

(No Model.)

J. N. SKINNER.  
DRILL CHUCK.

No. 454,074.

Patented June 16, 1891.

Fig. 1.

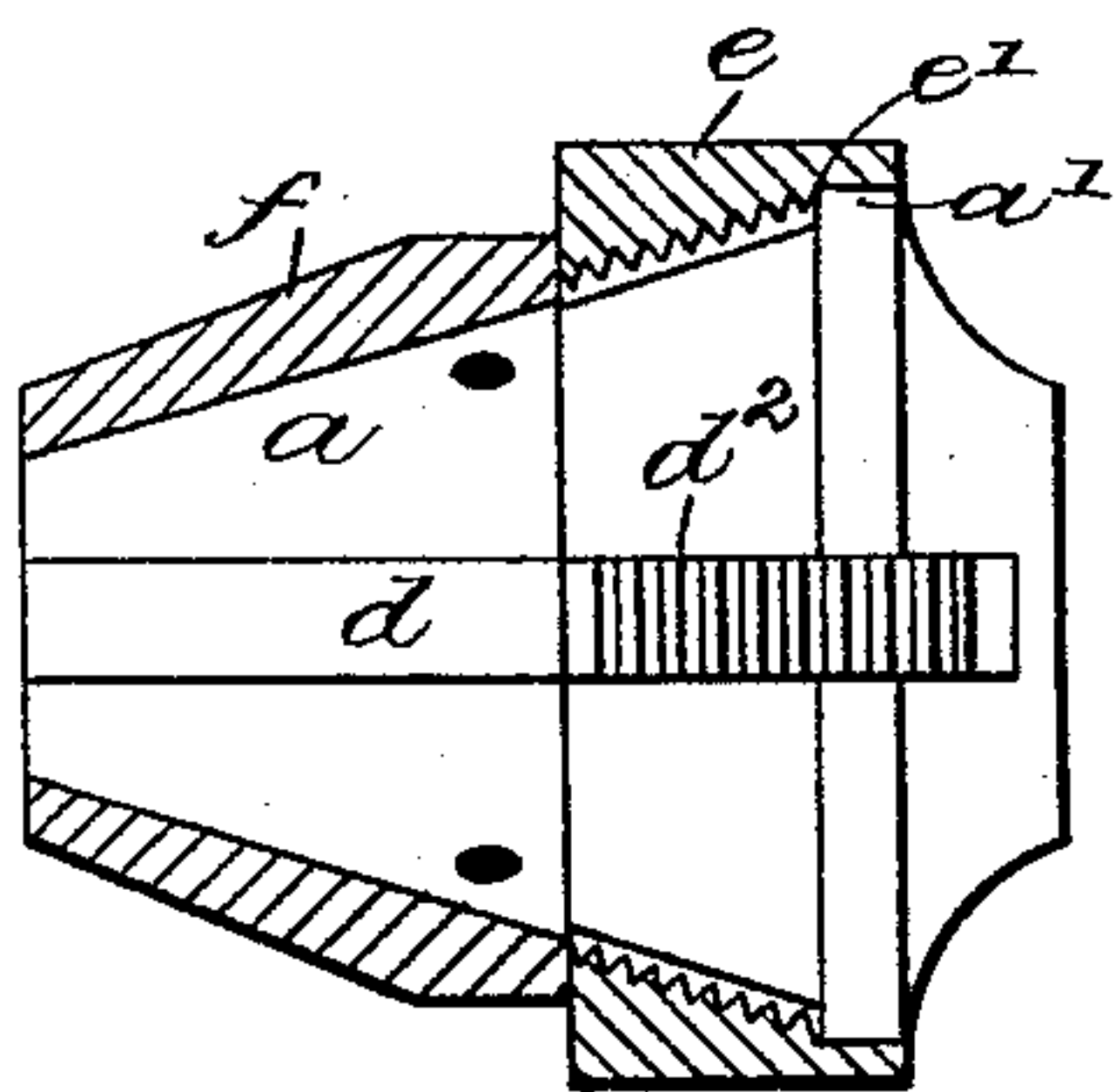


Fig. 2.

