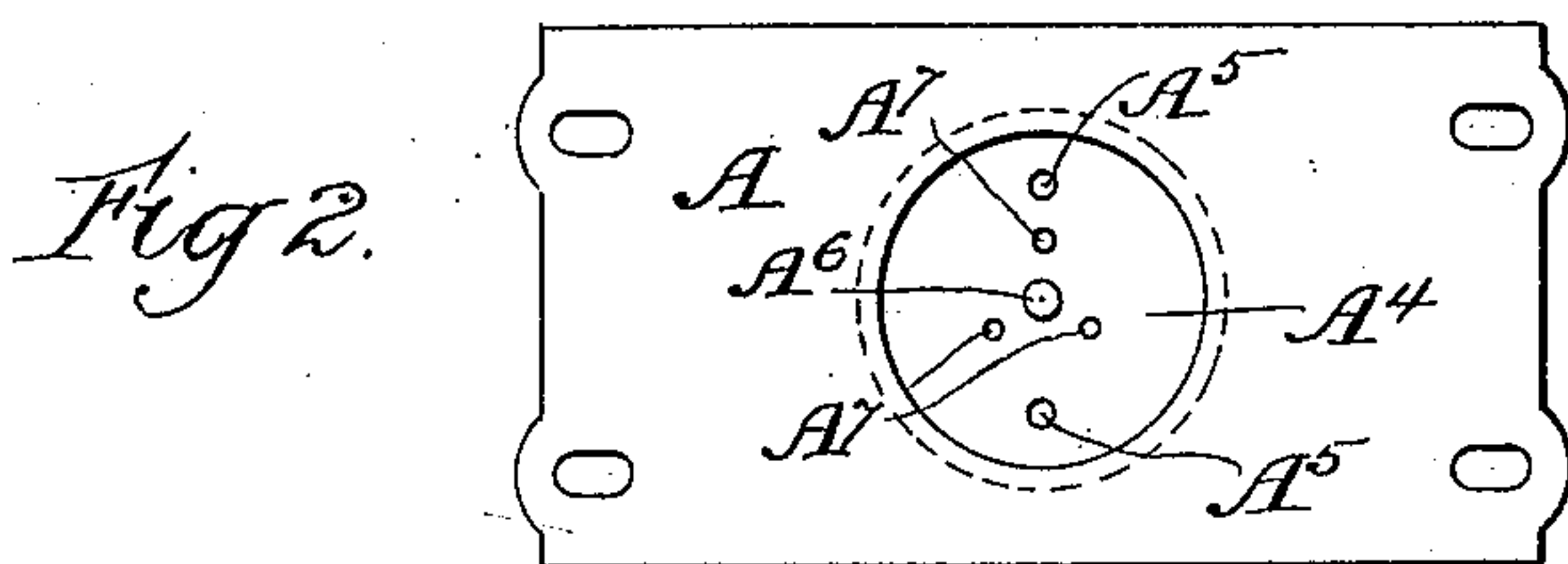
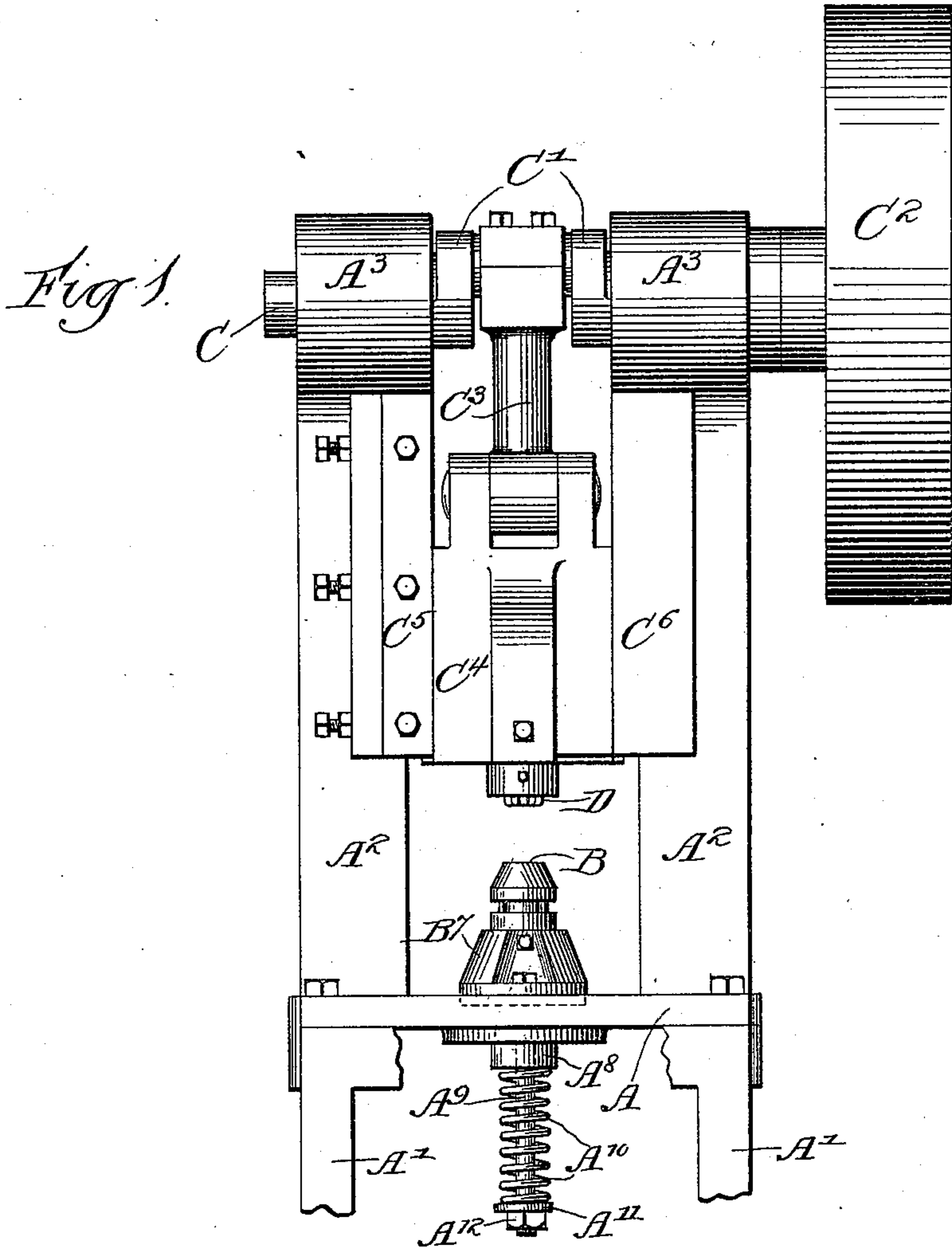
(No Model.)