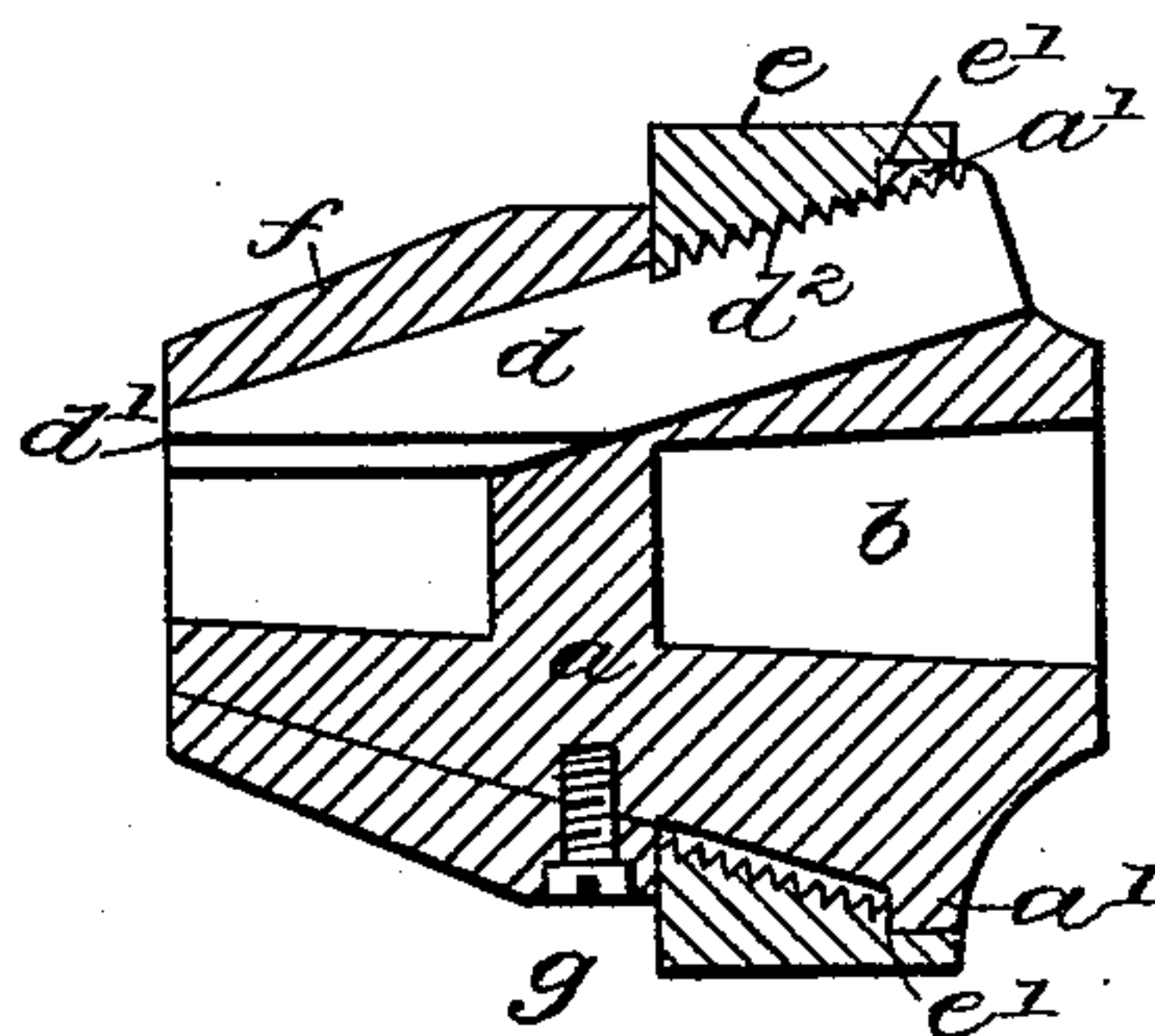


Fig. 4.

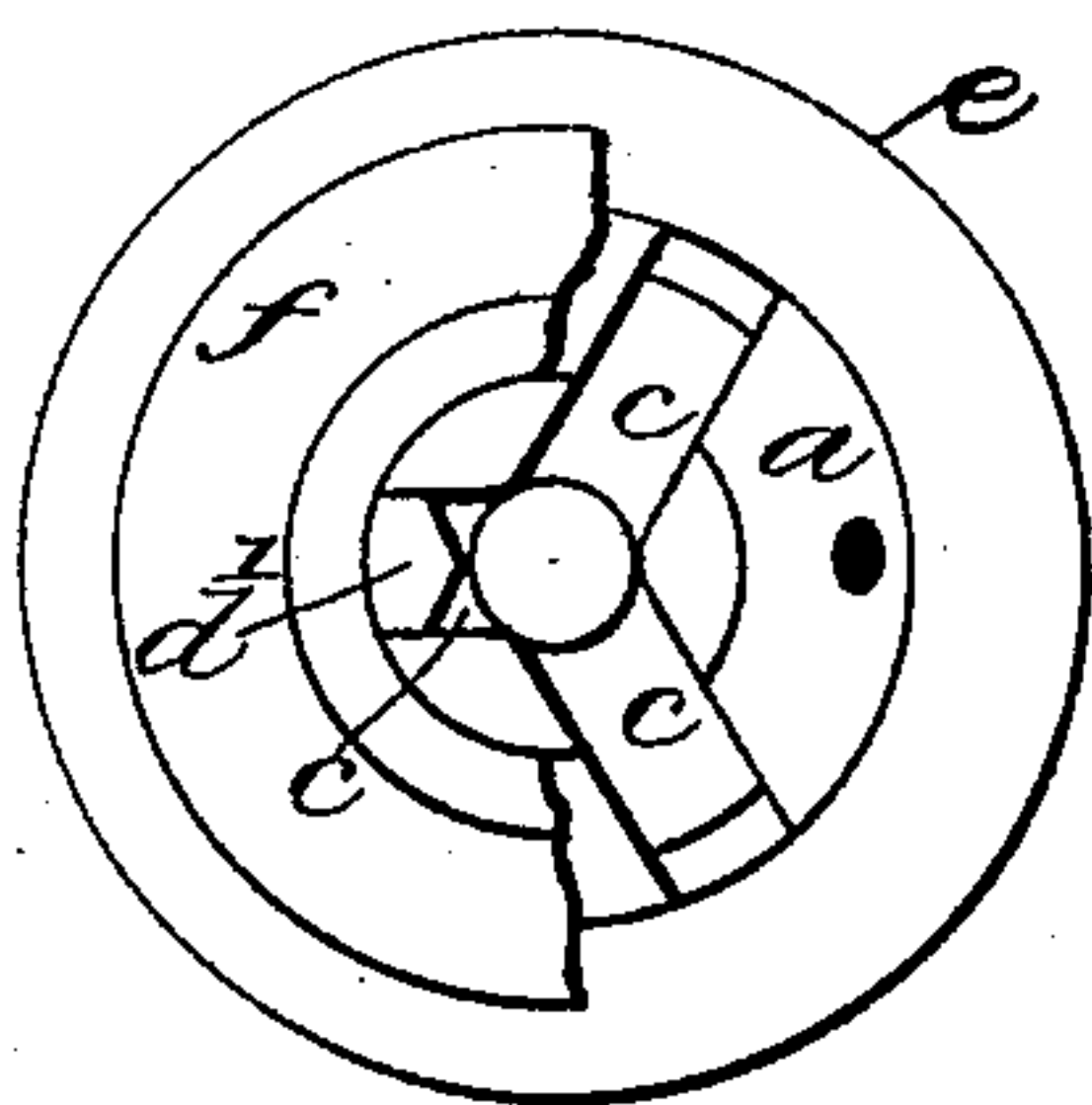