2 Sheets—Sheet 1.

E. D. COOKE.
SHADE FORMING AND CUTTING DIE.

No. 512,684.

Patented Jan. 16, 1894.



Witnesses
Wm. L. Huming
Jm. M. Rheem:

Inventor
Edward Dean Cooke
by Francis W. Parker, Atty

(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

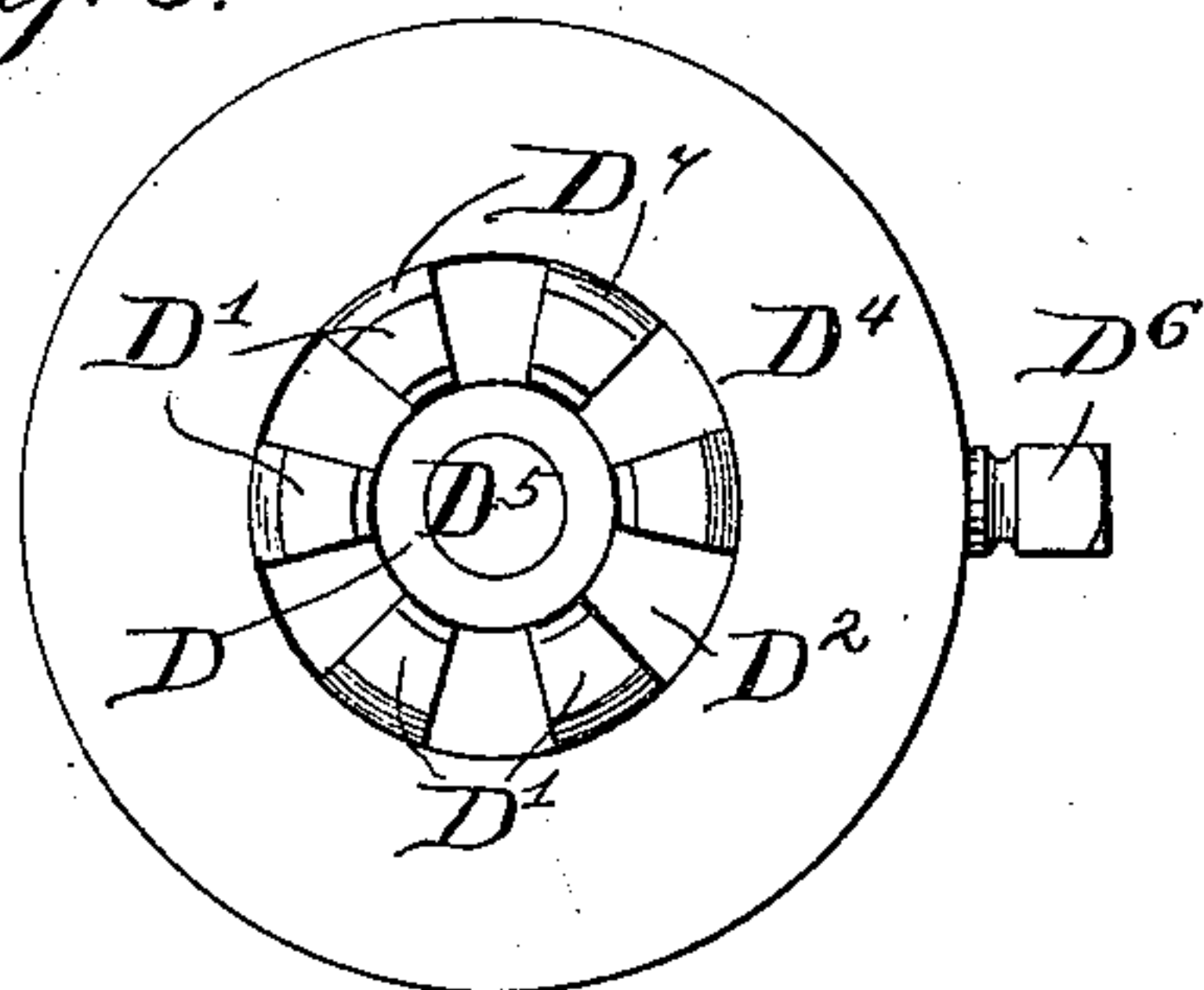


Fig. 4.

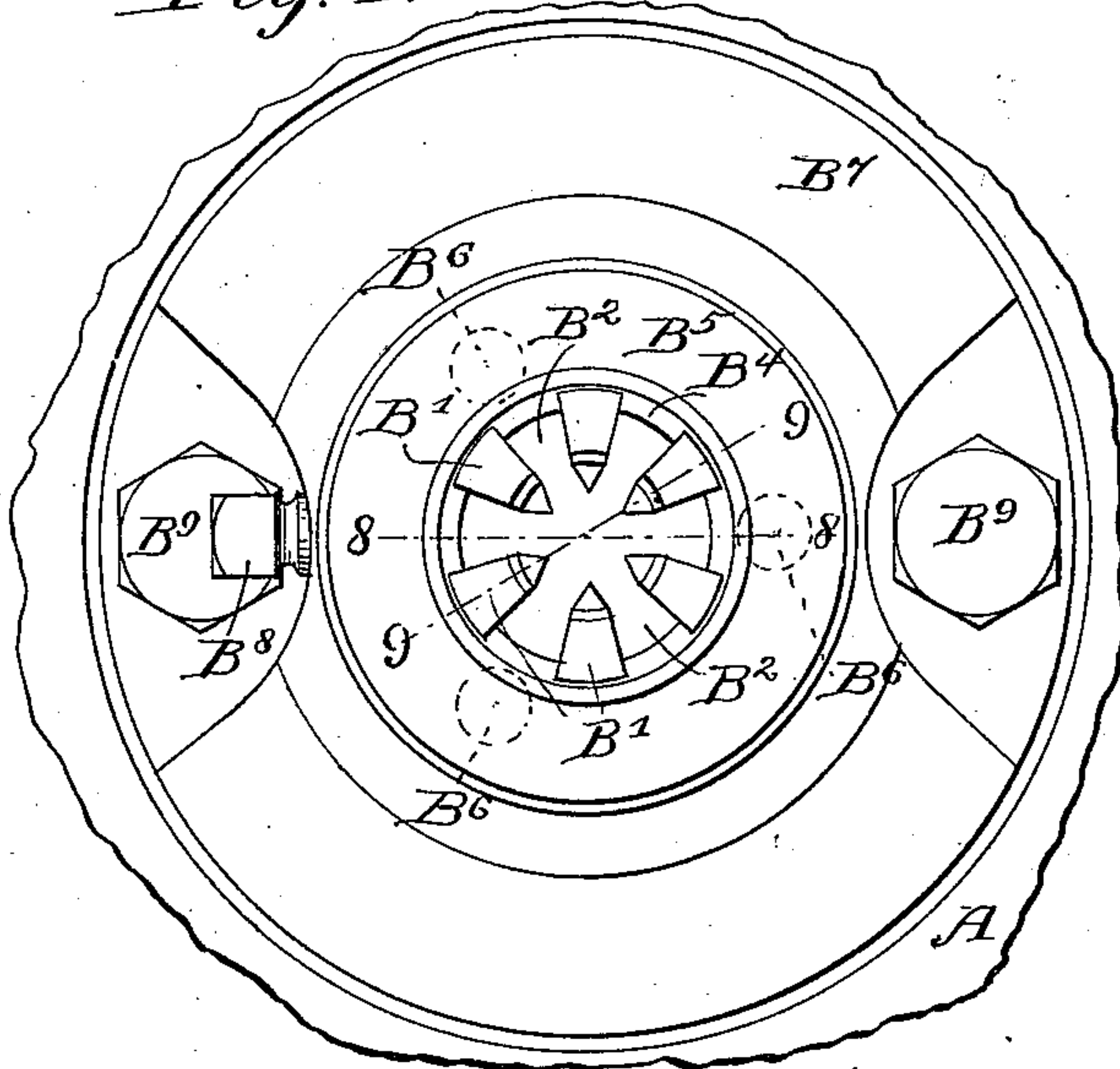


Fig. 7.