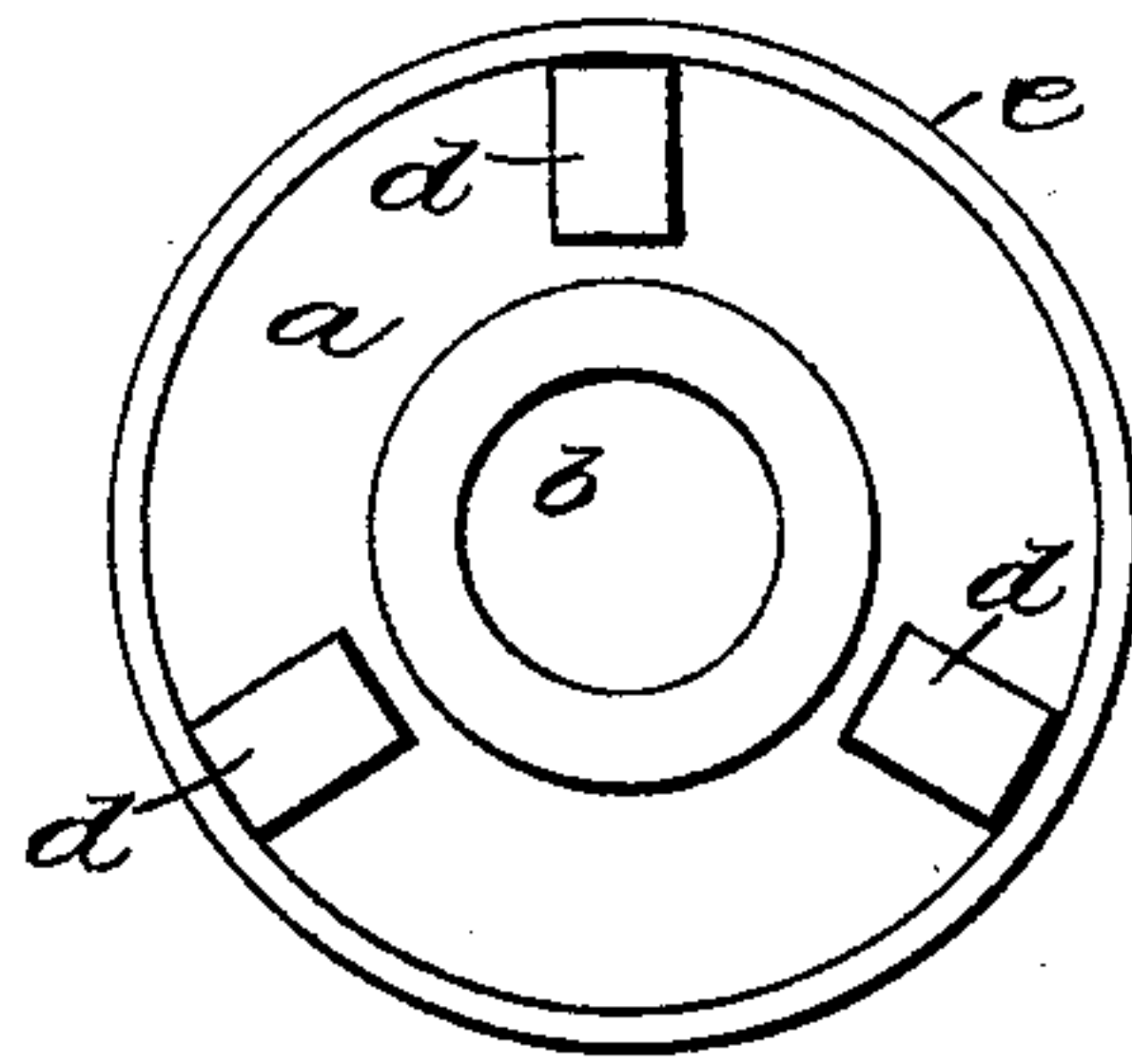