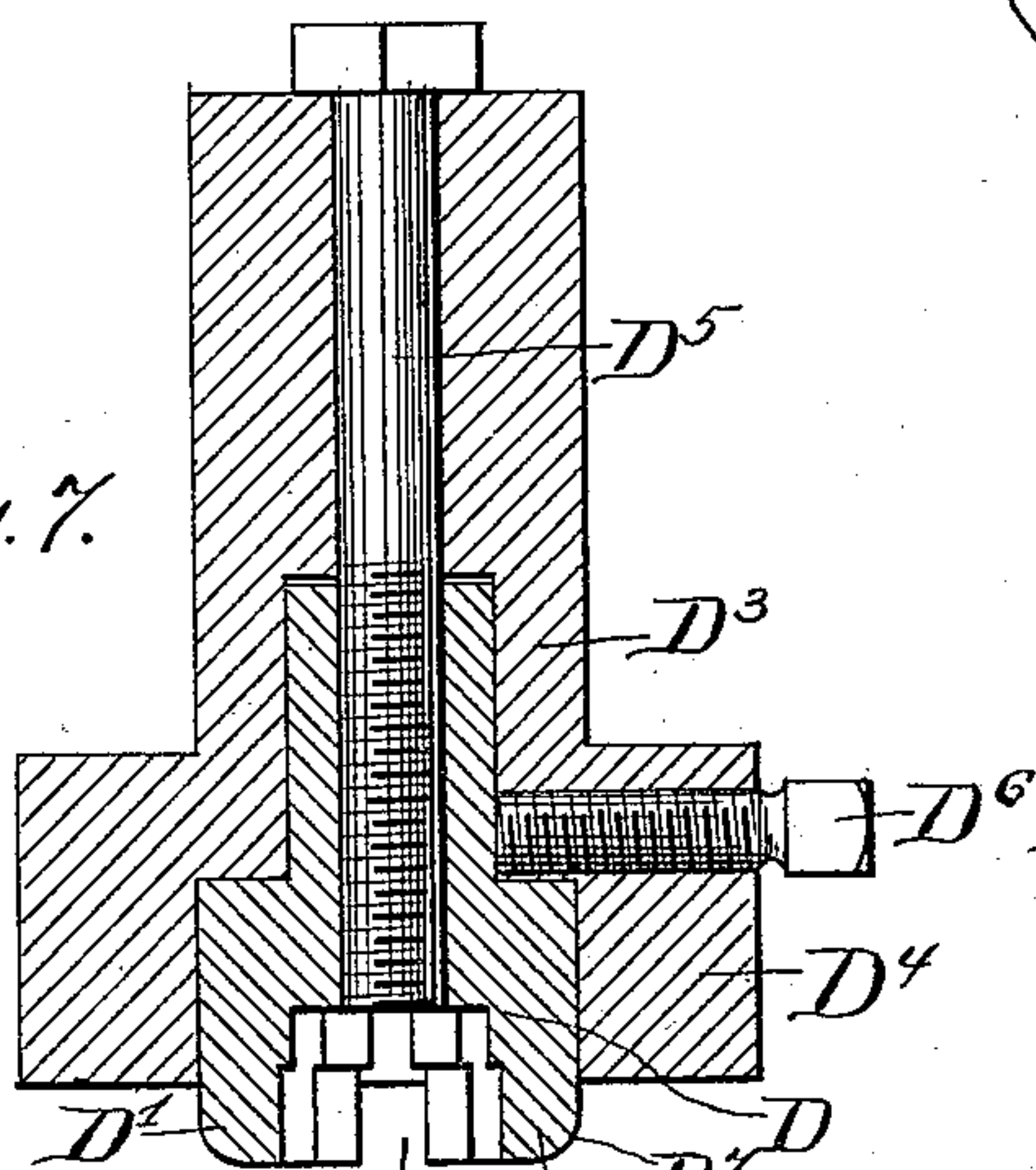


Fig. 5.