Fig. 3.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## DRILL-CHUCK.

SPECIFICATION forming part of Letters Patent No. 454,074, dated June 16, 1891.

Application filed April 13, 1891. Serial No. 388,712. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES N. SKINNER, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Drill-Chucks, of which the following is a full, clear, and exact description, whereby anyone skilled in the art can make and use the same.

The object of my invention is to provide a drill-chuck that shall be composed of the fewest number of parts, simple in construction, positive in operation, and durable; and to this end my invention consists in details of the several parts making up the drill-chuck as a whole and in their combination, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a detail side view of the drill-chuck with parts cut away to show construction. Fig. 2 is a detail view in lengthwise section of the chuck-body, showing a holding-jaw in side view. Fig. 3 is a detail rear view of the chuck-body. Fig. 4 is a detail front view of the chuck with parts cut away to show construction.

In the accompanying drawings, the letter *a* denotes the body of the drill-chuck, that is made of a solid piece of metal, preferably of steel, is cylindrical in outline in cross-section, and shaped as to the front part like the frustum of a cone. In the center of this body part and opening to the rear is a spindle-socket *b*, that is preferably tapered, so as to be readily secured to the tapered end of a drill-spindle. In this body part there are formed a number of lengthwise slots that open into each other at the front end and form jaw-sockets *c*. In each of these sockets is arranged a jaw *d*, composed of a piece of metal, preferably oblong in cross-section and tapered at *d'* and brought to a central biting-edge by beveling off the edges. The angle of this inclination is substantially the same as the angle made by the bottom of the jaw-socket with the axis of the drill. These jaws are so arranged that when moved outward in their sockets they move also toward each other and by this motion are clamped upon any object, as the shank of a drill, that may have been introduced between the jaws.

At the rear end the outer edge of each jaw

is provided with a thread *d<sup>2</sup>*, that is arranged to fit the thread cut within the sleeve *e*. This sleeve consists of an annular piece of metal having a shoulder *e'*, that fits against the shoulder *a'*, formed at the base of the cone, and on the inner side of the sleeve the annular surface has a thread cut to fit the thread on the sloping outer edge of each jaw. The body part of the chuck is cut away for a distance about equal to the length of the threaded part of each jaw, so as to permit the threaded portion of the sleeve to be brought into contact with the thread of the jaw, so that the parts will engage. This sleeve is held in place on the chuck-body by the cap *f*, that is tapered on the inside to fit snugly upon the outer surface of the conical end of the chuck-body, the end of the cap fitting against the front edge of the sleeve. The cap is held in place by screws *g*, that pass through the sleeve into threaded sockets in the chuck-body.

Each jaw is oblong in cross-section and fits snugly within the channel, forming a jaw-socket in such manner as to prevent the jaw from wearing through, and by this means the biting-edge of the jaw at its forward end is kept always turned toward the axial center of the chuck and affords a firm grasp upon the shank of a drill.

This improved drill-chuck is extremely strong in construction, simple and few as to the number of parts, and is certain and direct in its operation. When the parts are assembled as described, the jaws are operated by rotating the sleeve while holding the body against rotary movement.

I claim as my invention—

1. In combination with the chuck-body having a spindle-socket, a tapered front part with a shoulder at the base of the tapered portion, a plural number of jaw-sockets having the bottom wall inclined to the axis of the chuck-body, the reciprocating chuck-jaws oblong in cross-section and fitting the jaw-sockets and each provided with an outward-turned threaded portion at the inner end, the rotary threaded sleeve located between the shoulder on the chuck and the inner end of the cap, and the cap secured to the chuck-body, all substantially as described.

2. In combination in a drill-chuck, a chuck-



body formed in one piece and having a plural number of jaw-sockets inclined to the axis of the drill and opening into a common central space at the front end of the chuck, the chuck-  
5 jaws fitting the jaw-sockets and having the grasping-faces located parallel to the axis of the drill, a threaded portion near the rear end of the jaw, a rotary sleeve borne on the chuck-body and having the threaded por-  
tion engaging the threaded portion of the jaws, and the cap covering the periphery of the chuck-body in front of the sleeve and secured to said body, as by means of screws, all substantially as described.

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Witnesses:

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