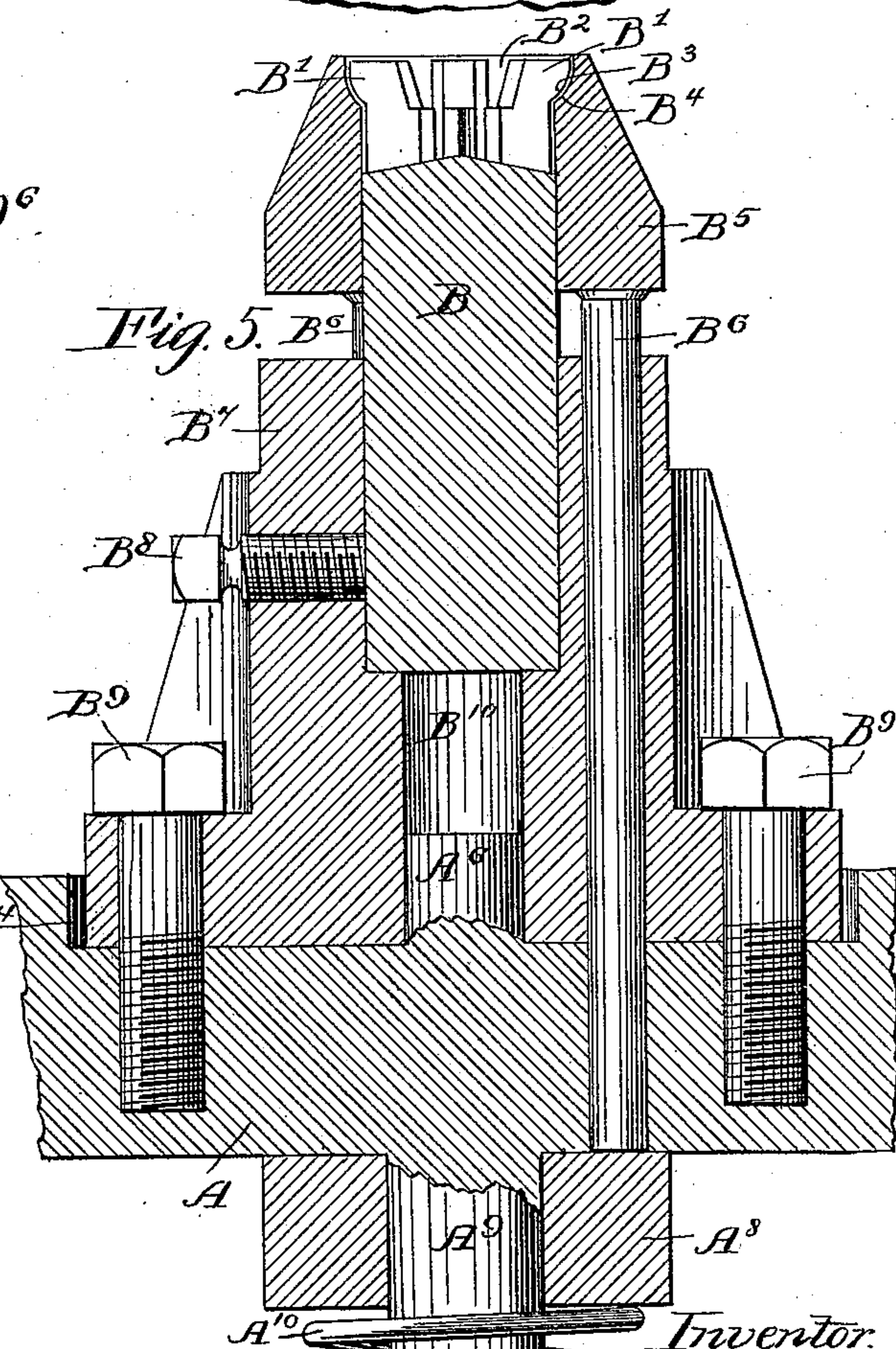


Fig. 8.

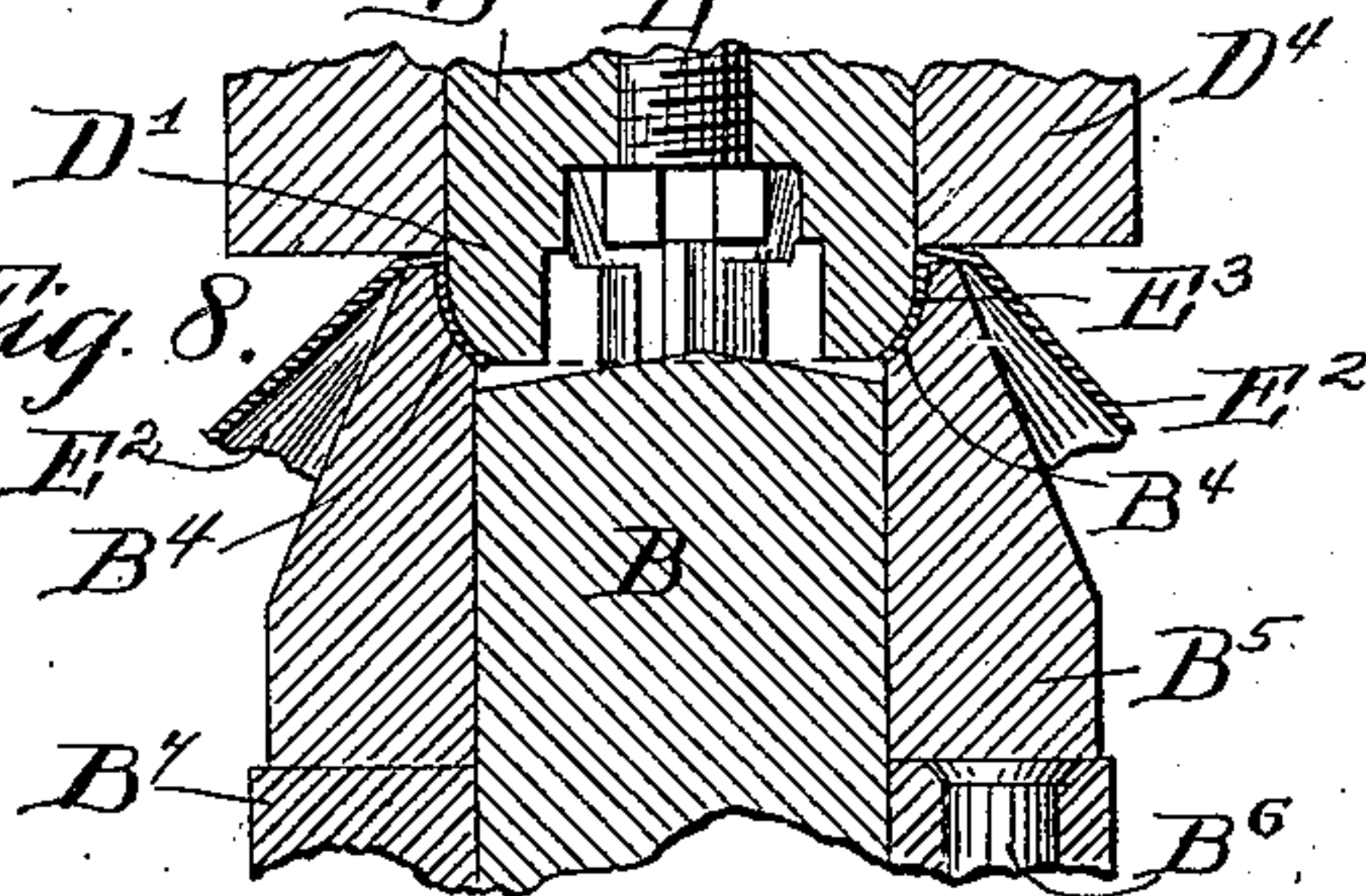
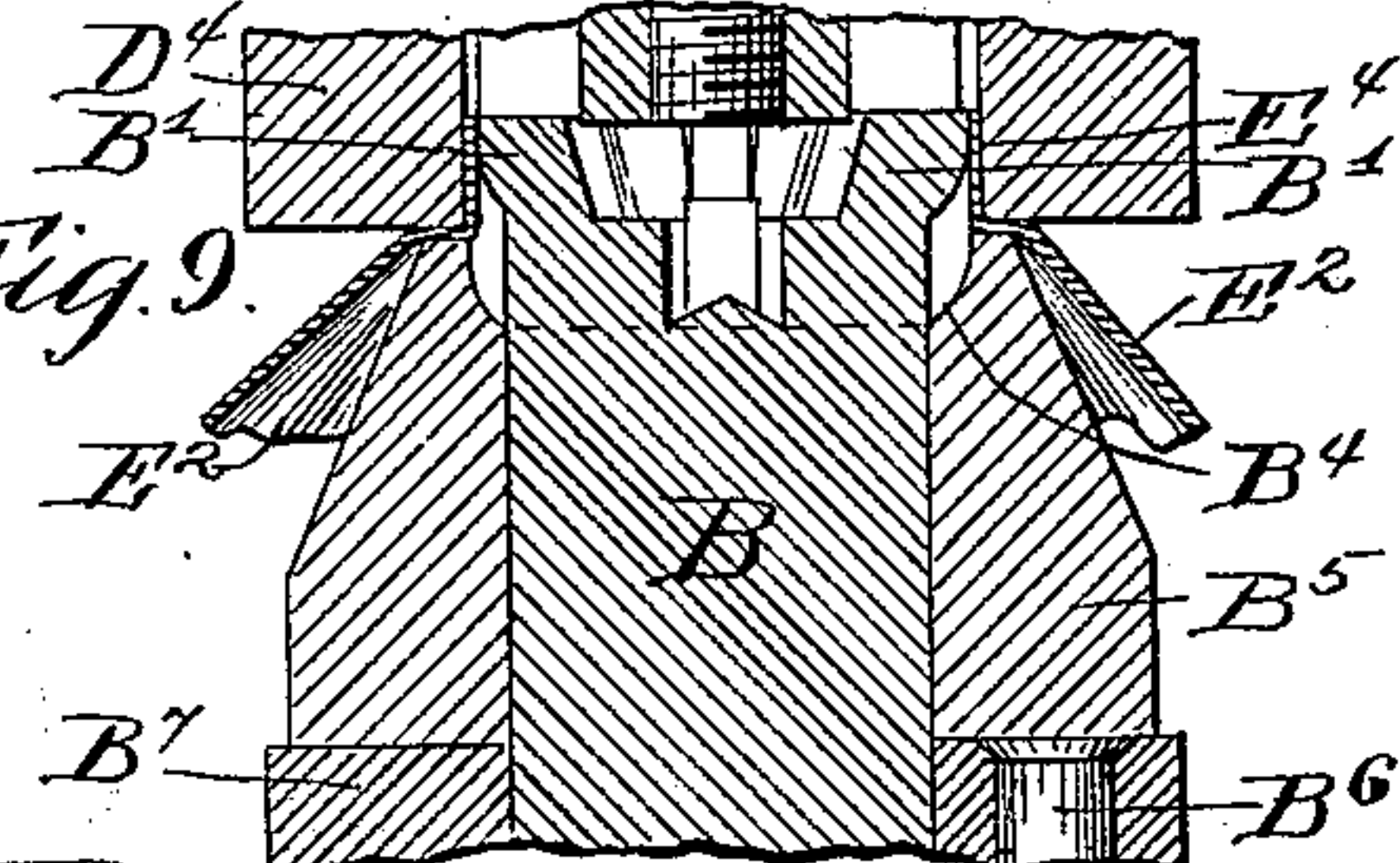


Fig. 9.



Witnesses
Chas. W. Parker.
H. N. Low

Inventor.
Edw. Dean Cooke
per J. S. Barker, Atty.

UNITED STATES PATENT OFFICE.

EDWARD DEAN COOKE, OF CHICAGO, ILLINOIS.

SHADE FORMING AND CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 512,684, dated January 16, 1894.

Application filed June 14, 1893. Serial No. 477,615. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DEAN COOKE, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Shade Forming and Cutting Dies, of which the following is a specification.

My invention relates to forming and cutting dies and has for its object the production of dies for cutting and forming shades for electric lamps.

Referring to the accompanying drawings,—Figure 1 is a machine with the dies attached. Fig. 2 is the bolster plate upon which the lower die rests. Fig. 3 is the part of the lamp shade to be acted upon by the die. Fig. 4 is a plan view of lower die. Fig. 5 is a vertical section through the center of same. Fig. 6 is a plan view of the upper die. Fig. 7 is a vertical section through center of same. Fig. 8 is a section on line 8, 8, Fig. 4, when the two dies are in engagement and the shade in position between them. Fig. 9 is a section on line 9, 9, Fig. 4, under the same conditions.

Like letters represent like parts throughout.

A plate A upon which the lower die piece B rests is supported by the legs A', A'. These legs also support the upright pieces or standards A² A², which are provided at their upper ends with the bearings A³, A³, for the crank shaft C. Said crank shaft is provided with the double crank C', and the pulley C². A connecting rod C³ is journaled at one end to the double crank C', and at the other end to the cross-head C⁴, working between the guides C⁵, C⁶. This cross-head C⁴ carries the upper die D. This die is shaped as shown in Figs. 6 and 7. The die proper, D, is provided with the teeth D', and spaces D², and is inserted within the metal piece D³ which is turned down so as to form the collar D⁴. A threaded bolt D⁵ passes through the metal piece D³ and the die D, being screw-threaded into the latter, to hold it in place. A set screw D⁶ also helps to hold the die D in place. The teeth D' are provided with die-rounded edges D⁷.

The lower die B is shown in detail in Figs. 4 and 5, and is provided with the teeth B' and spaces B² similar to the upper die D. The teeth B' are rounded at the lower outside parts B³, said rounded part being opposed to a corresponding rounded surface B⁴ in the

sliding sleeve B⁵, which rests upon the three reciprocating rods B⁶.

The die B is held in the metal piece B⁷ by the set screws B⁸. The metal piece B⁷ fits into a circular opening A⁴ in the top of the plate A, and is held in place by the screws B⁹, B⁹, which are screwed into the holes A⁵ in the plate A. The part A⁶ of the plate A fits into a hole B¹⁰ in the metal piece B⁷ and prevents any lateral motion of said metal piece. The lower ends of the rods, B⁶, pass through holes A⁷ in the plate A, and rest upon the washer A⁸ on the rod A⁹. Said rod is rigidly attached to the plate A, and is provided with a coil spring A¹⁰, the upper end of which bears against the washer A⁸ and the lower end against the washer A¹¹, said washer being held in place by the nut A¹².

Fig. 3 represents a central portion of a lamp-shade, ready to be acted upon by the forming die. (This shade is the subject of a separate application.)

E represents a flat central portion of the shade upon which the die acts, having the circular portion E' stamped out.

E² represents the crimped drooping portion of the shade or the shade proper,—only a small portion being shown. E³ and E⁴ represents the portion of the shade to be cut and shaped.

The particular form, construction and arrangement of these several details may be altered or varied without departing from the spirit of my invention, and therefore I do not wish to be limited to the precise arrangement shown.

The use and operation of my invention are as follows:—The lamp shade E² after being formed as shown in Fig. 3 is placed between the two dies B and D. (See Figs. 8 and 9.) The crank shaft C is caused to revolve in some suitable manner say, by a belt on the pulley C². This lowers the cross-head C⁴, (see Fig. 1) and brings the two dies together. The teeth D' of the upper die D are forced between the teeth of the lower die B cutting the metal of the shade along the dotted lines (Fig. 3) and forcing the portions E³ downward. The portions E⁴ are forced upward by the teeth B' of the die B. The collar D⁴ of the upper die D strikes the sliding sleeve B⁵ forcing it downward against the tension of the spring

A¹⁰, until said sleeve strikes the metal piece B⁷. In this position the portions E³, E³ of the shade are pressed between the rounded edges D⁷ of the teeth of the die D, and the rounded surface B⁴ of the sliding sleeve B⁵, and are given the inwardly curved shape shown in Fig. 8. The portions E⁴ are left straight as shown in Fig. 9 and spring slightly outward after being released from the die. As the shaft C turns farther the die D is raised, until it is disengaged from the die B. The spring A¹⁰ forces the sliding sleeve B⁵, upward to the position shown in Fig. 5, when the completed shade is removed, another shade inserted, and the process repeated.

I claim—

1. In a shade-forming and cutting die, the combination of the two portions of the die, provided with interlocking fingers or teeth, with operating mechanism which forces the dies together, and causes the teeth to interlock and move along each other so that the intervening metal is cut, and its cut portions bent in opposite directions, and a sliding sleeve on the outside of one portion of the die, for the purpose of forming and bending the metal portions bent toward it, and freeing the device from the die.

2. In a stamping and shaping apparatus, the combination of the two dies provided with interlocking teeth or fingers, the teeth or fingers of one die being rounded, as at D⁷, mechanism for forcing the dies together, a sliding sleeve surrounding one of the dies and hav-

ing the rounded surface, D⁴, opposite to which the rounded surfaces, D⁷, of the die come and with which they co-operate to shape the portions of metal bent by the dies, substantially as set forth.

3. The combination of the two portions of the die provided with the interlocking fingers or teeth, operating mechanism which forces the dies together and causes the teeth to interlock and move along each other so that the intervening metal is bent in opposite directions, a sliding sleeve outside of one of the die portions for the purpose of bending the metal portions bent toward it, and the spring upon which the said sleeve is supported, substantially as set forth.

4. The combination of the upper die provided with the cutting and shaping teeth, the collar into which the upper die is inserted and secured, the lower die provided with the cutting and shaping teeth, the teeth of the said dies being adapted to interlock when the dies are brought together, the sliding sleeve surrounding the lower die and co-operating with the upper die to shape the metal portions bent toward it, and into engagement with which sleeve the said collar comes before the said dies have been completely forced together, and the yielding support for the said sleeve, substantially as set forth.

EDWARD DEAN COOKE.

Witnesses:

WALTER J. GUNTHERP,
D. M. CARTER.